TRAFFIC IMPACT ANALYSIS

FOR THE

LOWER DEER CREEK
FLOOD AND ECOSYSTEM IMPROVEMENT PROJECT
PHASE 1

Tehama County, California

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INTRODUCTION

Project Description. This report documents **KD Anderson & Associates'** analysis of the traffic impacts associated with implementing the **Lower Deer Creek Flood and Ecosystem Improvement Project, Phase 1**. The proposed project envisions improvements to levees, dam and bridge facilities along an 8± mile long portion of Lower Deer Creek in the general area of the Tehama County community of Vina. Regional access to the project site would be via State Route 99 and South Avenue, and Figure 1 locates the general project limits. Figure 2 presents the locations of work anticipated with the project.

The project will involve activities that will generate automobile and construction truck traffic using state highways and Tehama County roads. Local access to various construction staging / stockpile areas is anticipated, as noted schematically in Figure 3. One project component involves removal of existing material along Lower Deer Creek, and either making use of this material for levee repairs within the project area or transporting excavated materials to regional landfills. The project also involves importing materials for levee, bridge and dam construction.

The preliminary project description identifies up to roughly 895,000 cu yds of excavated material, 108,000 cu yds of fill material and 1,700 cu yards of rock fill handled over a 240 day construction period. Five (5) project alternatives involving progressively less material haul have been assessed.

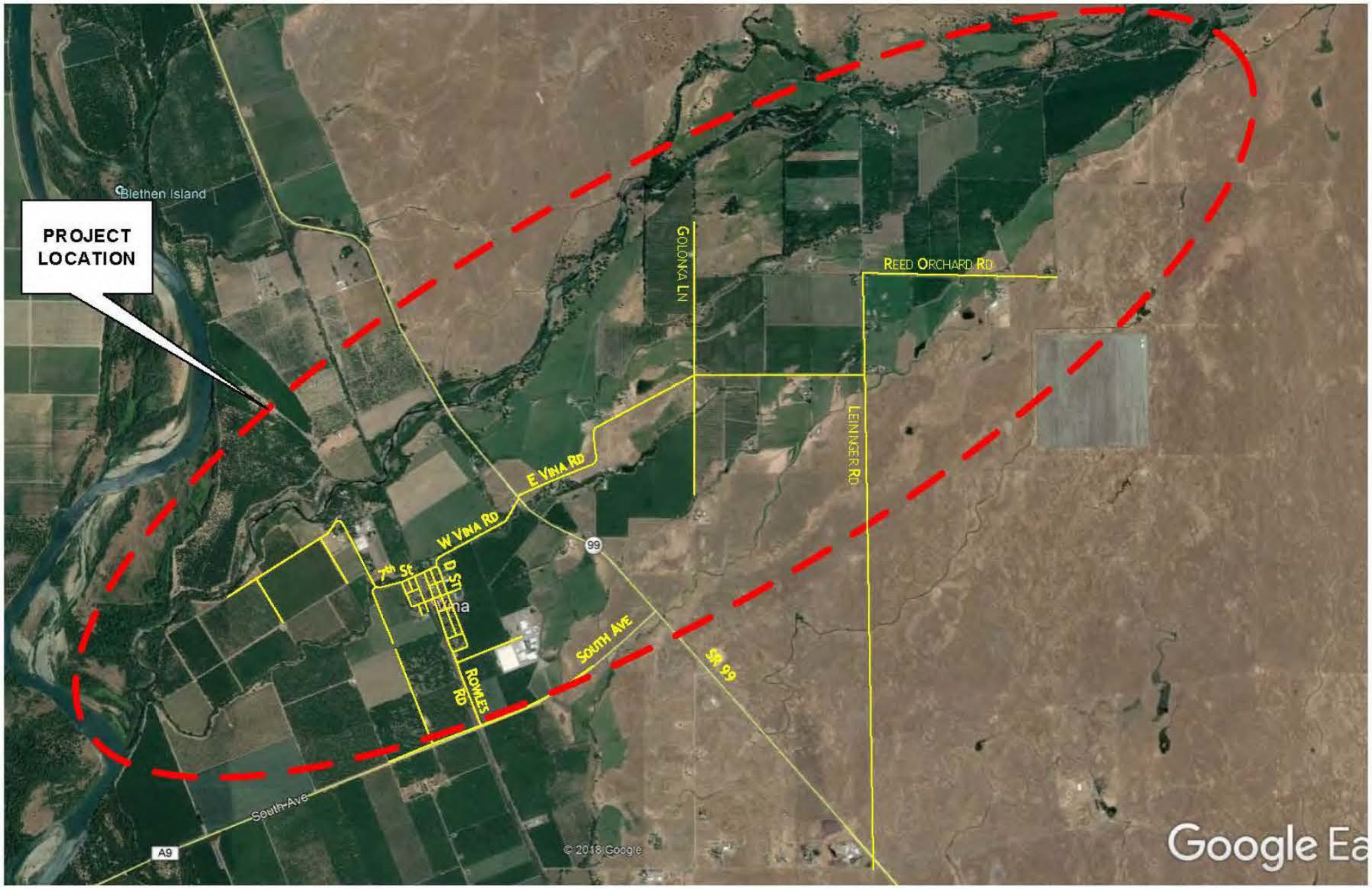
Scope of Analysis. This transportation analysis is intended to describe the transportation impacts of project construction and address mitigation requirements for roadways and intersections in the vicinity of the project. The effects of the project have been considered based on the criteria under current CEQA guidelines relating to regional Vehicle Miles Traveled (VMT), alternative transportation modes and safety. Safety has been evaluated within the context of a traffic operational analysis that considered weekday peak hour traffic conditions that would cover a construction season that may occur in 2024. Because the project construction is temporary and will no longer generate traffic after its completion long term cumulative effects have not been addressed.

The traffic operational analysis considers three (3) scenarios:

1. Existing Year 2019 traffic conditions (Pre-COVID 19).
2. Background Year 2024 (construction year) traffic conditions without the project.
3. Year 2024 conditions with the project.

Toward this end, existing traffic conditions have been evaluated through observation of current weekday a.m. and p.m. peak hour and daily traffic volumes, and current operating Levels of Service have been calculated at key intersections on the roads that will be used to access the site. Traffic volumes observed in January 2019 have been modified to reflect background conditions in 2024 when the project could be constructed. To assess project effects, probable project automobile and truck trip generation has been estimated based on the anticipated construction haul, length of construction season and length of construction day. The volume of traffic occurring during peak hours has been identified, and truck traffic has been converted to Passenger Car Equivalents (PCE"s). Utilizing the project's expected trip distribution, trucks carrying materials transported to and from the site and employee trips were assigned to the study area street system based on recognizable least time travel paths. Resulting "Year 2024 (Construction Year) Plus Project PCE's" traffic volumes were employed to calculate Levels of Service to determine the anticipated effects of proposed development on background traffic conditions. Improvements and operation strategies needed to reduce project effects to a level that is consistent with Tehama County General Plan policies or to reduce impacts under CEQA to a less than significant level were identified. Applicable measures addressed the safety and structural impact of project trucks on Tehama County roads and considered the adequacy of truck access onto State Route 99.

Figure 1 VICINITY MAP



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VICINITY MAP

figure 1

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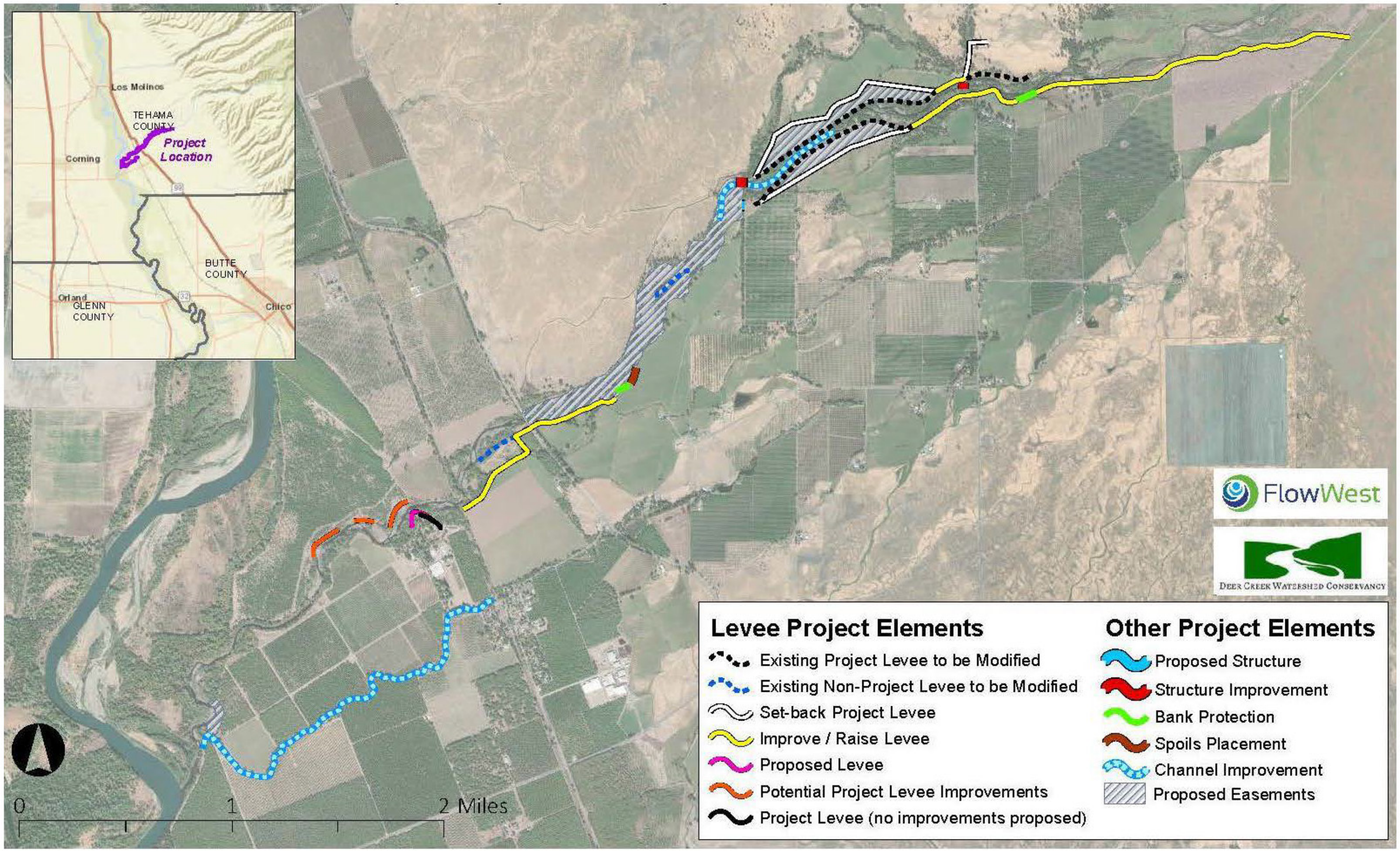
Figure 2 Lower Deer Creek Flood and Ecosystem Improvement Project Site Plan



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LOWER DEER CREEK FLOOD
AND ECOSYSTEM IMPROVEMENT PROJECT SITE PLAN

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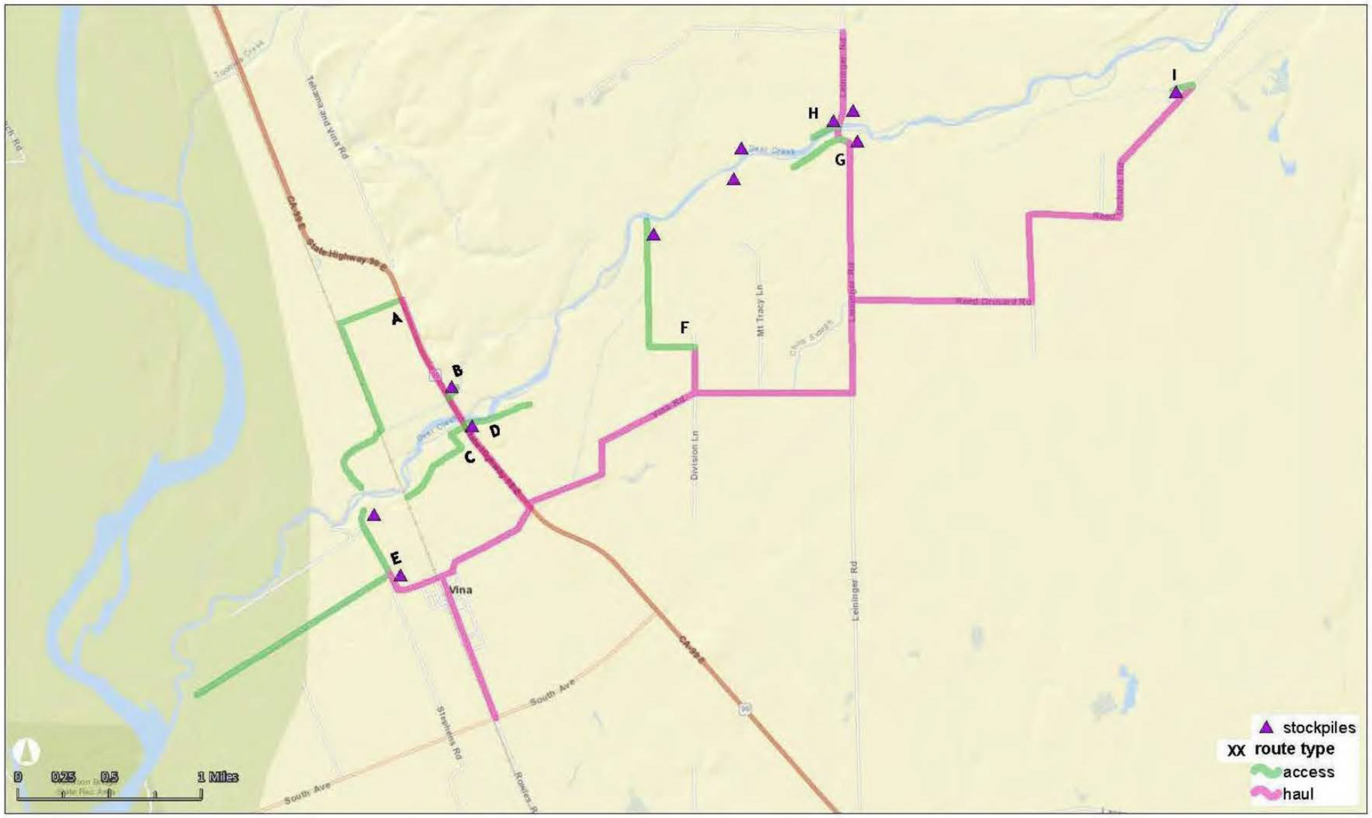
figure 2

Figure 3 Draft Haul Routes and Stockpiles



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DRAFT HAUL ROUTES AND STOCKPILES

figure 3

EXISTING PHYSICAL SETTING

Physical Features -Systems

Existing Roadways. The project would be constructed at a location adjoining State Route 99 (SR 99), and both regional and direct access to the site is provided by SR 99. SR 99 links the facility with Red Bluff to the north and with the Chico area to the south. South Avenue intersects SR 99 roughly 0.4 miles south of the project site and connects the project area with Interstate 5 in Corning.

State Route 99 (SR 99). State Route 99 is an important north-south route in Tehama County and links the county to Tehama County to the north and Butte County to the south. SR 99 is part of the Inter-regional Roadway System. In the vicinity of the proposed project SR 99 is generally a two-lane highway with auxiliary left turn lanes at major intersections. A northbound passing lane exists on SR 99 south of the South Avenue intersection. The posted speed limit on SR 99 is 65 mph in the area of the project.

Caltrans provides *Annual Average Daily Traffic* (AADT) counts for SR 99, and the most recent daily traffic volumes (2019) on SR 99 are 16,400 AADT at the Butte County line, 16,800 south of South Avenue, 9,700 AADT north of South Avenue and 9,000 – 9.300 AADT through Vina. Caltrans 2019 data indicates that trucks comprise 12% of the daily traffic on SR 99 at the Butte County line, 15% north of South Avenue and 12% north of Vina.

South Avenue. South Avenue is an east-west route that links SR 99 south of the project with Interstate 5 in Corning. South Avenue is a two-lane facility classified as an arterial in the Tehama County General Plan. The posted speed limit on South Avenue is 55 mph. The General Plan Update EIR indicates that South Avenue carried 6,472 vehicles per day (vpd) in 2006, and the current volume is estimated at 8,372.

Vina Road. Vina Road is a local road that generally runs east-west in the area south of the Lower Deer Creek. Vina Road connects the unincorporated community of Vina with SR 99 and continues beyond the state highway for about two miles. Vina Elementary School is located immediately south of Vina Road on D Street. Vina Road is a two-lane road that has a pavement section that is typically about 20 feet wide, and the road is in fair to good condition with few locations justifying repair today. Traffic counts conducted for this analysis in January 2019 indicated that the daily traffic volume on Vina Road was about 563 vpd west of SR 99 and 244 vpd east of the state highway. The speed limit on Vina Road is 35 mph west of SR 99 in Vina but a prima facie 55 mph limit is in effect east of SR 99.

Rowles Road. Rowles Road is a north-south local road that extends south from the community of Vina to South Avenue before extending for about 2½ miles towards the Butte County line and an intersection on SR 99. The Vina post office is located on Rowles Road. Rowles Road is typically about 20 feet wide and is in fair to good condition. January 2019 traffic counts indicated the road carries 763 vpd between Vina Road and South Avenue. The speed limit on Rowles Road is 35 mph within the community of Vina.

7th Street. 7th Street is the westerly continuation of Vina Road through the community of Vina across the UPRR to the New Clairvaux Vineyard Winery and Abby. 7th Street is generally 18-20 feet wide and is in fair to good condition. January 2019 traffic counts indicated the road carries 158 vpd west of Rowles Road. The posted speed limit is 35 mph on 7th Street.

Golonka Lane. Golonka Lane is a north-south local street that extends northly from Vina Road (E) towards Lower Deer Creek and provides access to adjoining agricultural properties. Golonka Lane is typically 16 to 18 feet wide and the pavement is in fair condition. Traffic counts were not made on this low volume road, but the daily traffic volume is estimated to be in the range of 30 to 40 vpd based on the number of residences.

Leininger Road. Leininger Road is a north-south local street that extends northerly from Vina Road across Lower Deer Creek into rural Tehama County. The road is typically about 20 feet wide, although the Red Bridge across Lower Deer Creek accommodates travel in only one direction at a time. The road is in fair to good condition with few major deficiencies. January 2019 traffic counts indicated a daily volume of 215 vpd. The prima facie 55 mph limit is applicable to this road.

Reed Orchard Road. Reed Orchard Road is an east-west local road that extends east from an intersection on Leininger Road roughly parallel to Lower Deer Creek. Reed Orchard Road ranges in width from 16 feet to 20 feet. The condition of the road varies but the road is generally in fair condition. January 2019 traffic counts indicated the road carries 74 vpd east of Leininger Road. The 55 mph prima facie speed limit applies.

Bicycle Facilities. The *Tehama County Bikeways Plan (updated 2013)* outlines the location and nature of existing bicycle facilities in Tehama County. Bicycle facilities are categorized within three classifications:

Class I bikeways: trails or paths that are separated from automobile traffic,
Class II bikeways: bicycle lanes that are on-street but delineated by striping, and
Class III bikeways: bicycle routes where bicycles and automobiles share the road.

Today there are no designated bicycle facilities on the rural roads in the immediate vicinity of the project.

Pedestrian Facilities. In Tehama County dedicated facilities for pedestrians (i.e., sidewalks or improved trails) have been developed in urban areas as development has occurred but are not generally available in rural areas. Thus, streets in the community of Vina and other roads in the study area do not have sidewalks. The occasional pedestrians use available shoulders. However, due to the distances involved, few pedestrians use the rural roads in the vicinity of most of the project.

Existing Transit Facilities. TRAX (Tehama Rural Area eXpress) provides regional transit services to the residents of Tehama County, the cities of Corning, Red Bluff, and Tehama, and many rural communities. Transit management is the responsibility of the Transportation Division of Tehama County Public Works Department. Daily bus operations and maintenance are performed by a transit contractor. The TRAX service area includes the cities of Corning, Red Bluff and Tehama, as well as the unincorporated communities along Highway 99E and Highway 99W. TRAX operates eight fixed routes Monday through Friday, consisting of city routes in Red Bluff and Corning and regional routes providing linkage with unincorporated communities. All TRAX buses have bike racks, wheelchair lifts, and relatively short wheelbases to operate in rural areas. ADA complementary paratransit service is provided on the same vehicles as fixed route. Regional routes allow for deviation up to ¾ of a mile from the regular route, when necessary, to serve certified American with Disabilities Act (ADA) individuals. A geographic information system (GIS) analysis using census block groups found that 61% of Tehama County residents live within ¾ mile of a transit route, but no routes serve Vina.

Rail Service. Union Pacific Railroad (UP) provides passenger rail service through Tehama County but does not stop. The Union Pacific single-track main line runs parallel to Interstate 5 and carries both passengers and freight. The UP also operates a freight rail corridor that runs parallel to SR 99 and passes through the study area. Within the project area there are existing at-grade rail crossings on South Avenue and in the community of Vina at 5th Street and 7th Street. These crossings are equipped with crossing gates with arms. Two private crossings exist north of Lower Deer Creek. These crossings are not equipped with gates.

Existing Traffic Operating Conditions

Peak Hour Traffic Volumes. To assess existing traffic conditions, KD Anderson & Associates made a.m. and p.m. peak hour turning movement counts at study intersections near the project during January 2019 when area schools would have been in session. Figure 4 presents these observed peak hour traffic volumes and the existing lane configurations at each study intersection. Figure 5 identifies the number of heavy trucks included in the peak hour observations. That figure also illustrates the daily truck volume based on classifying counts and included all trucks (i.e., SU and larger).

Project Construction Date Traffic Conditions

The observed traffic volumes were adjusted to create traffic volumes that would be applicable to the probable construction period for the Lower Deer Creek project. This analysis assumes that construction occurs in the later summer / early fall, and volumes observed in January were adjusted based on Caltrans PeMS System data to reflect September conditions. This analysis assumes that the proposed project may be designed and be funded within three years. A construction year of 2024 has been assumed and an applicable annual growth rate of 5% has been identified and applied for that five year period.

Seasonal Traffic Volume Adjustment. To account for seasonal traffic variation, traffic count information was reviewed for the permanent traffic census station on SR 99 south of the South Avenue intersection at the Butte County line. While information is not available for every month, the reports of the Year 2012 included data for January and September. Comparison of the average weekday a.m. and p.m. peak hour volumes in those two months indicated that January counts could be increased by a factor of 1.13 to represent average September conditions. This adjustment was applied to all observed January traffic volumes for this analysis.

Annual Traffic Volume Growth. Recent Caltrans annual average daily traffic volume reports for SR 99 were reviewed to identify an applicable short term traffic volume growth rate that can be applied to current volumes to suggest 2024 conditions. As indicated in Table 1, the average daily volume on SR 99 at the Butte County line during the peak traffic month has grown by about 5% annually over the last four years. Applying that rate for five years suggests that current observed volumes could increase by 25% to Year 2024.

TABLE 1 STATE ROUTE 99 ANNUAL TRAFFIC VOLUME GROWTH BASED ON PEAK MONTH DAILY VOLUME

Location	2013	2014	2015	2016	2017	2019	Annual Growth Rate
State Route 99 @ Butte County / Tehama County line	12,500	12,800	13,800	14,500	15,100	16,400	5%

Adjusted Peak Hour and Daily Traffic Volumes. For this analysis the traffic volumes observed in January 2019 were factored upwards by a factor of 1.40 to account for the combined effects of seasonal variation (1.12) and for three years at short term growth (1.25) (i.e., 1.12 x 1.25 = 1.40). Resulting a.m. and p.m. peak hour volumes are presented in Figure 6. Caltrans 2019 AADT's were factored by 1.25 to Year 2024 conditions. Because historic data is not available for South Avenue, daily traffic volumes reported for South Avenue in the GP EIR were factored to Year 2024 conditions based on an annual growth rate derived from a generalized annual growth rate based on statewide growth of 1.02 (i.e., factor of 1.43). Resulting daily volumes are presented later in this report.

Figure 4 Existing January 2019 Traffic Volumes and Lane Configurations

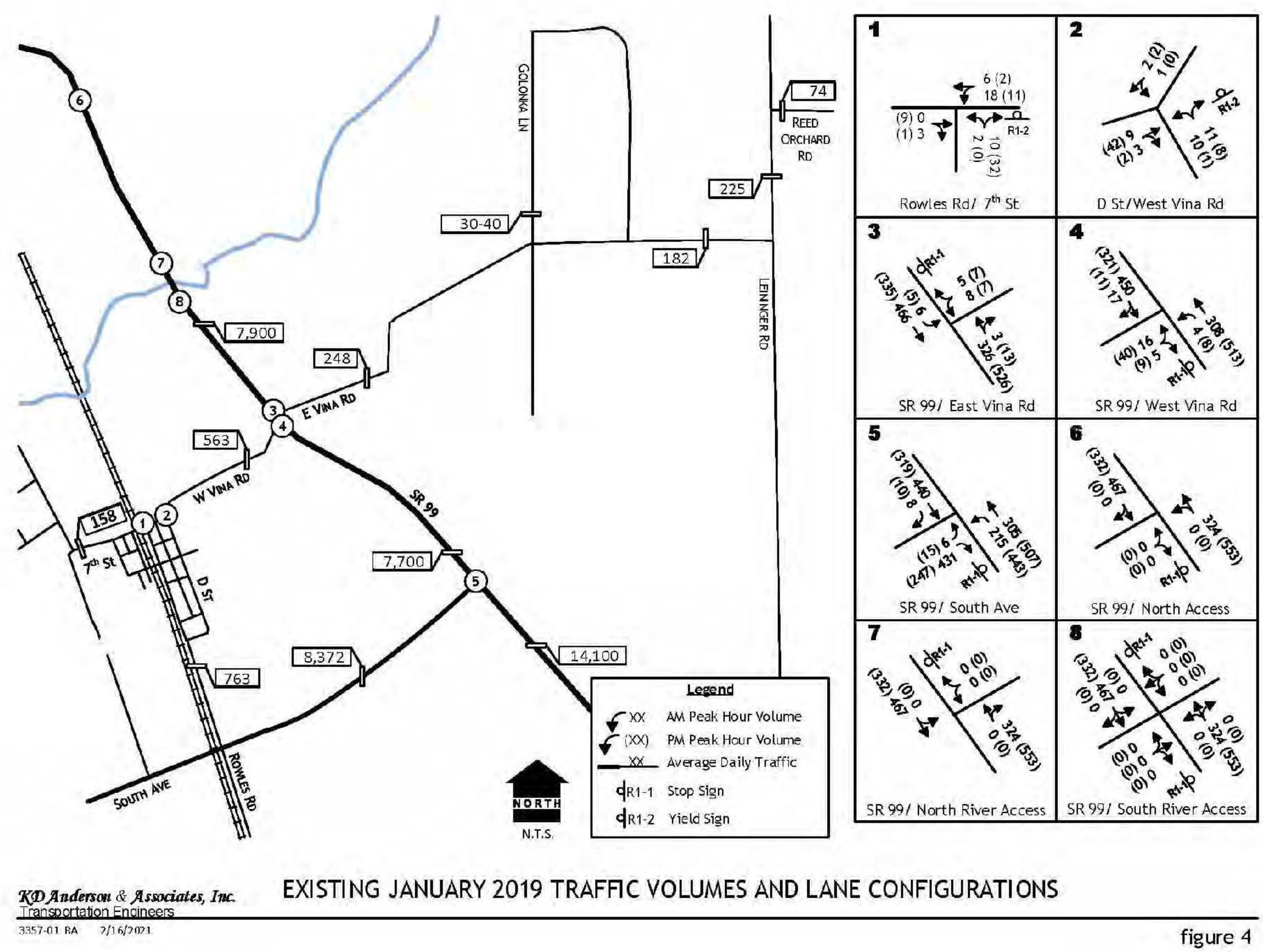


FIGURE 5 2019 Truck Traffic Volumes and Lane Configurations

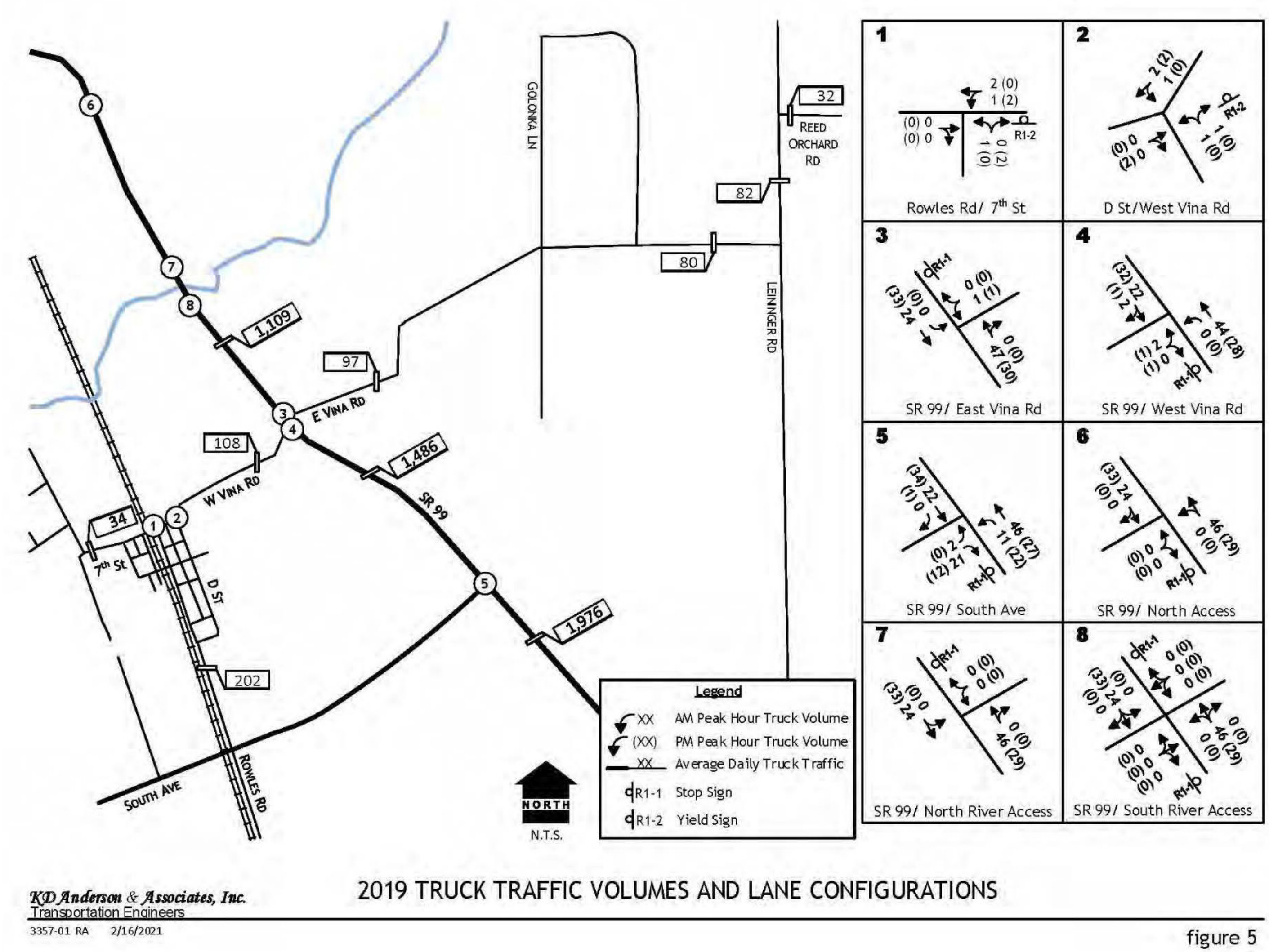
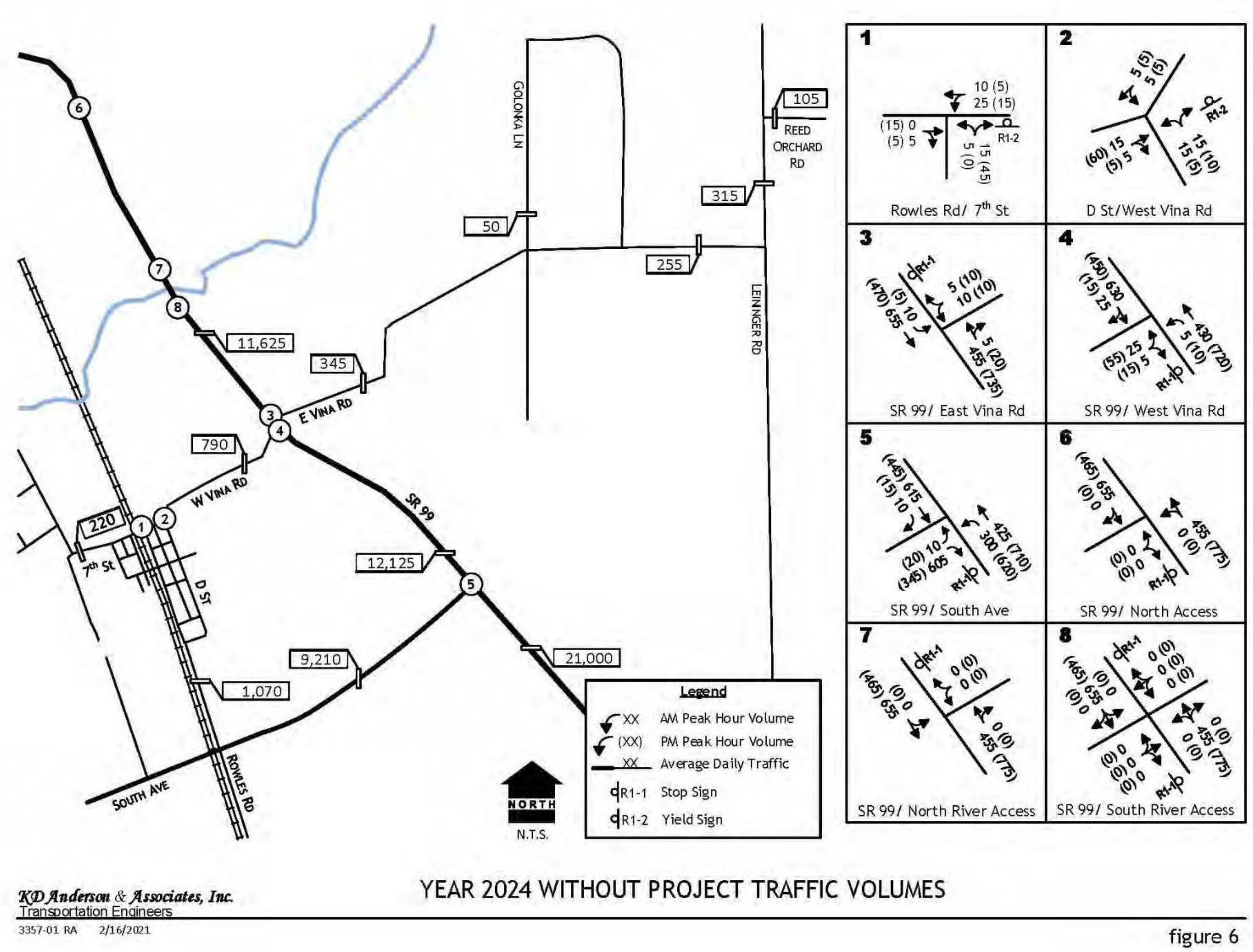


FIGURE 6 Year 2024 Without Project Traffic Volumes



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Level of Service - Methodologies

To assess the quality of existing traffic conditions, Levels of Service (LOS) were calculated at study area intersections. "Level of Service" is a qualitative measure of traffic operating conditions whereby a letter grade "A" through "F", corresponding to progressively worsening traffic operating conditions, is assigned to an intersection or roadway segment. Table 2 presents the characteristics associated with each LOS grade. As shown in Table 2, LOS "A", "B" and "C" are considered satisfactory to most motorists, while LOS "D" is marginally acceptable. LOS "E" and "F" are associated with severe congestion and delay and are unacceptable to most motorists.

Local agencies and Caltrans adopt minimum Level of Service standards for the facilities under their control. The Tehama County General Plan identifies LOS D as the minimum standard on County streets. Caltrans minimum Level of Service standard is LOS C, although the State Route 99 Transportation Concept Report (SR 99 TCR; http://www.dot.ca.gov/dist2/planning/pdf/1-sr99-tcr-final.pdf) indicates that this area of the highway may operate at LOS D in the future. For this analysis LOS C has been used as the minimum standard for locations on the state highway.

TABLE 2 LEVEL OF SERVICE DEFINITIONS

Level of Service	Signalized Intersection	Unsignalized Intersection	Roadway (Daily)
"A"	Uncongested operations, all queues clear in a signal-signal cycle. Delay ≤ 10 sec	Little or no delay. Delay ≤ 10 sec/vh	Completely free flow.
"B"	Uncongested operations, all queues clear in a signal-signal cycle. Delay ≤ 10 sec and ≤ 20.0 sec	Short traffic delays. Delay >10 sec/veh and < 15 sec/veh	Free flow, presence of other vehicles noticeable.
"C"	Light congestion, occasional backups on critical approaches. Delay > 20.0 sec and ≤ 35.0 sec	Average traffic delays. Delay >15 sec/veh and ≤ 25 sec/veh	Ability to maneuver and select operating speed affected.
"D"	Significant congestions of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed. Delay > 25.0 sec and ≤ 55.0 sec	Long traffic delays. Delay 25 sec/veh and ≤ 35 sec/veh	Unstable flow, speeds and ability to maneuver restricted.
"E"	Severe congestion with some long-standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical appraochs(es). Delay >55.0 sec and ≤ 80.0 sec	Very long traffic delays, failure, extreme congestions. Delay >35 sec/veh and ≤ 50 sec/veh	At or near capacity, flow quite unstable.
"F"	Total breakdown, stop-and-go operation. Delay > 80.0 sec	Intersection blocked by external causes. Delay >50 sec/veh	Forced flow, breakdown.

Sources: Highway Capacity Manual, 6th Edition.

Level of Service at Intersections. Levels of Service were calculated at study intersections using the methods presented in the Highway Capacity Manual, 6th Edition (HCM). Intersection Levels of Service were calculated using SYNCHRO software.

<u>**Current and Year 2024 Intersection Levels of Service**</u>

Intersections. Table 3 presents Existing (2019) and projected Year 2024 Levels of Service at the study intersections. In addition, Table 3 also indicates whether any of the study intersections satisfy California Manual of Uniform Traffic Control Devices (CMUTCD) peak hour volume warrants for signalization.

As Table 3 indicates, with one exception all study area intersections operate at LOS C or better today, and current traffic volumes do not reach the level that satisfies peak hour traffic signal warrants. The exception is the ***SR 99 / South Avenue intersection*** where motorists making left turns onto northbound SR 99 experience delays that are indicative of LOS E in the p.m. peak hour.

It is important to note that p.m. peak hour traffic conditions at this intersection may have an effect elsewhere in the study area. While only 15 eastbound left turns are made from South Avenue onto northbound SR 99, 32 northbound right turns occur at the Rowles Road / 7th Street intersection and subsequently 40 eastbound left turns occurred at the Vina Road (W) intersection. It is possible that some of the Vina Road traffic is attempting to avoid the South Avenue intersection at that time.

Under Year 2024 conditions the assumed seasonal and annual growth increments result in Level of Service in excess of LOS C at one additional intersection (i.e., SR 99 / Vina Road (W). Projected traffic volumes do not reach the levels that satisfy peak hour traffic signal warrants. The eastbound left turn at the SR 99 / South Avenue intersection is projected to operate at LOS E in the a.m. peak hour and LOS F in the p.m. peak hour.

TABLE 3 EXISTING AND YEAR 2024 CONSTRUCTION DAY INTERSECTION LEVELS OF SERVICE AND SIGNAL WARRANTS

Intersection	Control	January 2019 AM Peak Hour LOS	January 2019 AM Peak Hour Average Delay (sec/veh)	Year 2024 AM Peak Hour LOS	Year 2024 AM Peak Hour Average Delay (sec/veh)	January 2019 Peak Hour LOS	January 2019 PM Peak Hour Average Delay (sec/veh)	Year 2024 PM Peak Hour LOS	Year 2024 PM Peak Hour Average Delay (sec/veh)	Peak Hour Traffic Signal Warrants Met?
Rowles Road / 7th Street	NB Yield	A	8	A	9	A	9	A	9	No
D Street / Vina Road (E)	NB Yield	A	9	A	9	A	9	A	9	No
SR 99 / Vina Road (E)	WB Yield	B	14	C	16	C	15	C	22	No
SR 99 / Vina Road (W)	EB Yield	C	15	C	C	23	18	**D**	**33**	No
SR 99 / South Avenue[1]	EB Stop	C	16	**E**	**41**	**E[1]**	**46**	**F**	**257**	No

Bold is Level of Service in excess of adopted minimum standard.

[1] this Level of Service is for eastbound left turns only and excludes the effects of free eastbound right turns in terms of overall approach delay.

Roadway Segments

Classification. The Tehama County General Plan Circulation Element provides descriptions that define the road classifications depicted on the County Circulation Map.

• *Local/Minor* – Local streets and Minor roads provide direct access to adjacent properties and serve as low volume, small-area traffic conveyance routes. Local streets and Minor roads are not intended to serve through traffic. Local streets provide access to collector streets and carry low traffic volumes typically less than 2,000 average daily trips (ADT), at low speeds, typically at a maximum of 25 M.P.H. Right-of-way requirements for local and minor streets are 60 feet in width, with 24 to 32 feet of paved or improved surface width between the improved roadway wedges.

• *Collector* – Collector streets and roadways may be designated as Major Collector Streets or Minor Collector Streets, depending on existing or future traffic volumes, Level of Service, and roadway safety conditions, and may be designated as Rural or Urban based upon location and need. Collector streets (both major and minor and rural or urban) provide a linkage between local streets and minor roads and higher volume arterial streets and state and regional highways. Collector streets serve a variety of functions ranging from providing access to individual properties to conveying higher volumes of traffic to and between higher volume arterial and highway travel routes. Collectors carry light to moderately heavy traffic volumes, generally ranging between 2,000 and 12,000 ADT, at speeds from 25 M.P.H. and 45 M.P.H and above, and can be either two-lane, improved two-lane (having auxiliary turn lanes) or four-lane roadways. Right-of-way requirements for collector streets vary from a minimum of 60 feet in width (two-lane urban minor collector) to a maximum of 120 feet in width (four-lane rural major collector), with 32 to 64 feet of paved surface width. Collector streets may also provide separated and striped non-motorized transportation facilities.

• *Arterial* – Arterial streets and roadways connect with both residential local and collector streets and roads and are designed and intended to carry the greatest volumes of traffic. Arterial roadways generally have higher speed limits and are utilized to move traffic longer distances than Collector and Local streets and roads. Speed limits may range from 35 M.P.H. to 55 M.P.H. and traffic volumes may exceed 13,000 ADT. Right-of-way requirements for arterials typically range from 84 feet in width for four-lane minor arterial urban streets to 120 feet in width for four-lane rural arterial roadways. The width of the improved surface area of the street ranges from 64 feet to 68 feet with a paved surface of 60 feet in width between curbs.

• *Rural Divided Highway* – Rural divided highways are generally high speed, divided roadways having four lanes in width. Rural Highways are designed to accommodate the highest traffic volumes and the highest rates of speed. Speed limits ranging up to 65 M.P.H. may be accommodated, although speed limits generally range from 45 M.P.H. to 55 M.P.H. Rights of way vary depending on the road type and topography but can range from 60 to 90 feet depending on the number of lanes and speeds.

• *Freeways and Expressways* – Freeways and expressways serve both the interregional and intra-regional circulation needs. These routes are typically accessed by collector or arterial roadways and usually have very few or no at-grade crossings. Freeways and expressways have the highest carrying capacity with the maximum speed limits allowed by law. Rights of way for these facilities vary greatly depending on location and topography. The right-of-way may also increase substantially at interchanges or intersections to accommodate traffic movement at higher speeds.

Level of Service Thresholds. The General Plan EIR identifies daily traffic volume levels that are indicative of specific Level of Service grades on various roadway classifications. As indicated in Table 4, two-lane Arterial streets with left turn lanes can carry up to 16,000 ADT, while two-lane collector streets can accommodate 10,500 ADT. The General Plan indicates that local streets generally carry up to 2,000 ADT, but does not suggest volume ranges for specific Levels of Service. This volume level has been attributed to LOS C for this analysis. The General Plan EIR notes that these thresholds are predicated on roadways that are in good condition.

TABLE 4 TEHAMA COUNTY GENERAL PLAN ROADWAY LEVEL OF SERVICE THRESHOLDS BASED ON AVERAGE DAILY TRAFFIC TOTAL IN BOTH DIRECTIONS

Roadway Type	LOS A	LOS B	LOS C	LOS D	LOS E
2-lane Arterial with left turn lane	11,000	12,500	14,500	16,000	18,000
2-lane Collector	6,000	7,500	9,000	10,500	12,000
2-lane local street	NA	NA	2,000	NA	NA

Source: Tehama General Plan EIR Table 4.13-4

Roadway Segment Truck Percentage and Levels of Service. Table 5 identifies average daily traffic volumes on state highways as well as the results of January traffic counts on study area roads. The share of daily traffic comprised of trucks (i.e., SU and larger) has also been identified based on Caltrans data or based on vehicle classification conducted with the January counts. As indicated an average truck comprises 12% to 15% of the daily volume on SR 99 north of South Avenue. As might be expected in an agricultural area, trucks comprised 19% to 43% of the daily volume counted on local study area roads.

Based on General Plan thresholds, SR 99 operates at LOS A - B in the study area, but alternative methods exist for determining Level of Service. The SR 99 TCR indicates that based on 2010 Highway Capacity Manual (2010 HCM) techniques derived from travel speed SR 99 operates at LOS C north and south of the South Avenue intersection.

As indicated, the local roads in the study area carry volumes that fall below the 2,000 ADT threshold identified by the General Plan EIR.

TABLE 5 ROADWAY SEGMENT VOLUME, TRUCK PERCENTAGE AND LEVEL OF SERVICE

Roadway	Location	Classification	Year 2019 Daily Traffic	Trucks	Level of Service
State Route 99	South Avenue to Butte Co Line	Arterial	16,8001	12%	E
State Route 99	Vina Road to South Avenue	Arterial	9,700[1]	15%	A
State Route 99	Sherman Street to Vina Road	Arterial	9,300[1]	12%	A
South Avenue	To SR 99	Collector	8,372[2]	unknown	C
Vina Road	Rowles Road to SR 99	Local	563	19%	C
Vina Road	SR 99 to Golonka Lane	Local	244	39%	C
Vina Road	Golonka Lane to Leininger Road	Local	182	43%	C
Golonka Lane	North of Vina Road (E)	Local	30-40	unknown	C
Leininger Road	Vina Road to Reed Orchard Road	Local	215	36%	C
Reed Orchard Rd	East of Leininger Road	Local	74	43%	C
Rowles Road	Vina Road to South Avenue	Local	763	26%	C
7th Street	West of Rowles Road	Local	158	22%	C

[1] Caltrans 2019 AADT, http://www.dot.ca.gov/trafficops/census/volumes2019/Route99.html
[2] Tehama County GPU EIR, 6,472 (2006) times 1.02 annually for 13 years

Intersection Sight Distance

Sight distance is the distance at which approaching vehicles can be seen by drivers waiting at the stop sign. Sight distance determines the amount of time a driver has to execute a maneuver – in this case, entering SR 99, prior to the arrival of another vehicle on SR 99. Sight distance at public road intersections has been assessed for this traffic impact study using *Minimum Stopping Sight Distance* criteria in section 201.1 and the *Corner Sight Distance* procedures described in section 405.1 of the Caltrans *Highway Design Manual* (California Department of Transportation 2014).

Acceptable sight distances are determined by the speed of vehicles on the uncontrolled approaches to the intersection. Table 6 below compares the sight distance requirements for passenger cars with corner sight distance requirements for heavy trucks.

TABLE 6 SIGHT DISTANCE STANDARDS

Design Speed	Minimum Stopping Sight Distance (feet) (HDM Table 201.1)	Corner Sight Distance for Heavy Truck (feet) (HDM Table 405.1) Left Turn from Stop	Corner Sight Distance for Heavy Truck (feet) (HDM Table 405.1) Right Turn from Stop
35 mph	250	590	540
40 mph	300	675	620
45 mph	360	760	695
50 mph	430	845	770
55 mph	500	930	850
60 mph	580	1,015	925
65 mph	660	1,100	1,000
70 mph	750	1,185	1,080

Available Sight Distance. Because SR 99 follows curves at the north end of the study area and immediately south of the Vina Road intersections sight distance for vehicles moving onto the highway can be somewhat restricted. In addition, while the posted speed limit is 65 mph in this area vehicles routinely travel at faster speeds, which require a longer sight distance.

As noted in Table 7, the view at each access location satisfies the minimum stopping sight distance requirement for 65-70 mph travel. However, the available sight distance is less than the corner sight distance requirements for heavy trucks at three locations, generally due to road curvature. While some improvements may be gained by eliminating brush on the inside of curves, it is likely that Caltrans will determine that active traffic control is needed to safely accommodate trucks at these locations.

TABLE 7 SIGHT DISTANCE ASSESSMENT

Location	Looking	Sight Distance (feet)	Design (mph)
North Access	Northerly at southbound traffic	800	50
North River Access	Northerly at southbound traffic	1,750	70
North River Access	Southerly at northbound traffic	1,300	70
South River Access – Westside	Northerly at southbound traffic	1,000	65
South River Access – Westside	Southerly at northbound traffic	1,400	70
South River Access – Eastside	Northerly at southbound traffic	1,000	65
South River Access – Eastside	Southerly at northbound traffic	800	50
Vina Road (E)	Northerly at southbound traffic	1,700	70
Vina Road (E)	Southerly at northbound traffic	750	45
Vina Road (W)	Northerly at southbound traffic	1,500	70
Vina Road (W)	Southerly at northbound traffic	850	55

EXISTING REGULATORY SETTING

<u>SB 743 – CEQA Guidelines</u>

Background. The CEQA Guidelines and the California Governor's Office of Planning and Research (OPR) document *Technical Advisory on Evaluating Transportation Impacts in CEQA* (California Governor's Office of Planning and Research, 2018) encourage all public agencies to develop and publish thresholds of significance to assist with determining when a project would have significant transportation impacts based on the new metric of Vehicle Miles Traveled (VMT), rather than operating Level of Service (LOS). The CEQA Guidelines generally state that projects that decrease VMT can be assumed to have a less than significant transportation impact. The CEQA Guidelines do not provide any specific criteria on how to determine what level of project VMT would be considered a significant impact.

Tehama County has not yet developed or adopted methods for estimating regional VMT or significance criteria for evaluating impacts based on VMT. As a result, that analysis makes use of methods for initial project screening based on OPR guidance used to identify those projects that are exempt from VMT analysis.

While Level of Service may no longer be the focus of CEQA impact analysis, it remains within the purview of Tehama County to consider Level of Service with regards to consistency with its General Plan goals and policies. Caltrans also considers Level of Service as a measure of the effects of a project on safety on the state highway system.

The extent to which VMT analysis is applicable to this project has been considered from several perspectives is discussed in the materials which follow.

Temporary Nature of Project Construction. All development projects would to some degree be accompanied by automobile and truck construction traffic. However, while under CEQA the effects of construction activity on GHG are addressed, OPR guidance does not extend to temporary short term travel associated with construction projects.

Vehicle Types. OPR guidance notes that CEQA VMT analysis is intended to focus on passenger vehicles.

Proposed Section 15064,3, subdivision (a), states, "For the purposes of this section, 'vehicle miles traveled' refers to the amount and distance of automobile travel attributable to a project." Here, the term "automobile" refers to on-road passenger vehicles, specifically cars and light trucks.

OPR guidance allows Heavy-duty truck VMT to be included for modeling convenience and ease of calculation (for example, where models or data provide combined auto and heavy truck VMT).

Screening Criteria. Under OPR direction, the following categories of land development projects are judged to have a less than significant impact on regional VMT.

- Location Based Screening
  - Near Transit
  - In VMT efficiency areas where evidence exists that development yields VMT metrics that satisfy the OPR recommended significance criteria of a 15% reduction (i.e., 85% of average).
- Other Factors
  - Small projects
  - Local-serving retail
  - Local serving public uses
  - Affordable housing.

Screening Threshold for Small Projects. Many local agencies have developed screening thresholds to indicate when detailed analysis is needed. Absent substantial evidence indicating that a project would generate a potentially significant level of VMT, or inconsistency with a Sustainable Communities Strategy (SCS) or general plan, projects that generate or attract fewer than 110 trips per day generally may be assumed to cause a less-than-significant transportation impact.

Considering the Effects of Transportation Projects on Vehicle Travel. OPR guidance extends to transportation projects, and the extent to which temporary traffic controls or safety improvements accompanying this project area "transportation project" which might fall under this criteria has been assessed.

OPR notes that a transportation project which leads to additional vehicle travel on the roadway network, commonly referred to as "induced vehicle travel," would need to quantify the amount of additional vehicle travel in order to assess air quality impacts, greenhouse gas emissions impacts, energy impacts, and noise impacts. Transportation projects also are required to examine induced growth impacts under CEQA. For any project that increases vehicle travel, explicit assessment and quantitative reporting of the amount of additional vehicle travel should not be omitted from the document; such information may be useful and necessary for a full understanding of a project's environmental impacts. A lead agency that uses the VMT metric to assess the transportation impacts of a transportation project may simply report that change in VMT as the impact. When the lead agency uses another metric to analyze the transportation impacts of a roadway project, changes in amount of vehicle travel added to the roadway network should still be analyzed and reported.

If a project would likely lead to a measurable and substantial increase in vehicle travel, the lead agency should conduct an analysis assessing the amount of vehicle travel the project will induce. Project types that would likely lead to a measurable and substantial increase in vehicle travel generally include:

- Addition of through lanes on existing or new highways, including general purpose lanes, HOV lanes, peak period lanes, auxiliary lanes, or lanes through grade-separated interchanges

Projects that would not likely lead to a substantial or measurable increase in vehicle travel, and therefore generally should not require an induced travel analysis, include:

- Rehabilitation, maintenance, replacement, safety, and repair projects designed to improve the condition of existing transportation assets (e.g., highways; roadways; bridges; culverts
- Transportation Management System field elements such as cameras, message signs, detection, or signals
- tunnels
- transit systems
- assets that serve bicycle and pedestrian facilities and that do not add additional motor vehicle capacity
- Roadside safety devices or hardware installation such as median barriers and guardrails
- Roadway shoulder enhancements to provide "breakdown space," dedicated space for use only by transit vehicles, to provide bicycle access, or to otherwise improve safety, but which will not be used as automobile vehicle travel lanes
- Addition of an auxiliary lane of less than one mile in length designed to improve roadway safety
- Installation, removal, or reconfiguration of traffic lanes that are not for through traffic, such as left, right, and U-turn pockets, two-way left turn lanes, or emergency breakdown lanes that are not utilized as through lane
- Addition of roadway capacity on local or collector streets provided the project also substantially improves conditions for pedestrians, cyclists, and, if applicable, transit
- Conversion of existing general purpose lanes (including ramps) to managed lanes or transit lanes, or changing lane management in a manner that would not substantially increase vehicle travel

- Addition of a new lane that is permanently restricted to use only by transit vehicles;
- Reduction in number of through lanes
- Grade separation to separate vehicles from rail, transit, pedestrians or bicycles, or to replace a lane in order to separate preferential vehicles (e.g., HOV, HOT, or trucks) from general vehicles
- Installation, removal, or reconfiguration of traffic control devices, including Transit Signal Priority (TSP) features
- Installation of traffic metering systems, detection systems, cameras, changeable message signs and other electronics designed to optimize vehicle, bicycle, or pedestrian flow
- Timing of signals to optimize vehicle, bicycle, or pedestrian flow
- Installation of roundabouts or traffic circles
- Installation or reconfiguration of traffic calming devices
- Adoption of or increase in tolls
- Addition of tolled lanes, where tolls are sufficient to mitigate VMT increase
- Initiation of new transit service
- Conversion of streets from one-way to two-way operation with no net increase in number of traffic lanes
- Removal or relocation of off-street or on-street parking spaces
- Adoption or modification of on-street parking or loading restrictions (including meters, time limits, accessible spaces, and preferential/reserved parking permit programs)
- Addition of traffic wayfinding signage
- Rehabilitation and maintenance projects that do not add motor vehicle capacity
- Addition of new or enhanced bike or pedestrian facilities on existing streets/highways or within existing public rights-of-way
- Addition of Class I bike paths, trails, multi-use paths, or other off-road facilities that serve nonmotorized travel
- Installation of publicly available alternative fuel/charging infrastructure
- Addition of passing lanes, truck climbing lanes, or truck brake-check lanes in rural areas that do not increase overall vehicle capacity along the corridor

California Department of Transportation (Caltrans). Caltrans policies are applicable to evaluating State Route 99, and are summarized in the *Caltrans' Guide for the Preparation of Traffic Impact Studies* (State of California Department of Transportation, December 2002). These guidelines identify when a traffic impact study is required, what should be included in the study, analysis scenarios, and guidance on acceptable analysis methodologies. Caltrans endeavors to maintain a target service level of LOS C on State highway facilities. However, this may not always be feasible and a lower service level has been accepted not only in Tehama County but in other locations throughout the state.

State Route 99 Transportation Concept Report (SR 99 TCR). The SR 99 TCR prepared by District 2 in July 2016 is:

- A conceptual document that guides the decision-making process.
- A long-term 20-year plan for a route in the California State Highway System.
- A visionary document and a first step in planning for and/or improving a route.
- A route specific document that defines a route's needs and begins the discussion on investing in the longevity of the corridor.

Included in the study area for the SR 99 TCR is the 25-mile section on SR 99 that runs from the Butte/Tehama County line to the Junction (Jct) of SR 36 in Red Bluff.

California Public Utilities Commission. The California Public Utilities Commission (CPUC) is the state agency that oversees rail safety in California. This oversight can be broken down into three areas: 1) Railroad Safety, 2) Rail Transit Safety and 3) Rail Crossing Safety. The CPUC is the state agency with exclusive jurisdiction over rail crossings in California. Rules and regulations that apply to rail crossing projects in State of California include Commission General Orders, Commission Rules of Practice and Procedure, State of California Public Utilities Code, and the California Manual on Uniform Traffic Control Devices.
http://www.cpuc.ca.gov/General.aspx?id=3862

Tehama County Transportation Commission. The Tehama County Transportation Commission (TCTC) is the state-designated Regional Transportation Planning agency (RTPA) for the Tehama County region. TCTC reviews transportation needs, identifies/programs transportation improvements for transportation and transit operations/infrastructure. TCTC administers over $16,000,000 annually in local, state, and federal funds for the planning, construction, operation, and maintenance of transportation infrastructure throughout the region.

TCTC is responsible for preparation of the Regional Transportation Plan (RTP). The 2015 RTP identifies existing and future transportation problems, proposes solutions, considers all modes of travel and identifies anticipated funding for projects and programs considering both the short-term (10 year) and long-term (20 year) time horizons. The RTP addresses all modes of transportation used by people and for goods movement, including streets and roads, public transit, bicycle and pedestrian, aviation, and rail. This plan also addresses social and environmental factors related to the regional transportation system.

Tehama County General Plan. The *Tehama County General Plan* was last updated by the Board of Supervisors on March 31, 2009 and includes policies that are applicable to circulation and transportation. **Policy CIR-1.1** notes that the County shall work to ensure that Levels of Service (LOS) and safety standards on County roadways and at intersections are maintained or enhanced when considering new development. Implementation Measure CIR-1.1a identifies applicable LOS standards for intersections and roadway segments and notes that LOS C or LOS D are acceptable. **Policy CIR-1.2** notes the requirements for analysis of new development, inkling consideration of Level of Service and safety.

Policy CIR-1.1 The County shall work to ensure that Levels of Service (LOS) and safety standards on County roadways and at intersections are maintained or enhanced when considering new development.

Implementation Measure CIR-1.1a The County shall strive to maintain a roadway and intersection level of service standard of LOS C or better. If current Levels of Service are a LOS D or worse, then future proposed projects may not cause the roadway or intersection volumes to increase by ten percent or more and shall be accompanied by other mitigation measures that are intended to reduce trip generation.

Policy CIR-1.2 The County shall utilize the development review process to ensure that non level-of-service impacts, such as roadway safety impacts, are identified and addressed in conjunction with new development proposals.

Implementation Measure CIR-1.2a In conjunction with the preparation of traffic studies to determine potential level of service impacts to existing County roadways from proposed projects, additional analysis may be required irrespective of level of service impacts, to determine if structural and/or safety hazards exist. Structural deficiencies and safety hazards shall be identified and appropriate measures shall be determined to mitigate and/or enhance the structural capacity and/or safety of the roadway.

Implementation Measure CIR-1.2b The County may require roadway safety enhancements to include the construction of roadway improvements beyond the standard half street improvement levels where it is determined that hazardous safety or deficient structural conditions exist.

Implementation Measure CIR-1.2c Traffic studies shall address on- and off-site roadway conditions for both local and state routes and mitigation measures that are proposed to address all identified issues.

Implementation Measure CIR-1.2d The County should review available options for the establishment of standards and guidelines for oversized vehicles and should work to identify and establish standards for the designation of truck routes within the County.

Implementation Measure CIR-1.2e The County should explore the feasibility of establishing a permit system to deal with impacts for oversized vehicles, heavy-load vehicles and "super-trucks" to include the review of tonnage fees and roadway use fees for vehicles having disproportionate impacts to County.

Significance Criteria

Significance Criteria for VMT. Under OPR guidance a VMT impact is significant if a project's regular automobile traffic interferes with the ability of Tehama County to satisfy the goals for regional VMT reduction adopted under SB 743 (i.e., 15% reduction).

Significance Criteria for Traffic Operations. Based on the Tehama County General Plan, this analysis assumes a project's traffic operational effect would not be consistent with adopted policies if:

- It causes the existing Level of Service to deteriorate from LOS C or better to LOS D or worse.
- It increases the traffic volume by 10% or more at a location already operating at LOS D or worse.
- Creates a traffic safety hazard or appreciably adds to an existing hazard.
- Causes an appreciable increase in truck loading based on consideration of Traffic Index over an applicable maintenance period.

Significance Criteria for Pavement Section. An impact is judged to be significant if either:

- the project results in a change in the Traffic Index (TI) anticipated over the next twenty years, or
- the addition of project's Equivalent Single Axel Load's (ESAL's) results in a TI in excess of the known design TI for facility.

Significance Criteria for Transit. There are no adopted Tehama County criteria for determining the significance of impact to transit facilities. For this analysis it has been assumed that significant impact would occur if development of the project:

- resulted in transit demand in excess of current or anticipated system capacity.
- resulted in safety impacts at existing or anticipated transit stops.
- interfered with the ability of transit providers to deliver service to the community.

Significance Criteria for Bikeways. There are no adopted criteria for evaluating the "capacity" of bikeways in Tehama County. A significant bikeway impact would occur if the project:

- hindered or eliminated an existing designated bikeway, or
- interfered with implementation of a proposed bikeway, or
- resulted in unsafe conditions for bicyclists, including unsafe bicycle/pedestrian or bicycle/motor vehicle conflicts.

Significance Criteria for Pedestrian Circulation. A significant pedestrian circulation impact would occur if the project:

- resulted in unsafe conditions for pedestrians, including unsafe pedestrian/bicycle or pedestrian/motor vehicle conflicts, or
- interfered with the implementation of an adopted plan for pedestrian facilities.

Significance Criteria for Railroads. A significant impact would occur if the project resulted in traffic volumes across a railroad in excess of the capacity of the roadway or if the operation of an adjoining intersection would likely result in queuing that extended to a crossing.

PROJECT CHARACTERISTICS

This section describes the methods used to describe the transportation effects resulting from construction of the Lower Deer Creek project. The project's characteristics have been described and quantified by estimating the number and directional distribution of shorter term project automobile and truck trips, and by identifying the probable origins and destinations of that travel.

Subsequent report sections use the project characteristics to estimate construction related VMT, and to evaluate the projects effects on alternative transportation modes. By superimposing project trips onto construction year background traffic volumes under "Year 2022 Plus Project" conditions, consistency with Tehama County General Plan LOS policies, the adequacy of access to SR 99 and the relative impact of truck traffic on local roads was also evaluated

Construction Travel Characteristics

Overview. Travel to and from the project site will occur as materials are excavated and shipped to off-site destination or as new materials are shipped to the site. Employees will also travel to and from the site each day.

Locally the project includes several materials staging sites that will be the primary focus of travel. However, the extent to which any individual staging area may be used will vary from day to day over the assumed 240 day construction schedule.

The trip generation estimates made herein make use of preliminary estimates for the amount of material that will be excavated as part of individual construction projects, as well as the amount of material that may be placed to construct new improvements. While it is anticipated that suitable material can simply be excavated and used again within the project area, this analysis makes the conservative assumption that all excavated material will be exported from the site to landfills located off of SR 99. Similarly, the analysis makes the conservative assumption that all material to be placed on-site will be imported from outside of the immediate study area via SR 99.

Project Alternatives. The characteristics of the project and of five construction alternatives has been described. Within that range of alternatives an option for in channel grading also exists. Table 8 notes the amount of construction material associated with each alternative. For this analysis alternative A1 is the "Maximum Haul Project."

TABLE 8 EARTHWORK CHARACTERISTICS OF PROJECT ALTERNATIVES

Alternative	Cut (cu yds)	Fill (cu yds)	Rock Fill (cu yds)	In Channel Grading (cu yds)	Total (cu yds)
A	889,706	107,388	1,671	0	998,765
A1[1]	889,706	107,388	1,671	5,320	1,004,085
B	811,267	100,224	1,671	0	913,162
B[1]	811,267	100,224	1,671	5,145	918,482
C	746,287	107,732	1,671	0	855,690
C[1]	766,287	107,732	1,671	5,320	861,010
D	621,163	109,506	1,671	0	732,340
D[1]	621,163	109,506	1,671	5,320	737,660
E	554,215	120,946	1,671	0	676,832
E[1]	554,215	120,946	1,671	5,320	682,152
F	129,546	87,724	1,671	0	218,941
F[1]	129,546	87,725	1,671	5,320	224,261

[1] Maximum Haul Project used for analysis

Trip Generation Assumptions. Table 9 identifies the preliminary estimate of the amount of material to be transported with the Maximum Haul Project (Alt A1) in terms of cubic yards of cut and fill. As indicated slightly more than 1,004,000 cubic yards of materials will be moved. Of that total, roughly 108,000 cubic yards is fill material to be placed on site, and a share of the identified cut may be suitable for this purpose. If all fill material came from on-site sources the amount of material transported on SR 99 would decrease to roughly 782,000 cubic yards. However, because the amount of suitable material is unknown and to provide a conservative assessment, this analysis assumes all 1,004,000 cubic yards will be transported on SR 99. Assuming 20 cubic yards per truckload, then material haul could require roughly 50,000 truckloads spread over the 240 day construction period, as noted in Table 9. This analysis also assumes miscellaneous truck travel to the site for construction equipment, as well as truck travel for materials needed to reconstruct the Red Bridge. All together 50,704 truck loads are anticipated.

Because the exact nature of construction activity scheduling is unknown, this analysis assumes that construction truck traffic will occur throughout the 240 day construction period and that each truckload causes an inbound and outbound truck trip. On average the project could generate 423 daily truck trips.

Trip Generation Estimate. Table 10 identifies the daily and peak hour trip generation estimates of the project. As indicated, up to 30 employees are anticipated on the site at one time, and their

travel to and from the site could cause 60 daily trips. Other miscellaneous travel may occur from time to time, and all together the project could generate an average of 503 daily trips.
The share of this travel that may occur in typical peak commute hours (i.e., 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.) has been identified. This analysis assumes construction haul occurs within an 8 hour window each 10 hour workday and that the construction employee commute is within the peak hours. Based on these conservative assumptions the project could cause 87 vehicles trips during the a.m. and p.m. peak hours.

Comparative trip generation estimates have also been made for each project alternative, and the results are presented in Table 11. As indicated the daily trip generation associated with alternatives ranges from 466 to 177 vehicles per day. Similarly, the peak hour trip generation estimates for alternatives ranges from 82 to 45 vehicles per hour (vph).

Passenger Car Equivalents (PCE'S). Because the acceleration and deceleration characteristics of trucks differ from those associated with regular passenger vehicles, it is common practice to express truck travel and trip generation in terms of an equivalent number of passenger vehicles. As noted in Table 10, each truck trip has been assumed to be 3 Passenger Car Equivalents (PCE's) when applied for Level of Service evaluation. As shown the project could cause 1,349 daily PCE's, with 197 PCE's occurring in each of the peak traffic hours.

Trip Distribution. The trips associated with construction haul will generally be oriented to offsite disposal areas and to potential sources of fill materials. No specific sites have been selected to date, and this analysis assumes that materials hauled from the site will be split 50% north to the landfill near Red Bluff and 50% west to the landfill near Artois. Imported fill materials will come from local sources in each direction. Materials needed for Red Bridge construction are expected to arrive via Interstate 5 and would likely use South Avenue. Employee travel could originate through the Tehama County / Butte County area and has been assumed to be split 40% north, 40% south and 20% west on South Avenue.

Trip Assignment. Trips associated with the project were assigned to the study area street system based on the regional distribution characteristics noted above and on the location of staging areas that serve the specific segments of the project. The resulting assignment of project PCE's is noted in Figure 7.

TABLE 9 PROJECT TRUCK TRAVEL

Area	Description	Cut Material Cu Yds	Cut Material Truckloads[1]	Fill Material Cu Yds	Fill Material Truckloads	Rock Fill Cu Yds	Rock Fill Truck-loads	Other Truck-loads	Total Truck-loads	Daily Truck Trips Ends[2]
1	Downstream of Highway 99	74,856	3,743	1,768	88	1,291	65	20	3,916	33
2	SVRIC Dam to Highway 99	32,637	1,632	1,161	58	380	19	20	1,729	14
3	Red Bridge Construction	0	0	0	0	0	0	400	400	4
4	Setback Reach	760,268	38,013	88,360	4,418	0	0	20	42,451	354
5	Red Bridge + Upstream	21,945	1,097	16,099	805	0	0	20	1,922	16
6	In-channel grading upstream of SVRIC Dam	5,145	257	174	9	0	0	20	286	2
	Total	894,851	44,742	107,562	5,378	1,671	84	500	50,704	423

[1] assume 20 cu yds per truck

[2] assume 240 day construction period and two trip ends per truck load.

TABLE 10 PROJECT (A[1]) TRIP GENERATION ESTIMATE

Description	Quantity	Vehicles							Passenger Car Equivalents (PCE's)[1]						
		Daily Trips	AM Peak Hour			PM Peak Hour			Daily PCEs	AM Peak Hour			PM Peak Hour		
			in	out	Total[2]	in	out	Total[2]		in	out	Total	in	out	Total
Trucks	211	423	28	27	55	27	28	55	1,269	84	81	165	81	84	165
Employees	30	60	30	0	30	0	30	30	60	30	0	30	0	30	30
Miscellaneous	10	20	1	1	2	1	1	2	20	1	1	2	1	1	2
Total		522	59	28	87	28	59	87	1,349	115	82	197	82	115	197

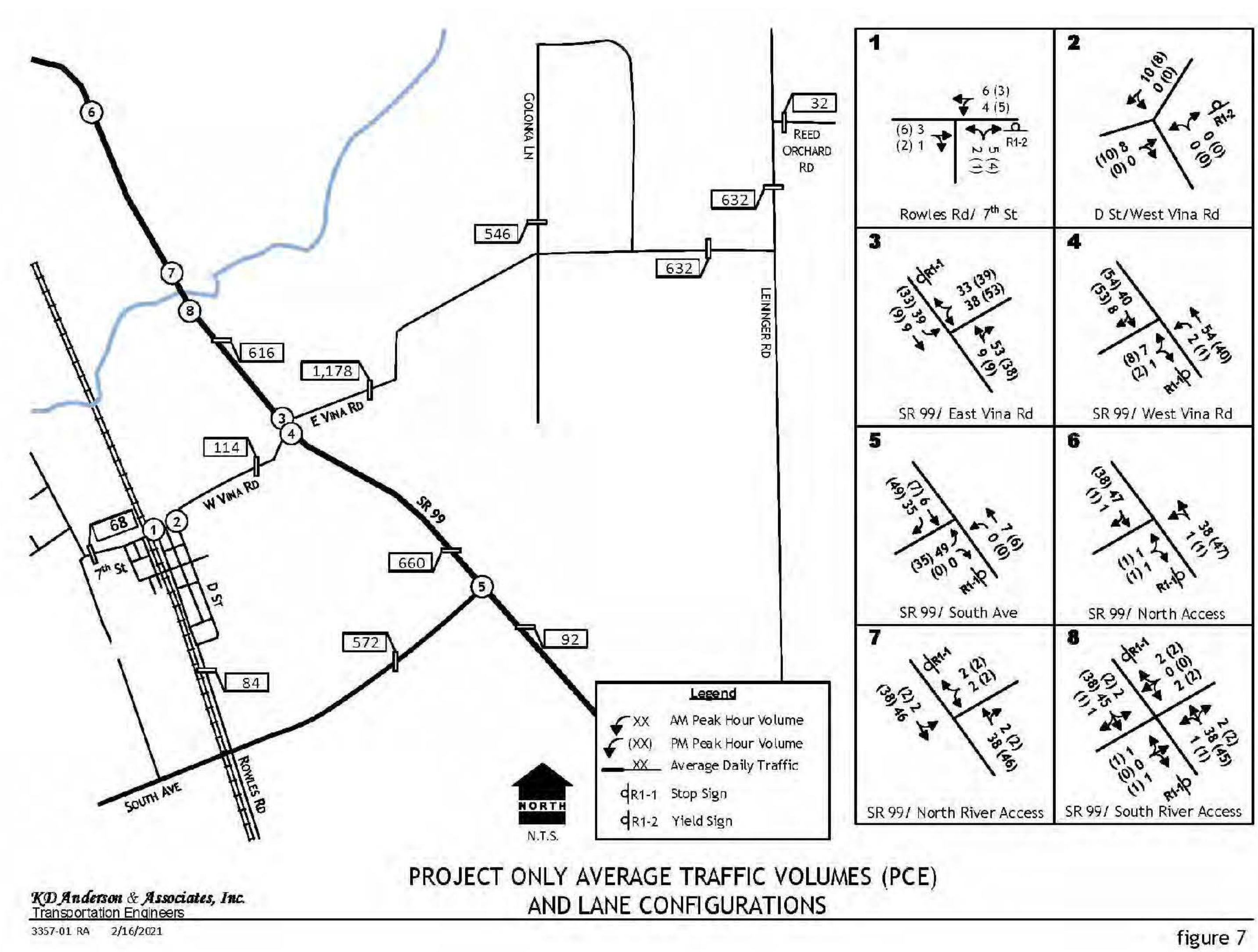
[1] assume 3.0 PCE's per truck
[2] assume eight hour haul day

TABLE 11 PROJECT ALTERNATIVES TRIP GENERATION ESTIMATE

Description	A	A[1]	B	B[1]	C	C[1]	D	D[1]	E	E[1]	F[1]	F1[1]
Daily Vehicle Trips												
Trucks	420	423	384	386	361	363	309	311	286	288	152	156
Employees	60	60	60	60	60	60	60	60	60	60	60	60
Miscellaneous	20	20	20	20	20	20	20	20	20	20	20	20
Total	500	503	464	466	441	443	389	391	366	368	232	236
Peak Hour Trips												
Trucks	55	55	50	50	47	47	40	40	37	37	21	21
Automobiles	32	32	32	32	32	32	32	32	32	32	32	32
Total	87	87	82	82	79	79	72	72	69	69	53	53

[1] assumes 150 day construction season

Figure 7 Project Only Average Traffic Volumes (PCE) and Lane Configurations



PROJECT IMPACTS AND TRAFFIC OPERATIONAL EFFECTS

Vehicle Miles Traveled (VMT)

Estimated VMT. The travel to and from the **project** site will result in Vehicles Miles of Travel (VMT) that has been tabulated over the average day of the project **under the Maximum Haul Project and its alternatives.** As shown in Table 12, the majority of the project's VMT will be associated with transporting materials from the site to landfills.

Evaluation of VMT Impacts. The project's impact on regional VMT is not significant for these reasons.

- **Temporary Nature of Project Construction.** While construction related VMT has been estimated in this analysis, it is not considered to be a significant impact due to its temporary nature.

- **Truck VMT.** For this analysis, project VMT has been estimated for both Heavy Duty truck and automobiles. Truck VMT represents 86% of the project VMT. Because no policy has been adopted regarding the significance of Heavy Truck VMT, the impact of this element of the project's VMT activity would not be judged significant.

- **Screening Threshold for Small Projects**. Because the project after construction will not generate "regular" traffic, it qualifies as a "small project", and its impact on VMT is less than significant.

- **Effects of Transportation Projects on Vehicle Travel**. The project will include improvements to local access roads to address the effects of heavy truck traffic on roadway condition. As noted later in the traffic operational analysis, the project will also be conditioned to make improvements at SR 99 access encroachment as required by Caltrans. Those improvements are included in the list of safety related improvements identified by OPR that are not growth inducing and this element of the project would not have a significant impact on regional VMT

TABLE 12 PROJECT VEHICLE MILES TRAVELED (VMT) ESTIMATE

Description	Average Distance (miles)	Alt A[1] Trips	Alt A[1] VMT	Alt B[1] Trips	Alt B[1] VMT	Alt C[1] Trips	Alt C[1] VMT	Alt D[1] Trips	Alt D[1] VMT	Alt E[1] Trips	Alt E[1] VMT	Alt F[1] Trips	Alt F[1] VMT
Trucks - Export	33[1]	373	12,309	340	11,220	313	10,329	261	8,613	233	7,689	90	2,970
Trucks – Import	10[2]	46	460	42	420	46	460	46	460	51	510	62	620
Trucks - Other	170[3]	4	680	4	680	4	680	4	680	4	680	4	680
Total Trucks	NA	423	13,449	386	12,320	363	11,469	311	9,753	288	8,879	156	4,270
Employees	30[4]	60	1,800	60	1,800	60	1,800	60	1,800	60	1,800	60	1,800
Miscellaneous	22[5]	20	440	20	440	20	440	20	440	20	440	20	440
Total Automobiles	NA	80	2,220	80	2,220	80	2,220	80	2,220	80	2,220	80	2,220
Total Vehicles	NA	503	15,689	466	14,560	443	13,709	391	11,993	368	11,119	236	6,510

[1] average distance to Tehama Landfill in Red Bluff and Artois Landfill
[2] average distance to local material sources.
[3] distance to Port of Oakland
[4] average distance to Oroville, Corning, Red Bluff, Redding and Chico
[5] average distance to Chico and Red Bluff
Alt = alternative; NA = not applicable

Year 2024 Construction Day Plus Project Traffic Operating Conditions

The Traffic operational analysis assess the operation of automobiles and trucks and describes impacts relating to alternative transportation modes and safety. Figure 8 presents "Year 2024 Construction Day plus Project" peak hour traffic volumes created by superimposing project traffic (PCE's) onto modified existing background conditions. Resulting peak hour intersection Levels of Service were calculated by converting project trips to PCE's, superimposing those PCE's onto Year 2024 volumes and calculating Levels of Service. Table 13 identifies the resulting Levels of Service.

Level of Service at Intersections. As shown in Table 13, the addition of trips generated by the Maximum Haul Project (PCE's) will incrementally increase the length of delays experienced at study area intersections. Without the proposed project two intersections (i.e., *SR 99 / South Avenue* and ***SR 99 / Vina Road (W)***) are expected to continue to operate with Level of Service in excess of the General Plan's LOS C threshold. However, while the Maximum Haul Project and its alternatives will increase the length of delays at these locations the project's trips represent an increase of less than 10% the Year 2025 background volume. Thus, the project's effect is not significant at these locations.

The addition of Maximum Haul Project traffic will, however, increase delays at the SR 99 / Vina Road (E) intersection, and the Maximum Haul Project will cause the Level of Service to deteriorate from LOS C to LOS D in the a.m. peak hour and to LOS F in the p.m. peak hour. Thus, the effects of the project and its alternatives is inconsistent with adopted policies and operational strategies / improvements are needed.

Project Effect / Impact T-1. Project trips will result in an intersection which today is operating acceptably to deteriorate to a Level of Service that exceeds the minimum LOS C standard. Because the Level of Service will no longer meet the minimum standards the project's effects intersections is inconsistent with adopted policies. Therefore, improvements / mitigation measures are required.

Discussion. Because the traffic impacts to intersections on SR 99 of the project and its alternatives is temporary and will eventually cease when the project is completed, mitigations that can be implemented within the existing right of way and can cease when the project construction is over are applicable. In the past Caltrans District 2 has addressed temporary heavy truck access to SR 99 by requiring:

- Physical access encroachment improvements that accommodate the turning movements of large trucks. A Caltrans encroachment permit is required to construct these improvements.
- Implementing a *Construction Traffic Control Plan (CTCP)* that includes appropriate manual controls that facilitate truck access on and off the state highway. These traffic controls have sometimes included manual traffic controls for mainline SR 99 and have sometimes required construction haul scheduling and outside of peak traffic hours. An encroachment permit is required to implement a CTCP on the state highway.

Improvement / Mitigation T-1. The project proponents shall make access encroachment improvements as required by Caltrans and shall prepare and implement a Construction Traffic Control Plan (CTCP) subject to the approval of Caltrans District 2. Both actions require an encroachment permit from Caltrans. With this mitigation the project's effect based on intersection Level of Service is not inconsistent with adopted policies and safe access to the state highway can be provided.

Roadways Segment Level of Service. Table 14 identifies Year 2024 daily volumes with and without the effect of Maximum Haul Project traffic (i.e., daily PCE's). As indicated, the Maximum Haul Project does not result in any location changing from an acceptable Level of Service to an unacceptable condition. The project does add traffic to SR 99 south of South Avenue which is shown to operate at LOS F with and without the project. However, because the incremental traffic increase is less than the 10% threshold permitted under the Tehama County General Plan, the effect of the project and its alternatives is not significant and mitigation / improvement is not required. All local roads will continue to carry fewer than 2,000 vehicles per day with the project.

Figure 8 Year 2024 Plus Project (PCE) Traffic Volumes

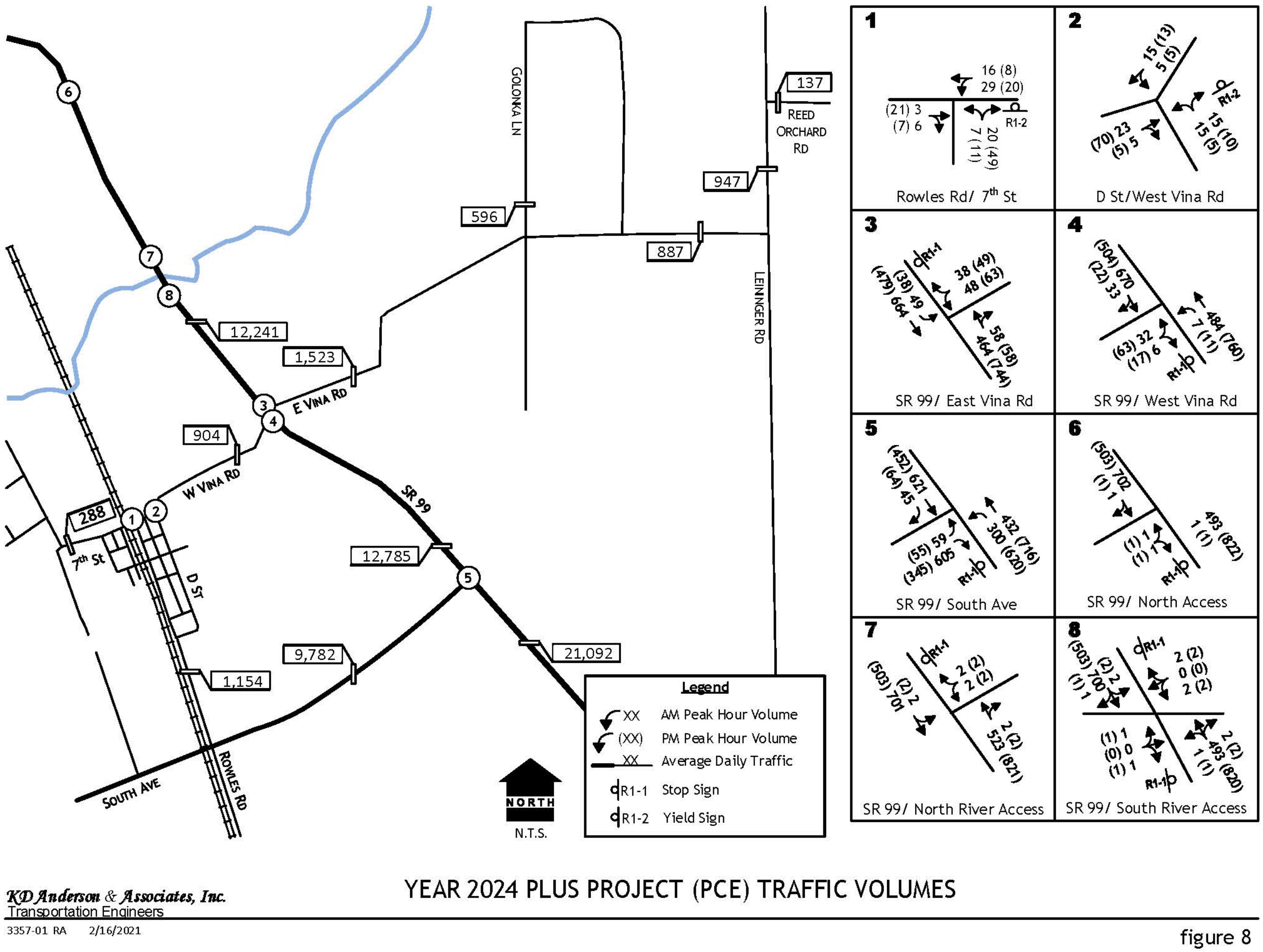


TABLE 13 EXISTING PLUS PROJECT SEPTEMBER 2024 INTERSECTION LEVELS OF SERVICE

Intersection	Control	No Project AM Peak Hour LOS	No Project AM Peak Hour Average Delay (sec)	Plus Project AM Peak Hour LOS	Plus Project AM Peak Hour Average Delay (sec)	No Project PM Peak Hour LOS	No Project PM Peak Hour Average Delay (sec)	Plus Project PM Peak Hour LOS	Plus Project PM Peak Hour Average Delay (sec)	Peak Hour Traffic Signal Warrants Met?
SR 99 / North Staging Area	EB Stop	NA	NA	C	20	NA	NA	C	19	No
SR 99 / North River Staging Area	WB stop	NA	NA	C	19	NA	NA	C	21	No
SR 99 / South River Staging Areas	EB/WB Stop	NA	NA	C	20	NA	NA	C	21	No
Rowles Road / 7th Street	NB Yield	A	9	A	9	A	9	A	9	No
D Street / Vina Road (W)	NB Yield	A	9	A	9	A	9	A	9	No
SR 99 / Vina Road (E)	WB Stop	C	16	**D**	**32**	C	22	**F**	**53**	No
SR 99 / Vina Road (W)	EB Stop	C	23	**D**	**28**	**D**	**33**	**E**	**43**	No
SR 99 / South Avenue	EB Stop	**E**	**41**	**F**	**78**	**F**	**257**	**F**	**>300**	No

Bold is Level of Service in excess of adopted minimum standard. **HIGHLIGHTED** value is a significant impact. NA = not applicable

TABLE 14 SEPTEMBER YEAR 2024 PLUS PROJECT ROADWAY SEGMENT TRAFFIC VOLUMES AND LEVEL OF SERVICE

Roadway	Location	Classification	No Project Daily Traffic	No Project Level of Service	Plus Project Daily Volume Project PCEs	Plus Project Daily Volume Total	Level of Service
State Route 99	South Avenue to Butte Co Line	Arterial	21,000[1]	F	92	21, 092	F
State Route 99	Vina Road to South Avenue	Arterial	12,125[1]	B	660	12,875	B
State Route 99	Sherman Street to Vina Road	Arterial	11,625[1]	B	616	12,241	B
South Avenue	Rowles Road to SR 99	Collector	9,2102	C	572	9,782	C
Vina Road	Rowles Road to SR 99	Local	790	C	114	904	C
Vina Road	SR 99 to Golonka Lane	Local	345	C	1,178	1,523	C
Vina Road	Golonka Lane to Leininger Road	Local	255	C	632	887	C
Golonka Lane	North of Vina Rd (E)	Local	50±	C	546	596	C
Leininger Road	Vina Road to Reed Orchard Road	Local	315	C	632	947	C
Reed Orchard Road	East of Leininger Road	Local	105	C	32	137	C
Rowles Road	Vina Road to South Avenue	Local	1,070	C	84	1,154	C
7th Street	West of Rowles Road	Local	220	C	68	288	C

[1] Year 2019 data times 1.25
[2] Year 2006 times 1.02 annually for 18 years
[3] Year 2019 January data times 1.40
BOLD values exceed LOS C
PCE's = Passenger Car Equivalents

Highway Safety Impacts

As noted earlier, the available sight distance from various locations onto SR 99 does not appear to satisfy corner sight distance requirements for heavy trucks. Uncontrolled truck access onto SR 99 therefore could result in conflicts between construction vehicles and through on SR 99.

Impact T-2 Construction truck access onto SR 99 with inadequate sight distance could result in conflicts between project traffic and through travel on SR 99. This is a significant safety impact.

Discussion. In other similar situations Caltrans District 2 has implemented construction traffic control plans which manually control the flow of through traffic on SR 99 to facilitate truck access. A construction traffic control plan would also address sight distance issues. Mitigation T-1 requires that such a plan be developed and implemented. No additional mitigation is required.

Impacts to Alternative Transportation Modes

Transit. Development of the project is unlikely to increase the need for transit services in the Vina area. The limited employment (i.e., 10 to 30 employees) accompanying this project alone would not result in an increase in transit demand that would create a significant impact that would necessitate changing current area transit operations. Project construction would not interfere with the operation of any existing transit route.

Pedestrians / Bicyclists. Development of the project will not generate additional pedestrian and bicycle traffic on the roads serving the site due to the distance from the site to complimentary residential and retail areas. The truck traffic associated with the project could incrementally contribute to additional conflicts between pedestrians, bicyclists and motor vehicles on the routes used to access portions of the project site, primarily 7th Street and Rowles Road in the community of Vina where bicyclists and pedestrians may access local businesses and the school.

Overall, the project will add truck traffic to routes that already carry large numbers of trucks without appreciable pedestrian / vehicle conflicts. However, because there are no dedicated pedestrian facilities, the possibility exists for safety conflicts. This is a potentially significant impact that requires mitigation. Because background traffic and project truck volumes are low west of SR 99, the most applicable mitigation is implementation of a construction traffic control plan for the Vina community area. The plan would be implemented when construction activity occurs in the area west of SR 99. Mitigation Measure T-1 requires a Construction Traffic Control Plan for SR 99, and the project proponents could work with Tehama County to implement a similar plan for County roads.

Impact T-3 Project construction traffic may create pedestrian / vehicle conflicts in the community of Vina. This is a potentially significant safety impact.

Mitigation T-2. The project proponents shall prepare and implement a Construction Traffic Control Plan for County Roads subject to the approval of Tehama County. With this mitigation the project's impact is not significant.

Railroad Crossing Impacts. The Project will result in traffic across the UPRR's 7th Street crossing. Although the crossing is gated, additional truck traffic has the potential for increased conflicts between trains and construction vehicles. Although this issue does not appear to represent a significant impact, because the capacity of 7th Street will not be exceeded, and no appreciable queuing is expected the County Road CTCP required under Mitigation T-2 should also address the 7th Street crossing.

Impacts to Base on Truck Activity

While the analytical analysis of roadway capacity addresses the incremental effects of trucks on Level of Service, it is also important to review the localized effects of truck traffic created by the off-tracking of truck and trailer combinations, as well as the long term effect of trucks on pavement sections.

Truck Turning Requirements and Off-Tracking. The relative impacts of project trucks on safety along the haul routes to and from the site have been considered based on consideration of potential vehicular conflicts occurring at intersections, the effects of truck off-tracking through curves and truck turns at haul route access points.

Locations where truck turns are an issue have been identified.

- There are 90 degree turns on Vina Road (E) at several locations. These turns are signed with 15 mph advisory speed signs, and the inside of the curves has been widened to accommodate trucks.
- Golonka Lane is relatively narrow.
- The alignment of Leininger Road at the Red Bridge curves on each approach to this one lane bridge. However, the bridge is signed and the area in advance of the bridge has been widened to accommodate waiting vehicles.
- The alignment of 7th Street west of the Rowles Road curves as it approaches the Abbey entrance.

Impact T-4 Project trucks may need to negotiate tight curves or intersections along the designated routes to stockpiles and project access points causing off tracking that may damage pavement. This is a significant impact.

Discussion. Some intersections or curves along routes to the project may need to be widened to accommodate the turning requirements of construction trucks. This issue can be addressed as part of the Construction Traffic Control Plan for Tehama County roads, and the project proponents would be responsible for installing needed improvements. Because this work can be included under Mitigation T-2, no further mitigation is needed.

Truck Impacts to Roadway Structural Sections. Compared to automobiles, trucks have a disproportionate impact on roadway structural sections due to their weight. Thus, the pavement of roads carrying large numbers of trucks can deteriorate quickly and maintenance can be needed more frequently.

The methodology used to assess truck loading is contained in Chapter 6 of the Caltrans Highway Design Manual (HDM). Pavements are engineered to carry the truck traffic loads expected during the pavement design life. Truck traffic, which includes transit vehicles, trucks and truck-trailers, is the primary factor affecting pavement design life and its serviceability. Passenger cars and pickups are considered to have negligible effect when determining traffic loads. Truck traffic information that is currently required for pavement engineering includes projected volume for each of various categories of truck and transit vehicle types by axle classification (2-, 3-, 4-, and 5-axles or more). This information is used to estimate anticipated traffic loading and performance of the pavement structure. Caltrans currently estimates traffic loading by using established constants for a 10 or 20-year pavement design life to convert truck traffic data into 18-kip equivalent single axle loads (ESAL's). A "kip" is a US customary unit of force. It equals 1,000 pounds-force and is used by American architects and engineers to measure engineering loads. The total projected ESALs during the pavement design life are in turn converted into a Traffic Index (TI) that is used to determine minimum pavement thickness.

While traffic loadings on private roads are not necessarily an impact under Tehama County guidelines or CEQA the project will add truck traffic to the individual haul routes between public roads and work sites. These routes were designated on Figure 3. While the amount of material hauled on each route will vary from day to day, Table 15 indicates average daily truck trips (vehicles) on these facilities with the Maximum Haul Project. Measures to maintain private facilities would be negotiated with affected property owners as rights to access are acquired, and no additional mitigation is required.

TABLE 15 HAUL ROUTE TRUCK TRIPS

Haul Route	Average Daily Truck Traffic (vehicle trips)
A	6
B	8
C	6
D	8
E	20
F	130
G	224
H	42
I	4

Truck Forecasts. Table 16 identifies the projected daily one-way truck volume data developed for the midpoint of 20 year background forecasts, as well as the resulting tabulation of ESAL's. In the case of background truck loadings, the 20 year average volume assumes that local roads will see annual traffic increase of 2% based on a general annual population growth rate that is commonly applied in the absence of other information. Thus, current truck activity will increase by 21% to the 10 year midpoint.

With the Maximum Haul Project a total of 101,408 one-way truck trips are expected to result over the 240 day life of project construction, including trucks hauling cut/fill materials to and from the site and trucks hauling equipment and other building materials to the site. For the purpose of developing 20 year AADT used for this analysis, the annual truck trip total is divided by 20 years and by 365 days, resulting in 14 truck trips per "annual average" day. This is equivalent to 7 one-way trips per direction over twenty years. Table 16 illustrates the average daily vehicle volume for the 240 day construction year and the average ESAL's contribution spread out over 365 day and twenty years. Because these calculations spread traffic over twenty years the Maximum Haul Project's contribution is relatively small.

Traffic Index. To identify applicable TI's it is necessary to compare the total one-way ESALs' in each lane to the TI thresholds in HDM Table 613.3C. As shown in Table 17 below, the number of ESAL's added by the Maximum Haul Project changes the 20 year TI calculated for Leininger Road. Thus, the project's truck traffic could be expected to change the need for and nature of regular maintenance on the road.

As a practical matter, a concentration of heavy trucks in a short time period as caused by the project can accelerate the need for maintenance that may otherwise be spread over 20 years. This is especially true where pavement condition is already poor, or at intersections or on tight curves. Because project trucks will be concentrated into a short period and the current structural section of study area roads is unknown, the project could cause damage to the roads carrying large numbers of trucks such as Vina Road (E), Golonka Lane and Leininger Road.

Because the structural make up of these roads is unknown, the exact nature of improvements that should be made is unknown. The typical mitigation practice for construction projects is to work with Tehama County to inventory the condition of each road prior to construction and then make the improvements needed to return the roadway to at least the "before Project" condition after construction is completed. Alternatively, the project proponents and Tehama County could agree to a proactive approach that makes improvements prior to construction. However, identification of the extent of those improvements is beyond the scope of this assessment.

Impact T-5 Project truck traffic may cause structural damage to Vina Road, Golonka Lane and Leininger Road. This is a potentially significant safety impact.

Mitigation T-3. The project proponent shall be responsible for inventorying the pavement condition on Vina Road (E), Golonka Lane and Leininger Road north of Vina Road (E) to the Red Bridge and for returning the pavement to the "before project" condition to the satisfaction of Tehama County after the project is completed.

TABLE 16 20-YEAR ONE-WAY EQUIVALENT SINGLE AXEL LOADS

Road	Condition	Auto AADT	Auto ESALs	2 axle truck AADT	2 axle truck ESALs (1,380)	3 axle truck AADT	3 axle truck ESALs (3,680)	4 axle-truck AADT	4 axle-truck ESALs (5,880)	≥ 5 axles AADT	≥ 5 axles ESALs (13,780)	Total AADT	Total ESALs
Vina Road (W) – Rowles Rd to SR 99	2019 total one-way	223	0	55	75,900	2	7,360	2	11,760	1	13,780	283	108,800
Vina Road (W) – Rowles Rd to SR 99	20 year average[1]	47	0	12	16,560	<1	1,546	<1	2,470	<1	5,788	59	26,364
Vina Road (W) – Rowles Rd to SR 99	Project only[2]	2	0	0	0	18	1,586	0	0	0	0	NA	1,586
Vina Road (W) – Rowles Rd to SR 99	**Total**	**NA**	**0**	**NA**	**92,460**	**NA**	**10,492**	**NA**	**14,230**	**NA**	**19,568**	**NA**	**136,750**
Vina Rd (E) – SR 99 to Golonka Ln	2019 total one-way	74	0	47	64,860	0	0	3	17,640	0	0	122	82,500
Vina Rd (E) – SR 99 to Golonka Ln	20 year average[2]	16	0	10	13,800	0	0	<1	3,704	0	0	26	17,504
Vina Rd (E) – SR 99 to Golonka Ln	Project only[2]	24	0	0	0	198	26,950	0	0	1	689	NA	27,639
Vina Rd (E) – SR 99 to Golonka Ln	**Total**	**NA**	**0**	**NA**	**78,660**	**NA**	**26,950**	**NA**	**21,344**	**NA**	**689**	**NA**	**127,643**
Vina Rd (E) – Golonka Ln to Leininger Rd	2019 total one-way	51	0	40	55,200	0	0	0	0	0	0	91	55,200
Vina Rd (E) – Golonka Ln to Leininger Rd	20 year average[1]	11	0	9	12,420	0	0	0	0	0	0	20	12,420

Road	Condition	Auto AADT	Auto ESALs	2 axle truck AADT	2 axle truck ESALs (1,380)	3 axle truck AADT	3 axle truck ESALs (3,680)	4 axle-truck AADT	4 axle-truck ESALs (5,880)	≥ 5 axles AADT	≥ 5 axles ESALs (13,780)	Total AADT	Total ESALs
Vina Rd (E) – Golonka Ln to Leininger Rd	Project only[3]	20	0	0	0	133	16,090	0	0	1	689	NA	16,779
Vina Rd (E) – Golonka Ln to Leininger Rd	**Total**	**NA**	**0**	**NA**	**66,240**	**NA**	**16,090**	**NA**	**0**	**NA**	**689**	**NA**	**84,399**
Leininger Rd – Vina Rd to Reed Orchard Rd	2019 total one-way	67	0	39	53,820	0	0	2	11,760	0	0	108	65,580
Leininger Rd – Vina Rd to Reed Orchard Rd	20 year average[1]	14	0	8	11,040	0	0	<1	2,470	0	0	23	13,510
Leininger Rd – Vina Rd to Reed Orchard Rd	Project only[3]	20	0	0	0	133	16,090	0	0	1	689	47	16,779
Leininger Rd – Vina Rd to Reed Orchard Rd	**Total**	**NA**	**0**	**NA**	**64,680**	**NA**	**16,090**	**NA**	**11,760**	**NA**	**689**	**152**	**95,869**
7th Street – West of Rowles Rd	2019 total one-way	62	0	16	22,080	1	3,680	0	0	0	0	79	25,760
7th Street – West of Rowles Rd	20 year average[1]	13	0	3	4,140	<1	1,546	0	0	0	0	17	5,686
7th Street – West of Rowles Rd	Project only3	5	0	0	0	10	1,209	0	0	0	0	NA	1,209
7th Street – West of Rowles Rd	**Total**	**NA**	**0**	**NA**	**26,220**	**NA**	**6,435**	**0**	**0**	**0**	**0**	**NA**	**32,655**

Road	Condition	Auto AADT	Auto ESALs	2 axle truck AADT	2 axle truck ESALs (1,380)	3 axle truck AADT	3 axle truck ESALs (3,680)	4 axle-truck AADT	4 axle-truck ESALs (5,880)	≥ 5 axles AADT	≥ 5 axles ESALs (13,780)	Total AADT	Total ESALs
Reed Orchard Rd – East of Leininger Rd	2019 total	21	0	16	22,080	0	0	0	0	0	0	37	22,080
Reed Orchard Rd – East of Leininger Rd	20 year average[2]	5	0	3	4,140	0	0	0	0	0	0	8	4,140
Reed Orchard Rd – East of Leininger Rd	Project only[3]	4	0	0	0	2	242	0	0	0	0	NA	242
Reed Orchard Rd – East of Leininger Rd	**Total**	**NA**	**0**	**NA**	**26,220**	**NA**	**242**	**0**	**0**	**0**	**0**	**NA**	**26,462**
Rowles Rd – South Ave to 7th St	2019 total one-way	281	0	85	117,300	1	3,680	6	35,280	10	137,800	383	294,060
Rowles Rd – South Ave to 7th St	20 year average[1]	59	0	18	24,840	<1	1,546	1	5,880	2	27,520	80	59,786
Rowles Rd – South Ave to 7th St	Project only[3]	2	0	0	0	13	1,572	0	0	0	0	NA	1,572
Rowles Rd – South Ave to 7th St	**Total**	**NA**	**0**	**NA**	**142,140**	**NA**	**6,798**	**NA**	**41,160**	**NA**	**165,320**	**NA**	**355,418**

[1] incremental increase in average daily traffic over 10 years
[2] average trucks per day over 240 day construction season with Maximum Haul Project. ESAL's for 20 year equivalent daily truck volume.

TABLE 17 TOTAL ONE-WAY EQUIVALENT SINGLE AXEL LOADS & TRAFFIC INDICES

Road	Location	Total ESALs (Background Traffic Over 20 Years)	Traffic Index (Background Traffic Over 20 Years)	Total ESALs (Lower Deer Creek Maximum Haul Project)	ESALs (Background Traffic Plus Maximum Haul Project)	Traffic Index (Background Traffic Plus Maximum Haul Project)
Vina Road (W)	Rowles Rd to SR 99	135,164	7.0	1,586	136,750	7.0
Vina Road (E)	SR 99 to Golonka Lane	100,004	7.0	27,639	127,643	7.0
Vina Rd (E)	Golonka Ln to Leininger Road	67,620	6.5	16,779	84,399	6.5
Leininger Road	Vina Road to Reed Orchard Road	79,090	6.5	16,779	95,869	7.0
Reed Orchard Road	East of Leininger Road	26,220	6.0	242	26,462	6.0
7th Street	West of Rowles Road	31,446	6.0	1,209	32,655	6.0
Rowles Road	South Avenue to 7th Street	353,846	8.0	1,572	255,418	7.5

Highlighted values would be a significant effect

CUMULATIVE IMPACTS

This report section would typically describe the cumulative impacts of other development in Tehama County, regional traffic growth and implementation of area wide circulation system improvements over the foreseeable future. However, because the project will no longer generate automobile and truck traffic after construction is completed, the project has no long term cumulative impact, and further analysis is not required.

The extent to which other development projects may be completed and generating traffic on study area roads by the time the project was constructed in 2024 has been considered. However, no projects were identified that would not already be included in the assumed background traffic growth rate.

TECHNICAL APPENDIX
FOR THE
LOWER DEER CREEK
FLOOD AND ECOSYSTEM IMPROVEMENT PROJECT, PHASE 1
TRAFFIC IMPACT ANALYSIS

The technical appendix is available upon request from Amy Lyons via email amy.lyons@water.ca.gov or by calling (530) 528-7439. Requests can also be mailed to the following address:

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