

# HEAVY TRUCK ALTERNATIVES ASSESSMENT

DATE: June 28, 2022

TO: Woody Deloria | El Dorado County Transportation Commission

FROM: Carl Springer, Jim Damkowitch | DKS Associates

SUBJECT: SR 49 America River Confluence Study

Project #21202-000

## BACKGROUND AND PURPOSE

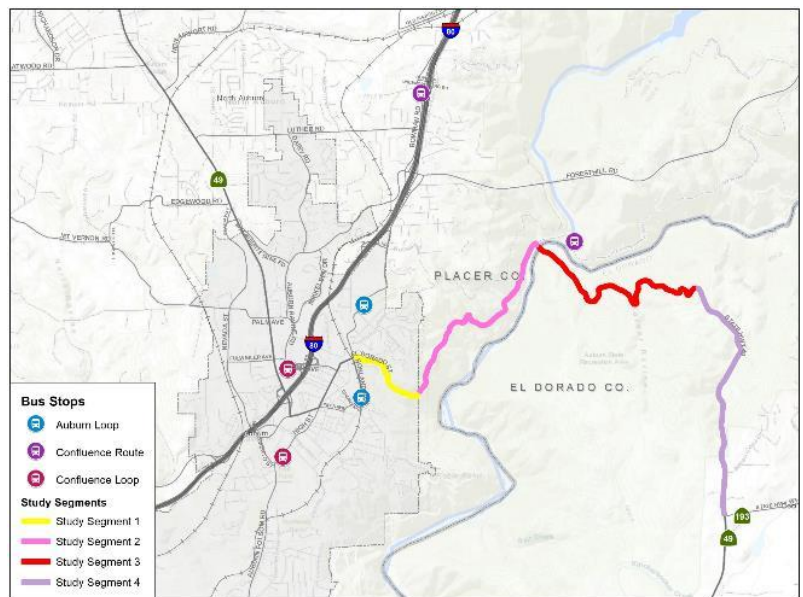
This memorandum provides an assessment of heavy-duty truck activity on State Route (SR) 49 between the City of Auburn in Placer County and the unincorporated town of Cool in El Dorado County. The assessment includes a summary of concerns expressed by the public regarding the presence of over-sized trucks in the study corridor, an evaluation of trucking demand that is contributing to the presence of over-sized vehicles, key problem areas associated with roadway curvature and grade that present the most issues for over-size vehicles and recommended remedies and improvements to limit the presence of over-sized vehicles in the study corridor.

## STUDY AREA

The study area is shown in **Figure 1** and runs along SR 49 from Lincoln Way in Auburn to Georgetown Road in Cool. The Post Mile (PM) starts at 2.35 in Placer County to PM 34.5 in El Dorado County. The segments were split as follows:

- Segment 1 (PM 2.35 to 1.75)
- Segment 2 (PM 1.75 to 0.0)
- Segment 3 (PM 38.2 to 36.5)
- Segment 4 (PM 36.5 to 34.5)

Existing transit and shuttle service stops are also shown.



**FIGURE 1: STUDY AREA IN SEGMENTS**

SR 49 in the study corridor is designated for use by California Legal sized trucks but with a KPRA Advisory ranging from 30 to 38 feet KPRA (kingpin to rear axle). However, it is not uncommon to see longer STAA-sized vehicles (48-53 feet KPRA) using SR 49 in the study corridor (over 30% of trucks using the SR 49 in the study corridor are 5+ axle trucks).

## PUBLIC CONCERNS

In addition to evaluating current heavy truck usage within the study corridor, a summary of truck related comments and input received from the public thus far into the study are provided herein. Public input has been provided by several means during the SR 49 America River Confluence Study. This includes direct input received during the first public workshop (April 6, 2022), comments provided on the study’s interactive web-based mapping tool (Social Pinpoint), and input received from the on-line community survey. Summaries of truck related input from the Social Pinpoint site and the community survey are provided in **Table 1** and **Table 2** respectively. Truck related community survey responses are provided in **Figure 2**. The latter indicates that of the 108 survey respondents, the presence of trucks in the confluence is their highest priority safety concern and that strategies to reduce the presence of trucks in the study corridor would be highly supported.

**TABLE 1: SOCIAL PINPOINT (INTERACTIVE WEB-BASED MAPPING TOOL FOR PUBLIC INPUT)**

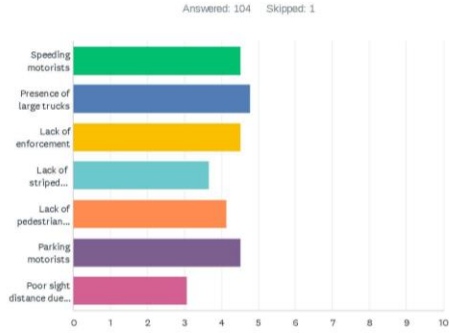
<b>SOCIAL PINPOINT COMMENTS</b>		
<b>General Topic</b>	<b>General Comment/Concern</b>	<b># Received</b>
<b>Truck Size Restrictions</b>	53-foot truck stuck on this curve 4-20-22 am. There MUST be truck size RESTRICTIONS not Advisements. Prohibit extra longs trucks from this corridor	6
<b>Alternative Truck Routes</b>	Highway 49 Bypass Bridge, reroute on Highway 50 to Folsom Crossing	5
<b>Proper Multilingual Signage</b>	Multilingual Signs, Stop Signs, Traffic Lights, Blinking Lights prohibiting trucks	5
<b>Evacuation Concerns</b>	Road is 1 of only 3 evacuation routes near Cool and oversized trucks generally get stuck on tight turns	2
<b>Large Trucks Cause Traffic &amp; Evacuation Concerns</b>	Long trailers get stuck and cause traffic. No room for them to turn.	6

**TABLE 2: COMMUNITY SURVEY (PROVIDED ON PROJECT WEB-SITE AND PUBLIC WORKSHOP)**

<b>SURVEY QUESTIONS</b>		
<b>General Topic</b>	<b>General Comment/Concern</b>	<b># Received</b>
<b>Pedestrian Bridge&gt; Bypass</b>	Concerns about eliminating big truck traffic. Do not want to see another bridge. Prefer a pedestrian bridge	1
<b>Signage to Prohibit Trucks</b>	Better signage at the top of the canyon to prohibit trucks	8
<b>Bypass Bridge</b>	Bypass bridge to reroute trucks between Cool and Auburn	1
<b>Truck Issues</b>	Semi Trucks too large to navigate in corridor, semi's cause massive delays	2
<b>Safety Issues</b>	Driver hit by oversized Semi w/ 12K in damages, safety issues for residents during emergencies	3
<b>Passing Lane</b>	Passing lane for heavy equipment trucks	1

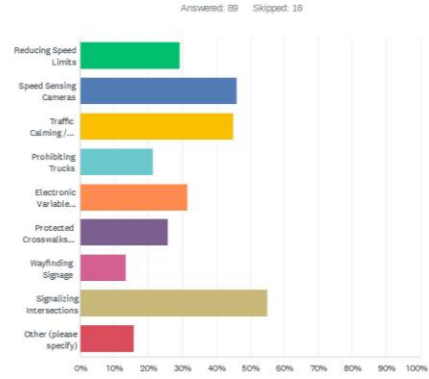
**FIGURE 2: COMMUNITY SURVEY (PROVIDED ON PROJECT WEB-SITE AND PUBLIC WORKSHOP)**

**Q4 In your opinion, what are the biggest safety concerns in the American River Confluence corridor? Rank these in order with 1 being most important and 5 being least important.**



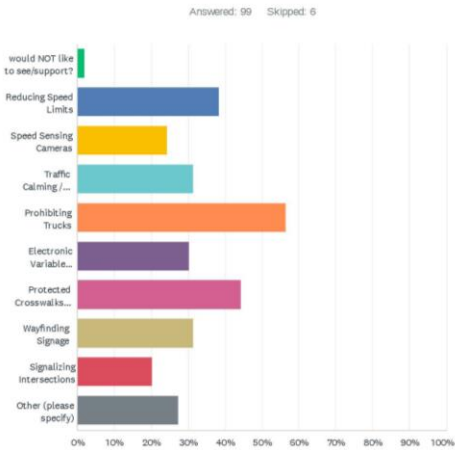
	1	2	3	4	5	6	7	TOTAL	SCORE
Speeding motorists	17.39%	20.65%	15.22%	16.30%	11.96%	11.96%	6.52%	92	4.53
Presence of large trucks	27.27%	17.05%	13.64%	12.50%	7.95%	7.95%	7	88	4.77
Lack of enforcement	18.18%	19.32%	17.05%	12.50%	17.05%	7.95%	7.95%	88	4.53
Lack of striped pedestrian crossings	2.44%	9.76%	23.17%	19.51%	18.29%	15.85%	10.98%	82	3.67
Lack of pedestrian walkways / signage / wayfinding	15.29%	10.59%	14.12%	17.65%	22.35%	14.12%	5.88%	85	4.13
Parking motorists	24.47%	19.15%	10.64%	11.70%	8.51%	15.06%	9.57%	94	4.53
Poor sight distance due to road curvature	10.47%	6.99%	10.47%	11.63%	9.30%	13.95%	37.21%	86	3.07

**Q5 Of the roadway safety improvements listed below mark those you would NOT like to see/support?**



ANSWER CHOICES	RESPONSES
Reducing Speed Limits	29.21% 26
Speed Sensing Cameras	46.07% 41
Traffic Calming / Roundabouts/ Signage	44.94% 40
Prohibiting Trucks	21.35% 19
Electronic Variable Message Signs (e.g., speed warnings)	31.46% 28
Protected Crosswalks (Striping with Flashing Beacons)	25.84% 23
Wayfinding Signage	13.48% 12
Signalizing Intersections	55.06% 49
Other (please specify)	15.73% 14
Total Respondents: 89	

**Q6 Of the roadway safety improvements listed below – mark those you WOULD support.**



ANSWER CHOICES	RESPONSES
would NOT like to see/support?	2.02% 2
Reducing Speed Limits	38.39% 38
Speed Sensing Cameras	24.24% 24
Traffic Calming / Roundabouts/ Signage	31.31% 31
Prohibiting Trucks	56.57% 56
Electronic Variable Message Signs (e.g., speed warnings)	30.30% 30
Protected Crosswalks (Striping with Flashing Beacons)	44.44% 44
Wayfinding Signage	31.31% 31
Signalizing Intersections	20.20% 20
Other (please specify)	27.27% 27
Total Respondents: 99	

## ADVERSE IMPACTS OF OVERSIZED TRUCKS USING THE CORRIDOR

The reason that truck length restrictions are applied to SR 49 within the study area is the winding roadway alignment and sharp curves (switchbacks) that are not suitable for larger trucks. The national truck network that serves interstate truck travel have higher design standards that allow for vehicles with a KPRV up to 53 feet, which is 15 feet longer than allowed on SR 49.

When an oversized trucks use the constrained portion of SR 49, they may experience one or more of the following safety issues. These safety issues are compounded where the highway has a series of sharp horizontal curves that are closely spaced, such the highway segment between Cool and Old Foresthill Road, which is next to the middle fork of the American River. A few examples of safety issues associated with oversized trucks are noted below, which are illustrated by photos provided by local citizens that observed these incidents.

- The back end of the trailer will track across the centerline into the opposite travel lane
- As shown in the photo at right (see **Figure 1**), there was an oncoming car that was trapped by the truck, so all traffic stopped until the situation was resolved
- In other cases, trucks that crossed the centerline crashed into oncoming vehicles.
- Or in some extreme cases, the truck could block both other vehicles in both directions while navigating a series of sharp corners (see **Figure 2**)

In addition to the above photos that illustrate safety issues, the public outreach for this study asked about other concerns or issues associated with oversized trucks on this route, the responses raised the following additional issues:

- Highway blockage during emergency or evacuation events
- Lane departures onto shoulder areas at locations where there are parked cars or pedestrians that are trying to access nearby recreational areas

Community concerns regarding over-sized trucks potentially inhibiting or even blocking the ability for passenger vehicles to pass during an evacuation event have dramatically increased since the Calder Fire 2021 (burned 221,835 acres, destroyed 1,003 structures, 50,000 people evacuated) and more the Bridge Fire which occurred just north of the SR 49 confluence (411 acres).



**FIGURE 2: OVERSIZE TRUCK TRACKING INTO OPPOSITE LANE**



**FIGURE 3: OVERSIZE TRUCK BLOCKING BOTH DIRECTIONS**

## CURRENT TRUCK ACTIVITY ON SR 49 WITHIN THE STUDY CORRIDOR

Daily traffic volumes on SR 49 between Interstate 80 in Auburn and US 50 in Placerville range from under 3,000 vehicles near Coloma to nearly 9,000 vehicles at either end of the corridor according to Caltrans 2020 volume records. Daily truck traffic volumes within the corridor range from about 300 near Coloma to just under 700 near Interstate 80. When considering the impact of truck activity, it is important to categorize the truck volumes by vehicle size and trip purpose.

For volume counting purposes, trucks are categorized by the number of axles on the vehicle, ranging from 2 axles to 5 axles. In general, 5 axle trucks exceed the legal length restriction for SR 49, which allows no more than 38 feet KPRA. Therefore, by identifying trucks that have 5 axles or more we can better understand the level of illegal truck usage in this corridor.

### 2020 TRAFFIC VOLUMES

The average daily traffic volumes in 2020 for all vehicles and for trucks is tabulated on the following page. As shown in **Table 3**, the share of trucks and the number of oversized trucks, with 5 or more axles, are presented for several segments in the study corridor. The share of oversized trucks generally accounts for between 20 and 30% at these observation points, which represents between 120 and 200 5-axle vehicles each day. While this is small share of the total traffic in the corridor, the disruption caused by these larger truck vehicles on all vehicle traffic is significant, as highlighted in the following section.

**TABLE 3: VEHICLE TRAFFIC ACTIVITY ON SR 49 CORRIDOR (ANNUAL AVERAGE DAILY VOLUME)**  
SELECTED SEGMENTS BETWEEN COLOMA AND INTERSTATE 80

LOCATION ON SR 49 CORRIDOR	TOTAL TRAFFIC (AADT)	TRUCK TRAFFIC (AADT)	PERCENT TRUCKS (5 OR MORE AXLES)	NUMBER OF OVERSIZED TRUCKS (5 OR MORE AXLES)
COLOMA, SOUTH OF ROUTE 153 WEST	4,850	340	26%	123
COOL, NORTH OF ROUTE 193 EAST	8,800	640	31%	200
AUBURN, INTERSTATE 80, SOUTH OF EB ON/OFF RAMPS	8,500	690	19%	133

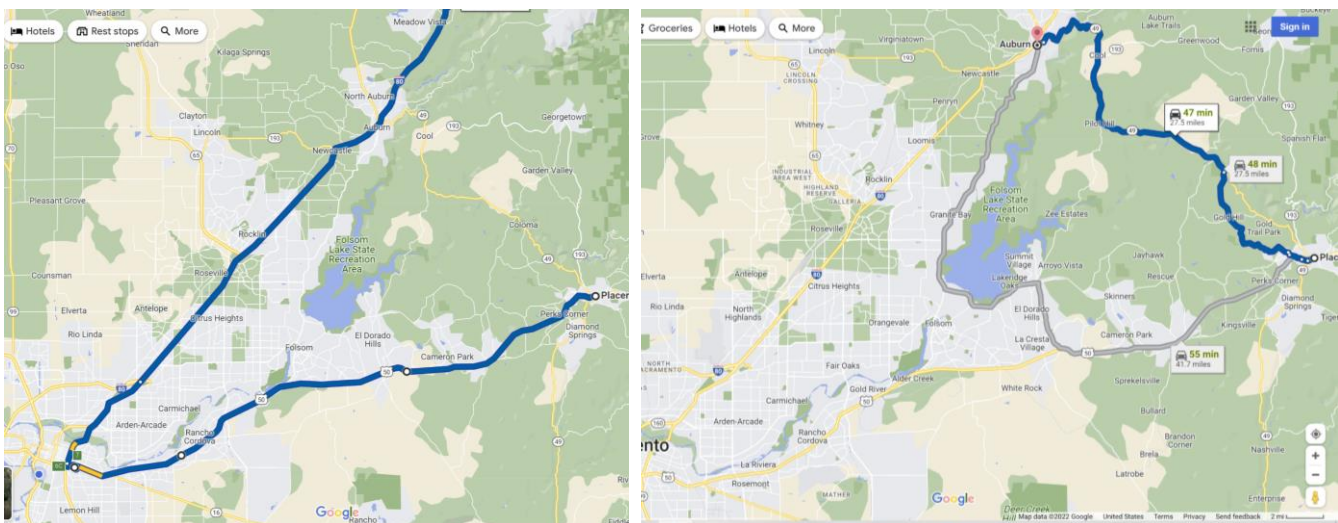
AADT = Annual Average Daily Traffic volumes.  
Source: 2020 Truck AADT Volumes, Caltrans.

## LOCAL VERSUS 'CUT-THROUGH' TRUCK TRIP PURPOSES

The other aspect of truck travel activity that is important to consider is the difference between trucks that have local origins or destinations along the corridor versus 'cut-through' trips. Many local trips are made by trucks that are associated with local farms and quarries, which use legal sized vehicles and represent legitimate uses of the highway. On the contrary, trucks that use SR 49 as a 'cut-through' to take a shorter path between US 50 and I-80 and bypass the freeway-to-freeway connections in Downtown Sacramento are doing so for their convenience and trip efficiency (See **Figure 3**). The prevalence of 48-to-53 foot trailers has increased over the last 40 years and this trend is expected to continue. The economics of trucking and specifically STAA-sized trucks is very sensitive to excess miles and time. This promotes the use of the shortest practical route to get to and from a location and not increasing exposure to incidents by driving other than the most direct route. The perspective of most trucking companies is to defer to the judgment of the driver to pick a safe route rather than to regulate every section of every roadway that may be used by trucks of various configurations.

This distinction between local and cut-through truck trips was evaluated using StreetLight Data for 2019. That analysis revealed that 9 out of 10 truck trips that were traveling westbound on I-80 in Auburn and had destinations east of Placerville on US 50 used SR 49 as a 'cut-through' route rather than take the long route through downtown. A similar level of 'cut-through' activity was observed for the opposite direction, from westbound US 50 to I-80 east of Auburn. This was a significant finding and was estimated to account for up to 75 truck trips each day pass through the SR 49 corridor.

**FIGURE 3: I-80 AND US 50 SWITCHBACK AND SR 49 CORRIDOR SHORT-CUT**



## ENFORCEMENT

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The Surface Transportation Assistance Act of 1982 (STAA) permitted motor carrier operation of 48-foot and 53-foot semi-trailers on the national highway network and allowed states to permit these “STAA vehicles” on state and local routes as well. Designation of STAA routes is premised on engineering and safety standards (i.e., adequate footprint to accommodate truck turn radius requirements, gross vehicle weight, vertical clearance height etc.)<sup>1</sup>. In California, Caltrans administers these regulations while the California Highway Patrol (CHP) is charged with enforcement. The CHP has the authority to issue citations for violations that involve operating STAA sized equipment on routes that are not formally designated as STAA routes (National Network or Terminal Access Routes) such as SR 49 between the cities of Auburn and Placerville. An STAA violation typically costs \$300.

SR 49 through the study corridor is a designated “Advisory Route”. Advisory Routes are state highways that Caltrans has posted for tractor semi-trailer combinations where exceeding a given KPRA length, usually 30 feet, is not advised. These routes are posted with yellow rectangular sign (SW 48(CA) and state the KPRA length limitation on that highway segment. Warning signs are posted on both ends of this portion of SR 49 (in Auburn and Placerville) to notify truck drivers of truck length restrictions. However, the signage in Auburn and Placerville is not visually prominent and is either not seen or ignored. Given the signage shortfalls, and the lack of other easily accessible STAA route information, truckers and dispatchers are often left using their own judgment regarding the safety and negotiability of possible routes.

Opinions expressed by a representative of California Trucking Association (CTA) is typically truckers do not know the STAA restrictions and those who do know, don’t care, and don't need to care except when ticketed by enforcement. Instead, “take a chance, and pay the fine if you must” is the true character of the STAA requirements. Caltrans District-3 has a Truck Service Specialists who assist its Districts, counties, municipalities, commercial motor carriers, truck drivers and applicants go understand the applicable law and regulations. Given that neither drivers nor trucking company managers are commonly knowledgeable about STAA requirements, enforcement of STAA regulations is problematic and subject to inconsistency. STAA violations are not a high priority for either CHP officers or local police<sup>2</sup>.

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<sup>1</sup> U.S. Code of Federal Regulations at Part 658 “Truck Size and Weight, Route Designations—Length, Width and Weight Limitations” and in the California Vehicle Code at Section 35401.7

<sup>2</sup> Source: *Interregional Truck Operations on I-5 and SR 99 and STAA Routes Improvement Study*, SACOG & SJCOG, June 2012.

## POTENTIAL FREIGHT AND GOODS MOVEMENT SAFETY SOLUTIONS

To reduce the amount of truck traffic on SR 49 (currently ranging from 2-5% of total daily traffic), increased enforcement can serve as a deterrent to STAA-sized vehicles. A big issue is that on-board navigation systems typically used by truckers such as STAR do not strictly adhere or even recognize the STAA designated network (national and local terminal access or T routes). Hence, the most effective strategies to provide information to truckers is through more effective signage and better communications such as Highway Advisory Radio (HAR). To minimize trucks routing through the confluence area of the corridor, identification of low-cost signage strategies and advisories programs and locations for over-sized trucks recourse and reroute off of SR 49.

To address the safety and operational issues related to oversized trucks in the corridor, a roster of potential solutions were considered. The solutions focused on strategies that help to reduce through truck traffic, upgrade the existing facility where critical safety conflict exist, and consider upgraded traffic control measures a key road junction. Specific actions that are recommended include the following items. These are also listed in **Table 4**.

1. Install "No oversize truck" signs at gateways to the corridor
2. Provide a turnaround opportunity for oversized trucks to return to the legal route. One example is the planned roundabout at Lincoln Way and SR 49.
3. Increase enforcement of truck length violations entering the corridor
4. Coordinate with STAR, the truck navigation system, restrict access for trucks over 38 feet KPRA
5. Improve coordination with communication channels sch as Highway Advisory Radio (HAR)
6. Encourage local and regional agencies to coordinate with the CHP to encourage greater enforcement on SR 49 including ticketing STAA-sized vehicles (48-53 feet KPRA)

**TABLE 4: SR 49 CORRIDOR TRUCK RELATED CAPITAL IMPROVEMENT RECOMMENDATIONS**

ID	Segment	Location	Category	Project Type	Project Description	Source
<b>Freight and Goods Movement</b>						
D1	1	I-80/SR 49 interchange	Freight & Goods Movement	Signage	Add "No oversize truck access" sign	Social Pinpoint
D2	1	High St & Elm Ave	Freight & Goods Movement	Signage	Add "No oversize truck access" sign	Social Pinpoint
D3	1	Lincoln Way & SR 49	Freight & Goods Movement	Signage	Add "No oversize truck access" sign	Social Pinpoint
D4	1	Lincoln Way & SR 49	Freight & Goods Movement	Operational	Roundabout to allow for truck turnaround	Under Construction
D5	N/A	US 50 & Spring St	Freight & Goods Movement	Signage	Large "No oversize truck access" sign	DKS Team
D6	N/A	US 50 & Coloma St	Freight & Goods Movement	Signage	Large "No oversize truck access" sign	DKS Team