Supplemental Traffic Report

Pla-65-03-1F170K

Bus/Carpool Lanes Project

In and Near the City of Rocklin, in Placer County, on Rt-65 from North of the Harding/Galleria OC to Industrial Avenue.

PM R6.5/T12.8

District 3

Office of Freeway Operations, Sacramento

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INTRODUCTION

Caltrans is addressing the need for operational, safety and capacity improvements on a segment of State Route 65 in Placer County. The project proposes to add median HOV lanes in both directions from north of the Harding/Galleria Overcrossing Interchange (PM R6.5) to the Industrial Avenue Interchange (PM T12.8). This is a supplemental traffic report to the original traffic report dated January 2011.

The list of alternatives range from the No Build Alternative to an ultimate build alternative, which would add auxiliary lanes along with the median HOV lanes.

BACKGROUND

Route 65 is an important interregional route that serves both local and regional traffic. The route serves as a major connector for both automobile and truck traffic originating from the I-80 corridor (in the Roseville/Rocklin area) and the Route 70/99 corridor (in the Marysville/Yuba City area). Route 65 is a vital link from housing in Sutter and Yuba Counties to regional employment centers in Placer County. It is also an important route for the transport of aggregate, lumber and other commodities.

Most of the alternatives proposed in this project are consistent with the Sacramento Area Council of Governments (SACOG) Transportation Plan and State transportation plans to provide mobility, congestion relief and a reduction of transportation-related air pollution in the region.

NEED AND PURPOSE

The purpose of this project is to reduce congestion, increase capacity, and improve traffic operations and safety in this segment of the highway. The project, along with other future planed projects, would help accommodate present and future traffic demand while minimizing environmental impacts.

This segment of Route 65 is currently experiencing operational problems caused by high peak period traffic volumes. Congestion delay exists in the southbound direction during the AM peak period and in the northbound direction during the PM peak period. Forecast data shows that additional volumes and delay to southbound Route 65 will be created by future downstream bottlenecks on I-80 in the westbound direction. Vehicle hours of delay, average speeds, travel times, and other traffic performance measures will continue to degenerate as growth increases in the surrounding areas.

The build alternatives would minimize the impacts of air and noise pollution and traffic congestion because they move more people in fewer vehicles than a mixed-flow lane. HOV lanes also assure reliable travel times for carpools, vanpools, buses, and other HOV lane users. In addition, HOV lanes on this segment of Route 65 would allow connectivity and consistency with the HOV lanes on I-80 and the proposed HOV lane flyover connectors at the I-80/Rt-65 Interchange.

Federal highway and environmental regulations require that any new freeway lanes in non-attainment areas be HOV lanes. Construction of mixed-flow lanes is problematic because they do not meet air quality standards.

The authority for establishing HOV lanes was established in Section 25485 of the California Public Resources Code, Section 149 of the Streets and Highways Code, and Section 21655.6 of the California Vehicle Code.

EXISTING CONDITIONS

Geometry

Route 65, within the study limits, is a four-lane divided highway. Lane widths are 12 feet. Outside shoulder widths are 10 feet and inside shoulder widths are 5 feet. The median width varies from 43 feet to 78 feet.

Existing and Forecast Volumes

The most recent and forecast AADT volumes are shown in Table 1. The columns labeled V/C are the theoretical volume to capacity ratios. Congested conditions occur when the V/C ratio approaches 1.0. The V/C ratio approached or exceeded 1.0 in all segments and in all years, validating the need for increased capacity in this segment of Rt-65.

The V/C ratios were based on directional split percentage factors provided by the Office of Planning and Travel Forecasting. A 65/35 percentage split was provided for the volumes in the southern segment and a 58/42 percentage split was provided for the volumes in the northern end segment. A lane capacity of 1,900 vehicles per hour per lane (vphpl) was chosen (3,800 per direction), based on information from the Highway Capacity Manual (HCM, 2000).

Table 1
Existing and Forecast Rt-65 Mainline Volumes and V/C

Base Year	R6.5/R8.23			R8.23/T12.8		
	AADT	Peak Hour	V/C	AADT	Peak Hour	V/C
2010	99,000	7,800	1.3	65,000	5,100	0.8
2020	129,200	10,100	1.7	74,700	5,750	0.9
2030	157,700	12,300	2.1	82,000	6,310	1.0
2040	186,200	14,500	2.5	89,200	6,870	1.0

OPERATIONS

Peak period congestion currently exists in both directions in the southern end of the project near the I-80/Rt-65 Interchange. The most recent AADT information in this segment showed a V/C ratio of 1.3. This ratio was derived by multiplying the 65% split with the peak hour volume and dividing by the capacity (0.65 x 7,800 vph ÷ 3,800 vph = 1.3).

Northbound

The northbound Route 65 mainline lanes experience PM peak period congestion approaching the Stanford Ranch Interchange. PM trips generated from the Galleria Mall are also responsible for the congested conditions in this segment. Merge/weave turbulence at the westbound I-80 connector to northbound Rt-65 is the cause of some bottleneck congestion.

Southbound
Traffic monitoring observations for the mainline lanes shows congestion during the AM peak period starting at the Pleasant Grove Interchange and extending south to the I-80 connector Interchange. Southbound PM congestion occurs during the peak period as well. A large volume of PM trips is generated from the Galleria Mall and adds to the high PM commute period. The recently completed HOV lanes on I-80 have reduced I-80 congestion and permit a smoother less congested transition from southbound Rt-65 to westbound I-80.

TRAFFIC SAFETY

Traffic accident data was obtained from the Caltrans Traffic Accident Surveillance and Analysis System (TASAS). The most recent TASAS Table B for the period from January 2008 through December 2010 is shown in Table 2.

TABLE 2
TASAS TABLE B
(January 1, 2008 to December 31, 2010)

Location	PM	Number of Accidents				Accident Rate					
						Actual			Average		
		Total	Fatal	Injury	F+I	Fatal	F+I	Total	Fatal	F+I	Total
NB 65	R6.5/M8.5	63	0	26	26	0.00	0.29	0.70	0.012	0.40	1.19
NB 65	M8.5/R10.5	81	0	18	18	0.00	0.53	1.26	0.019	0.42	1.11
NB 65	R10.5/T12.8	11	0	4	4	0.00	0.06	0.18	0.019	0.34	0.89
SB 65	R6.5/M8.5	60	0	18	18	0.00	0.20	0.67	0.012	0.40	1.19
SB 65	M8.5/R10.5	60	0	25	25	0.00	0.39	0.94	0.019	0.42	1.11
SB 65	R10.5/T12.8	18	1	5	6	0.016	0.10	0.29	0.019	0.34	0.89

As shown in Table 2, the actual total accident rate was lower than the average total accident rate for similar type facilities throughout the State in all segments except one. The actual total rate was slightly higher in the northbound direction between PM R8.5 and R10.5. This segment contains the Sunset Boulevard Interchange, which was just completed. Sunset Boulevard was an at grade intersection with Rt-65 previously. Collision rates in this segment could be expected to reduce, now that a grade separation exists.

Northbound
A detailed evaluation of the safety data showed that 166 collisions occurred in the northbound direction between the Stanford Ranch Road and the Industrial Avenue interchanges. Forty four of these collisions occurred during the PM peak period and 19 occurred during the AM peak period. The three primary types of collisions were rear-end, sideswipe and broadside. Rear-end type collisions accounted for 74 collisions. Sideswipe collisions totaled 16 and broadside totaled 7.

Southbound
The number of collisions reported in the southbound direction was 138. Forty five of these collisions occurred during the PM peak period and 26 during the AM peak period. The three primary types of

collisions were rear-end, sideswipe and broadside. Rear-end type collisions accounted for 83 collisions. Sideswipe collisions totaled 15 and broadside totaled 11.

Congestion on this segment of highway was the probable cause of rear-end and sideswipe collisions. These types of collisions are associated with congested conditions. The build alternatives proposed in this project would reduce congested conditions.

PROJECT ALTERNATIVES

Four alternatives were identified in this report. The alternatives range from the No Build Alternative (Alternative 1) to an ultimate build alternative (Alternative 4).

Alternative 1

Alternative 1 is the No Build Alternative. Rt-65, within the project limits, would maintain the existing lane configuration and no work would be provided to improve operational conditions.

Alternative 2

This is an intermediate alternative, which would add median HOV lanes in both directions within the project limits. The HOV lanes would connect to future HOV lanes from the proposed I-80/Rt-65 HOV lane interchange project (EA 4E3200). HOV lanes for that project are proposed to end north of the Harding/Galleria Overcrossing. The HOV lanes in the northern boundary of this project would end at Industrial Avenue. Traffic operations systems (TOS) elements would be placed. Ramp metering and HOV bypass lanes would be placed at all on-ramps in both directions.

Alternative 3

This alternative would add median mixed flow lanes in both directions from north of the Harding/Galleria Overcrossing Interchange to Industrial Avenue. A mixed flow lane study is required per FHWA Procedure Memorandum D-6103 in order to study comparisons with HOV lane alternatives. The memorandum establishes that within 5 years after opening, the HOV lane should move more people than a comparable mixed flow lane. Ramp metering and TOS elements would also be placed.

Alternative 4

This alternative is an ultimate build alternative, which would include all of the features in Alternative 2, plus add auxiliary lanes in the north and southbound directions from I-80 to the new Sunset Boulevard Interchange. Some of these auxiliary/transition lanes would connect to one another forming continuous or simi-continuous outside lanes in the southern portion of the project. The lanes would provide a continuous merge/weave transition zone for this high volume area and reduce congestion. Some of these auxiliary/transition lanes are also included in alternatives for the previously mentioned I-80/Rt-65 Interchange project (EA 4E3200). However, they should still be advanced to the next phase of this project. The schedule for the I-80/Rt-65 Interchange project is not determined.

OTHER CONSIDERATIONS

HOV Lane Terminus

The HOV lane terminus at the north end of the project limits must end in a standard fashion that meets driver expectations. It is recommended to end the proposed HOV lane in the northbound direction at

Post mile T12.72 where the existing third lane begins before Ferrari Ranch Road Interchange. Improvements to the Ferrari Ranch Road Interchange are currently in construction.

HOV lanes in the southern end of this project will tie into the HOV lanes constructed in the proposed I-80/Rt-65 Interchange project between the Harding/Galleria and Pleasant Grove interchanges.

Managed Lanes or HOT Lanes

A managed lane strategy evaluation for this project could be performed in the next phase of the project development process. Managed lanes or high occupancy toll (HOT) lane evaluations have been performed for other HOV lane projects in the Sacramento metropolitan area during the PA&ED Phase. Microsimulation studies developed in the PA&ED Phase would provide the data needed to analyze the advantages, impacts and cost/benefit of managed lanes on Route 65.

The principal conclusions of two previous HOT lane studies on Route 50 and I-80 were that the forecasted volumes and resulting congestion through the year 2040 would not be great enough to provide the toll rates and fees necessary to generate a positive cost/benefit ratio. Based on these studies and the fact that this route does not contain high demand volumes, when compared to Route 50 or I-80, Route 65 would not be a good candidate for managed lanes.

Traffic Modeling and Analysis

Traffic modeling was not provided in this K Phase Traffic Report. More detailed and specific traffic flow benefits would be determined using a microsimulation modeling study, to come in the PA&ED Phase of this project. Microsimulation modeling is required to provide the detailed speeds, volumes delay, persons served, and congestion/queue conditions needed to identify the most cost effective alternative.

Traffic Operation System (TOS) Elements

It is recommended to place ramp metering, loop detectors, closed circuit television cameras, and communication fiber conduit in both directions throughout the project limits. These TOS elements would be used to manage traffic flow, collect traffic volume data, monitor queue lengths and speed for future traffic studies and real time traffic management.

Deputy Directive 35 states that provisions for ramp metering shall be included in any project that proposes additional capacity, regardless of the funding source. These provisions, at each on-ramp, may include procurement of additional right of way, changes to ramp geometry to accommodate queue storage, as well as, the installation of High Occupancy Vehicle (HOV) preferential lanes.

CONCLUSIONS

As shown in Table 1, existing and future traffic volumes and V/C ratios show unacceptable traffic conditions in the peak periods on Route 65. Current congestion is limited to the southern end of the project. However, forecast traffic volumes show the congested conditions would spread though out the project limits, if capacity is not added to the roadway.

Although HOV lanes add capacity to the system, they add it in a way that minimizes air and noise pollution and maximizes vehicle throughput. HOV lanes provide increased capacity to improve traffic flow and mobility by carrying more people in fewer vehicles during peak periods. They promote ride sharing and the use of high occupancy vehicles. They provide more consistent and predictable travel

times for carpools, vanpools, buses, and emergency vehicles during peak periods and they improve traffic operations and safety.

Alternative 1 (No Build Alternative) is not recommended. The "Do Nothing" option would cause this segment of the freeway system to break down in future design years.

Alternative 2 (intermediate HOV build) would conform to the need and purpose of the project by providing traffic operations, safety and capacity improvements to this segment of Route 65. In addition, this alternative would provide HOV lane connectivity, as well as, accommodate the area's overall strategy to minimize transportation related air pollution in support of efforts to attain federal air quality standards for the region.

Alternative 3 (mix flow lanes) is not recommended. Air quality regulations prohibit the addition of mixed flow lanes in the Sacramento region. Sacramento and the surround vicinity are in a non-attainment area for certain air quality parameters.

Alternative 4 (ultimate build) would include all the features and benefits in Alternative 2. In addition, it would add auxiliary lanes, as described previously.

All alternatives should be advanced to the next stage of the project development process, where more detailed and specific traffic flow benefits can be determined. A detailed microsimulation modeling study, to come in the next Phase, is required to provide the detailed speeds, volumes, delay, persons served, and congestion/queue conditions needed to identify the most cost effective alternative.