May 15, 2020

Vijay Talada
CTCDC Executive Secretary
Traffic Operations Headquarters
1120 N Street, MS 36, Room 4500
Sacramento, CA 95814

Subject: Request to Experiment – Part-Time Travel on Left Shoulder

Dear Mr. Talada,

The California Department of Transportation (Caltrans) District 5 Traffic Operations Branch requests to experiment with Part-Time Travel on the Left Shoulder along Southbound US 101 near Pismo Beach, California. The following proposal details the experimental devices for Part-Time Travel on a Left Shoulder.

Problem Statement
The peak travel demand along an approximately 5-mile long corridor near Pismo Beach, California occurs during afternoon commute times in the southbound direction weekdays between 3:30 pm and 6:00 pm and recurring congestion occurs on weekends during Summer season. The part-time travel on shoulder starts at post mile R21.5 and ends at post mile 16.2.

Proposed Change
Reconstructing the inside shoulder for travel improves operation of the corridor during peak travel demand, reduces congestion and reduces delays for motorists without large capital investments. This project will alleviate congestion during afternoon commute hours between 2pm and 7pm along the approximately 5-mile long corridor with the part-time travel on shoulder operating five (5) hours per day by year 2046.

Development
A Traffic Operations Assessment Report (TOAR) was performed for a 20-year period alongside reviewing existing part-time travel facilities in the United States. See the 'Development Data' section for conclusions drawn from these two methods of development.

Section 92 of the Streets and Highways Code provides Caltrans with the authority to develop and operate a shoulder for part-time travel stating, "the department may do anything necessary and convenient or proper for the construction, improvement, maintenance or use of all highways which are under its jurisdiction, possession, or control."

Proposed New Standards in CA

- Three (3) regulatory signs in advance of travel on left shoulder (Figures 1, 2 &3)
- One (1) regulatory sign at the start of the shoulder taper (Figure 4)
- One (1) modified R10-8 sign on each Lane-Use Control Signal post (Figure 5)
- Two (2) regulatory signs in advance of shoulder travel ending (Figures 6 & 7)
- One (1) regulatory sign at the end of the shoulder taper (Figure 8)

Illustrations of Experimental Devices

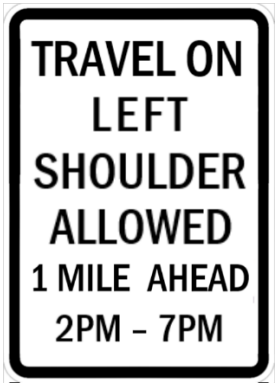

Figure 1: Travel on Left Shoulder Allowed 1 Mile Ahead 2PM – 7PM

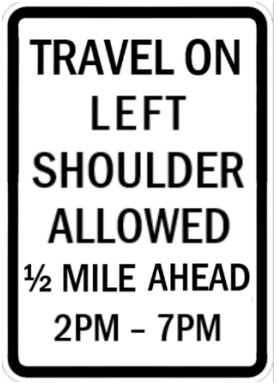

Figure 2: Travel on Left Shoulder Allowed ½ Mile Ahead 2PM – 7PM

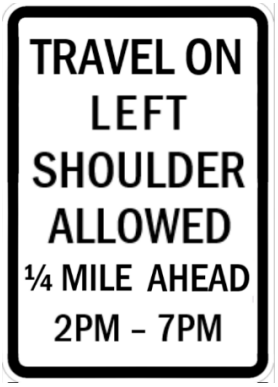

Figure 3: Travel on Left Shoulder Allowed ¼ Mile Ahead 2PM – 7PM

Figure 4: Travel on Left Shoulder Allowed 2PM-7PM

Figure 5: Shoulder Travel Allowed with Green Arrow

Figure 6: Travel on Shoulder Ends ½ Mile

Figure 7: Travel on Shoulder Ends ¼ Mile

Figure 8: End Travel on Shoulder

Development Data

The Traffic Operations Assessment Report (TOAR) for a 20-year period determined adding a third full-time lane to be unnecessary and widening the existing shoulder to be less expensive with the existing right-of-way constraints. The part-time travel on shoulder meets the needs and purpose of the project to relieve congestion during the afternoon southbound commute. The full TOAR is available upon request.

This concept is similar to CDOT's (Colorado Department of Transportation) part-time left shoulder on EB I-70 between Empire and Idaho Springs where congestion was relieved and travel time was improved. CDOT's example is the most recent part time left shoulder open to traffic in the US (Fall 2015) operating similarly to how this project would like to operate. However, the four (4) inch yellow stripe used in Colorado will be replaced with two (2) eight (8) inch parallel white stripes on the outside of the shoulder per MUTCD lane lines Detail 44 with the ingress and egress having one (1) eight (8) inch skip stripe per MUTCD lane lines Detail 42 for this project. The only dynamic elements

incorporated into the Pismo Beach project from Colorado are the standard Lane Use Control Signals.

Scope

This Part-Time Travel on Left Shoulder Project reconstructs the existing shoulder on Highway 101 providing a 14-foot shoulder for the southbound direction. The part-time travel on shoulder starts at post mile R20.3 (Alternative 1) or post mile R21.5 (Alternative 2) continuing southbound through the same ending at post mile 16.2, comprising an approximately 4.1 or 5.3-mile-long corridor. Extent of the experimental study limits is dependent on final alternative selection through the Environmental Impact NEPA and CEQA process.

The part-time travel on left shoulder widens the inside southbound shoulder consisting of a twelve (12) foot shoulder for travel and two (2) foot left shoulder with proper structural sections. The part-time travel on shoulder will have two (2) eight (8) inch solid white lane lines on the outside of the left shoulder per MUTCD lane lines Detail 44 and a six (6) inch solid yellow lane line on the inside of the left shoulder. During normal freeway operations, the facility will consist of two general-purpose lanes with a fourteen (14) foot left shoulder.

Three (3) static regulatory signs in advance of the part-time travel on shoulder indicate when travel on shoulder is one (1) mile ahead (Figure 1), half (½) mile ahead (Figure 2), and quarter (¼) mile ahead (Figures 3) along with left shoulder hours of travel allowed. One (1) static regulatory sign at the start of the shoulder taper (Figure 4) indicates the start of travel on the left shoulder and hours allowed for use. One (1) static modified R10-8 sign (Figure 5) indicates travel is allowed on the shoulder with a green arrow displayed on the Lane-Use Control Signal. Two (2) static regulatory signs in advance of travel on shoulder ending indicate when the travel on shoulder is half (½) mile ahead (Figure 6) and quarter (¼) mile ahead (Figure 7) before ending. Finally, one (1) static regulatory sign at the end of the shoulder taper (Figure 8) indicates the end of travel on the left shoulder.

There is one (1) permitted 1300-foot Entry (Begin) and one (1) permitted 1400-foot Exit (End) for the part-time travel on shoulder. At the controlled ingress and egress of the lane, one (1) eight (8) inch white skip stripe is on the outside of the lane per MUTCD lane lines Detail 42. Between ingress and egress zones, two (2) solid, parallel eight (8) inch white stripes per MUTCD lane lines Detail 44 to prohibit contiguous access. This will provide California Highway Patrol (CHP) the legal authority to enforce per California MUTCD and Vehicle Code. On-site presence of a patrolling enforcement officer is the most effective means of enforcement, as automated means of enforcement are not available. CCTV surveillance may assist in reviewing the frequency of violations (i.e., monitoring vehicles illegally crossing the separation treatment, illegal use of the lane during off operation hours) and determine specific areas for enforcement. The project team will recommend enforcement by CHP where appropriate.

Overhead Lane-Use Control Signals will be at intervals for adequate visibility along the corridor informing motorists whether travel on shoulder is allowed or not. The position of lane control signals will be over the center of the shoulder on a Caltrans traffic signal standard per Caltrans Standard Plan ES-7E.

Installation of Pan-Tilt-Zoom (PTZ) Close Circuit TV (CCTV) cameras will be near the top of each extended pole section for luminaire. US 101 near Pismo Beach is primarily a tangent portion with gentle curves, vertical crests and few objects that may obstruct a CCTV camera's field of view. It is anticipated that only one CCTV camera per mast arm will be necessary. However, field verification during installation and testing will determine the ultimate number of CCTVs.

Work Plan
The implementation of all experimental devices summarized above will be under evaluation from opening day of the project. Part-time use of a left shoulder, static signs for part-time travel on a left shoulder, and the location of one (1) part-time shoulder travel entry & exit are the constant subjects of measurement within the experiment.

Evaluation criteria include; 1) Measurement of vehicle delays (travel time savings and reliability) based on the TOAR, travel time index of 1.37 or less, buffer time of 12.4 minutes or less, and buffer time index of 1.0 or less, 2) Average speeds through the corridor during the hours of operation of 53 mph or more based on the TOAR, 3) Data from CHP regarding lane change violations (by number of citations) and safety during part-time shoulder travel operating hours.

Time Periods
This is a seven (7) year pilot project and is also an FHWA Project of Division Interest. The project team will evaluate its effectiveness and determine the facility's future at the seventh year of operation. Evaluating 1 year after opening day and again 6 years after opening day (before the end of the 7-year pilot program) is the current recommendation with an anticipated opening year of 2026 and ending year of 2033.

Reporting
Caltrans District 5 Traffic Operations will send a written report to the Executive Secretary of the CTCDC 45 days prior to each public meeting and complete a final report within 90 days of the terminal date of experimentation. The status report will contain progress of the work, any deviation from the work plan, and time of conclusion the agency anticipates. The final report will contain basic information on the problem, preliminary investigations, solution proposals, study procedures, data analysis in detail, results of the work, discussion of results, and any conclusions drawn. Specific wording will be part of the report upon a proposal to change part of the California MUTCD.

This project will terminate at the end of the approval period unless the committee grants an extension. The agency will remove all experimental devices and applications unless specific permission is given for continuation of operations. If the committee does not warrant a change to the California MUTCD, the requesting agency will remove all experimental installations upon termination of the experiment.

Sincerely,

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Traffic Operations Engineer

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Caltrans District 5
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