Safety Project Selection and Funding

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California Department of Transportation
Overview

- Safety Project Selection and Funding Overview
- The Reactive Approach
- The Proactive/Systemic Approach
- Four Pillars and Two New Programs
- Rethinking Safety Funding Project
- Safety Project Case Study: I-5 Median Barrier
- Safety Project Case Study: State Route 41
Safety Project Selection and Funding Overview
Traffic Safety History

Table C & Wet Table C

Two- and Three-Lane Cross Centerline Collision Monitoring Program

Wrong Way Collision Monitoring Program

Median Barrier Monitoring Program

Ranamed

Multi Lane Cross Median Collision Monitoring Program

Run off Road Collision Monitoring Program

Bicycle Collision Monitoring Program

Pedestrian Collision Monitoring Program

Crossover Collision Monitoring Program

1972

1978

1985

1996

2000

2006

2017

2018

2019

Safety Project Selection and Funding
Three Governing Documents

Federal HSIP Guidelines

CA Strategic Highway Safety Plan

California HSIP Guidelines
Projects funded from special reserved funds in the State Highway Operation and Protection Program (SHOPP)

Caltrans receives ~$200 million annually from FHWA under Highway Safety Improvement Program (HSIP)

These funds are split 50/50 with the Division of Local Assistance, with 50% devoted to local road projects and 50% devoted to State Highway System projects

Low-cost Projects are done by the District through Day Labor installation orders, funded through Minor Programs out of the districts’ allocations

Overarching priority: Timely programming and delivery of safety projects
Federal Funding Requirements

1. Alignment with California’s Strategic Highway Safety Plan (SHSP)
2. Greatest potential to reduce fatalities and serious injuries
3. Data-driven process

SHS HSIP Projects

- Typically **stand-alone** safety projects that utilize **low-cost, proven safety countermeasures**
- All efforts should be taken to prevent **scope-creep**, the intent of the safety project is to **address specific collision patterns**.
- **Incremental approach** that implements lower-cost solutions first
Transportation Safety Management

Reactive
Spot
Corridor
Systemic
Safe Systems
Proactive
Our Reactive Approach
Reactive Safety Improvements: From Crash to Project

1. Crash Occurs
2. Traffic crash report
3. Data analysis initiates traffic safety investigation
4. Investigation completed with recommended improvement
5. Safety project initiated
Crash Data – Why It Matters

- **Table B** - Selective crash rate calculation
- **Table C** – High-crash concentration locations
- **Wet Table C** – High-crash concentrations under wet conditions
Reactive projects are mostly initiated from Table C, Wet Table C or Monitoring Programs

**Table C & Wet Table C**
- Reduce number/ severity of traffic crashes for identified locations

*Or*

- locations with a Traffic Safety Index score of 200+

**Monitoring Programs**
- Crossover Collision Monitoring Program
- Wrong-Way Collision Monitoring Program
- Pedestrian Monitoring Program
- Bicyclist Monitoring Program
- Run off the Road Monitoring Program

**Note:** Reactive projects can also be initiated from CHP inquiries, local partners, and the public through the Customer Service Request system.
How Reactive Projects Are Developed

REACTIVE PROJECTS

Location Identified by Table C or Wet Table C
Location meets minimum Traffic Safety Index requirements

Location Identified by Monitoring Programs
Districts send Conceptual Approval Request to HQ

Project Meets the HSIP Requirements?
Yes
HQ sends Conceptual Approval Memo to District

No
Reject the Proposal
Traffic Safety Index Score

Definition

▶ A tool used for evaluating the safety benefits of safety improvement projects

Calculating the Score

▶ A measure of the crash cost saved by motorists expressed as a percentage of the improvement’s capital cost

Two types of improvements that qualify under the Traffic Safety Index methodology:

▶ Spot Improvements
▶ Wet Improvements
Our Proactive (Systemic) Approach
Safety Project Selection and Funding

Systemic Safety Improvements

Methodological

1. What type of crashes are happening on what type of facilities?

2. What are the pertinent countermeasures and their attributes?

Systemic Tool

Screening

Decision Support
Rethinking Traffic Safety
Initiating a Shift

**2019**

- 3,606 lives lost on CA roads
- 972 pedestrians killed on CA roads

**GOAL**

- 0 lives lost on CA roads
- 0 pedestrians killed on CA roads
California’s New Approach - Four Pillars

1. Doubling Down on What Works
2. Accelerate Advanced Technology
3. Implement Safe System Approach
4. Integrate Equity
### Wrong Way Systemic Safety Program

Source: TAPCO

### Pedestrian Systemic Safety Program

<table>
<thead>
<tr>
<th>Category</th>
<th>Metric</th>
<th>Max Pts Available</th>
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<tbody>
<tr>
<td>Collision Rate</td>
<td>Statewide total collisions divided by total intersections for each facility type</td>
<td>55</td>
</tr>
<tr>
<td>Exposure</td>
<td>Total pedestrian volumes</td>
<td>25</td>
</tr>
<tr>
<td>Disadvantaged Communities</td>
<td>If a tract with a score &lt;25% occurs within a half mile of the facility</td>
<td>10</td>
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<tr>
<td>Senior Population Density</td>
<td>Total senior population (65 and over) per square mile within a 1/2 mile of the facility</td>
<td>2.5</td>
</tr>
<tr>
<td>Youth Population Density</td>
<td>Total youth population (under 15) per square mile within a 1/2 mile of the facility</td>
<td>2.5</td>
</tr>
<tr>
<td>School Proximity</td>
<td>If a school is within 1/4 or 1/2 mile of the facility</td>
<td>5</td>
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</table>
Rethinking Safety
Project Funding
Goal: To achieve the safest possible transportation system with the funding available.

However, in 2020 Caltrans did not meet safety performance targets from FHWA, namely the target to reduce fatal and serious injuries.

Targets set by each DOT. Caltrans set aggressive targets!

<table>
<thead>
<tr>
<th>Federal HSIP Performance Measure</th>
<th>Met 2020 Target?</th>
<th>Met or Made Significant Progress?</th>
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<tbody>
<tr>
<td>Number of Fatalities</td>
<td>Yes</td>
<td></td>
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<tr>
<td>Fatality Rate (per 100 MVMT*)</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Number of Serious Injuries</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Serious Injury Rate (per 100 MVMT)</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Number of Non-Motorized Fatalities and Serious Injuries</td>
<td>Yes</td>
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</table>
New Safety Funding Proposal

- Consolidate existing “proactive” safety programs into single objective.
  - Bridge rail, roadside safety and collision severity reduction
  - Targets to be established in the 2021 SHSMP based on one allocation option.
  - Define the performance as reduced fatal and serious injuries

- Retain the statewide reservation for “reactive” safety
  - Continue to focus on low cost, quick safety improvements
Safety Project Case Study: I-5 Median Barrier
Example of a Typical Safety Project

**Interstate 5 Median Barrier**

- Initiated in the 2011 Median Barrier Monitoring Report
- Met combined crash study warrant & fatal warrant
- Installed 11.5 miles of cable barrier
- $4.5 million construction cost
Project Timeframe

- **December:** 2011 Median Barrier Monitoring Report released
- **March:** Traffic Investigation Reports initiated
- **April:** Traffic Investigation Reports approved
- **November:** Conceptual Report approved
- **September:** Project Approval & Environmental Document
- **March:** Ready to List
- **May:** Advertised
- **July:** Awarded
- **June:** Contract Acceptance
Before/After Study

▶ 5 years before – 8 cross-median crashes
▶ 2 years, 8 months after – 0 cross-median crashes
Safety Project Case Study: State Route 41
Safety Improvements: Fresno County

State Route 41 Excelsior Avenue to Elkhorn Avenue
Safety Improvements: Fresno County

- Added roadside signs to inform drivers of the divided road ahead (11/20)
Created a no-passing zone by adding double yellow stripes to the centerline (1/21).
Place median barrier on centerline to physically separate northbound and southbound traffic and prevent passing.
Safety Improvements: Fresno County

Median Barrier Project Delivery
Safety Improvements: Timeline

2020

- **December**: Road signs added
- **January**: Added double yellow centerlines and “do not pass” signs
- **February**: Approval from resource agencies

2021

- **March**: Contract package completion
- **May**: Construction package advertised and awarded
- **Summer**: Barriers placed by the end of Summer
Thank you