



Safety Project Selection and Funding

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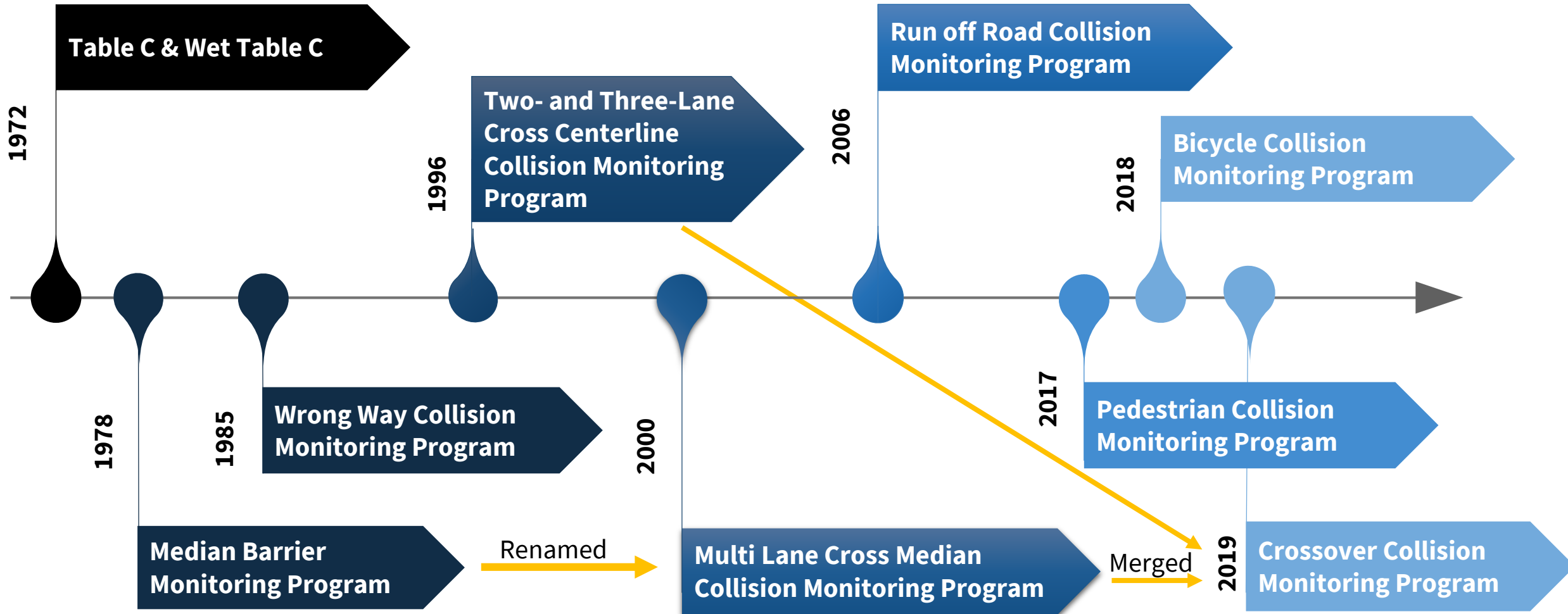


- ▶ Safety Project Selection and Funding Overview
- ▶ The Reactive Approach
- ▶ The Proactive/Systemic Approach
- ▶ Four Pillars and Two New Programs
- ▶ Rethinking Safety Funding Project
- ▶ Safety Project Case Study: I-5 Median Barrier
- ▶ Safety Project Case Study: State Route 41

Safety Project Selection and Funding Overview



Traffic Safety History

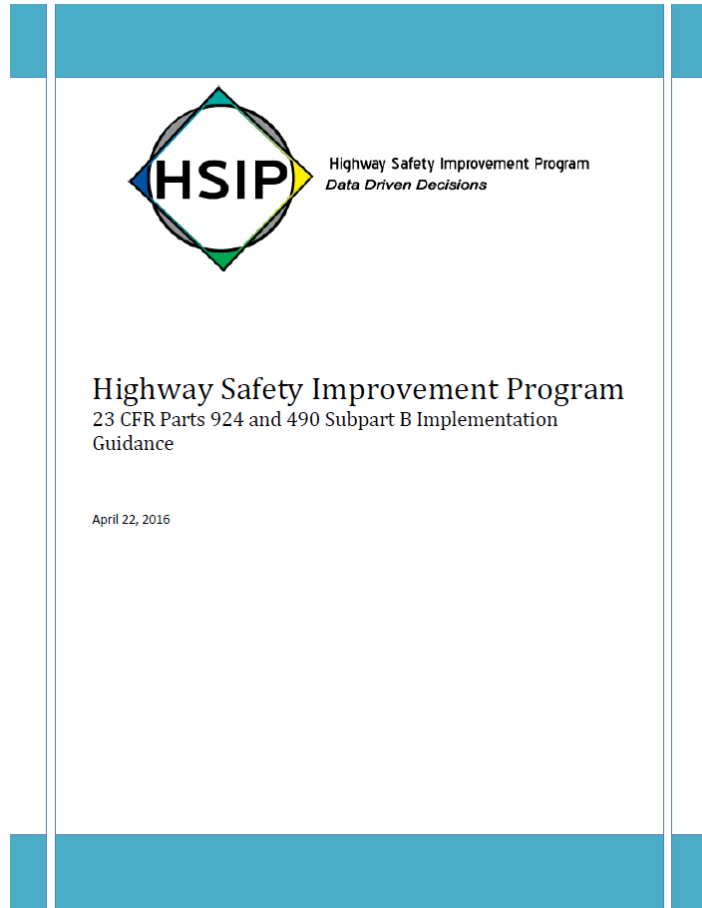




Three Governing Documents



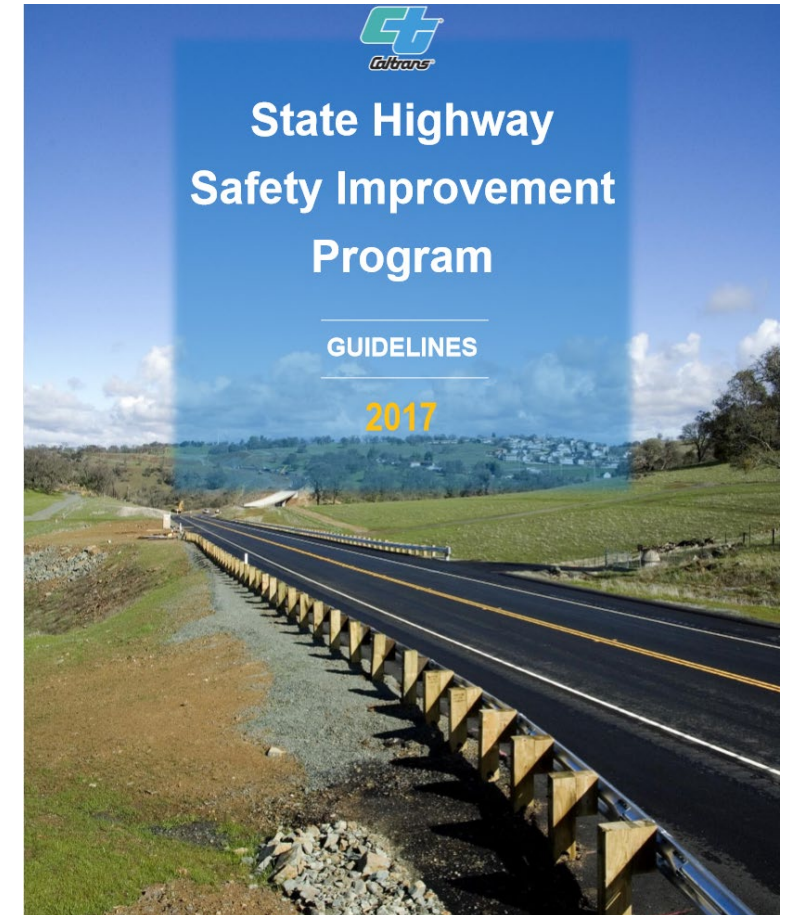
Federal HSIP Guidelines



CA Strategic Highway Safety Plan



California HSIP Guidelines





Safety Improvement Projects – Funding



- ▶ 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



The image shows the cover of the '2018 SHOPP' report. At the top, it reads 'STATE HIGHWAY OPERATION AND PROTECTION PROGRAM'. Below this, there are several horizontal lines. A large blue arrow points to the right, containing the text '2018 SHOPP' in white, with 'FISCAL YEARS 2018-19 through 2021-22' underneath. At the bottom, it states 'Prepared by the CALIFORNIA DEPARTMENT OF TRANSPORTATION In accordance with Government Code section 14526.5 CALIFORNIA STATE TRANSPORTATION AGENCY Adopted by the California Transportation Commission March 22, 2018'. There is also a small logo for 'SB1' in the bottom right corner.



Federal Funding Requirements



1. Alignment with California's Strategic Highway Safety Plan (SHSP)



2. Greatest potential to reduce fatalities and serious injuries



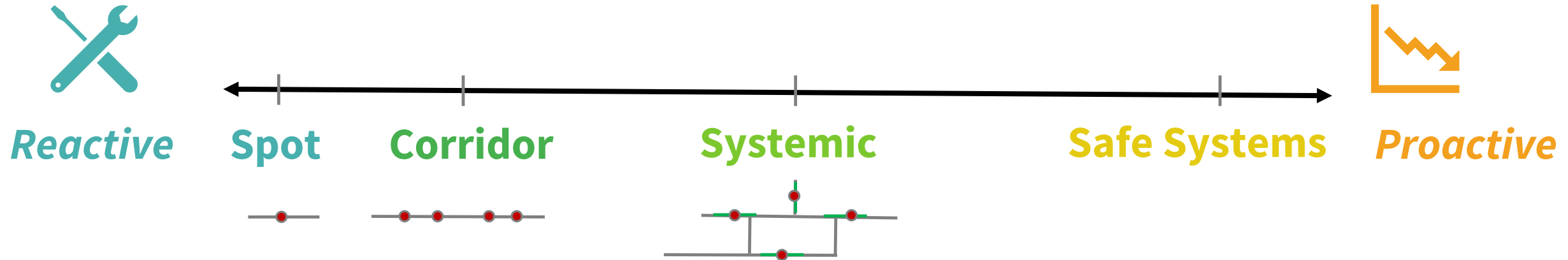
3. Data-driven process

SHS HSIP Projects

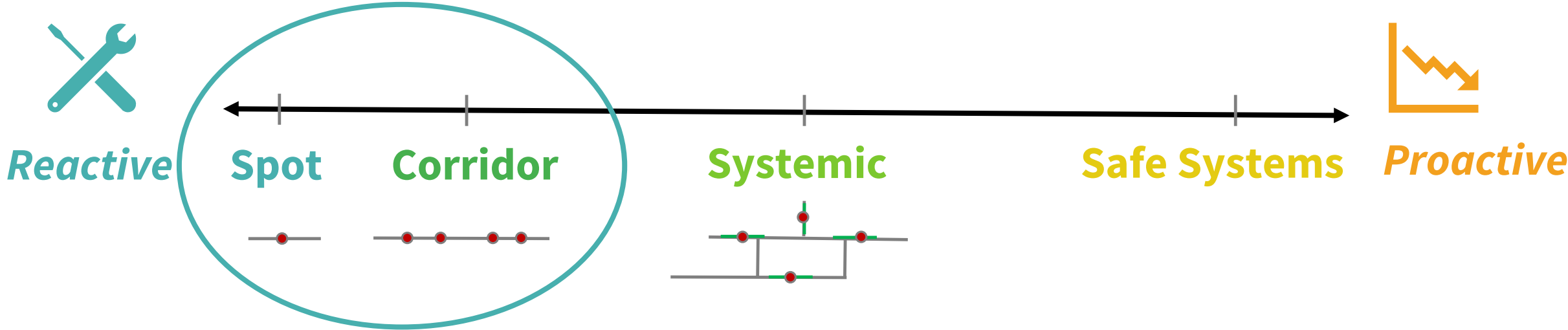
- ▶ Typically **stand-alone** safety projects that utilize **low-cost, proven safety countermeasures**
- ▶ All efforts should be taken to **prevent scope-creep**, the intent of the safety project is to **address specific collision patterns**.
- ▶ **Incremental approach** that implements lower-cost solutions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



Transportation Safety Management

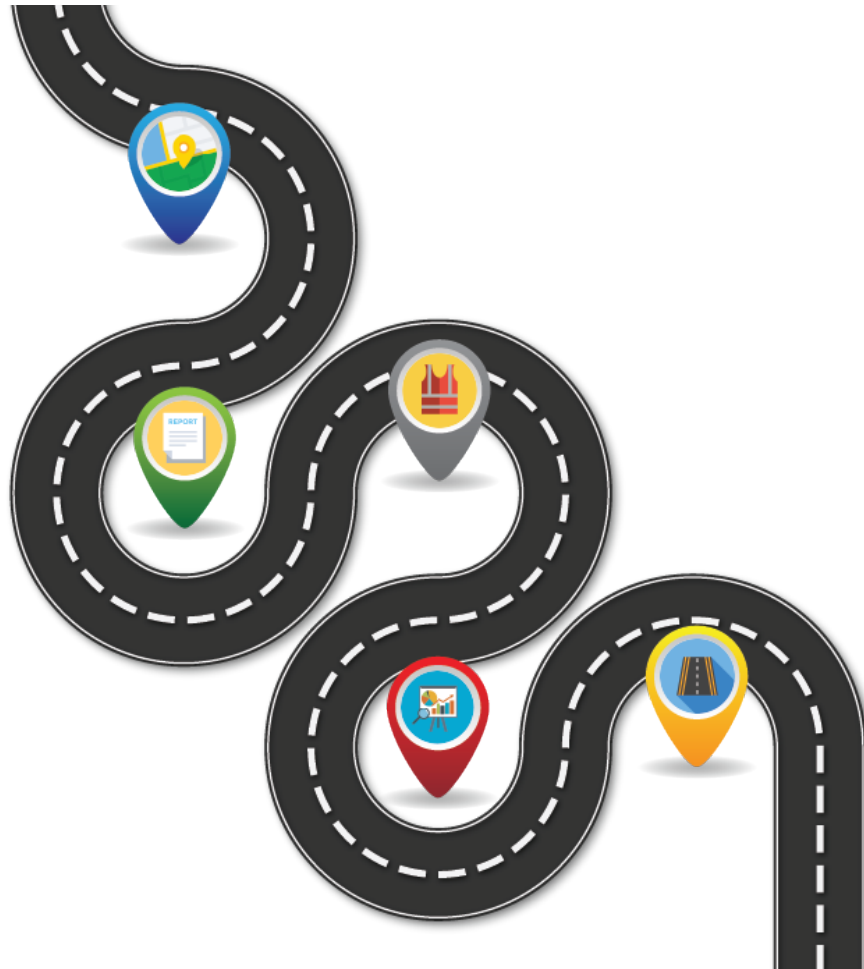


Our Reactive Approach





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

Table B Accident Records

COMMON TIME HHMM	ACCIDENT NUMBER	P ENVIR F W L S C C C	R T NO R W O MTR	P D T I
2122	925215730	5 B D B H D B	02	A S
1420	925214561	5 C A B H D F	01	G S
0359	925215175	5 A D A H D C	03	G N
2125	925213432	5 A D A D A E	02	A N

Sample Table C Report - Potential Investigation Locations

OTM22140
07-03-28
08:55 AM

Location Description	SCL RMP LNS
532 SB 20.05 A ST	XXX
532 SLO 11.64 24TH ST	-XX
532 SLO 16.99 OAK ST	-XX
532 MON R079.933 TO R080.333 SOUTH	02D
532 MON 99.92 JENSEN RD	-X-

Sample Wet Table C Report - Potential Investigation Locations

OTM22140
07-03-28
08:55 AM

California Department of Transportation
Wet Table C - Potential Investigation Locations

District 51 Wet Accidents
Confidence Level 99.5 Interval .2 MI
01-JAN-03 thru 31-DEC-05

Location Description	SCL R RMP U Rate LNS S Grp	Total Accidents / Significance					AVE ADT 1000 VEH	
		36 mo. ACCS	24 mo. ACCS	12 mo. ACCS	6 mo. ACCS	3 mo. ACCS	Main	X-St.
533 SJ R 19.439 004/EB OFF TO NB 99F C U R 06		11 Y	06 Y	5 Y	4 Y	0 Y	18.4	-
623 SJ 026.758 TO 026.958 SOUTH	04D U H 65	4 Y	4 Y	3 Y	3 Y	0 N	41.1	-
655 SJ 17.946 CHEROKEE LANE	XXX U I 14	5 N	4 N	4 Y	2 N	1 N	26.3	12
655 CAL 001.247 TO 001.447	02U R H 03	9 Y	5 Y	4 Y	2 Y	1 N	5.2	-



How Reactive Projects are Initiated



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+

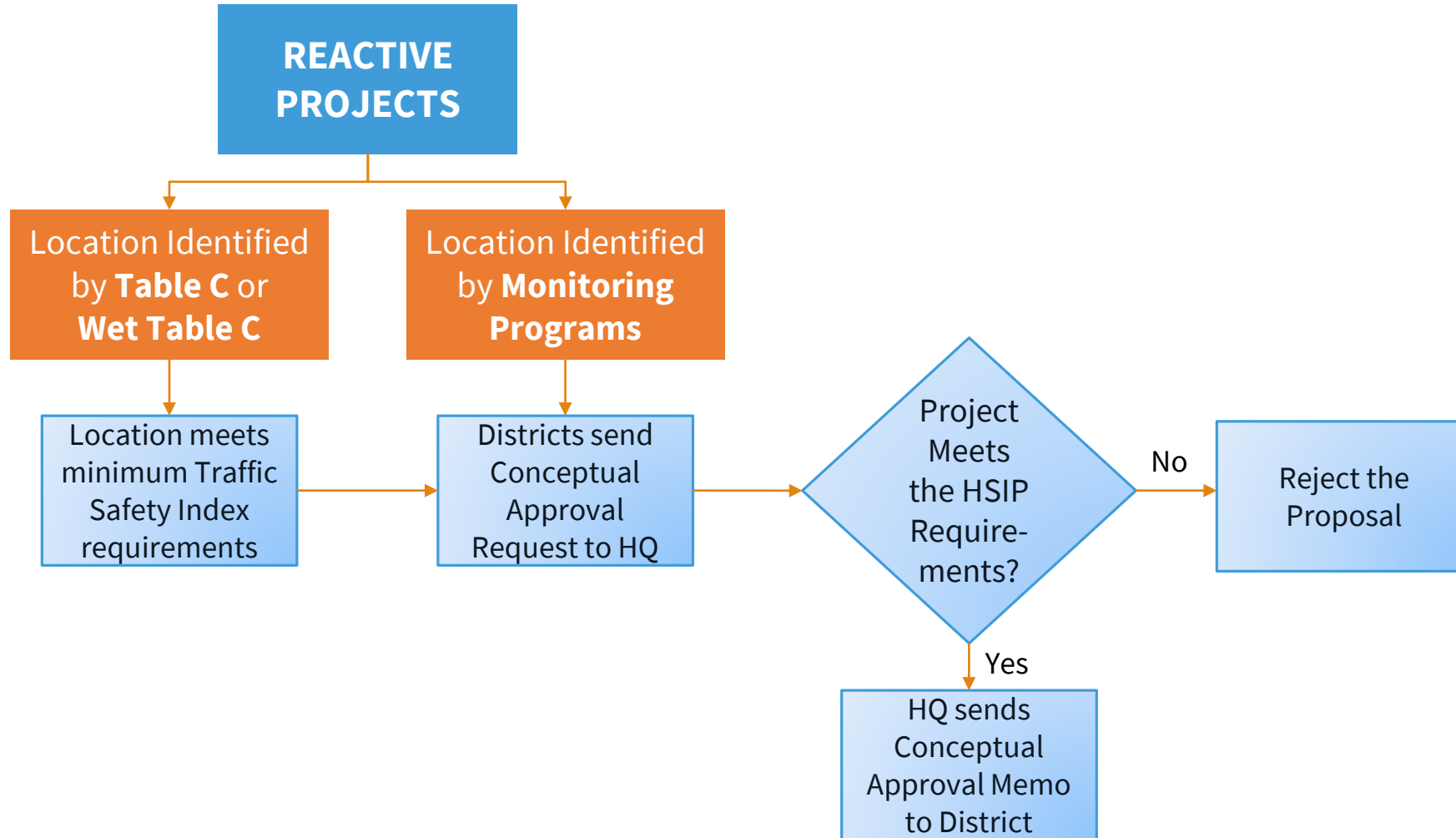
Monitoring Programs

- ▶ 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





Traffic Safety Index Score



Definition

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

Calculating the Score

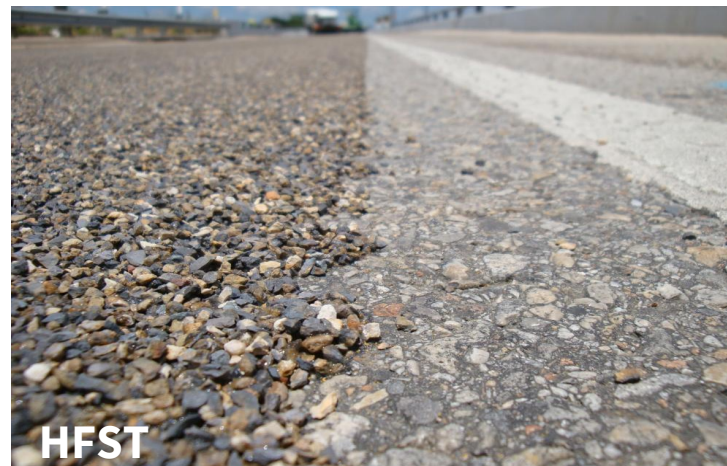
- ▶ A measure of the crash cost saved by motorists expressed as a percentage of the improvement's capital cost

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

- ▶ **Spot Improvements**
- ▶ **Wet Improvements**



Example of Spot Improvements



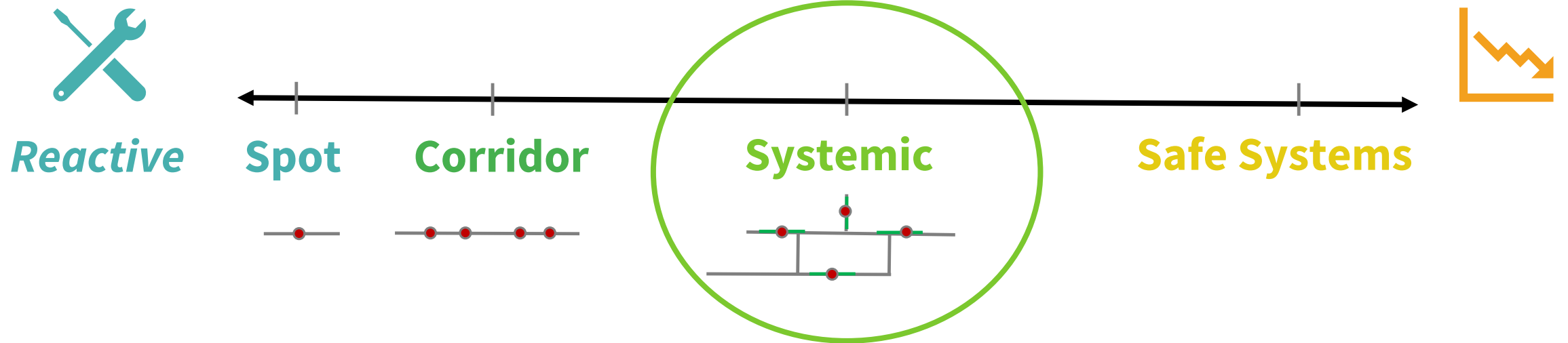
HFST



OGAC

Example of Wet Improvements

Our Proactive (Systemic) Approach





Systemic Safety Improvements



Methodological

Systemic Tool

1

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

2

What are the pertinent countermeasures and their attributes?

Screening

Crash Type	Signalized	Unsignalized	Other
Right-of-Way	15	10	5
Left-of-Way	10	5	5
Other	5	5	5

Decision Support

CM ID	Description	CMF	Crash Pattern	Cost	Maintenance	Other
3	marked crosswalks at signalized intersections	0.6	3	\$5	N	
5	warning signs for motorist/school advance warning sign, SPEED 25 WHEN FLASHING	0.59	1	\$5	Y	
7	advanced "STOP" markings	0.5	1	\$5	Y	
8	advanced "YIELD" markings	0.5	1	\$5	Y	
11	curb-extensions	0.5	1	\$5	N	
13	Move the bus stops to the far side of crosswalks or intersections	0.5	3	\$5	N	
17	Street furniture / walking environment	0.5	1	\$5	Y/N	
23	Curb radius reduction	0.5	1	\$5	N	
24	Improved right-turn slip lane design (with refuge islands)	0.81-0.98	1	\$5	N	
25	Roundabouts	0.27-0.68	1	\$5	N	

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

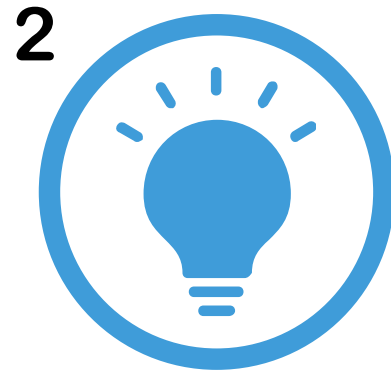
0 pedestrians killed
on CA roads



California's New Approach - Four Pillars



**Doubling
Down on
What Works**



**Accelerate
Advanced
Technology**



**Implement
Safe System
Approach**



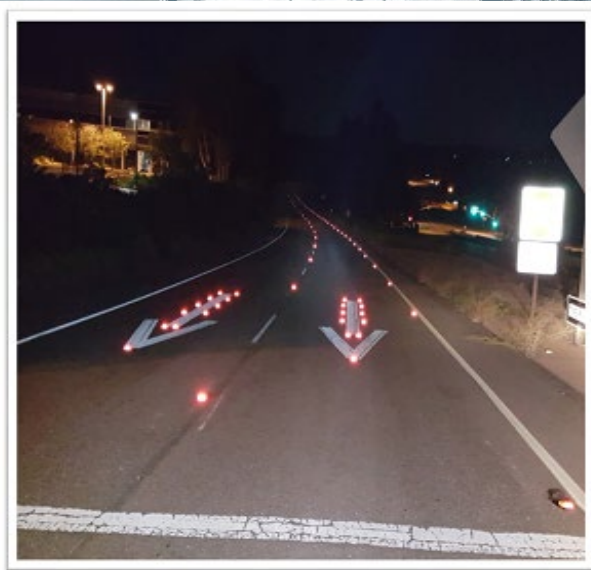
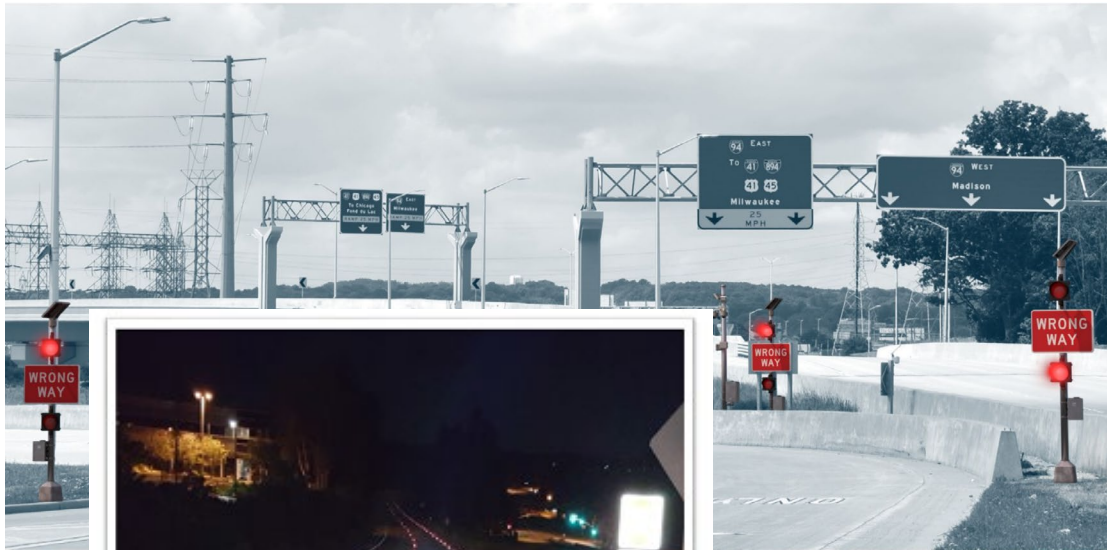
**Integrate
Equity**



New Systemic Safety Programs



Wrong Way Systemic Safety Program



Source: TAPCO

Pedestrian Systemic Safety Program

Category	Metric	Max Pts Available
Collision Rate	Statewide total collisions divided by total intersections for each facility type	55
Exposure	Total pedestrian volumes	25
Disadvantaged Communities	If a tract with a score <25% occurs within a half mile of the facility	10
Senior Population Density	Total senior population (65 and over) per square mile within a 1/2 mile of the facility	2.5
Youth Population Density	Total youth population (under 15) per square mile within a 1/2 mile of the facility	2.5
School Proximity	If a school is within 1/4 or 1/2 mile of the facility	5

Rethinking Safety Project Funding



Why Rethink 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!

Federal HSIP Performance Measure	Met 2020 Target?	Met or Made Significant Progress?
Number of Fatalities	Yes	No
Fatality Rate (per 100 MVMT*)	No	
Number of Serious Injuries	No	
Serious Injury Rate (per 100 MVMT)	No	
Number of Non-Motorized Fatalities and Serious Injuries	Yes	

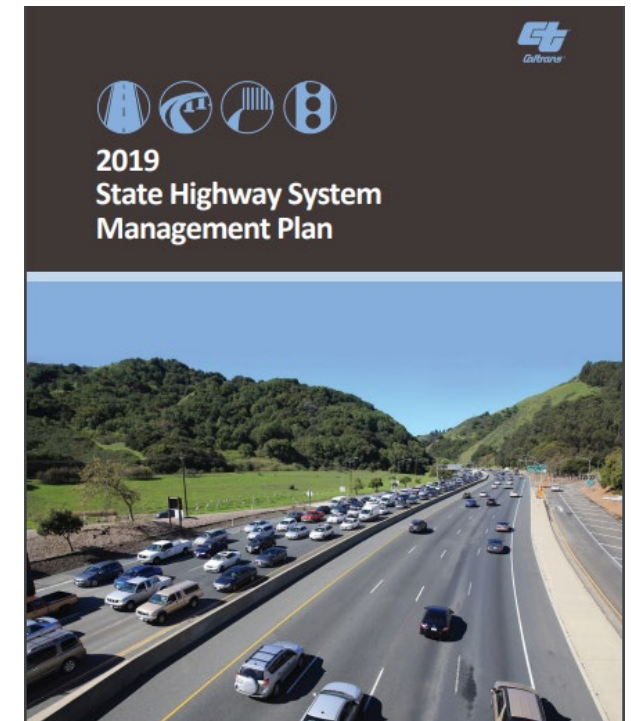


New Safety Funding Proposal



- ▶ 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



2012

▶ **December:** 2011 Median Barrier Monitoring Report released

2013

- ▶ **March:** Traffic Investigation Reports initiated
- ▶ **April:** Traffic Investigation Reports approved
- ▶ **November:** Conceptual Report approved

2014

▶ **September:** Project Approval & Environmental Document

2015

2016

- ▶ **March:** Ready to List
- ▶ **May:** Advertised
- ▶ **July:** Awarded

2017

▶ **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)**





Safety Improvements: Fresno County



- ▶ **Created a no-passing zone by adding double yellow stripes to the centerline (1/21).**





Safety Improvements: Fresno County



- ▶ **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

2021

▶ **December:** Road signs added

▶ **January:** Added double yellow centerlines and “do not pass” signs

▶ **February:** Approval from resource agencies

▶ **March:** Contract package completion

▶ **May:** Construction package advertised and awarded

▶ **Summer:** Barriers placed by the end of Summer



Thank you