



How to Consider Safe Routes to School Improvements in the Highway Safety Improvement (HSIP) Program next Call for Projects

HSIP/SRTS Webinar

March 11, 2013

Caltrans – Division of Local Assistance
Office of Bridge and Safety Programs



Webinar Presenters

Kristin Haukom, SRTS TARC
Welcome & Introductions

Dawn Foster, Caltrans SRTS Program Coordinator
Overview of how SRTS fits into the HSIP Program

John Bigham, UC Berkeley, SafeTREC
SafeTREC TIMS website, SRTS Maps & B/C
Calculator

Ted Davini, Caltrans Safety Program Coordinator
HSIP Call for Projects



Presentation Details

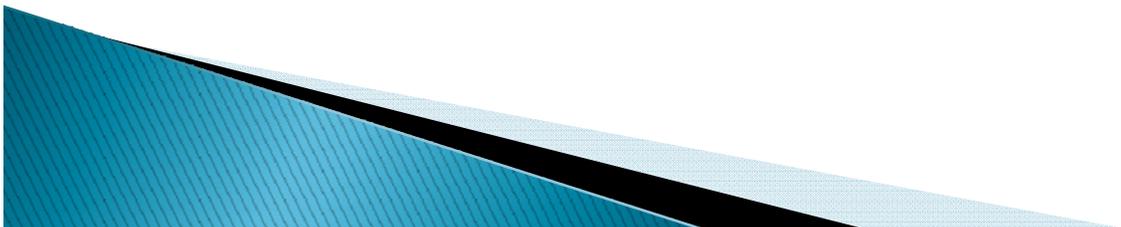
- ▶ Expected to last up to 2 hours
- ▶ Questions and Answers
 - Chat-Pod:
 - ▶ Participants may post questions in the 'chat-pod' at any time during the webinar
 - ▶ Presenters intend to answer these questions via chat-pod or verbally during the webinar
- ▶ This presentation is being recorded
 - A copy will be posted on HSIP & SRTS web pages

<http://www.dot.ca.gov/hq/LocalPrograms/HSIP/webinar.html>
<http://www.dot.ca.gov/hq/LocalPrograms/saferoutes/saferoutes.htm>



Presentation Outline

- ▶ Why HSIP for SRTS?
- ▶ Basic Differences Between HSIP and SRTS
- ▶ Basic Terms of HSIP
- ▶ Strategies & Additional Considerations
 - Example HSIP Projects
- ▶ TIMS website & B/C calculator Example
- ▶ HSIP Call for Projects
- ▶ Questions and Answers





Why HSIP for SRTS?

- ▶ MAP-21 & Safe Routes to School (SRTS)
 - Eliminated SRTS as a separate funding program
 - Opportunities for SRTS funding: STP, TAP, CMAQ or **HSIP** Program



Why HSIP for SRTS?

- ▶ Current status of future funding for SRTS in California
 - Active Transportation Program (ATP) proposed by Governor in January 2013 – \$134 M
 - State-legislated SR2S Program funds, Bicycle Transportation Account and EEM funds to be consolidated into ATP
 - Transportation Alternative Program (TAP) funds to be consolidated into ATP
 - Highway Safety Improvement Program (HSIP) funds also proposed in ATP
 - Assembly Bill 1194 introduced 2/22/2013 that would maintain SRTS at \$46 M/year



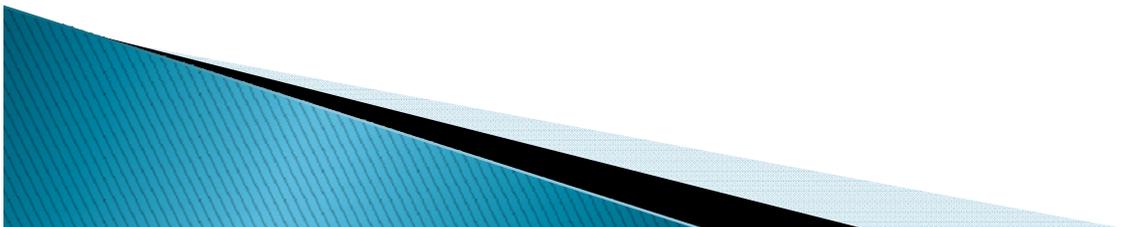
Why HSIP for SRTS?

- ▶ For additional information on the ATP, please refer to the California Dept. of Finance Website:

http://www.dof.ca.gov/budgeting/trailer_bill_language/forcing_labor_and_transportation/documents/403%20Active%20Transportation%20Program.pdf

- ▶ For additional information on AB 1194, please refer to the California Legislative website:

- ▶ <http://www.leginfo.ca.gov/>





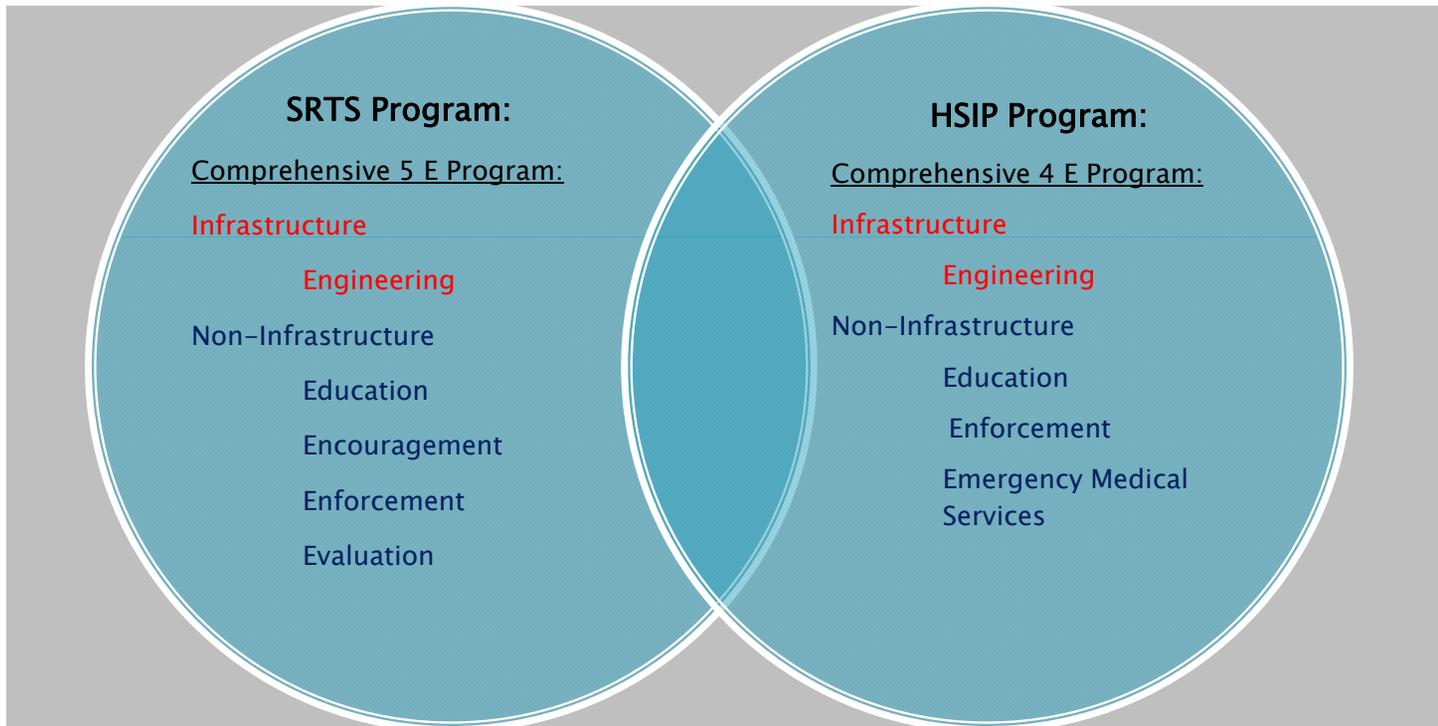
Why HSIP for SRTS?

▶ Planning for SRTS funding in 2013

- Existing SRTS Projects that **meet** SRTS Delivery Requirements will continue to be funded
- Not anticipating another SRTS Call for Projects in 2013
 - Bike and Pedestrian improvements competed well in past cycles of HSIP!
- Funding for a new call for projects specific to SRTS will be contingent on outcome of state budget process
- In the mean time, HSIP Cycle 6 is an opportunity for funding safety needs in school zones!



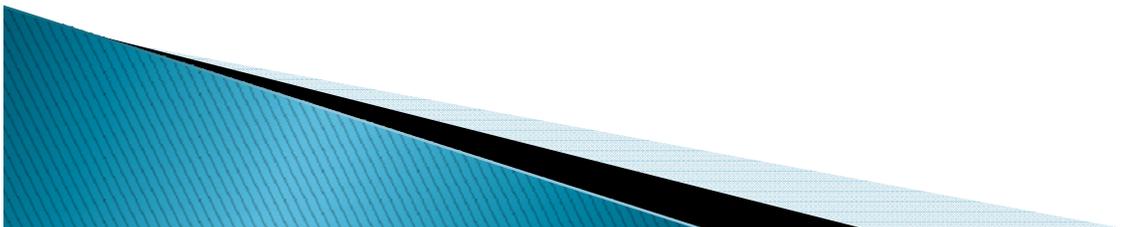
SRTS vs. HSIP





Basic Differences Between HSIP & SRTS

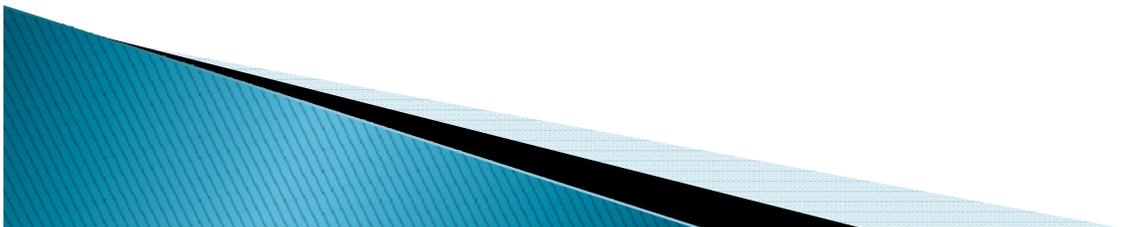
- Bike and Pedestrian Safety Infrastructure Improvements are eligible, but HSIP projects are selected based on a data driven process to reduce fatalities and serious injuries.
- A Benefit/Cost criteria is used for project selection in HSIP.
- Under MAP-21, HSIP Program also must be aligned with the State's Strategic Highway Safety Plan.
- SRTS Project funded with HSIP funds does not follow federal regulations for SRTS, but follows HSIP regulations
- A local match of 10% is required for HSIP





Basic Differences Between HSIP & SRTS

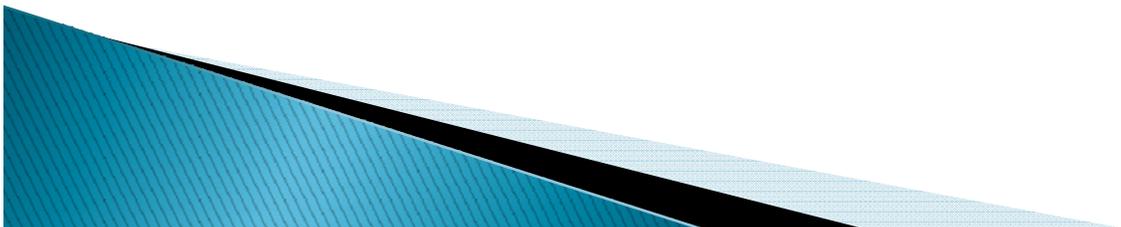
- Stand-alone non-infrastructure projects are not eligible for Cycle 6 HSIP funding
- Safety Education, Enforcement, and Emergency Medical Services are expected to be eligible costs in an infrastructure application under HSIP Cycle 6





Basic Terms for HSIP

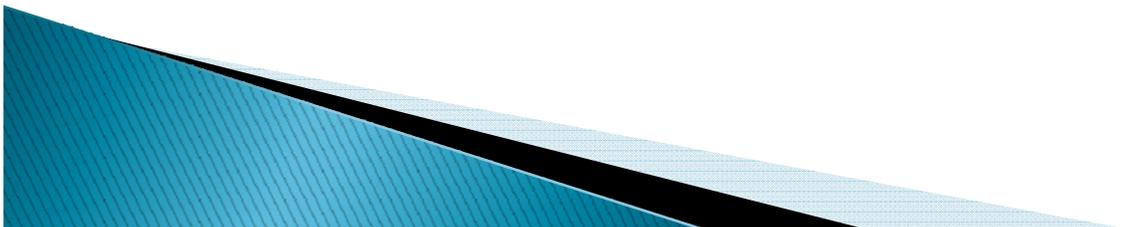
- ▶ Countermeasure: Type of Safety Improvement; ie, sidewalk, bike lane, traffic signal, etc.
- ▶ Crash Reduction Factor (CRF): factor applied to a specific countermeasure. Higher CRF – Higher Expected Reduction in Future Crashes!





Basic Terms for HSIP

- ▶ Example CMs with related CRFs:
 - CM: (S19) Install pedestrian countdown signal heads
 - CRF=25 & Service Life=20
 - CM: (NS18) Install pedestrian crossing (with enhanced safety features/curb extensions)
 - CRF=35 & Service Life=20

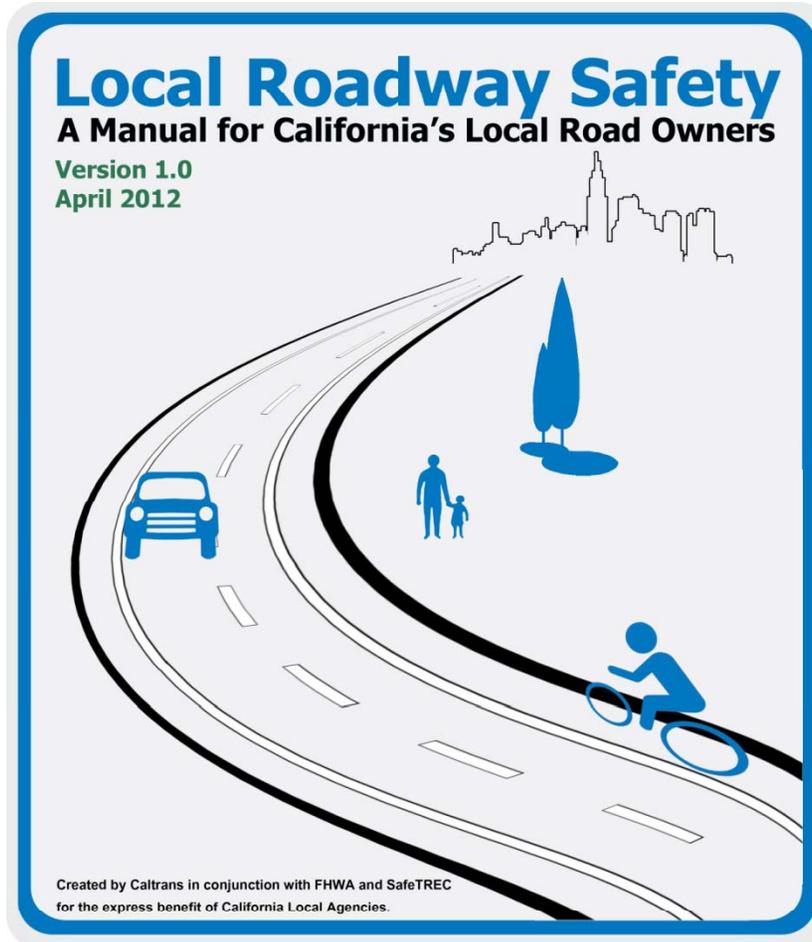




Basic Terms for HSIP

- ▶ B/C (Benefit/Cost): calculation that utilizes the CRF, Crashes, Severity of Crash, Crash Costs, the Expected Service Life of the Improvement and compares it to the overall cost of the project. The higher the B/C, the more competitive the project.
- ▶ See Local Roadway Safety Manual for more details:
<http://www.dot.ca.gov/hq/LocalPrograms/HSIP/safetymanual-2012-04-22.pdf>

LOCAL ROADWAY SAFETY MANUAL (LRSM)



U. S. Department of Transportation
Federal Highway Administration

Safe Transportation
Research & Education Center
SafeTREC



New Local Roadways Safety Manual–

- ▶ Partnership of Caltrans, FHWA and UC Berkeley
 - Build on new FHWA manuals for Local Rural Road Owners and other national safety manuals
 - Incorporate Caltrans Lessons Learned from HSIP Cycle 4 and other statewide safety programs
 - Utilize UC Berkeley SafeTREC TIMS website to provide access to all agencies to their crash data and the tools to complete proactive analysis of their roadways
- ▶ Intended to directly support Calls for Projects
 - Agencies that base their applications on a proactive safety analysis of their roadways will be more successful
- ▶ Intended to be used all year long!

<http://www.dot.ca.gov/hq/LocalPrograms/HSIP/safetymanual-2012-04-22.pdf>



LRSM Contents

Contents of the Local Roadways Safety Manual

1. Introduction and Purpose
2. Identifying Safety Issues
3. Safety Data Analysis
4. Countermeasure Selection
5. Calculating the B/C ratio and Comparing Projects
6. Identifying Funding and Construct Improvements
7. Evaluation of Improvements

Appendix A through H

- Appendix B: Details on all CMs available for this Call for Projects

Appendix D: Benefit/Cost Ratio Calculations

Strategies & HSIP Case Studies

Strategy 1: SRTS/HSIP Project- Data Driven (Spot Location)



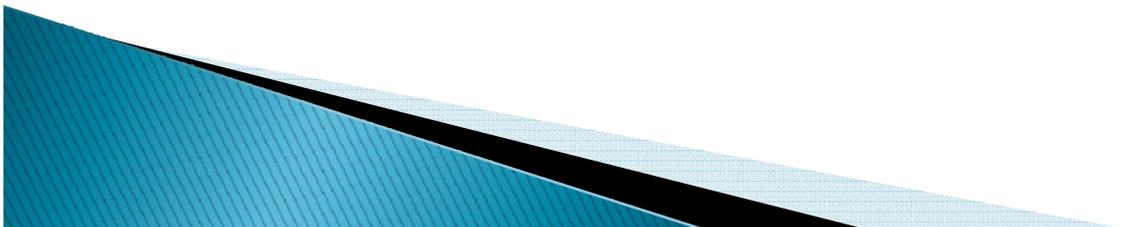
- ▶ SRTS Project is developed through typical HSIP Approach - (See page 13 of LRSM)
- ▶ Project improvement(s) are at crash location(s)
- ▶ May include a spot location in school zone or multiple school zone locations
- ▶ View Examples of Cycle 5 Successful Applications at:

<http://www.dot.ca.gov/hq/LocalPrograms/HSIP/prepare4nextcall.html>

Strategy 2: SRTS/HSIP Project– Systemic Approach



- ▶ Evaluate crash data within school zones.
- ▶ Consider pedestrian crossings or other locations that tend to have more pedestrian or bicycle type crashes
- ▶ Then review other potential “school crossings” or pedestrian crossing locations, that would benefit from same improvement/countermeasure



Strategy 2: SRTS/HSIP Project– Systemic Approach



- ▶ This approach is considered “systemic”
- ▶ Analyzing similar roadway characteristics or conditions and applying same improvements/countermeasures at other similar locations would be considered a more “proactive” approach to roadway safety
- ▶ Goal: Prevent collisions before they occur by identifying crash potential based on collision history of similar “high risk” roadway characteristics

Case 1

Awarded Cycle 5 HSIP Application
City of Stockton



Case 1: School Zone Safety Improvement Project

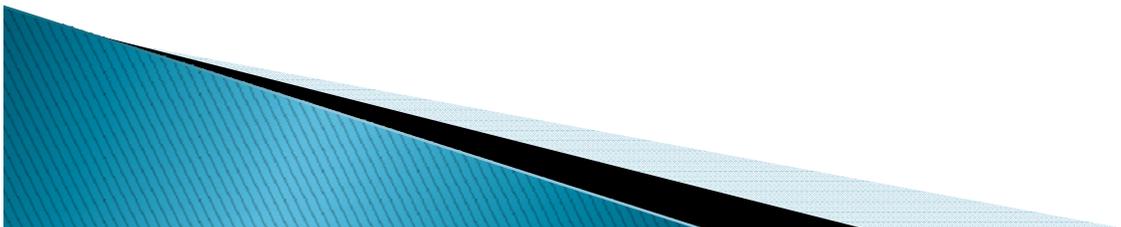
- Crash data exists on route to school which would result in a competitive B/C project. This SRTS Project could be located at one or multiple locations benefiting a single school, multiple schools, or district-wide.
- Example: HSIP Cycle 5 – City of Stockton Application

Case 1 (Systemic Approach): City of Stockton Cycle 5 HSIP Application Highlights



- ▶ Project Description:

Install rectangular rapid flashing beacons and upgrade existing school crosswalk signs and crosswalks at uncontrolled locations in school zones to increase visibility and pedestrian/bicyclist safety

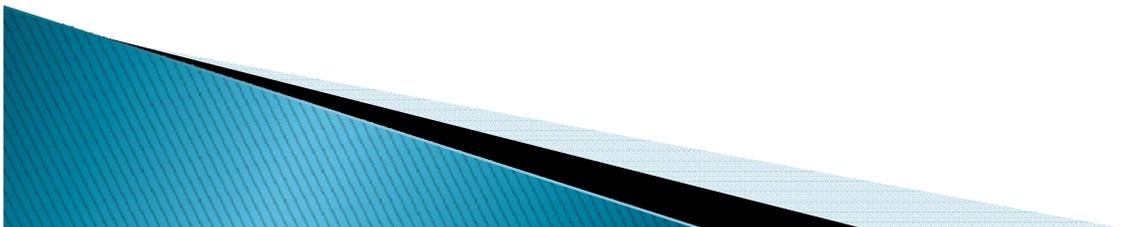


Case 1 (Systemic Approach): City of Stockton Cycle 5 HSIP Application Highlights



- ▶ Project Countermeasure:

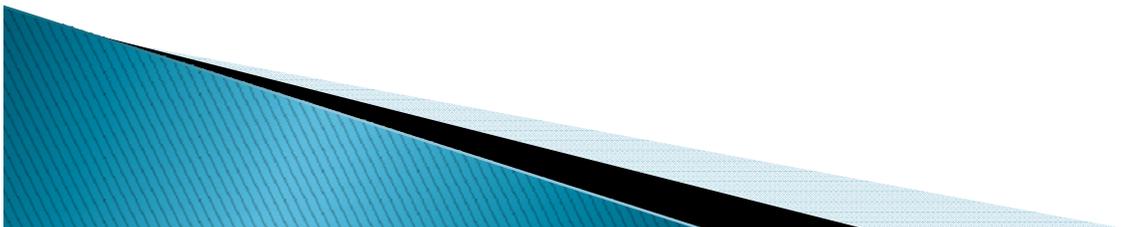
R38: Install Pedestrian Crossing (with enhanced safety features)



Case 1 (Systemic Approach): City of Stockton Cycle 5 HSIP Application Highlights



- ▶ The City completed an overall analysis of existing uncontrolled/mid block crosswalks within school zones on arterial and collector roadways.
- ▶ Collision reports, speed surveys and location attributes were evaluated to determine the locations that would best benefit from the use of RRFBs.



Case 1 (Systemic Approach): City of Stockton Cycle 5 HSIP Application Highlights

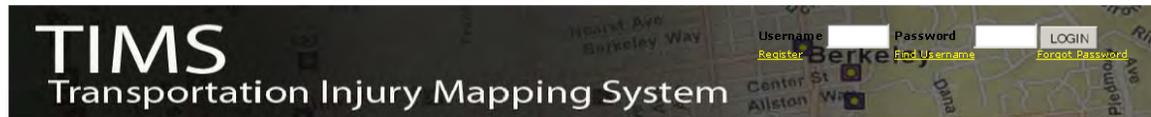


- ▶ Additional reviews and field visits were conducted
- ▶ A total of 137 collisions within close proximity of the school zones. 29 of which included pedestrians and bicyclists.
- ▶ **Project B/C = 2.26**
- ▶ Expected Benefit = \$373,080
- ▶ Expected Cost = \$165,100

TIMS B/C Calculator

City of Stockton HSIP Cycle 5 Application

TIMS – Website and Tools



[Home](#) [About](#) [Tools](#) [Resources](#) [News](#) [Help](#)



WELCOME TO TIMS!

TIMS has been established by researchers at the Safe Transportation Research and Education Center (SafeTREC) at the University of California, Berkeley to provide data and mapping analysis tools and information for traffic safety related research, policy and planning.



TIMS will continue to evolve and provide new tools as new products are developed from research at SafeTREC.

APPLY TODAY!



Register for a free account to access the tools and resources on TIMS. Apply here. >>>

TOOLS



Utilize several powerful TIMS query and mapping tools to conduct advanced analysis. >>>

ABOUT US



TIMS has been established by researchers at the Safe Transportation Research and Education Center (SafeTREC) to provide... >>>

HELP



Browse through an extensive repository of tutorial videos, FAQs, data resources and related links. >>>

SITE UPDATES



[SRTS Ped/Bike Collision Maps have been updated](#)

February 08, 2012, 05:59:18 PM

The interactive geospatial PDF maps of pedestrian and bicycle collisions near school sites in California have been updated to include 2007 to 2009 collisions, 2010 Free/Reduced Price Meals, and 2011... >>>



[New FARS Collision Map and Chart Visualizations](#)

January 25, 2012, 10:31:23 AM

On the FARS Collision Maps and Charts page new visualizations have been created to provide different ways to explore FARS collision fatality data and incorporate data from the US Bureau of... >>>



[New account applications now available again!](#)

December 07, 2011, 04:12:37 PM

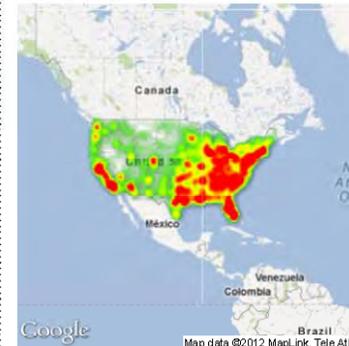
The account application link has been re-activated following the stabilization of the Calmail email system. You should be able to receive account approval emails now as well as forgotten password ema... >>>



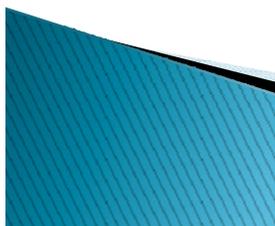
[New Account Applications Temporarily](#)

QUICK VIEWS

A density map of fatal collisions nationwide in 2009.



Collisions occurring in California over a 24 hour period.



TIMS: Website and B/C Calculator

- ▶ Overview of TIMS
 - Strategic Goal
 - Limitation on Data (Timeliness & Geo-referencing)
 - Explanation of Disclaimer
 - Tutorials
- ▶ All Local Agencies now have access to Crash Data
 - This should be considered as an “Option”
- ▶ All Applications must include a TIMS B/C calculation
 - Agencies may use their locally preferred crash data analysis tools (i.e., CrossRoads) or import the data directly from TIMS crash summary files.
 - Refer to February 19, 2013 HSIP Webinar recording for further information

<http://tims.berkeley.edu/>

TIMS: B/C Calculator

Case 1: City of Stockton Cycle 5 HSIP Application

- ▶ Add application information
- ▶ Select crash data time period
- ▶ Select countermeasure
- ▶ Enter or import collision data
 - Create collision map
- ▶ Enter project costs
- ▶ Print / save results

<http://tims.berkeley.edu/>

TIMS Funding

- ▶ TIMS Website:

- Funding for this program was provided by a grant from the California Office of Traffic Safety, through the National Highway Traffic Safety Administration.

- ▶ Benefit / Cost Calculator:

- Funding was provided through a grant with the Caltrans Division of Local Assistance for development of the benefit/cost calculator tool.

<http://tims.berkeley.edu/>

TIMS: Tips for Success

- ▶ Save your password in the web browser.
- ▶ Watch the Tutorial Videos first!
 - Most usability questions are answered in the videos.
- ▶ If you are seeing something grossly different from the tutorial videos, there are several potential culprits:
 - Your web browser or special plug-ins are blocking the site. If you have ad or pop-up blockers, or Javascript or Flash blocking, the site cannot function.
 - Your IT department/internet network are restricting the site. Please contact them to add an exception for tims.berkeley.edu.
 - Try Mozilla Firefox or Google Chrome as web browser instead
- ▶ Test out the site on a home computer or other internet network to see if you have a different experience. Do not keep trying the same function if it's not working.

<http://tims.berkeley.edu/>

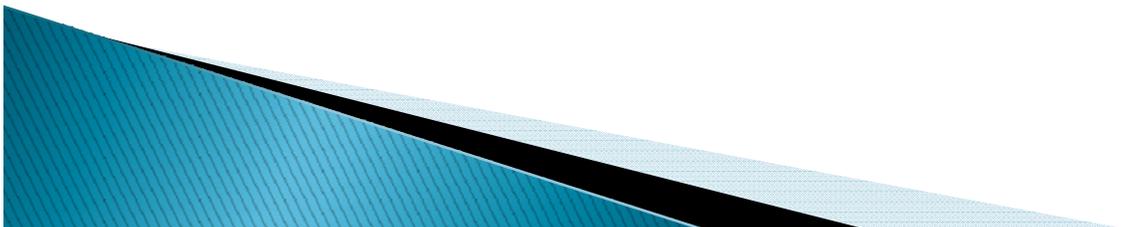
Case 1: Additional Options to Consider

- ▶ If a comprehensive safety approach was taken in this project, a potential to include \$13,800 in non-infrastructure elements (10% of construction cost) would have provided a viable B/C of over 2.0.
- ▶ In Cycle 5, this project would have been funded!
- ▶ But in Cycle 6, the B/C cut-off hasn't been determined yet (depends on the maximum funding available!)



Strategy 3: SRTS/HSIP Project- Driven by Common Improvements

- ▶ This approach may be appropriate for SRTS projects already planned and prioritized!



Case 2

Awarded Cycle 5 HSIP Application
City of Manhattan Beach



Case 2 (Systemic Approach)

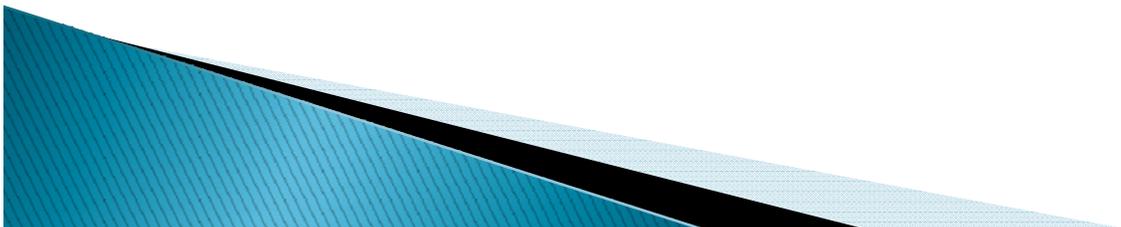
- ▶ Combine SRTS infrastructure needs with other proposed local safety improvements for one HSIP Project.
 - Example: Successful Cycle 5 HSIP Project in Manhattan Beach
 - Crash concentrations at some locations, but multiple locations with no crash data results in competitive B/C
 - 3 countermeasures or types of improvements are included in the B/C calculation



Case 2: City of Manhattan Beach Cycle 5 HSIP Application Highlights

- ▶ Project Description:

Install marked crosswalks and signage;
construct bulb-outs; install flashing beacons;
install countdown pedestrian signals at 22
intersections located throughout the City





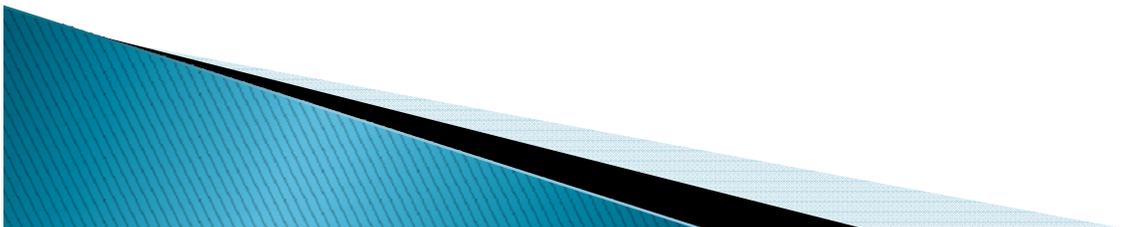
Case 2: City of Manhattan Beach Cycle 5 HSIP Application Highlights

- ▶ Project Countermeasures:
 - NS17: Install Pedestrian Crossing (new signs and markings only)
 - NS18: Install Pedestrian Crossing (with enhanced safety features/curb-extensions)
 - S19: Install pedestrian countdown signal heads



Case 2: City of Manhattan Beach Cycle 5 HSIP Application Highlights

- ▶ How were the safety needs and potential countermeasures for this project first identified?
 - Jurisdiction-wide safety analysis
 - Non-motorized improvements were 100% of the total project cost





Case 2: City of Manhattan Beach Cycle 5 HSIP Application Highlights

- ▶ This project was identified through a comprehensive review of available SWITRS data of all accidents involving pedestrians and bicyclist during the past 10 years.
- ▶ Details of each accident and field investigations were conducted.
- ▶ Patterns emerged that suggested a systemic approach to installing a few selected improvements would be appropriate.



Case 2: City of Manhattan Beach Cycle 5 HSIP Application Highlights

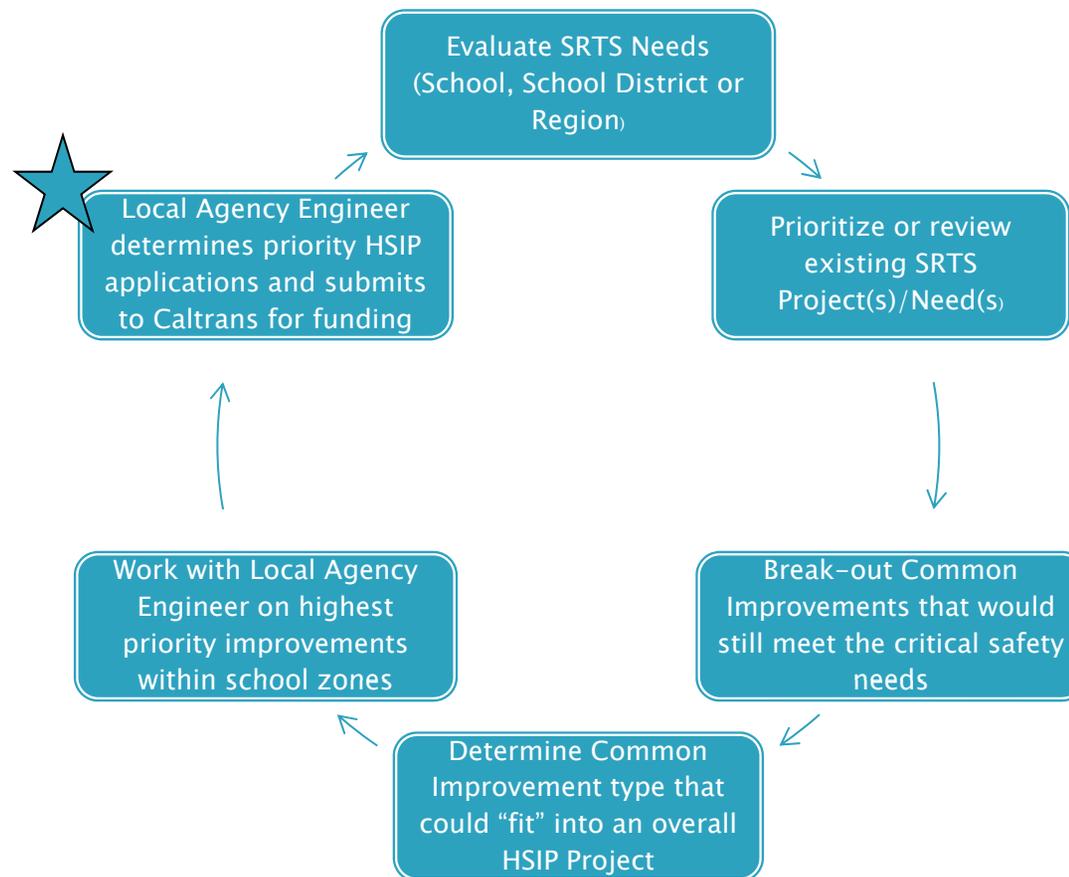
- ▶ **Project B/C = 6.32**
- ▶ CM1: Install pedestrian crossing (new signs and markings only)
 - Expected Benefit = \$197,500
 - Expected Cost = \$49,720
- ▶ CM2: Install pedestrian crossing (with enhanced safety features/curb-extensions)
 - Expected Benefit = \$663,600
 - Expected Cost = \$149,160
- ▶ CM3: Install pedestrian countdown signal heads
 - Expected Benefit = \$711,000
 - Expected Cost = \$49,720

Case 2: Additional Options to Consider

- ▶ If a comprehensive safety approach was taken in this project, a potential to include significantly more \$ in non-infrastructure elements (\$200,000) would have provided a viable B/C of over 3.50.
- ▶ In Cycle 5, this project definewould have been funded!
- ▶ But remember: the B/C cut-off for funding in Cycle 6 is yet to be determined.



Case 2: Additional Considerations

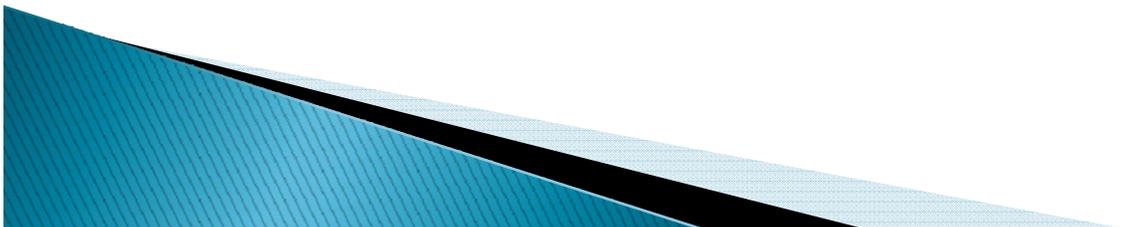


Case 3

Awarded Cycle 5 HSIP Application
City of San Diego

Case 3 (Spot Location): Combine SRTS infrastructure needs with other proposed local safety improvements for one HSIP Project.

- Example: Successful Cycle 5 HSIP Project in San Diego
 - High crash concentration location combined with additional improvement with no crash data that still have competitive B/C

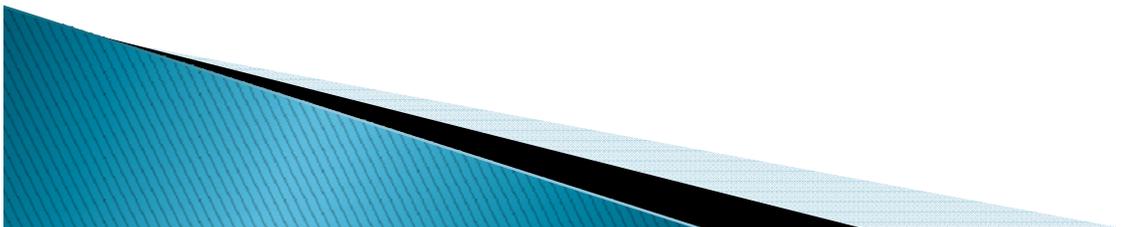




Case 3: City of San Diego Cycle 5 HSIP Application Highlights

- ▶ Project Description:

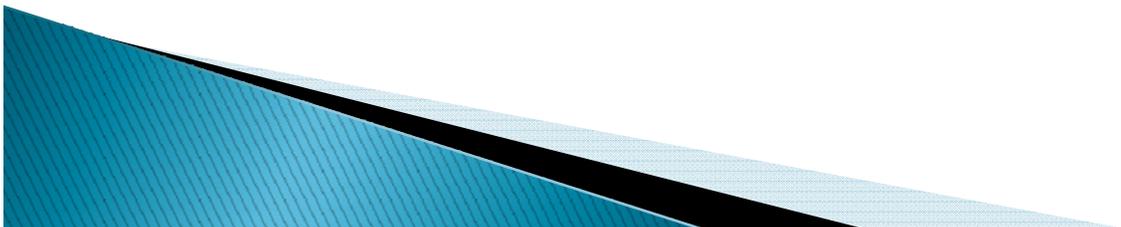
Install Type 60 concrete barrier in the center of the roadway; install sidewalk on the east side of the roadway and modify striping





Case 3: City of San Diego Cycle 5 HSIP Application Highlights

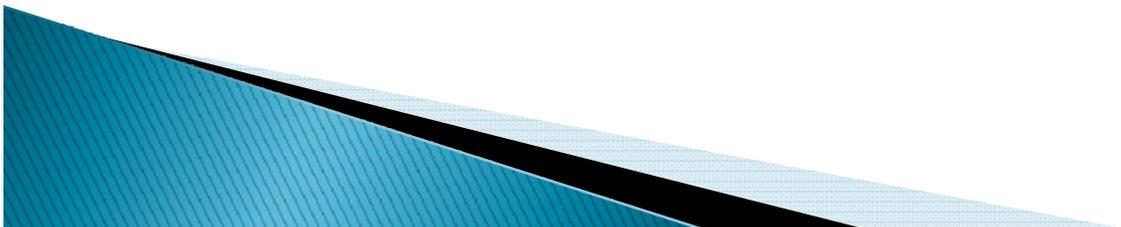
- ▶ Project Countermeasures:
 - R3: Install Median Barrier
 - R37: Install Sidewalk/Pathway (to avoid walking along roadway)





Case 3: City of San Diego Cycle 5 HSIP Application Highlights

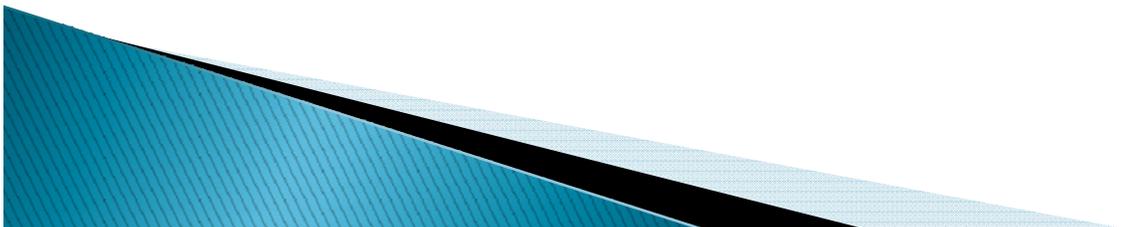
- ▶ How were the safety needs and potential countermeasures for this project first identified?
 - Corridor Safety Analysis/Road Safety Assessment
 - Non-motorized improvements were 35% of the total project cost





Case 3: City of San Diego Cycle 5 HSIP Application Highlights

- ▶ The City evaluated the roadway segment along with an accident analysis. Several accidents had occurred where drivers crossed the centerline of the road and caused head-on collisions
- ▶ Installing sidewalk and upgrading pedestrian ramps were included to enhance safety



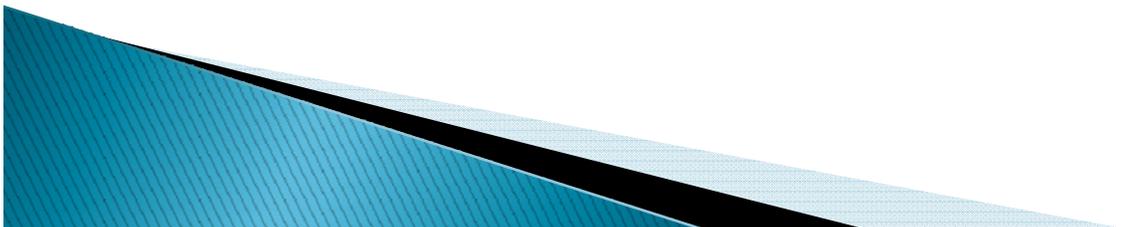


Case 3: City of San Diego Cycle 5 HSIP Application Highlights

- ▶ **Project B/C = 3.51**

- ▶ **CM1: Install Median Barrier**
 - Expected Benefit = \$3,135,619
 - Expected Cost = \$580,515

- ▶ **CM2: Install Sidewalk/Pathway**
 - Expected Benefit = \$0
 - Expected Cost = \$312,585



Case 3: Additional Considerations

- ▶ If the entire project scope remains the same, but a non-infrastructure component would have been included at 10% of the construction cost, the resultant B/C of 3.25 would have been funded.
- ▶ If the sidewalk was removed and focus was to reduce head-on collisions, a potential to include \$312,585 in non-infrastructure elements would have resulted in the same B/C of 3.51.

• What option would you chose to be funded?



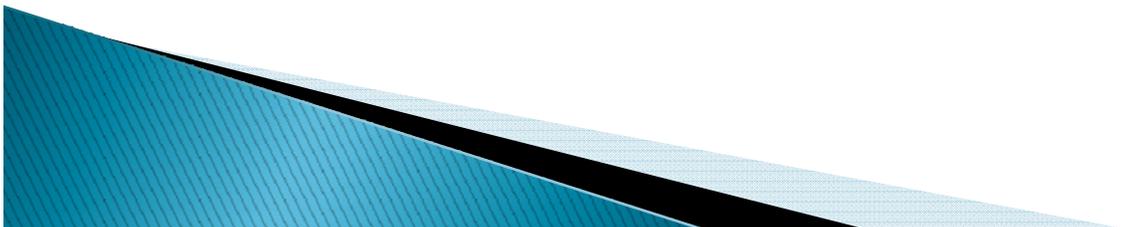
Further HSIP Considerations

- ▶ Pedestrian and bicycle infrastructure needs within school zones are not restricted by distance to school or by school type
- ▶ Strategies may still include School Route Planning, SRTS Plans, Walkability Studies, Parent Surveys
- ▶ Crash Data is Important! Local Agency crash data or UC Berkeley TIMS website: SRTS Maps and B/C Calculator (more information to follow)
- ▶ This funding cycle will be the first time HSIP funds a comprehensive safety approach in a single project!



Further HSIP Considerations

- ▶ Local Agency safety practitioners are best resource for analysis of their entire roadway network to determine the scope of work on their local safety projects.
- ▶ What does this mean for SRTS? A strong partnership with the local agency Engineer – typically the Traffic Engineer/Safety Specialist is important!



Cycle 6 HSIP Call For Projects

Prepare Now!



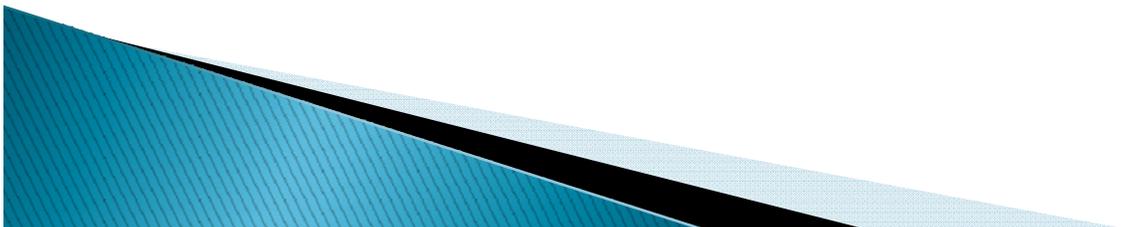
Details on the Spring 2013 Call

- Official Call is planned to start in early-April 2013
 - Using Cyc-6 Guidelines, Application and other documents
 - Start Now! Call only allows 3 months to prepare & submit apps
- Largest Call: Up to \$150 million in Fed Funds
 - Looking for multiple applications from each agency!
 - Greater of: \$3M or 2 x the agency's population ratio
- HR3 projects are still eligible and needed
 - MAP-21 includes special rule: CA to obligate \$17.6M
- Cities, Counties and Tribal Governments
 - Cannot have a Delivery Flag at the time apps are due
- Selection will be based entirely on B/C ratios
 - Flawed applications will be rejected!



Lessons Learned

- ▶ The Data-Driven B/C selection process works!
- Overall (Cycle 4 and Cycle 5):
 - \$2 Billion in expected benefits from less than \$200 Million in federal funding
 - Low-cost / Systemic-type improvements had the best chance for funding (signing, striping, ped-signals, etc.)
 - High-cost / Spot Location improvements tended to have lower B/Cs (new signals, shoulder widening, etc.)





Lessons Learned (Cont.)

Flawed Applications Rejected!

In Cycle 5:

- ▶ 55 Applications (20%) were rejected
 - Misuse of CMs, CM not 20% of Construction Cost, Collision Data missing/flawed, Collisions not in CM's influence area, Structural Overlay Project, $B/C < 1$. . .
- ▶ Additional applications included flaws that could be resolved by reviewers
 - Removed CM and corresponding Benefit: B/C still > 1
 - Removed Collisions and corresponding Benefit: $B/C > 1$
 - ❖ *In the future, these applications may just be rejected!*
- ✓ Better Training and Clearer Guidance will hopefully reduce the number of flawed applications



Lessons Learned (Cont.)

2012 Survey of Local Agencies

Findings:

- ▶ Overall Positive Feedback on Caltrans' shift to Data Driven Selection Process (Some improvements are still needed)
- ▶ Many agencies have limited resources to put towards network analysis and preparation of HSIP applications
- ▶ Agencies see the process as complex and resource intensive
- ▶ Rural and Small agencies need additional assistance

Outcomes:

- Provide training: 3 statewide trainings before Call starts
- Provide clearer guidance, including examples projects
- Provide specialized training and resources for small/rural agencies



How to Prepare for the Next Call (Cont.)

- ▶ Remember: Higher B/C = Success
 - Complete a “proactive safety analysis” of roadways
 - Select locations & corridors with high #s of crashes
 - Select lower-cost improvements/countermeasures (CMs) with high Crash Reduction Factors (CRFs)
 - Combine multiple CMs or multiple locations into one application to improve project delivery efficiencies
 - Minimize adding non-safety elements

- ▶ If unsure, follow a past Cycle 5 Example
<http://www.dot.ca.gov/hq/LocalPrograms/HSIP/HSIPHR3Examples.pdf>



Timeline

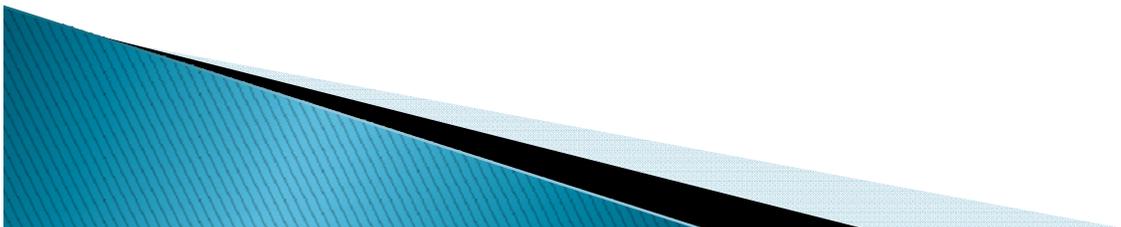
- **Starting today:**
 - Continue to Deliver Past Projects (ensure no red flags)
 - Analyze roadway networks for high collision locations/corridors & identify potential countermeasures
- **April:** Call will be announced
- **End of June:** Applications will be due
 - The call is only 3 months. Agencies may need more time for roadway analysis, CM identification, & application approvals!
- ▶ **October:** Agencies will be notified of final selections



DRAFT Guidelines

- ▶ Eligible Applicants:
 - Agencies that own, operate, and maintain the safety of their roadway
 - City and County agencies
 - Tribes, Universities, Transportation Agencies

- ▶ Project Funding:
 - Maximum reimbursement ratio is 90% (federal)
 - Maximum federal funds for a project will be provided at the time of the Call
 - Minimum size of project – 100K





DRAFT Guidelines

- ▶ Eligible Projects /Improvements:
 - Generally, any work on publicly owned roadway or bicycle/pedestrian pathway that corrects or improves the safety for users
 - Must lead to the construction of safety improvements
 - Improvement-type must have an established Crash Reduction Factor to be included in the Application's B/C Calculation
 - Overall B/C must be 1.0 or greater.
 - Prefer projects that can be delivered quickly and have minimal ROW and Environmental impacts



QUESTIONS & ANSWERS

