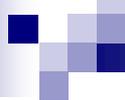


**Webinar for the
Highway Safety Improvement Program
(HSIP)**

2015 Call for Projects

**February 26, 2015
9:00 – 11:30 am**

**Caltrans - Division of Local Assistance
Office of Bridge, Bond and Safety Programs**



Webinar Presenters

Robert Peterson, DLA - Safety Program Manager

Intro, Background, Lessons Learned, Preparing, Timeline

Ken Kochevar, FHWA - CA Office, Safety Program Manager

FHWA's Role in Local Road Safety

Karen Scurry, FHWA Office of Safety

National Focus on Roadway Safety

Steve Castleberry, Nevada County, Public Works Director

Roadway Safety Signing Audit Project Update

Sang Hyouk Oum, UC Berkeley, SafeTREC Manager

SafeTREC TIMS website & B/C calculator

Robert Peterson / Greg Tom - Safety Program Managers

Questions & Answers

Presentation Details

- Expected to last ~ 2.5 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
 - Call-In:
 - Presenters will take call-in questions at key points during the webinar (Use *6 to unmute phone)
- This presentation is being recorded
 - A copy will be posted on the HSIP webpage

Presentation Outline

- Details on the 2015 Call for projects
- FHWA's role in Local Road Safety
- National Focus Towards Roadway Safety
- Background & Lessons Learned
- Nevada County's Roadway Safety Signing Audit Project Update
- How to Prepare for the Next Call
- TIMS Website & B/C calculator
- Who Completes the Analysis & Application
- Timeline
- Questions and Answers

Details on the Spring 2015 Call

- Official Call is planned to start in April 2015
 - Using Cycle 7 Guidelines, Application, LRSM and other documents
 - Start Now.....Call only allows 3 months to prepare & submit applications

- Call: Up to \$150 million in Fed Funds
 - Looking for multiple applications from each agency
 - Minimum - \$100K, Maximum - \$10 million
 - Up to \$10 million of federal funds per agency
 - 18 countermeasures are now 100% federal eligibility

Details on the Spring 2015 Call

- Because of the ceiling being raised.....
 - It is anticipated that fewer applications will make the cut
 - Higher project costs doesn't mean a project will qualify...the B/C will still dictate what gets funded
 - Last cycle showed that systemic projects had higher B/C's as compared to spot location
 - Looking to fund complete safety projects

Details on the Spring 2015 Call

- HR3 projects are still eligible and needed
 - MAP-21 includes special rule if triggered: CA to obligate \$17.6M

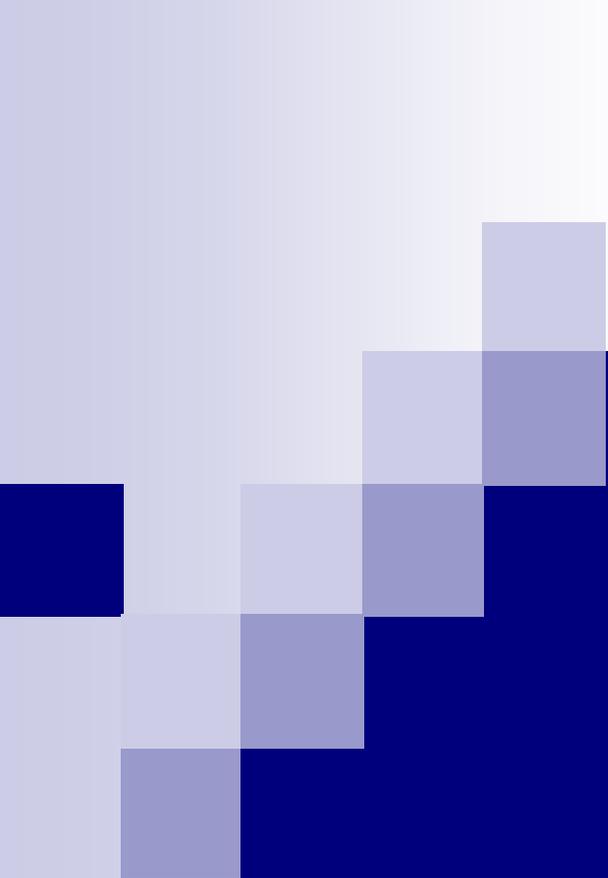
- Cities, Counties and Tribal Governments
 - Cannot have a delivery flag at the time applications are due

- Selection will be based on B/C ratios
 - No district minimums
 - Flawed applications will not be considered in the selection process.



FHWA's Role in Local Road Safety

- **Welcome**
- **Partnership with Caltrans**
- **Importance of Safety to FHWA**
- **With MAP-21 – Safety still #1**
- **Refinements to Call for Projects (Cycle 7)**

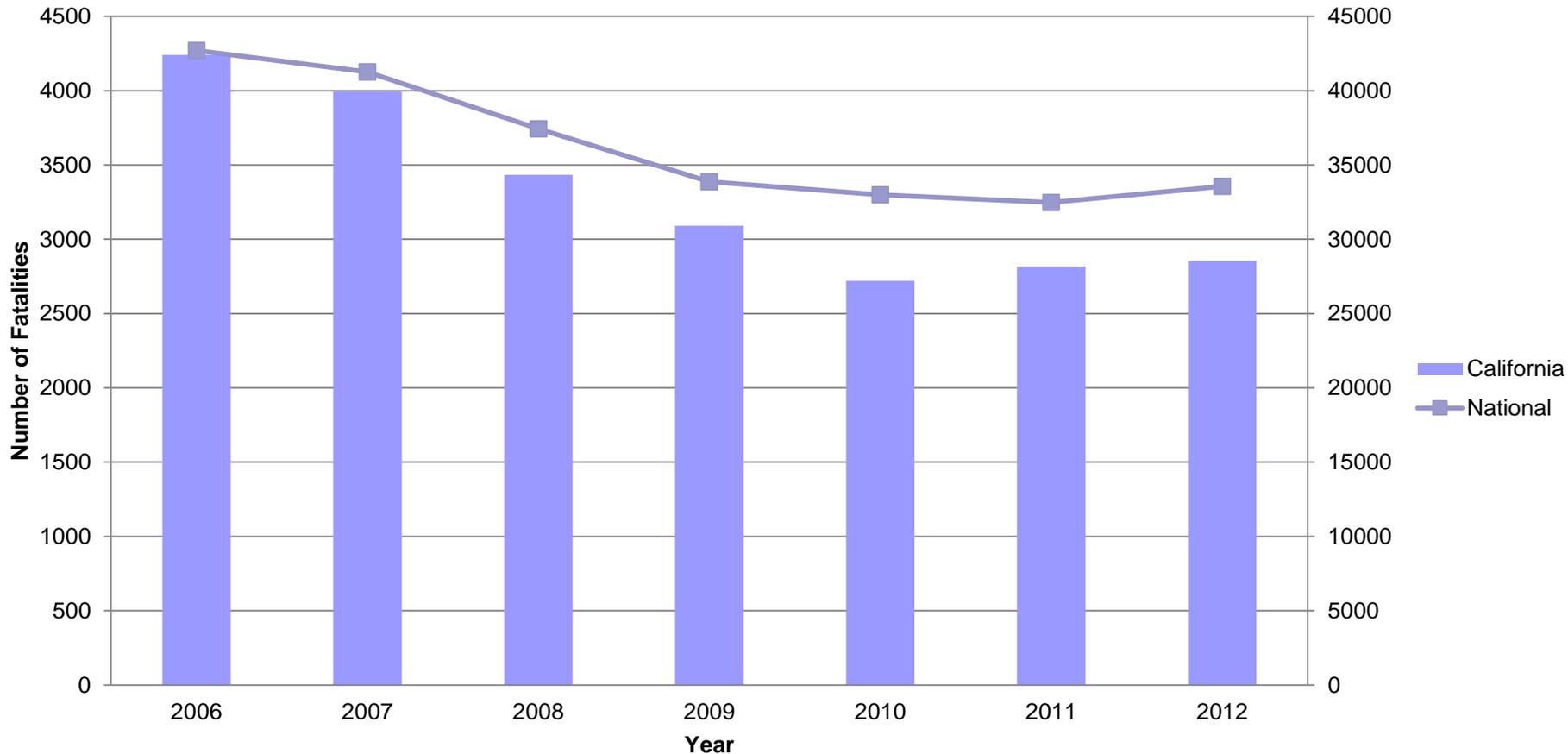


National Focus Toward Roadway Safety

Karen Y. Scurry, P.E.
FHWA Office of Safety
February 26, 2015

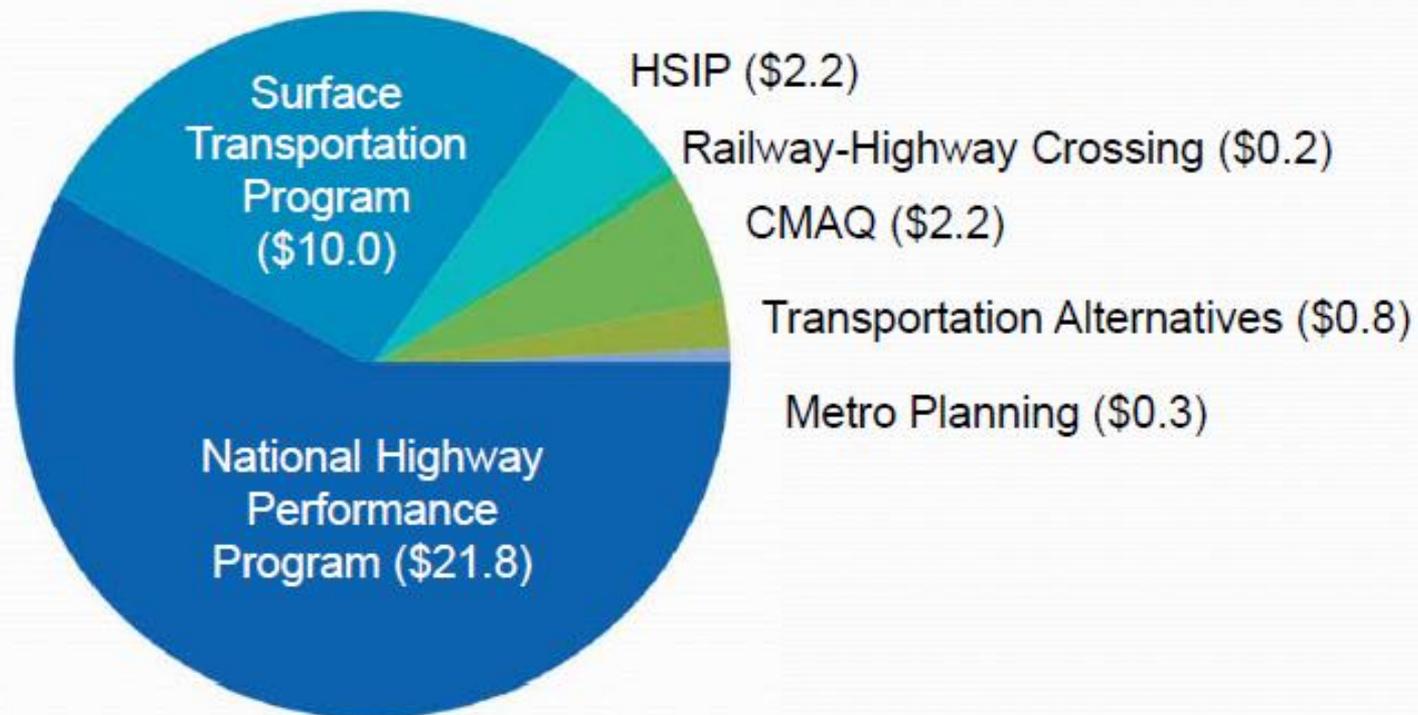
National Safety Trends

National Safety Trends



MAP-21

\$37.7 billion/year in formula funding



Highway Safety Improvement

Purpose:

Reduce fatalities and serious injuries on ALL public roads

- Strategic safety planning
- Data-driven roadway safety management process
- Highway safety improvement projects
- Federally-funded, state administered

HSIP Project Eligibility

Addresses an SHSP Priority

Identified through a data-driven process

Targets identified safety issue

Reduces fatalities and serious injuries



Highway Safety Improvement Program
Project Eligibility

The Focus is Results!

In 2009, motor vehicle fatalities reached levels not seen since 1950. Can all of this decline be attributed to the economic downturn leading to less roadway travel? The numbers say "no." Vehicle miles traveled (VMT) have declined much less than the decrease in fatalities, giving credence to the fact the increased focus on and commitment to safety is paying off. Legislation in 23 USC 148 and advances in the science of safety have ushered in a different approach for states, regions, and localities to address safety issues and challenges, and the difference is clear.

By requiring the states to develop and implement Strategic Highway Safety Plans (SHSP) as part of the Highway Safety Improvement Program (HSIP), HSIPs became part of a broader vision involving multiple stakeholders and integrating into the planning process. The clear purpose is to achieve significant reductions in traffic fatalities and serious injuries on all public roads. The new approach provides direction for achieving the purpose.

A formula apportions HSIP funds to state departments of transportation (DOT) to administer, but any public road or pathway, including those owned by local governments, can benefit. The objective is to target resources where they will be most effective, which means the focus is results.

Eligibility Criteria

All transportation projects should include an explicit consideration of safety and can be funded through a variety of Federal and state sources. To most effectively and efficiently apply limited HSIP funds, use the criteria below.

- Project addresses priorities in the state's SHSP.

Through collaboration with safety partners, the SHSP process identifies statewide emphasis areas with the greatest potential for reducing fatalities and serious injuries. Linking the HSIP with the SHSP ensures HSIP projects address priorities identified through the broader statewide strategic approach. For example, many SHSPs include a roadway departure emphasis area addressed using HSIP funds to implement low-cost safety improvements.

- Project or countermeasure selection is based on a data-driven process.

Data is the driving force in the decision-making process. With good data and analytic tools, states are able to identify systemic or site-specific safety problems, select and prioritize countermeasures, and evaluate impact on reducing fatalities and serious injuries.

- The selected countermeasures address the identified problems.

Ample resources and tools are available to help select the most effective projects, which also may include well-designed innovations.

The Focus is Results

U.S. Department of Transportation
Federal Highway Administration

<http://safety.fhwa.dot.gov/hsip/resources>

<http://www.fhwa.dot.gov/map21>

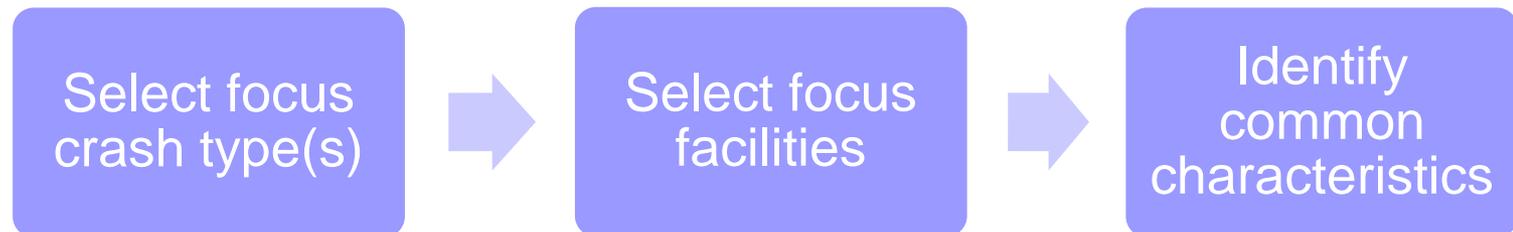
Systemic Approach to Safety

■ Systemic Safety Improvement

- An improvement that is widely implemented based on high-risk roadway features that are correlated with particular severe crash types.

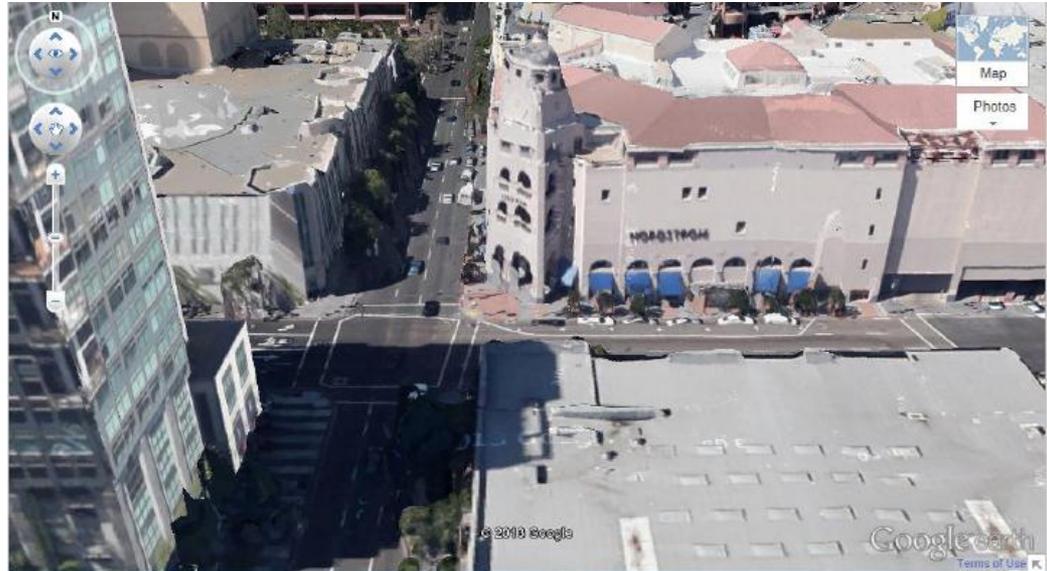
■ Systemic Problem Identification

- System-wide crash analysis
- Crash characteristics at the system level



Data needs/sources

- Crash data
 - Law enforcement
 - TIMS
 - FARS
- Roadway data
 - Video logs
 - Online Aerial imagery
 - Windshield surveys
- Exposure data
 - AADT



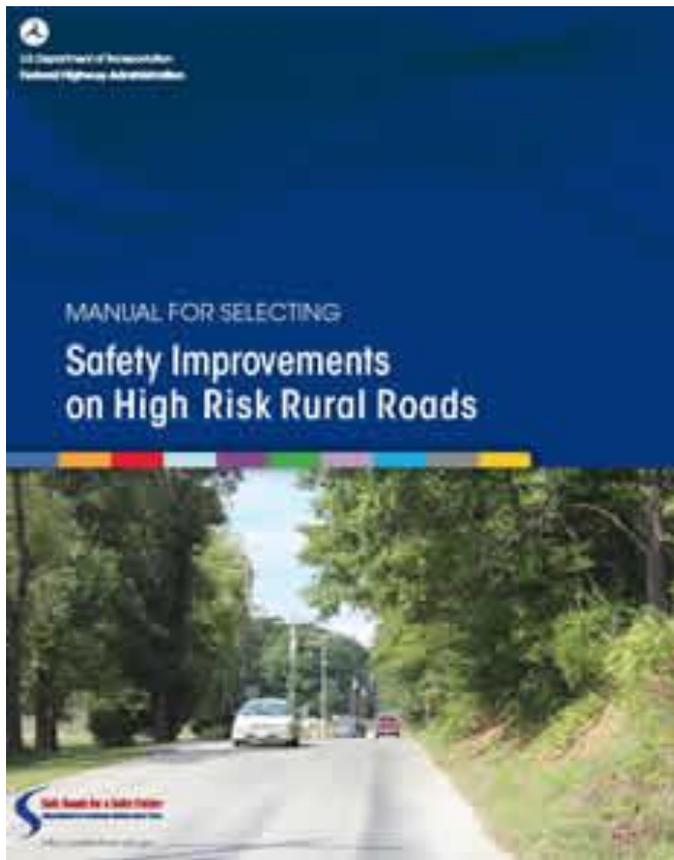


Benefits of a data-driven process

- Target areas of greatest need
- Systematic and repeatable process
- Prioritized investments
- Defensible decisions
- **Lives saved!!!**

New Resources

High Risk Rural Roads Manual



Systemic Safety Project Selection Tool



<http://safety.fhwa.dot.gov>

Questions??

Karen Y. Scurry, P.E.

609-637-4207

karen.scurry@dot.gov



Highway Safety Improvement Program
Data Driven Decisions

Background & Lessons Learned

■ SAFETEA-LU

- “Emphasized” DATA-DRIVEN but not required
- Separate HSIP and HR3 programs
- HSIP needs to be driven by the SHSP

- First 3 HSIP cycles did not require crash data
 - “Work-Type” Projects: tended to be based on ‘potential’ safety problems and not focused on high crash locations
- Cycle 4 –Started selecting projects based on B/C ratios using CRFs and CM’s

- Cycle 5 - Removed “work-type” projects and program became 100% data driven, based on crash history

Background (Cont.)

■ MAP-21

- “Requires” a DATA-DRIVEN selection process
- Includes Performance Measures and Targets
- Combined HR3 into HSIP, but with a special rule:
 - If the fatality “rate” increases on HRRR over two consecutive years, California to obligate \$17.6 million
- HSIPs must be based on elements of the SHSPs
- Cycle 7 will be similar to Cycle 6 with a few changes
 - (explained later in presentation)

■ HSIP

- 6 Cycles to date
- 1,077 Safety projects with \$524 million in federal funds

Background (Cont.)

The Delivery Requirements are Working....

- No Exceptions = Key to Success
 - Agencies with a red-flagged HSIP project at the time applications are due will not be allowed to submit new HSIP applications! A “complete” RFA package must be submitted (before applications)

- Agencies are managing their Federal Safety projects with a higher priority
 - Special Project/Program managers are being assigned
 - Complicated Safety Projects get additional attention
 - Undeliverable projects are being dropped

- Need to stay focused on delivering projects ASAP!

http://www.dot.ca.gov/hq/LocalPrograms/HSIP/delivery_status.htm

Lessons Learned

- Overall, the data-driven B/C selection process is generating good safety projects.
- Overall (Cycle 4 and Cycle 5):
 - 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.)

- **HSIP Cycle 5 & HR3 Cycle 3**
 - Project selection based 100% on B/C ratios
 - B/C results improved further: Ave B/C of 13.4

- **Ped & Bike projects competed very well**
 - Average B/C higher than overall average
 - \$28.7 million (26%) of the Cycle 5 funding
 -

- **HR3 and/or “rural area” projects competed well**
 - \$27.9 million (25%) of the Cycle 5 funding

- **Concern: The most rural counties received less funding than their % of fatalities and serious Injuries**

Lessons Learned (Cont.)

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 . . .

Lessons Learned (Cont.)

In Cycle 5:

- Additional applications included flaws that could be resolved by reviewers
 - Removed CM and corresponding Benefit: B/C still > 1
 - Removed Collisions and corresponding Benefit: $B/C > 1$
 - ❖ *Depending on the number of applications received, these applications may not be considered in the final project selection.*

Lessons Learned (Cont.)

In Cycle 6:

389 applications received (41% increase)

- 114 Applications (29%) were rejected
 - 1 out of 3 applications were submitted with significant errors in their B/C calculation as noted previously
- Rural Roadway Projects received 23% of the funding – average b/c 11.9
- Non-motorized users received 34% of the funding – ave B/C = 11.5

Lessons Learned (Cont.)

In Cycle 6:

- Systemic vs. Spot Location – B/C was ~25% higher (11.59 vs. 8.25)
- Roadway Segment vs Intersection – B/C was 25% higher (11.24 vs. 8.97)
- Non-motorized projects received 34% of the funding – ave B/C = 11.5

Lessons Learned (Cont.)

2012 Survey of Local Agencies

Findings:

- Overall positive feedback on shift to data driven selection process with some improvements
- 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 clearer guidance, including examples projects
- Provide specialized training and resources for small/rural agencies

Lessons Learned (Cont.)

Outcomes:

- Developing two new programs under HSIP
 - Systemic Safety Analysis Report
 - Completed report will help local agency identify locations, scope and cost
 - Information used to apply for HSIP funding
 - Proactive Safety Program
 - Specific countermeasures will qualify
 - No B/C is needed
 - Locations will qualify based on roadway features, volume and or other characteristics, etc
- Stay tuned.....

Nevada County HSIP Cycle 6 Road Sign Audit

Steve Castleberry
Nevada County Public Works
February 26, 2015

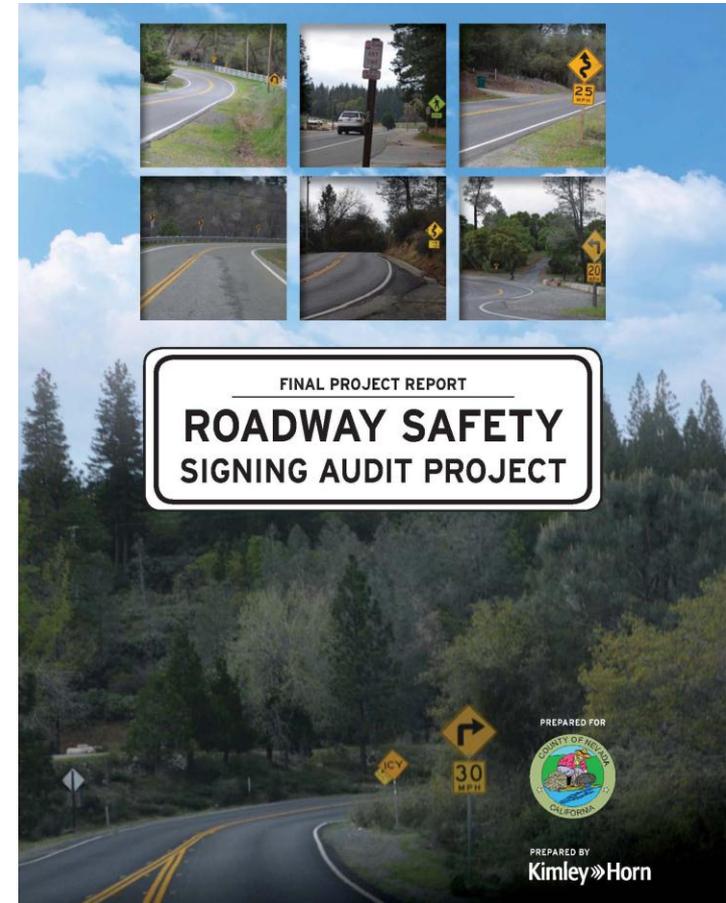


Background

- For HSIP Cycle 6, we were looking for projects with a broad countywide impact
- Caltrans worked with us to develop a defensible approach to our HSIP application. We assumed 1/3 of crashes would be addressed by signing.
- In the 48 mile corridor, we “touched” 223 crashes (including 1 fatal). Our Benefit/Cost was 48
- Submitted for HSIP funds July 2014. HSIP awarded Fall/Winter 2014. Requested PE authorization Jan 2015.

The Study

- RFQ - Feb 2014
- Selected Kimley Horn (contract price \$51,000) – June 2015
- KH inventoried the roads using Lidar and Rieker CARS to collect data in one pass.
- Draft report submitted – July 2015
- Final report submitted – August 2015



Next Steps

- NEPA and CEQA clearance
- Do an initial environmental screening based on existing data. New or relocated signs may require field analysis. Signs requiring additional analysis will NOT be included in HSIP project (will do with our crews)
- Environmental work began in January, expected completion in April 2015
- Request construction authorization, advertise, construct – Summer/Fall 2015.

Results

- Reviewed 4 corridors
- 898 existing signs (20 signs per mile!)
 - 348 (39%) required no changes
 - 221 (25%) needed replacement (reflectivity, wrong advisory speed)
 - 11 (1%) needed to be relocated
 - 318 (35%) needed to be removed
- 403 new signs to be installed (over 60% were new chevron signs, 27% were new curve advisory signs)
- Estimated cost - \$300,000

Corridor A: North Bloomfield Rd
Summary of Signing Assessment and Recommendations

Object ID	Category	Code	Code Description	FINAL ACTION
841	WARNING	W8-5	SLIPPERY WHEN WET	REMOVE
842	WARNING	W13-1-20	ADVISORY SPEED 20	REMOVE
843	WARNING	W1-1-L	CURVE LEFT	REMOVE
844	WARNING	W13-1-20	ADVISORY SPEED 20	REMOVE
845	WARNING	W1-1-R	CURVE RIGHT	REMOVE
846	WARNING	W13-1-20	ADVISORY SPEED 20	REMOVE
847	WARNING	W1-1-L	CURVE LEFT	REMOVE
848	WARNING	W13-1-20	ADVISORY SPEED 20	REMOVE
849	WARNING	W1-1-L	CURVE LEFT	REMOVE
850	WARNING	W13-1-20	ADVISORY SPEED 20	REMOVE
851	REGULATORY	R2-1-30	SPEED LIMIT 30	REPLACE
852	REGULATORY	R2-1-30	SPEED LIMIT 30	REPLACE
853	GUIDE	G99-30	BUSH RD NEXT RIGHT	REPLACE
854	WARNING	W1-1-R	CURVE RIGHT	REMOVE
855	WARNING	W13-1-25	ADVISORY SPEED 25	REMOVE
856	WARNING	W1-1-L	CURVE LEFT	REMOVE
857	WARNING	W13-1-20	ADVISORY SPEED 20	REMOVE
858	WARNING	W1-4-L	REVERSE CURVE LEFT	REMOVE
859	WARNING	W13-1-20	ADVISORY SPEED 20	RELOCATE
860	WARNING	W1-3-L	REVERSE TURN LEFT	REMOVE
861	WARNING	W13-1-20	ADVISORY SPEED 20	REMOVE
862	WARNING	W1-5	CURVES WINDY ROAD	REMOVE
863	WARNING	W13-1-20	ADVISORY SPEED 20	RELOCATE
864	WARNING	W99-11	NEXT .5 MILES	REMOVE
865	REGULATORY	R2-1-30	SPEED LIMIT 30	REPLACE
866	WARNING	W1-5	CURVES WINDY ROAD	REMOVE
867	WARNING	W13-1-20	ADVISORY SPEED 20	RELOCATE

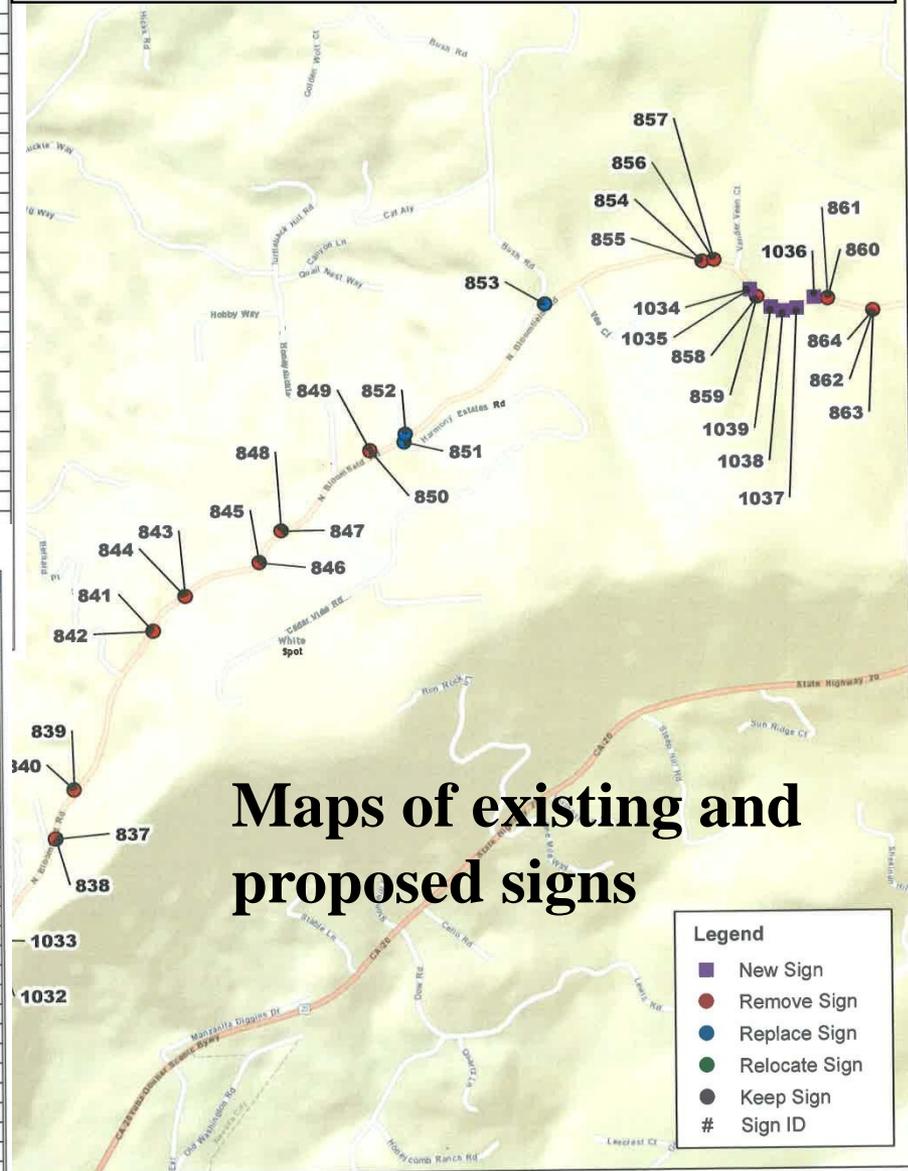
List of existing signs

Corridor A: North Bloomfield Rd
Summary of Signing Assessment and Recommendations

Object ID	Category	Code	Code Description	FINAL ACTION
1008	WARNING	W1-8-R	CHEVRON ALIGNMENT RIGHT	NEW
1009	WARNING	W1-8-R	CHEVRON ALIGNMENT RIGHT	NEW
1010	WARNING	W1-8-L	CHEVRON ALIGNMENT LEFT	NEW
1011	WARNING	W1-8-L	CHEVRON ALIGNMENT LEFT	NEW
1012	WARNING	W1-8-L	CHEVRON ALIGNMENT LEFT	NEW
1013	WARNING	W1-8-R	CHEVRON ALIGNMENT RIGHT	NEW
1014	WARNING	W1-8-R	CHEVRON ALIGNMENT RIGHT	NEW
1015	WARNING	W1-8-R	CHEVRON ALIGNMENT RIGHT	NEW
1016	WARNING	W1-8-R	CHEVRON ALIGNMENT RIGHT	NEW
1017	WARNING	W1-8-R	CHEVRON ALIGNMENT RIGHT	NEW
1018	WARNING	W1-8-R	CHEVRON ALIGNMENT RIGHT	NEW
1019	WARNING	W1-8-L	CHEVRON ALIGNMENT LEFT	NEW
1020	WARNING	W1-8-L	CHEVRON ALIGNMENT LEFT	NEW
1021	WARNING	W1-8-L	CHEVRON ALIGNMENT LEFT	NEW
1022	WARNING	W1-5	WINDING ROAD	NEW
1023	WARNING	W1-7-3a	WINDING ROAD	NEW
1024	WARNING	W1-8-L	CHEVRON ALIGNMENT LEFT	NEW
1025	WARNING	W1-8-L	CHEVRON ALIGNMENT LEFT	NEW
1026	WARNING	W1-8-L	CHEVRON ALIGNMENT LEFT	NEW
1027	WARNING	W1-8-L	CHEVRON ALIGNMENT LEFT	NEW
1028	WARNING	W1-8-R	CHEVRON ALIGNMENT RIGHT	NEW
1029	WARNING	W1-8-R	CHEVRON ALIGNMENT RIGHT	NEW
1030	WARNING	W1-1-R	TURN RIGHT	NEW
1031	WARNING	W13-1-20	ADVISORY SPEED 20	NEW
1032	WARNING	W1-1-R	TURN RIGHT	NEW
1033	WARNING	W13-1-30	ADVISORY SPEED 30	NEW
1034	WARNING	W1-1-L	TURN LEFT	NEW
1035	WARNING	W13-1-25	ADVISORY SPEED 25	NEW
1036	WARNING	W1-1-R	TURN RIGHT	NEW
1037	WARNING	W1-8-R	CHEVRON ALIGNMENT RIGHT	NEW
1038	WARNING	W1-8-R	CHEVRON ALIGNMENT RIGHT	NEW
1039	WARNING	W1-8-R	CHEVRON ALIGNMENT RIGHT	NEW
1040	WARNING	W1-1-L	TURN LEFT	NEW

List of proposed new signs

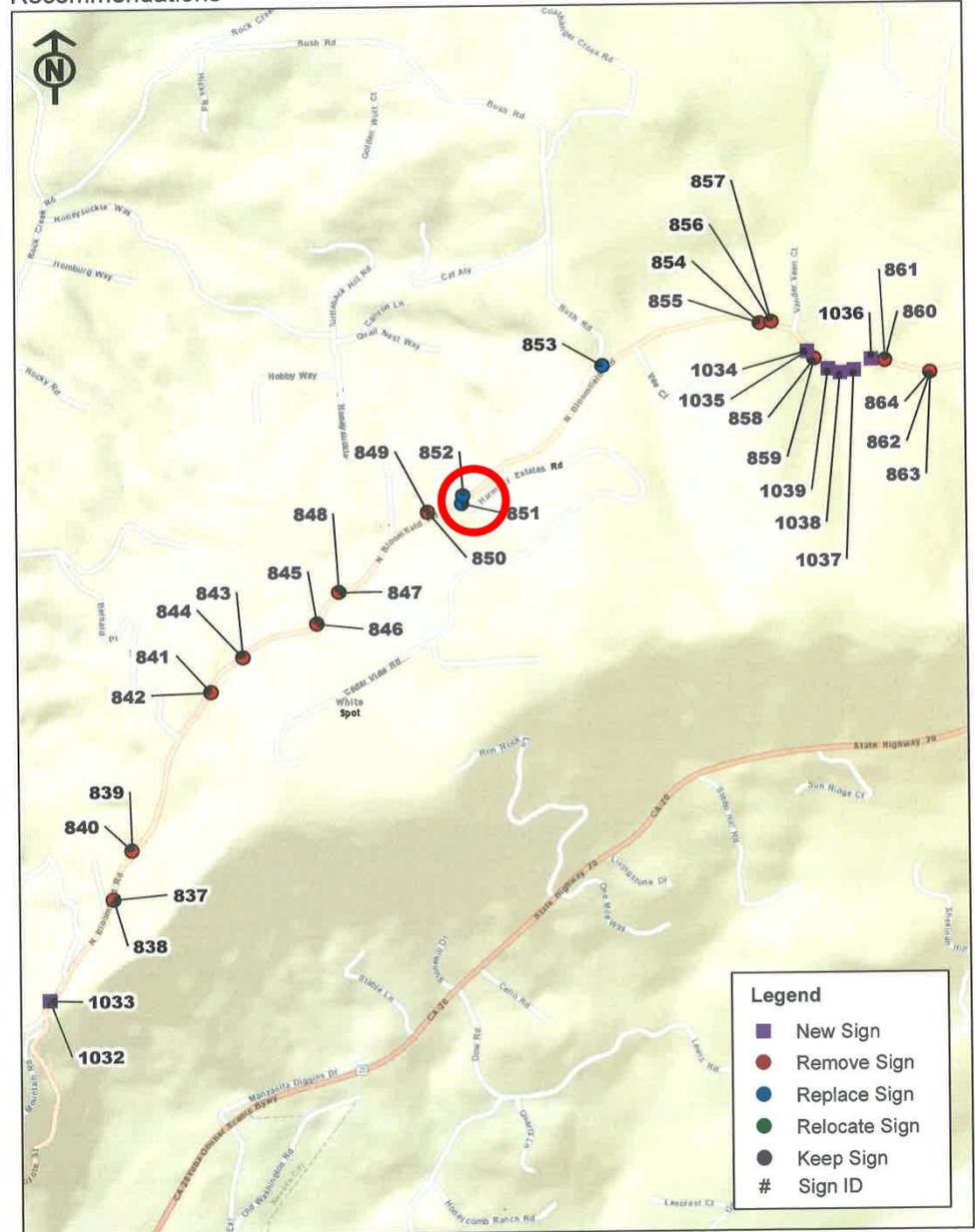
Deliverables



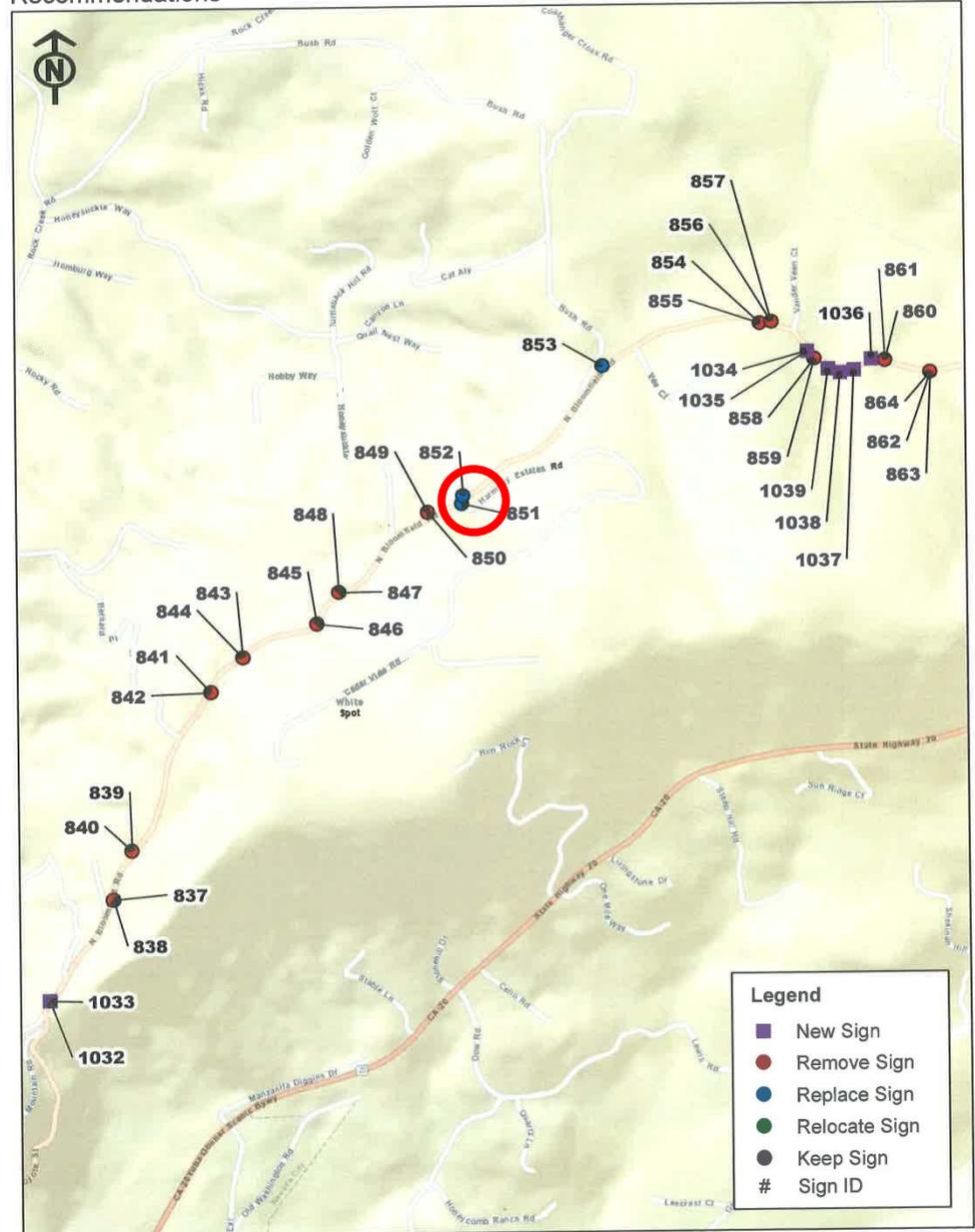
Maps of existing and proposed signs

Legend

- New Sign
- Remove Sign
- Replace Sign
- Relocate Sign
- Keep Sign
- # Sign ID



Replace sign. Reflectivity.



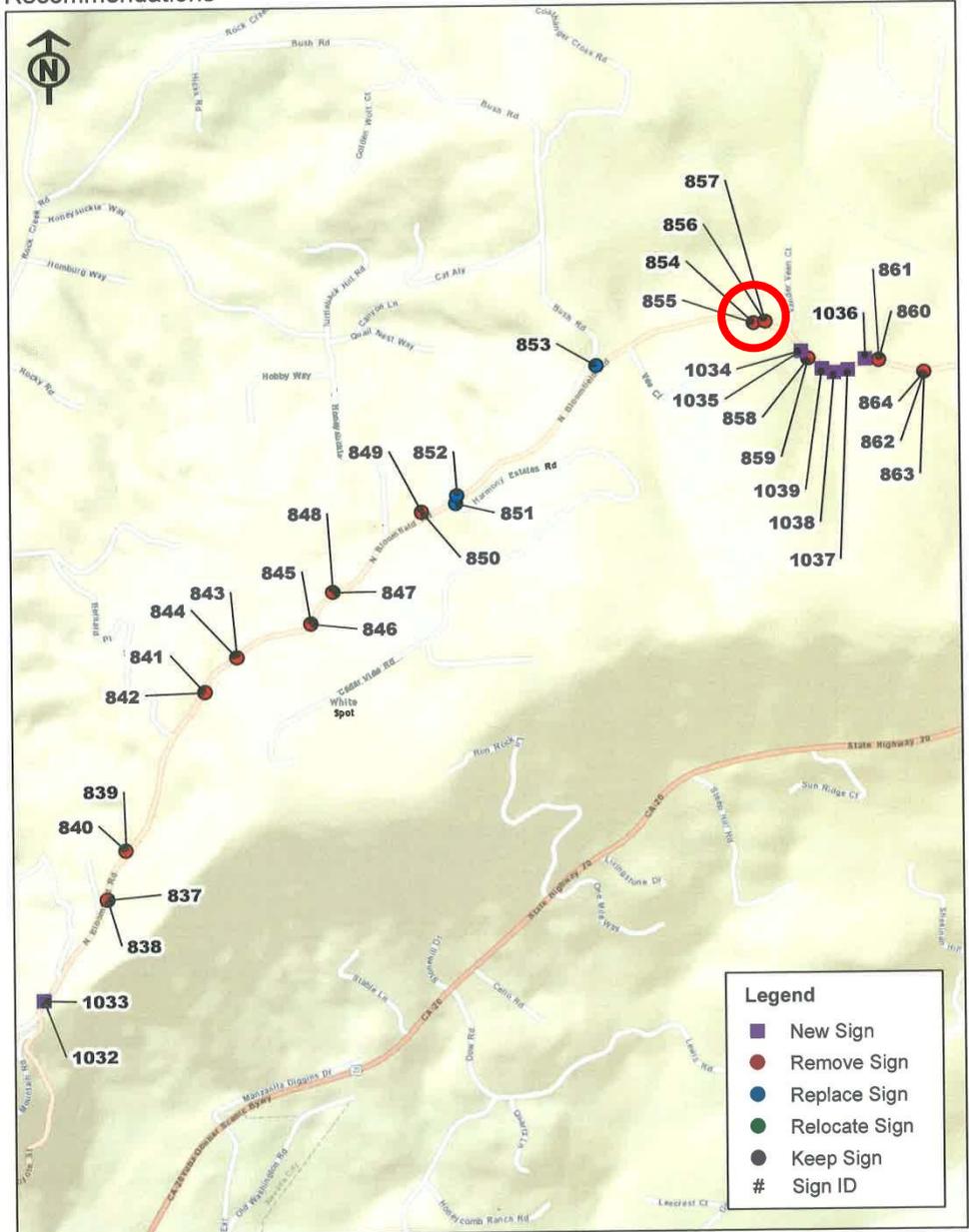
Replace sign. Reflectivity.



Remove sign. Advisory speed to low.

Recommendations

Corridor A: North Bloomfield Road (2 of 4)



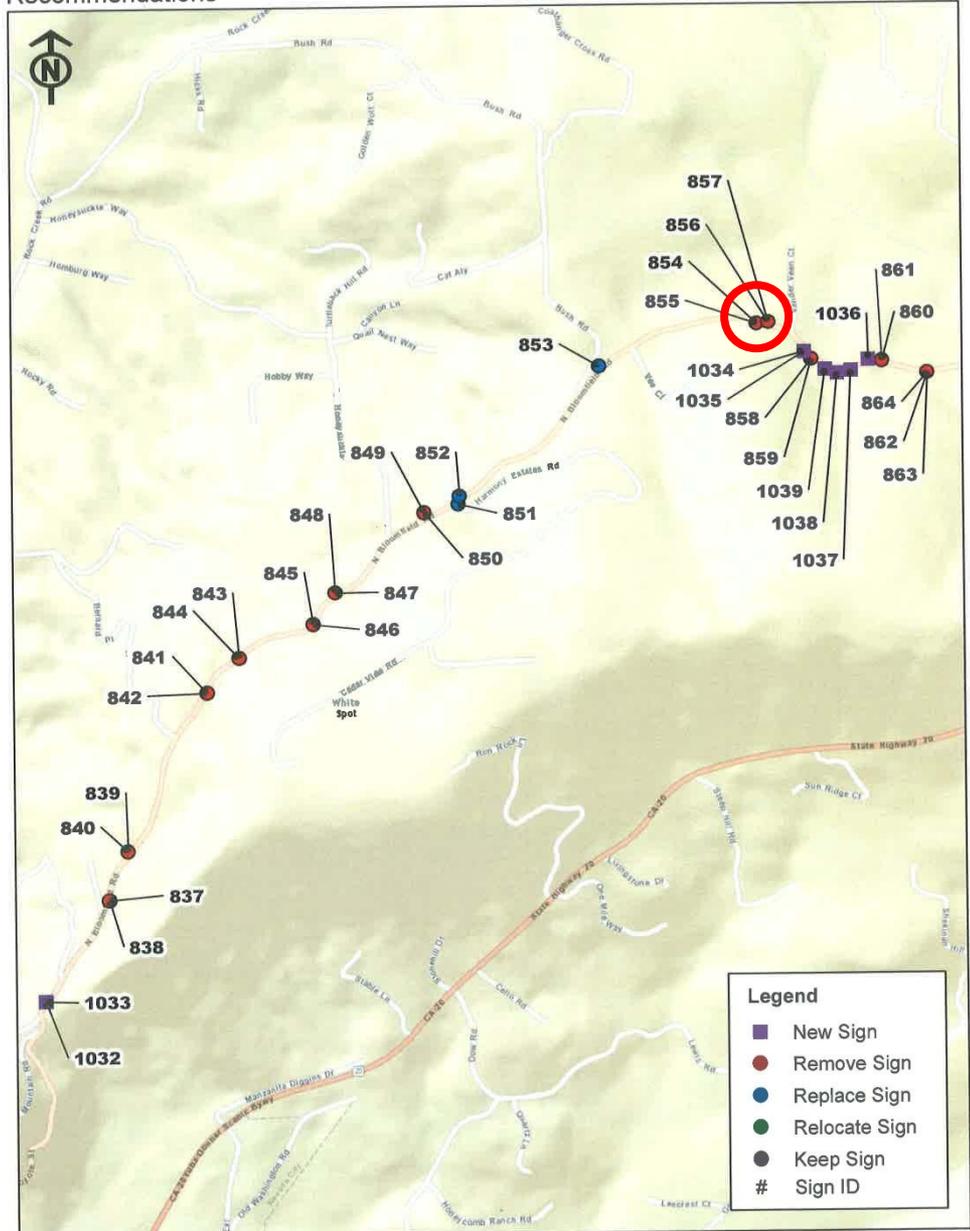


Plenty of visibility

Remove sign. Advisory speed to low.

Recommendations

Corridor A: North Bloomfield Road (2 of 4)

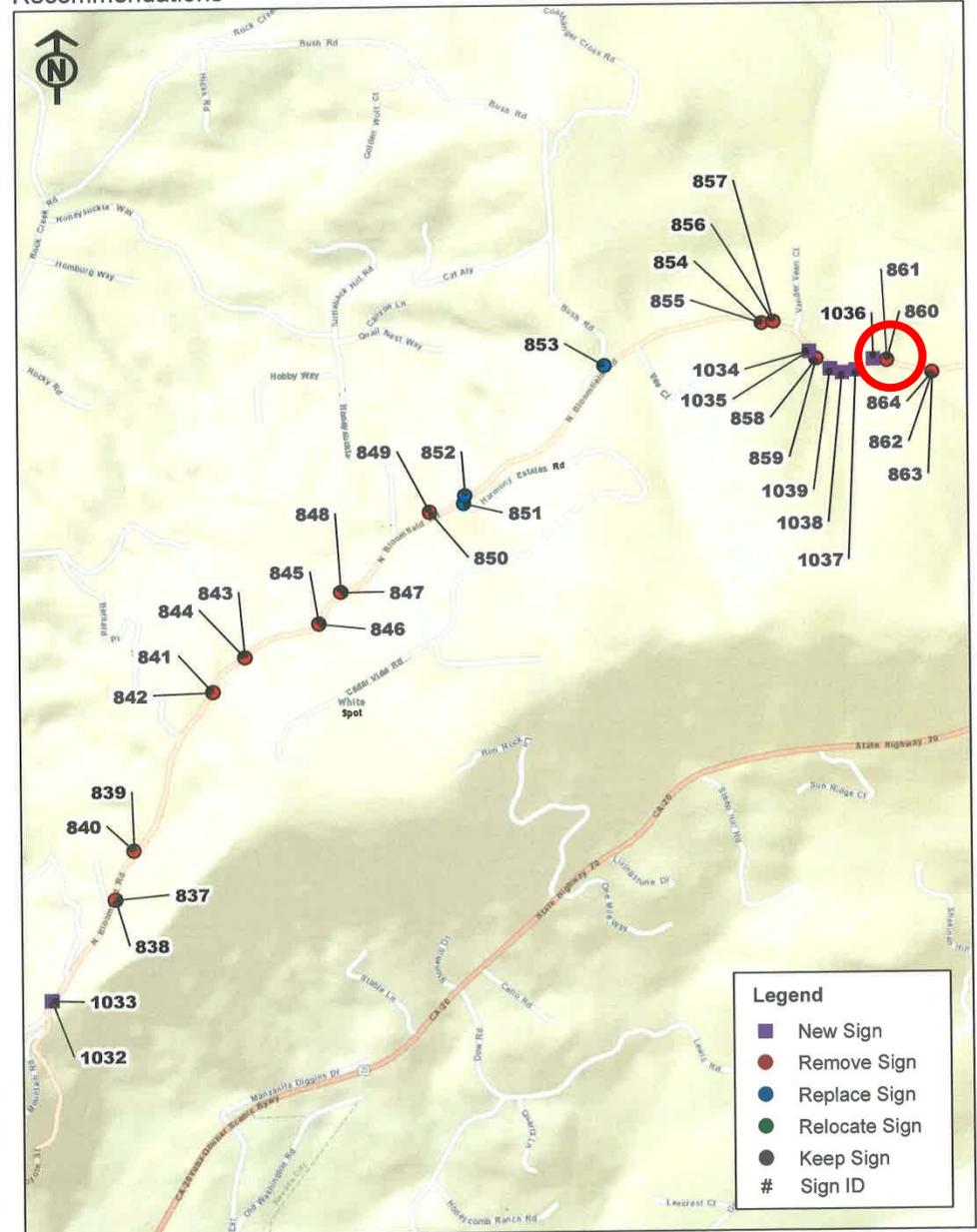




Remove and replace with a single right curve closer to the actual curve.

Recommendations

Corridor A: North Bloomfield Road (2 of 4)

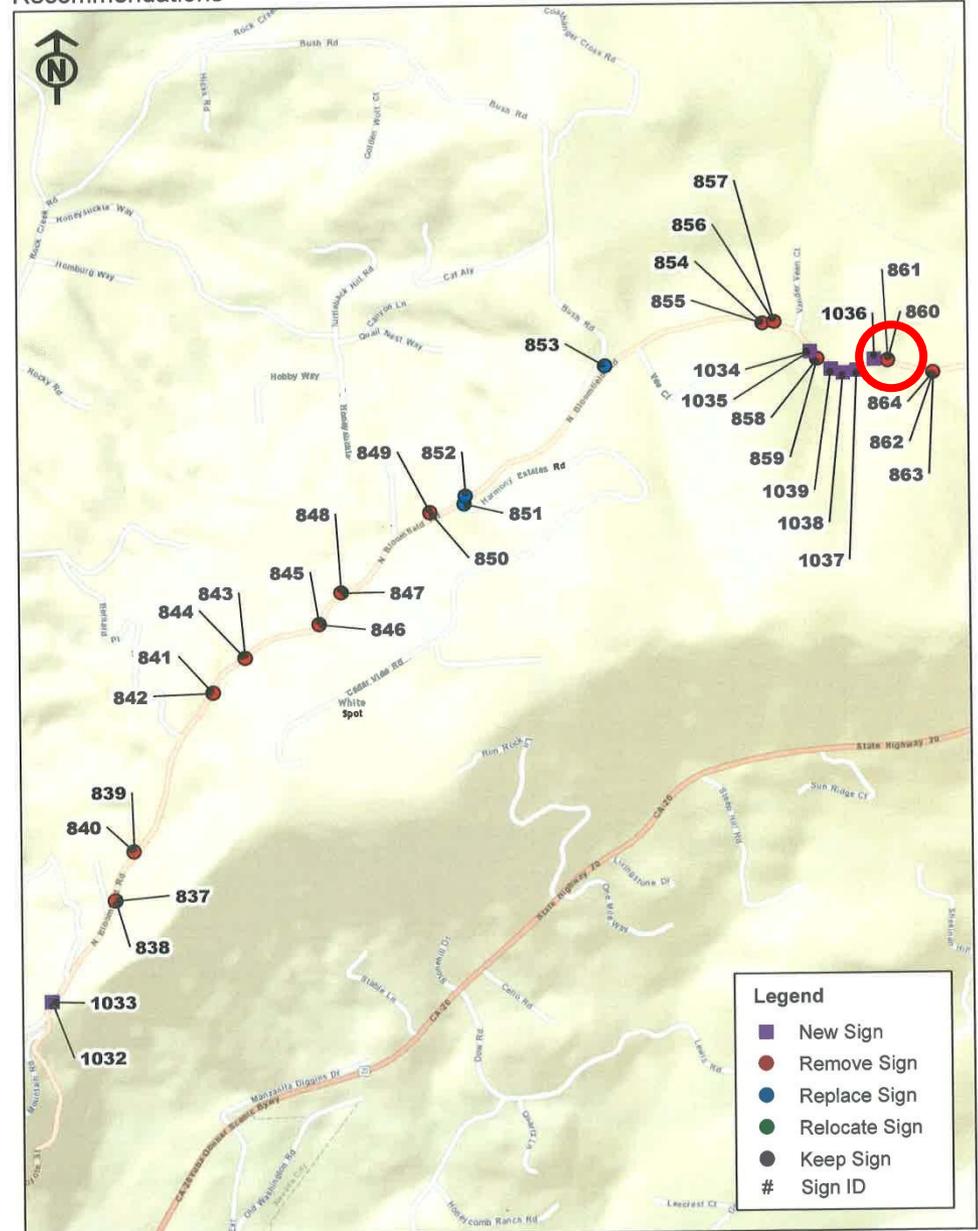


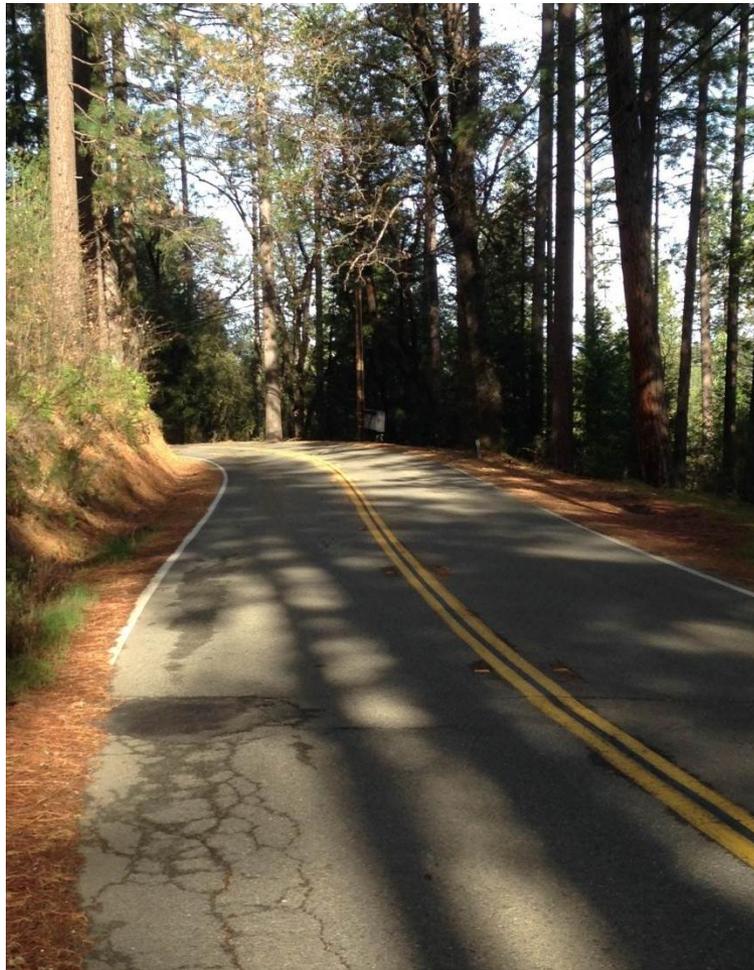


Remove and replace with a single right curve closer to the actual curve.

Recommendations

Corridor A: North Bloomfield Road (2 of 4)

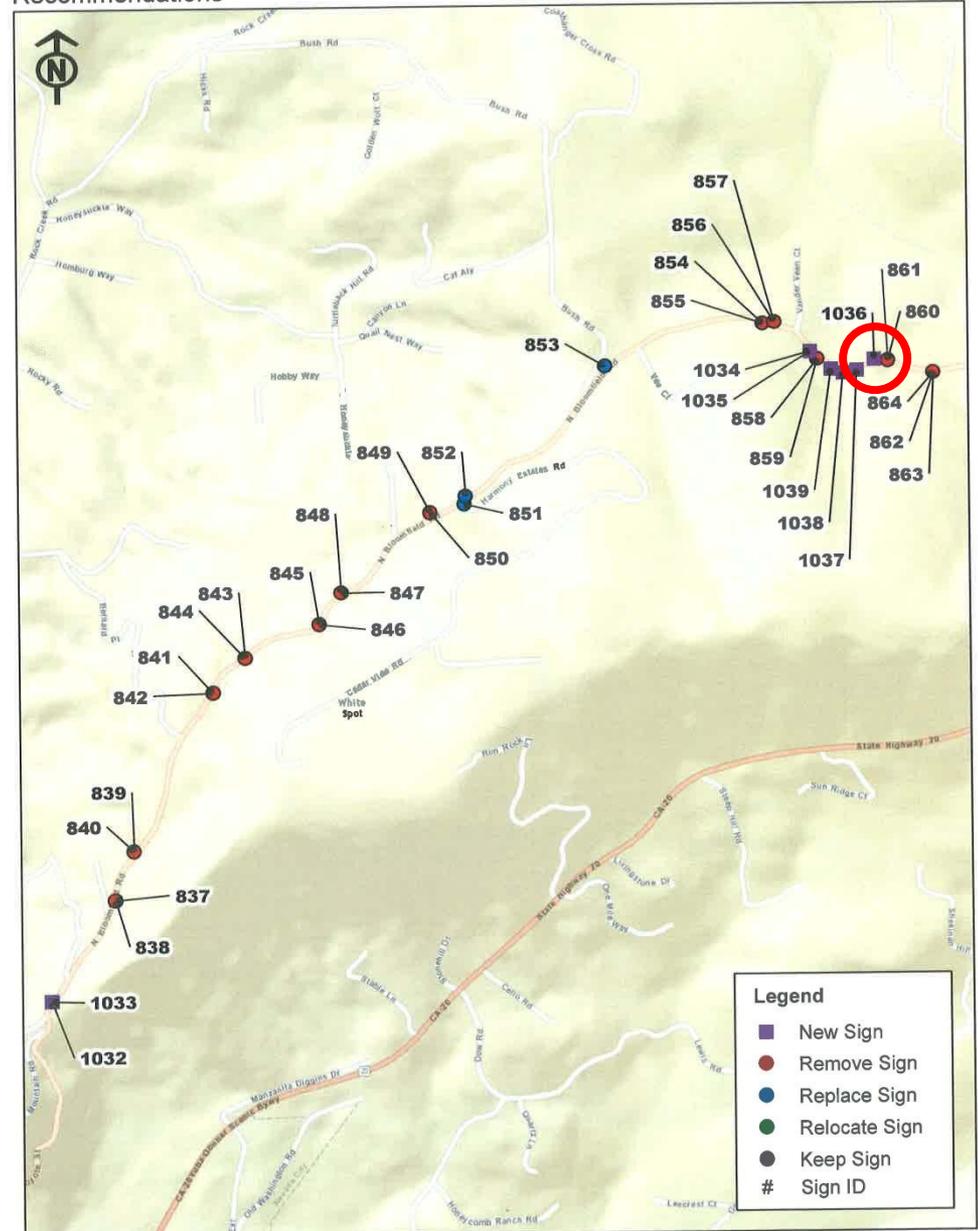




Add chevrons.

Recommendations

Corridor A: North Bloomfield Road (2 of 4)

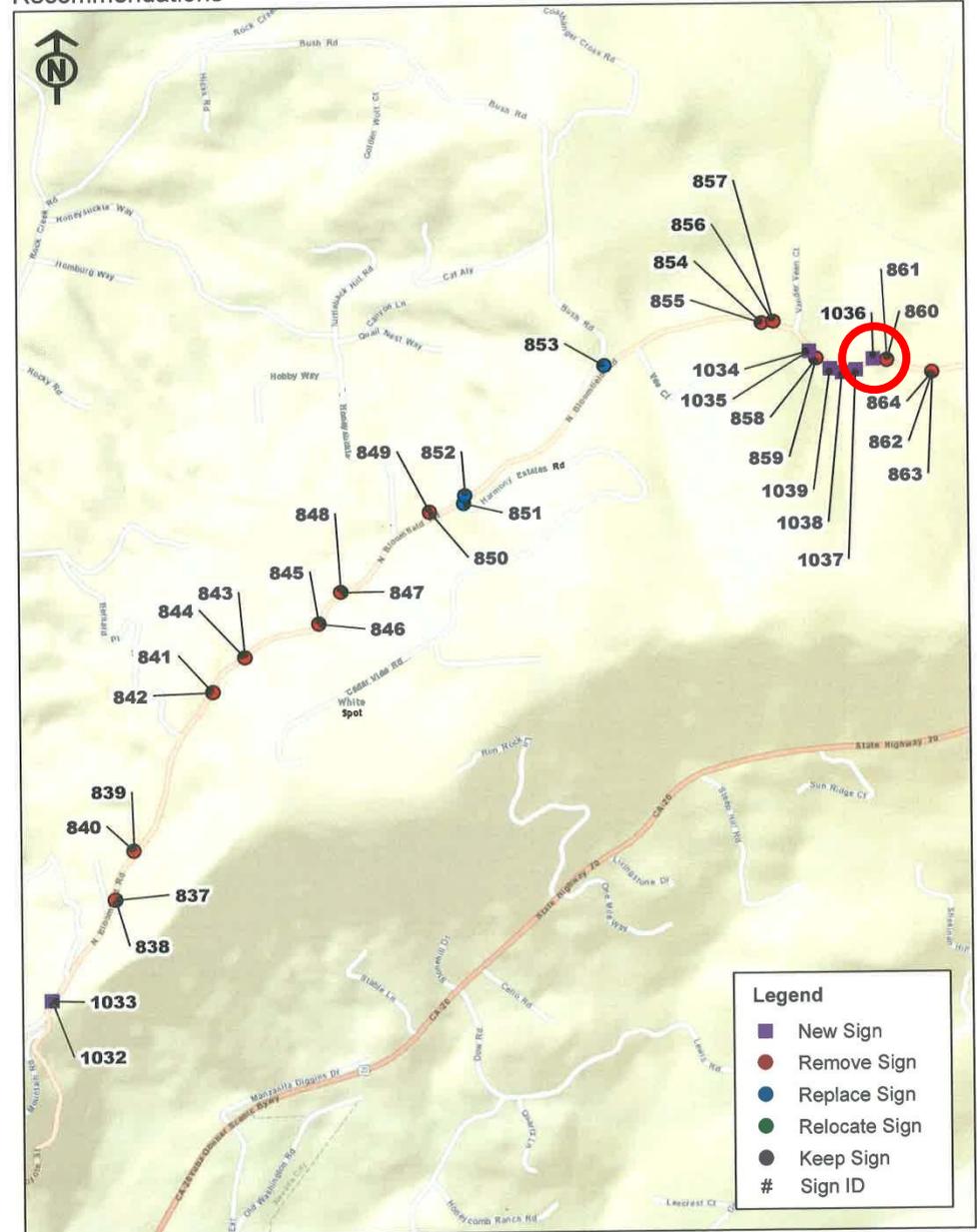




Add chevrons.

Recommendations

Corridor A: North Bloomfield Road (2 of 4)



Postscript

- In addition to improved signing and safety, we got an electronic sign inventory
- Conformance to FHWA requirements (CA MUTCD p. 50)
- Liability – does identifying inadequate signs create a liability? I would rather know about a problem and work to fix it. We want to minimize liability AND make our roads safer. Once completed, we will feel comfortable defending lawsuits in these corridors.
- From HSIP award to completion – 1 year.

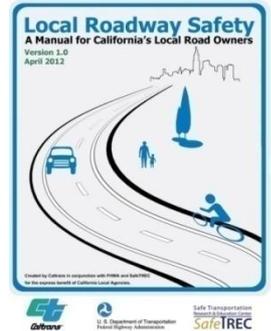


Questions??

How to Prepare for the Next Call

■ DLA Website:

- <http://www.dot.ca.gov/hq/LocalPrograms/hsip.htm>
- Start to Finish – it's where to go!

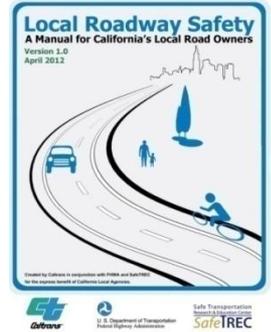


■ Read - DLA Local Roadway Safety Manual

- Concepts should be used all year long
- Intended to directly support Calls for Projects
- Appendix B is a “required” part of the application process

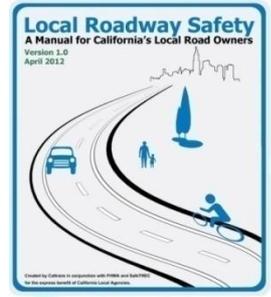
How to Prepare for the Next Call

- Posted on DLA HSIP website -
http://www.dot.ca.gov/hq/LocalPrograms/HSIP/prepare_now.htm
- Draft Cycle 7 HSIP Guidelines
- Draft Appendix B (LRSM) (**NOTE:** new text is in red – showing changes from previous cycle)
- Draft Engineer’s Checklist – new
- Draft Crash Data Summary Sheet – new
- Cycle 6 Application Instructions and Application Form
 - ❖ *Cycle 7 documents will change and must be used*



How to Prepare for the Next Call

- Cycle 5 - Example Projects
 - Wide range of successful applications
- Start analyzing your roadways
 - The SafeTREC TIMS tools are “available” to all agencies



How to Prepare for the Next Call (Cont.)

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**

How to Prepare for the Next Call (Cont.)

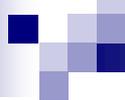
- Remember: Higher B/C = Success
 - Complete a safety analysis of roadways
 - Select locations & corridors with highest numbers of crashes
 - Select lower-cost improvements/countermeasures (CMs) with high Crash Reduction Factors (CRFs)
 - Combine multiple CMs or multiple locations into one application to improve project delivery efficiencies
 - Minimize adding non-safety elements (or elements without established CRFs) into project scope
- If unsure, follow a past Cycle 5 Example
<http://www.dot.ca.gov/hq/LocalPrograms/HSIP/HSIPHR3Examples.pdf>

How to Prepare for the Next Call (Cont.)

- Noteworthy Changes from previous Cycle
 - Increase in federal funding limit per application
 - 18 countermeasures are 100% eligible
 - Signal Warrant calculation sheet is required in the application for installing new signals and must meet warrant 4 Pedestrian Volume, 5 School Crossing or 7 Crash Experience
 - Will need to show that an incremental approach has been tried before several countermeasures can be proposed, e.g., new curve signing or additional signs been installed before a curve realignment is proposed

How to Prepare for the Next Call (Cont.)

- Noteworthy Changes from previous Cycle
 - Engineer's Checklist will be required to be filled out for registered engineer
 - Crash Data Summary Sheet has been developed to identify which crashes fall under which countermeasure(s)
 - If a traffic signal is being proposed, an engineering study should include consideration of a roundabout (yield control). If a roundabout is determined to provide a viable and practical solution, it should be studied in lieu of, or in addition to a traffic control signal
 - For all new raised median project proposals, removal of structural sections(so that plantings can be placed) are not eligible for federal funds



SafeTREC Transportation Injury Mapping System (TIMS) website & B/C calculator

Presented by:

Sang Hyouk Oum – UC Berkeley, SafeTREC Manager

February 26, 2015

Transportation Injury Mapping System (TIMS)

- SafeTREC, UC Berkeley



- TIMS Funding:
 - the California Office of Traffic Safety, through the National Highway Traffic Safety Administration.
- Benefit / Cost Calculator:
 - the Caltrans Division of Local Assistance.

A screenshot of the TIMS website homepage. The header features the "TIMS Transportation Injury Mapping System" logo and a navigation menu with links for Home, About, Tools, Resources, News, and Help. On the right side of the header, there is a login form with fields for "Email/Username" and "Password", and buttons for "Forgot your password?", "Login", and "Not registered? Create an account". Below the header is a banner image showing several cars involved in a traffic accident. The main content area includes a "WELCOME TO TIMS!" message, a brief description of the system's purpose, and a "WELCOME TO TIMS!" section. Below this, there are four columns of information: "APPLY TODAY!" with a registration link, "TOOLS" with a link to query and mapping tools, "ABOUT US" with a link to learn more about the system, and "HELP" with a link to a repository of tutorial videos and FAQs. On the right side, there is a "SITE UPDATES" section with three entries, each featuring a blue circular icon with a plus sign and a link to view the update details. The footer contains a small navigation menu and a copyright notice for UC Regents, 2013.

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

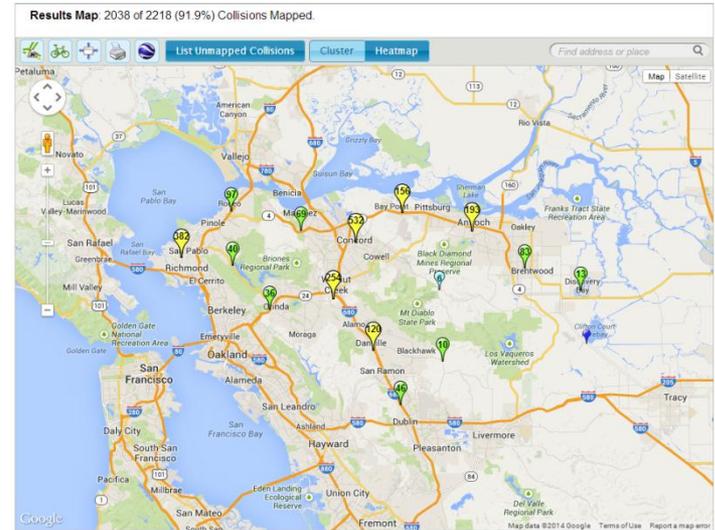
TIMS: Website and B/C Calculator

- TIMS provides data and mapping analysis tools and information for traffic safety related research, policy and planning
 - Limitation on Data (Timeliness & Geo-referencing)
- 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.

TIMS Crash Mapping Applications

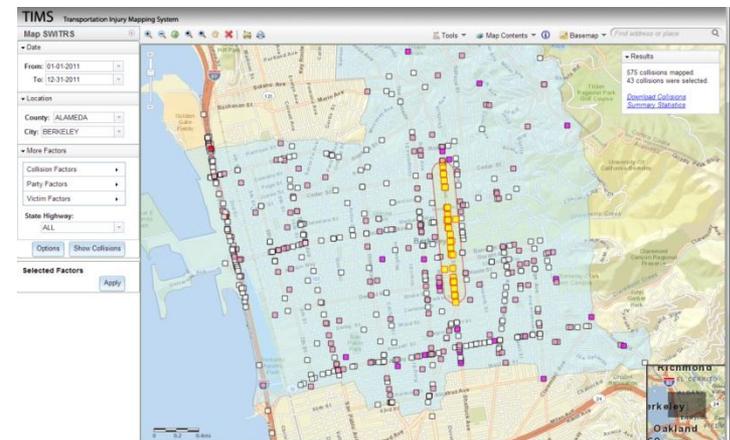
■ SWITRS Query & Map

- Data query focused application
- One page summary statistics
- Google Maps collision display
 - 5,000 collisions limit
 - Collision points clustered until zoomed in



■ SWITRS GIS Map

- Map-centric collision viewing with other data layers
- 1,000 collision display limit
- Focused collision spatial selection tools (Drawing, Buffer, and Region)



TIMS: B/C Calculator

- Evaluate the potential cost benefits of a safety countermeasure
- Benefits gained from collision reductions over time based on historical collision data
- Costs are based on project construction and operation costs

Select Countermeasure

Signalized NonSignalized **Roadway**

CM Number	Project Type	Countermeasure	Crash Type	CRF	Life
R29	Operation / Warning	Install curve advance warning signs (flashing beacon)	All	30	10
R30	Operation / Warning	Install dynamic / variable speed warning signs	All	30	10
R31	Operation / Warning	Install delineators, reflectors and/or object markers	All	15	10
R32	Operation / Warning	Install edge-lines and centerlines	All	25	10
R33	Operation / Warning	Install no-passing line	All	45	10
R34	Operation / Warning	Install centerline rumble strips / stripes	All	20	10
R35	Operation / Warning	Install edgeline rumble strips / stripes	All	15	10
R36	Ped and Bike	Install bike lanes	Ped & Bike	35	20
R37	Ped and Bike	Install sidewalk / pathway (to avoid walking along roadway)	Ped & Bike	80	20
R38	Ped and Bike	Install pedestrian crossing (with enhanced safety features)	Ped & Bike	30	10
R39	Ped and Bike	Install raised pedestrian crossing	Ped & Bike	35	10
R40	Animal	Install animal fencing	Animal	80	20
R41	Truck	Install truck escape ramp	All	20	20

Selected Countermeasure

CM Number	Project Type	Countermeasure	Crash Type	CRF	Life
R37	Ped and Bike	Install sidewalk / pathway (to avoid walking along roadway)	Ped & Bike	80	20

Yes Cancel

Home About **Tools** Resources News Help Admin Development

Benefit / Cost Calculator Caltrans

1 2 Countermeasure(s) Selection 3 4 New Calculation Load Save ?

Crash Data Time Period: From 01/01/2001 To 12/31/2009 Years 9

Countermeasure 1

Countermeasure 2

Install pedestrian countdown signal heads

A. Input Countermeasure

Select Countermeasure Clear Countermeasure

CM Number	Project Type	Countermeasure	Crash Type	CRF	Life
S19	Ped and Bike	Install pedestrian countdown signal heads	Ped & Bike	25	20

B. Input Crash Data

Manual Entry Import File Clear Crash Data

Crash Type	Fatality (Death)	Severe Injury	Injury - Other Visible	Injury - Complaint of Pain	Property Damage Only	Total
Ped & Bike	0	0	5	3	0	8

Annual Benefit : \$14,714 Life Benefit : \$294,278

Current Results

Application ID: 07-Pomona

From: 01/01/2001
To: 12/31/2009
Years: 9

3. Install pedestrian count...
Type: Ped and Bike
CRF: 25
Life: 20
Annual Benefit: \$14,714
Life Benefit: \$294,278
Total Cost: \$1,000,000 (100%)

TIMS: B/C Calculator

- Add application information
 - Agency & MPO added
- Select crash data time period
- Select countermeasure(s)
- Enter or import collision data
 - Create collision map
- Enter project costs
- Print / save results

The screenshot shows the 'Benefit / Cost Calculator' web application. The interface includes a navigation menu at the top with options like Home, About, Tools, Resources, News, Help, Admin, and Development. The main content area is titled 'Benefit / Cost Calculator' and features a 'Result Summary' tab. Below this, there are three main sections: '1. Project Information', '2. Countermeasures and Crash Data', and '3. Benefit Cost Result'.

1. Project Information

Application ID: 07-Pomona | Version: 2

2. Countermeasures and Crash Data

• Install pedestrian countdown signal heads

CM Number	Project Type	Crash Type	CRF	Life
S19	Ped and Bike	Ped & Bike	25	20

Crash Type	Fatality (Death)	Severe Injury	Injury - Other Visible	Injury - Complaint of Pain	Property Damage Only	Total
Ped & Bike	0	0	5	3	0	8

Annual Benefit	\$14,714
Life Benefit	\$294,278
Cost	\$ 1,000,000
B/C Ratio	0.29

3. Benefit Cost Result

Total Benefit	\$294,278
Total Cost	\$1,000,000
B/C Ratio	0.29

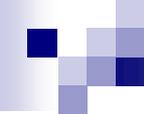
Buttons: Print Summary, New Calculation, Load, Save, ?

TIMS: Tutorials

- Now have updated help documentation.
 - Video tutorial is no longer available
- Using the SWITRS GIS Map to select collision data for the Benefit / Cost calculator
 - http://tims.berkeley.edu/helpdoc/Selecting_for_HSIP.php
- How to use the Benefit / Cost calculator
 - http://tims.berkeley.edu/helpdoc/BC_Tool.php

TIMS: Tips for Success

- Save your password in the web browser.
- Read the help documentation first!
- If you are seeing something different from the help doc, there are several potential culprits:
 - Your web browser or plug-ins could block the site. If you have ad or pop-up blockers, or Javascript blocking, the site cannot function.
 - Your IT department/internet network could restrict 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.

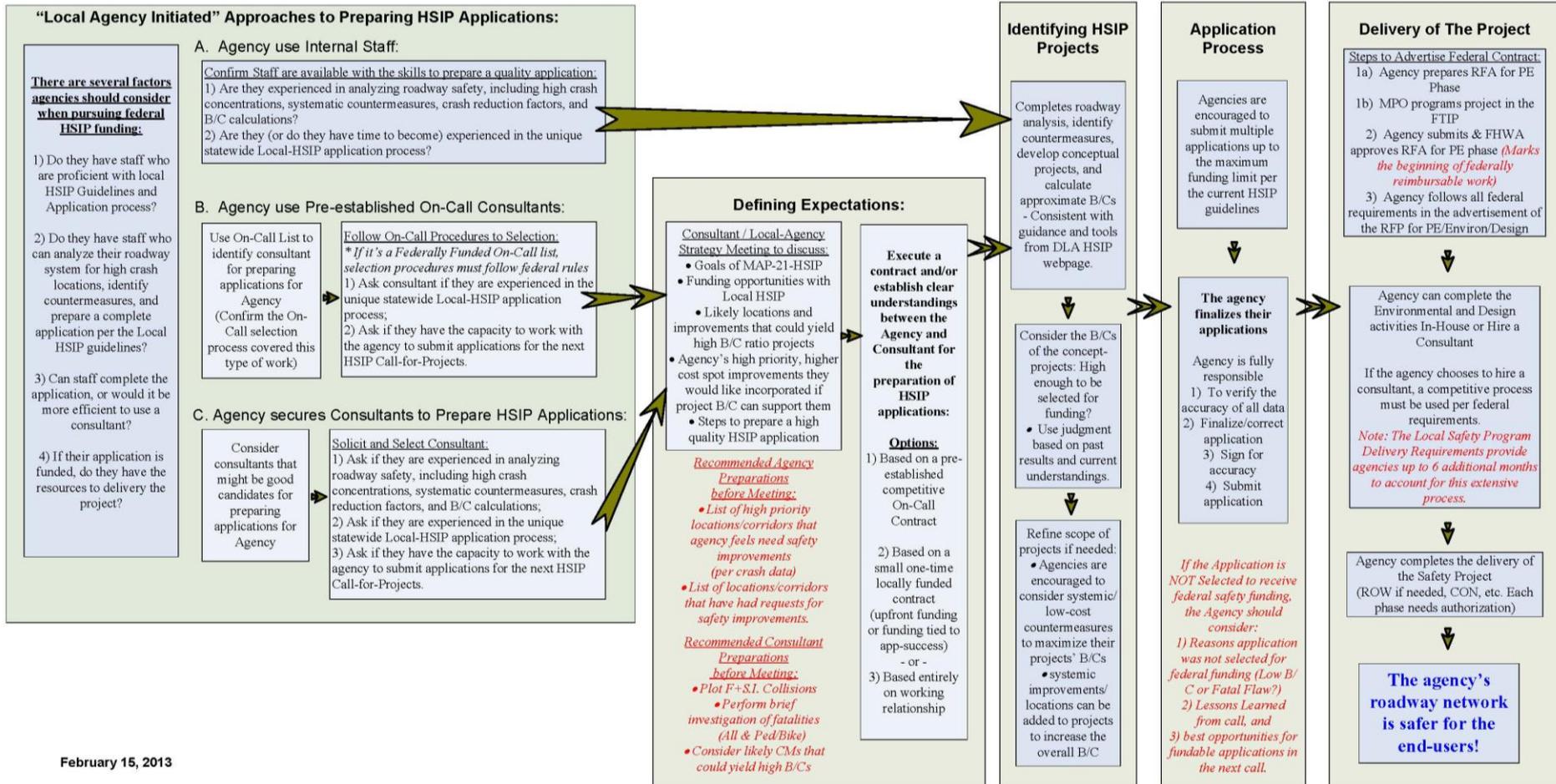


Questions??

Who completes the Analysis & Application

- **This is a highly technical process!**
 - Review, analysis, and application of crash data
 - Understanding of countermeasure effectiveness
 - Developing project scope and estimates
 - ❖ *Errors/flaws in application's "benefit" or "cost" = Rejection*
 - ❖ *Errors/flaws in scope = Delivery delays & more funds*
- **Expecting: Traffic and Transportation Engineers**
 - *Other traffic safety professionals may be appropriate*
- **Require an Engineer's Initials and stamp to certify:**
 - Includes preliminary scope, engineer's estimate, countermeasure selection, crash data, collision diagrams, etc.

Who completes the Analysis & Application



Identifying HSIP Projects

Completes roadway analysis, identify countermeasures, develop conceptual projects, and calculate approximate B/Cs - Consistent with guidance and tools from DLA HSIP webpage.

Consider the B/Cs of the concept-projects: High enough to be selected for funding?

- Use judgment based on past results and current understandings.

Refine scope of projects if needed:

- Agencies are encouraged to consider systemic/ low-cost countermeasures to maximize their projects' B/Cs
- systemic improvements/ locations can be added to projects to increase the overall B/C

Application Process

Agencies are encouraged to submit multiple applications up to the maximum funding limit per the current HSIP guidelines

The agency finalizes their applications

Agency is fully responsible

- 1) To verify the accuracy of all data
- 2) Finalize/correct application
- 3) Sign for accuracy
- 4) Submit application

If the Application is NOT Selected to receive federal safety funding, the Agency should consider:

- 1) Reasons application was not selected for federal funding (Low B/C or Fatal Flaw?)
- 2) Lessons Learned from call, and
- 3) best opportunities for fundable applications in the next call.

Delivery of The Project

Steps to Advertise Federal Contract:

- 1a) Agency prepares RFA for PE Phase
- 1b) MPO programs project in the FTIP
- 2) Agency submits & FHWA approves RFA for PE phase (*Marks the beginning of federally reimbursable work*)
- 3) Agency follows all federal requirements in the advertisement of the RFP for PE/Environ/Design

Agency can complete the Environmental and Design activities In-House or Hire a Consultant

If the agency chooses to hire a consultant, a competitive process must be used per federal requirements.

Note: The Local Safety Program Delivery Requirements provide agencies up to 6 additional months to account for this extensive process.

Agency completes the delivery of the Safety Project (ROW if needed, CON, etc. Each phase needs authorization)

The agency's roadway network is safer for the end-users!

Timeline

- **Starting today:**
 - Continue to deliver past projects (ensure no red flags)
 - Analyze roadway networks for high collision locations/corridors & identify potential countermeasures
 - Familiarize yourself with the changes from previous cycle
- **Beginning of 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



Questions

&

Answers