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Small and Rural Agency Workshop

for the

Highway Safety Improvement Program (HSIP)

2013 Call for Projects

March 6, 2013

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

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March 6th Statewide - Workshop

- **Origins:** 2012 Survey of Local Agencies
  - Rural and Small agencies need additional assistance
- **Focus**: Small and Rural Agencies *(All agencies welcome!)*
  - Don't have full-time traffic safety engineers
  - Have minimal resources for on-call consultant contracts
  - Lower traffic volumes and lower numbers of crashes
  - Often have higher "crash rates"
- **Format**: Workshop/Presentations
  - Presentations will occur in District 3, Marysville
  - Other Districts will tie-into this workshop thru VTC
  - Phone Call-in will also be an option: (877)336-1839
    - Access Code: 1878229
  - Participants expected to print handouts from HSIP webpage

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Presentation Details

- Experimental-trial of using VTC for training
- Expected to last up to 2 hours
- Presentation slides and handouts located at:
  http://www.dot.ca.gov/hq/LocalPrograms/HSIP/training.html
- Questions and Answers
  Local and VTC Audience:
  - Presenters intend to answer questions at key points during the workshop

  Call-In:
  - Presenters will "try" to take call-in questions at key points during the workshop
- Not intended to repeat 2/19 Webinar topics

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Workshop Presenters

Ted Davini, DLA - Safety Program Coordinator
Intro, Background, Lessons Learned, Preparing, Timeline

Arianna Valle, FHWA - CA Office, Safety
National Focus Towards Safety

Steven Castleberry, Nevada County, Public Works Director
Local Agency's Perspective

Stephanie Holloway, Placer County, Safety Engineer
New "RSSA and Upgrade Project" concept

Richard Ke, DLA - Safety Program Coordinator
Step by Step Example using TIMS tools & B/C calculator

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Presentation Outline

- Intro. & Details on the Spring 2013 Call
- National Focus Towards Safety
- Background & Lessons Learned *(Rural & Small)*
- Local Agency Perspectives & Examples
- Preparing for the Next Call *(Rural & Small)*
- Step-by-Step Example of a Cycle 5 HSIP project:
  - Using TIMS Website & B/C calculator to prepare applications
- Who Completes the Analysis & Application
- Timeline
- Questions and Answers

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Details on the Spring 2013 Call

- Official Call is planned to start in April 2013
  - Using Cyc-6 Guidelines, Application and other documents
  - Start Preparing Now!
- 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!

http://www.dot.ca.gov/hq/LocalPrograms/hsip.htm

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National Focus Towards Safety

Arianna Valle
FHWA-California Division
Safety Engineer

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MAP-21

- National Goal, Safety
  - Increased Safety Funds
- Performance Measures
  - Fatalities – rate/#
  - Serious Injuries – rate/#

Purpose:
Reduce fatalities and serious injuries on ALL public roads

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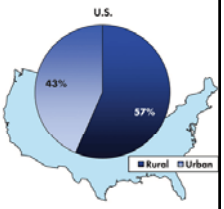
Importance of Rural/small Agencies

- National Crash Data (fatalities)
  - 57% on Rural
    - 43% local systems
- HRRR Special Rule
  - Rural major/minor collectors & rural local roads
  - 200% FY2009 (fatality rate)
- Older Driver Special Rule
  - Drivers & peds over 65
  - SHSP strategies (fatalities & S.I.)



California (2010)		
Fatalities Per 100 Million Vehicle Miles Driven*	**Rural**	**2.00**
	Urban	0.59
	Total	0.84

*NHTSA

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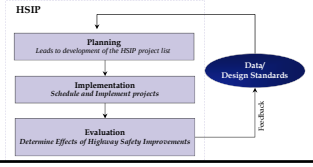
State Highway Safety Improvement Program

- Site Analysis Approach
  - High-speed crash locations
- Systemic Approach
  - Proactive, corridor/system-wide
  - High-risk locations
    - Correlated roadway features
    - Low-cost improvements



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Working together to Save Lives

- Data-driven roadway safety management process
- Target areas of greatest need
- Partnership with Caltrans
  - FHWA
  - Local Agencies
- Application → Delivery of Project → Results

Thank you!

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Background & Lessons Learned

- SAFETEA-LU
  - Caltrans' transition from "Work-Type" Projects to Data-Driven Selection process based on B/C ratios (using countermeasures and crash reduction factors)
- MAP-21
  - California Local-HSIP is ready!
  - Cycle 6 will be very similar to Cycle 5
    - New Guidelines and Application Form will be available at the time the Call is announced (April 2013)
  - Future modifications to the Local-HSIP will be considered, evaluated and incorporated as part of the SHSP initiatives

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Lessons Learned

- The Data-Driven B/C selection process works!
  - 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.)
- The Delivery Requirements are Working!
  - No Exceptions = Key to Success!
  - Agencies are managing their Federal Safety projects with a higher priority

  http://www.dot.ca.gov/hq/LocalPrograms/HSIP/delivery_status.htm
- Flawed Applications will be Rejected!
  - In Cycle 5, 55 Applications (20%) were rejected

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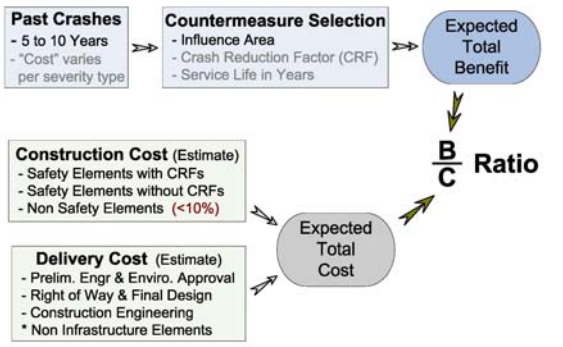
What goes into a Project's Benefit-to-Cost Ratio (B/C)



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Lessons Learned (Cont.)

- HSIP Cycle 4
  - Still some Work-Type Projects – partially based on B/C
  - B/C results were impressive: Ave B/C of 7.9
- 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
  - $111M in fed funding => $1.9B in Safety Benefits !!!
  - Ped & Bike projects competed very well
    - $28.7 million (26%) of the Cycle 5 funding
  - **HR3 and/or "rural area" projects competed well**
    - **Average B/C higher that Overall average**
    - **$27.9 million (25%) of the Cycle 5 funding**
    - **Concern: The most rural counties received less funding than their % of Fatalities and Serious Injuries**

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Local Agency's Perspective

Nevada County's - Separate Presentation

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Local Agency's Perspective

Placer County's - Separate Presentation

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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!
- DLA Local Roadways Safety Manual
  - Partnership of Caltrans, FHWA and UCB
  - Concepts should be used all year long
  - Intended to directly support Calls for Projects
  - Appendix B is a "required" part of the app process

- Cycle 5 Guidelines, Application Instructions, Application Form, Sample Attachments, etc
  - *Cycle 6 documents will change (and must be used)*

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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

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How to Prepare for the Next Call (Cont.)

Finding High B/C projects on Low Volume Roadways

- Focus on low-cost Countermeasures (CMs) that can be implemented on a multi-location or corridor approach
  - Few spot-locations will support high cost CMs
- Where higher-cost Countermeasures are the #1 priority, consider combining with low-cost Countermeasures
  - See San Diego: CM#1: B/C=5.4, CM#2: B/C=0, Total B/C=3.5
- Consider including a portion of the locations that are focused on highest volume roadways (State Highways)
  - For State Highways, Caltrans MUST provide letter of support
  - Example: CM#1:Ped Crossing Improvements on SHS and Local, CM#2: Signing Improvements on Local

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How to Prepare for the Next Call (Cont.)

Selecting your Countermeasures (examples of questions)

- Battery Backup for Signals
  - As a stand alone CM, Agency can only incorporate crashes where signal was black
  - May be more appropriate to incorporate it into signal hardware upgrades (back-plates, diameter, number, etc.)
- Signal Timing
  - Must be focused on physical changes to reduce future crashes
  - An Agency's TOC would not be appropriate.
- Emergency Vehicle Preemption
  - Must be focused on physical changes to reduce future crashes
  - Agency can only incorporate crashes involving Emerg. Vehicles
  - Consider combining with other signal hardware upgrades

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Step by Step Example

**Using TIMS for
HSIP Application Development
and Project Prioritization**

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Outline

- Introduction to TIMS
- Example Background
- Collision Data: from TIMS SWITRS GIS MAP
- Cost Estimate
- B/C Calculation: TIMS B/C Calculator
- Preparation of Attachments
- What is next?

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Introduction to TIMS

- **Transportation Injury Mapping System**
  - Developed by UCB SafeTREC
  - TIMS website/tools: *http://tims.berkeley.edu/*
  - SWITRS GIS Map and B/C Calculator

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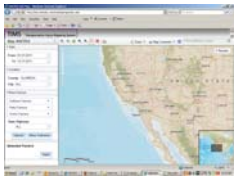
Introduction to TIMS (2)

- **SWITRS GIS Map**
  - All Local Agencies have access to Crash Data!
  - Using SWITRS GIS Map is an option, not a requirement
    - Agencies may use their locally preferred crash data analysis tools (i.e., CrossRoads)
  - Old version vs. new version



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Introduction to TIMS (3)

- **Benefit/Cost Calculator**
  - **Required** to use in HSIP Call for Projects – all applications must include a TIMS B/C calculation
  - B/C Summary Sheet from this tool is a required attachment for an HSIP application.
  - Collision data can be
    - imported from collision summary generated by TIMS SWITRS GIS Map; Or
    - Imported from Google KML file; Or
    - manually entered

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Introduction to TIMS (4)

- **To learn more:**
  - Tutorials at TIMS website
  - John Bigham's presentation - 2/19/13 Webinar
    - Recorded and available at http://www.dot.ca.gov/hq/LocalPrograms/HSIP/training.html

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Example Background

- Examples of HSIP Cycle 5/HR3 Cycle 3 Applications
  - http://www.dot.ca.gov/hq/LocalPrograms/HSIP/prepare4nextcall.html
- This example came from 03-Placer County-1 but not the same
  - The scope is only part of the real application
  - Collision Data: TAAS vs. TIMS
  - Collision Type: night vs. All

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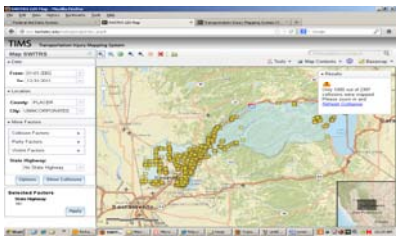
Collision Data: from TIMS SWITRS GIS MAP

Collision Query



(Could be the vicinity map)

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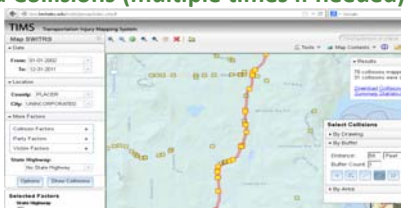
Collision Data: from TIMS SWITRS GIS MAP

Download Collisions (multiple times if needed)



(Could be the collision diagram)

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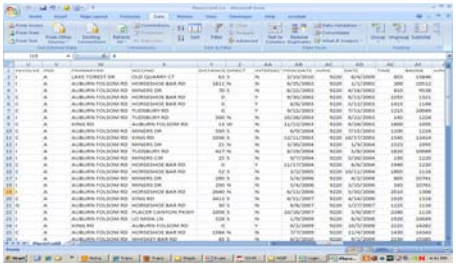
Collision Data: from TIMS SWITRS GIS MAP

Collision Summary



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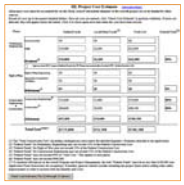
Cost Estimate

- Detailed Engineer's Estimate and Cost Breakdown by Countermeasure
  - Use template (separate Excel File)
- Overall Project Cost Estimate
  - Use Application Form - Part III.
  - All costs should be included:
    - All sources: federal and other
    - All phases: PE, ROW, CON and CE, and NI.



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B/C Calculation: TIMS B/C Calculator

-Create "New Calculation"

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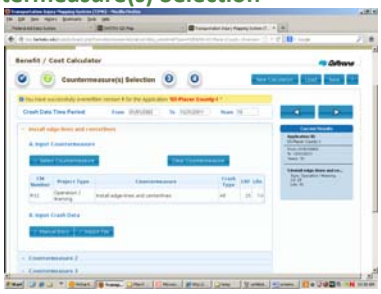
B/C Calculation: TIMS B/C Calculator

-Countermeasure(s) Selection



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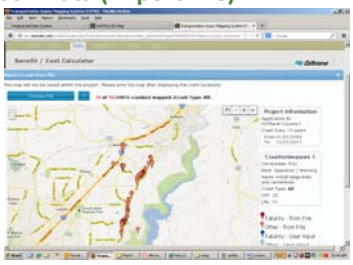
B/C Calculation: TIMS B/C Calculator

-Input Crash Data (Import File)



(Could be the collision diagram)

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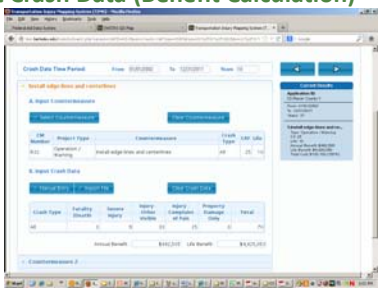
B/C Calculation: TIMS B/C Calculator

-Input Crash Data (Benefit Calculation)



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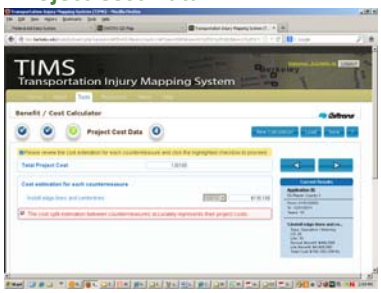
B/C Calculation: TIMS B/C Calculator

- Enter Project Cost Data



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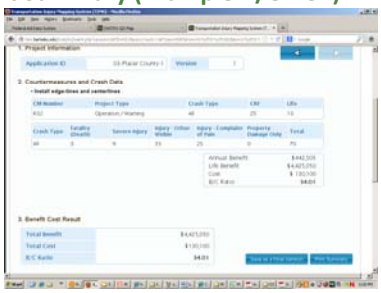
B/C Calculation: TIMS B/C Calculator

- Result Summary (Example B/C = 34)



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Preparation of Attachments

- Vicinity map /Location map (Required) (may be from TIMS)
- Project map showing existing and proposed conditions (Required) (may be from TIMS)
- Collision diagram(s) (Required) (may be from TIMS)
- Collision summary report / list (Required) (may be from TIMS)
- TIMS output summary sheet (Required) (from TIMS)
- Detailed Engineer's Estimate (Required) (must use CT template)
- Photographs (Required *Cycle 6 +*) (may use Google Street View)
- Warrant studies (Required when applicable to proposed improvements)
- Letter of Support from Caltrans (Required when applicable)
- Additional narration, documentation, letters of support, etc.

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What Is Next?

- Iterative process
  - Refine scope and countermeasure(s)
  - High B/C vs. Low B/C
- Finalize the application
- Submit multiple applications!

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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 Estimate
  - *Errors/flaws in application's "benefit" or "cost" = Rejection*
  - *Errors/flaws in scope = Delivery delays & more local funds*
- **Expecting: Traffic and Transportation Engineers**
  - *Other traffic-safety professionals may be appropriate*
- **May require an Engineer's stamp to Certify:**
  - Preliminary Scope, Engineer's Estimate, Countermeasure Selection, Crash Data, etc.

This $100M/yr program relies on the integrity of the B/Cs!

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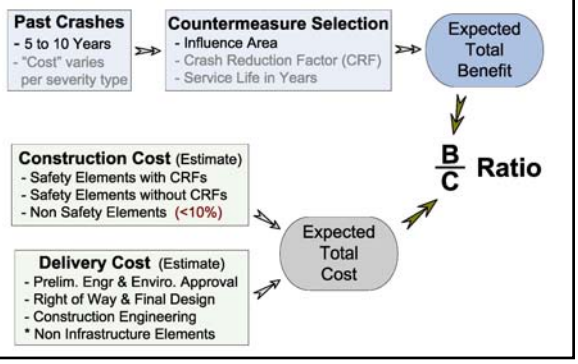
What goes into a Project's Benefit-to-Cost Ratio (B/C)



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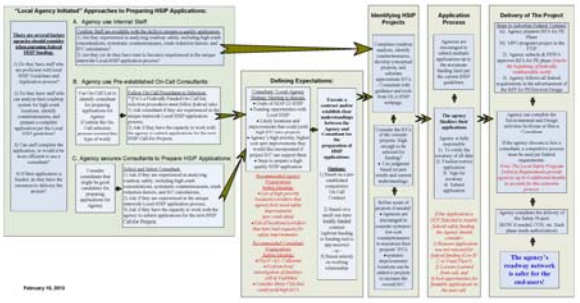

http://www.dot.ca.gov/hq/LocalPrograms/HSIP/training.html

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Timeline

- **March 11th**: SRTS-Type projects Webinar
  - *See follow-up Slide*
- **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

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March 11th SRTS Webinar

10:00 am – Noon

- **Focus**: Stakeholders hoping to fund SRTS projects
  - The future of SRTS funding is uncertain at this time
  - The HSIP B/C selection has funded SRTS-type projects
  - The HSIP goal is to improve the safety of all modes!
- **Format**: Webinar
  - Hosted by the SRTS Technical Assistance Resource Center
  - Presentation by Caltrans Division of Local Assistance
- **For more information:**
  - http://www.dot.ca.gov/hq/LocalPrograms/HSIP/training.html
  - Contact Dawn Foster, Statewide SRTS Coordinator

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Important Points to Remember

- **Largest Call Ever!**
  - 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**
- **Start Preparing Now!**
- **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 into project scope

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Questions

&

Answers

Big Thanks to Jim Day, District 3 DLA, for hosting & coordinating this workshop!!!