Integrating Performance Measures into Transportation Decision Making

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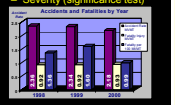
Transportation System Performance Measures website:
http://www.dot.ca.gov/hq/tsip/tspm

Traffic Safety Index (TSI)



- **TSI helps identify deficiencies in safety performance**
- **TSI evaluates safety benefits of transportation improvements.**
- **Key elements in TSI calculation:**
  - Collision data by time period
  - Improvement type
  - Project life
  - Collision reduction factor
  - Rate groups (facility type)
  - Base rate
  - Severity (significance test)



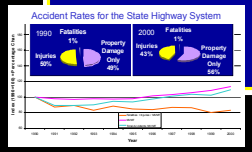
Traffic Safety Index Factors

Number of Collisions:
Estimating the average number of collisions that may occur on the existing facility without or with improvements:
- –Fatality
- –Injury
- –Property Damage Only

Cost of Collisions:
Estimating the average cost for all collisions that may occur on the existing facility with or without improvements by accident type:
- –Fatality
- –Injury
- –Property Damage Only

Traffic Safety Index

Number & Cost Of Collisions WITHOUT Improvements **-** Number & Cost Of Collisions WITH Improvements **/** Cost of Improvements **=** TRAFFIC SAFETY INDEX



Mission Statement:

Caltrans Improves Mobility Across California

The California Department of Transportation strives to be the highest performing transportation agency in the country. In pursuit of our mission, we continue to build a talented and diverse team and to strengthen ties with our partners. To keep California moving, we commit ourselves to these goals and values:

GOALS
- **Safety** - Achieve the best safety record in the nation
- **Reliability** - Reduce traveler delays due to roadwork and incidents
- **Performance** - Deliver record levels of transportation system improvements
- **Flexibility** - Make transit a more practical travel option
- **Productivity** - Improve the efficiency of the transportation system

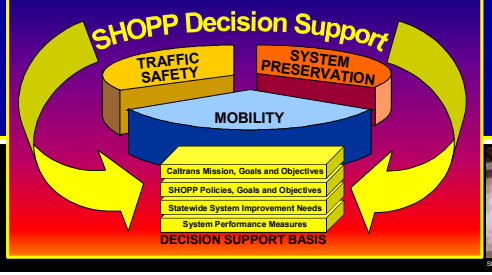
VALUES
- Integrity
- Communication
- Teamwork
- Partnership
- Empowerment
- Innovation
- Customer-Focus
- Commitment
- Stewardship

SHOPP Decision Making

SHOPP provides traffic safety, bridge preservation, roadway preservation, roadside preservation, and operational improvements to protect and preserve the state highway system.

- SHOPP Decision Making reflects Caltrans mission, goals and objectives.
- Performance measures help monitor performance conditions and identify deficiencies
  - **Traffic Safety Index (TSI greater than 200 is a deficiency)**
  - **Bridge Health Index (retain 80% of original asset value of 95% of state highway bridges)**
  - **International Road Roughness Index (over 200 inches of roughness per mile is deficient)**
- SHOPP projects selection based on SHOPP policies and statewide improvement needs identified using performance measures.
- Major SHOPP project categories: collision reduction, bridge preservation, roadway preservation, roadside preservation and mobility.

SHOPP DECISION FRAMEWORK



Relevant Performance Measures

Performance Measures	SHOPP Program Areas
Safety and Security	• Collision Reduction • Mobility
System Preservation	• Bridge Preservation • Roadway Preservation • Roadside Preservation
Mobility / Accessibility	• Mobility • Collision Reduction
Reliability	• Mobility • Collision Reduction
Customer Satisfaction	• All Program Areas

Bridge Health Index (BHI)

- **BHI is used for performance evaluation and prioritization.**
- **Single number indicator of bridge condition.**
- **Employs bridge element inspection data.**
- **Allows for easy comparison between asset condition and value and improvement cost.**

Bridge Prioritization Factors

- Project Urgency – measured by structures target completion date.
- Bridge Condition – structural condition as defined by bridge Health Index.
- Facility Usage level – volume of traffic on the bridge deck and the length of detour required.
- Project Priority – priority needs for bridge rehabilitation or replacement (higher number means higher priority).

Bridge Project Priority

Project Urgency **+** Bridge Condition (BHI) **+** Facility Usage Level **=** Project Priority

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