

**EMPOWERING I-80 COMMUNITIES  
TODAY AND TOMORROW**



## **I-80 Stakeholder Network Safety Working Group**

### **Working Documents**

**EMPOWERING I-80 COMMUNITIES  
TODAY AND TOMORROW**



**Appendix A.15**

**I-80 Corridor System Master Plan: Safety Working Group**

Table of contents for Appendix A.15:

- 1- Introductory narrative providing context for the work
- 2- Meeting Documentation
- 3- Topic Paper
- 4- Supporting Documentation

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## **I-80 CSMP Safety Working Group – Introduction**

Safety continues as one of the genuine compelling issues transportation stakeholders continuously cope with. The Safety Working Group brings these stakeholders together to engage each other with in-depth and creative dialogue about best practices and emerging safety knowledge. Much of these dialogues have been captured in the following collection of meeting summaries, topic papers, and supporting documentation. This information will be invaluable for all I-80 Corridor Stakeholders as they continue coping with safety issues.

**EMPOWERING I-80 COMMUNITIES  
TODAY AND TOMORROW**



<b>Group:</b>	I80 CSMP Safety Working Group		
<b>Subject:</b>	Kick Off Meeting		
<b>Date and time:</b>	February 12, 2013 9A.M. PST	<b>Meeting no:</b>	1
<b>Meeting place:</b>	Teleconference	<b>Minutes by:</b>	Andy Blanchard
<b>Attendees:</b>	<i>Craig Copelan (Caltrans)</i> <i>Dean Samuelson (Caltrans)</i> <i>Juan Balbuena (FHWA)</i> <i>Ken Mammen (NDOT)</i> <i>Matt Carlson (WyDOT)</i>		
	<i>Patrice Echola (RTC Washoe County)</i> <i>Robert Hull (UDOT)</i> <i>Jim Ceragioli (NDOT) (Co-Chair)</i> <i>Andy Blanchard (Atkins) (Co-Chair)</i>		

ITEM	DESCRIPTION
1	Roll call
2	<p>I-80 CSMP study background &amp; objectives</p> <p><i>The two overarching aims of the I-80 CSMP are: to prioritize existing corridor significant programs, projects, and initiatives for early action; and generate a future vision of corridor communities and strategies for how the I-80 corridor can support them. Ultimately, this study should generate the system necessary to implement the strategies to achieve the vision. The initial work with the Study Task Forces identified 14 topics for working group to explore of which this working group is one.</i></p>
3	<p>Establish how to best engage in conference calls</p> <p><i>Conference call etiquette: ensure phone is on mute when not talking to avoid background noise; individuals are to identify themselves when they begin to speak; make sure meetings start on time and the expected length of the meeting is established; limit meetings to no more than one hour; give notice of meeting dates as far in advance as possible.</i></p> <p><i>It was agreed that meetings would be held on the second and fourth Tuesday's of the month, at 9am PST. Meetings are expected to last through Summer 2013, but would be on an as and when needed basis.</i></p>
4	<p>Review of the website</p> <p><i>Attendees were asked to view the project website at <a href="http://www.i80vision.org">www.i80vision.org</a> and the relevant pages (covering the study background and the safety working group) were pointed out. The website is meant to facilitate group dialogue, and be a repository for agendas, meeting notes, and background documentation.</i></p>
5	<p>Next steps including identification of:</p> <ul style="list-style-type: none"> <li>• Additional policies and guidance documents</li> <li>• Additional working group members</li> </ul> <p><i>Before the next meeting, attendees were asked to review the website content and specifically the documents referenced on the Safety Working Group homepage – identify if they are relevant, up to date and any missing documents.</i></p> <p><i>Robert Hull (UDOT) indicated that Glenn Schulte (UDOT) be removed from the group as he is retiring soon. It was recommended that a representative from the California's Governors office, and Regional Traffic Engineers responsible for the I-80 corridor in Utah and Nevada all be added to the group – contact details to be sent to Andy by February 20.</i></p>

**EMPOWERING I-80 COMMUNITIES  
TODAY AND TOMORROW**



6 Adjourn

*The meeting adjourned at 9:45 AM Pacific time.*

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**Next meetings:** Tuesday, February 26, 9am PST  
Tuesday, March 12, 9am PST

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**Date issued:** February 12, 2013

**NOTE TO RECIPIENTS:**

These meeting notes record Atkins understanding of the meeting and intended actions arising therefrom. Your agreement that the notes form a true record of the discussion will be assumed unless adverse comments are received in writing within five days of receipt.

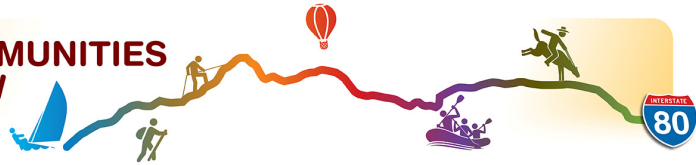
## EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



<b>Group:</b>	I80 CSMP Safety Working Group		
<b>Subject:</b>	Organizing the group		
<b>Date and time:</b>	February 26, 2013 9:00A.M. PST	<b>Meeting no:</b>	2
<b>Meeting place:</b>	Teleconference	<b>Minutes by:</b>	Andy Blanchard
<b>Attendees:</b>	<i>Craig Copelan (Caltrans) (part)</i> <i>Juan Balbuena (FHWA)</i> <i>Ken Mammen (NDOT)</i> <i>Matt Carlson (WyDOT)</i>	<i>Patrice Echola (RTC Washoe County)</i> <i>Robert Miles (UDOT)</i> <i>Vincent Liu (UDOT)</i> <i>Jim Ceragioli (NDOT) (Co-Chair)</i> <i>Andy Blanchard (Atkins) (Co-Chair)</i>	

ITEM	DESCRIPTION
1	Roll call
2	Reiterate study background; goal of the Working Group; conference call protocols; and purpose of website
3	<p>Review of document list on safety homepage</p> <p><i>It was confirmed that the most appropriate documents are already listed on the safety homepage.</i></p> <p><i>Add RTPs to the list - these will cover safety elements for all users and avoids the need to list multiple sub-documents such as bike and pedestrian plans, ADA plans etc.</i></p>
4	<p>Identify an initial list of subtopics for the Working Group to explore</p> <p><i>Suggested subtopics:</i></p> <ul style="list-style-type: none"> <li>• <i>Speed Management – setting of higher speed limits, speed differential with truck traffic, variable speed limits (for weather events)</i></li> <li>• <i>Education/Behavioural issues – campaigns and communication directed to communities focused on fatigue driving, distracted/drowsy/impaired driving (include education across state boundaries – particularly Nevada/Utah and Nevada/California)</i></li> <li>• <i>Funding – in terms of including safety measures in larger projects, most attendees are able to leverage funding so this maybe not a focus area. However, behavioural campaign funding may be more of an issue [Post-meeting - explore funding opportunities under MAP-21?]</i></li> <li>• <i>ITS – variable speed limits, communicating safety messages (<u>overlap with the operations working group</u> that includes ITS, but could still be discussed?)</i></li> <li>• <i>Traffic Incident Management – coordinate messages across state lines, I-80 weather event closures (another <u>overlap with operations working group</u>)</i></li> <li>• <i>Vulnerable road users – safety of pedestrians and bicyclists in the i-80 communities (bicycle use of i-80?)</i> <i>EMS and Enforcement – explore co-ordination across state borders</i></li> <li>• <i>[Post-meeting – other subtopics for consideration: Enforcement co-ordination across state borders. Engineering safety solutions]</i></li> </ul>

## EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



- 5 Begin establishing goals, objectives and deliverables for the Working Group. (conclude in next meeting)

*Need to produce an existing conditions report – suggest this is created using Engineering, Education, Enforcement and EMS as subheadings.*

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- 6 Summarize meeting accomplishments and outline next steps:  
All members to review minutes and consider if any of the subtopics should be dropped and new ones added, feedback to Andy or Jim by Friday March 8, and bring along to the next meeting.

*[Post-meeting – Consider representation in Working Group from EMS, Enforcement, Education?]*

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- 7 Adjourn  
*The meeting adjourned at 9:55 AM Pacific time.*

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**Next meetings:** Tuesday, March 12, 9am PST  
(Tuesday March 26, 9am PST) ?

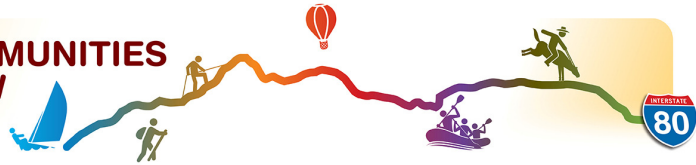
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**Date issued:** March 1, 2013

**NOTE TO RECIPIENTS:**

These meeting notes record Atkins understanding of the meeting and intended actions arising therefrom. Your agreement that the notes form a true record of the discussion will be assumed unless adverse comments are received in writing within five days of receipt.

# EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



<b>Group:</b>	I80 CSMP Safety Working Group		
<b>Subject:</b>	Organizing the group		
<b>Date and time:</b>	March 12, 2013 9:00A.M. PST	<b>Meeting no:</b>	3
<b>Meeting place:</b>	Teleconference	<b>Minutes by:</b>	Andy Blanchard
<b>Attendees:</b>	<i>Craig Copelan (Caltrans)</i> <i>Dean Samuelson (Caltrans)</i> <i>Juan Balbuena (FHWA)</i> <i>Matt Carlson (WyDOT)</i> <i>Robert Hull (UDOT)</i> <i>Jim Ceragioli (NDOT) (Co-Chair)</i> <i>Andy Blanchard (Atkins) (Co-Chair)</i>		

ITEM	DESCRIPTION
1	Roll call
2	<p>Update on the overall I-80 CSMP Project</p> <p><i>The working group (WG) was given an update on the I-80 project:</i></p> <ul style="list-style-type: none"> <li><i>The other 13 working groups are at various stages of development – some are more progressed than the Safety WG but other are still at the recruiting stage</i></li> <li><i>A MCOM grant application is to be submitted in March as part of the I-80 project – focus is on providing info to travellers including weather events – relevant to Safety WG</i></li> <li><i>Attendees were reminded of the six livability principles – the foundation for the project</i></li> </ul>
3	<p>Review initial list of sub topics – edit as necessary</p> <p><i>It was agreed that previously suggested subtopics should be retained. Discussion points included:</i></p> <ul style="list-style-type: none"> <li><i>Speed Management – setting of higher speed limits is a political issue (adopted in Utah; being pursued in Nevada)</i></li> <li><i>EMS and Enforcement – should be considered, but maybe separately – and focus on operational issues</i></li> <li><i>Engineering – most states have this covered, but there is the issue of consistency of engineering solutions along the corridor which would benefit the public. Use this working group as a forum to share best practices</i></li> </ul>
4	<p>Establish goals, objectives and deliverables for the Working Group</p> <p><i>The goal of the group should be to establish a consistent approach to safety along the corridor, where feasible – recognizing that there are differences between the states. This approach should include behavioural and educational aspects. The WG should identify safety best practices (not just engineering solutions) being implemented and sharing them with WG members – keeping the lines of communication open. Linking the states' SHSP to the livability principles should be a goal of the WG. Integration of technology across the states should be sought – e.g. being able to inform travellers in California about weather –related road closures in Utah and Wyoming. Need to develop each of the sub-topics to identify how each is going to be applied. It was suggested that the goals, objectives and deliverables developed for the I-80 Freight WG be used as a template for the Safety WG.</i></p>



## EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



- 5 As a result of the identified group goals, objectives and deliverables, identify:
- additional sources of information

*Obtain EMS and Law enforcement (divisional) plans. Integrate MAP-21 initiatives, SHSP, HSP and FHWA guidance. Get performance measures used in Map-21*

- additional Working Group members

*Possibly involve Governor's Safety Representatives (in Wyoming Matt Carlson is both the State Safety Engineer and the Governor's Safety Representative). Involvement of law enforcement could be useful but confused by all the different entities along the corridor – from city, highway and Sherriff Depts. Rather than inviting these represent-atives to be members of the WG, they could be invited along on an as-needed basis. This could also apply to the behavioural and safety campaign representatives.*

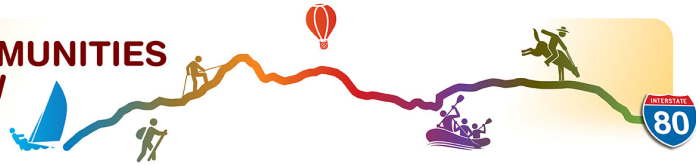
- 
- 6 Develop a brief presentation for the Task Forces to explain what the group plan to accomplish

*It was agreed that Jim and Andy would prepare draft presentation materials (including WG goals, objectives and deliverables) and circulate them to WG members for comment. A key aim of the WG should be to tie the SHSP's to the livability principles.*

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- 7 Adjourn (next meeting – March 26 or April 9?)

*Next meeting was agreed to be April 9 to allow time for preparation of draft materials and WG members to comment on them.*

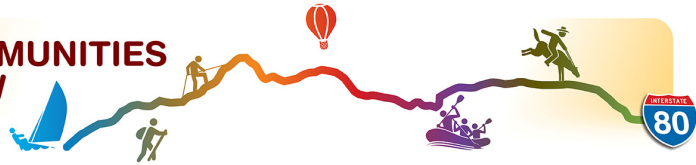
## EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



<b>Group:</b>	I80 CSMP Safety Working Group		
<b>Subject:</b>	Organizing the group		
<b>Date and time:</b>	April 9, 2013 9:00A.M. PST	<b>Meeting no:</b>	4
<b>Meeting place:</b>	Teleconference	<b>Minutes by:</b>	Andy Blanchard
<b>Attendees:</b>	<i>Craig Copelan (Caltrans)</i> <i>Matt Carlson (WyDOT)</i> <i>Patrice Echola (RTC Washoe)</i> <i>Jim Ceragioli (NDOT) (Co-Chair)</i> <i>Andy Blanchard (Atkins) (Co-Chair)</i>		

ITEM	DESCRIPTION
1	Roll call
2	<p>Update on the overall I-80 CSMP Project</p> <p><i>The working group (WG) was given an update on the I-80 project:</i></p> <ul style="list-style-type: none"> <li>• <i>There are to be project Roadshows in Sacramento (May 1), Salt Lake City (May 7), Cheyenne (May 8) and Reno (May 21). These roadshows are to update partners on the work to date and outline future tasks, explain about the self assessment livability tool, and conduct follow-up interviews with key partners. All are invited to attend – details will be available shortly.</i></li> </ul>
3	<p>Review and approve Working Group Mission Statement, goals, objectives and deliverables. Add / amend / delete topics? Prioritize / order topics. Timeline</p> <p><i>Attendees agreed minor language change to the <b>mission statement</b> – focusing on “the topic of safety on I-80 and <u>affecting</u> the communities along the corridor”. It was noted that there are large numbers of communities in the California part of the corridor. However, it was clarified that it is not intended that the working group expend resources looking in detail at each community.</i></p> <p><i>Language of the <b>objective</b> was altered to specify that we will be looking at safety in <u>and along</u> the corridor.</i></p> <p><i>In the <b>Goals and Deliverables</b> language about the SHSP and livability principals was clarified to focus on mapping the <u>pertinent</u> SHSP goals to the <u>relevant</u> livability principals.</i></p> <p><i>No changes were suggested to the list of 10 <b>topics for investigation</b>. It was recommended that the order that they be investigated is altered slightly. However, the exact order that topics will be investigated, is likely to be flexible. All ten of the topics are to be discussed between start of May and the end of August (eight meetings – two per month) with one topic discussed per meeting, and two discussed at a couple of meetings. The deadline for all deliverables is end of September.</i></p>
4	<p>Review livability principles</p> <p><i>It was suggested that before the next meeting <u>working group members should identify which of the six livability principles are relevant to the 10 topics, and which are not</u>. It is understood that the relevance of the topics will be different for different states.</i></p>
5	<p>Adjourn - the meeting adjourned at 9:45AM Pacific time</p> <p>Next meeting – April 23; following meetings May 7 &amp; 21 to avoid Memorial Day)</p> <p><i>Conflict between the Roadshows and May WG meetings is unlikely as the Roadshows will probably be in the afternoons.</i></p>

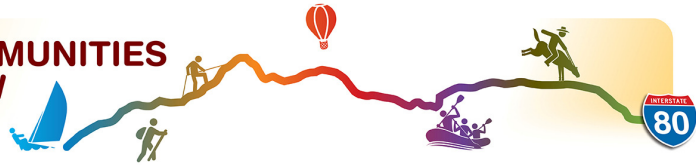
## EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



<b>Group:</b>	I80 CSMP Safety Working Group		
<b>Subject:</b>	Organizing the group		
<b>Date and time:</b>	May 7, 2013 9:00A.M. PST	<b>Meeting no:</b>	6
<b>Meeting place:</b>	Teleconference	<b>Minutes by:</b>	Andy Blanchard
<b>Attendees:</b>	<i>Craig Copelan (Caltrans)</i> <i>Matt Carlson (WyDOT)</i> <i>Patrice Echola (RTC Washoe)</i> <i>Robert Hull (UDOT)</i> <i>Jim Ceragioli (NDOT) (Co-Chair)</i> <i>Andy Blanchard (Atkins) (Co-Chair)</i>		

ITEM	DESCRIPTION
1	Roll call
2	<p>Update on the overall I-80 CSMP Project</p> <p><i>The working group (WG) was given an update on the I-80 project:</i></p> <ul style="list-style-type: none"> <li><i>There are to be project Roadshows in Salt Lake City (May 7), Cheyenne (May 9), Reno (May 21) and Sacramento (June). These roadshows are to provide an update on the work to date and outline future tasks, explain about the self assessment livability tool, and conduct follow-up interviews with key partners. All are invited to attend.</i></li> <li><i>WG members were informed of a weekly 5 minute video update on project progress. The latest podcast is available every Friday via a link on the project website:</i>  <a href="http://www.i80vision.org/home/project-updates">http://www.i80vision.org/home/project-updates</a> </li> </ul>
3	<p>Review deliverable template - Technical Note</p> <p><i>Attendees reviewed the technical note template, and agreed that it should be used to record the first topic for investigation. However, the template should be amended, as required, in order to fully capture the WG discussions on each of the topics.</i></p>
4	<p>Open discussion on sub-topic - Engineering Safety Solutions</p> <p><i>See draft Technical Note on Engineering Safety Solutions.</i></p>
5	<p>Review discussion format, amend as necessary</p> <p><i>The technical note should be kept at a fairly high level (not too much detail) and record through bullet points the pertinent issues. The first draft of this technical note will be prepared by Andy and Jim. The draft Technical Note should then be disseminated to all WG members for comment. It was suggested that each of the members should take one or two of the other nine topics and prepare a short list of bullet point items under the five Technical Memo headings. However, it was felt that the brain-storming format of today's meeting was the best approach for now.</i></p>
5	<p>Adjourn - <i>the meeting adjourned at 9:58AM Pacific time</i></p> <p>Next meetings – May 21 at <u>8am</u> PST; and June 11 at <u>9am</u> PST</p>

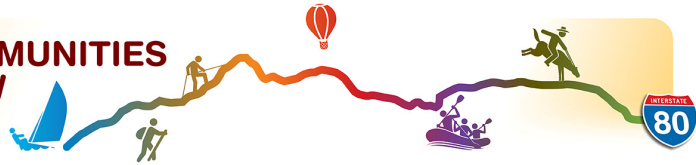
## EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



<b>Group:</b>	I80 CSMP Safety Working Group		
<b>Subject:</b>	Sub-Topic Discussions		
<b>Date and time:</b>	May 21, 2013 8:00A.M. PST	<b>Meeting no:</b>	7
<b>Meeting place:</b>	Teleconference	<b>Minutes by:</b>	Andy Blanchard
<b>Attendees:</b>	<i>Matt Carlson (WyDOT)</i> <i>Robert Miles (UDOT)</i> <i>Jim Ceragioli (NDOT) (Co-Chair)</i> <i>Andy Blanchard (Atkins) (Co-Chair)</i>		

ITEM	DESCRIPTION
1	Roll call
2	<p>Update on the overall I-80 CSMP Project</p> <p><i>The working group (WG) was given an update on the I-80 project:</i></p> <ul style="list-style-type: none"> <li><i>There were project Roadshows in Salt Lake City (May 7), Cheyenne (May 9). Future roadshow planned for Reno/Sparks at RTC Washoe (June 4), Sacramento (June 8) and a webinar on June 18 for those that have been unable to attend one of the roadshows.</i></li> <li><i>WG members were encouraged to view the latest weekly project update podcast via a link on the project website: <a href="http://www.i80vision.org/home">http://www.i80vision.org/home</a></i></li> </ul>
3	<p>Review of Technical Note on Engineering Safety Solutions</p> <p><i>Attendees reviewed the draft technical note on the first sub-topic (the note had been distributed to all WG members prior to the meeting). Feedback included a few more suggestions and amplification of best practices; more detail on striping; fatal crash reporting clarification. (see v1.1)</i></p>
4	<p>Open discussion on sub-topic – Speed Management</p> <p><i>See draft Technical Note on Speed Management.</i></p>
5	<p>Adjourn - <i>the meeting adjourned at 8:50AM PST</i></p> <p>Next meetings – <i>June 11 at 9am PST - to discuss Livability</i></p> <p style="padding-left: 40px;"><i>- June 25 at 9am PST - to discuss enforcement coordination</i></p>

# EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



**Group:** I80 CSMP Safety Working Group

**Subject:** Sub-Topic Discussions

**Date and time:** June 11, 2013 9:00 A.M. PST **Meeting no:** 8

**Meeting place:** Teleconference **Minutes by:** Andy Blanchard

**Attendees:** *Craig Copelan (Caltrans)* *Patrice Echola (RTC Washoe)*  
*Juan Balbuena (FHWA)* *Lauren Michele (Policy in Motion)*  
*Robert Hull (UDOT);* *Jim Ceragioli (NDOT) (Co-Chair)*  
*Robert Miles (UDOT);* *Andy Blanchard (Atkins) (Co-Chair)*

ITEM	DESCRIPTION
1	Roll call
2	<p>Update on the overall I-80 CSMP Project</p> <p><i>The working group (WG) was given an update on the I-80 project:</i></p> <ul style="list-style-type: none"> <li><i>A project roadshow is happening this lunchtime in Sacramento and another is planned for Nevada, although no date is set, a webinar is also planned for those that have been unable to attend one of the roadshows.</i></li> <li><i>WG members were encouraged to view the latest weekly project update podcast via a link on the project website: <a href="http://www.i80vision.org/home">http://www.i80vision.org/home</a></i></li> </ul>
3	<p>Overview / Introduction of Livability Principles</p> <p><i>Our guest speaker was Lauren Michele from Policy in Motion. Lauren gave a short presentation on Livability Principles (using a pdf of a slide show emailed to members). Key points included the ensuring the connectedness of communities – both at a regional level and at a local level (where communities are split by the I-80 roadway). The identification of potential improvements in livability could assist in achieving success in funding requests. Lauren also introduced some observations on how the principles might relate to the various safety sub-topics.</i></p>
4	<p>Open discussion on sub-topic – Livability Principles</p> <p><i>Some members had completed a matrix, that mapped the livability principles to the sub-topics. These responses were discussed. Respondents from Caltrans and NDOT had also mapped the state SHSP goals/challenge areas/critical emphasis areas. It was agreed that the deliverable from this sub-topic should be a matrix of the top 3 most relevant livability principles mapped to all four state's SHSP.</i></p>
5	<p>Review of Technical Note on Speed Management</p> <p><i>This item was postponed to the next meeting</i></p>
6	<p>Adjourn - <i>the meeting adjourned at 9:58AM PST</i></p> <p>Next meetings      - <i>June 25 at 9am PST - to discuss speed management and livability</i>                                - <i>July 9 at 9am PST – to discuss enforcement co-ordination</i></p>

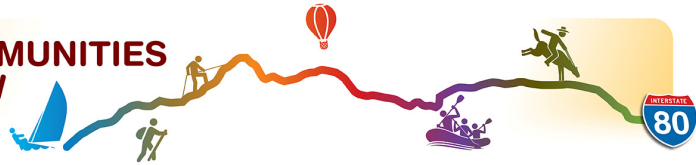
# EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



<b>Group:</b>	I80 CSMP Safety Working Group		
<b>Subject:</b>	Sub-Topic Discussions		
<b>Date and time:</b>	June 25, 2013 9:00 A.M. PST	<b>Meeting no:</b>	9
<b>Meeting place:</b>	Teleconference	<b>Minutes by:</b>	Andy Blanchard
<b>Attendees:</b>	<i>Patrice Echola (RTC Washoe)    Matt Carlson (WYDOT)</i> <i>Juan Balbuena (FHWA)        Andy Blanchard (Atkins) (Co-Chair)</i> <i>Robert Miles (UDOT);</i>		

ITEM	DESCRIPTION
1	Roll call
2	<p>Update on the overall I-80 CSMP Project</p> <p><i>The working group (WG) was given an update on the I-80 project:</i></p> <ul style="list-style-type: none"> <li>• <i>The Joint Task Force (the body that this WG and other WGs report to) is holding a Webex – provisionally on July 2 [post meeting note: date/time now confirmed as July 10 at 10am]</i></li> <li>• <i>There is a recording of a recent Livability Twitter Town Hall meeting, on the project website</i></li> <li>• <i>The GIS WG is collecting and organizing data to support the other WGs. WG members saw value in sharing this information in the field of safety – particularly comparing state’s crash rates to identify commonalities, differences and causes</i></li> <li>• <i>WG members were encouraged to view the latest podcast: <a href="http://www.i80vision.org/home">http://www.i80vision.org/home</a></i></li> </ul>
3	<p>Review of Technical Note on Speed Management</p> <p><i>Attendees reviewed the draft technical note on Speed Management sub-topic (the note had been distributed to all WG members prior to the meeting). Feedback included a few more suggestions of references; clarification of the proposed actions and identification of potential for GIS. (see v1.1)</i></p>
4	<p>Review of Technical Note on SHSP Goals and Livability Principles</p> <p><i>Attendees reviewed the draft technical note on Livability Principles sub-topic (the note had been distributed to all WG members prior to the meeting). Feedback included identification of the top three relevant principles to the SHSP goals, the recognition of the relevance of MAP-21, and the identification of missing information – to be provided by UDOT and WYDOT. (see v1.1)</i></p>
5	<p>Call for guests from Law Enforcement &amp; EMS – for next discussions</p> <p><i>It was pointed out that the subject of law enforcement coordination could cover the influence on the DOTs as well as coordination across state-lines. Robert Miles agreed to ask someone from UHP to attend; a contact through Nevada’s TIM (Traffic Incident Management) is also to be approached to attend the next WG meeting.</i></p>
6	<p>Adjourn - <i>the meeting adjourned at 9:58AM PST</i></p> <p>Next meetings        - <i>July 9 at 9am PST – to discuss enforcement coordination (&amp; TIM?)</i>                                         - <i>July 23 at 9am PST – to discuss EMS coordination</i></p>

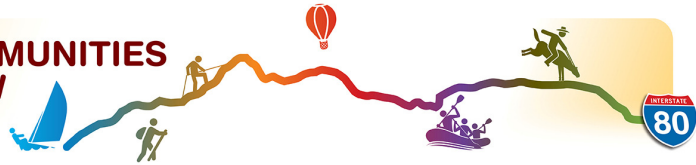
# EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



<b>Group:</b>	I80 CSMP Safety Working Group		
<b>Subject:</b>	Sub-Topic Discussions		
<b>Date and time:</b>	July 9, 2013 9:00 A.M. PST	<b>Meeting no:</b>	10
<b>Meeting place:</b>	Teleconference	<b>Minutes by:</b>	Andy Blanchard
<b>Attendees:</b>	<i>Patrice Echola (RTC Washoe)    Captain Pat Gallagher (Nevada DPS)</i> <i>Juan Balbuena (FHWA)            Jim Ceragioli (NDOT) (Co-Chair)</i> <i>Ken Mammen (NDOT)            Andy Blanchard (Atkins) (Co-Chair)</i> <i>Coy Peacock (NDOT)</i>		

ITEM	DESCRIPTION
1	Roll call
2	<p>Update on the overall I-80 CSMP Project</p> <p><i>The working group (WG) was given an update on the I-80 project:</i></p> <ul style="list-style-type: none"> <li><i>Other WGs focusing in on identifying best practices along the corridor</i></li> <li><i>An overview of the progress in all the WGs is being held tomorrow</i></li> <li><i>Expected that some WGs will continue beyond the end of the project – Safety WG is likely to be one of these – promoting coordination and cooperation</i></li> </ul>
3	<p>Open discussion on sub-topic – Law Enforcement Coordination</p> <p><i>Attendees contributed to the discussion. However, it became clear that there is significant overlap between the three previously identified sub-topics of law enforcement coordination, TIM, and EMS coordination. It was suggested that these three areas be combined into a single technical note. See draft Technical Note on the three areas for details of the discussion.</i></p>
4	<p>Open discussion on sub-topic – Traffic Incident Management (TIM)</p> <p><i>See draft Technical Note on the combined three areas (law enforcement coordination, TIM, and EMS coordination).</i></p>
5	<p>Call for guests from EMS – for next discussions</p> <p><i>EMS is to be included in the combined draft Technical Note, so the need for EMS will be reviewed and actioned, as necessary, before the next meeting.</i></p>
6	<p>Adjourn - the meeting adjourned at 9:45 A.M. PST</p> <p>Next meetings        - July 23 at 9am PST – to review enforcement coordination, TIM and EMS coordination Technical Note</p> <p>                                  - August 13 at 9am PST – to discuss ITS</p>

## EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



**Group:** I80 CSMP Safety Working Group (WG)

**Subject:** Sub-Topic Discussions

**Date and time:** July 23, 2013 9:00 A.M. PST

**Meeting no:** 11

**Meeting place:** Teleconference

**Minutes by:** Andy Blanchard

**Attendees:** Major Mike Rapich (Utah DPS)

Craig Copelan (Caltrans)

Jim Ceragioli (NDOT) (Co-Chair)

Captain Pat Gallagher (Nevada DPS)

Andy Blanchard (Atkins) (Co-Chair)

### ITEM

### DESCRIPTION

1 Roll call

2 Update on the overall I-80 CSMP Project

- An overview of the progress in all WGs was presented via a web presentation on July 10 and demonstrated the overlap between the safety WG and other WGs e.g. GIS, Freight etc
- Presentations on elements of the I-80 CSMP project were given at the ITE conference in Phoenix last week

3 Open discussion on sub-topic – Traffic Incident Management (TIM), Law Enforcement Coordination and EMS Coordination

*Attendees contributed to the discussion, and gave feedback on the draft Technical Note (circulated before the meeting) on the three areas. See the revised Technical Note (v1-1) for details of the discussion.*

4 Adjourn - the meeting adjourned at 9:45 A.M. PST

Next meetings - August 20 at 8am PST – to discuss ITS

- September 17 at 8am PST – to discuss Vulnerable Road Users



# EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



**Group:** I80 CSMP Safety Working Group (WG)

**Subject:** Sub-Topic Discussions

**Date and time:** August 20, 2013 8:00 A.M. PST

**Meeting no:** 12

**Meeting place:** Teleconference

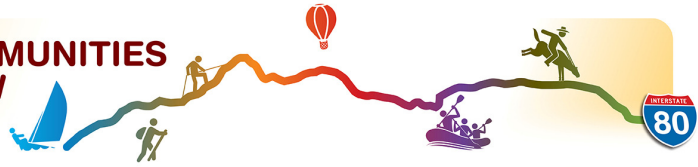
**Minutes by:** Andy Blanchard

**Attendees:** Captain Steve Winwood (Utah DPS)  
 Juan Balbuena (FHWA)  
 Coy Peacock (NDOT)  
 Captain Pat Gallagher (Nevada DPS)  
 Shawn Frye (HDR)

Ken Mammen (NDOT)  
 Patrice Echola (RTC Washoe)  
 Jim Ceragioli (NDOT) (Co-Chair)  
 Andy Blanchard (Atkins) (Co-Chair)

ITEM	DESCRIPTION
1	Roll call
2	<p>Update on the overall I-80 CSMP Project</p> <ul style="list-style-type: none"> <li>• Jim had attended the freight WG, noted overlap with the Safety WG</li> <li>• Draft outputs from our topic discussions are likely to be in table format – our WG's tech memos will be converted into this format</li> <li>• Livability Self Assessment Tool is available and being completed by stakeholders</li> </ul>
3	<p>Open discussion on how GIS can be used within Safety</p> <p>Shawn Frye introduced GIS and outlined how it has been used so far on the I-80 CSMP project. It was explained that there is a general web (Google) map for the whole project. Data relevant to the whole project is available, as is data that is specific to each WG - any of the layers can be turned on or off as required. Issues with data sets include whether they are publically available, if the same data is named differently in different states, and which layers should be prioritized.</p> <p>Data available or requested by the safety WG: AADT, RSAs, corridor studies, crashes by type (e.g. bike and pedestrian; car / wildlife, car / car etc.), citations (DUI, speeding etc.), safety messaging (common along corridor) and safety/maintenance/operations (barrier rail, rumble strips, roadway slopes, variable speed limits, CMS, etc.)</p>
4	<p>Open discussion on sub-topic – ITS</p> <p>See draft Technical Note on Intelligent Transportation Systems (ITS)</p>
5	<p>Review of updated draft Technical Note and further open discussion on sub-topic – Traffic Incident Management (TIM), Law Enforcement Coordination and EMS Coordination</p> <p>Attendees reviewed the draft technical note on Traffic Incident Management (TIM), Law Enforcement Coordination and EMS Coordination sub-topic</p>
6	<p>Adjourn - the meeting adjourned at 8:45 A.M. PST</p> <p>Next meeting - Sept 17 at 8am PST – to discuss Vulnerable Road Users</p>

## EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



**Group:** I80 CSMP Safety Working Group (WG)

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**Subject:** Sub-Topic Discussions

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**Date and time:** September 17, 2013 8:00 A.M. PST      **Meeting no:** 13

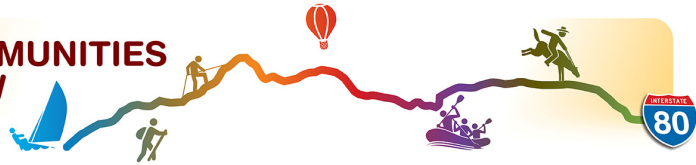
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**Meeting place:** Teleconference      **Minutes by:** Andy Blanchard

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**Attendees:** *Meeting Abandoned*

# EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



<b>Group:</b>	I80 CSMP Safety Working Group (WG)		
<b>Subject:</b>	Sub-Topic Discussions		
<b>Date and time:</b>	October 8, 2013 9:00 A.M. PST	<b>Meeting no:</b>	14
<b>Meeting place:</b>	Teleconference	<b>Minutes by:</b>	Andy Blanchard
<b>Attendees:</b>	Craig Copelan (Caltrans) Juan Balbuena (FHWA) Coy Peacock (NDOT) Robert Hull (UDOT) Shawn Frye (HDR)	Ken Mammen (NDOT) Patrice Echola (RTC Washoe) Jim Ceragioli (NDOT) (Co-Chair) Andy Blanchard (Atkins) (Co-Chair)	

ITEM	DESCRIPTION
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1	Roll call
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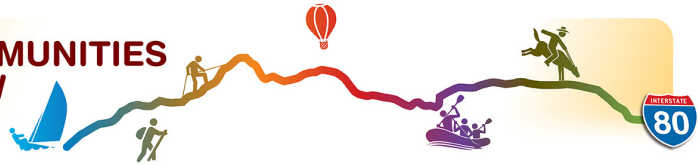
2	<p>Update on the overall I-80 CSMP Project</p> <ul style="list-style-type: none"> <li>• E-blasts will shortly be sent out to all I-80 CSMP stakeholders, the subject of the first one will be an invitation to Performance Measurement training</li> <li>• All were directed to the project website to access podcasts (latest one is on GIS)</li> <li>• A project twitter feed has been launched</li> <li>• A fishbone diagram has been created - recording past project activities and future actions</li> <li>• A workflow process is being established, charting the steps that the Tech Notes produced by the Safety WG must pass through before being published on the website for all to use</li> </ul>
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3	<p>Demonstration of the project GIS mapping and follow-up discussion</p> <p><i>Through an online meeting portal, Shawn Frye demonstrated the I-80 CSMP Project GIS map. He explained that there are layers specific to each WG, and then multiple sub-layers under these that allow more information to be switched on or off. General information is already included within the existing GIS map such as AADT data – ranges are indicated by different colors and actual data revealed in pop-up windows. Some of the data sets are static and others dynamic – there is an identified push for live links to databases, allowing information to be automatically updated, however, this is not yet available for many data sets. Data sets vary greatly across the four states and the agencies within those states. Data sets can generally be added to the GIS map as long as they include a shape file, tabular data with X-Y coordinates or any GIS file type.</i></p>
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*In addition to the data sets identified at the last meeting, new suggestions for safety layers included: all construction project details, ITS elements, construction activities, weather, road conditions, truck parking, speed zones (limits), hospital & clinics locations. While crash data will be relatively easy to obtain and up load to the GIS map, citation data will be more challenging, and will be dependent on the state and law enforcement agencies adoption of electronic citation systems. Whilst some data will be sensitive, currently all data through the project GIS map will be accessible by everyone. A particularly useful way for the general public to access the information is through mobile apps, but this obviously depends on the availability of cell coverage.*

*Existing GIS mapping information already exists in state specific locations such as the Transportation Injury Mapping System (TIMS) in California operated by UC Berkeley, and the 511*

## EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



*Nevada Travel Info service.*

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- 4 Review of draft Technical Note and further open discussion on sub-topic – ITS

*See draft Technical Note on Intelligent Transportation Systems (ITS)*

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- 5 Open discussion on sub-topic – Vulnerable Road Users

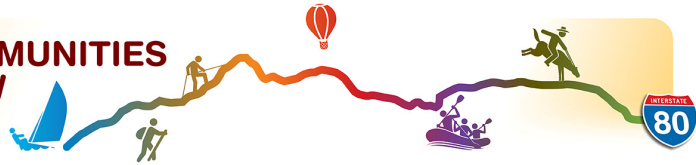
*This item was tabled until the next meeting*

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- 6 Adjourn - *the meeting adjourned at 9:53 A.M. PST*

Next meeting Oct 22 at 9am, PST – *to discuss Vulnerable Road Users & Safety Education/ Behavioural issues*

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## EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



**Group:** I80 CSMP Safety Working Group (WG)

**Subject:** Sub-Topic Discussions

**Date and time:** October 22, 2013 9:00 A.M. PST

**Meeting no:** 15

**Meeting place:** Teleconference

**Minutes by:** Andy Blanchard

**Attendees:** *Craig Copelan (Caltrans)*  
*Coy Peacock (NDOT)*  
*Shawn Frye (HDR)*

*Jim Ceragioli (NDOT) (Co-Chair)*  
*Andy Blanchard (Atkins) (Co-Chair)*

ITEM	DESCRIPTION
1	Roll call
2	<p>Update on the overall I-80 CSMP Project</p> <ul style="list-style-type: none"> <li>Names of California and Nevada GIS contacts (John Bringham and Rod Schilling) shared with Shawn Frye (I-80 project GIS team). Crash data is available by county in California (file type to be clarified); static and live data is available through the Nevada 511 website. Shawn is also speaking with Wyoming.</li> <li>E-blast previously sent out to all I-80 CSMP stakeholders – contained an invitation to Performance Measurement training, tentatively set for December or early 2014</li> <li>An overview of the workflow process was given, charting the three (external to the Safety WG) review steps that the Tech Notes produced by the WG must pass through before being published on the website for all to use. Current Tech Notes will need to be converted into a standard table format for final review by WG.</li> <li>An I-80 CSMP overview presentation to Washoe RTC is planned for next week</li> <li>The Smart Growth America organization are planning to use the I-80 CSMP as a project case study for an update of The Innovative DOT report</li> </ul>
3	<p>Open discussion on sub-topic – Safety Education / Behavioural issues</p> <p><i>See draft Technical Note on Safety Education / Behavioural issues</i></p>
4	<p>Open discussion on sub-topic – Funding of Non-Infrastructure Measures</p> <p><i>See draft Technical Note on Funding of Non-Infrastructure Measures</i></p>
5	<p>Adjourn - <i>the meeting adjourned at 9:56 A.M. PST</i></p> <p>Next meeting      Nov 5 at 9am, PST – <i>to discuss Vulnerable Road Users</i></p>

## EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



**Group:** I80 CSMP Safety Working Group (WG)

**Subject:** Sub-Topic Discussions

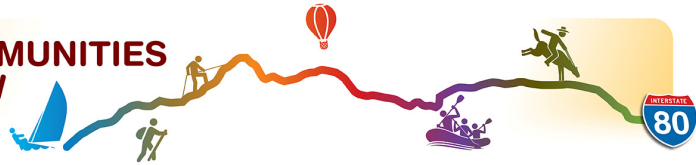
**Date and time:** November 5, 2013 9:00 A.M. PST      **Meeting no:** 16

**Meeting place:** Teleconference      **Minutes by:** Andy Blanchard

**Attendees:** *Patrice Echola (RTC Washoe)*  
*Jim Ceragioli (NDOT) (Co-Chair)*  
*Andy Blanchard (Atkins) (Co-Chair)*

ITEM	DESCRIPTION
1	Roll call
2	<p>Update on the overall I-80 CSMP Project</p> <ul style="list-style-type: none"> <li><i>The workflow process to review the WG deliverables, as described at the last meeting, is due to be up and running within the next week or so. The Implementation Task Force (the second review body) is to be established by late November.</i></li> <li><i>One of the latest podcasts available through the i80vision website is a tutorial on the project GIS map; the work-in-progress map is also available via a link on the "Study Updates" page of the website.</i></li> <li><i>Attendees were reminded to sign up for the Performance Measurement training, starting in early December – this is a 9 week course, and includes webinars and group work.</i></li> </ul>
3	<p>Review and update of Tech Memo on sub-topic – Safety Education / Behavioral issues</p> <p><i>Attendees reviewed the draft technical note on Safety Education / Behavioral issues - revised as v1.1 It was suggested that representatives from DPS-OTS be invited to the next meeting to contribute to the discussion of this and the Funding of the Non-Infrastructure Measures sub-topics</i></p>
4	<p>Review and update of Tech Memo on sub-topic – Funding of Non-Infrastructure Measures</p> <p><i>Due to time constraints this item was not discussed</i></p>
5	<p>Open discussion on sub-topic – Vulnerable Road Users</p> <p><i>See draft Technical Note on Vulnerable Road Users for a record of the very brief discussion. It was suggested that Bill Story (NDOT Bicycle, Pedestrian and Safe Routes to School Programs Manager) be invited to the next meeting to contribute to the discussion of this sub-topic.</i></p>
5	<p>Adjourn - <i>the meeting adjourned at 9:31 A.M. PST</i></p> <p>Next meetings      Nov 19 at 9am, PST – <i>to discuss last three sub-topics</i> Dec 3 at 9am, PST – <i>to review Tech Notes &amp; discuss next steps</i></p>

## EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



**Group:** I80 CSMP Safety Working Group (WG)

**Subject:** Sub-Topic Discussions

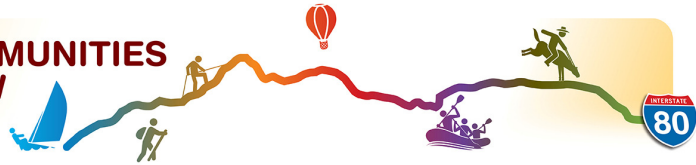
**Date and time:** November 19, 2013 9:00 A.M. PST **Meeting no:** 17

**Meeting place:** Teleconference **Minutes by:** Andy Blanchard

**Attendees:** *Bill Story, (NDOT)* *Jim Ceragioli (NDOT) (Co-Chair)*  
*Pete Vander Aa (NV DPS-OTS)* *Andy Blanchard (Atkins) (Co-Chair)*  
*John Johansen (NV DPS-OTS)*

ITEM	DESCRIPTION
1	Roll call
2	<p>Update on the overall I-80 CSMP Project</p> <ul style="list-style-type: none"> <li>• <i>An e-blast is due to be sent out later this week inviting anyone to sign up for the Performance Measurement training discussed previously, starting on December 17 – this will likely involve two half-hour webinars per week and additional group work.</i></li> <li>• <i>Attendees were informed that the I-80 Coalition (formerly the I-80 Winter Coalition) is holding a workshop later this week. How the I-80 Coalition and the I-80 CSMP Project can complement each other will be discussed at the workshop.</i></li> </ul>
3	<p>Review and update of Tech Memo on sub-topic – Vulnerable Road Users</p> <p><i>Attendees (including invited guest - NDOT Bicycle, Pedestrian &amp; Safe Routes to School Programs Manager) reviewed the draft technical note on Vulnerable Road Users – see revised version - v1.1</i></p>
4	<p>Review and update of Tech Memo on sub-topic – Safety Education / Behavioral issues</p> <p><i>Attendees (including invited Nevada DPS-OTS guests) reviewed the draft technical note on Safety Education / Behavioral issues – see revised version - v1.2</i></p>
5	<p>Review and update of Tech Memo on sub-topic – Funding of Non-Infrastructure Measures</p> <p><i>Attendees (including invited Nevada DPS-OTS guests) reviewed the draft technical note on Safety Education / Behavioral issues – see revised version - v1.1</i></p>
6	<p>Adjourn - <i>the meeting adjourned at 10:02 A.M. PST</i></p> <p>Next meeting      Dec 3 at 9am, PST – <i>to review Tech Notes &amp; discuss next steps</i></p>

## EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



**Group:** I80 CSMP Safety Working Group (WG)

**Subject:** Sub-Topic Discussions

**Date and time:** December 3, 2013 9:00 A.M. PST **Meeting no:** 18

**Meeting place:** Teleconference **Minutes by:** Andy Blanchard

**Attendees:** *Craig Copelan (Caltrans)* *Shawn Frye (HDR)*  
*Juan Balbuena (FHWA)* *Jim Ceragioli (NDOT) (Co-Chair)*  
*Patrice Echola (Washoe RTC)* *Andy Blanchard (Atkins) (Co-Chair)*  
*Coy Peacock (NDOT)*

ITEM	DESCRIPTION
1	Roll call
2	<p>Update on the overall I-80 CSMP Project</p> <ul style="list-style-type: none"> <li>• <i>All the other WGs are underway, including the most recent: MAP-21 WG</i></li> <li>• <i>The Performance Measurement training discussed previously, will be starting on December 17, with the second webinars being held on December 19</i></li> <li>• <i>Following the I-80 Coalition (formerly the I-80 Winter Coalition) workshop last month, it is intended to use some of the contacts, and enlist some of the coalition members to the I-80 CSMP project</i></li> <li>• <i>Focus of the project is now to produce deliverables – this includes the Topic Papers (formerly called Tech Memos) that this WG is preparing</i></li> </ul>
3	<p>Review and update of Topic Paper (formerly Tech Memo) on Vulnerable Road Users</p> <p><i>Attendees reviewed the draft Topic Paper on Vulnerable Road Users – see revised version - v1.2</i></p>
4	<p>Next Steps:</p> <ul style="list-style-type: none"> <li>• <i>Review of deliverables (outstanding input) – the eight draft Tech Memos will be updated into the same format and renamed Topic Papers to be in line with the other WGs. These will be distributed in batches to the WG members for final comment, particularly from those members that have not commented on some of the Topic Papers (recruitment required)</i></li> <li>• <i>Legacy of Working Group – discussion tabled until next meeting</i></li> </ul>
5	<p>Adjourn - <i>the meeting adjourned at 9:55 A.M. PST</i></p> <p>Next meeting      Jan 7 at 9am, PST – <i>to review Topic Papers &amp; discuss next steps</i></p>



# EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



**Group:** I80 CSMP Safety Working Group (WG)

**Subject:** Sub-Topic Discussions

**Date and time:** January 7, 2014, 9:00 A.M. PST

**Meeting no:** 19

**Meeting place:** Teleconference

**Minutes by:** Andy Blanchard

**Attendees:** *Craig Copelan (Caltrans)*  
*Juan Balbuena (FHWA)*  
*Patrice Echola (Washoe RTC)*

*Shawn Frye (HDR)*  
*Jim Ceragioli (NDOT) (Co-Chair)*  
*Andy Blanchard (Atkins) (Co-Chair)*

## ITEM

## DESCRIPTION

1 Roll call

2 Update on the overall I-80 CSMP Project

- *Latest news on the I-80 project is available through Twitter and podcasts – access through the homepage of the I-80 CSMP project website*
- *The Performance Measurement training started in December with an introduction webinar. The next webinar is to be held on January 9. The webinars are being recorded, but form a series of seven or more workshops*
- *A gallery of GIS maps is now available on the website – demonstrating different maps for six working groups including the Safety WG*

3 Review and update of Topic Papers

*Attendees reviewed the draft Topic Papers distributed prior to the meeting:*

- *Engineering Safety Solutions (v1.4) – changes recorded in v1.5*
- *Speed Management (v1.2) – changes recorded in v1.3*

*It was suggested that sections of the I-80 that do not have cell phone coverage could be recorded on a GIS layer – Shawn to investigate. The emergency call box locations could also be recorded. However, it was noted that California is considering their removal, as cell phone use is so prevalent. [These notes are to be added to the ITS Topic Paper]*

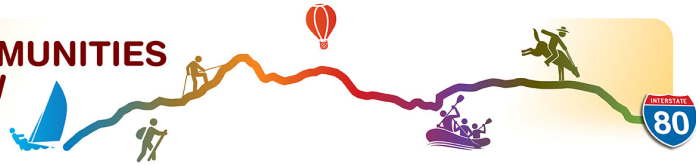
4 Next Steps discussion – Legacy of Safety Working Group:

- *Legacy of Working Group – discussion tabled until after the review of all Topic Papers is complete*

5 Adjourn - *the meeting adjourned at 9:51 A.M. PST*

Next meeting Jan 28 at 9am, PST – *to review Topic Papers*

## EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



**Group:** I80 CSMP Safety Working Group (WG)

**Subject:** Sub-Topic Discussions

**Date and time:** January 28, 2014, 9:00 A.M. PST

**Meeting no:** 20

**Meeting place:** Teleconference

**Minutes by:** Andy Blanchard

**Attendees:** *Craig Copelan (Caltrans)*  
*Captain Pat Gallagher (Nevada DPS)*

*Jim Ceragioli (NDOT) (Co-Chair)*  
*Andy Blanchard (Atkins) (Co-Chair)*

### ITEM

### DESCRIPTION

1 Roll call

2 Update on the overall I-80 CSMP Project

- *leadership meeting on the I-80 project to be held later today - to include a report back from all working groups. Update to be provided at next meeting*
- *GIS mapping – cell phone coverage to be further investigated and included in ITS topic paper; speed limit changes to be included in the mapping where possible, but variable speed limit sign locations and other assets do not need to be recorded on the project GIS mapping.*
- *GIS map for the Safety WG is available via the following link:  
<https://hdr.maps.arcgis.com/apps/PublicGallery/index.html?appid=fc65b8f96434461c94a91d6675b057d6&group=bd81db3b642048a0a7d2fcd9118f47>*

3 Review and update of Topic Papers

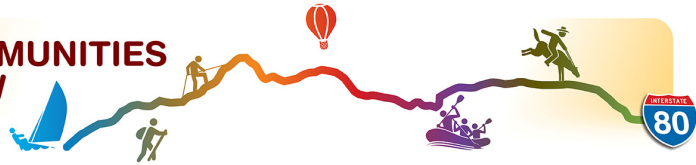
*Attendees reviewed the draft Topic Papers distributed prior to the meeting:*

- *SHSP Goals & Livability Principles (v1.4) – changes recorded in v1.5*
- *TIM Law Enforcement and EMS coordination (v1.3) – changes recorded in v1.4*

4 Adjourn - *the meeting adjourned at 9:40 A.M. PST*

*Next meeting Feb 18 at 9am, PST – to review Topic Papers*

## EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



**Group:** I80 CSMP Safety Working Group (WG)

**Subject:** Sub-Topic Discussions

**Date and time:** February 18, 2014, 9:00 A.M. PST

**Meeting no:** 21

**Meeting place:** Teleconference

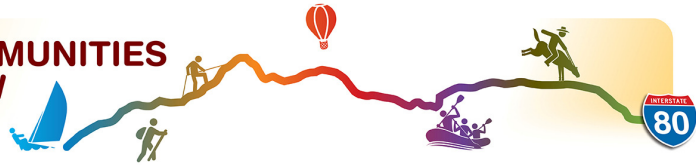
**Minutes by:** Andy Blanchard

**Attendees:** *Patrice Echola (RTC Washoe)*  
*Shawn Frye (HDR)*

*Jim Ceragioli (NDOT) (Co-Chair)*  
*Andy Blanchard (Atkins) (Co-Chair)*

ITEM	DESCRIPTION
1	Roll call
2	<p>Update on the overall I-80 CSMP Project</p> <ul style="list-style-type: none"> <li>• <i>leadership meeting of the I-80 project was held 3 weeks ago - it included a report back on the GIS elements of the project and from all working groups – they are producing different deliverables (wildlife crossing mapbook; energy infrastructure scenarios and tourist map of local sites).</i></li> <li>• <i>GIS mapping – a draft general tutorial has been prepared covering GIS maps; a final version will be released shortly. It is intended that a Safety WG GIS map specific tutorial is also prepared.</i></li> <li>• <i>The implementation task force will be established shortly. They will include senior members of stakeholder organisations. Their role includes reviewing and approving WG deliverables, and deciding on the legacy structure of the I-80 CSMP project following the end of the consultant supported elements.</i></li> </ul>
3	<p>Review and update of Topic Papers</p> <p><i>Attendees reviewed the draft Topic Papers distributed prior to the meeting:</i></p> <ul style="list-style-type: none"> <li>• <i>Safety Education / Behavioral Issues (v1.4) – changes recorded in v1.5</i></li> <li>• <i>Funding of Non-Infrastructure Measures (v1.2) – changes recorded in v1.3</i></li> </ul>
4	<p>Adjourn - <i>the meeting adjourned at 9:30 A.M. PST</i></p> <p>Next meeting    March 18 at 9am, PST – <i>to review Topic Papers</i></p>

## EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



<b>Group:</b>	I80 CSMP Safety Working Group (WG)		
<b>Subject:</b>	Sub-Topic Discussions		
<b>Date and time:</b>	March 18, 2014, 9:00 A.M. PST	<b>Meeting no:</b>	22
<b>Meeting place:</b>	Teleconference	<b>Minutes by:</b>	Andy Blanchard (AGB)
<b>Attendees:</b>	<i>Craig Copelan (Caltrans)</i> <i>Coy Peacock (NDOT)</i> <i>Shawn Frye (HDR)</i>	<i>Patrice Echola (RTC Washoe)</i> <i>P.D. Kiser (NDOT)</i> <i>Andy Blanchard (Atkins) (Co-Chair)</i>	

ITEM	DESCRIPTION
1	Roll call
2	<p>Update on the overall I-80 CSMP Project</p> <ul style="list-style-type: none"> <li>• The latest project “newsflash” was released last week – AGB to make sure everyone in the Safety WG is on the distribution list.</li> <li>• The first I-80 Implementation Task Force meeting was held last Thursday. They will be meeting every week to review and approve the project deliverables, and establish the legacy structure after the consultant team has completed their tasks on the project. This Thursday the task force will be reviewing the first two topic papers from the Safety WG.</li> <li>• A webinar tutorial on the GIS mapping tool was held last Monday. This tutorial will be available through the project website later this week. The GIS mapping is currently accessible through the home page of the project website. AGB to send out an email to WG members to request identification of any missing GIS safety data layers.</li> </ul>
3	<p>Review and update of Topic Papers</p> <p><i>Attendees reviewed the draft Topic Papers distributed prior to the meeting:</i></p> <ul style="list-style-type: none"> <li>• <i>Intelligent Transportation Systems (v1.2) – changes recorded in v1.3</i></li> <li>• <i>Vulnerable Road Users (v1.3) – changes recorded in v1.4</i></li> </ul> <p><i>During the discussion, the dangers of speed differentials between trucks and other road users on grades was raised, particularly as it applies to new or expanded mining operations along I-80. The final version of the speed management topic paper will be revised to include specific reference to the mining trucks and potential methods to address this issue – flashing vehicle beacons, static and DMS warning signs, climbing lanes, revisions to environmental permitting process</i></p>
4	<p>Discussion on legacy structure of the Safety WG</p> <p><i>Tabled to next meeting</i></p>
5	<p>Adjourn - the meeting adjourned at 9:58 A.M. PST</p> <p>Next meeting April 15 at 10.30am, PST – to agree GIS and legacy structure of Safety WG</p>

Across the eight safety topics discussed in the I-80 safety working group, a total of 28 action items were identified. The actions varied from sharing safety best practices between the four states, to implementing coordinated initiatives across the region. Some of these actions are outlined below.

While the subject of **engineering safety solutions** is a well researched and established topic, innovations continue to be identified. It was agreed that all states should explore techniques being tested in other parts of the U.S. and around the world for possible application to the I-80 corridor (particularly national research projects and those improving rural lane departure safety).

In the field of **speed management**, it was decided that a GIS record of speed management facilities (e.g., location of speed limit change points, variable speed limit signs, etc.) should be established. And while discussing the emerging subject of livability, it was agreed that when each State updates their Strategic Highway Safety Plans (SHSP) and critical emphasis areas, the best fit **livability principles** should be incorporated into the new document.

Over the past decade, **Traffic Incident Management (TIM)** programs have been established across the region, particularly in the urban areas, but funding mechanisms for on-going TIM training, must be identified to continue these valuable programs. Additionally, it was decided that education on the benefits of TIM and other coordinated **educational safety messages** across the Western States should be established, through such programs as the Towards Zero Deaths and Zero Fatalities campaigns and specifically across state lines. Meanwhile, alternative sources of **funding for non-infrastructure measures** should be pursued and shared across the four partner states (e.g. livability funding – DOT/HUD/EPA).

As part of the overall **Intelligent Transportation Systems (ITS)** topic, it was agreed that a White Paper should be prepared to outline the safety implications of emerging technologies on the operation of the I-80.

In discussing the safety of **vulnerable road users**, it was decided that in order to improve conditions for these modes along the corridor, that the identification and wayfinding of safe, reasonable alternative routes to the I-80 freeway should be completed. This would include routes using old highways and old railroad right-of-ways. It was agreed that this information should be captured using GIS mapping.

# EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



**Group:** I80 CSMP Safety Working Group (WG)

**Subject:** Sub-Topic Discussions

**Date and time:** April 29, 2014, 9:00 A.M. PST

**Meeting no:** 23

**Meeting place:** Teleconference

**Minutes by:** Andy Blanchard

**Attendees:** *Craig Copelan (Caltrans)*  
*Jim Ceragioli (NDOT)(Co-Chair)*  
*Coy Peacock (NDOT)*  
*P.D. Kiser (NDOT)*

*Patrice Echola (RTC Washoe)*  
*Shawn Frye (HDR)*  
*Andy Blanchard (Atkins) (Co-Chair)*

## ITEM

## DESCRIPTION

1 Roll call

2 Update on the overall I-80 CSMP Project

- *The consultant team is concluding their involvement in the project, the future format and structure of the working group was discussed in the second half of the meeting*
- *Coy gave a presentation on the project at a conference in Arizona earlier in the month. In it, he noted how this project differed from other corridor studies*
- *An improved webinar tutorial on the GIS mapping tool will be released by next Wednesday*
- *An e-survey will be sent out shortly asking stakeholders how they want to be involved in the corridor in the future and a framework to move forward*

3 Discussion on GIS layers for the Safety Map

*The safety map is one of the gallery of GIS maps produced to support various working groups. The GIS maps are being migrated to the NDOT server over the next week. It is expected that the data will be updated yearly, in order to keep it live. It was recognized that in order to maximise the benefit of the maps they need to be marketed to make potential users aware of the resource. The maps will be accessible by the public as well as working group members, although it is expected that the safety map will be most valuable to the key government players, such as DOT planning and safety departments along the corridor.*

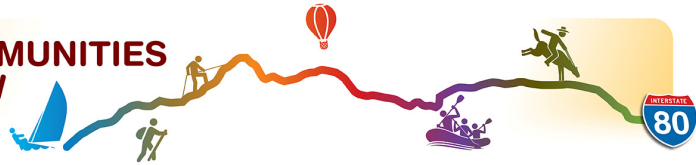
*There are already well established public information maps under the 511 brand (NV, UT and WY) and others (QuickMap in CA). While the aim of the safety map is not to replicate this information, it could incorporate the information in the future, although it was noted that it is not easy to coordinate the I-80 project and these databases at present.*

*The group were asked if speed limit information (static and variable) should be added to the safety map. Some attendees questioned the value of this data, but others felt it could be useful for design projects and planning purposes. While it was agreed that live information was not required, information on speed limits could be indicated using a simple color coded centreline.*

*A suggestion that the map could include information on each SHSP goals was rejected, as this information could more appropriately be contained within a Word document.*

*The possibilities of including information on TIM, law enforcement / EMS coordination within the safety map were discussed. TIM regional coverage, Highway Patrol areas, local law enforcement jurisdiction areas were all suggested. It is thought that while this information is not readily available in a GIS format, it could be generated and based on mile posts, so should be pursued in the future.*

## EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



### 4 Discussion on legacy structure of the Safety WG

*Attendees identified the following possible functions of the future I-80 safety working group:*

- *Short presentations on best practices, sharing safety experience throughout the corridor*
- *Initiate research that could benefit multiple states along the I-80, leveraging funding from multiple states*
- *Pursuit of the action items identified in the safety topic papers generated by the WG (as there are 28 action items, some form of prioritization should be considered)*
- *Serve as a networking opportunity for those with a stake in safety along the corridor*

*It was recognized that the goal would be to keep people engaged, and invested in the process, identifying champions to take the lead on different items.*

*It was suggested that as a minimum, the I-80 safety WG should meet every quarter. However, these meetings should be supplemented as appropriate – when key national or regional documentation changes, or when new practices are trialled. It was proposed that the Safety WG could meet in person once a year.*

*Jim Ceragioli and P.D. Kiser are to discuss a framework for moving forward, including the identification of a chair and a rough schedule for future meetings. They will email an invitation to the next meeting, including identification of action items to discuss.*

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### 5 Adjourn - *the meeting adjourned at 9:58 A.M. PST*

Next meeting TBA

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## EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



### Topic Safety

**Subtopic:** Engineering Safety Solutions

**Related Topics:** ITS [GIS WG]

**Major Stakeholders:** Caltrans, NDOT, UDOT, WYDOT

**Other Stakeholders:** RTC Washoe and Wasatch Front Regional Council

**Champions:** Craig Copelan (Caltrans) and Robert Hull (UDOT)

**Context:** I-80 through the corridor study area is one of the better built, higher quality, and more maintained roadways in the West. Its good geometric characteristics, shoulders, and signage reflect its regional importance.

There are particular challenges, however, that all entities face in operating I-80 as a safe roadway. The freeway traverses through mountainous terrain and high elevations, resulting in extreme weather conditions. It also contains diverse sizes of urban areas along its corridor, ranging from frequent large population centers in California to generally small, widely spaced communities in Wyoming.

### Discussion:

Typical safety elements (not intended to be a comprehensive list) used along the I-80 roadway:

- Edgelines: differing standards across states vary from 4 inches (UDOT/WYDOT) to 8 inches (NDOT).
- Rumble strips: generally used on shoulders wider than 4 feet and only in rural areas.
- Rumble stripes: combine edgelines with rumble strips.
- Barrier rails: a mix of concrete and cable barrier rail, and Tri-Beam guard rail types are used along the corridor. Generally the choice is dictated by site conditions (e.g., concrete barrier rail for narrow medians and cable barrier rail for longer, wider straight sections).
- Snow fences: used extensively in Wyoming to reduce snow drifts on the roadway
- Safety Edge – a tapered edge to the pavement (typically 30 degrees), replacing a vertical drop-off, that allows drivers who drift off highways to return to the road safely.
- Pavement markings (striping on roadways):
  - Use of water-borne paint has resulted in shorter, less durable markings.
  - Frequent snow plowing reduces life of markings.
  - Recessed striping results in a longer life of markings and better visibility/reflectivity.
  - UDOT has established a matrix to guide how quickly markings need to be repainted.
  - An economic balance has to be achieved between higher cost and durability and between higher cost and greater visibility.
  - Maintenance is only possible in late spring along much of the corridor due to late snowpack melting.
- ITS – use of Dynamic Message Signs (DMS) to convey information to drivers (see separate topic paper on ITS):
  - Warning messages (e.g., dangerous conditions).

FHWA list of proven safety countermeasures: <http://safety.fhwa.dot.gov/provencountermeasures/>



**Conclusions:**

## Unmet needs:

- To identify the most appropriate and effective engineering safety solutions, high-quality crash data must be accessible.
- Issues that need to be addressed:
  - Availability of data.
  - Inconsistency in analysis (e.g., different classification of serious injury for different states).
  - Issue of accurately recording fatalities on federal lands.
  - Sharing data across state lines for continuity of reporting and evaluation.
  - GIS compatibility.
  - Need to report serious injury rates under MAP-21.
  - Research – tie together EMS data and crash data to give a true picture of crashes.
  - Traffic records coordinating group across all four states.

**Recommended Actions:**

1. Identify and explore innovative safety solutions being tested in other parts of the U.S. and around the world for possible application to the I-80 corridor (particularly national research projects and those improving rural lane departure safety) [Responsibility – All].
2. Improve consistency of crash data interpretation, as reporting of serious injury crash data is now required under MAP-21 performance measures (will include improvements in the area of GIS mapping of crash data) [All State DOTs].
3. Establish a mechanism for coordinating traffic records groups across the western states [All State DOTs].
4. Share research into edgeline rumble strips (California field study of quieter -- sinusoidal -- rumble strips in environmental sensitive areas could be applicable to urban sections of I-80) [Craig Copelan, Caltrans].

**Future Significance:**

Crash data will continue to be improved. With more informative data, it will be possible to more accurately target engineering safety measures. New countermeasures will continue to be identified and evaluated.

**Future Additional Champions:**

Research teams at universities.

**Optimal Outcome:**

- Shared research and new best practices of safety engineering solutions
- Shared crash data across state lines with a more coordinated and consistent approach to reporting and interpreting crash data -- and ultimately solutions -- along the I-80 corridor.

<b>1. Date</b>	<b>2. Version</b>	<b>3. Status</b>
February 14, 2014	1.6	Preliminary Draft
<b>4. Authors</b>	<b>5. Author Organization</b>	
Andy Blanchard and Jim Ceragioli	Atkins and NDOT	
<b>6. Performing Organization</b>	<b>7. Sponsoring Organization</b>	
I-80 CSMP Study Safety Working Group	I-80 CSMP Study Leadership Team (Coy Peacock, Study Manager)	
<b>8. Keywords</b>		
Engineering, safety, countermeasures, crash, data		
<b>9. Abstract</b>		
Safety engineering solutions are well established along the I-80 corridor. However, there is an opportunity to implement new and existing countermeasures, and to improve crash data to support them.		
<b>10. Content Liability</b>		
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## EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



**Topic:** Safety

**Subtopic:** Funding of Non-Infrastructure Measures

**Related Topics:** Safety Education / Behavioral Issues, [MAP-21 WG]

**Major Stakeholders:** State Highway Safety Offices from California, Nevada, Utah and Wyoming; plus Caltrans, NDOT, UDOT, WYDOT

**Other Stakeholders:** RTC Washoe, Wasatch Front Regional Council , and other MPOs

**Champions:**

### **Context:**

The majority of funding for non-infrastructure measures (Education, Enforcement and EMS support) in each state comes from the federal government, and is channeled through the State's Highway Safety Office (SHSO) which is located within either the Department of Public Safety – Office of Traffic Safety (DPS-OTS) (Nevada & Utah), the Department of Transportation (DOT) (Wyoming) or Governor's Office (California).

The SHSO award federal highway safety funds (from National Highway Traffic Safety Administration (NHTSA)) through a Highway Safety Plan (HSP) to programs that positively affect driving behavior, including educational, enforcement and EMS initiatives. The DOTs receive funds through the Federal Highway Administration (FHWA). Although the majority of this is spent on engineering measures, some portion is available for non-infrastructure initiatives, as detailed in the Highway Safety Improvement Plan (HSIP) and Strategic Highway Safety Plan (SHSP).

As with all federal funding, performance measures feature prominently. Performance targets are set and are used to establish the effectiveness of the safety strategies and initiatives.

### **Discussion:**

Generally, there is close coordination between the DPS-OTS and DOT, combining funding to deliver education, enforcement, and emergency medical systems programs.

In Nevada and Utah, the DPS-OTS develops an HSP that identifies the key highway safety issues and problem areas in the state. The awards and grants received from NHTSA under MAP-21 are designed to target specific traffic safety problems. DPS-OTS solicits proposals to address these identified problems. Available funds are awarded to state and local governmental and non-profit agencies to implement evidence-based traffic safety programs and projects (including new projects that will conduct proven countermeasures). Examples of such programs include Police Joining Forces campaigns, community safety events, and equipment/training support to rural community fire volunteer departments and other emergency responders.

Regarding DOT funding from FHWA, under the previous Transportation Act (SAFETEA-LU) there was a 10% cap on Flexible funding (for non-infrastructure measures). However, this cap was removed under MAP-21, such that it is now up to the individual state to decide how they split their funding between infrastructure and non-infrastructure projects within the HSIP. Such projects can be any strategy, activity or project on a public road that is consistent with a State SHSP, and corrects or improves a hazardous road location or feature, or addresses a highway safety problem. In Nevada, the majority of this Flex-funding is passed to DPS-OTS to administer. 'Flex' funds a majority of the paid media and high visibility enforcement strategies identified in the SHSP.

Flex Funds are also being spent on improving crash data – the collection, storage, accuracy, and availability of Nevada crash data information- through development of centralized databases, and electronic reporting statewide.

In Wyoming, the HSO is contained within the DOT. Coordination is closely done with the Engineering Programs regarding infrastructure projects (FHWA). The HSO manages the grants and Highway Safety program (NHTSA). Grants work the same way in Wyoming as they do in Utah and Nevada, but there is no flex funding.

The Centers for Disease Control and Prevention provides funding for educational and research into all aspects of motor vehicle safety, including child passenger safety, seat belts, teen drivers, pedestrian safety etc. Grant funding for non-infrastructure measures is also sourced from Public Health budgets, including targeting pedestrian safety, child passenger safety, preventative programs, enforcement of under age drinking laws.

The majority of funds generated from enforcement (citations) generally are used to cover the court administration fees, with only a small percentage going back to the local agency (city, county police force). Lots of groups want a portion of the citation monies, and while it is recognized that ideally a significant percentage of this funding should be focused on safety educational campaigns, safety enforcement and safety improvements to the roadways, in practice this is not possible. An example of a large scale enforcement event was the I-80 Challenge. Held in July 2013, this was a multi-state awareness and high-visibility enforcement effort to encourage all drivers to drive safely on the Interstate 80 corridor.

In California there is legislation to create safety corridors (where crashes are high). In these corridors fines are doubled to address a safety problem. This approach could be expanded using a systemic approach. However, legislation is required and in the California example there is no sunset provision (to end the safety corridor).

Performance measures are needed to check what is working, justify the spending on them and identify the cost effectiveness of non-infrastructure measures. It is recognized that this is difficult given the many variables that can influence crash rates. However, the Transportation Research Board is producing study results to show accurate performance measures and cost benefit analysis for behavioral approaches to traffic safety, vs. engineering approaches only.

### **Conclusions:**

Under MAP-21 states now have more flexibility in how they distribute the federal awards and grants, such that they can focus more on non-infrastructure measures. However, there is an opportunity to leverage previously non-traditional sources of funding (e.g. livability grants) to develop even more effective educational, enforcement and EMS safety programs.

Unmet Needs: Issues that need to be addressed:

- Where will additional funding come from?
- Where does funding currently go?
- State budget issues (recent recession) have eliminated staff, even entire units. How can the states do more with less?

As a lot of the funding, regardless of the source, is applied to statewide initiatives, a suggestion that details of funding be included as a layer on the GIS safety maps was rejected.

### **Recommended Actions:**

1. Explore and leverage alternative sources of funding for non-infrastructure measures used across the four partner states and nationally (e.g. livability funding – DOT/HUD/EPA) [Responsibility – All]
2. Identify research already completed locally or nationally on measuring the cost effectiveness of educational and enforcement campaigns [Responsibility – All]
3. Investigate the feasibility of applying the California safety corridor approach (increased fines), including non-legislation methods and ring-fenced generated funds aimed at safety campaigns (education and enforcement) [Responsibility – Craig Copelan]

4. Identify best practices locally or nationally to improve the effectiveness of educational campaigns with minimal funding [Responsibility – All]

**Future Significance:**

As the nation’s vehicle miles traveled steadily rises, Congress is already struggling on how to supplement Transportation funds, with ‘green’ cars reducing the demand for gasoline. MAP-21 also requires the state’s HSP, HSIP, and SHSP to work toward the same goals, with the same strategies, in the next fiscal year. This will allow the different agencies to best utilize their limited resources toward the same goals, and to make steady improvement. But there is no hint of how Congress and Surface Transportation legislation (which includes NHTSA funds) will be reauthorized, funded or allocated in the near future.

**Future Additional Champions:**

Identify SHSO staff (including enforcement) to contribute to the on-going coordination of safety education and enforcement along the corridor. e.g. Traci Pearl, NV DPS-OTS

**Optimal Outcome:**

- Increased funding availability for education and enforcement campaigns to improve the safety of the I-80 corridor users
- Shared research and best practices for maximizing the cost effectiveness of non-infrastructure safety spending
- Continual partnership among the state’s SHSO, DOT, and SHSP teams to remain informed, updated, and perform evaluation of current strategies for possible improvement.

1. Date April 11, 2014	2. Version 1.4	3. Status Preliminary Draft
4. Authors Andy Blanchard and Jim Ceragioli	5. Author Organization Atkins and NDOT	
6. Performing Organization I-80 CSMP Study Safety Working Group	7. Sponsoring Organization I-80 CSMP Study Leadership Team (Coy Peacock, Study Manager)	
8. Keywords Safety, Education, Enforcement, Funding, SHSO		
9. Abstract While federal funding for non-infrastructure measures is typically channeled through the State’s Highway Safety Office, there is a need to leverage other funding sources and improve cost effectiveness in this area.		
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## EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



**Topic:** Safety

**Subtopic:** Intelligent Transportation Systems

**Related Topics:** TIM/Enforcement/EMS Coordination, Speed Management [I-80 Coalition, GIS WG; Freight & Logistics WG]

**Major Stakeholders:** Caltrans, NDOT, UDOT, WYDOT

**Other Stakeholders:** RTC Washoe, Wasatch Front Regional Council, and other MPOs and cities along I-80

**Champions:** Craig Copelan (Caltrans) and other operations staff at DOTs

### Context:

Intelligent Transportation Systems (ITS) allow users to be better informed and make safer, more coordinated, and 'smarter' use of transport networks. There are generally well developed smart traffic operations systems the length of the I-80, with the most obvious visual evidence of these being the Dynamic Message Signs (DMS) or Changeable Message Signs (CMS) and monitoring cameras located along significant stretches of the freeway. While these are positioned predominantly in the urban areas, they are also located in some rural areas.

There are fiber optic hubs and repeaters established along significant sections of the corridor, providing fast communication and allowing monitoring of roadway conditions.

The DMS's can be used to:

- warn drivers of specific hazards ahead (e.g. incidents, severe weather events - including road closures)
- set regulatory conditions (e.g. reduced speed limits using variable speed limit signs - see Speed Management Topic Paper)
- educate - give a road safety message (e.g. Don't drink and drive)
- inform:
  - provide other safety messages (e.g. Amber Alerts)
  - facilities (e.g. provide distances to next electric vehicle charging station)

It is critical that the messages are given a sufficient distance before any incident, so that drivers are able to make alternative arrangements (e.g. change route, stop at a rest area etc.).

Operations and Maintenance overlap:

- Using weather forecasting and monitoring of roadway conditions to keep I-80 corridor users safe, e.g. manual spraying of brine solution to reduce likelihood of roadway icing; automated bridge and roadway de-icing systems
- Freight control – for road closures, the vehicle deploying the closure devices needs to be coordinated with turnaround areas and truck parking, and drivers need to be informed of these arrangements through appropriate media.

Other elements of ITS linked to safety include:

- 511, QuickMap (in California), Road Weather Information Systems (RWIS) and other highway information systems (including websites, & automated messaging updates of incidents, weather conditions, road closures etc.)
- in-vehicle systems (emergency call notification, collision avoidance systems, vehicle to vehicle communication), autonomous vehicles (e.g. the Google car), messaging
- camera enforcement (e.g. in school zones); automated speed enforcement cameras (not permitted in Nevada)
- hazard mitigation - dynamic speed feedback / warning signs (e.g. on approach to sharp curve, in workzones)
- truck systems (overloading, weigh in motion)

### Developing Technologies:

Research has been conducted in the following areas as part of the Vehicle to Vehicle Communications for Safety Program:

- Emergency Brake Light Warning
- Forward Collision Warning

- Intersection Movement Assist
- Blind Spot and Lane Change Warning
- Do not pass Warning
- Control Loss Warning

Research and testing of autonomous vehicles – by Google and at least five separate vehicle manufacturers, with various delivery dates for publicly available vehicles between 2018 and 2025. There are five levels in the NHTSA classification:

1. The driver completely controls the vehicle at all times.
2. Individual vehicle controls are automated, such as electronic stability control or automatic braking.
3. At least two controls can be automated in unison, such as adaptive cruise control in combination with lane keeping.
4. The driver can fully cede control of all safety-critical functions in certain conditions. The car senses when conditions require the driver to retake control and provides a "sufficiently comfortable transition time" for the driver to do so.
5. The vehicle performs all safety-critical functions for the entire trip, with the driver not expected to control the vehicle at any time. As this vehicle would control all functions from start to stop, including all parking functions, it could include unoccupied cars.

**Conclusions:**

Unmet Needs: Issues that need to be addressed:

- Technology is developing rapidly, with new vehicles coming with increasing vehicle to vehicle communication capabilities and automation, with direct implications to improving road safety

**Recommended Actions:**

1. Prepare a White Paper on the safety implications of emerging technologies on the operation of the I-80 [All]

**Future Significance:**

Advances in technology will ultimately lead to autonomous vehicles, however until that point is reached then there will be a mix of vehicles with varying degree of autonomy – how will these safely interact?

**Future Additional Champions:**

Vehicle manufacturers, R & D departments.

**Optimal Outcome:**

- Safer, more informed travelers
- Safer roadways as a result of improved technology - monitoring, pro-active and reactive systems
- Safer roadways as a result of improved in-vehicle technologies

<b>1. Date</b>	<b>2. Version</b>	<b>3. Status</b>
April 30, 2014	1.4	Preliminary Draft
<b>4. Authors</b>	<b>5. Author Organization</b>	
Andy Blanchard and Jim Ceragioli	Atkins and NDOT	
<b>6. Performing Organization</b>	<b>7. Sponsoring Organization</b>	
I-80 CSMP Study Safety Working Group	I-80 CSMP Study Leadership Team (Coy Peacock, Study Manager)	
<b>8. Keywords</b>		
Safety, communication, message, technology, information, warning, speed, in-vehicle		
<b>9. Abstract</b>		
Technology is being used more and more as part of the transport network, allowing for smarter use of the roadways and safer operating conditions – through technology-supported information, regulatory, monitoring, operations and maintenance actions.		
<b>10. Content Liability</b>		
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## EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



**Topic:** Safety

**Subtopic:** Safety Education / Behavioral Issues

**Related Topics:** Funding of Non-Infrastructure Measures, Engineering Safety Solutions, Speed Management, ITS [& MAP-21 WG]

**Major Stakeholders:** State Highway Safety Offices from California, Nevada, Utah and Wyoming; plus Caltrans, NDOT, UDOT, WYDOT

**Other Stakeholders:** RTC Washoe, Wasatch Front Regional Council, and other MPOs

**Champions:** Executive Directors of the state's Department of Transportation & Department of Public Safety (Nevada and Utah), Executive Director of the Department of Transportation (Wyoming) and Governor's Office (California)

### Context:

The responsibility and coordination for safety education at the state level is typically shared by the Department of Transportation (DOT) and the Department of Public Safety–Office of Traffic Safety (DPS-OTS) (and in California, within the state government).

Typically, the State's Highway Safety Office (SHSO) takes the lead in safety education and behavioral issues. A Highway Safety Plan (HSP) is made to identify key highway safety issues and programs that will positively affect driving behavior.

On the DOT side, safety education and identification of behavioral issues are included in the state Strategic Highway Safety Plan (SHSP), which is a major component and requirement of the Highway Safety Improvement Program (HSIP). As a rule, referenced within the SHSP plan, is a Towards Zero Deaths strategy (aligning with the national FHWA strategy).

All elements including safety education within the HSPs and SHSPs are data driven, requiring performance measures to establish the effectiveness of safety treatments and strategies.

### Discussion:

Normally, there is very close coordination between the DPS-OTS and respective DOT, combining resources to deliver consistent safety messages to all road users. This will be required in MAP-21 for all states in 2014. In Nevada and Utah, the messaging is predominantly done under the overarching message of Zero Fatalities (a version of the Towards Zero Deaths strategy). Under this program, safety messages, aligning with the critical problem/emphasis areas identified in the SHSP, are conveyed using multiple media outlets - TV, radio, newspapers, billboards, web-based communication (including social media), etc.

In Wyoming the Highway Safety Office (HSO) is located within WYDOT. The State Highway Safety Engineer is also the Governor's representative for Highway Safety. He works with both NHTSA and FHWA regarding highway safety. Safety Education strategy is a big topic but in Wyoming the focus is on the emphasis areas within the SHSP, predominantly seat belt usage, impaired driving and run off the road crashes.

At the local level, MPO's also typically take a leading role on road safety – educating their local populations.

The most direct way of reaching users of the I-80 corridor with safety messages is through the Dynamic Message Signs (DMS) located along the roadway. Typically, these messages are very simple and vary from direct educational/instructional messages (e.g. 'buzzed driving is drunk driving', and 'don't drive drunk') to

informational messages (e.g. number of roadway deaths this year) to supplementary messaging for other events (e.g. work zones ahead – watch for speed reductions).

Educational campaigns generally focus on behavioral issues, which include:

- Speeding
- Impaired Driving Distracted Driving (includes drowsy driving)
- Pedestrian Safety
- Intersection Safety (e.g. red-light-running, how to navigate roundabouts)
- Work zone safety
- Motorcycle safety
- Other vulnerable road users (Pedestrians, bicyclists)

Other personal safety messages include:

- AMBER Alerts (child abductions)
- Silver Alerts (missing senior citizens)
- Blue Alerts (suspects who have killed or seriously injured law enforcement officers) [California & Utah only]

In previous PR campaigns e.g. the removal of national speed limits of 55mph, focus groups were used in the measurement of the campaign impact.

There appear to be two clear methods of implementing public education campaigns to reach road users:

1. Using just education without engineering changes (but with enforcement)
2. Combining education and engineering improvements (as well as enforcement)

However, it is not clear the cost effectiveness of these two approaches: What are the benefits of conducting an education campaign, particularly in advertising? With all the variables, is it possible to confidently isolate the impact of the educational message? The success of the Nevada Zero Fatalities campaign is measured through a public opinion survey on changing behavior, how many saw the safety message and how many times did they see it, and number of crashes.

Education through enforcement was very prominent along the I-80 freeway in the Summer of 2013, when all states participated in the I-80 Challenge event

### **Conclusions:**

Delivering a coordinated safety message, not just within states, but across the entire corridor, is key to successfully educating I-80 corridor users on safety issues.

Unmet Needs: Issues that need to be addressed:

- Coordinating safety campaigns along the corridor
- Measure the effectiveness of educational (and enforcement) campaigns to then be able to justify future campaigns
- Identify the next phase of safety campaigns – once brand recognition of Zero Fatalities reaches 70%, what then?

### **Recommended Actions:**

1. Establish a mechanism for coordinating the educational safety messages across the Western States through the Towards Zero Deaths and Zero Fatalities campaigns and specifically at state lines [Multiple organizations, states, and stakeholder groups need to be involved in the planning from the beginning]
2. Identify and share research already completed locally or nationally on measuring the effectiveness of educational campaigns, either with or without engineering improvements [Responsibility – All]
3. Explore options for undertaking the next phase of safety education (once widespread brand recognition



of 'Zero' campaigns has been achieved. Identify if a template exists that the corridor partners can use  
[Responsibility – All]

**Future Significance:**

Justification for increased educational campaigns, and promotion of more successful campaigns. Another area expected to increase in significance is older drivers.

**Future Additional Champions:**

Recruit law enforcement officers, emergency responders, state and local health departments and traffic safety advocates (multiple non-profit groups)

**Optimal Outcome:**

- Coordinated safety campaigns with improved effectiveness at educating I-80 corridor users, thus leading to less crashes
- Shared research and new best practices for safety education campaigns

<b>1. Date</b> April 11, 2014	<b>2. Version</b> 1.6	<b>3. Status</b> Preliminary Draft
<b>4. Authors</b> Andy Blanchard and Jim Ceragioli	<b>5. Author Organization</b> Atkins and NDOT	
<b>6. Performing Organization</b> I-80 CSMP Study Safety Working Group	<b>7. Sponsoring Organization</b> I-80 CSMP Study Leadership Team (Coy Peacock, Study Manager)	
<b>8. Keywords</b> Safety, Education, Behavior, Performance Measures		
<b>9. Abstract</b> Safety education is a key element to achieving a safer road environment. Influencing road users behavior must be approached through simple, coordinated and effective campaigns.		
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## EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



**Topic:** Safety

**Subtopic:** SHSP Goals & Livability Principles

**Related Topics:** All

**Major Stakeholders:** Caltrans, NDOT, UDOT, WYDOT

**Other Stakeholders:** RTC Washoe, Wasatch Front Regional Council, and other MPOs and cities along I-80

**Champions:** Jim Ceragioli (NDOT)

### **Context:**

#### **SHSP**

A Strategic Highway Safety Plan (SHSP) is a major component and requirement of the Highway Safety Improvement Program (HSIP). It is a statewide coordinated safety plan that provides a comprehensive framework for reducing highway fatalities and serious injuries on all public roads. A SHSP identifies a State's key safety needs and guides investment decisions towards strategies and countermeasures with the most potential to save lives and prevent injuries.

The SHSP is a data-driven, multi-year comprehensive plan that establishes statewide goals, objectives, and key emphasis areas and integrates the four E's of highway safety – engineering, education, enforcement and emergency medical services (EMS). California is currently updating their SHSP, and Nevada will soon begin the process of updating their SHSP for publication in 2015.

#### **Livability**

Transportation plays a key role in community quality of life by connecting people with places to live, work, learn, play and shop. Interstate corridors connect regional economic centers and should be integrated with local community planning and engineering.

Along the corridor, the I-80 corridor has to have a modern, well-maintained transportation system that will increase the connectivity of communities throughout the corridor and strengthen links along it. Within Nevada, to advance the quality of life, the state is seeking to leverage natural resources and existing infrastructure to attract technology - producing and green industries

In 2009, the Housing and Urban Development (HUD), Environmental Protection Agency (EPA) and Department of Transportation (DOT) formed a joint “Partnership for Sustainable Communities”. They identified six livability principles:

1. Providing more transportation choices
2. Promoting equitable, affordable housing
3. Enhancing economic competitiveness
4. Supporting existing communities
5. Coordinating policies and leverage investment
6. Valuing the uniqueness of communities and neighborhoods

The top 3 considered the most relevant livability principles by the Working Group, that influence safety and the SHSP are:

1. Providing more transportation choices – *increase quality of life*
3. Enhancing economic competitiveness – *strengthen the corridor economy, truck safety*
5. Coordinating policies and leverage investment – *not just Federal policies, but also at all levels – state, regional and local*

**Mapping of current SHSP Goals to the top 3 Livability Principles:**

**California (CA = Challenge Areas):**

1. Providing more transportation choices
  - CA 8 Make Walking and Street Crossing Safer
  - CA 12 Improve Motorcycle Safety
  - CA 13 Improve Bicycling Safety
3. Enhancing economic competitiveness
  - CA 3 Ensure Drivers are Properly Licensed
  - CA 1 Reduce Impaired Driving Related Fatalities
  - CA 10 Reduce Speeding and Aggressive Driving
5. Coordinating policies and leverage investment
  - CA 4 Increase Use of Safety Belts and Child Safety Seats
  - CA 6 Reduce Young Driver Fatalities
  - CA 9 Improve Safety for Older Roadway Users

**Nevada:**

1. Providing more transportation choices
  - Lane Departures
  - Intersections
  - Pedestrians
3. Enhancing economic competitiveness
  - Seat belts
  - Impaired Driving
  - Lane Departures
  - Intersections
5. Coordinating policies and leverage investment
  - Lane Departures
  - Intersections
  - Pedestrians

**Utah:**

1. Providing more transportation choices
  - Pedestrians
  - School Children
  - Bicyclists
  - Transit Safety
  - Public Outreach and Education
3. Enhancing economic competitiveness
  - Truck and Bus Safety
  - Railroad Crossing safety
  - Public Outreach and Education
5. Coordinating policies and leverage investment
  - Teen Driving Safety
  - Child Safety
  - Public Outreach and Education

**Wyoming**

1. Providing more transportation choices
  - Lane Departure
  - Young Drivers (25 and Under)
  - Speeding or Too Fast for Conditions
3. Enhancing economic competitiveness
  - Impaired Driving
  - Lane Departure
  - Curves
5. Coordinating policies and leverage investment
  - Use of Safety Restraints
  - Young Drivers (25 and Under)

**Conclusions:**

Unmet Needs: Issues that need to be addressed:

- The SHSPs do not include references to the livability principles.
- Under MAP-21 the road user group “older drivers” is specifically mentioned. This group, if not included already, will need to be incorporated in future updates to SHSPs (with more seniors staying at home as they age, this has particular relevance in livability as well as safety).

**Recommended Actions:**

1. Include livability principles in safety policies, decision making and funding applications [All]
2. When updating the SHSP and critical emphasis areas consider incorporating the (best fit) livability principles [All State DOTs]

**Future Significance:**

Increased focus on improving livability as one of the criteria for funding allocations (especially Federal).

**Future Additional Champions:**

Community leaders and writers of applications for funding.

**Optimal Outcome:**

- Development of more livable, safer and connected communities for all – from those visiting friends and family, to truck drivers delivering TVs to retail stores
- Identification of additional funding sources for improving the quality of life and multi-modal safety of the I-80 communities
- The private sector chooses to partner with the state, regional and local levels of government to support livability

<b>1. Date</b> April 4, 2014	<b>2. Version</b> 1.6	<b>3. Status</b> Preliminary Draft
<b>4. Authors</b> Andy Blanchard and Jim Ceragioli	<b>5. Author Organization</b> Atkins and NDOT	
<b>6. Performing Organization</b> I-80 CSMP Study Safety Working Group	<b>7. Sponsoring Organization</b> I-80 CSMP Study Leadership Team (Coy Peacock, Study Manager)	
<b>8. Keywords</b> Livability, SHSP, communities, connectivity		
<b>9. Abstract</b> With an ever greater focus on improving livability along the corridor, it is critical that, where relevant, the six livability principles are incorporated into the SHSP and other safety policy documents.		
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## EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



**Topic:** Safety

**Subtopic:** Speed Management

**Related Topics:** ITS [GIS WG, Mobility & Operations WG, and Freight WG]

**Major Stakeholders:** Caltrans, NDOT, UDOT, WYDOT

**Other Stakeholders:** RTC Washoe, Wasatch Front Regional Council, other MPOs and cities along I-80

**Champions:** Robert Miles (UDOT); Matt Carlson (WYDOT)

### Context:

There are existing comprehensive guidelines (Federal Highway Administration, FHWA) on the setting of appropriate posted speed limits. The I-80 freeway in most places has a 70 or 75 mph speed limit. The speed limit is higher (80 mph) in some remote locations and at the lower level of 65 mph in some urban sections or where the terrain influences the roadway alignment (e.g., Telephone Canyon, WY). Speed limits vary for different vehicle types along some sections of the freeway (California). Due to the topography of some sections, extreme weather events can result in temporary reductions in speed limits. Differential speeds of vehicles, particularly between cars and trucks, is a particular challenge to the DOTs and those enforcing speed limits. *[NOTE: Speed limits on non-freeway roads are not covered in this paper]*

### Discussion:

In **Wyoming**, to address winter weather conditions, a variable speed limit is operated on I-80 using dynamic message signs and variable regulatory speed limit signs (positioned approximately every two miles). The speed limit can be reduced to between 35 and 70 mph (in 5-mph increments) depending on the severity of the road conditions. Speed detection equipment is used to determine a reasonable 85th percentile value and the posted speed limit adjusted “on-the-fly.” Issues with setting the speed limit include sudden changes in road conditions (e.g., dry, clear pavement for a few miles, followed by a mile of icy roadway, then back to dry pavement). Clear messaging and the frequency of those messages are key to the successful operation of variable speed limits. In the past, a blanket seasonal speed limit reduction did not work, as conditions varied considerably mile-by-mile.

In **Utah**, in the beginning of 2014, the first variable speed limit was installed at Parleys Canyon to manage the speed of traffic during adverse weather events. While a speed limit of 75 mph is posted in most rural sections of I-80, a higher speed limit of 80 mph is proposed between Mile Post (MP) 99 and the Nevada state line. Through the urban areas of Salt Lake City, the freeway speed limit is 65 mph.

Through **Nevada**, the speed limit on the I-80 varies between 70 and 75 mph in the rural areas and 65 mph in the urban areas. A bill that would have allowed the speed limit to be increased to 80 mph was rejected by the 2013 Legislature. A variable speed limit could be appropriate in northeastern Nevada to reflect extreme weather conditions (e.g., Lockwood Canyon MP 22, Golconda Summit MP 200, Pequop Summit MP 360, Silver Zone MP 370).

In **California**, the statewide freeway speed limit is 65 mph. However, this is increased (generally in rural areas) to a maximum of 70 mph, but only where approved by both Caltrans and California Highway Patrol (California Vehicle Code 22356). In certain sections there are different speed limits for different vehicle types (e.g., 55 mph for trucks, but 65 mph for automobiles). This is typically used to limit truck speeds to address concerns of truck-into-car crashes that can result in more severe crashes than car-into-truck crashes. Variable speed limits can be permitted under California Vehicle Code 22355). Temporary posted lower speed limits are often used in construction work zones throughout the I-80 corridor to reflect temporary road layouts and to protect the construction workers.

### Resources:

- FHWA website contains guidance on setting appropriate speed limits:  
([http://safety.fhwa.dot.gov/speedmgt/eng\\_spd\\_lmts/#a2](http://safety.fhwa.dot.gov/speedmgt/eng_spd_lmts/#a2))

- The Manual on Uniform Traffic Control Devices (MUTCD) for speed limit signing - Sections 2B.13-16 for regulatory speed limits; Section 2C for advisory speed signs; school zone speed limit signs in Section 7B, and work zone speed limits in Section 6C.
- USLIMITS2 web-based tool to help set credible and consistent speed limits.
- NHTSA and FHWA demonstration projects on setting and enforcing rational speed limits.
- FHWA Methods and Practices for Setting Speed Limits: An Informational Report:
  - [http://safety.fhwa.dot.gov/speedmgt/ref\\_mats/fhwasa12004/](http://safety.fhwa.dot.gov/speedmgt/ref_mats/fhwasa12004/)
- Local/state codes and statutes (e.g., 80 mph permitted in Utah).

**Conclusions:**

Unmet needs/issues that need to be addressed:

- New/untested speed management practices in some states:
  - Establishing speed limits higher than 75 mph – but what about high fatality and serious injury crash rates?
  - Establishing variable speed limits in response to adverse weather and other conditions (ITS).
- Making the freeway safer for trucks and other users:
  - Differential speeds between cars and trucks, particularly on steep grade sections of the freeway, can result in safety issues. Truck-climbing lanes are often installed but are expensive and may not always be possible to construct due to topography.
  - Car-into-truck crashes are more often caused by impatient car drivers trying to pass slow-moving trucks.
  - Limit speed of trucks to 65 mph/55 mph to reduce the severity of crashes?
- Different speed limits:
  - A more consistent message should apply to normal conditions, and short-term conditions (work zones, weather events, or other incidents) should trigger the temporary reduction of speed limits. Enforcement?
  - Use dynamic message signs to inform drivers of conditions and speed limits on the roadway ahead across state lines (see ITS topic paper).

**Recommended Actions:**

1. Share experience of higher speed limits [Robert Miles, UDOT].
2. Share experience of variable speed limits [Matt Carlson, WYDOT and Robert Miles, UDOT].
3. Investigate truck-car crash safety solutions from other parts of the nation and share research [Responsibility – All].
4. Use GIS to create a record of speed management facilities (e.g., location of speed limit change points, variable speed limit signs, etc.) [All State DOTs].

**Future Significance:**

Public, political, and business pressure to increase speed limits.

**Future Additional Champions:**

Law enforcement representatives from across the four states.

**Optimal Outcome:**

- Shared best practices of setting higher speed limits and applying variable speed limits.
- Consistent speed management message to drivers across state lines.
- Reduced number and severity of truck-car crashes.

<b>1. Date</b> February 14, 2014	<b>2. Version</b> 1.5	<b>3. Status</b> Preliminary Draft
<b>4. Authors</b> Andy Blanchard and Jim Ceragioli	<b>5. Author Organization</b> Atkins and NDOT	
<b>6. Performing Organization</b> I-80 CSMP Study Safety Working Group	<b>7. Sponsoring Organization</b> I-80 CSMP Study Leadership Team (Coy Peacock, Study Manager)	
<b>8. Keywords</b> Speed, management, limit, variable, differential		
<b>9. Abstract</b> Posted speed limits are set by different entities across the corridor; higher and variable speed limits add to the complexities of speed management, while topography, weather, work zones, and other events can impact the safe operational speed of roadways.		
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## EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



**Topic:** Safety

**Subtopic:** Traffic Incident Management (TIM); Law Enforcement & EMS Coordination

**Related Topics:** Speed Management [GIS WG, Freight and Logistics WG]

**Major Stakeholders:** Caltrans, NDOT, UDOT, WYDOT

**Other Stakeholders:** State and local Law Enforcement and EMS along I-80

**Champions:** Captain Pat Gallagher (Nevada DPS); Major Mike Rapich (Utah DPS)

### **Context:**

Traffic Incident Management (TIM) programs involve all those dealing with an incident, from first responders to the tow truck drivers who clear the scene of an accident. It is critical that incidents are cleared as soon as possible to minimize the time responders are in potential danger, to reduce the likelihood of secondary incidents and limit the fiscal impacts on the local and regional economy.

In **California** there are traffic operations centers in each of the Caltrans districts (including District 3 - Marysville and District 4 - Oakland). These are joint operations, where staff from the DOT, Highway Patrol (Division 3 - Valley and Division 2 - Golden Gate), EMS and transit are co-located, and where they are able to dispatch emergency responders to incidents. California has an online tool ([www.quickmap.dot.ca.gov/](http://www.quickmap.dot.ca.gov/)) that displays traffic conditions, planned lane closures, incidents, messages on changeable message signs, cameras and chain controls.

The Every Day Counts Two (EDC-2) Innovation Initiative, Strategic Highway Research Program Two's (SHRP-2) TIM First Responder Training started in October 2013 with two train-the-trainer sessions training approximately 40 instructors in both the Sacramento region and the Bay Area. SHRP-2 TIM responder training will then be conducted in those areas with a goal of 8-10 classes per month in both regions.

A TIM program has been well established in **Nevada**, particularly in the Las Vegas and Reno/Sparks areas. However, the TIM structure is less developed in rural northern Nevada (where the I-80 corridor passes through numerous counties, each with sheriff's departments, coroners offices, volunteer fire departments etc.). In Summer 2013 a crash near Winnemucca on the I-80 involved over 20 vehicles, blocked both directions of the freeway, and showed the need for coordination and cooperation – required responses from two area commands. Nevada is in the process of generating a TIM for the rural areas. Nevada has also had the SHRP-2 TIM training and it is their goal to complete the responder training statewide by the end of 2014. Incident response vehicles are currently being trialed in southern Nevada, and could be rolled out on the I-80, with a focus on quick clearance of incidents (improving scene safety and minimizing the economic impacts).

The SHRP-2 TIM Responder training will include all responders in California and Nevada with a goal of bringing in multiple disciplines and conducting joint training that will help establish inter-agency relationships.

The TIM program in Utah is well established - the Incident Management employees (IMTs) within UDOT have been very successful in working with other responders and the public. Part of this is because of their decentralized organization that focuses on service that fits within a local context. However, in March 2014 UDOT changed its approach to TIM, from 14 trucks spread across four regions, with each region developing its own flavor of TIM to a dual reporting structure where IMTs are responsible to a single statewide coordinator. But policy decisions are made by a group that includes members from each region. The idea is that UDOT IMTs will be operationally consistent, but without losing sight of the fact that the regions differ. By banding the IMTs together for things like performance measurement and equipment ordering, there is a hope to increase the understanding of the benefits of TIM and provide a single consistent voice for TIM within UDOT. There are several initiatives regarding training, etc. that didn't make sense for a single region to pursue that are address at the state level when the benefit accrues across all regions.

A quick clearance policy is established in **Utah**. Highway Patrol use AIMS software and Total Stations to collect evidence quickly at crash sites, and allow incidents to be cleared. UDOT has large incident management trucks fitted with arrow boards and cones that are quickly able to establish temporary traffic management – closing 2 or 3 lanes.

TIM in Wyoming is maturing as the Traffic Management Center (TMC) cycles through more years of operation. The knowledge of handling incidents is expanding as WYDOT and its partners apply their specific knowledge and lessons learned through coordination with neighboring States. The TMC is located in Cheyenne and is responsible for TIM coordination with all parties for example WHP, local law enforcement, neighboring States, EMS, WYDOT maintenance forces and others depending upon the incident. Variable speed limits and winter weather road condition reporting and road closures are coordinated by the TMC.

Law enforcement coordination occurs:

- within states (e.g. between DPS and DOTs)
- within states between state highway patrol troopers and local law enforcement (e.g. sheriff offices)
- across statelines

Across rural sections, law enforcement coverage can be sketchy, particularly at night-time. Nevada and California law enforcement have established twice yearly coordination meetings to improve responses to incidents, establish vehicle removal and restore regular traffic movement. One of these meetings is held in the late fall to principally establish how to deal with hazardous winter weather events and resulting incidents. Another reason is to establish common plans for dealing with other law enforcement events, e.g. stolen cars being driven from one state to the other.

EMS coordination occurs:

- within states
- across statelines

Away from the urban centers, EMS coverage is spread thinly, and it is often staffed by volunteers. In rural north eastern Nevada, as there is no nearby Level 1 trauma center, seriously injured crash victims are transported to the Salt Lake City area. There is then cooperation between the Nevada law enforcement and Utah EMS, e.g. there are reciprocal agreements across stateliness for actions such as blood draws, when incidents happen in one state, but medical treatment is administered in another.

In California, the Strategic Highway Safety Program (SHSP), Challenge Area 15 (Post Incident Survivability) team has started meeting again and will be investigating ways to improve response, extraction and transport of victims.

In Utah there are on scene coordination protocols, but little coordination at a strategic level.

### **Best Practices:**

TIM has been established in other parts of the country over the last decade, particularly in the east coast states, e.g. Virginia. They have had chance to make mistakes and learn from them, so are good examples that the I-80 corridor partners can use to modify their own TIM set-up to create more effective programs. In late 2013, a new State of California, DOT, "Incident Management Guidelines" booklet was prepared for all state responders. The booklet is a compilation of TIM best practices and includes plain English versions of California's TIM related laws.

Co-location of all agencies in a single operations center is now standard practice in all states. Across Nevada, spending of safety dollars has been reactive in the past, but this is now changing to be more proactive and preventative – educating and supporting those working within incident operations.

Online traffic information systems are available to the public as well as via mobile apps, e.g. Caltrans – quickmap, the 511 service, UDOT's Traffic app.

Utah has established a quick move off initiative, where drivers involved in crashes, if their vehicles are still drivable, are told to meet Troopers at a designated off-highway location.

Recently, UDOT has fitted their large incident management trucks with 'stingers'. These stingers give the trucks a tow capability to pull disabled vehicles off the highway, allowing lanes to be reopened quicker and allow those responding to the incident to work away from moving traffic. The cost of these 'stingers' was about \$15k. This one-time cost saving was covered by savings made elsewhere.

In response to a high traffic fatality rate along the I-80 corridor, the I-80 Safety Challenge was established. This eleven state (from east to west coast) law enforcement plan took place at the end of July 2013 and established a zero tolerance policy along the entire I-80 corridor, 24 hours a day, involving all law enforcement agencies. This activity proved effective, as there were zero deaths recorded during the event.



**Conclusions:**

Unmet Needs: Issues that need to be addressed:

- Selling the benefits and importance of TIM to everyone, particularly to the rural and smaller municipalities, where incidents on the freeway can quickly impact communities and local roads
- Encourage and support greater coordination between local, state and regional stakeholders in the areas of TIM, Law Enforcement and EMS, through TIM training of all relevant personnel
- Future TIM training funding (while the initial training may be funded, additional future funding is required to keep responders updated in the future)
- Establishment of a consistent incident response along the corridor, e.g. goal for lane clearance times – property damage only (30mins), injury (60mins), fatality (90mins)

**Recommended Actions:**

1. Education (e.g. FHWA's SHRP-2 TIM Responder training) on what TIM is about and the benefits (by showing real successes of past incidents – secondary collisions reduced etc.) [Responsibility – All]
2. Share best practices of other TIM programs, e.g. new California DOT TIM booklet [Responsibility – All]
3. Identify funding sources for on-going TIM training [Responsibility – All]
4. Establish effective communication between law enforcement agencies across state lines [Responsibility – All law enforcement] – *assumes that intra-state communication is improved through state TIM programs*
5. Establish effective communication between EMS across state lines [Responsibility – All EMS] – *assumes that intra-state communication is improved through state TIM programs*

**Future Significance:**

Likely more pressure on funding - to stretch it further. No funding of TIM training once programs established.

**Future Additional Champions:**

State TIM coordinators; Law Enforcement and EMS providers from across the corridor.

**Optimal Outcome:**

- Well established, fully effective TIM programs across the corridor, in regular communication with each other
- Greater coordination of law enforcement within states and across state lines
- Greater coordination of EMS within states and across state lines

<b>1. Date</b>	<b>2. Version</b>	<b>3. Status</b>
April 4, 2014	1.5	Preliminary Draft
<b>4. Authors</b>	<b>5. Author Organization</b>	
Andy Blanchard and Jim Ceragioli	Atkins and NDOT	
<b>6. Performing Organization</b>	<b>7. Sponsoring Organization</b>	
I-80 CSMP Study Safety Working Group	I-80 CSMP Study Leadership Team (Coy Peacock, Study Manager)	
<b>8. Keywords</b>		
TIM, Enforcement, EMS, coordination		
<b>9. Abstract</b>		
Coordination between all those attending incidents is critical to minimizing the exposure of Law Enforcement, EMS, and recovery personnel to the dangers of working in live roadways. Best practices have been established in many places through TIM programs.		
<b>10. Content Liability</b>		
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## EMPOWERING I-80 COMMUNITIES TODAY AND TOMORROW



**Topic:** Safety

**Subtopic:** Vulnerable Road Users

**Related Topics:** Engineering Safety Solutions, Speed Management, Safety Education / Behavioral Issues, Livability, TIM/Enforcement/EMS Coordination, ITS [Tourism WG]

**Major Stakeholders:** Caltrans, NDOT, UDOT, WYDOT, RTC Washoe, Wasatch Front Regional Council

**Other Stakeholders:** Other MPOs and cities along I-80

**Champions:** Bill Story (NDOT)

### Context:

Vulnerable Road Users are usually defined as road users who are, pedestrians, bicyclists and motorcyclists. However, construction / road workers should also be considered vulnerable road users.

**Pedestrians** are permitted on the surface road network, and generally also on the freeway, except in specific sections (mostly urban areas). Note: during a vehicle breakdown, crash or other incident, vehicle occupants become pedestrians as soon as they leave their vehicle.

There are no Federal laws or regulations that prohibit **bicycle** use on freeways, although a state may prohibit bicycles on freeways. Most western states allow bicycles to use freeways, but exclude bicycle use in urban or other congested areas. In some locations, the freeway is the only reasonable route, or may be preferred compared to other steep, narrow, or winding routes. Where bicyclists are prohibited from the freeway, a safer, comparable route must be available.

**Motorcyclists** are permitted on the entire freeway and adjacent surface road network.

**Road workers** are also vulnerable users of the freeway and other roads, as their job requires them to be in the roadway, operating in or close to live traffic lanes.

### Discussion:

To avoid pedestrians on freeways, as a result of a crash or breakdown, if a vehicle is not disabled – the driver can be asked to follow law enforcement / recovery to a designated safe area off of the freeway (in Utah only)

Much of the freeway corridor is open to pedestrians and bicyclists (and all other non-motorized users, including skateboarders, those on roller skates, in-line skates etc. – particularly as part of fundraising events). Information on **sections where pedestrians and bicyclists are permitted / prohibited** are generally available on DOT and MPO websites, but it would be useful to record this on a GIS layer for the whole corridor. This could be used by those planning to travel along all or part of the corridor.

When anyone is walking (skateboarding or on skates) along a roadway with no sidewalk, then they must **travel facing traffic**, which can present a safety issue at ramps. Additionally, at **ramp terminals** free-flow vehicle layouts can present even more safety concerns. In California, 2 lane high speed free-flow rights at the end of ramps are no longer permitted. Reconfigured layouts are now required to slow vehicles down, and provide signalized crossing facilities for pedestrians and cyclists.

**Bicycle tourism** (domestic and international) is increasing and although I-80 corridor is not used by lots of bicyclists, it is recognized as a faster route across Utah and Nevada than the non-freeway alternative (US-50). It

also has fewer hills, is less desolate and has shoulders (while US-50 does not). As part of the U.S. Bicycle Route System – Route 50 (Sacramento to Salt Lake City) is tentatively shown following the I-80 corridor, although the exact alignment is not set, it must fall within a 50 mile wide corridor including the freeway. Part of the TransAmerica Trail follows a short section of the I-80 in Wyoming.

While some bicyclists use large sections of the I-80 freeway to travel across the country or region, the roadway is also used by local bicyclists when there are few or no alternatives for **recreational rides**, generally in the more remote sections of the corridor, e.g. Elko – Carlin in Nevada.

Parallel roadways, old highways and former railroad alignments should be used where they are **reasonable alternatives to the freeway**. However, sometimes these alternatives can be more dangerous than the freeway, so careful consideration is required to identify the recommended bike and pedestrian routes. Also, it is not always clear that alternative alignments will allow the vulnerable road users to reach their destinations, as opposed to staying on the freeway, so **wayfinding** (including reinforcement of an alternative) is critical. Alternative routes for bike and pedestrians must be provided during construction events if the work zone and associated traffic control blocks the regular route for these users. The general mapping and “get directions” function on Google Maps includes information on existing bicycle facilities and suggested routes.

Where no usable alternatives to the freeway exist, and it is not reasonable to provide this (e.g. surrounding restrictive topography, long bridges etc.) then these **sections should be improved for pedestrians and bicyclists along the freeway** – making it safer and more comfortable, ideally separating them from other freeway users (e.g. protected bike lanes on the Sacramento causeway). Currently, ferries, bus shuttles and the BART are alternatives where bikes and pedestrians are prohibited on the I80 in the San Francisco Bay area.

**Motorcyclists**, while generally operating at the same speeds, and undertaking the same movements as cars and trucks, suffer higher crash rates than other motorized users, partly because they are less visible. So, they should be encouraged to ride defensively, particularly at intersections. Lane splitting is only allowed in California, and there are guidelines on how this should be done safely: <http://www.chp.ca.gov/programs/lanesplitguide.html>

**Educate** and warn the travelling road users about pedestrians, bicyclists, motorcyclists and road workers – through static signs and messages on CMS (e.g. share the road, watch for motorcyclists). But education of the vulnerable road users is also required – to encourage them to operate safely in the corridor. They can be reached through local advocacy groups, websites, pedestrian and bicycle committees at the city, regional and state levels, and local safety events (e.g. MPO open houses)

Recent vulnerable road users **laws**, include:

- 3 foot law (if on a multi-lane road vehicles must move out of the right hand lane if safe to do so, to pass a bicyclist) [Nevada, Utah]
- increased penalties for drivers that injure vulnerable road users [Nevada]
- Left turn (and straight) on red [Nevada]

A critical element of improving **livability** in the communities along the I-80 corridor, is increasing accessibility through the provision of facilities to connect communities across the freeway (bridges and tunnels). This is particularly true where parts of the same community are effectively severed by the freeway, and where the only linking alternative is a busy crossing point with poor or no facilities for pedestrians and bicyclists. For example, in Battle Mountain, Nevada, a pedestrian/bicycle bridge is proposed to connect a residential area to new recreational facilities on the opposite side of the freeway, the only existing alternative being a vehicular bridge carrying mining and state route traffic.

**Road workers** are provided some increased measure of protection in California and Utah through the “Move over law” where drivers are required to slow down and move over if safe to do so, when approaching DOT

vehicles displaying flashing amber warning lights (in addition to the normal law that requires drivers to move over for emergency vehicles and tow trucks as in Nevada). <http://www.dot.ca.gov/moveover/> (Wyoming law covers only emergency vehicles)

**Conclusions:**

Improving the safety of vulnerable road users is essential along the corridor. In some locations the I-80 freeway is the only reasonable route available to pedestrians and bicyclists.

Unmet Needs: Issues that need to be addressed:

- Education of drivers
- Education of vulnerable road users
- Identification of the safest routes for pedestrians/bicyclists along the corridor, and improvements to them
- Severance of communities by the freeway for vulnerable road users

**Recommended Actions:**

1. Establish a mechanism for coordinating the educational safety messages concerning vulnerable road users across the partner states – targeting both other road users and vulnerable road users [All State Highway Safety Offices (DPS/DOTs/GO) and MPOs]
2. Identify safe, reasonable alternative routes to the I-80 freeway, possibly using old highways, old railroad right-of-ways and make available this information through GIS mapping [All DOTs]
3. Wherever possible, establish safe, reasonable alternative routes to the I-80 freeway, for pedestrians and bicyclists; provide wayfinding along these routes [All MPOs and DOTs]
4. Identify severance issues caused by the I-80 freeway and explore ways of overcoming and funding them [All DOTs, MPOs and communities]
5. Identify and share best practices for improving the safety of road workers, including use of dynamic speed feedback signs [All DOTs]

**Future Significance:**

Increase in bicycle tourism

**Future Additional Champions:**

Recruit pedestrian, bicycle and motorcycle advocates. Involve operations and maintenance DOT staff.

**Optimal Outcome:**

- Coordinated safety campaigns with improved effectiveness at educating all I-80 corridor users
- Shared research and new best practices for ensuring the safety of vulnerable road users
- Increase in the number of pedestrians and bicyclists using the corridor
- Clearer, more comfortable and safer routes for pedestrians and bicyclists

<b>1. Date</b> April 30, 2014		<b>2. Version</b> 1.5		<b>3. Status</b> Preliminary Draft	
<b>4. Authors</b> Andy Blanchard and Jim Ceragioli			<b>5. Author Organization</b> Atkins and NDOT		
<b>6. Performing Organization</b> I-80 CSMP Study Safety Working Group			<b>7. Sponsoring Organization</b> I-80 CSMP Study Leadership Team (Coy Peacock, Study Manager)		
<b>8. Keywords</b> Vulnerable road users, motorcyclists, bicyclists, pedestrians, road workers, safety					
<b>9. Abstract</b> Pedestrians, bicyclists, motorcyclists and road workers require safe conditions both along and across the I-80 corridor – education, laws as well as engineering solutions are needed to achieve this goal.					
<b>10. Content Liability</b> The content of this document is provided for informational purposes only. No legal liability or other responsibility is accepted by performing or sponsoring organizations for any errors, omissions, or statements.					

The background features a stylized, light-colored map of the I-80 corridor region. The map is composed of several overlapping, semi-transparent shapes representing the states of Wyoming (WY), Utah (UT), Nevada (NV), and California (CA). The text is overlaid on this map.

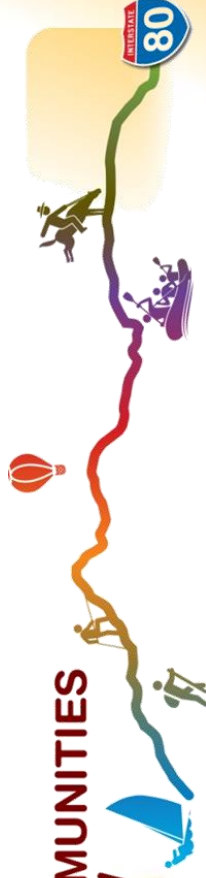
# I-80 Corridor System Master Plan

**EMPOWERING I-80 COMMUNITIES  
TODAY AND TOMORROW**

# Safety Working Group

- Current Stakeholders:
  - DOTs
  - MPOs
  - Federal Highway Administration (Nevada)
- Additional Stakeholders:
  - Law enforcement
  - EMS
  - Safety Educators

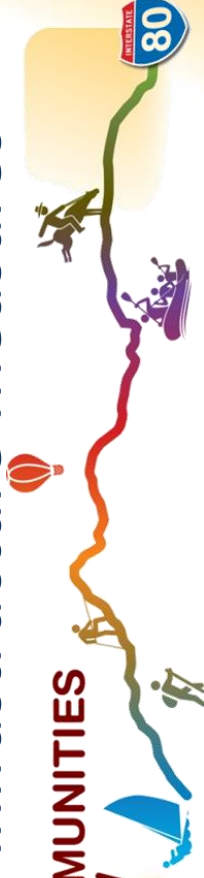
**EMPOWERING I-80 COMMUNITIES  
TODAY AND TOMORROW**



# Safety Working Group

- Eight focus areas:
  1. Engineering Safety Solutions
  2. Speed Management
  3. Map SHSP Goals to relevant Livability Principals
  4. TIM, Enforcement and EMS Coordination
  5. ITS
  6. Vulnerable Road Users
  7. Safety Education / Behavioral issues
  8. Funding of Non-Infrastructure Measures

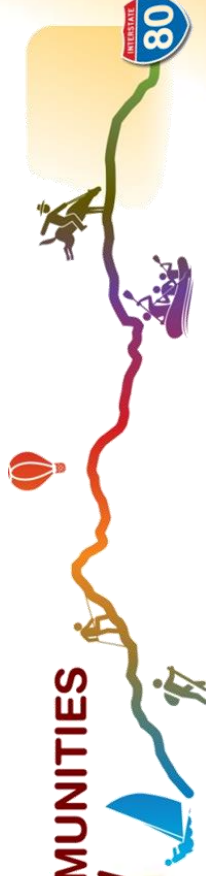
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TODAY AND TOMORROW**



# Safety Working Group

- Deliverables - Technical Notes:
  - Best practices and champions
  - Identify gaps
  - Actions
- Potential Audiences:
  - State and local engineers/planners
  - Policy makers
  - Community representatives

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TODAY AND TOMORROW**





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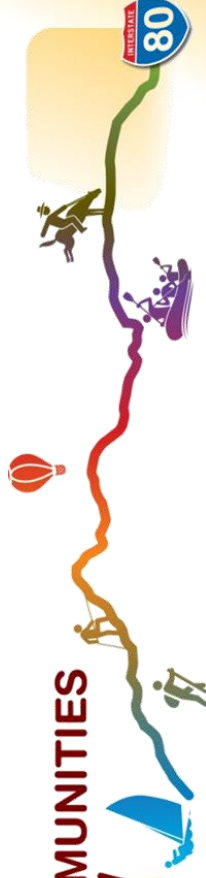
# I-80 Corridor System Master Plan

**EMPOWERING I-80 COMMUNITIES  
TODAY AND TOMORROW**

# Safety Working Group

- Current Stakeholders:
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  - MPOs
  - Federal Highway Administration (Nevada)
- Additional Stakeholders:
  - Law enforcement
  - EMS
  - Safety Educators / Practitioners

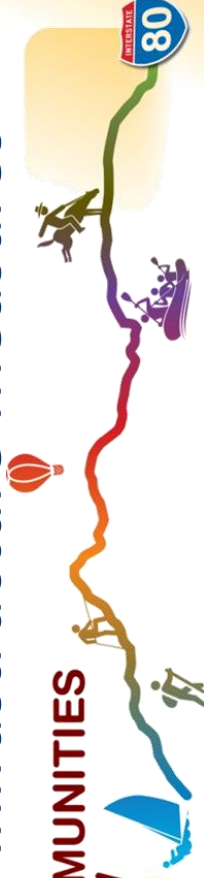
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TODAY AND TOMORROW**



# Safety Working Group

- Eight focus areas:
  1. Engineering Safety Solutions
  2. Speed Management (freeway only)
  3. Map SHSP Goals to relevant Livability Principals
  4. TIM, Enforcement and EMS Coordination
  5. ITS
  6. Vulnerable Road Users
  7. Safety Education / Behavioral issues
  8. Funding of Non-Infrastructure Measures

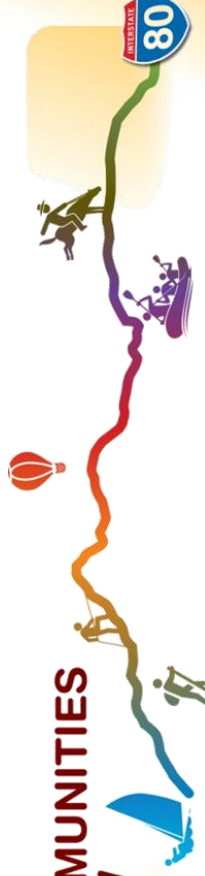
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# Safety Working Group

- Deliverables – 2/3 page Topic Papers:
  - context/background
  - best practices and champions
  - identify gaps
  - meaningful actions
- Overlap with other programs:
  - SHSP renewal
  - TIM programs
  - safety enforcement (I-80 Challenge)

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# Safety Working Group

- GIS mapping:
  - Crash data (live link to state websites?)
  - Road weather information site data
  - Bikes allowed
- Future:
  - Speed limits (note: no intention to create an assets list of speed signs, barrier rail etc.)
  - Cell phone coverage?
  - Others?

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