Safety Research within Strategic Highway Research Program 2:

Past, Present, Future

Paul P Jovanis Ph.D.
Professor Emeritus
Penn State

Safety Symposium Carnegie Mellon University 3/19/15
Past: SHRP 2 has had 4 program areas

<table>
<thead>
<tr>
<th>Area</th>
<th>Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>Prevent/Reduce crash severity by understanding driver behavior</td>
</tr>
<tr>
<td>Renewal</td>
<td>Address aging infrastructure</td>
</tr>
<tr>
<td>Reliability</td>
<td>Reduce congestion</td>
</tr>
<tr>
<td>Capacity</td>
<td>Integrate mobility, economic, environmental, community needs</td>
</tr>
</tbody>
</table>
Past: SHRP 2 has had 4 Program Areas

<table>
<thead>
<tr>
<th>Area</th>
<th>Focus</th>
</tr>
</thead>
</table>
| Safety  | Prevent/Reduce crash severity by 
            **understanding driver behavior**                                  |
| Renewal | Address aging infrastructure                                      |
| Reliability | Reduce congestion                                           |
| Capacity | Integrate mobility, economic, environmental, community needs  |
Past: SHRP 2 safety had overlapping program elements
Past: What types of data were collected in SHRP 2?

- **Naturalistic Driving Study (NDS Data)**
  - Oversight and study design by Virginia Tech Transportation Institute (VTTI)
  - 6 sites for data collection across U.S. for range of drivers and vehicle types
  - Driver recruitment not a random sample of drivers or vehicles; used many different methods of contact

- **Roadway Information Database (RID Data)**
  - Very detailed information on geometric features not normally in state roadway files
  - To be linked to NDS through common location referencing system
  - *Driver/Vehicle/Roadway interactions critical to safety analysis*
Past: What are the two key elements of an NDS design?

**On-Board Devices**

**“Natural” Driving**

![Diagram of on-board devices](image)
Present: What is the current experience with SHRP 2 data?

• Four *pre-studies* completed in late-2000’s using existing data from other NDS studies
• 3 in-depth studies completed using portions of NDS data
Future: Who else will be using the NDS/RID?

- Continue support for AASHTO/FHWA Implementation Assistance Program (IAP)
  - Initially received 33 proposals for grants to use NDS/RID
  - 11 states selected; start proof-of-concept analysis January 2015; to be completed October 2015
  - Phase 2 to select 4-5 of 11 for more in-depth analysis of countermeasures

- Other studies make use of data and are expected to continue

- FHWA Safety Training and Analysis Center (STAC) will provide additional support for NDS implementation
Future: Challenges remain

- Most studies are problem-specific: road departures
- Limited attention to basic methodological issues
  - How to address relative lack of crashes in NDS
  - How to combine with “near-crash” (NC) or “safety-critical events” to conduct a safety analysis
- SHRP 2 NDS: 100’s of crashes; thousands of NC’s
- State Crash: 10,000 crashes; no NC’s