Procedures for Roadway Safety Audit Reviews by Indiana LTAP HELPERS Project

- Avenues to HES funds
  - FA-3 form
  - Via an MPO
  - Indiana LTAP HELPERS Project
    - Accelerated process
    - Must meet certain criteria

Federal Highway Administration
Indiana Department Of Transportation
Purdue University

$ HES Funds $
**Indiana LTAP – HELPERS Project**

- Hazard
- ELimination
- Project
- Existing
- Roads
- Streets

**LTAP HELPERS Project**

- Typical HELPERS Projects are:
  - Low to medium cost
  - Minor engineering required
  - Little if any right of way required
  - Possibly using local forces or annual work contract
  - NEPA categorical exclusion
    - www.fhwa.dot.gov/indiv/ceeaproc.htm
Resources and Guiding Documents

- Roadway Safety Tools for Local Agencies
- Hazard Elimination Program – Manual for Improving Safety of Indiana Road Sections and Intersections
- SAFER Manual – Safety Evaluation for Roadways
- Low Cost Safety Improvements Notebook
- Manual for Transportation Engineering

Roadway Safety Tools for Local Agencies

- NCHRP Synthesis 321
- By Eugene Wilson
- Published 2003
Resources and Guiding Documents

Manual for Improving the Safety of Indiana Road Sections and Intersections

- JTRP Research Report
  - Volume 1 - Research Report
  - Volume 2 - Guidelines
- By Andrew Tarko
- Published 2004
- Specifically for Indiana

Resources and Guiding Documents

SAFER – Safety Evaluation for Roadways

- By Don Walker
- Univ of Wisconsin TIC
- Published 1996
- Same format as PASER Manuals
- Contain criteria for establishing a safety rating
Low Cost Safety Improvements Workshop

- FHWA Workshop Handout
- From MRC, March 2004

Manual of Transportation Engineering Studies

- Published by ITE
- C: 2000
- “How to” guide for all types of traffic studies
  - Volume
  - Speed
  - Many more
**Types of Projects**

- **Programmatic**
  - System Wide
  - RSAR not required
- **High Crash Locations (HCL’s)**
  - Site Studies
  - Route Studies

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**Key Players**

- Local public agency (LPA)
- Indiana LTAP (Project Manager)
- Volunteer Reviewers
- Highway Safety Improvement Committee (HSIC)
Responsibilities of Key Players

- Local public agency (LPA)
  - Identify projects and submit Request Form
  - Provide LTAP with traffic and crash data
  - Provide cost information to construct or install the recommended countermeasures

- Indiana LTAP
  - Assist LPA with Request Form if req’d
  - Coordinate site meeting and field investigation
  - Document discussions and recommendations
  - Discuss above with reviewers and LPA
  - Assist LPA in requesting HES funds
Volunteer Reviewers
- Become familiar with RSAR concepts and procedures
- Participate and contribute to site meeting and field investigation
- Review and comment on conclusions and recommendations prepared by LTAP

Highway Safety Improvement Committee (HSIC)
- Participate as reviewers when possible
- Review and submit funding requests to Governors Council with recommendations
Roadway Safety Audit Reviews

RSAR Procedure

- Four step process
  - Identification
  - Evaluation
  - Recommendations
  - Action

RSAR Procedure

- Step 1 – Identification
  - Consider HCL’s
  - Contact Indiana LTAP
  - Complete Request Form
  - Prioritize by crash frequency
RSAR Procedure

- Step 2 – Evaluation
  - Coordinate site meeting and field investigation
  - Data collection
    - Using Field Data Collection Forms
  - Calculate index of crash frequency ($I_{cf}$)
    - $I_{cf}$ is a measure of the difference between expected and reported crashes
    - Function of type of route/site, volume of traffic, length
    - $I_{cf} = 2$ means actual exceeds expected by 2 standard deviations

RSAR Procedure

- Step 3 – Recommendations
  - Recommend countermeasures
    - Based on field investigation
    - Input from reviewers and LPA
  - Discuss with the LPA
Step 4 – Action

- Action taken will be up to the LPA
- If HES is desired, LPA will estimate costs
- LTAP assists LPA in requesting federal aid
  - Crash reduction factors
  - Cost/benefit ratio
- HSIC will review and make recommendation for funding to Governor’s Council

What are we looking for? Pavement Markings

- MUTCD standard for c/l pavement markings

- Required for:
  - Urban
  - 20+ ft width
  - >= 4000 aadt

- Encouraged for:
  - Rural
  - 18+ ft width
  - >= 3000 aadt
What are we looking for?

Warning Signs

- Steep slope and edge drop-offs
What are we looking for?

- Bad guardrail

What are we looking for?

- Bridges and culvert headwalls
What are we looking for?

- Trees
  - Larger than 4"
  - Outside of curves
  - Intersections
  - Previous strikes

What are we looking for?

- Urban trees
  - Protected by curb
  - Landowner sensitivity
  - Reduced speeds
  - Reduce the hazard
What are we looking for?

- Does not meet MUTCD Standards
What are we looking for?

- Utility poles
  - Object in the clear zone
  - Reduces visibility for vehicles entering from the side
  - Consider relocation further off the shoulder

What are we looking for?

- Urban utility poles
  - Often protected by parked cars, curbs, or even railing
  - May be used for sign supports to reduce "clutter"
What are we looking for?

- Mailboxes
What are we looking for?

Pavement Condition

What are we looking for?

Pavement Condition

What are we looking for?

Pavement Condition

What are can we do?

Potential Countermeasures

- Signs
- Pavement markings
- Lighting
- Removal of objects in the clear zone
- Guardrail and crash cushions
- Traffic calming
What are can we do?

Potential Countermeasures

- Correct alignment
  - Horizontal
  - Vertical
- Pavement surface improvements
- Pavement widening
- Construct shoulders
- Structure widening and/or removal

What are can we do?

Potential Countermeasures

- Signalize intersections
Questions ???