Intersection Safety
Outreach Toolkit

Presentation by Patrick Hasson
2003 Purdue Road School
March 25, 2003

Intersection Safety

- Each year more than 2.8 million intersection crashes (over 45% of all reported crashes)
- About 8500 fatal crashes (23%)
- 1.1 million injury crashes (over 50%)
- About 9,500 fatalities

Safety Situation - 2001

22% in Indiana

Purpose of Toolkit

- To enhance communications with the media, decision-makers and the general public about intersection safety issues.

Primary Audience

- DOT/ chief administrative officers
- Mayors, local officials
- Traffic and safety engineers
- Law enforcement officers
- Traffic and safety organizations
Why an Intersection Safety Toolkit?

- Identified in the National Agenda for Intersection Safety
  - Strategy 11: Marketing and Communications
    - Are we getting the correct message to the public?
    - Are we communicating factual information?
- Turnover of local, state transportation CAOs
  - CAOs may not have a transportation/safety background
- FHWA, AASHTO and ITE Safety Plans

Intersection Topics Covered

1. National Intersection Safety Problem
2. Basic Countermeasures
3. Pedestrian Safety
4. Human Factors
5. Enforcement
6. Traffic Control Devices: Their Use and Misuse
7. Red-Light Running
8. Red-Light Cameras
9. Work Zone Intersection Safety
10. Myths vs. Reality
11. Resources

Topic 1: National Intersection Safety Problem

- Provide basic statistics for intersection safety
  - 8,500 fatalities
  - 1.6 million injured persons
  - 1.8 million property damage only crashes
  - Cost to society: $40B every year
  - No substantive change in intersection related crashes in 25 years
- Demonstrate that intersection safety is a multi-faceted public health issue

Topic 2: Basic Countermeasures to Enhance Intersection Safety

- Engineering countermeasures
  - Turn lanes
  - Signals
  - Non-traditional design
  - Pavement conditions
  - Improve sight distance
  - Upgrade/supplement signs
  - Engineering review
- Sustained enforcement
- Driver licensing and education

Topic 3: Intersection Pedestrian Safety

- Provide data
  - More than 1 in 5 fatalities occur at intersections
  - Average annual pedestrian fatalities about 5,475
- Causes
  - Human factors
  - Alcohol
  - Speed
  - Engineering design
  - Traffic operations

Intersection Pedestrian Safety Solutions

- Enforcement
  - Motorist and pedestrian compliance
  - Reducing excessive speeding through intersections
- Education and public awareness
- Engineering Improvements
  - Pedestrian signal timing/signals
  - Lighting
  - Crosswalks
  - Barriers/refuge islands
  - Signs
**Topic 4: Human Factors**

- Understanding human factors is crucial in the design, development, evaluation and operation of intersections
  - Driver ability to see signs, markings and signals
  - Fatigue
  - Risk taking
  - Older/younger drivers
  - Complex intersection designs
  - Signal timing
  - Roadway characteristics

**Topic 5: Intersection Safety Enforcement**

- Reasons for violations
  - Frustration/impatient drivers and pedestrians
  - Congestion
  - Signal Timing
- Sustained enforcement
  - Traditional
  - Automated
- Resource allocation

**Topic 6: Traffic Control Devices: Use and Misuse**

- Scenario: general public, mayor wants a stop sign or traffic signal that does not meet warrants
- Need to demonstrate in a non-technical way
  - Functions
  - Characteristics
  - How traffic engineers select
  - Typical problems with incorrect placement and installation

**Topic 7: Red Light Running Issues**

- Provide basic statistics on Red Light Running
  - 40 percent of crashes at signalized intersections
  - Cost to Society: $14 B every year
  - 880 fatalities
  - 181,000 injured persons
- Demonstrate that RLR can be reduced through education, engineering and enforcement strategies.

**Topic 8: Red Light Cameras**

- Communicate results
- Successful programs must
  - Supplement traditional law enforcement
  - Be fair
  - Have law enforcement review of photographs
  - Include extensive public education
  - Program signs
  - Engineering reviews
Topic 9: Work Zone Intersection Safety

- **References**
  - MUTCD
  - FHWA’s Best Practices Guidebook for Work Zone Safety
- **Challenges**
  - Impatient drivers
  - Worker safety
  - Pedestrians and Bicyclists
  - Persons with disabilities
  - Road condition changes

- **Solutions**
  - Ingenuity/creativity
  - Engineering judgment
  - Visibility
  - Correct application of MUTCD and Best Practices Guidebook
  - Adequate site distance

Topic 10: Intersection Safety—Myth vs Reality

- **Myth 1:** Installing signals always makes intersections safer.
- **Myth 2:** Having a stop sign is always better than no stop sign OR More stop signs are always safer than fewer stop signs.
- **Myth 3:** Installing stop signs on all approaches to an intersection will result in fewer accidents.
- **Myth 4:** Signals are better than stop signs.

Topic 11: Intersection Safety Resources

- **TEA-21**
- **National Highway System Designation Act of 1995**
- **Information Resources**
  - FHWA
    - Office of Budget and Finance
    - Safety Core Business Unit
  - LTAP
  - APWA
  - AASHTO
    - Strategic Highway Safety Plan
  - AMPO
  - Advocates for Highway and Auto Safety
  - ITSA
  - ITE
  - NAGHSR
  - NACO

Other Intersection Safety Activities

- FHWA/ITE Toolbox of Engineering Countermeasures for RLR
- FHWA Intersection Safety Training Course: Early 2004
- International Scan on Signalized Intersection Safety: Report In Spring 2003
- Various Regional workshops: MD; IA; others?

Other Intersection Safety Activities

- AASHTO Strategic Highway Safety Plan Guidebooks: Unsignalized soon. Signalized in the Fall
- FHWA Roundabouts video, brochure and training
- Guidelines for Signalized Intersections – Early 2004
THANK YOU

Patrick Hasson
708-283-3595
patrick.hasson@fhwa.dot.gov