

**ADOT Pedestrian Safety Action Plan  
MPD Task Assignment 04-08  
PGKG 3267  
Contract # TO849U0001**

**TECHNICAL ADVISORY COMMITTEE MEETING NO. 4**

**DATE:** THURSDAY, SEPTEMBER 18, 2008  
**TIME:** 10:00 AM  
**LOCATION:** ADOT HDRC  
1130 N. 22ND AVENUE  
PHOENIX, AZ 85009

**ATTENDEES**

Vicki Barnett, *Arizona DPS*

Tom Engel, *ADOT Safford District (via  
teleconference)*

Mark Hoffman, *ADOT MPD*

Martin Ince, *Flagstaff MPO*

Kohinoor Kar, *ADOT HES*

Amy Lattimer, *Arizona GOHS*

Chris Puelo, *ADOT Roadway Engineering*

Michael Sanders, *ADOT MPD*

Madhuri Vidaraju, *City of Phoenix*

Jeff Bauman, *City of Flagstaff*

Brent Crowther, *Kimley-Horn and Associates*

Mike Colety, *Kimley-Horn and Associates*

**MEETING NOTES**

**1. Welcome and Introductions**

Michael Sanders welcomed attendees to the meeting; self introductions were made.

**2. Discussion of Working Paper 3 (Work in Progress)**

Brent Crowther stated that since the last TAC meeting, the project team had reviewed over 200 crash records; he also stated that they had conducted field observations at several representative higher crash locations. He reviewed the Tier approach to crash analysis that was presented at the last TAC meeting:

- Tier 1: Pedestrian crashes statewide (all roadways)
- Tier 2: Pedestrian crashes on state highways

FOR MORE INFORMATION CONTACT:

MICHAEL SANDERS, ADOT PROJECT MANAGER, (602) 712-8141 OR

BRENT CROWTHER, KIMLEY-HORN AND ASSOCIATES, INC., (520) 615-9191

- Tier 3: Pedestrian crashes in representative “focus” jurisdictions
- Tier 4: Identification of specific “segments” and locations with a higher number of pedestrian crashes

A clarification was made that “pedestrian crashes” include people walking or in wheelchairs, and it excludes bicyclists.

### **Segment Prioritization and Methodology**

A discussion of the Tier 4 Analysis was presented. Refer to the PowerPoint presentation (attached) for additional information. Key discussion points included:

- 42 locations with high numbers of pedestrian crashes were identified; locations include segments and interchanges.
- Representative segments and interchanges were identified from the 42 locations.
- Roadway, traffic, and adjacent land use characteristics were documented for the representative segments.
- Crash reports (over 200) for the representative segments were reviewed (drawn over the past 5 years). “Segments” were described as segments of state highway systems with local roads crossing them; segments include intersections.

Brent Crowther presented the prioritization criteria to be used to prioritize the higher crash locations. The two types of prioritization criteria, and the prioritization sub-criteria are:

- Segments Prioritization Criteria
  - Pedestrian Demand Index
  - Facilities Deficiency Index
  - Stakeholder Input Index
  - Crash Severity Index
- Interchanges Prioritization Criteria
  - Pedestrian Demand Index
  - Facilities Deficiency Index
  - Crash Severity Index

Brent presented the summary tables of segment and interchange prioritization (pages 6 and 11 in the Draft *Working Paper 3*) and summarized the scoring criteria for each index, discussed below.

### **Pedestrian Demand Index**

Reflects propensity for pedestrian facilities to be utilized if they were provided.

Sub-indicators that comprise the overall Pedestrian Demand Index include:

- Activity balance
  - Pedestrian facilities
  - Road density
  - Pedestrian potential
- 1 point for lowest PDI scores (30 or less)
    - 4 % of segments
    - 0 % of interchanges
  - 2 points for moderate PDI scores (between 31 and 51)

- 50 % of segments
- 12 % of interchanges
- 3 points for highest PDI scores (between 51 and 100)
  - 46 % of segments
  - 88 % of interchanges

#### Facilities Deficiency Index

Quantifies relative magnitude of pedestrian safety deficiencies of each segment considering four factors:

- Existing sidewalk availability
- Number of pedestrian crashes
- Traffic speed
- Traffic volume
- Sidewalk Availability
  - 0 points for maintained 8' shoulder (rural) or existing sidewalks (urban)
  - 1 point for damaged 8' shoulder (rural) or existing sidewalks (urban)
  - 2 points for no sidewalks or shoulder
  - 3 points for discontinuous sidewalks
- Traffic Speed
  - 1 point for speed limit 25 – 35 mph
  - 2 points for speed limit > 35 - 45 mph
  - 3 points for speed limit > 45 mph
- Traffic Volume
  - 1 point for 2,500 to 7,500 vehicles per day (vpd)
  - 2 points for 7,500 to 12,500 vpd
  - 3 points for 12,500 to 17,500 vpd
  - 4 points for 17,500 to 25,000 vpd
  - 5 points for > 25,000 vpd

#### Stakeholder Input Index

Stakeholder input based on discussions with stakeholders during stakeholder interview process.

- 1 Point allocated for identification of the following specific pedestrian safety concerns:
  - Mid-block crossings
  - Discontinuous sidewalks
  - Lighting
  - Intersection crossings improvements
  - School crossings
  - Suggest raised median

#### Crash Severity Index

Quantifies the severity of crashes along a segment or at an interchange

- 0 points for no incapacitating crashes
- 1 point for incapacitating, but no fatal
- 2 points for 1 fatal

- 3 points for multiple fatal crashes

The overall priority score was calculated as follows:

***Overall Priority Score = Pedestrian Demand + Pedestrian Safety Deficiency + Stakeholder Input + Crash Severity***

### **Potential Countermeasures and Strategies**

Potential pedestrian safety countermeasures were discussed. Countermeasures were identified primarily through a literature review of two sources: *Desktop Reference for Crash Reduction Factors* and *Pedsafe: Pedestrian Safety Guide and Countermeasures Selection System Report*. Crash reduction factors for the countermeasures were identified where available.

There was a discussion on pedestrian safety countermeasures which is summarized as follows:

- The ADOT HES representative mentioned that there is one Pelican pedestrian signal on an ADOT roadway.
- The City of Flagstaff representative noted that HAWKs and/or Pelican crossings work best with defined crossing points but do not work well on a typical ADOT roadway with trip generators and destinations spread along the roadway segment. Tucson has addressed this by installing these devices at a high frequency. A key difficulty is signal coordination and the realization that signal progression is difficult to achieve. Communities must make the decision that this is an acceptable trade off for pedestrian safety.
- Right turn on red policies were noted.
- Pedestrian safety countermeasures on Grand Avenue were discussed.
- A comment was made regarding public resistance on raised medians.
- The use of pork chop islands was discussed. It was noted that pork chop islands should be removed when there is a high percentage of elderly drivers because they have difficulty observing conflicting traffic. The inside radius adjacent to pork chop islands can have tighter radius to avoid this condition. The practice of not allowing a free right turn and a pork chop island without having a receiving lane on the cross street was discussed.
- The ADOT Project Manager discussed the proposed Pedestrian Policy. Brent Crowther mentioned developing an ADOT Complete Streets Policy. The ADOT HES representative stressed the importance of having elements within this plan that are implementable in the foreseeable future and believes that an ADOT Complete Streets Policy should not be a recommendation of the report because it is not likely to be implemented in the foreseeable future. He commented that a management level decision is needed on what the level of project development should be.
- ADOT HES representative stated that if federal dollars are needed, a benefit -cost analysis is needed to show that the improvement is justified. He discussed the requirements to apply for an HES safety grant. Data needed includes crash data, information from crash reports, an evaluation of how the

location is performing, recommendations for the improvement needed to address the safety problem, and determination of the benefit /cost ratio for the improvement. Kimley-Horn should review the data needed for the HES safety grant and determine how much can be filled out with the information available for locations where field reviews were conducted. He said that it will be helpful to have the potential countermeasures listed even though they will need to do further analysis to get it funded through an HES grant.

- There was a comment that it will be not be feasible to truly prioritize projects until you look closely at each countermeasure and see what countermeasure will work the best.

### **3. What's Next / Adjournment**

- TAC review of Working Paper No. 3- Chapters 1 through 3
- Completion of Working Paper 3- Chapter 4
- TAC 5 is tentatively scheduled for **Thursday, November 20, 2008**, at 10 a.m.

### **4. Attachments**

Copy of TAC meeting Number 4 PowerPoint Presentation