Intersection Safety Implementation Plan

Interim Update for NCTCOG
Realizing the SHSP Vision and Goals

• The general consensus among those involved in transportation safety is that further reductions are not only desirable, but feasible.

• The target goal for Texas in 2006 was 1.40 fatalities and 41.2 serious injuries/HMVMT.
SHSP Strategies

- Develop emphasis area action plans.
- Implement engineering solutions to reduce red-light running
- Eliminate limited sight distance on all roads
- Enhance advanced warning at intersections
Approaches to Saving Lives and Preventing Serious Injuries

- Traditional
- Systemic
- Comprehensive
- Policy
- Culture
Systemic Approach for Intersections

New Emphasis in MAP-21:

“The term ‘systemic safety improvement’ means an improvement that is widely implemented based on high risk roadway features that are correlated with particular crash types, rather than crash frequency.”

• Converse of “traditional” approach
• Use of known, cost effective countermeasures
• Install systematically over wide area
• Top 3-8% of intersections typically bear 25-40% crashes
• Opportunity to substantially reduce intersection fatalities
Key: Making Intersections Incrementally Safer

• Increase **visibility** of intersections and traffic control devices
• Increase **awareness** of intersections
• Improve the **design** of intersections to reduce conflicts
• Improve driver **comprehension** to reduce confusion
• Improve the **operations** of intersections
• Improve **sight distance** at intersections
• Improve driver **compliance** with traffic control devices
Key Systemic Countermeasures

• Both Stop-Controlled and Signalized Intersections
  – Basic set of sign and marking improvements
  – Access management of high volume driveways within 50-100 feet
  – Delineate or remove fixed objects at intersections

• Stop-Controlled Intersections
  – Improve sight distance where restricted
  – Splitter islands

• Signalized Intersections
  – Improve signal visibility and conspicuity
  – Update clearance intervals to ITE stds
  – Protected-only left turn phases
Ensure adequate sight distance where deficient

Properly placed stop bar

Splitter Island

Basic Stop Controlled Countermeasures
Basic Countermeasures

- Twelve-inch LED lenses on all signal heads.
- Back plates on all signal heads (optional reflectorized border).
- A minimum of one traffic signal head per approach lane.
- Traffic signal yellow change interval and all red interval timing adjusted to be in accordance with the Institute of Transportation Engineers (ITE) timing standards.
- Elimination of any late night flashing operations.
# General Overview 5-Yr Intersection Data Summary

<table>
<thead>
<tr>
<th>Year</th>
<th>K</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>O</th>
<th>Unknown</th>
<th>Total</th>
<th>KAB Total</th>
<th>% KAB</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>156</td>
<td>1,342</td>
<td>5,856</td>
<td>12,101</td>
<td>26,397</td>
<td>1,314</td>
<td>47,166</td>
<td>7,354</td>
<td>16%</td>
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<tr>
<td>2007</td>
<td>174</td>
<td>1,333</td>
<td>6,039</td>
<td>12,017</td>
<td>22,387</td>
<td>935</td>
<td>42,885</td>
<td>7,546</td>
<td>18%</td>
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<tr>
<td>2008</td>
<td>157</td>
<td>1,276</td>
<td>5,834</td>
<td>11,003</td>
<td>22,901</td>
<td>882</td>
<td>42,053</td>
<td>7,267</td>
<td>17%</td>
</tr>
<tr>
<td>2009</td>
<td>125</td>
<td>1,191</td>
<td>5,619</td>
<td>11,379</td>
<td>23,600</td>
<td>1,017</td>
<td>42,931</td>
<td>6,935</td>
<td>16%</td>
</tr>
<tr>
<td>2010</td>
<td>92</td>
<td>1,215</td>
<td>5,414</td>
<td>9,831</td>
<td>22,779</td>
<td>677</td>
<td>40,008</td>
<td>6,721</td>
<td>17%</td>
</tr>
<tr>
<td>Total</td>
<td>704</td>
<td>6,357</td>
<td>28,762</td>
<td>56,331</td>
<td>118,064</td>
<td>4,825</td>
<td>215,043</td>
<td>35,823</td>
<td>17%</td>
</tr>
</tbody>
</table>
Intersections in North Central Texas

215,043 intersection crashes from 2006 to 2010:

– 35,823 serious injuries or deaths
  • 77% of the total intersection cost
  • 48% urban environment
– 15,008 intersections at least one crash
Intersections and Severe Crashes

- The total cost of intersection crashes in North Central Texas is estimated to be $11.6B over the five-year period.
- Severe intersection crashes accounted for:
  - 17% of all intersection or intersection-related crashes
  - 77% of the total cost of intersection crashes
  - Rural areas accounted for approximately 52% of the cost.
  - Urban areas accounted for approximately 48% of the cost.
Intersection Types Selected

• The top intersection types for severe crashes are:
  – All URBAN intersections, excluding 3-legged/stop-controlled
  – All SIGNALIZED intersections (rural, urban, and unspecified)

• 5 or more KAB crashes:
  – 1,522 intersections (or 10% of those analyzed)
  – **13,320 severe crashes (40% of the total severe intersection crashes)**

Suggested primary focus on **Urban Signalized** intersections subset (1,225 intersections)
### Key Local Jurisdictions

#### Top Ten Jurisdictions with 5 or more KAB Intersections

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>No. of Intersections</th>
<th>Percent of Total</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>DALLAS</td>
<td>346</td>
<td>28.2%</td>
<td></td>
</tr>
<tr>
<td>FORT WORTH</td>
<td>167</td>
<td>13.6%</td>
<td></td>
</tr>
<tr>
<td>ARLINGTON</td>
<td>116</td>
<td>9.5%</td>
<td></td>
</tr>
<tr>
<td>PLANO</td>
<td>106</td>
<td>8.7%</td>
<td></td>
</tr>
<tr>
<td>GARLAND</td>
<td>59</td>
<td>4.8%</td>
<td>65%</td>
</tr>
<tr>
<td>RICHARDSON</td>
<td>42</td>
<td>3.4%</td>
<td></td>
</tr>
<tr>
<td>DENTON</td>
<td>35</td>
<td>2.9%</td>
<td></td>
</tr>
<tr>
<td>GRAND PRARIE</td>
<td>32</td>
<td>2.6%</td>
<td></td>
</tr>
<tr>
<td>LEWISVILLE</td>
<td>27</td>
<td>2.2%</td>
<td></td>
</tr>
<tr>
<td>IRVING</td>
<td>24</td>
<td>2.0%</td>
<td>78%</td>
</tr>
</tbody>
</table>
Intersection Safety Implementation Plans

NEXT STEPS
Next Steps for Completing ISIP

• Feedback on Initial Data Analysis
  – Safety Advisory Committee (SAC)
• Feedback on Countermeasures/Packages (local & SAC)
  – Mix of Treatments
  – Estimated Effectiveness (Local input)
  – Average Cost
  – Deployment Level
• Refine proposal, Schedule Workshop,
Keys to Implementation

• Identify champions, assign roles and responsibilities
• Identify funding over a defined period of time
• Determine improvement method
  – regional/local multi-intersection contract
  – local state or local government forces)
• Arranging for adequate field review/design/inspection
QUESTIONS

Intersection Safety Implementation Plans

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