



# Texas Strategic Highway Safety Plan Update

3<sup>rd</sup> Emphasis Area Team Meeting

Pedestrians

3/27/2017

Austin, TX

# Agenda

- Welcome and introductions (roll call)
- Review new data runs
- Finalize strategies
- Discuss countermeasures

# Team Members

Commitment	Responsible Person	Due Date
None		

# Pedestrian Crashes

<b>Urban</b> 78%	<b>Rural</b> 22%
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## Urban Intersection

<b>Signalized</b> 39%	<b>Unsignalized</b> 61%
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## Rural Intersection

<b>Signalized</b> 20%	<b>Unsignalized</b> 80%
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## Urban Non-Intersection

<b>Marked Lanes</b> 50%	<b>Center Stripe / Divider</b> 11%	<b>S</b> <b>i</b> <b>g</b> <b>L</b> <b>t</b> <b>3</b> <b>%</b>	<b>S</b> <b>t</b> <b>o</b> <b>p</b> <b>s</b> <b>1</b> <b>%</b>	<b>C</b> <b>r</b> <b>o</b> <b>s</b> <b>s</b> <b>1</b> <b>%</b>	<b>O</b> <b>t</b> <b>h</b> <b>e</b> <b>r</b> <b>3</b> <b>%</b>	<b>None</b> 31%
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## Rural Non-Intersection

<b>Marked Lanes</b> 44%	<b>Center Stripe / Divider</b> 26%	<b>No passing zone</b> 8%	<b>Other</b> 4%	<b>None</b> 18%
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# Proportion of KA Pedestrian Crashes to Proportion of VMT and Population

	On-System						Total Crashes
	Arterials	Collectors	Locals	Freeways	Total	Pop	
> 100K Pop	1.95	0.64		1.15	1.30	0.87	2517
< 100K Pop	1.36	2.60		1.55	1.82	1.00	369
Fringe	0.57	1.24		0.70	0.69	1.49	503
Rural	0.35	1.07		0.55	0.51	1.59	543
Total Crashes	2283	316	3	1330	3932		3932

# Proportion of KA Pedestrian Crashes to Proportion of VMT and Population

	Off-System						Total Crashes
	Arterials	Collectors	Locals	Freeways	Total	Pop	
> 100K Pop	1.04	1.18	1.51	1.01	1.10	1.21	3640
< 100K Pop	0.67	0.73	0.95	0.00	1.08	0.48	182
Fringe	0.32	0.44	0.42	0.88	0.50	0.55	194
Rural	0.69	0.30	0.18	0.00	0.33	0.19	69
Total Crashes	1674	764	1611	36	4085		4085

# On-Roadway vs Off-Roadway (On-System Arterials)

## Urban

On – 94%

Off or Shoulder –  
5%

## Rural

On – 85%

Off – 4%  
Shoulder – 11%

# Freeway Mainlane vs Frontage Road (On-System)

## Urban

Mainlane – 68%

Ramps/Flyovers – 8%

Frontage – 24%

## Rural

Mainlane – 78%

Ramps – 3%

Frontage – 19%



# COUNTERMEASURES

# A Word on Countermeasures

Effectiveness (history, current, new measures)

Impact (history, priorities)

Feasibility (policies, resources, expertise, sponsors, public acceptance)

# Revised Strategies and Countermeasures

- Improve driver and pedestrian safety awareness and behavior
  - Improve driver awareness of pedestrians
    - Education campaign focused on drivers who are turning... maybe “Look Right When Turning” Campaign? [Square your Turns (don’t cut corners) and Rock and Roll in the seat to see pedestrians and bicyclists are well known in this transit industry and could transfer to other drivers. I saw a staggering statistic about turning right and how few people actually look right before turning.]
    - Develop an educational video about laws for yielding to pedestrians in crosswalks. [Maybe make it humorous or sarcastic like the recent video about using a turn signal. Just like buses and most trucks stopping at RR crossings, maybe there is something we can do about midblock crosswalks.]
  - Target education by location and demographics
    - School age children education (San Antonio and Austin)
    - Better driver education focus on pedestrian safety

# Revised Strategies and Countermeasures

- Improve driver and pedestrian safety awareness and behavior (cont.)
  - Reduce crashes involving impaired and distracted pedestrians
    - Adapt impaired driving messages to impaired walking and biking (link to impaired driving team)
    - **Campaign about drugged, drunk walking** [People think they are doing good not to drive, but not so fast]
  - Reduce crashes with unintended pedestrians on high speed roadways
    - **Work with Freeway Service Patrols of Texas to develop public outreach on what to do in the event of a crash on a high speed roadway, and other issues they see that relate to people walking along high speed roadways (What will they do? Stay in car except for rare cases. Phone number on back of TxDLs)**

# Revised Strategies and Countermeasures

- Improve driver and pedestrian safety awareness and behavior (cont.)
  - Work with Teens in the Drivers Seat to create awareness around walking and biking issues for young drivers

{NYC traffic safety education program developed for elementary through high school age children with an overall emphasis on responsible decision making may be good model to copy.]

<http://www.nyc.gov/html/dot/html/about/safety-education.shtml>

# Revised Strategies and Countermeasures

- Reduce pedestrian crashes on urban arterials and local roadways
  - Research the distance needed between safe pedestrian crossings to come up with a table of safe crossing opportunities needed every X feet on different roadway classifications. Local roadways where the speed limit is 25-30mph, people can cross along the entire roadway without special treatments.
  - Research pedestrian delay at signalized intersections compared to motorist delay. What is acceptable? What options are available (i.e. are in use in the US and internationally) for prioritizing the pedestrian walk indication?

# Revised Strategies and Countermeasures

- Reduce pedestrian crashes on urban arterials and local roadways (cont.)
  - Posted speed limits (design speeds too) on urban arterials are often too high for the potential conflict with driveways, pedestrians, bicyclists, transit vehicles, etc. How can transportation agencies consider these conflicts when conducting the engineering speed study? Setting a lower speed limit (as much as 7mph below the 85<sup>th</sup> percentile speed) shouldn't only kick in when looking at crash history.
  - Raised crosswalks at high pedestrian traffic crossings
  - Change intersection traffic signals to have all traffic stop at the same time and allow pedestrians to cross each way and diagonally

# Revised Strategies and Countermeasures

- Reduce pedestrian crashes on urban arterials and local roadways (cont.)
  - Help cities and other locals develop policies that address common pedestrian crash countermeasures (shortening crossing distances, providing complete sidewalk networks, providing enhanced crossing devices, median islands, etc.)
  - Develop resources for locals on links between urban form (driveway density, setbacks, pedestrian scale frontage, roadway design speeds, etc.) and safety outcomes
  - Encourage the adoption of FHWA's every day counts Safe Transportation for Every Pedestrian (STEP) for countermeasures for improving pedestrian access and improved safety



# Revised Strategies and Countermeasures

- Improve pedestrians visibility at crossings
  - Reflective wear that is mass produced
  - Vehicle lights that come on when the turn signal is activated and shine in that direction
  - Implement/expand technology to illuminate crosswalks and/or intersections when pedestrian is detected
  - Lights embedded in the crosswalk that flash when pedestrians are crossing the street
  - Provide crosswalk enhancements
  - Safety lighting

# Revised Strategies and Countermeasures

- Improve pedestrians visibility at crossings (cont.)
  - Eliminate screening by physical objects (remove on-street parking, Don't Block the Box campaigns, etc.)
  - Deploy pedestrian scale and focused lighting on urban corridors and other areas of pedestrian activity, including crosswalk lighting in accordance with FHWA guidance
  - Deploy bulb outs, median islands, parking restrictions, advance yield bars, Z crossings and associated improvements that allow for pedestrians to be protected and more visible to traffic

# Revised Strategies and Countermeasures

- Improve pedestrians visibility at crossings (cont.)
  - Implement guidance on the use of high visibility crosswalk markings at uncontrolled locations as a priority, along with experimental lighting devices (bollard light, activated lighting, etc.)
  - Deploy consistent and complete signs/markings at all pedestrian crossings. This should include the use of passive devices such as intersection bulb-outs and fluorescent sheeting where appropriate as well as the use of more active devices such as RRFBs and PHBs

# Revised Strategies and Countermeasures

- Improve pedestrian networks
  - Ensure more opportunities for crossing arterials/highways safely are implemented. Consider setting standards for the distance between safe crossings given land uses/densities/roadway function
  - Include wide shoulders (5' or more) in every rural roadway project to serve the pedestrians and increase safety for all modes
  - Sidewalks and bicycle lanes should be included in every urban collector and arterial roadway project (including frontage roads of major highways)
  - Prioritize the pedestrian over the motor vehicle in the hierarchy of design in urban areas especially

# Revised Strategies and Countermeasures

- Improve pedestrian networks (cont.)
  - Include a buffer between motor vehicle lanes and sidewalks as standard design
  - Construct pedestrian over/under passes
  - Provide sidewalks/walkways and curb ramps
  - Install or upgrade traffic and pedestrian signals
  - Construct pedestrian refuge islands and raised medians
  - Install pedestrian hybrid beacons or rapid reflectorized flashing beacons at mid-block crossings
  - Develop policies to analyze pedestrian level of services, path delay and network connectivity as part of project development

# Revised Strategies and Countermeasures

- Improve pedestrian networks (cont.)
  - Conduct analysis and prioritize for improvement gaps in networks and crossings within  $\frac{1}{4}$  mile of bus stops and  $\frac{1}{2}$  mile of other mass transportation (see NCTCOG for work already underway)
  - Develop and support a complete streets policy support guide with model policy and implementation information for local agencies and MPOs to use
  - Construct sidewalks along ALL city streets with barrier-free ramps where needed

# Revised Strategies and Countermeasures

- Improve pedestrian involved crash reporting
  - Include crash typing in the pedestrian crashes – where was the pedestrian standing/walking when collision occurred, what was the pedestrian and driver doing etc. Use the Pedestrian Crash Analysis Tool for categories on crash typing
  - Develop roll call video on the need for and uses of pedestrian crash data
  - Add fields and codes to the crash report form that would enable ready conversion to the methods of the PBCAT tool (see Joan Hudson for more information)
  - Add fields to the standard crash report form to better define pedestrian crashes and provide additional detail regarding the specifics of each crash

# Revised Strategies and Countermeasures

- Establish vehicle operating speeds to decrease crash severity
  - Urban arterial speed limits should not be higher than 35 mph especially in densely populated areas. They should be designed such that posted speeds more closely match the design speed.
  - Narrow lanes (as narrow as 10') should be acceptable on urban arterials (outside lanes of 11' for roadways where frequent bus service is provided)
  - Tree lined medians, bicycle lanes, safe and attractive pedestrian crossing and walkways should be included
  - Set lower speeds in high pedestrian traffic areas



# Revised Strategies and Countermeasures

- Establish vehicle operating speeds to decrease crash severity ( cont.)
  - Deploy design flexibility guidance for techniques to reduce operating speeds on surface streets (narrow lanes, medians, street furniture, trees, building setbacks, etc.)
  - Support the use of traffic calming for local streets (raised crosswalks/intersections, woonerfs/shared streets, chicanes, bike boulevards, etc.)
  - Design roadways for a target speed appropriate for the adjacent environment rather than for a design speed intended to maximize potential speed of vehicle and vehicular capacity

# Revised Strategies and Countermeasures

- Develop strategic pedestrian safety plans tailored to local conditions
  - Pedestrian safety action plans should be completed for the state and for each major urban area to begin with specific countermeasures covering the 4 (or maybe 5) Es
  - Develop stand alone Pedestrian Safety Action Plans (PSAPs) in all of the FHWA focus cities, or other safety planning and analysis that includes pedestrian safety (such as Vision Zero). Support other large cities and metros to develop PSAPs or similar

# Revised Strategies and Countermeasures

Notes from the “additional comments” section

{FHWA’s EDC STEP is available to help states or local agencies develop policies addressing street crossing at uncontrolled location (such as deployment tables based on site characteristics), and technical assistance will be available through December 2018 at least.}

{FHWA has additional training primarily directed at the focus cities (Austin, Dallas, Fort Worth, Houston, San Antonio) on pedestrian design, complete streets, design flexibility, etc. Focus cities and states are designated as part of FHWA’s focused approach to safety, which includes bikes/peds, intersections and lane departures. Texas is a focus state in all three areas, getting high priority for any requested technical assistance.}

# Summary and Adjourn

- Review action items
- Adjourn