Evaluation of Pedestrian Safety Countermeasures—Summary of Results, Conclusions and Lessons Learned

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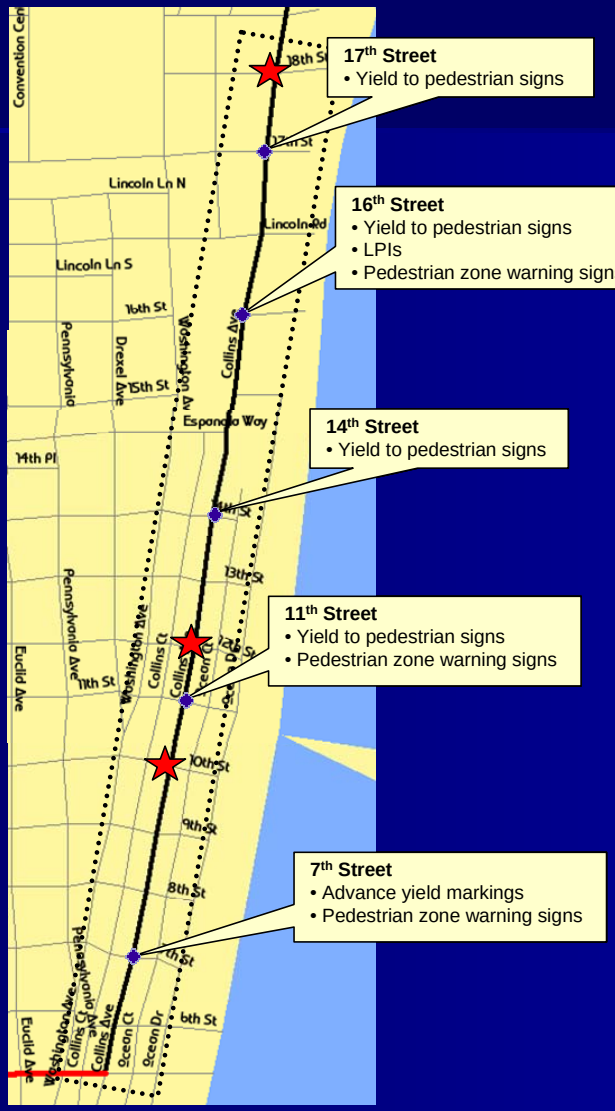
SAIC Team's Role

- Conduct an independent national evaluation
- Compile and summarize teams' results
- Conduct a cross-cutting analysis
- Identify lessons learned

Independent National Evaluation

- Evaluate zone / area-wide combined impacts of countermeasures (as opposed to site-specific, individual impacts)
  - Identified intersections within deployments zones/areas
  - Collected before and after data (safety, mobility, customer satisfaction)

Collins Avenue Zone, Miami



Independent National Evaluation--Findings

- Mixed (non significant, counterintuitive results, inconsistent)
- No conclusive carry-over impacts / trends found, especially looking across the locations

Summary of Results and Cross-cutting Analysis

- Compile and summarize results from three locations
- Compare results across locations

TYPE OF CM	COUNTERMEASURE	MIAMI	LV	SF
Static Signs	TURNING TRAFFIC YIELD TO PEDESTRIANS signs	√	√	√
	In-street pedestrian signs	√	√	√
Active Signs	Pedestrian zone signs	√		
	NO TURN ON RED (NTOR) signs	√		
	Portable radar speed trailers	√	√	√
Pavement Markings	High visibility crosswalk treatment		√	
	Advance stop lines			√
	LOOK pavement stencils			√
Signals and Signal Timing	Pedestrian countdown signals	√	√	
	Call buttons that confirm the press	√	√	
	Automated pedestrian detection	√		√
	Activated flashing beacons		√	√
	Rapid flash beacon	√	√	
	Leading pedestrian phase (Pedestrian head start)	√		√
	Elimination of permissive left turns	√		
Physical Separation	Median refuge island		√	√
	Danish offset (in combo with high visibility crosswalk, advance yield markings and YIELD HERE TO PEDESTRIANS sign)		√	
Lighting	Dynamic lighting	√	√	

Challenges

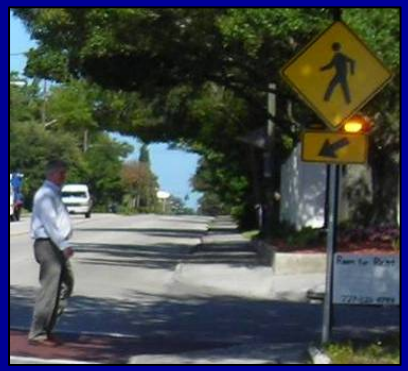
- Similar, but not identical countermeasures
- Same countermeasure applied somewhat differently
- MOEs measured somewhat differently

Findings/Conclusions

- Summarize findings for non cross-cutting countermeasures
- Assess effectiveness of cross-cutting countermeasures
- Group countermeasures in terms of effectiveness
  - High
  - Medium
  - Low

High Effectiveness

- Leading pedestrian phase
- Pedestrian countdown signals
- Rectangular rapid flashing beacons
- In-street signs
- Call buttons that confirm the press
- Danish offset (combined w/ high-visibility Xwalk, advance yield markings, YIELD HERE TO PEDESTRIANS sign



Medium / Mixed Effectiveness

- Activated flashing beacons
- Electronic no turn on red (NTOR) sign
- Elimination of permissive left turns
- Portable speed trailers

Low Effectiveness

- High visibility crosswalks
- Advance stop lines
- “LOOK” pavement stencils
- “Turning traffic yield to pedestrians” signs
- Pedestrian zone signs

Effectiveness Dependent on Application

- Median refuge island
- Dynamic lighting
- Automated pedestrian detection (to activate or extend pedestrian crossing phase)

Identify Lessons Learned

Major steps in the project included:

- Establishing and maintaining a multi-agency team to oversee and guide the project
- Identifying safety and mobility problems, including potential contributing factors to crashes
- Selecting countermeasures corresponding to the problems identified
- Obtaining funding and support for improvements
- Procuring, deploying, and maintaining the countermeasures
- Evaluating the effectiveness of the countermeasures

General Lessons Learned

- Assemble a diverse set of project partners to address the range of issues that might arise during the study
- Implement regular communication and participation mechanisms for project partners from project kick-off
- Use a variety of methods/sources to understand problems and to determine causes of crashes at prominent pedestrian crash locations
- Begin the program by implementing low-cost countermeasures for the greatest potential of widespread use

General Lessons Learned (cont'd)

- Pursue a variety of funding sources for the pedestrian safety program
- Do not underestimate the complexity of procurement
- Budget ample time for deployment and coordinate with the appropriate jurisdictions
- Consider how the timing of countermeasure deployment may impact the experimental design and evaluation
- Consider the unique aspects of collecting and reducing pedestrian safety data

Countermeasure-specific Lessons Learned

- Strategically place in-street pedestrian signs to reduce the chance of them being hit by vehicles and to maximize their effectiveness
- Consider the technical issues surrounding the use of automated pedestrian detection
- Translate public service messages into multiple languages to successfully reach non-English speaking populations
- Be prepared to demonstrate to concerned traffic engineers that the electronic NTOR sign will not significantly disrupt traffic progression along a corridor. Work with the local electrical department and vendors to make sure everything is in place for success.

Thank you.