Traffic Safety Project Evaluation

By Urban Data Pioneers - Traffic Safety Team
Project Goals

• Evaluate effectiveness of four traffic safety projects, using before-after collision data

• Identify effective measures to improve and replicate at other locations
51st and Memorial
51st and Memorial

Improvements being evaluated:
Signal Changes; the addition of a “Protected-Only Left Phase”

Project Goal:
Reduce Angle-Turning Crashes within intersection

Data:
5 years of pre-construction data (1999-2003)
Findings

• 80% reduction in Angle-Turning Crashes within the intersection (based on 2005-2009 comparisons)

• 22% reduction in all crashes inside the intersection. 14% reduction in all crashes, in or near the intersection

• 2005-2015 averages were just as good if not better than 2005-2009 in all 3 categories

• Crash Rate (all types):
  • 1999-2003: 4.6 Crashes per 1M cars traveling through intersection
  • 2005-2013: 2.2 Crashes per 1M cars (53% reduction)
71st and Memorial
71st and Memorial

**Improvements being evaluated:**
Addition of confirmation lights and signal changes, clearance intervals

**Project Goal:**
Provide safer transition between two conflicting movements & improve traffic enforcement

**Data:**
5 years of *pre-construction* data (1999-2003)
5 years of *post-construction* data (2005-2009)
Findings

• 36% reduction in the number of Angle-Turning crashes inside the intersection

• 8% reduction in total # of crashes inside the intersection. No change in overall # of crashes, but rate did go down.

• 27% increase in all Rear-End crashes at the intersection.

• Crash Rate (all types):
  • 1999-2003: **3.67** Crashes per 1M cars traveling through intersection
  • 2005-2009: **2.72** Crashes per 1M (**26% reduction**)
81st and Memorial
81st and Memorial

**Improvements being evaluated:**
Installation of Flex Tubes at driveway entrance

**Project Goal:**
Restricting certain left turning movements

**Data:**
5 years of *pre-construction* data (2010-2014)
1 year of *post-construction* data (2015)
Findings

- 80% reduction* in left turn crashes at 1\textsuperscript{st} quick stop driveway
- 130% increase* in left turn crashes at 2\textsuperscript{nd} quick stop driveway.

**Only 1 year of data was used for detailed, driveway analysis

- Crash Rate (all types):
  - 2010-2014: 5.02 Crashes per 1M cars traveling through intersection
  - 2015: 3.89 Crashes per 1M*** (19% decrease)

*Rates based on crashes per month at defined locations. No changes in ADT as driveway analysis captured a single year.

**Though implications can be taken from a single year of analysis, a wider range of dates should be examined for a more definitive evaluation.

***Crash rates based 273 days to accommodate 9 months of crash data.
11th St. and Elgin
11th St. and Elgin

Improvements being evaluated:
2012 construction of Round-a-bout

Project Goal:
Increase traffic safety and improve traffic flow

Data:
5 years of pre-construction data (2007-2011)
3 years of post-construction data (2013-2015)
Findings

- Pre-construction: 28 collisions, 5.6/year (21% injury crashes)
  Post-construction: 5 collisions, 1.6/year (0% injury crashes)

- 3 of the 5 crashes that have occurred since installation of round-a-bout involved alcohol

- Crash Rate (all types):
  - 2007-2011: 3.85 Crashes per 1M* cars traveling through intersection
  - 2013-2015: 0.59 Crashes per 1M* (89% reduction)

*Crash rates based on 260 days to accommodate ADT changes on local street.
Outcomes

• Overall, signal changes proved to be very effective at improving traffic safety

• Restricting specific left turning movements was effective, though other improvements must be considered to prevent “moving” the hot spot to another location

• The round-a-bout installation was very effective at significantly reducing the number of crashes and preventing injury collisions
Questions?