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)
5 (2005-2009) & 11 year increments of *post-construction* data (2005-2015)

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

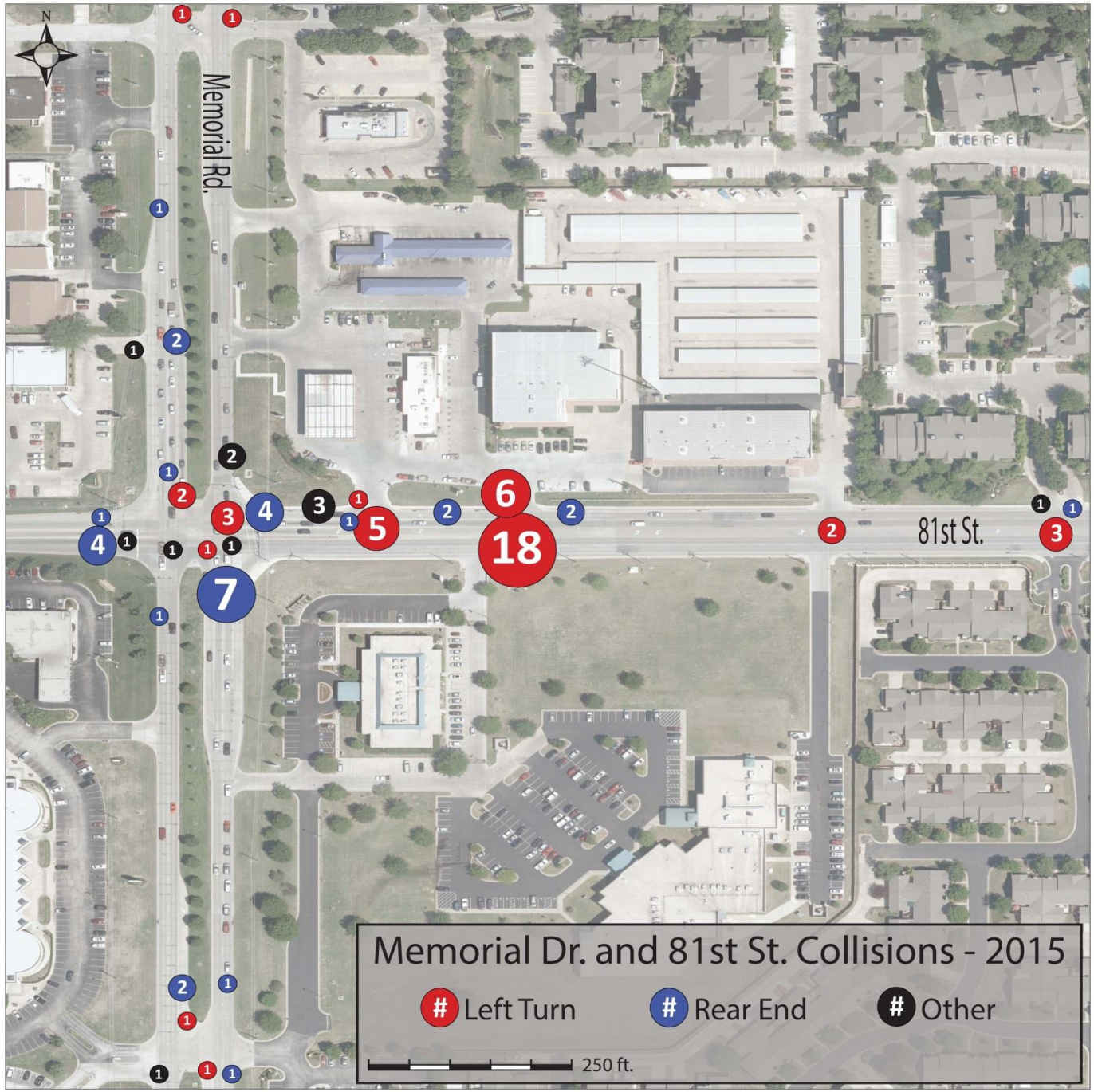
Project Goal:
Restricting certain left turning movements

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

Findings

- 80% reduction* in left turn crashes at 1st quick stop driveway
- 130% increase* in left turn crashes at 2nd 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.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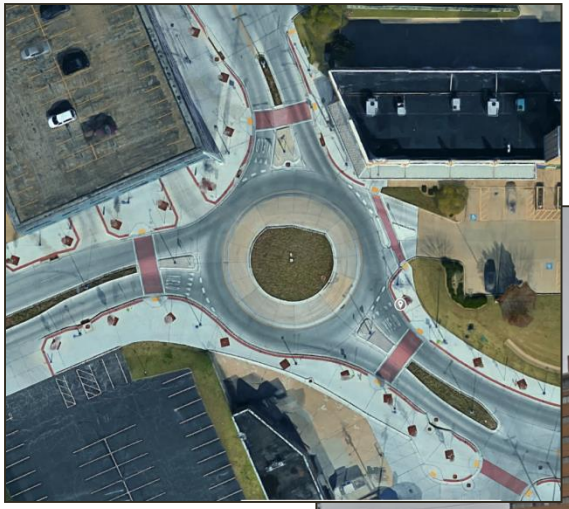
Memorial Rd.
81st St.
Memorial Dr. and 81st St. Collisions - 2015
Left Turn
Rear End
Other
250 ft.

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?