

Crash Analysis Results

	Percent Reduction in Crashes
Total Crashes	46% (+/- 5%)
Injury Crashes - All Types	75% (+/- 5%)
Injury Crashes - High Severity	85% (+/- 7%)
Frontal Impact Crashes	76% (+/- 4%)

Crash reduction factors were determined using a basic before and after analysis with volume increases accounted for using a linear traffic factor. Empirical Bayes methodology was not used in the analysis since many of the roundabouts were installed for a variety of non-safety specific reasons, including operational or traffic calming purposes. The results demonstrate that the roundabout locations generally appear to have had a substantial reduction in the frequency and severity of crashes from the before to the after period.

In addition to our study results, research conducted by multiple agencies has demonstrated that roundabouts may improve the overall safety of intersections. The crash reductions resulting from roundabout installations may be attributed to eliminating or altering conflict types, reducing speed differentials at intersections, and forcing drivers to decrease speeds as they proceed into and through the intersection¹. Roundabouts reduce vehicular crossing conflicts, thus diminishing the opportunity for Frontal Impact crashes to occur. The reduction of conflicts through the physical and geometric features of a roundabout has been shown to be more effective than the separation of conflicts by time, as in a signalized intersection¹.

¹ NCHRP Report 672, Roundabouts: An Informational Guide



Fraternity Church Rd at Hope Church Rd in Forsyth County

North Carolina Department of Transportation
 Transportation Mobility and Safety Division
 Traffic Safety Systems Section
 Safety Evaluation Group

Safety Evaluation of Roundabouts in North Carolina June 2011

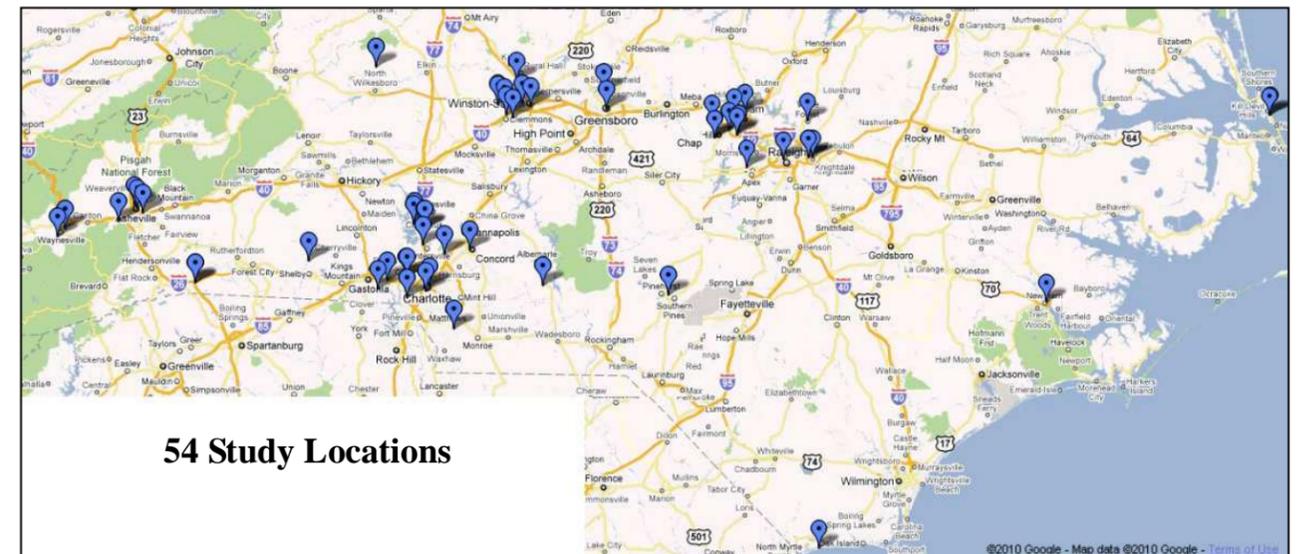
The NCDOT has evaluated the safety effectiveness of installing roundabouts at 54 intersections across the State. The evaluation analyzes crash frequency, severity, and types; examines the relationship between safety and entering volumes and vehicle speeds; and includes examples of signing and marking practices, with a discussion of advisory speed limits. The study includes mostly single lane roundabouts but covers a wide variety of (urban and rural) locations with varying sizes, volumes, and speed limits.

The roundabouts included in the study were installed between 1999 and 2008. Note that the study does not include all roundabouts in North Carolina (the list keeps growing), but it includes those known locations with enough after period crash data available to perform an evaluation.

This brochure briefly summarizes the crash analysis results of the safety evaluation. Included are crash reduction factors and example before and after collision diagrams.

For more information on this project, please view the full project presentation with notes: www.ncdot.org/doh/preconstruct/traffic/safety/reports/data/completed/roundaboutPresNotes.pdf

Location Map: Roundabout Locations for Evaluation



54 Study Locations

