Table of Contents

1. Introduction
2. Selection of Corridors
3. Crash Analysis
4. Study Findings
5. Review of Other Studies
6. Conclusions

Exhibits
Crash Analysis Summary: 5-Lane & 4-Lane Segments
Critical Crashes Breakdown: 5-Lane & 4-Lane Segments
Segment Maps: 5-Lane & 4-Lane Segments
Crash Analysis Summary: 7-Lane & 6-Lane Segments
Critical Crashes Breakdown: 7-Lane & 6-Lane Segments
Segment Maps: 7-Lane & 6-Lane Segments

Charts
5-Lane & 4-Lane Segments
  Min – Max Crash Rates: 5-Lane & 4-Lane Segments
  ADT vs Crash Rate: 5-Lane Segments
  Speed vs Crash Rate: 5-Lane Segments
  Access Density vs Crash Rate: 5-Lane Segments
  ADT vs Crash Rate: 4-Lane Segments
  Speed vs Crash Rate: 4-Lane Segments
  Access Density vs Crash Rate: 4-Lane Segments

7-Lane & 6-Lane Segments
  Min – Max Crash Rates: 7-Lane & 6-Lane Segments
  ADT vs Crash Rate: 7-Lane Segments
  Speed vs Crash Rate: 7-Lane Segments
  Access Density vs Crash Rate: 7-Lane Segments
  ADT vs Crash Rate: 6-Lane Segments
  Speed vs Crash Rate: 6-Lane Segments
  Access Density vs Crash Rate: 6-Lane Segments
Appendix
Crash Maps: 5-Lane & 4-Lane Segments
Crash Maps: 7-Lane & 6-Lane Segments
Section 1

Introduction

The safety of multilane roadways in northeast Illinois including the five Counties of Cook, Lake, Will, DuPage and McHenry is crucial since they carry higher volumes of traffic through busy neighborhoods. The corridors have mixed land use with diverse transportation demands. The safety of these corridors is important to the users and businesses along them that depend on the transportation facility for daily operations. The safe operation of the roadways is critical for the mobility of the people and success of the commercial establishments along the corridors.

The safety of a transportation facility is directly related to the number of conflict points along its length. The type of medians along a roadway affects access and safety. The impact of the median treatment can have a more pronounced impacts on pedestrian and bicyclist safety. In order to evaluate corridors with different median treatments, the Illinois Department of Transportation (IDOT) initiated a study of the crash experience on representative corridors.

A crash analysis was conducted along eighteen (18) corridors in northeast Illinois to evaluate the crash experience along segments within the study area. The crash analysis was conducted for a five-year period from 2009 to 2013 for the comparison of 5-lane with flush median versus 4-lane with barrier median. The analysis was conducted from 2010 to 2014 for the comparison of 7-lane with flush median versus 6-lane with barrier median using data provided by IDOT and the DuPage County Division of Transportation. Some routes were under construction and the years chosen were the most recently available that did not have construction impacts.
Example Comparison of Conflict Points by Median Treatment

11 Conflict Points vs 2 Conflict Points

The purpose of the Median Treatment Study was to determine the effect that a particular median type plays in the crash experience along the selected corridors. This study evaluates the crash trends of two median types along regional roadway segments, specifically analyzing the difference between a flush (or mountable median) and a raised barrier median. The crash experience for pedestrians and bicyclists was an important element of the study. The purpose of the study was to identify trends and patterns in the crashes along multi-lane corridors.

Flush Median

Raised Median

A flush median is provided to allow unrestricted access and remove left-turning vehicles from the through lanes. A raised median provides limited access and provides turn lanes at specific locations along the segment. Examples of two median types are depicted above.
The secondary benefits of barrier median were also reviewed. The other objective of the Study was to compare the results of this crash analysis to other studies that have been conducted on a national level. This will provide a comparison to the analysis that will be provided in this report. In addition, the crash reduction factors from the Highway Safety Manual (HSM) were reviewed for implementing different median types. The purpose of these reviews were to compare the findings of various studies.

It should be noted that the purpose of the study was not to function as a predictive study for influencing decisions on future projects. It was also not the intention to either validate or reject the findings of the HSM.
Selection of Corridors

As seen in Table 1 and Table 2 below, 18 corridors were selected for this safety study. The corridors were grouped into four categories;

- 5-lane roadways with a flush median
- 4-lane roadways with a raised median
- 7-lane roadways with a flush or mountable median
- 6-lane roadways with a raised median

The selected corridors are similar in nature in order to maintain consistency in the crash evaluation process. All 18 corridors are located within the counties of Cook, Will, DuPage, Lake and McHenry in northeast Illinois. All of the selected corridors are classified as Principal Arterial serving as major roadways in predominately suburban areas. None of the selected corridors are access-controlled routes. They contain no interchanges or grade separated intersections within the study limits. The corridors did not include on-street parking. All of the corridors within the study limits had a mix of residential, commercial, retail, and industrial land uses located adjacent to them.
### Table 1. Corridors Analyzed: 5-Lane and 4-Lane

<table>
<thead>
<tr>
<th>Median Type</th>
<th>Route</th>
<th>Limits</th>
<th>Municipality</th>
<th>County</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-Lane Flush</td>
<td>IL Route 59</td>
<td>Hawthorne Ln to Augusta Ave</td>
<td>West Chicago</td>
<td>DuPage</td>
</tr>
<tr>
<td></td>
<td>IL Route 59</td>
<td>Amendodge Dr to Meadow Dr</td>
<td>Shorewood</td>
<td>Will</td>
</tr>
<tr>
<td></td>
<td>US Route 45</td>
<td>IL Route 83 to Allanson Rd</td>
<td>Mundelein</td>
<td>Lake</td>
</tr>
<tr>
<td></td>
<td>IL Route 38</td>
<td>County Farm Rd to IL Route 53</td>
<td>Wheaton, Glen Ellyn</td>
<td>DuPage</td>
</tr>
<tr>
<td></td>
<td>IL Route 38</td>
<td>Finley Rd to Westmore Ave</td>
<td>Lombard</td>
<td>DuPage</td>
</tr>
<tr>
<td></td>
<td>US Route 30</td>
<td>Hennepin Rd to IL Route 7</td>
<td>Crest Hill, Crystal Lawn</td>
<td>Will</td>
</tr>
<tr>
<td></td>
<td>IL Route 120</td>
<td>Ringwood Rd to IL Route 31</td>
<td>McHenry</td>
<td>McHenry</td>
</tr>
</tbody>
</table>

| 4-Lane Barrier| IL Route 47    | Kreutzer Rd to Reed Road      | Huntley            | McHenry  |
|               | US Route 45    | Laramie St to IL Route 120    | Grayslake          | Lake     |
|               | IL Route 59    | Meadow Dr to Renwick Rd       | Shorewood, Plainfield | Will |
|               | IL Route 59    | Joseph Ave to 95th St         | Plainfield         | Will     |
|               | IL Route 59    | Hawthorne Ln to Diversey Pkwy | West Chicago       | DuPage   |
|               | IL Route 59    | Beaconridge Dr to Royce Rd    | Bolingbrook        | Will     |

### Table 2. Corridors Analyzed: 7-Lane and 6-Lane

<table>
<thead>
<tr>
<th>Median Type</th>
<th>Route</th>
<th>Limits</th>
<th>Municipality</th>
<th>County</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-Lane Mountable</td>
<td>IL Route 58</td>
<td>Basswood St to Meacham Rd</td>
<td>Schaumburg</td>
<td>Cook</td>
</tr>
<tr>
<td>7-Lane Flush</td>
<td>US Route 45 &amp; 12</td>
<td>Division St to Armitage Ave</td>
<td>Melrose Park</td>
<td>Cook</td>
</tr>
<tr>
<td></td>
<td>IL Route 50</td>
<td>US Route 12 to 111th St</td>
<td>Oak Lawn</td>
<td>Cook</td>
</tr>
<tr>
<td>6-Lane Barrier</td>
<td>IL Route 59</td>
<td>95th St to Ogden Ave</td>
<td>Naperville</td>
<td>Cook, Will</td>
</tr>
<tr>
<td></td>
<td>Army Trail Rd</td>
<td>Swift Rd to Bloomingdale Rd</td>
<td>Addison, Glendale Heights, Bloomingdale</td>
<td>DuPage</td>
</tr>
<tr>
<td></td>
<td>IL Route 64</td>
<td>Rohlwing Rd to IL Route 83</td>
<td>Lombard, Villa Park, Elmhurst</td>
<td>DuPage</td>
</tr>
</tbody>
</table>

2-2
The 5-lane roadways with a flush median vary in length from 1.42 to 4.65 miles. The ADT along these corridors vary from a low of 18,500 to a high of 38,600 with the minimum change along an individual corridor being 800 and the maximum being 12,600. Speeds along these corridors range from 20 to 45 MPH with the minimum change along an individual corridor being 0 MPH and the maximum being 15 MPH. The number of access points along the corridors range from 52 to 290, excluding signalized intersections. The access density ranges from 36.6 to 65.7 access points per mile. More detailed information on these 5-lane corridors can be found in the Crash Analysis Summary and Segment Maps in Exhibits.

The 4-lane roadways with a raised median vary in length from 1.77 to 5.51 miles. The Average Daily Traffic (ADT) along these corridors vary from a low of 18,200 to a high of 34,200 with the minimum change along an individual corridor being 3,300 and the maximum being 11,700. The ADT’s were obtained from the Illinois Department of Transportation (IDOT) website http://www.gettingaroundillinois.com/. Posted speeds along these corridors range from 30 MPH to 45 MPH with the minimum change along an individual corridor being 0 MPH and the maximum being 15 MPH. The number of access points along the corridors range from 18 to 55, excluding signalized intersections. The access density ranges from 9.6 access points per mile to 23.4 access points per mile. More detailed information on these 4-lane corridors can be found in the Crash Analysis Summary and Segment Maps in Exhibits.

The 7-lane roadways with a flush or mountable median vary in length from 1.06 to 2.52 miles. The ADT along these corridors vary from a low of 32,200 to a high of 38,300 with the minimum change along an individual corridor being 0 and the maximum being 6,100. Speeds along these corridors range from 30 to 40 MPH with the minimum change along an individual corridor being 0 MPH and the maximum being 5 MPH. The number of access points along the corridors range from 36 to 169, excluding signalized intersections. The access density ranges from 34.0 to 71.6 access points per mile. More detailed information on these 7-lane corridors can be found in the Crash Analysis Summary and Segment Maps in Exhibits.

The 6-lane roadways with a raised median vary in length from 1.99 to 3.38 miles. The ADT along these corridors vary from a low of 37,300 to a high of 49,000 with the minimum change along an individual corridor being 800 and the maximum being 10,700. Speeds along these corridors range from 35 to 45 MPH with the minimum change along an individual corridor being 5 MPH and the maximum being 10 MPH. The number of access points along the corridors range from 46 to 129, excluding signalized intersections. The access density ranges from 15.2 to 37.1 access points per mile. More detailed information on these 6-lane corridors can be found in the Crash Analysis Summary and Segment Maps in Exhibits.
Crash Analysis

The crash data was obtained from the Illinois Department of Transportation (IDOT), for a recent five-year period. The data was provided as summary tables in Adobe Acrobat format for signalized intersections within the corridor limits, segments, and total crashes for the corridor. The summary tables were used to extract relevant data for the analysis.

The crash analysis was conducted for roadway segments. A segment is a portion of roadway that is bound by signalized intersections. It was confirmed that these segments exclude the crashes that are related to the signalized intersections, because intersection crashes are more prevalent than segment crashes and would risk skewing the findings of the study. Crashes related to intersections were removed from the data.

The crashes at signalized intersections were analyzed separately and included in the summary table. The variation of crashes at signalized intersections were reviewed for corridors with and without barriers.

In addition to total crashes, the crash data was broken down and analyzed by the type of crash and the severity of the injury. Crash types were separated into five categories:

- Critical
- Read end
- Pedestrian
- Pedal cyclists
- Other (Excluded)

Critical crashes were types associated with a high injury rate including angle, head on, turning left, and turning right crashes. Other crashes were types not typically affected by
median treatment including sideswipes and fixed object crashes. These other crashes were excluded from the study.

The Critical crashes were analyzed separately to understand the difference in patterns between median types for angle, head-on, and turning crashes. The charts are presented in Section 4.

Severity of crashes was broken into five categories:

- Fatal
- Type A
- Type B
- Type C
- Property Damage Only (PDO)

Type A injuries include those where someone associated with the crash is incapacitated. Type B injuries include those where someone associated with the crash is injured but not incapacitated. Type C injuries include those were someone associated with the crash sustains a superficial injury. The number of people killed or injured were not included in the evaluation.

The analysis of the data focused mainly on the crash rates calculated as crashes per year per mile of the corridors. Crash rates were evaluated against similar corridors with a different median type. 5-lane flush median corridors were compared with 4-lane raised median corridors and 7-lane flush (or mountable median) corridors were compared with 6-lane raised median corridors. In addition to this, the crash rates were analyzed against other factors to determine if there is a correlation between the factor and the crash rate:

- ADT
- Posted Speed
- Access Density

The Access Density was calculated by dividing the total access points on both sides of the roadway by the total length of the corridor. Signalized intersections were not counted as access points.
### Table 1. Corridors Analyzed: 5-Lane and 4-Lane

<table>
<thead>
<tr>
<th>Median Type</th>
<th>Route</th>
<th>Limits</th>
<th>ADT</th>
<th>Speed</th>
<th>Access Points</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Low</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>5-Lane Flush</td>
<td>IL Route 59</td>
<td>Hawthorne Ln to Augusta Ave</td>
<td>28100</td>
<td>30100</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>IL Route 59</td>
<td>Amendodge Dr to Meadow Dr</td>
<td>21300</td>
<td>28400</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>US Route 45</td>
<td>IL Route 83 to Allanson Rd</td>
<td>27000</td>
<td>27800</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>IL Route 38</td>
<td>County Farm Rd to IL Route 53</td>
<td>28300</td>
<td>38600</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>IL Route 38</td>
<td>Finley Rd to Westmore Ave</td>
<td>33900</td>
<td>36400</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>US Route 30</td>
<td>Hennepin Rd to IL Route 7</td>
<td>19300</td>
<td>21100</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>IL Route 120</td>
<td>Ringwood Rd to IL Route 31</td>
<td>18500</td>
<td>31100</td>
<td>30</td>
</tr>
<tr>
<td>4-Lane Barrier</td>
<td>IL Route 47</td>
<td>Kreutzer Rd to Reed Road</td>
<td>18200</td>
<td>21500</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>US Route 45</td>
<td>Laramie St to IL Route 120</td>
<td>20700</td>
<td>28500</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>IL Route 59</td>
<td>Meadow Dr to Renwick Rd</td>
<td>24800</td>
<td>28400</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>IL Route 59</td>
<td>Joseph Ave to 95th St</td>
<td>27200</td>
<td>33400</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>IL Route 59</td>
<td>Hawthorne Ln to Diversey Pkwy</td>
<td>30100</td>
<td>34200</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>IL Route 59</td>
<td>Beaconridge Dr to Royce Rd</td>
<td>19900</td>
<td>31600</td>
<td>40</td>
</tr>
</tbody>
</table>

### Table 2. Corridors Analyzed: 7-Lane and 6-Lane

<table>
<thead>
<tr>
<th>Median Type</th>
<th>Route</th>
<th>Limits</th>
<th>ADT</th>
<th>Speed</th>
<th>Access Points</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Low</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>7-Lane Movable</td>
<td>IL Route 58</td>
<td>Basswood St to Meacham Rd</td>
<td>36300</td>
<td>36300</td>
<td>40</td>
</tr>
<tr>
<td>7-Lane Flush</td>
<td>US Route 45 &amp; 12</td>
<td>Division St to Armitage Ave</td>
<td>37800</td>
<td>37800</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>IL Route 50</td>
<td>US Route 12 to 111th St</td>
<td>32200</td>
<td>38300</td>
<td>35</td>
</tr>
<tr>
<td>6-Lane Barrier</td>
<td>IL Route 59</td>
<td>95th St to Ogden Ave</td>
<td>48200</td>
<td>49000</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Army Trail Rd</td>
<td>Swift Rd to Bloomingdale Rd</td>
<td>41000</td>
<td>45600</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>IL Route 64</td>
<td>Rohlwing Rd to IL Route 83</td>
<td>37300</td>
<td>48000</td>
<td>35</td>
</tr>
</tbody>
</table>
The Crash Analysis Summary tables can be found in Exhibits. The location of the crashes were mapped for each corridor. The Crash Maps are included in the Appendix.

The following points should be noted:

- The data we received was sorted to remove any crashes that were classified as intersection crashes. Depending on the reporting officer at the crash scene and how the crash location was entered into the system, some crashes did appear to be located in an intersection but were not classified as such.
- The influence of law enforcement efforts on corridor crashes was not a factor that was evaluated.
- The crash rates did not account for ADT along the corridor. Accurate ADT data would be required to calculate crash rates accounting for ADT.
- Other studies reviewed included extensive statistical analyses compared to this study that did not conduct any statistical analysis.
- For developing the crash maps, the data we received was sorted to remove any crashes that were classified as intersection crashes. Depending on the reporting officer at the crash scene and how the crash location was entered into the system, some crashes did appear to be located in an intersection because were not classified as intersection crashes.
The evaluation of the crash data involved two primary tasks:

I. Review of crash rates
II. Evaluation of crashes at signalized intersections
III. Comparison of crash rates with other factors including ADT, Speed, and Access Density

The detailed evaluation is discussed in this section.

I. Review of Crash Rates

The crash rates were calculated for the following crash types:

a. Total
b. Fatal
c. Type A
d. Type B
e. Type C
f. PDO
g. Critical; to include Angle, Turning and Head-On
h. Rear end
i. Pedestrian
j. Pedal cyclist

The crash rate was calculated as crashes per mile per year.
The total crash rate was calculated for each group of corridors, i.e., 5-Lane, 4-Lane, 7-Lane and 6-Lane segments. The total crash rate was calculated as total crashes for the group divided by total length for the number of year the analysis was conducted. The total crash rates are shown in the tables below.

**Table 1. Total Crash Rate: 5-Lane and 4-Lane**

<table>
<thead>
<tr>
<th>Severity</th>
<th>5-Lane Flush</th>
<th>4-Lane Barrier</th>
<th>Rate Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatal</td>
<td>0.10</td>
<td>0.03</td>
<td>69%</td>
</tr>
<tr>
<td>Type A</td>
<td>1.15</td>
<td>0.33</td>
<td>71%</td>
</tr>
<tr>
<td>Type B</td>
<td>3.28</td>
<td>0.96</td>
<td>71%</td>
</tr>
<tr>
<td>Type C</td>
<td>3.64</td>
<td>1.02</td>
<td>72%</td>
</tr>
<tr>
<td>PDO</td>
<td>25.52</td>
<td>6.81</td>
<td>73%</td>
</tr>
</tbody>
</table>

**Table 2. Total Crash Rate: 7-Lane and 6-Lane**

<table>
<thead>
<tr>
<th>Severity</th>
<th>7-Lane Flush</th>
<th>6-Lane Barrier</th>
<th>Rate Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatal</td>
<td>0.18</td>
<td>0.00</td>
<td>100%</td>
</tr>
<tr>
<td>Type A</td>
<td>0.83</td>
<td>0.67</td>
<td>20%</td>
</tr>
<tr>
<td>Type B</td>
<td>3.40</td>
<td>1.41</td>
<td>58%</td>
</tr>
<tr>
<td>Type C</td>
<td>5.66</td>
<td>2.79</td>
<td>51%</td>
</tr>
<tr>
<td>PDO</td>
<td>31.43</td>
<td>23.75</td>
<td>24%</td>
</tr>
</tbody>
</table>

The total crash rates were also represented in charts shown below. In addition to the total crash rates, the minimum and maximum crash rates were also represented in charts for individual segments in each group. These charts for the minimum and maximum crash rates are included in the Charts section of this report. The segments with barrier median had lower crash rates for all crash types.
Charts. Total Crash Rate: 5-Lane Flush vs 4-Lane Barrier Segments

**Total Crash Rate (Crashes/mile/year)**

- **Overall Crash Rates**
  - 4-LANE BARRIER VS 5-LANE FLUSH

**Crash Rates**

- **Legend**
  - 4-LANE BARRIER
  - 5-LANE FLUSH

**Crash Severity**

- **Legend**
  - 4-LANE BARRIER
  - 5-LANE FLUSH
Charts. Total Crash Rate: 7-Lane Flush vs 6-Lane Barrier Segments
The crash types of Angle, Turning and Head-On included in the category of ‘Critical’ were analyzed separately to understand patterns. The left and right turning crashes were reviewed. For this evaluation, percentage of the types of crashes in the Critical category were calculated and compared. The percentages of crashes with and without barrier median were compared for the segments. The following observations can be made:

- With barrier median, the **percentage** of crashes by type change consistently for the 5 and 4-lane and 7 and 6-lane segments.
- With barrier median, the **percentage** of angle crashes increased, left turn crashes reduced, the right turn crashes stay the same and surprisingly the head-on crash percentage is higher.

This evaluation is included in Exhibits under Critical Crashes Breakdown for both 5 and 4-lane and 7 and 6-lane segments.

II. Evaluation of Crashes at Signalized Intersections

The effect of barrier type along segments on the crashes at signalized intersections was reviewed. The crashes at the signalized intersections were evaluated to see if the crashes were higher at signalized intersections when a barrier was located. The data was reviewed in several ways. The following observations can be made:

- There is not a clear trend with the crashes at signalized intersections.
- We cannot conclude that when a barrier median is present along a segment, the signalized intersection crashes increase.
- The sample size is small for any clear conclusion.

This evaluation is included in the Crash Analysis Summary in Exhibits.

III. Comparison of Crash Rates with other Factors

The maximum crash rates for individual segments were compared with the following factors:

- a. ADT
- b. Speed, Posted
- c. Access Density

The maximum crash rate for individual segments were compared with the factors for each group of corridors, i.e., 5-Lane, 4-Lane, 7-Lane and 6-Lane segments. These charts are included in the Charts section of this report.

Overall the correlation with ADT and Speed was not as significant. However, higher crash rates were associated with higher access density.
Section 5

Review of Other Studies

In order to compare the observations of this study, a review of similar studies was completed. Three (3) studies were chosen for analysis based on similar scope and purpose. In addition to these studies, a review of the Highway Safety Manual (HSM) was undertaken which revealed two crash modification factors (CMF) that are relevant to this study.

Review of HSM

Section 13.4.2.6 of the HSM provides CMF’s for the addition of a raised median to a cross section that previously had a Two-Way Left Turn Lane (TWLTL) or was undivided. This base condition has a CMF of 1.0. Introducing a raised median to an urban roadway segment reduces injury related crashes (CMF = 0.78) while slightly increasing PDO crashes (CMF = 1.09). Introducing a raised median to a rural roadway segment reduces injury related crashes (CMF = 0.88) and PDO crashes (CMF = 0.82).

Review of Similar Studies

The first study chosen for review was conducted by the Georgia Department of Transportation (GaDOT). Data points were collected for 986 TWLTL sections and 1,125 raised median sections. The authors of this study analyzed two sets of data, one containing all crashes (including intersection related crashes) and one containing only mid-block crashes, similar to this study. Crash rates for both TWLTL and raised median segments were reported per 100 million vehicle-miles of travel. The study found a 45% reduction in crash rate, a 48% reduction in injury rate, and a 26% reduction in fatality rate when a raised median was present in the cross section. Pedestrian fatality rates were calculated per 100 miles of roadway. A 71%
A reduction in pedestrian fatalities was observed when a raised median was present in the cross section.

The second study chosen for review was conducted by GaDOT in conjunction with the Georgia Institute of Technology. Data points in this study were reduced by setting a minimum ADT for segments at 9,500. In total, 20 TWLTL sites and 19 raised median sites were analyzed. The authors of the study analyzed two sets of data, one containing all crashes (including intersection related crashes) and one containing only mid-block crashes, similar to this study. This review will focus on the latter. Crash rates were reported per million vehicle miles traveled as well as accidents per mile per year. The study found a 61.7% reduction in crash rate, a 60.5% reduction in injury rate, and a 0% reduction in fatality rate on 4-lane sections when a raised median was present in the cross section. The authors found a 54.2% reduction in crash rate, a 60.6% reduction in injury rate, and a 50% reduction in fatality rate on a 6-lane section when a raised median was present in the cross section.

The third study chosen for review was conducted by the University of Nevada, Las Vegas. Data points were collected for 319 midblock segments along 25 roads. All of these roads were 6 and 7 lane sections as there were no 4 and 5 lane sections available in the area. The author of the study analyzed a single set of data (mid-block collisions) using two separate regression models, one that included information such as the width and spacing of mid-block openings and one that focused only on the type of median and the physical characteristics of the segments, which is similar to this study. The study found a 31.5% reduction in the total crash rate and a 23.7% reduction in injury rate when a raised median was present in the cross section.

<table>
<thead>
<tr>
<th>Reduction in Crash Rates</th>
<th>Study 1</th>
<th>Study 2</th>
<th>Study 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Combined Results for All Sections</td>
<td>Results for 4/5 Lane Sections</td>
<td>Results for 6/7 Lane Sections</td>
</tr>
<tr>
<td>Total</td>
<td>45.0%</td>
<td>61.7%</td>
<td>54.2%</td>
</tr>
<tr>
<td>Injury</td>
<td>48.0%</td>
<td>60.5%</td>
<td>60.6%</td>
</tr>
<tr>
<td>Fatality</td>
<td>26.0%</td>
<td>0.0%</td>
<td>50.0%</td>
</tr>
</tbody>
</table>

Table 1. Summary of Literature Review
The evaluation of the crash data shows that in northeastern Illinois the corridors with a barrier median have lower crash rates. The following conclusions can be drawn from the study:

- There are safety benefits from reducing conflict points along a corridor.
- The overall crash rates were lower for corridors with barrier median.
- The crash rates for most crash types were lower for corridors with barrier median.
- The crash rates by severity were lower for corridors with barrier median.
- Higher reduction in crash rates was observed in critical crash types including angle, turning and head-on crashes.
- The reduction in crash rates for the 5-lane vs 4-lane comparison were consistent for various crash types and by severity.
- The reduction in crash rates for the 7-lane vs 6-lane comparison were lower and less consistent for various crash types and by severity.
- The reduction in crash rates for pedestrian and pedal cyclist crashes was the highest for the 5-lane vs 4-lane comparison and the 7-lane vs 6-lane comparison.
- No correlation between crashes and speed or crashes and ADT was found. There is some correlation between crashes and access density. Higher crash rates were observed as access density increased.
- The 6-lane corridors with barrier median had higher crash rates that can be attributed to higher ADT’s.
- There are other benefits of barrier median that improve the attractiveness of the corridor. The barrier median provides a refuge for pedestrians. A landscaped median can also have a traffic calming effect on the segment. A safer corridor it more attractive to all users and businesses.
In an environment where drivers are more distracted and inattentive, a more defined and structured roadway provided by barrier medians is desirable.

We cannot conclude that when a barrier median is present along a segment, the signalized intersection crashes increase. The sample size is small for any clear conclusion related to the crashes at signalized intersections.

The findings of this study are mostly consistent with other studies conducted.
Exhibits

Crash Summary Tables
Segment Maps
5 - Lane vs 4 - Lane Segments
## Crash Analysis Summary: 5-Lane vs 4-Lane Segments

<table>
<thead>
<tr>
<th>Median Type</th>
<th>Route</th>
<th>Limits</th>
<th>ADT</th>
<th>Speed</th>
<th>Land Use</th>
<th>Municipality</th>
<th>County</th>
<th>Points</th>
<th>Median Type</th>
<th>Route Limits</th>
<th>ADT</th>
<th>Speed</th>
<th>Shared-Use Path</th>
<th>Coverage/Buffer</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-Lane Flush</td>
<td>IL Route 59</td>
<td>Augusta Ave to Hawthorne Ln</td>
<td>West Chicago</td>
<td>DuPage</td>
<td>Principal Arterial</td>
<td>28100</td>
<td>80100</td>
<td>35</td>
<td>45</td>
<td>Residential</td>
<td>121</td>
<td>51.1</td>
<td>Y</td>
<td>W, P</td>
<td>P</td>
</tr>
<tr>
<td>5-Lane Flush</td>
<td>IL Route 59</td>
<td>Amendidge Dr to Meadow Dr</td>
<td>Shorewood</td>
<td>Will</td>
<td>Principal Arterial</td>
<td>21300</td>
<td>28400</td>
<td>35</td>
<td>45</td>
<td>Residential</td>
<td>52</td>
<td>36.6</td>
<td>Y</td>
<td>W, P, N</td>
<td>E, P</td>
</tr>
<tr>
<td>5-Lane Barrier</td>
<td>US Route 45</td>
<td>E, Route 63 to Alton Rd</td>
<td>Mundelein</td>
<td>Lake</td>
<td>Principal Arterial</td>
<td>27000</td>
<td>27800</td>
<td>30</td>
<td>35</td>
<td>Commercial/Ret</td>
<td>73</td>
<td>49.7</td>
<td>Y</td>
<td>W, P</td>
<td>P</td>
</tr>
<tr>
<td>5-Lane Flush</td>
<td>IL Route 38</td>
<td>County Farm Rd to IL Route 53</td>
<td>Wheaton, Glen Ellyn</td>
<td>DuPage</td>
<td>Principal Arterial</td>
<td>28300</td>
<td>48800</td>
<td>30</td>
<td>35</td>
<td>Residential</td>
<td>290</td>
<td>62.4</td>
<td>Y</td>
<td>N, P</td>
<td>S</td>
</tr>
<tr>
<td>5-Lane Barrier</td>
<td>IL Route 38</td>
<td>Finley Rd to Meadow Ave</td>
<td>Lombard</td>
<td>DuPage</td>
<td>Principal Arterial</td>
<td>33900</td>
<td>46400</td>
<td>35</td>
<td>45</td>
<td>Commercial/Ret</td>
<td>92</td>
<td>52.0</td>
<td>Y</td>
<td>N, P</td>
<td>S, F</td>
</tr>
<tr>
<td>5-Lane Barrier</td>
<td>US Route 31</td>
<td>Herrin Rd to IL Route 7</td>
<td>Crest Hill, Crystal Lakes</td>
<td>Will</td>
<td>Principal Arterial</td>
<td>19300</td>
<td>21100</td>
<td>35</td>
<td>45</td>
<td>Commercial/Ret</td>
<td>147</td>
<td>61.5</td>
<td>Y</td>
<td>N, P</td>
<td>S</td>
</tr>
<tr>
<td>5-Lane Barrier</td>
<td>IL Route 120</td>
<td>Ringrose Rd to IL Route 31</td>
<td>McHenry</td>
<td>McHenry</td>
<td>Principal Arterial</td>
<td>185100</td>
<td>31100</td>
<td>35</td>
<td>45</td>
<td>Commercial/Ret</td>
<td>138</td>
<td>65.7</td>
<td>Y</td>
<td>P</td>
<td>S, P</td>
</tr>
<tr>
<td>4-Lane Barrier</td>
<td>US Route 45</td>
<td>Laramie St to IL Route 120</td>
<td>McHenry</td>
<td>Will</td>
<td>Principal Arterial</td>
<td>20700</td>
<td>28500</td>
<td>30</td>
<td>45</td>
<td>Industrial</td>
<td>41</td>
<td>9.6</td>
<td>Y</td>
<td>W, P</td>
<td>P</td>
</tr>
<tr>
<td>4-Lane Barrier</td>
<td>IL Route 59</td>
<td>Meadow Dr to Renwick Rd</td>
<td>Shorewood, Plainfield</td>
<td>Will</td>
<td>Principal Arterial</td>
<td>24800</td>
<td>28400</td>
<td>30</td>
<td>45</td>
<td>Commercial/Ret</td>
<td>49</td>
<td>11.4</td>
<td>Y</td>
<td>W, P</td>
<td>P</td>
</tr>
<tr>
<td>4-Lane Barrier</td>
<td>IL Route 38</td>
<td>Joseph Ave to 5th St</td>
<td>Plainfield</td>
<td>Will</td>
<td>Principal Arterial</td>
<td>27200</td>
<td>33400</td>
<td>45</td>
<td>45</td>
<td>Commercial/Ret</td>
<td>85</td>
<td>10.0</td>
<td>Y</td>
<td>W, P</td>
<td>P</td>
</tr>
<tr>
<td>4-Lane Barrier</td>
<td>IL Route 47</td>
<td>Finley Rd to Westmore Ave</td>
<td>Wheaton</td>
<td>DuPage</td>
<td>Principal Arterial</td>
<td>30100</td>
<td>34200</td>
<td>35</td>
<td>45</td>
<td>Commercial/Ret</td>
<td>18</td>
<td>10.2</td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>4-Lane Barrier</td>
<td>US Route 30</td>
<td>5-Lane Flush</td>
<td>Crest Hill, Crystal Lakes</td>
<td>Will</td>
<td>Principal Arterial</td>
<td>19300</td>
<td>21100</td>
<td>35</td>
<td>45</td>
<td>Commercial/Ret</td>
<td>44</td>
<td>23.4</td>
<td>Y</td>
<td>W, P</td>
<td>P</td>
</tr>
<tr>
<td>4-Lane Barrier</td>
<td>US Route 120</td>
<td>Ringrose Rd to IL Route 31</td>
<td>McHenry</td>
<td>McHenry</td>
<td>Principal Arterial</td>
<td>185100</td>
<td>31100</td>
<td>35</td>
<td>45</td>
<td>Commercial/Ret</td>
<td>138</td>
<td>65.7</td>
<td>Y</td>
<td>P</td>
<td>S, P</td>
</tr>
</tbody>
</table>

### Notes:
- **Access Density** - Access Points/Mile
- **Crash Rate** - Angle, Turning and Head On
- **Secondary Crashes** - Rear End

### Access Points
- **Median Type**: Residential
- **Type Route Limits**: Municipal/Municipal
- **County**: 60
- **ADT**: Low High Long High
- **Speed**: Predominant Land Use Sidewalk
- **Shared-Use Path**: Coverage/Buffer
- **Coverage/Buffer**: Y W, P, P; E, P, P

### Segments Data
- **Data Years**: 2009-2013
- **Segments Total**: Fatal A B C PDO Critical Rear End
- **Rate**: Crashes Rate
- **Crashes**: Crashed Rate
- **PDO**: Critical Rate
- **Rear End**: Crashes Rate
- **Crashes**: Crashed Rate
- **Intersect. Total**: Intersections
- **Crash/Intersection**: Intersect. Total

### Crash Reduction
- **Types / Miles / Years**: Segment Total
- **Fatal A B C PDO**: Fatal A B C
- **Crashes / mile / year**: 5-Lane Flush Crash Rate 4-Lane Barrier Crash Rate
- **Crash Reduction**: 72% 9.15 0.03 0.32 0.99 1.02 6.81 2.13 4.61 0.06 0.01 25.71 50.05
- **5-Lane Flush Crash Rate**: 32.81 0.10 1.15 3.28 6.34 25.52 10.44 16.41 0.40 0.31 25.02 49.93
- **4-Lane Barrier Crash Rate**: 9.15 0.03 0.32 0.99 1.02 6.81 2.13 4.61 0.06 0.01 25.71 50.05
- **Crash Reduction**: 72% 9.15 0.03 0.32 0.99 1.02 6.81 2.13 4.61 0.06 0.01 25.71 50.05
- **5-Lane Flush Crash Rate**: 32.81 0.10 1.15 3.28 6.34 25.52 10.44 16.41 0.40 0.31 25.02 49.93
- **4-Lane Barrier Crash Rate**: 9.15 0.03 0.32 0.99 1.02 6.81 2.13 4.61 0.06 0.01 25.71 50.05
- **Crash Reduction**: 72% 9.15 0.03 0.32 0.99 1.02 6.81 2.13 4.61 0.06 0.01 25.71 50.05
<table>
<thead>
<tr>
<th>5 Lane vs 4 Lane Critical Crash Breakdown</th>
<th>5 Lane Flush</th>
<th>4 Lane Barrier</th>
<th>5 Lane vs 4 Lane Critical Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lane Layout</strong></td>
<td>IL Route 59 - Augusta Ave to Hawthorn Ln</td>
<td>IL Route 59 - Amendode Dr to Meadow Dr</td>
<td>US Route 45 - IL Route 83 to Allanson Rd</td>
</tr>
<tr>
<td>Angle Left</td>
<td>RT</td>
<td>Head-On</td>
<td>Total</td>
</tr>
<tr>
<td>2009</td>
<td>2</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>2010</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>2011</td>
<td>5</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2012</td>
<td>3</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>2013</td>
<td>3</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>5 Lane vs 4 Lane Critical Crashes</strong></th>
<th>5 Lane Flush</th>
<th>4 Lane Barrier</th>
<th>5 Lane vs 4 Lane Critical Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angle Left</td>
<td>Right</td>
<td>Head-On</td>
<td>Total</td>
</tr>
<tr>
<td>2009</td>
<td>100</td>
<td>62</td>
<td>21</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>5 Lane vs 4 Lane Critical Crashes</strong></th>
<th>5 Lane Flush</th>
<th>4 Lane Barrier</th>
<th>5 Lane vs 4 Lane Critical Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angle Left</td>
<td>Right</td>
<td>Head-On</td>
<td>Total</td>
</tr>
<tr>
<td>2009</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2011</td>
<td>6</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>2012</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2013</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>5 Lane vs 4 Lane Critical Crashes</strong></th>
<th>5 Lane Flush</th>
<th>4 Lane Barrier</th>
<th>5 Lane vs 4 Lane Critical Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angle Left</td>
<td>Right</td>
<td>Head-On</td>
<td>Total</td>
</tr>
<tr>
<td>2009</td>
<td>129</td>
<td>47</td>
<td>26</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>5 Lane vs 4 Lane Critical Crashes</strong></th>
<th>5 Lane Flush</th>
<th>4 Lane Barrier</th>
<th>5 Lane vs 4 Lane Critical Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angle</td>
<td>Left</td>
<td>Right</td>
<td>Head-On</td>
</tr>
<tr>
<td>5 Lane Flush</td>
<td>IL Route 59 - Augusta Ave to Hawthorn Ln, IL Route 59 - Amendode Dr to Meadow Dr, US Route 45 - IL Route 83 to Allanson Rd, IL Route 120 - Ringwood Rd to IL Route 31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Lane Barrier</td>
<td>IL Route 47 - Kreutzer Rd to Reed Rd, US Route 45 - Laramie St to IL Route 120, IL Route 59 - Meadow Dr to Renwick Rd, IL Route 59 - Joseph Ave to 95th St</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Lane vs 4 Lane Critical Breakdown</td>
<td>5 Lane Flush</td>
<td>4 Lane Barrier</td>
<td>5 Lane vs 4 Lane Critical Crashes</td>
</tr>
</tbody>
</table>
5 - Lane
Flush Median
SEGMENT LENGTH: 1.42 MILES

EAST ACCESS POINTS: 23
WEST ACCESS POINTS: 29

21,300
ARTERIAL

28,400
ARTERIAL

LEGEND
POSTED SPEED LIMIT
TRAFFIC CONTROL
BUS STOP
ADT AND CLASSIFICATION
FATALITY LOCATION
ACCESS POINT

IL ROUTE 59 – AMENDODGE DRIVE TO MEADOW DRIVE
5 LANE FLUSH MEDIAN
SEGMENT LENGTH: 1.47 MILES

EAST ACCESS POINTS: 34
WEST ACCESS POINTS: 39

LEGEND

- Posted Speed Limit
- Traffic Control
- Bus Stop
- ADT and Classification
- Fatality Location
- Access Point

US ROUTE 45 – IL ROUTE 83 TO ALLANSON ROAD
5 LANE FLUSH MEDIAN
SEGMENT LENGTH: 4.65 MILES

NORTH ACCESS POINTS: 155
SOUTH ACCESS POINTS: 135

LEGEND
- POSTED SPEED LIMIT
- TRAFFIC CONTROL
- BUS STOP
- ADT AND CLASSIFICATION
- FATALITY LOCATION
- ACCESS POINT

IL ROUTE 38 – COUNTY FARM ROAD TO IL ROUTE 53
5 LANE FLUSH MEDIAN
SEGMENT LENGTH: 1.77 MILES

NORTH ACCESS POINTS: 51    SOUTH ACCESS POINTS: 41

LEGEND

POSTED SPEED LIMIT
TRAFFIC CONTROL
BUS STOP
ADT AND CLASSIFICATION
FATALITY LOCATION
ACCESS POINT

36,400
AR TERI AL

33,900
AR TERI AL

IL ROUTE 38 – FINLEY ROAD TO WESTMORE AVENUE
5 LANE FLUSH MEDIAN
4 - Lane

Barrier Median
SEGMENT LENGTH: 4.29 MILES
EAST ACCESS POINTS: 24  WEST ACCESS POINTS: 17

US ROUTE 45 – LARAMIE STREET TO IL ROUTE 120
4 LANE BARRIER MEDIAN
SEGMENT LENGTH: 4.29 MILES

EAST ACCESS POINTS: 24  WEST ACCESS POINTS: 17

SEGMENT LENGTH: 4.29 MILES

EAST ACCESS POINTS: 24  WEST ACCESS POINTS: 17

LEGEND

POSTED SPEED LIMIT
TRAFFIC CONTROL
BUS STOP
ADT AND CLASSIFICATION
FATALITY LOCATION
ACCESS POINT

US ROUTE 45 – LARAMIE STREET TO IL ROUTE 120
4 LANE BARRIER MEDIAN
SEGMENT LENGTH: 4.29 MILES

LEGEND

POSTED SPEED LIMIT
TRAFFIC CONTROL
BUS STOP
ADT AND CLASSIFICATION
FATALLY LOCATION
ACCESS POINT
INDUSTRIAL

MARTINEZ D.

APERTUAL

COMMERCIAL/RETAIL

US ROUTE 45 – LARAMIE STREET TO IL ROUTE 120
4 LANE BARRIER MEDIAN
SEGMENT LENGTH: 4.28 MILES

EAST ACCESS POINTS: 22
WEST ACCESS POINTS: 27

IL ROUTE 59 – MEADOW DRIVE TO RENWICK ROAD
4 LANE BARRIER MEDIAN
SEGMENT LENGTH: 4.28 MILES

LEGEND

POSTED SPEED LIMIT
TRAFFIC CONTROL
BUS STOP
ADT AND CLASSIFICATION
FATALITY LOCATION
ACCESS POINT

RESIDENTIAL

MATCHLINE D

25,000

ARTERIAL
COMMERCIAL/RETAIL

END STUDY SEGMENT

EAST ACCESS POINTS: 22
WEST ACCESS POINTS: 27

IL ROUTE 59 – MEADOW DRIVE TO RENWICK ROAD
4 LANE BARRIER MEDIAN
SEGMENT LENGTH: 5.51 MILES

EAST ACCESS POINTS: 17
WEST ACCESS POINTS: 37

LEGEND

POSTED SPEED LIMIT
TRAFFIC CONTROL
BUS STOP
ADT AND CLASSIFICATION
FATALITY LOCATION
ACCESS POINT

31,800
ARTERIAL

27,400
ARTERIAL

IL ROUTE 59 – JOSEPH AVENUE TO 95TH STREET
4 LANE BARRIER MEDIAN
SEGMENT LENGTH: 5.51 MILES

EAST ACCESS POINTS: 17
WEST ACCESS POINTS: 37

IL ROUTE 59 – JOSEPH AVENUE TO 95TH STREET
4 LANE BARRIER MEDIAN
SEGMENT LENGTH: 5.51 MILES

EAST ACCESS POINTS: 17
WEST ACCESS POINTS: 37

ARTERIAL
33,400

LEGEND
POSTED SPEED LIMIT
TRAFFIC CONTROL
BUS STOP
ADT AND CLASSIFICATION
FATALITY LOCATION
ACCESS POINT

RESIDENTIAL
COMMERCIAL/RETAIL

END STUDY SEGMENT

IL ROUTE 59 – JOSEPH AVENUE TO 95TH STREET
4 LANE BARRIER MEDIAN
SEGMENT LENGTH: 1.89 MILES

EAST ACCESS POINTS: 20
WEST ACCESS POINTS: 24

IL ROUTE 53 – BEACONRIDGE DRIVE TO ROYCE ROAD
4 LANE BARRIER MEDIAN
7 - Lane
vs
6 - Lane
Segments
## Crash Analysis Summary: 7-Lane vs 6-Lane Segments

### 7-Lane vs 6-Lane Crash Analysis

<table>
<thead>
<tr>
<th>Route</th>
<th>Length</th>
<th>Data Years</th>
<th>Segment Total</th>
<th>Fatal</th>
<th>PedL</th>
<th>PedR</th>
<th>Rear End</th>
<th>Critical</th>
<th>PDO</th>
<th>Ped</th>
<th>Pole</th>
<th>Ped/P</th>
<th>Total Interaction Crashes / mile / year</th>
<th>Total Reduction % of Intersections</th>
</tr>
</thead>
<tbody>
<tr>
<td>IL Route 58</td>
<td>Beechwood St to Meacham Rd</td>
<td>2010-2014</td>
<td>193</td>
<td>40.4</td>
<td>1</td>
<td>0.18</td>
<td>2</td>
<td>0.30</td>
<td>17</td>
<td>3.21</td>
<td>43</td>
<td>8.11</td>
<td>119</td>
<td>22.45</td>
</tr>
<tr>
<td>US Route 50</td>
<td>Division St to Ambridge Ave</td>
<td>2010-2014</td>
<td>178</td>
<td>14.1</td>
<td>1</td>
<td>0.08</td>
<td>5</td>
<td>0.40</td>
<td>14</td>
<td>1.11</td>
<td>51</td>
<td>6.97</td>
<td>147</td>
<td>11.67</td>
</tr>
<tr>
<td>IL Route 64</td>
<td>111TH St to US Route 12</td>
<td>2010-2014</td>
<td>306</td>
<td>30.4</td>
<td>1</td>
<td>0.10</td>
<td>7</td>
<td>0.70</td>
<td>26</td>
<td>2.59</td>
<td>41</td>
<td>6.08</td>
<td>229</td>
<td>22.79</td>
</tr>
<tr>
<td>IL Route 59</td>
<td>95TH St to Ogden Ave</td>
<td>2010-2014</td>
<td>233</td>
<td>14.8</td>
<td>0</td>
<td>0.00</td>
<td>3</td>
<td>0.20</td>
<td>7</td>
<td>0.46</td>
<td>29</td>
<td>1.92</td>
<td>184</td>
<td>12.19</td>
</tr>
<tr>
<td>Army Trail Rd</td>
<td>Bloomingdale Rd to Swift Rd</td>
<td>2010-2014</td>
<td>136</td>
<td>12.8</td>
<td>0</td>
<td>0.00</td>
<td>4</td>
<td>0.40</td>
<td>13</td>
<td>1.31</td>
<td>17</td>
<td>1.71</td>
<td>90</td>
<td>0.55</td>
</tr>
<tr>
<td>S. Route 64</td>
<td>Rohlwing Rd to IL Route 83</td>
<td>2010-2014</td>
<td>317</td>
<td>21.7</td>
<td>0</td>
<td>0.00</td>
<td>15</td>
<td>0.87</td>
<td>16</td>
<td>0.96</td>
<td>25</td>
<td>1.64</td>
<td>126</td>
<td>19.74</td>
</tr>
</tbody>
</table>

### Notes:
- **Access Density** - Access Points/Length
- **Crash Rate** - Crashes/Yr/Mile
- **Critical Crashes** - Angle, Turning and Head On
- **Secondary Crashes** - Rear End

## Median Type

<table>
<thead>
<tr>
<th>Route</th>
<th>Length (Miles)</th>
<th>Data Years</th>
<th>Segment Total</th>
<th>Fatal</th>
<th>PedL</th>
<th>PedR</th>
<th>Rear End</th>
<th>Critical</th>
<th>PDO</th>
<th>Ped</th>
<th>Pole</th>
<th>Ped/P</th>
</tr>
</thead>
<tbody>
<tr>
<td>IL Route 58</td>
<td>Beechwood St to Meacham Rd</td>
<td>2010-2014</td>
<td>193</td>
<td>40.4</td>
<td>1</td>
<td>0.18</td>
<td>2</td>
<td>0.30</td>
<td>17</td>
<td>3.21</td>
<td>43</td>
<td>8.11</td>
</tr>
<tr>
<td>US Route 50</td>
<td>Division St to Ambridge Ave</td>
<td>2010-2014</td>
<td>178</td>
<td>14.1</td>
<td>1</td>
<td>0.08</td>
<td>5</td>
<td>0.40</td>
<td>14</td>
<td>1.11</td>
<td>51</td>
<td>6.97</td>
</tr>
<tr>
<td>IL Route 64</td>
<td>111TH St to US Route 12</td>
<td>2010-2014</td>
<td>306</td>
<td>30.4</td>
<td>1</td>
<td>0.10</td>
<td>7</td>
<td>0.70</td>
<td>26</td>
<td>2.59</td>
<td>41</td>
<td>6.08</td>
</tr>
<tr>
<td>IL Route 59</td>
<td>95TH St to Ogden Ave</td>
<td>2010-2014</td>
<td>233</td>
<td>14.8</td>
<td>0</td>
<td>0.00</td>
<td>3</td>
<td>0.20</td>
<td>7</td>
<td>0.46</td>
<td>29</td>
<td>1.92</td>
</tr>
<tr>
<td>Army Trail Rd</td>
<td>Bloomingdale Rd to Swift Rd</td>
<td>2010-2014</td>
<td>136</td>
<td>12.8</td>
<td>0</td>
<td>0.00</td>
<td>4</td>
<td>0.40</td>
<td>13</td>
<td>1.31</td>
<td>17</td>
<td>1.71</td>
</tr>
<tr>
<td>S. Route 64</td>
<td>Rohlwing Rd to IL Route 83</td>
<td>2010-2014</td>
<td>317</td>
<td>21.7</td>
<td>0</td>
<td>0.00</td>
<td>15</td>
<td>0.87</td>
<td>16</td>
<td>0.96</td>
<td>25</td>
<td>1.64</td>
</tr>
</tbody>
</table>

### Crash Types

#### 7-Lane Flush
- **Crash Rate**: 24.22
- **Fatal Crashes**: 0.11
- **Pedestrian Crashes**: 0.50
- **Pedestrian Crashes**: 2.04
- **Critical Crashes**: 4.04
- **PDO Crashes**: 18.86
- **Rear End Crashes**: 7.08
- **Pole Crashes**: 0.47
- **Ped/Pole Crashes**: 0.21

#### 6-Lane Barrier
- **Crash Rate**: 17.17
- **Fatal Crashes**: 0.30
- **Pedestrian Crashes**: 0.40
- **Pedestrian Crashes**: 0.85
- **Pedestrian Crashes**: 1.67
- **Critical Crashes**: 4.25
- **PDO Crashes**: 2.61
- **Rear End Crashes**: 9.89
- **Pole Crashes**: 0.32
- **Ped/Pole Crashes**: 0.07

### Crash Reduction
- 29%
- 100%
- 20%
- 50%
- 51%
- 24%
- 82%
- 0%
- 50%
- 67%
- 10%

### Notes
- **Access Density** - Access Points/Length
- **Crash Rate** - Crashes/Yr/Mile
- **Critical Crashes** - Angle, Turning and Head On
- **Secondary Crashes** - Rear End

### Coverage
- **Full/Partial Intersect**
- **Buffer** - Yes/No/Partial

### Side of Roadway
- **N/E/S/W Coverage** - Full/Partial

### Summary Table

<table>
<thead>
<tr>
<th>Route</th>
<th>Length (Miles)</th>
<th>Data Years</th>
<th>Segment Total</th>
<th>Fatal</th>
<th>PedL</th>
<th>PedR</th>
<th>Rear End</th>
<th>Critical</th>
<th>PDO</th>
<th>Ped</th>
<th>Pole</th>
<th>Ped/P</th>
</tr>
</thead>
<tbody>
<tr>
<td>IL Route 58</td>
<td>Beechwood St to Meacham Rd</td>
<td>2010-2014</td>
<td>193</td>
<td>40.4</td>
<td>1</td>
<td>0.18</td>
<td>2</td>
<td>0.30</td>
<td>17</td>
<td>3.21</td>
<td>43</td>
<td>8.11</td>
</tr>
<tr>
<td>US Route 50</td>
<td>Division St to Ambridge Ave</td>
<td>2010-2014</td>
<td>178</td>
<td>14.1</td>
<td>1</td>
<td>0.08</td>
<td>5</td>
<td>0.40</td>
<td>14</td>
<td>1.11</td>
<td>51</td>
<td>6.97</td>
</tr>
<tr>
<td>IL Route 64</td>
<td>111TH St to US Route 12</td>
<td>2010-2014</td>
<td>306</td>
<td>30.4</td>
<td>1</td>
<td>0.10</td>
<td>7</td>
<td>0.70</td>
<td>26</td>
<td>2.59</td>
<td>41</td>
<td>6.08</td>
</tr>
</tbody>
</table>
### 7 Lane vs 6 Lane Critical Crash Breakdown

#### US Route 45 & 12 - Division St to Armitage Ave

<table>
<thead>
<tr>
<th>Year</th>
<th>Angle Left</th>
<th>Right</th>
<th>Head-On</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>4</td>
<td>3</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>2011</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2012</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2013</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2014</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

#### IL Route 58 - Basswood St to Meacham Rd

<table>
<thead>
<tr>
<th>Year</th>
<th>Angle Left</th>
<th>Right</th>
<th>Head-On</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>4</td>
<td>3</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>2011</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2012</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2013</td>
<td>2</td>
<td>5</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2014</td>
<td>3</td>
<td>5</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

#### IL Route 50 - 111TH St to US Route 12

<table>
<thead>
<tr>
<th>Year</th>
<th>Angle Left</th>
<th>Right</th>
<th>Head-On</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>6</td>
<td>18</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>2011</td>
<td>5</td>
<td>7</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>2012</td>
<td>4</td>
<td>11</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>2013</td>
<td>5</td>
<td>14</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>2014</td>
<td>2</td>
<td>7</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

#### Lane Flush/Mountable Median

<table>
<thead>
<tr>
<th>Angle</th>
<th>Left</th>
<th>Right</th>
<th>Head-On</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>48</td>
<td>98</td>
<td>46</td>
<td>198</td>
</tr>
<tr>
<td>2011</td>
<td>33</td>
<td>121</td>
<td>102</td>
<td>256</td>
</tr>
<tr>
<td>2012</td>
<td>41</td>
<td>153</td>
<td>114</td>
<td>298</td>
</tr>
<tr>
<td>2013</td>
<td>11</td>
<td>211</td>
<td>185</td>
<td>417</td>
</tr>
<tr>
<td>2014</td>
<td>23</td>
<td>85</td>
<td>63</td>
<td>171</td>
</tr>
</tbody>
</table>

#### Lane Barrier

<table>
<thead>
<tr>
<th>Angle</th>
<th>Left</th>
<th>Right</th>
<th>Head-On</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>7</td>
<td>1</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>2011</td>
<td>4</td>
<td>5</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>2012</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>2013</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>2014</td>
<td>2</td>
<td>5</td>
<td>1</td>
<td>8</td>
</tr>
</tbody>
</table>

#### 7 Lane vs 6 Lane Critical Crashes

- **7 Lane Flush**:
  - Angle: 48%
  - Left: 27%
  - Right: 28%
  - Head-On: 3%

- **6 Lane Barrier**:
  - Angle: 41%
  - Left: 27%
  - Right: 28%
  - Head-On: 5%
7 - Lane

Mountable Median
SEGMENT LENGTH: 1.06 MILES

NORTH ACCESS POINTS: 18     SOUTH ACCESS POINTS: 18

LEGEND

POSTED SPEED LIMIT
TRAFFIC CONTROL
BUS STOP
ADT AND CLASSIFICATION
FATALITY LOCATION
ACCESS POINT

IL ROUTE 58 – BASSWOOD STREET TO MEACHAM ROAD
7 LANE MOUNTABLE MEDIAN
7 - Lane

Flush Median
SEGMENT LENGTH: 2.01 MILES

EAST ACCESS POINTS: 78
WEST ACCESS POINTS: 66

LEGEND
- POSTED SPEED LIMIT
- TRAFFIC CONTROL
- BUS STOP
- ADT AND CLASSIFICATION
- FATALITY LOCATION
- ACCESS POINT

IL ROUTE 50 – 111TH STREET TO US ROUTE 12
7 LANE FLUSH MEDIAN
6 - Lane

Barrier Median
ARMY TRAIL ROAD – BLOOMINGDALE ROAD TO SWIFT ROAD
6 LANE BARRIER MEDIAN
Median Treatment Study

5 - Lane
vs
4 - Lane
Segments
CRASH TYPES
5-LANE FLUSH VS 4-LANE BARRIER

MAX 74.46
TOTAL CRASHES

MAX 48.36
CRITICAL CRASH TYPES
- ANGLE
- HEAD ON
- TURNING

REAR END

CRASH TYPES

MIN-MAX CRASH RATE (CRASHES/MILE/YEAR)
PEDESTRIAN AND PEDAL CYCLIST INVOLVED CRASHES
5-LANE FLUSH VS 4-LANE BARRIER

LEGEND
- 4-LANE BARRIER
- 5-LANE FLUSH
4 - Lane

Barrier Median
4-LANE SEGMENTS (BARRIER MEDIAN)
ACCESS DENSITY vs CRASH RATE
(2009-2013)
Median Treatment Study

7 - Lane
vs
6 - Lane
Segments
CRASH TYPES
7-LANE FLUSH /MOUNTABLE VS 6-LANE BARRIER

TOTAL CRASHES
CRITICAL
REAR END

MIN–MAX CRASH RATE (CRASHES /MILE /YEAR)
(BY SEGMENT)

CRITICAL CRASH TYPES
- ANGLE
- HEAD ON
- TURNING

LEGEND
6-LANE BARRIER
7-LANE FLUSH
PEDESTRIAN AND PEDAL CYCLIST INVOLVED CRASHES
7-LANE FLUSH /MOUNTABLE VS 6-LANE BARRIER
Median Treatment Study

7 - Lane

Flush Median
7-LANE SEGMENTS (FLUSH MEDIAN)
ACCESS DENSITY vs CRASH RATE
(2010-2014)

<table>
<thead>
<tr>
<th>RATE (crash/mile/year)</th>
<th>ACCESS DENSITY (Access Points/mile)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL CRASH</td>
<td>ACCESS DENSITY</td>
</tr>
<tr>
<td>TYP. A</td>
<td>ACCESS DENSITY</td>
</tr>
<tr>
<td>TYP. B</td>
<td>ACCESS DENSITY</td>
</tr>
<tr>
<td>CRITICAL</td>
<td>ACCESS DENSITY</td>
</tr>
<tr>
<td>REAR END</td>
<td>ACCESS DENSITY</td>
</tr>
</tbody>
</table>

LOCATION
- Basswood St - Meacham Rd
- US 45 & 121st St
- Division St - Armitage Ave
- US 45 & 12 - 111th St
6 - Lane

Barrier Median
6-LANE SEGMENTS (BARRIER MEDIAN)
ACCESS DENSITY vs CRASH RATE
(2010-2014)
6-LANE SEGMENTS (BARRIER MEDIAN)
SPEED vs CRASH RATE
(2010-2014)

BARRIER MEDIAN SEGMENT
Appendix

Crash Maps
5 - Lane
Flush Median
Accident Locations (2009-2013)
5 Lane Flush
IL 59 Hawthorn to Agusta
Legend
- Fatalities
- Angle
- Pedestrian
- Fixed Object
- Rear End
- Head On
- Turning
- Pedalcyclist

Accident Locations (2009-2013)
5 Lane Flush
IL 59 Hawthorn to Agusta
Accident Locations (2009-2013)
5 Lane Flush
IL 59 Hawthorn to Agusta
Accident Locations (2009-2013)
5 Lane Flush
US 45 Allanson to IL 83
Keymap

Legend
- Fatalities
- Angle
- Pedestrian
- Fixed Object
- Rear End
- Head On
- Turning
- Pedalcyclist

Accident Locations (2009-2013)
5 Lane Flush
US 45 Allanson to IL 83
Accident Locations (2009-2013)
5 Lane Flush
IL 38 County Farm to IL 53
Accident Locations (2009-2013)
5 Lane Flush
IL 38 County Farm to IL 53
Accident Locations (2009-2013)
5 Lane Flush
IL 38 County Farm to IL 53

Legend
- Fatalities
- Angle
- Fixed Object
- Pedestrian
- Pedal cyclist
- Head On
- Rear End
- Turning
Accident Locations (2009-2013)
5 Lane Flush
IL 38 Finley to Westmore
Accident Locations (2009-2013)
5 Lane Flush
IL 120 Ringwood to IL 31
Accident Locations (2009-2013)
5 Lane Flush
IL 120 Ringwood to IL 31
4 - Lane Barrier Median
Accident Locations (2009-2013)
4 Lane Barrier
IL 47 Kreutzer to Reed

Keymap

Legend
- Fatalities
- Angle
- Pedestrian
- Fixed Object
- Rear End
- Head On
- Turning
- Pedalcyclist

Legend
- Fatalities
- Angle
- Pedestrian
- Fixed Object
- Rear End
- Head On
- Turning
- Pedalcyclist

1 in = 0.1 miles
0 0.05 0.1 Miles
Accident Locations (2009-2013)
4 Lane Barrier
IL 47 Kreutzer to Reed
Accident Locations (2009-2013)
4 Lane Barrier
US 45 Laramie to IL 120
Accident Locations (2009-2013)
4 Lane Barrier
US 45 Laramie to IL 120
Caton Farm Rd
Rolf Rd
Riverwalk Dr
Cryder Ln
Plainsman Cir
Olde Mill Rd
Hannibal Circle
Irvine Ln
Old Woods Trail
Rossiter Ct
Finn Ct
Plainsman Cir

Legend
- Fatalities
- Angle
- Fixed Object
- Rear End
- Head On
- Turning
- Pedalcyclist

Accident Locations (2009-2013)
4 Lane Barrier
IL 59 Renwick to Meadow
Legend

- Fatalities
- Angle
- Fixed Object
- Head On
- Pedestrian
- Rear End
- Turning
- Pedalcyclist

Accident Locations (2009-2013)
4 Lane Barrier
IL 59 Renwick to Meadow
Accident Locations (2009-2013)
4 Lane Barrier
IL 59 Renwick to Meadow
Accident Locations (2009-2013)
4 Lane Barrier
IL 59 Renwick to Meadow

Legend
- Fatalities
- Angle
- Pedestrian
- Fixed Object
- Rear End
- Head On
- Turning
- Pedalcyclist

Keymap

0 0.05 0.1 Miles
1 in = 0.1 miles
Legend
- Fatalities
- Angle
- Fixed Object
- Head On
- Pedestrian
- Rear End
- Turning
- Pedalcyclist

Accident Locations (2009-2013)
4 Lane Barrier
IL 59 95th to Joseph
Accident Locations (2009-2013)
4 Lane Barrier
IL 59 95th to Joseph
Accident Locations (2009-2013)
4 Lane Barrier
IL 59 95th to Joseph

Legend
- Fatalities
- Angle
- Pedestrian
- Fixed Object
- Rear End
- Head On
- Turning
- Pedalcyclist

Keymap
Accident Locations (2009-2013)
4 Lane Barrier
IL 59 95th to Joseph
Accident Locations (2009-2013)
4 Lane Barrier
IL 59 95th to Joseph
Legend
- Fatalities
- Angle
- Fixed Object
- Head On
- Pedestrian
- Rear End
- Turning
- Pedalcyclist

Accident Locations (2009-2013)
4 Lane Barrier
IL 59 Diversey to Hawthorn
Accident Locations (2009-2013)
4 Lane Barrier
IL 59 Diversey to Hawthorn
Accident Locations (2009-2013)
4 Lane Barrier
IL 59 Beaconridge to Royce
7 - Lane

Flush Median
Accident Locations (2009-2013)
7 Lane Mountable
IL 58 Basswood to Meacham
Accident Locations (2009-2013)
7 Lane Mountable
IL 58 Basswood to Meacham
6 - Lane Barrier Median
Accident Locations (2009-2013)
6 Lane Barrier
IL 59 Ogden to 95th

Legend
- Fatalities
- Angle
- Fixed Object
- Pedestrian
- Head On
- Rear End
- Turning
- Pedalcyclist

Keymap

Legend

Accident Locations (2009-2013)
6 Lane Barrier
IL 59 Ogden to 95th
Accident Locations (2009-2013)
6 Lane Barrier
Army Trail Road Swift to Bloomingdale

Legend
- Fatalities
- Fixed Object
- Head On
- Pedestrian
- Rear End
- Turning
- Pedalcyclist

Keymap

Legend
1 in = 0.1 miles
Accident Locations (2009-2013)
6 Lane Barrier
IL 64 Rohlwing to IL 83