Illinois Department of Transportation

DESIGN REPORT

U.S. Route 45
IL Route 132 to Millburn Bypass

P-91-388-10

Lake County, Illinois

IDOT – Division of Highways – District One

September 2018

Volume III
Appendices E to H

Contact Information

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APPENDIX E

CRASH ANALYSIS

CRASH ANALYSIS REPORT
FOR
U.S. ROUTE 45
MILLBURN BYPASS

Village of Old Mill Creek and the Village of Lindenhurst

County of Lake, Illinois

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March 1, 2013

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A. INTRODUCTION

The purpose of this report is to provide an analysis of the automobile related crashes that have occurred within the study area and to present an effective method for preventing future crashes from occurring.

This study encompasses 5 years (2007-2011) of crash data, covering over 6 ½ miles of roadway and 17 intersections, located in the Village of Old Mill Creek, the Village of Lindenhurst, and unincorporated areas in north central Lake County, Illinois. The limits for this crash analysis report extend from the intersections of US 45 at IL 132 north to US 45 at IL 173 and one-half mile east and west of the intersection of US Route 45 at West Grass Lake Road. A location map of study limits and surrounding area has been provided in Exhibit 1.

The Illinois Department of Transportation's September, 2012, *Five Percent Report* for the Federal Highway Administration's Highway Safety Improvement Program states that:

> "As part of the Highway Safety Improvement Program (HSIP), states are required to submit an annual report to the Federal Highway Administration (FHWA) describing at least five percent of highway locations exhibiting the most pressing safety needs. This *Five Percent Report* will help Illinois to gain an understanding of the nature and extent of safety problems, to provide guidance on where safety investments are needed, and to provide a basis for tracking the progress toward improving safety in the state."

A search of the locations provided within that report determined that there are no 2012 5% locations within the study limits. However, IDOT's 2008 and 2009 Five Percent Reports identified several 5% segments along the section of IL 173 which runs from approximately 1.5 miles west of US 45 to 0.75 miles east of US 45; still, the intersection of IL 173 and US 45 is not listed as a 5% intersection in any of the reports.

B. EXISTING CONDITIONS

US Route 45 runs north-south and is generally a two-lane undivided roadway with no median. It widens to provide left-turn and right-turn channelization at select intersections within the study limits. To the east, the majority of land is undeveloped, although there are some pockets of residential and commercial development along the route. To the west, the land is mainly residential with several subdivisions of varying sizes. Dozens of private driveways to single family homes and commercial buildings line both sides of US 45.

Speed limits on US 45 vary from 55 mph at the north and south study area limits, to 40 mph between Independence Boulevard on the north and Country Drive on the south. The speed limits on both West Grass Lake Road and West Millburn Road are 45 mph.

No lighting is present on any segment throughout the study limits. Intersection lighting is provided in some locations as specified in the sections below.

Existing conditions in additional detail are profiled in the following sections for each intersection and segment within the study limits.

1.) US 45 @ IL 132

US 45 at IL 132 is a four-legged signalized intersection, with US 45 running north to south and IL 132 running east to northwest. The west leg approaches the intersection on a skew and includes a horizontal curve which runs through the intersection. A gas station is located on the northwest corner of the intersection and a tavern is located on the northeast corner. No lighting exists at this intersection, although ambient lighting from these surrounding developments is likely.

On the north and south legs, one exclusive left-turn lane is provided along with two thru lanes of which the outside lane is a shared thru/right-turn lane. Right turn channelization is provided at the intersection via a barrier islands. The lane configuration of the east and west legs is the same as the north and south legs.

Curb and gutter exists on all legs of the intersection. The curb and gutter runs along US 45 north and south for approximately 700', and is continuous along IL 132. Concrete medians separate the east/west traffic along both the east and west legs of the intersection, and continue along IL 132.

A "signal ahead" advanced warning sign exists for westbound and eastbound traffic approximately 700' in advance of the intersection. Also along the west leg, a "curve" warning sign is present for eastbound traffic in advance of the horizontal curve immediately west of the intersection. There are no advanced warning signs on the US 45 legs.

2.) US 45 – Between IL 132 and Highfield Drive (Approximately 2,300')

Between IL 132 and Highfield Drive, US 45 is generally a two-lane undivided roadway. Passing is not permitted anywhere within this segment.

Wide (greater than 30') driveways are located approximately 200' north of the intersection of US 45 at IL 132, which serve the gas station on the west and the tavern and a local business on the east. Turn lanes are not provided for these driveways. An additional driveway is located along the east side of the road, approximately 350' north of the intersection which is apparently an alternate entrance for the local business along the east. Additional driveways for single family residences or field entrances are located approximately 850', 1150', 1300', 1600' and 2000' north of the intersection on the west side of the road, and 1500' and 2000' north of the intersection on the east side of the road.

Gravel shoulder of varying width, typically 8', is provided on both sides of US 45 throughout the entire segment.

No guardrails exist along this segment.

3.) US 45 @ Highfield Drive

US 45 at Highfield Drive is a three-legged unsignalized intersection, consisting of US 45 on the north and south and Highfield Drive on the east leg. The intersection is stop-controlled on Highfield Drive, which is one of four ingress/egress points along US 45 for a residential subdivision consisting of several hundred single family homes.

On US 45, a northbound right-turn lane and a southbound left-turn lane are provided. No pavement markings exist on Highfield Drive, which appears to be a two lane roadway with no exclusive turn lanes at the intersection.

Curb and gutter is present on the east leg of the intersection. Paved shoulders, approximately 5' in width, are provided on both sides of the north and south legs. An existing sidewalk runs parallel to Highfield Drive on the south side of the road which terminates short of the curb and gutter at the intersection. There are no existing crosswalks or any type of pedestrian facilities in the vicinity. Decorative street lamps exist on the south side of Highfield Drive.

No advanced warning signs exist for this intersection.

4.) US 45 – Between Highfield Drive and Chatham Way (Approximately 925')

Between Highfield Drive and Chatham Way, US 45 is generally a three-lane undivided roadway with the center lane varying from a painted center median to turn lanes at the intersections. Passing is not permitted anywhere within this segment.

A small driveway is located approximately 175' north of the intersection of US 45 at Highfield Drive, which is shared by a residence and a local business or storage area.

Paved shoulder approximately 5' in width and gravel shoulder approximately 5' in width are provided on both sides of US 45 throughout the entire segment.

There is no guardrail along this segment.

5.) US 45 @ Chatham Way

US 45 at Chatham Way is a three-legged unsignalized intersection, consisting of US 45 on the north and south and Chatham Way on the east leg. The intersection is stop-controlled on Chatham Way, which is one of four ingress/egress points along US 45 for a residential subdivision consisting of several hundred single family homes.

On US 45, a northbound right-turn lane and a southbound left-turn lane are provided. Although no pavement markings exist on Chatham Way, the westbound travel lane is wide enough to accommodate two vehicles side by side, essentially operating as if it had exclusive lanes for both left and right turning movements.

Curb and gutter is present on the east leg of the intersection as is a landscaped median separating eastbound and westbound traffic. Paved shoulders, approximately 5' in width, are provided on both sides of the north and south legs as is gravel shoulders of approximately the same width. Existing sidewalks run parallel to Chatham Way on the north and south sides of the road, which terminate at the intersection by turning to form a crossing at Chatham Way with pedestrian ramps at the curb and gutter. There are no existing marked crosswalks or any other type of pedestrian facilities in the vicinity. Decorative street lamps exist in the center landscaped median of Chatham Way.

No advanced warning signs exist for this intersection.

6.) US 45 – Between Chatham Way and Deer Trail Drive (Approximately 1,200')

Between Chatham Way and Deer Trail Drive, US 45 is generally a two-lane undivided roadway. Passing is not permitted anywhere within this segment.

No driveways are located along this segment.

Gravel shoulder of varying width, typically 8', is provided on both sides of US 45 throughout the entire segment.

There are no guardrails along this segment.

7.) US 45 @ Deer Trail Drive

US 45 at Deer Trail Drive is a three-legged unsignalized intersection, consisting of US 45 on the north and south and Deer Trail Drive on the east leg. The intersection is stop-controlled on Deer Trail Drive, which is one of four ingress/egress points along US 45 for a residential subdivision consisting of several hundred single family homes.

On US 45, a northbound right-turn lane and a southbound left-turn lane are provided. No pavement markings exist on Deer Trail Drive, which appears to be a two lane roadway with no exclusive turn lanes.

Curb and gutter is present on the east leg of the intersection. Gravel shoulders, approximately 8' in width are provided on both sides of the north and south legs. Existing sidewalks run parallel to Deer Trail Drive on the north and south sides of the road, which terminate east of the US 45 right-of-way. There are no existing marked crosswalks or any other type of pedestrian facilities in the vicinity. Decorative street lamps exist in along the south side of Deer Trail Drive.

No advanced warning signs exist for this intersection.

8.) US 45 – Between Deer Trail Drive and Deer Path Drive/Falling Waters Boulevard (Approximately 1,400')

Between Deer Trail Drive and Deer Path Drive, US 45 is generally a three-lane undivided roadway with the center lane varying from a painted center median to turn lanes at the intersections. Passing is not permitted anywhere within this segment.

A small driveway is located approximately 550' north of the intersection of US 45 at Deer Trail Drive, which serves a single residence.

Gravel shoulder approximately 8' in width is provided on both sides of US 45 throughout the entire segment.

There is no guardrail along this segment.

9.) US 45 @ Deer Path Drive/Falling Waters Boulevard

US 45 at Deer Path Drive/Falling Waters Boulevard is a four-legged unsignalized intersection, consisting of US 45 on the north and south, Deer Path Drive on the east, and Falling Waters Boulevard on the west leg. The intersection is stop-controlled on Deer Path Drive and Falling Waters Boulevard. Deer Path Drive is one of four ingress/egress points along US 45 for a residential subdivision consisting of several hundred single family homes. Falling Waters Boulevard is one of two ingress/egress points along US 45 for a residential subdivision consisting of approximately 70 single family homes as well as several retail and commercial businesses.

On US 45, a northbound left-turn and right-turn lane and a southbound left-turn and right-turn lane are provided. No pavement markings exist on either Deer Path Drive or Falling Waters Boulevard, which appear to be a two lane roadways with no exclusive turn lanes.

Curb and gutter is present on the east and west legs of the intersection. Gravel shoulders, approximately 8' in width are provided on both sides of the north and south legs. There are no existing sidewalks at the intersection for are there any existing marked crosswalks or any other type of pedestrian facilities in the vicinity. Decorative street lamps exist in along the north side of Deer Path Drive.

No advanced warning signs exist for this intersection.

10.) US 45 – Between Deer Path Drive/Falling Waters Boulevard and Falling Waters Drive (Approximately 1,100')

Between Deer Path Drive and Falling Waters Drive, US 45 is generally a three-lane undivided roadway with the center lane varying from a painted center median to turn lanes at the intersections. Passing is not permitted anywhere within this segment.

There are no existing driveways along this segment.

Gravel shoulder approximately 8' in width is provided on both sides of US 45 throughout the entire segment.

Guardrails exist immediately south of Falling Waters Drive on both sides of US 45 to shield the headwalls of a large cross culvert. The guardrail on the east side of the road is approximately 230' in length, while the one on the west side is approximately 170' in length. All four guardrail ends have the current Standard Traffic Barrier Terminal Type 1 (Special) section installed.

11.) US 45 @ Falling Waters Drive

US 45 at Falling Waters Drive is a three-legged unsignalized intersection, consisting of US 45 on the north and south and Falling Waters Drive on the west leg. The intersection is stop-controlled on Deer Trail Drive, which is one of two ingress/egress points along US 45 for a residential subdivision consisting of approximately 70 single family homes as well as several retail and commercial businesses.

On US 45, a southbound right-turn lane is provided to Falling Waters Drive, which consists of an exclusive right-in, right-out ingress/egress point; therefore no access to Falling Waters Drive from northbound US 45 is permitted, nor is access from eastbound Falling Waters Drive to northbound US 45. No pavement markings exist on Falling Waters Drive, which appears to be a two lane roadway.

Curb and gutter is present on the west leg of the intersection. Gravel shoulders and paved shoulders approximately 8' in width exist at this intersection in varying locations on both sides of the north and south legs. There are no existing sidewalks nor are there marked crosswalks or any other type of pedestrian facilities in the vicinity. Decorative street lamps exist in along the south side of Falling Waters Drive.

No advanced warning signs exist for this intersection.

12.) <u>US 45 – Between Falling Waters Drive and Sand Lake Road (Approximately 900')</u>

Between Falling Waters Drive and Sand Lake Road, US 45 is generally a three-lane undivided roadway with the center lane varying from a painted center median to turn lanes at the intersections. Passing is not permitted anywhere within this segment.

Wide (greater than 30') driveways are located approximately 100', 300', 400', and 650' north of the intersection of US 45 at Falling Waters Drive, which are shared by the retail businesses and strip malls on the east. Turn lanes are not provided for these driveways. An additional driveway is located along the west side of the road, approximately 350' north of the intersection which serves a single family residence.

Gravel shoulder approximately 8' in width is provided on both sides of US 45 throughout the entire segment.

There is no guardrail along this segment.

13.) <u>US 45 @ Sand Lake Road</u>

US 45 at Sand Lake Road is a four-legged signalized intersection, with US 45 running north to south and Sand Lake Road running east to west. A gas station is located on the northwest corner of the intersection and a grocery/drug store development is located on the southeast corner. No lighting exists at this intersection, although ambient lighting from these surrounding developments is likely.

On the north and south legs, one exclusive left-turn lane is provided along with one shared thru/right-turn lane. The east and west legs consist of one exclusive left-turn lane, one thru lane, and one exclusive right turn lane.

Curb and gutter exists on the south side of the west leg, terminating approximately 50' west of the intersection. Paved shoulders, approximately 8' in width, are provided on both sides of the south leg and on the west side of the north leg.

A "signal ahead" advanced warning sign exists for westbound traffic approximately 700' east of the intersection where a horizontal curve ends. No other advanced warning signs are provided on any other leg.

14.) US 45 – Between Sand Lake Road and Country Place (Approximately 2,640')

Between Sand Lake Road and Country Place, US 45 is generally a two-lane undivided roadway. Painted medians do exist where the road widens for channelization at the two intersections. Passing is not permitted anywhere within this segment.

A wide (greater than 50') driveway is located approximately 300' north of the intersection of US 45 at Sand Lake Road, which is shared by the gas station on the northwest corner and a fast food restaurant. A southbound right-turn lane is provided for this driveway. Two additional driveways for single family residences are located approximately 870' and 1050' north of the intersection on the west side of the road.

Gravel shoulder, approximately 8' in width is provided on both sides of US 45 throughout the entire segment.

Guardrails exist immediately south of Country Place on both sides of US 45 to shield the headwalls of a large cross culvert. The guardrail on the east side of the road is approximately 350' in length, while the one on the west side is approximately 200' in length. All four guardrail ends have the current Standard Traffic Barrier Terminal Type 1 (Special) section installed.

15.) US 45 @ Country Place

US 45 at Country Place is a three-legged intersection, consisting of US 45 on the north and south and Country Place on the west leg. The intersection is stop-controlled on Country Place, which provides the only direct access to US 45 for a residential development consisting of approximately 200 single and multi-family homes. Decorative street lamps exist on the northwest and southwest corners.

On US 45, a northbound left-turn lane and a southbound right-turn lane are provided. Although no pavement markings exist on Country Place, the eastbound travel lane is wide enough to accommodate two vehicles side by side, essentially operating as if it had exclusive lanes for both left and right turning movements.

No advanced warning signs exist for this intersection.

16.) US 45 – Between Country Place and Haven Lane (Approximately 3,175')

Between Country Place and Haven Lane, US 45 is generally a two-lane undivided roadway. Painted medians do exist where the road widens for channelization at the two intersections. Pavement markings indicate that passing is permitted for southbound vehicles within a passing zone approximately 800' in length, beginning approximately 1,320' south of Haven Lane.

Two driveways serving single family homes are located approximately 1,125' north of Country Place on the west side of the road. A cluster of three driveways, one on the east side and two on the west side, is located approximately 1,250' south of Haven Lane. Approximately 550' south of Haven Lane is another cluster of driveways to single family homes, with two on each side of the road. One additional driveway, also serving a single family home, is located just 100' south of Haven Lane.

C. CRASH ANALYSIS & RECOMMENDATIONS

The crash analysis was performed using crash data and collision diagrams provided by Lake County Division of Transportation. Police reports from the appropriate local law enforcement agencies were also referenced to spot check the crash data.

Note that the law regarding the crash reporting threshold for Property Damage Only (PDO) crashes was amended effective January 1, 2009, to the following: When all drivers involved in a crash are insured, the amount of damage to the property of any one person that must be reported increased from $500 to $1,500. If any driver does not have insurance, the threshold remains at $500. This change in law precludes comparison of 2009 and later PDO crashes and TOTAL crashes with such crashes for previous years. The change did not affect the reporting of injury or fatal crashes.

Based on the data available, a total of 539 crashes were reported within the study limits during the five-year study period (2007-2011). The data obtained indicates that rear end collisions were the most common type of crash, accounting for 232 crashes (43%). Turning collisions were the second most common at 98 crashes (18%), followed by fixed object with 55 crashes (10%). An aerial of the study limits illustrating the crash data at each intersection and segment can be found in Exhibit 2. Appendix A provides a summary of crash data for each location in tabular form.

A fatal crash is a motor vehicle crash (single or multiple) that results in the death of one or more persons. An injury crash is any motor vehicle crash that results in one or more non-fatal injuries. An injury crash is further classified by the severity of the injuries: A-injury being an incapacitating injury, B-injury being a non-incapacitating injury, and C-injury being any injury reported or claimed which is not evident to observers at the scene of the crash. If a crash does not result in an injury or fatality, it is classified as a Property Damage Only (PDO) crash.

There were no crashes that resulted in a fatality within the time period studied. A total of 7 crashes resulted in type A-injuries (1 rear end, 2 angle, 1 turning, 1 fixed object, 1 head on, and 1 overturned) and 52 resulted in type B-injuries (17 rear end, 4 angles, 14 turning, 14 fixed object, 1 other object, 1 overturned, and 1 head on).

Overall, 92 crashes (17%) occurred on wet pavement conditions, 57 (11%) on snow or ice, and 156 crashes (29%) occurred at night.

The available crash data was analyzed for each intersection and segment within the study limits to determine if crash patterns existed, identify their possible causes, and offer recommended countermeasures to address the problems. The results of this analysis are as follows:

1.) US 45 @ IL 132

A total of 143 crashes were reported at the signalized intersection of US 45 at IL 132 during the five-year study period (2007-2011).

- Rear End: 57 crashes (40%, 5 B, 6 C)
- Turning: 39 crashes (27%, 1 A, 6 B, 9 C)
- Sideswipe: 16 crashes (11%)

- Angle: 14 crashes (10%, 2 B, 2 C)
- Fixed Object: 14 crashes (10%, 1 A, 3 B, 2 C)Other Object: 2 crashes (1%)
- Overturned: 1 crash (1%)

The predominant crash type was the rear end, which accounted for 40% of all reported crashes at the intersection and resulted in 5 B and 6 C-injury incidents. The second most common crash was turning collisions at 27%, which resulted in 1 A, 6 B, and 9 C-injury. Angle crashes, fixed objects, and sideswipes accounted for 10%, 10% and 11% of the total crashes and resulted in 2 B & 2 C, 1 A & 3 B & 2 C, and no injuries respectively. A collision diagram for this intersection is provided in Figure 1.

There is a fairly even distribution of crashes coming from all directions. Therefore, it is recommended to install advance intersection warning signs for northbound and southbound traffic. It is also recommended to install flashing beacons above the existing advance intersection warning signs for eastbound and westbound traffic.

The majority of the left turning crashes are occurring with northbound and southbound traffic. Therefore it is recommended to investigate converting the north–south left turning movements to protected only left turns. Also, due to the number of angle crashes, the yellow and all red clearance intervals should be investigated.

The majority of the other crashes can be attributed to the volume of traffic at the intersection. It is expected that capacity improvements would help to lower the overall number of crashes.

The existing traffic signal has a sufficient number of signal heads for each leg, however, modernization to upgrade all signal heads to LED's as necessary to increase their visibility is recommended.

2.) <u>US 45 – Between IL 132 and Highfield Drive (Approximately 2,300')</u>

A total of 10 crashes were reported on US 45 between IL 132 and Highfield Drive during the five-year study period (2007-2011).

- Fixed Object: 5 crashes (50%, 1 B, 1 C)
- Animal: 3 crashes (30%)
- Sideswipe: 1 crash (10%)
- Rear End: 1 crash (10%, 1 C)

The predominant crash type was fixed object, which accounted for 50% of all reported crashes at the intersection and resulted in 1 B and 1 C incidents. Animal collisions occurred 3 times during the study period. Sideswipe and rear end collisions both occurred once, with the rear end resulting in a C-injury.

There are wide driveways on the side of US 45 just north of the intersection of US 45 & IL 132 as well as residential driveways throughout this segment, none of which provide left turn channelization for vehicles. Of the 10 total crashes within this segment, 2 were sideswipe or rear end collisions.

The lack of left-turn channelization could cause sideswipe and rear end collisions when vehicles slowing or stopping to make a left turn into these driveways are struck as vehicles behind them attempt to pass. It can also be a contributing factor in left turning crashes by causing a driver to attempt a left turn with a smaller gap in opposing traffic so as not to delay thru vehicles behind him. Widening US 45 at these driveways for the construction of dedicated turn lanes is recommended to reduce the frequency of these types of crashes.

Overall in this segment, 1 crash (10%) occurred on wet pavement and 5 crashes (50%) occurred during nighttime hours. A total of 3 animal and 2 fixed object crashes occurred at night, 2 of which were on snow covered pavement. This data suggests that the segment is not experiencing a recurring problem with crashes occurring under wet conditions. Intersection lighting at IL 132 and transitional lighting along the south end of this segment is recommended to reduce the frequency of crashes at night.

3.) <u>US 45 @ Highfield Drive</u>

A total of 2 crashes were reported at the unsignalized intersection of US 45 at Highfield Drive during the five-year study period (2007-2011).

- Turning: 2 crashes (100%)

Turning collisions accounted for all of the crashes at this intersection. No injuries were reported. A collision diagram for this intersection is provided in Figure 2.

Channelization exists for all permitted movements at this intersection.

Overall at this intersection, no crashes occurred on wet pavement, and both crashes (100%) occurred during nighttime hours, the intersection is however partially lighted by decorative street lamps along Highfield Drive. This data does not suggest that the segment is experiencing a recurring problem with crashes occurring under these conditions.

The low number of crashes and absence of injury crashes does not suggest countermeasures are necessary at this time.

4.) <u>US 45 – Between Highfield Drive and Chatham Way (Approximately 925')</u>

A total of 5 crashes were reported on US 45 between Highfield Drive and Chatham Way during the five-year study period (2007-2011).

- Fixed Object: 2 crashes (40%, 1 B)
- Rear End: 2 crashes (40%)
- Head On: 1 crash (20%)

Fixed object and rear end crashes each accounted for 40% of all crashes at this intersection, with the fixed object collision resulting in 1 B-injury, A single head on crash accounted for the remaining 20% and did not result in injury.

There is one small driveway cluster located 175' north of the intersection of US 45 & Highfield Drive. There are not dedicated turn lanes serving these driveways; however, they are located in close proximity to Highfield Drive which allows vehicles accessing these driveways the use of the turn lane and shoulder areas for turning movements.

Overall in this segment, one crash occurred on wet pavement and two occurred during nighttime hours.

Due to the small number of crashes in this area no countermeasures are recommended at this time.

5.) <u>US 45 @ Chatham Way</u>

No crashes were reported at the unsignalized intersection of US 45 at Chatham Way during the five-year study period (2007-2011). A collision diagram for this intersection is provided in Figure 3.

Channelization exists for all permitted movements at this intersection.

No countermeasures are recommended at this time.

6.) <u>US 45 – Between Chatham Way and Deer Trail Drive (Approximately 1,200')</u>

A total of 1 crash was reported in the segment of US 45 between Chatham Way and Deer Trail Drive during the five-year study period (2007-2011).

- Rear End: 1 crash (100%)

A rear end accounted for the one reported crash and did not result in injury. It occurred during daylight hours and on dry pavement.

No driveways are located within this segment.

No countermeasures are recommended at this time.

7.) <u>US 45 @ Deer Trail Drive</u>

A total of 3 crashes were reported at the unsignalized intersection of US 45 at Deer Trail Drive during the five-year study period (2007-2011).

- Turning: 2 crashes (67%)
- Fixed Object: 1 crash (33%, 1 B)

Two turning collisions accounted for 67% of the crashes at this intersection, neither of which resulted in injury. A single fixed object crash accounted for the remaining 33% and resulted in a B-injury. A collision diagram for this intersection is intersection is provided in Figure 4.

Channelization exists for all permitted movements at this intersection.

Overall at this intersection, no crashes occurred on wet pavement nor did any crashes occur during nighttime hours. This data does not suggest that the segment is experiencing a recurring problem with crashes occurring under these conditions.

The low number of crashes suggests no countermeasures are necessary at this time.

8.) US 45 – Between Deer Trail Drive and Deer Path Drive/Falling Waters Boulevard (Approximately 1,400')

A total of 4 crashes were reported on US 45 between Deer Trail Drive and Deer Path Drive during the five-year study period (2007-2011).

- Fixed Object: 2 crash (50%, 1 B, 1 C)
- Rear End: 1 crash (25%)
- Animal: 1 crash (25%)

Fixed object crashes occurred twice, resulting in a B-injury and a C-injury. Rear ends and animal collisions both occurred once and did not result in injuries.

There is one small driveway located 550' north of the intersection of US 45 & Deer Trail Drive which does not provide left or right turn channelization for vehicles. There was one rear end crash within this segment.

The lack of left-turn channelization could cause sideswipe and rear end collisions when vehicles slowing or stopping to make a left turn into this driveway are struck as vehicles behind them attempt to pass. Widening US 45 at this driveway for the construction of dedicated turn lanes is an option to reduce the frequency of these types of crashes; however, due to the small number of crashes in this area as well as the lack of injury crashes, no countermeasures are recommended at this time.

Overall in this segment, there was one crash that occurred on snow/slush covered pavement, and 4 crashes occurred during nighttime hours. Again, due to the small number of crashes in this area as well as the lack of injury crashes, this data does not suggest that the segment is experiencing a recurring problem with crashes occurring under these conditions.

9.) US 45 @ Deer Path Drive/Falling Waters Boulevard

A total of 8 crashes were reported at the unsignalized intersection of US 45 at Deer Path Drive/Falling Waters Boulevard during the five-year study period (2007-2011).

- Sideswipe: 3 crashes (38%)
- Angle: 2 crashes (25%, 1 A)
- Turning: 1 crash (13%)
- Fixed Object: 1 crash (13%)
- Other Object: 1 crash (13%)

Sideswipes were the predominant crash type with 3 crashes (38%), none of which resulted in injury. Angle, turning, fixed object, and other object collisions accounted for 2 (25%), 1 (13%) and 1 (13%)

crashes, respectively. Angle collisions resulted in 1 A-injury incident. A collision diagram for this intersection is provided in Figure 5.

Channelization exists for all permitted movements at this intersection.

Overall at this intersection, 1 crash (13%) occurred on wet pavement and 3 crashes (38%) occurred during nighttime hours. While the ratio of night crashes is beyond the threshold required to consider implementing countermeasures for this condition, the relatively low number of crashes combined with the lack of severe injuries does not suggest that the segment is experiencing problems with crashes occurring under these conditions.

No countermeasures are recommended at this time.

10.) US 45 – Between Deer Path Drive/Falling Waters Boulevard and Falling Waters Drive (Approximately 1,100')

A total of 2 crashes were reported on US 45 between Deer Path Drive/Falling Waters Boulevard and Falling Waters Drive during the five-year study period (2007-2011).

- Animal: 2 crashes (100%)

No crashes resulted in a reported injury.

There are no driveways located within this segment.

Overall in this segment, no crashes occurred on wet pavement and 1 crash occurred during nighttime hours. This data does not suggest that the segment is experiencing a recurring problem with crashes occurring under these conditions. The low number of crashes suggests no countermeasures are necessary at this time.

11.) US 45 @ Falling Waters Drive

A total of 3 crashes were reported at the unsignalized intersection of US 45 at Falling Waters Drive during the five-year study period (2007-2011).

- Fixed Object: 2 crashes (67%, 1 B)
- Angle: 1 crash (33%)

Fixed object was the predominant crash type with 2 crashes (67%) and resulted in a B-injury. An angle accounted for 1 crash and did not result in injury. A collision diagram for this intersection is provided in Figure 6.

Channelization exists for all permitted movements at this intersection. The intersection is a right-in, right-out thus eliminating access to Falling Waters Drive from northbound US 45 and access to northbound US 45 from Falling Waters Drive.

Fixed object collisions resulted in two-thirds of the crashes at this intersection. It is difficult to determine whether these crashes have anything in common. The only predominant fixed objects in the vicinity are the guardrails located on the east and west sides of US 45 at the south leg of the intersection. The guardrails appear to have adequate terminal sections; however, they should be further evaluated so as to eliminate the possibility of end terminal sections that could cause vehicles to roll over upon striking them. It is recommended that any substandard end sections be removed and replaced with the current standard. Any missing or broken guardrail reflectors should also be replaced if encountered.

Overall at this intersection, no crashes occurred on wet pavement and 1 crash (33%) occurred during nighttime hours. While the ratio of night crashes is near the threshold required to consider implementing countermeasures for this condition, the relatively low number of crashes combined with the lack of severe injuries suggests that the segment is not experiencing problems with crashes occurring under these conditions.

No countermeasures are recommended at this time.

12.)<u>US 45 – Between Falling Waters Drive and Sand Lake Road (Approximately 900')</u>

A total of 3 crashes were reported on US 45 between Falling Waters Drive and Sand Lake Road during the five-year study period (2007-2011).

- Rear End: 2 crashes (67%)
- Overturned: 1 crash (33%, 1 B)

The predominant crash type was rear end with 67% of all crashes at the intersection, while overturned accounted for the remaining 33% and resulted in a B-injury.

There are 4 commercial driveways along the east side of this segment and one residential driveway located along the west side. None of the intersections provide left or right turn channelization for vehicles.

The lack of left-turn channelization could cause turning collisions when vehicles slowing or stopping to make turns into these driveways are struck as vehicles behind them attempt to pass. Widening US 45 at these driveways for the construction of dedicated turn lanes is recommended to reduce the frequency of these types of crashes.

Overall in this segment, no crashes occurred on wet pavement and only 1 (33%) occurred during nighttime hours. This data suggests that the segment is not experiencing a recurring problem with crashes occurring under these conditions.

13.)<u>US 45 @ Sand Lake Road</u>

A total of 69 crashes were reported at the signalized intersection of US 45 at Sand Lake Road during the five-year study period (2007-2011).

- Rear End: 42 crashes (61%, 1 B, 12 C)
- Turning: 17 crashes (25%, 1 B, 1 C)
- Angle: 7 crashes (10%, 1 B)
- Sideswipe: 2 crashes (3%)
- Animal: 1 crash (1%)

The predominant crash type was the rear end, which accounted for more than half of all reported crashes at the intersection and resulted in 1 B and 12 C-injury incidents. Turning was the second most common and responsible for 1 B-injury, and 1 C-injury incident. Although they occurred less frequently at just 10% of reported crashes, 2 of the 7 angle collisions resulted in B-injury incidents. A collision diagram for this intersection is provided in Figure 7.

As illustrated on the intersection crash diagram, the majority of rear end collisions involved vehicles traveling northbound or southbound on US 45. Exclusive left-turn lanes exist in the northbound and southbound directions; however, just one lane is provided for the thru/right-turn movements. Construction of right turn lanes is recommended for the north and south legs.

The frequency of rear end and angle crashes indicates that sight distance or visibility of the intersection might be an issue. This location experienced 5 angle crashes in 2007 alone. However, there were only 2 additional angle crashes in the following four years from 2008 through 2011, indicating some corrective action might have been taken to address this issue. This should continue to be monitored.

Nevertheless, it is recommended to attempt to increase motorists' awareness of this intersection. The existing traffic signal has a sufficient number of signal heads for each leg; however, the signal should be modernized to provide LED signal heads to increase visibility. Additionally, one existing "signal ahead" advanced warning sign is provided for westbound traffic. With the high number of rear end and angle collisions, installing additional advanced warning signs for other legs or installing a flashing amber beacon to the existing sign should also be considered.

Overall at this intersection, 10 crashes (15%) occurred on wet pavement and 16 crashes (23%) occurred during nighttime hours. This data does not suggest that the intersection is experiencing a problem with crashes occurring under either of these conditions.

14.)<u>US 45 – Between Sand Lake Road and Country Place (Approximately 2,640')</u>

A total of 21 crashes were reported on US 45 between Sand Lake Road and Country Place during the five-year study period (2007-2011).

- Rear End: 7 crashes (33%, 3 B, 2 C)
- Angle: 5 crashes (24%, 4 C)
- Turning: 2 crashes (10%, 1 B)
- Animal: 2 crashes (10%)
- Sideswipe: 2 crashes (10%)
- Head On: 1 crash (5%, 1 A)

- Fixed Object: 1 crash (5%)
- Other Non-Collision: 1 crash (5%)

The predominant crash type was rear end with 33%, resulting in 3 B-injury and 2 C-injury incidents. This was followed by angle with 24%, and turning, sideswipe, and animal with 10% each. The only A-injury crash within this segment was the result of a head on collision.

There are 3 driveways on the west side of US 45 between Sand Lake Road and Country Place, none of which provide left turn channelization for northbound vehicles. Of the 21 total crashes within this segment, 11 were sideswipe, turning, or rear end collisions.

The lack of left-turn channelization could cause sideswipe and rear end collisions when vehicles slowing or stopping to make a left turn into these driveways are struck as vehicles behind them attempt to pass. It can also be a contributing factor in left turning crashes by causing a driver to attempt a left turn with a smaller gap in opposing traffic so as not to delay thru vehicles behind him. Widening US 45 at these driveways for the construction of northbound left-turn lanes is recommended to reduce the frequency of these types of crashes.

Overall in this segment, 2 crashes (10%) occurred on wet pavement and 9 crashes (43%) occurred during nighttime hours. Both animal crashes and both sideswipe crashes occurred at night. Both sideswipe crashes also occurred on snow/ice covered pavement. This data does not suggest that the segment is experiencing a recurring problem with crashes occurring under these conditions.

15.)<u>US 45 @ Country Place</u>

A total of 10 crashes were reported at the unsignalized intersection of US 45 at Country Place during the five-year study period (2007-2011).

- Rear End: 5 crashes (50%)
- Turning: 2 crashes (20%, 1 C)
- Angle: 1 crash (10%)
- Sideswipe: 1 crash (10%)
- Fixed Object: 1 crash (10%)

The predominant crash type was the rear end with 5 crashes, followed by turning with 2 collisions. Angle, sideswipe, and fixed object each had one. The only injury crash at this intersection, type C, was the result of a turning crash. A collision diagram for this intersection is provided in Figure 8.

Channelization exists for all permitted movements at this intersection.

Overall at this intersection, 1 crash (10%) occurred on wet pavement and no crashes occurred during nighttime hours. This data suggests that the segment is not experiencing a recurring problem with crashes occurring under these conditions.

No countermeasures are recommended at this time.

D. CONCLUSIONS

As an overall corridor improvement, it is recommended that all substandard signage throughout the study limits should be modernized. Meeting the current standards for size and material of all signs will increase their visibility to motorists and their effectiveness.

Based on analysis of the crash data obtained relating to the US 45 Millburn Bypass, the following recommendations are offered for each location:

1.) US 45 @ IL 132

- Modernize existing traffic signal to upgrade existing signal heads to LEDs.
- Add advance warning signs for northbound and southbound traffic.
- Install amber flashing beacons on the existing advance warning signs for eastbound and westbound traffic.
- Northbound and southbound left turning traffic should be investigated for conversion to protected only left turns.
- The yellow and all red clearance intervals should be investigated further.

2.) US 45 – Between IL 132 and Highfield Drive (Approximately 2,300')

- Construct two-way left-turn channelization.
- Install appropriate transitional lighting.

3.) US 45 @ Highfield Drive

- No countermeasures are recommended at this time.

4.) US 45 – Between Highfield Drive and Chatham Way (Approximately 925')

- No countermeasures are recommended at this time.

5.) US 45 @ Chatham Way

- No countermeasures are recommended at this time.

6.) US 45 – Between Chatham Way and Deer Trail Drive (Approximately 1,200')

- No countermeasures are recommended at this time.

7.) US 45 @ Deer Trail Drive

- No countermeasures are recommended at this time.

8.) US 45 – Between Deer Trail Drive and Deer Path Drive/Falling Waters Boulevard (Approximately 1,400')

- No countermeasures are recommended at this time.

9.) US 45 @ Deer Path Drive/Falling Waters Boulevard

- No countermeasures are recommended at this time.

10.) US 45 – Between Deer Path Drive/Falling Waters Boulevard and Falling Waters Drive (Approximately 1,100')

- No countermeasures are recommended at this time.

11.) US 45 @ Falling Waters Drive

- Remove any existing substandard guardrail end terminal sections and replace with current standard Traffic Barrier Terminal Type 1 (Special) sections, if necessary.
- Replace missing or broken guardrail reflectors.

12.) US 45 – Between Falling Waters Drive and Sand Lake Road (Approximately 900')

- Construct two-way left-turn channelization.

13.) US 45 @ Sand Lake Road

- Modernize existing traffic signal to upgrade existing signal heads to LEDs.
- Construct right-turn lanes for the north and south legs.
- Install new advanced warning signs for appropriate directions or add an amber flashing beacon to the existing advanced warning sign for westbound vehicles.

14.) US 45 – Between Sand Lake Road and Country Place (Approximately 2,640')

- Construct two-way left-turn channelization.

15.) US 45 @ Country Place

- No countermeasures are recommended at this time.

E. EXHIBITS

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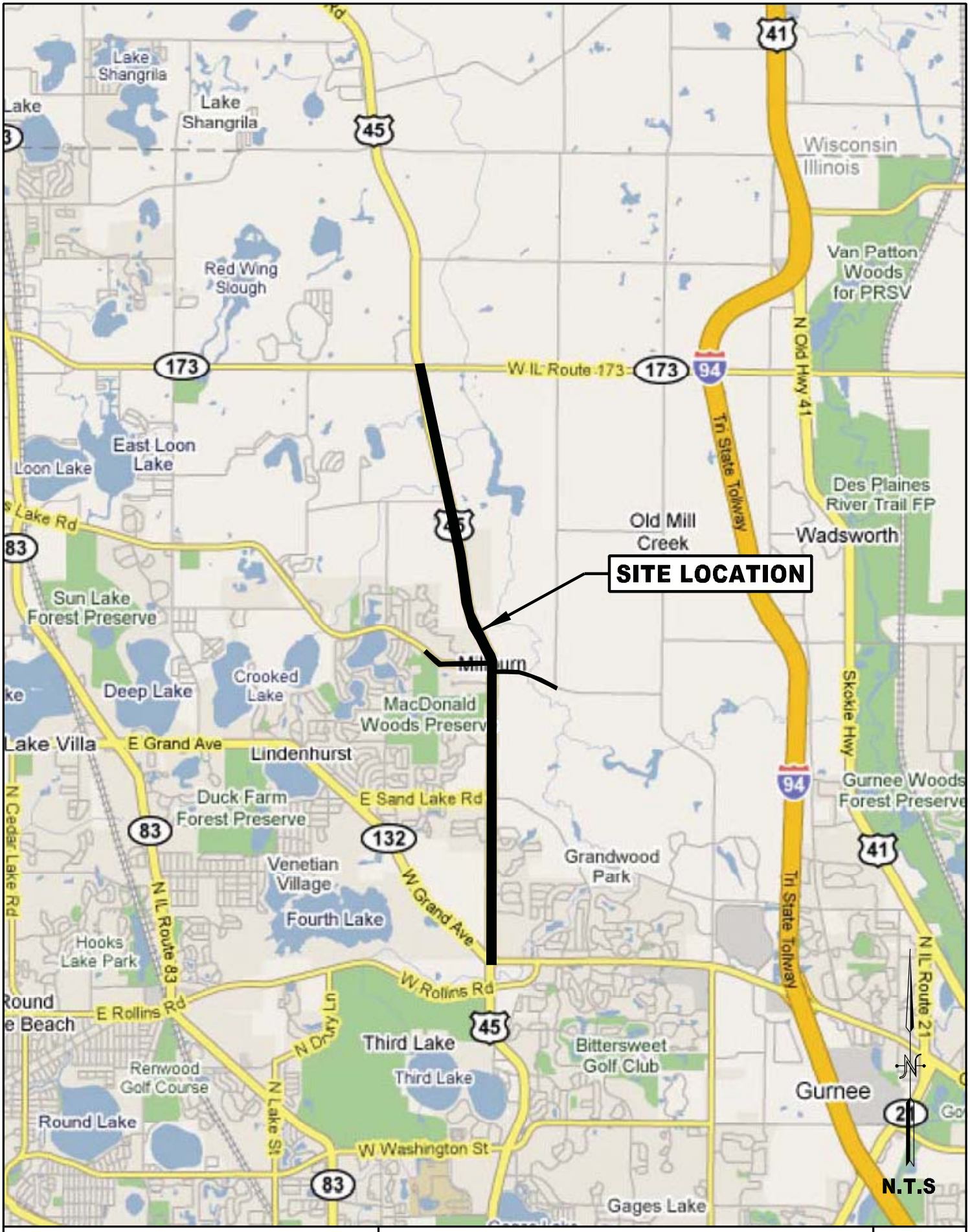

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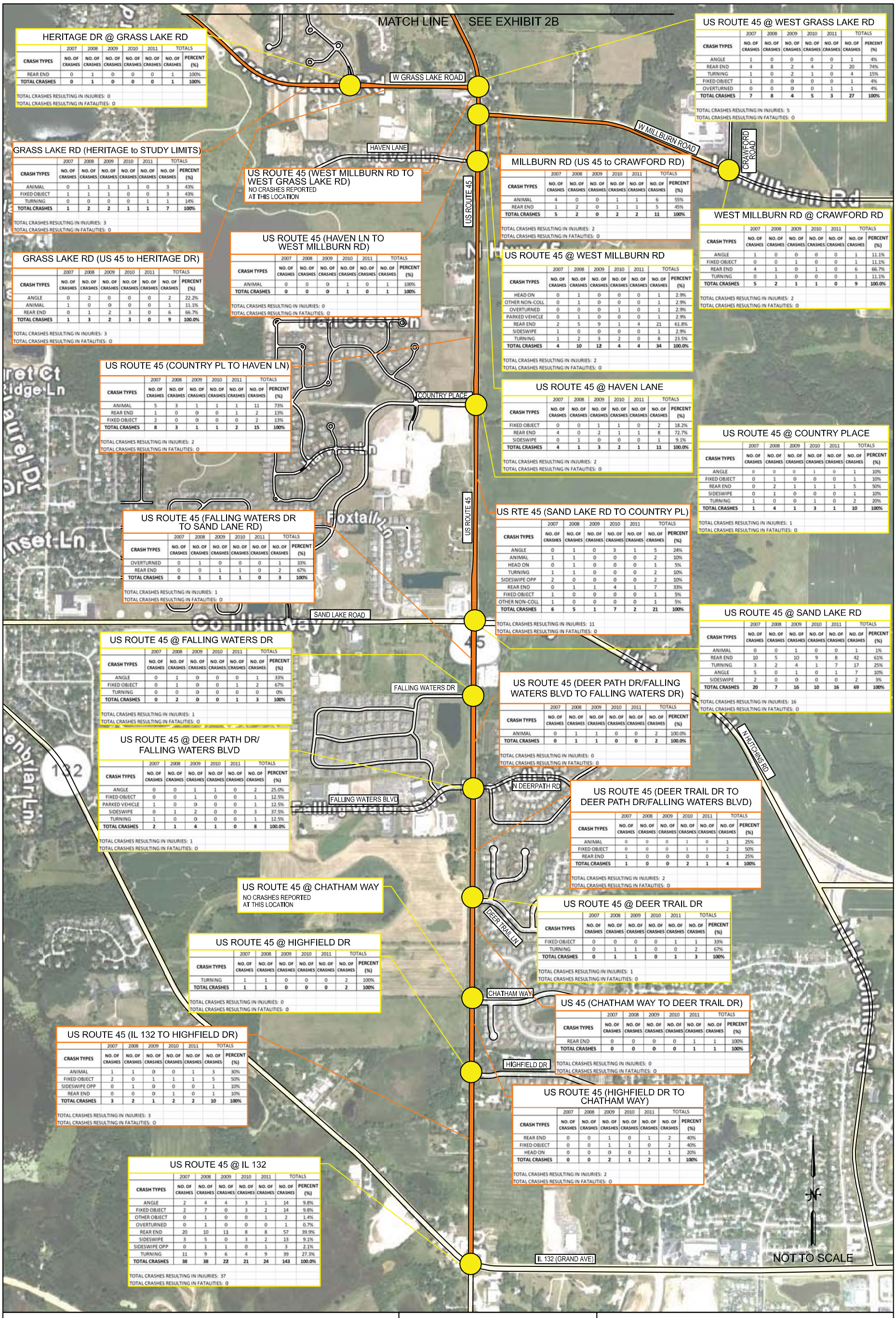
US 45 MILLBURN BYPASS
SITE LOCATION MAP

DATE: 10/20/2011

SHEET NO. 1

EXHIBIT 1



HERITAGE DR @ GRASS LAKE RD

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
REAR END	0	1	0	0	0	1	100%
TOTAL CRASHES	**0**	**1**	**0**	**0**	**0**	**1**	**100%**

TOTAL CRASHES RESULTING IN INJURIES: 0
TOTAL CRASHES RESULTING IN FATALITIES: 0

US ROUTE 45 @ WEST GRASS LAKE RD

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
ANGLE	1	0	0	0	0	1	4%
REAR END	4	8	2	4	2	20	74%
TURNING	1	0	2	1	0	4	15%
FIXED OBJECT	1	0	0	0	0	1	4%
OVERTURNED	0	0	0	0	1	1	4%
TOTAL CRASHES	**7**	**8**	**4**	**5**	**3**	**27**	**100%**

TOTAL CRASHES RESULTING IN INJURIES: 5
TOTAL CRASHES RESULTING IN FATALITIES: 0

GRASS LAKE RD (HERITAGE to STUDY LIMITS)

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
ANIMAL	0	1	1	1	0	3	43%
FIXED OBJECT	1	1	1	0	0	3	43%
TURNING	0	0	0	0	1	1	14%
TOTAL CRASHES	**1**	**2**	**2**	**1**	**1**	**7**	**100%**

TOTAL CRASHES RESULTING IN INJURIES: 3
TOTAL CRASHES RESULTING IN FATALITIES: 0

US ROUTE 45 (WEST MILLBURN RD TO WEST GRASS LAKE RD)

NO CRASHES REPORTED
AT THIS LOCATION

MILLBURN RD (US 45 to CRAWFORD RD)

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
ANIMAL	4	0	0	1	1	6	55%
REAR END	1	2	0	1	1	5	45%
TOTAL CRASHES	**5**	**2**	**0**	**2**	**2**	**11**	**100%**

TOTAL CRASHES RESULTING IN INJURIES: 2
TOTAL CRASHES RESULTING IN FATALITIES: 0

GRASS LAKE RD (US 45 to HERITAGE DR)

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
ANGLE	0	2	0	0	0	2	22.2%
ANIMAL	1	0	0	0	0	1	11.1%
REAR END	0	1	2	3	0	6	66.7%
TOTAL CRASHES	**1**	**3**	**2**	**3**	**0**	**9**	**100.0%**

TOTAL CRASHES RESULTING IN INJURIES: 3
TOTAL CRASHES RESULTING IN FATALITIES: 0

US ROUTE 45 (HAVEN LN TO WEST MILLBURN RD)

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
ANIMAL	0	0	0	1	0	1	100%
TOTAL CRASHES	**0**	**0**	**0**	**1**	**0**	**1**	**100%**

TOTAL CRASHES RESULTING IN INJURIES: 0
TOTAL CRASHES RESULTING IN FATALITIES: 0

WEST MILLBURN RD @ CRAWFORD RD

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
ANGLE	1	0	0	0	0	1	11.1%
FIXED OBJECT	0	0	1	0	0	1	11.1%
REAR END	4	1	0	1	0	6	66.7%
TURNING	0	1	0	0	0	1	11.1%
TOTAL CRASHES	**5**	**2**	**1**	**1**	**0**	**9**	**100.0%**

TOTAL CRASHES RESULTING IN INJURIES: 2
TOTAL CRASHES RESULTING IN FATALITIES: 0

US ROUTE 45 @ WEST MILLBURN RD

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
HEAD ON	0	1	0	0	0	1	2.9%
OTHER NON-COLL	0	1	0	0	0	1	2.9%
OVERTURNED	0	0	0	1	0	1	2.9%
PARKED VEHICLE	0	1	0	0	0	1	2.9%
REAR END	2	5	9	1	4	21	61.8%
SIDESWIPE	1	0	0	0	0	1	2.9%
TURNING	1	2	3	2	0	8	23.5%
TOTAL CRASHES	**4**	**10**	**12**	**4**	**4**	**34**	**100.0%**

TOTAL CRASHES RESULTING IN INJURIES: 2
TOTAL CRASHES RESULTING IN FATALITIES: 0

US ROUTE 45 (COUNTRY PL TO HAVEN LN)

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
ANIMAL	5	3	1	1	1	11	73%
REAR END	1	0	0	0	1	2	13%
FIXED OBJECT	2	0	0	0	0	2	13%
TOTAL CRASHES	**8**	**3**	**1**	**1**	**2**	**15**	**100%**

TOTAL CRASHES RESULTING IN INJURIES: 2
TOTAL CRASHES RESULTING IN FATALITIES: 0

US ROUTE 45 @ HAVEN LANE

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
FIXED OBJECT	0	0	1	1	0	2	18.2%
REAR END	4	0	2	1	1	8	72.7%
SIDESWIPE	0	1	0	0	0	1	9.1%
TOTAL CRASHES	**4**	**1**	**3**	**2**	**1**	**11**	**100.0%**

TOTAL CRASHES RESULTING IN INJURIES: 2
TOTAL CRASHES RESULTING IN FATALITIES: 0

US ROUTE 45 @ COUNTRY PLACE

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
ANGLE	0	0	0	1	0	1	10%
FIXED OBJECT	0	1	0	0	0	1	10%
REAR END	0	2	1	1	1	5	50%
SIDESWIPE	0	1	0	0	0	1	10%
TURNING	1	0	0	1	0	2	20%
TOTAL CRASHES	**1**	**4**	**1**	**3**	**1**	**10**	**100%**

TOTAL CRASHES RESULTING IN INJURIES: 1
TOTAL CRASHES RESULTING IN FATALITIES: 0

US ROUTE 45 (FALLING WATERS DR TO SAND LANE RD)

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
OVERTURNED	0	1	0	0	0	1	33%
REAR END	0	0	1	1	0	2	67%
TOTAL CRASHES	**0**	**1**	**1**	**1**	**0**	**3**	**100%**

TOTAL CRASHES RESULTING IN INJURIES: 1
TOTAL CRASHES RESULTING IN FATALITIES: 0

US RTE 45 (SAND LAKE RD TO COUNTRY PL)

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
ANGLE	0	1	0	3	1	5	24%
ANIMAL	1	1	0	0	0	2	10%
HEAD ON	0	1	0	0	0	1	5%
TURNING	1	1	0	0	0	2	10%
SIDESWIPE OPP	2	0	0	0	0	2	10%
REAR END	0	1	1	4	1	7	33%
FIXED OBJECT	1	0	0	0	0	1	5%
OTHER NON-COLL	1	0	0	0	0	1	5%
TOTAL CRASHES	**6**	**5**	**1**	**7**	**2**	**21**	**100%**

TOTAL CRASHES RESULTING IN INJURIES: 11
TOTAL CRASHES RESULTING IN FATALITIES: 0

US ROUTE 45 @ SAND LAKE RD

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
ANIMAL	0	0	1	0	0	1	1%
REAR END	10	5	10	9	8	42	61%
TURNING	3	2	4	1	7	17	25%
ANGLE	5	0	1	0	1	7	10%
SIDESWIPE	2	0	0	0	0	2	3%
TOTAL CRASHES	**20**	**7**	**16**	**10**	**16**	**69**	**100%**

TOTAL CRASHES RESULTING IN INJURIES: 16
TOTAL CRASHES RESULTING IN FATALITIES: 0

US ROUTE 45 @ FALLING WATERS DR

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
ANGLE	0	1	0	0	0	1	33%
FIXED OBJECT	0	1	0	0	1	2	67%
TURNING	0	0	0	0	0	0	0%
TOTAL CRASHES	**0**	**2**	**0**	**0**	**1**	**3**	**100%**

TOTAL CRASHES RESULTING IN INJURIES: 1
TOTAL CRASHES RESULTING IN FATALITIES: 0

US ROUTE 45 (DEER PATH DR/FALLING WATERS BLVD TO FALLING WATERS DR)

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
ANIMAL	0	1	1	0	0	2	100.0%
TOTAL CRASHES	**0**	**1**	**1**	**0**	**0**	**2**	**100.0%**

TOTAL CRASHES RESULTING IN INJURIES: 0
TOTAL CRASHES RESULTING IN FATALITIES: 0

US ROUTE 45 @ DEER PATH DR/ FALLING WATERS BLVD

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
ANGLE	0	0	1	1	0	2	25.0%
FIXED OBJECT	0	0	1	0	0	1	12.5%
PARKED VEHICLE	1	0	0	0	0	1	12.5%
SIDESWIPE	0	1	2	0	0	3	37.5%
TURNING	1	0	0	0	0	1	12.5%
TOTAL CRASHES	**2**	**1**	**4**	**1**	**0**	**8**	**100.0%**

TOTAL CRASHES RESULTING IN INJURIES: 1
TOTAL CRASHES RESULTING IN FATALITIES: 0

US ROUTE 45 (DEER TRAIL DR TO DEER PATH DR/FALLING WATERS BLVD)

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
ANIMAL	0	0	0	1	0	1	25%
FIXED OBJECT	0	0	0	1	1	2	50%
REAR END	1	0	0	0	0	1	25%
TOTAL CRASHES	**1**	**0**	**0**	**2**	**1**	**4**	**100%**

TOTAL CRASHES RESULTING IN INJURIES: 2
TOTAL CRASHES RESULTING IN FATALITIES: 0

US ROUTE 45 @ CHATHAM WAY

NO CRASHES REPORTED
AT THIS LOCATION

US ROUTE 45 @ DEER TRAIL DR

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
FIXED OBJECT	0	0	0	0	1	1	33%
TURNING	0	1	1	0	0	2	67%
TOTAL CRASHES	**0**	**1**	**1**	**0**	**1**	**3**	**100%**

TOTAL CRASHES RESULTING IN INJURIES: 1
TOTAL CRASHES RESULTING IN FATALITIES: 0

US ROUTE 45 @ HIGHFIELD DR

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
TURNING	1	1	0	0	0	2	100%
TOTAL CRASHES	**1**	**1**	**0**	**0**	**0**	**2**	**100%**

TOTAL CRASHES RESULTING IN INJURIES: 0
TOTAL CRASHES RESULTING IN FATALITIES: 0

US 45 (CHATHAM WAY TO DEER TRAIL DR)

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
REAR END	0	0	0	0	1	1	100%
TOTAL CRASHES	**0**	**0**	**0**	**0**	**1**	**1**	**100%**

TOTAL CRASHES RESULTING IN INJURIES: 0
TOTAL CRASHES RESULTING IN FATALITIES: 0

US ROUTE 45 (IL 132 TO HIGHFIELD DR)

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
ANIMAL	1	1	0	0	1	3	30%
FIXED OBJECT	2	0	1	1	1	5	50%
SIDESWIPE OPP	0	1	0	0	0	1	10%
REAR END	0	0	0	1	0	1	10%
TOTAL CRASHES	**3**	**2**	**1**	**2**	**2**	**10**	**100%**

TOTAL CRASHES RESULTING IN INJURIES: 3
TOTAL CRASHES RESULTING IN FATALITIES: 0

US ROUTE 45 (HIGHFIELD DR TO CHATHAM WAY)

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
REAR END	0	0	1	0	1	2	40%
FIXED OBJECT	0	0	1	1	0	2	40%
HEAD ON	0	0	0	0	1	1	20%
TOTAL CRASHES	**0**	**0**	**2**	**1**	**2**	**5**	**100%**

TOTAL CRASHES RESULTING IN INJURIES: 2
TOTAL CRASHES RESULTING IN FATALITIES: 0

US ROUTE 45 @ IL 132

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
ANGLE	2	4	4	3	1	14	9.8%
FIXED OBJECT	2	7	0	3	2	14	9.8%
OTHER OBJECT	0	1	0	0	1	2	1.4%
OVERTURNED	0	1	0	0	0	1	0.7%
REAR END	20	10	11	8	8	57	39.9%
SIDESWIPE	3	5	0	3	2	13	9.1%
SIDESWIPE OPP	0	1	1	0	1	3	2.1%
TURNING	11	9	6	4	9	39	27.3%
TOTAL CRASHES	**38**	**38**	**22**	**21**	**24**	**143**	**100.0%**

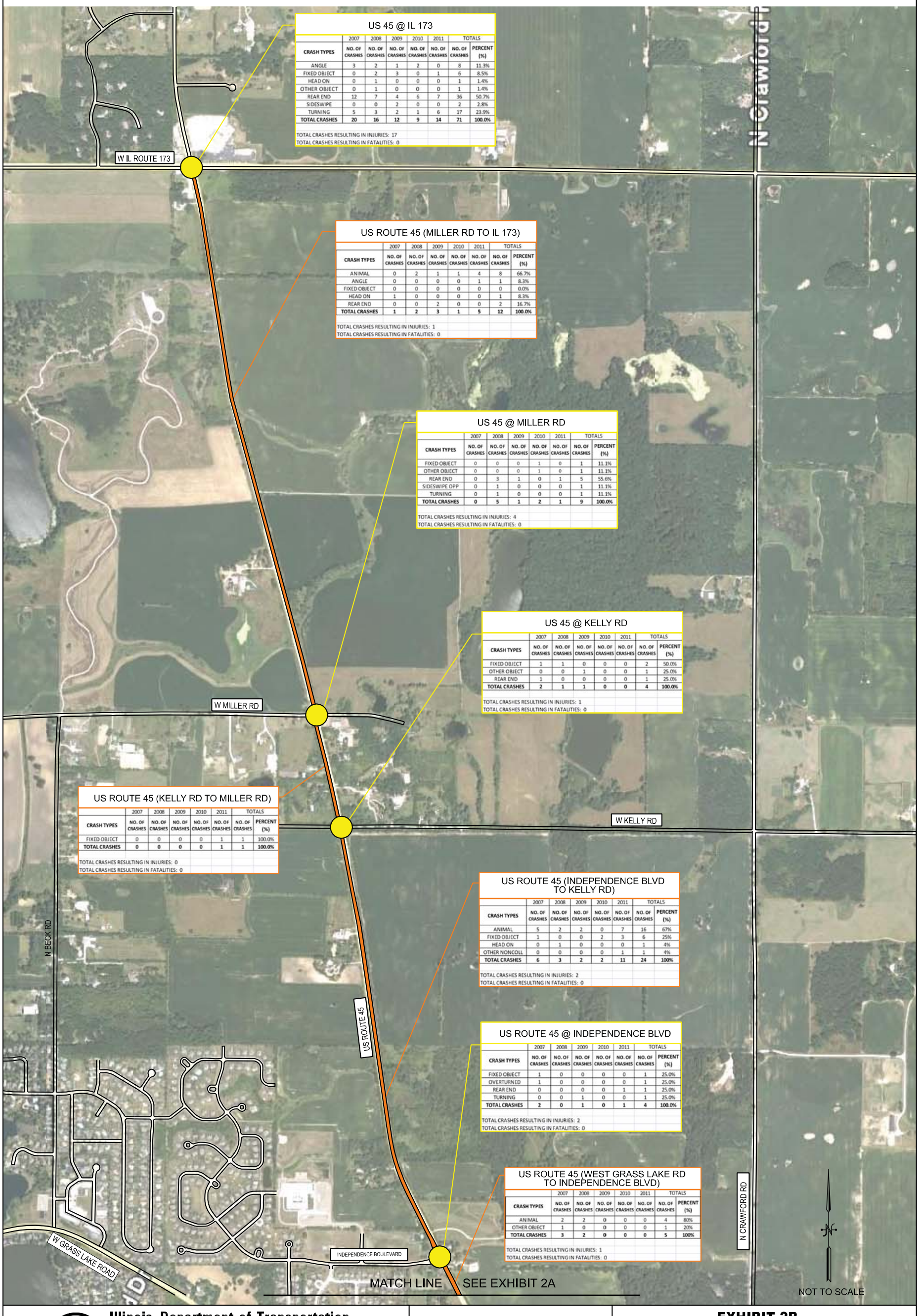
TOTAL CRASHES RESULTING IN INJURIES: 37
TOTAL CRASHES RESULTING IN FATALITIES: 0

Illinois Department of Transportation
DISTRICT 1
201 WEST CENTER COURT
SCHAUMBURG, IL 60196–1096
(847) 705–4000

US ROUTE 45 MILLBURN BYPASS

EXHIBIT 2A

2007 - 2011 CRASH DATA
ROADWAY SEGMENTS & INTERSECTIONS



US 45 @ IL 173

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
ANGLE	3	2	1	2	0	8	11.3%
FIXED OBJECT	0	2	3	0	1	6	8.5%
HEAD ON	0	1	0	0	0	1	1.4%
OTHER OBJECT	0	1	0	0	0	1	1.4%
REAR END	12	7	4	6	7	36	50.7%
SIDESWIPE	0	0	2	0	0	2	2.8%
TURNING	5	3	2	1	6	17	23.9%
TOTAL CRASHES	**20**	**16**	**12**	**9**	**14**	**71**	**100.0%**

TOTAL CRASHES RESULTING IN INJURIES: 17
TOTAL CRASHES RESULTING IN FATALITIES: 0

US ROUTE 45 (MILLER RD TO IL 173)

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
ANIMAL	0	2	1	1	4	8	66.7%
ANGLE	0	0	0	0	1	1	8.3%
FIXED OBJECT	0	0	0	0	0	0	0.0%
HEAD ON	1	0	0	0	0	1	8.3%
REAR END	0	0	2	0	0	2	16.7%
TOTAL CRASHES	**1**	**2**	**3**	**1**	**5**	**12**	**100.0%**

TOTAL CRASHES RESULTING IN INJURIES: 1
TOTAL CRASHES RESULTING IN FATALITIES: 0

US 45 @ MILLER RD

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
FIXED OBJECT	0	0	0	1	0	1	11.1%
OTHER OBJECT	0	0	0	1	0	1	11.1%
REAR END	0	3	1	0	1	5	55.6%
SIDESWIPE OPP	0	1	0	0	0	1	11.1%
TURNING	0	1	0	0	0	1	11.1%
TOTAL CRASHES	**0**	**5**	**1**	**2**	**1**	**9**	**100.0%**

TOTAL CRASHES RESULTING IN INJURIES: 4
TOTAL CRASHES RESULTING IN FATALITIES: 0

US 45 @ KELLY RD

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
FIXED OBJECT	1	1	0	0	0	2	50.0%
OTHER OBJECT	0	0	1	0	0	1	25.0%
REAR END	1	0	0	0	0	1	25.0%
TOTAL CRASHES	**2**	**1**	**1**	**0**	**0**	**4**	**100.0%**

TOTAL CRASHES RESULTING IN INJURIES: 1
TOTAL CRASHES RESULTING IN FATALITIES: 0

US ROUTE 45 (KELLY RD TO MILLER RD)

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
FIXED OBJECT	0	0	0	0	1	1	100.0%
TOTAL CRASHES	**0**	**0**	**0**	**0**	**1**	**1**	**100.0%**

TOTAL CRASHES RESULTING IN INJURIES: 0
TOTAL CRASHES RESULTING IN FATALITIES: 0

US ROUTE 45 (INDEPENDENCE BLVD TO KELLY RD)

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
ANIMAL	5	2	2	0	7	16	67%
FIXED OBJECT	1	0	0	2	3	6	25%
HEAD ON	0	1	0	0	0	1	4%
OTHER NONCOLL	0	0	0	0	1	1	4%
TOTAL CRASHES	**6**	**3**	**2**	**2**	**11**	**24**	**100%**

TOTAL CRASHES RESULTING IN INJURIES: 2
TOTAL CRASHES RESULTING IN FATALITIES: 0

US ROUTE 45 @ INDEPENDENCE BLVD

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
FIXED OBJECT	1	0	0	0	0	1	25.0%
OVERTURNED	1	0	0	0	0	1	25.0%
REAR END	0	0	0	0	1	1	25.0%
TURNING	0	0	1	0	0	1	25.0%
TOTAL CRASHES	**2**	**0**	**1**	**0**	**1**	**4**	**100.0%**

TOTAL CRASHES RESULTING IN INJURIES: 2
TOTAL CRASHES RESULTING IN FATALITIES: 0

US ROUTE 45 (WEST GRASS LAKE RD TO INDEPENDENCE BLVD)

CRASH TYPES	2007 NO. OF CRASHES	2008 NO. OF CRASHES	2009 NO. OF CRASHES	2010 NO. OF CRASHES	2011 NO. OF CRASHES	TOTALS NO. OF CRASHES	TOTALS PERCENT (%)
ANIMAL	2	2	0	0	0	4	80%
OTHER OBJECT	1	0	0	0	0	1	20%
TOTAL CRASHES	**3**	**2**	**0**	**0**	**0**	**5**	**100%**

TOTAL CRASHES RESULTING IN INJURIES: 1
TOTAL CRASHES RESULTING IN FATALITIES: 0

NOT TO SCALE

Illinois Department of Transportation
DISTRICT 1
201 WEST CENTER COURT
SCHAUMBURG, IL 60196–1096
(847) 705–4000

US ROUTE 45 MILLBURN BYPASS

EXHIBIT 2B

2007 - 2011 CRASH DATA
ROADWAY SEGMENTS & INTERSECTIONS

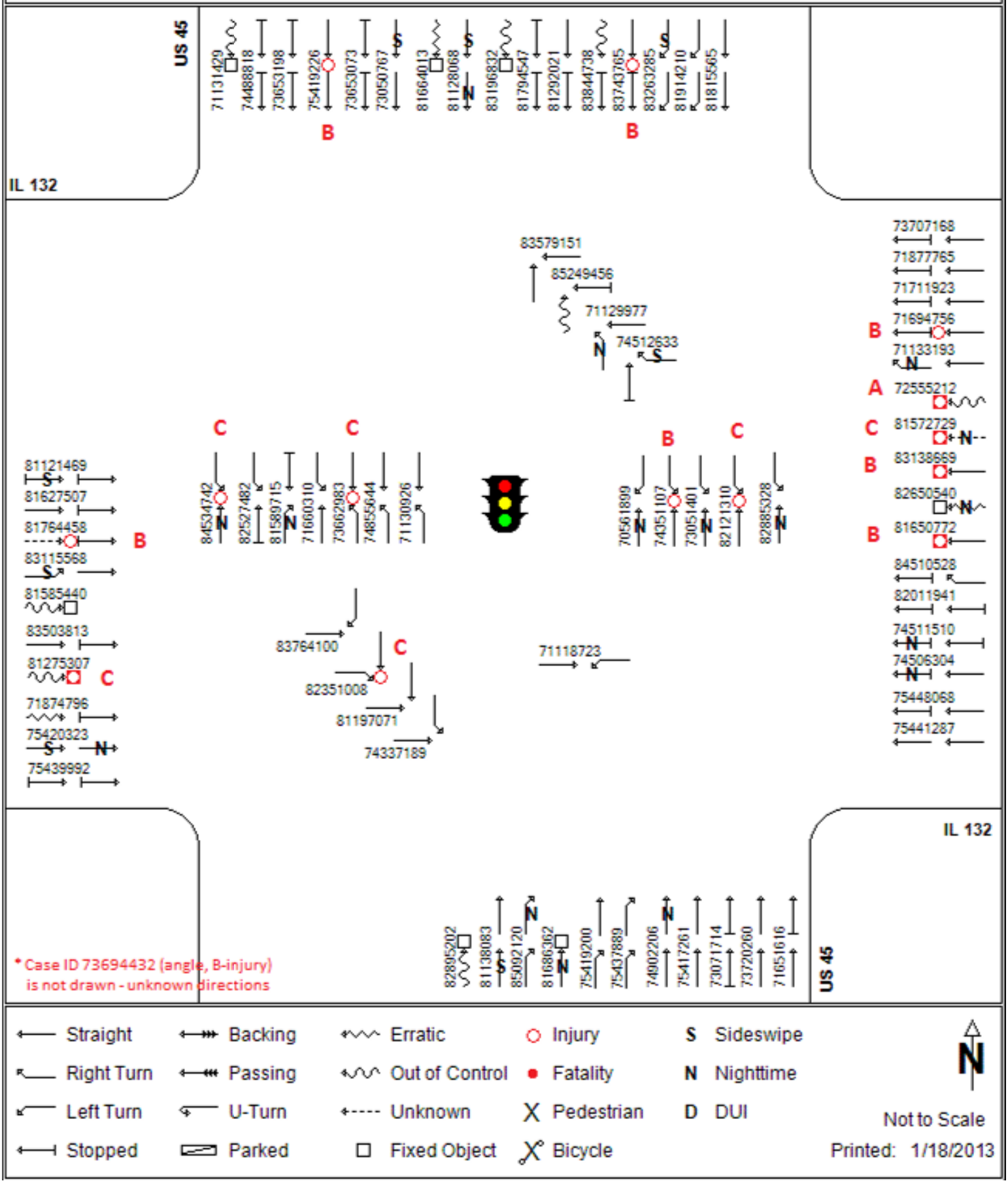
F. FIGURES

ESI
ESI CONSULTANTS, LTD
Excellence, Service, Integrity

Us Highway 45 & Il Route 132
1/1/2007 - 12/31/2008

FIGURE 1A

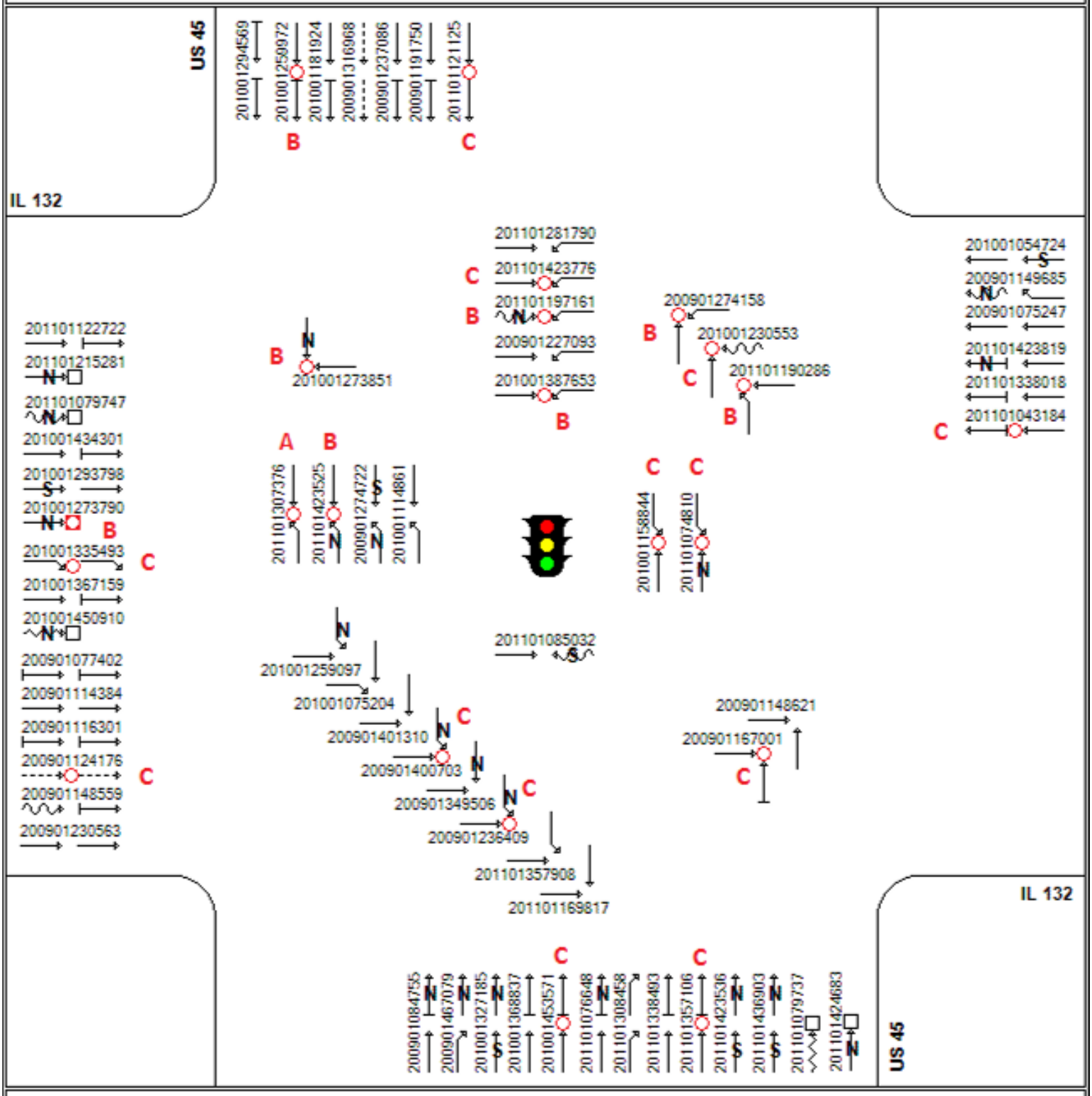
76 Crashes
(1 crash(es) not drawn) *



Us Highway 45 & Il Route 132
1/1/2009 - 12/31/2011

FIGURE 1B

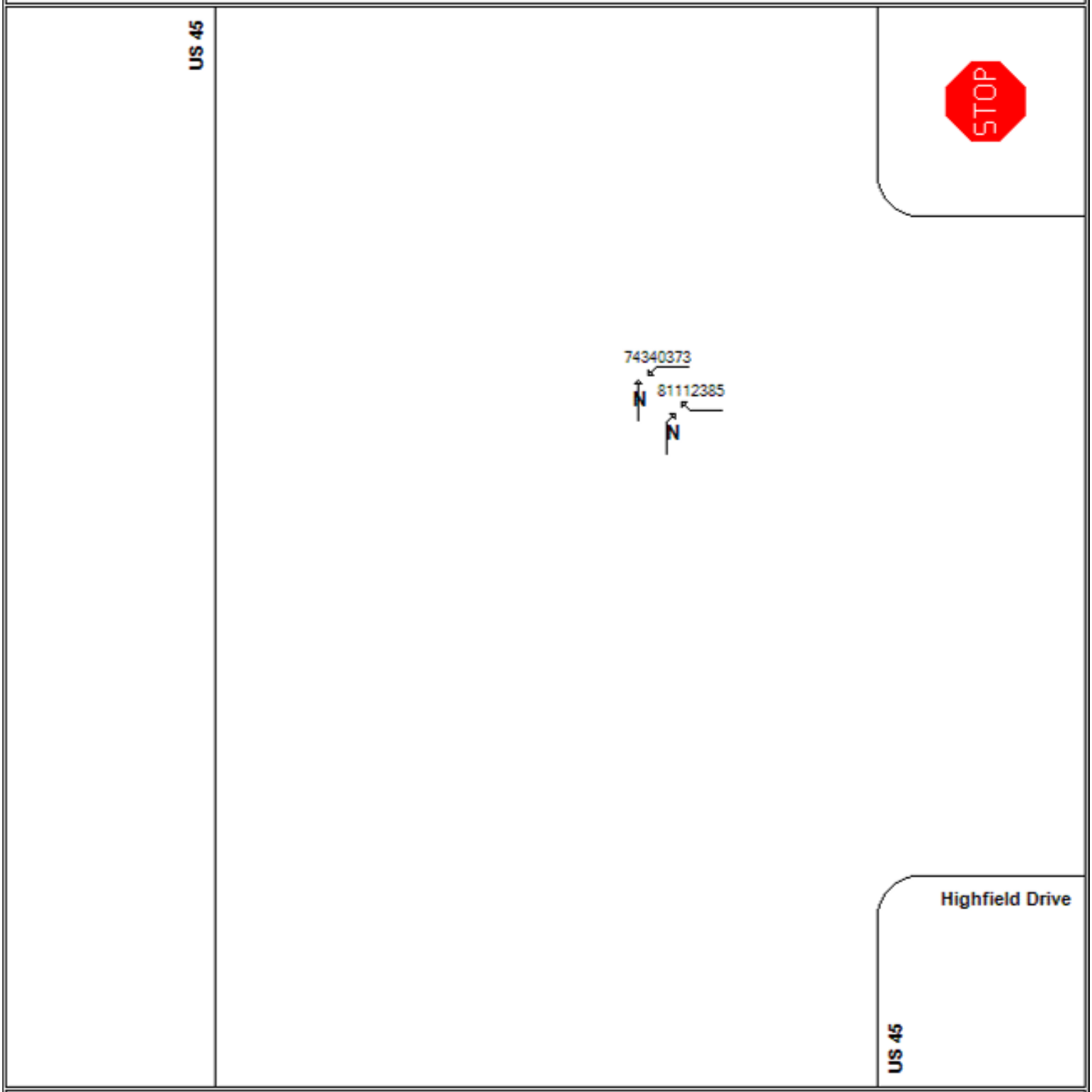
67 Crashes
(0 crash(es) not drawn)



Us Highway 45 & Highfield Dr
1/1/2007 - 12/31/2011

FIGURE 2

2 Crashes
(0 crash(es) not drawn)



Straight	Backing	Erratic	Injury	S	Sideswipe				
Right Turn	Passing	Out of Control	Fatality	N	Nighttime				
Left Turn	U-Turn	Unknown	Pedestrian	D	DUI				
Stopped	Parked	Fixed Object	Bicycle						

N

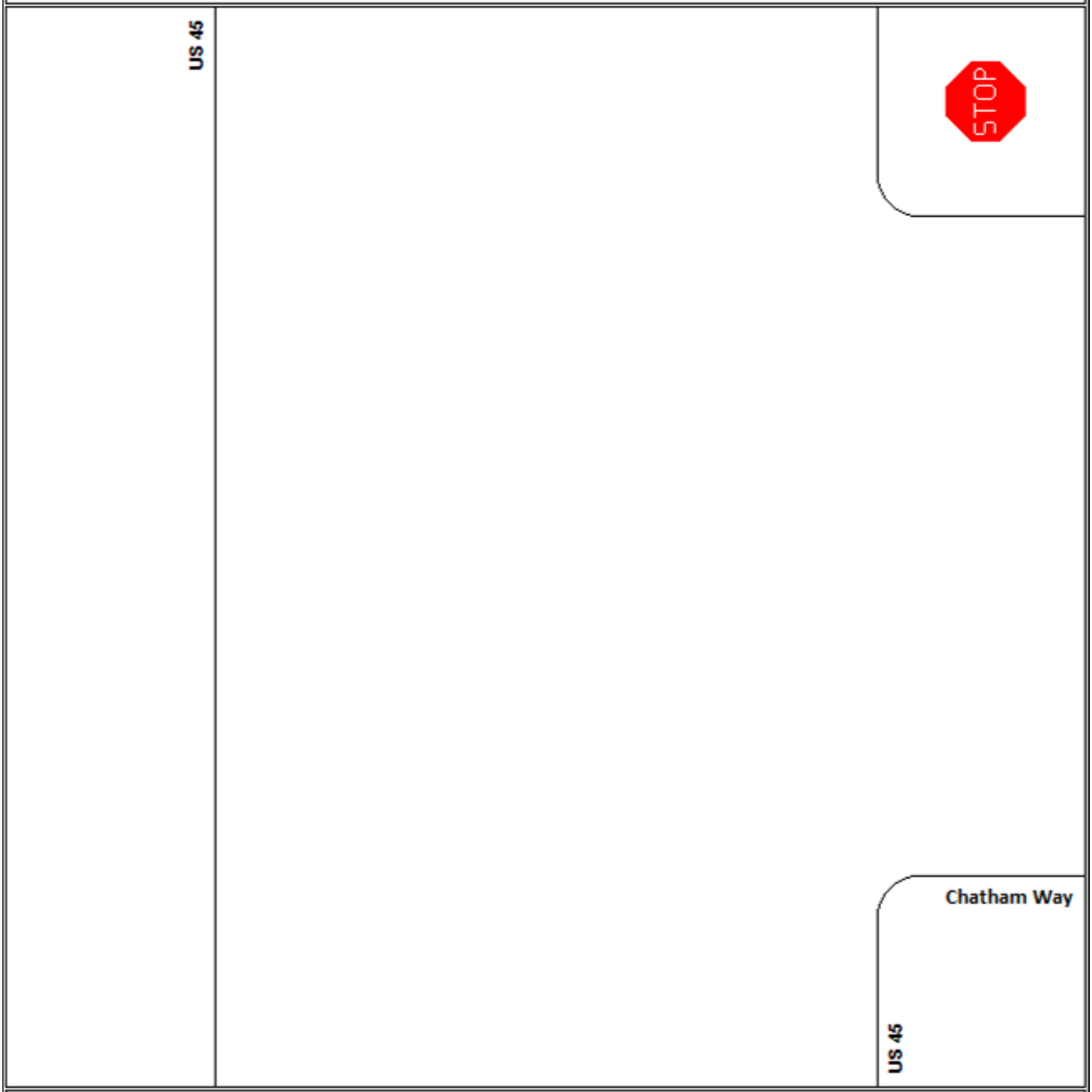
Not to Scale

Printed: 1/18/2013

Us Highway 45 & Chatham Way
1/1/2007 - 12/31/2011

FIGURE 3

0 Crashes
(0 crash(es) not drawn)

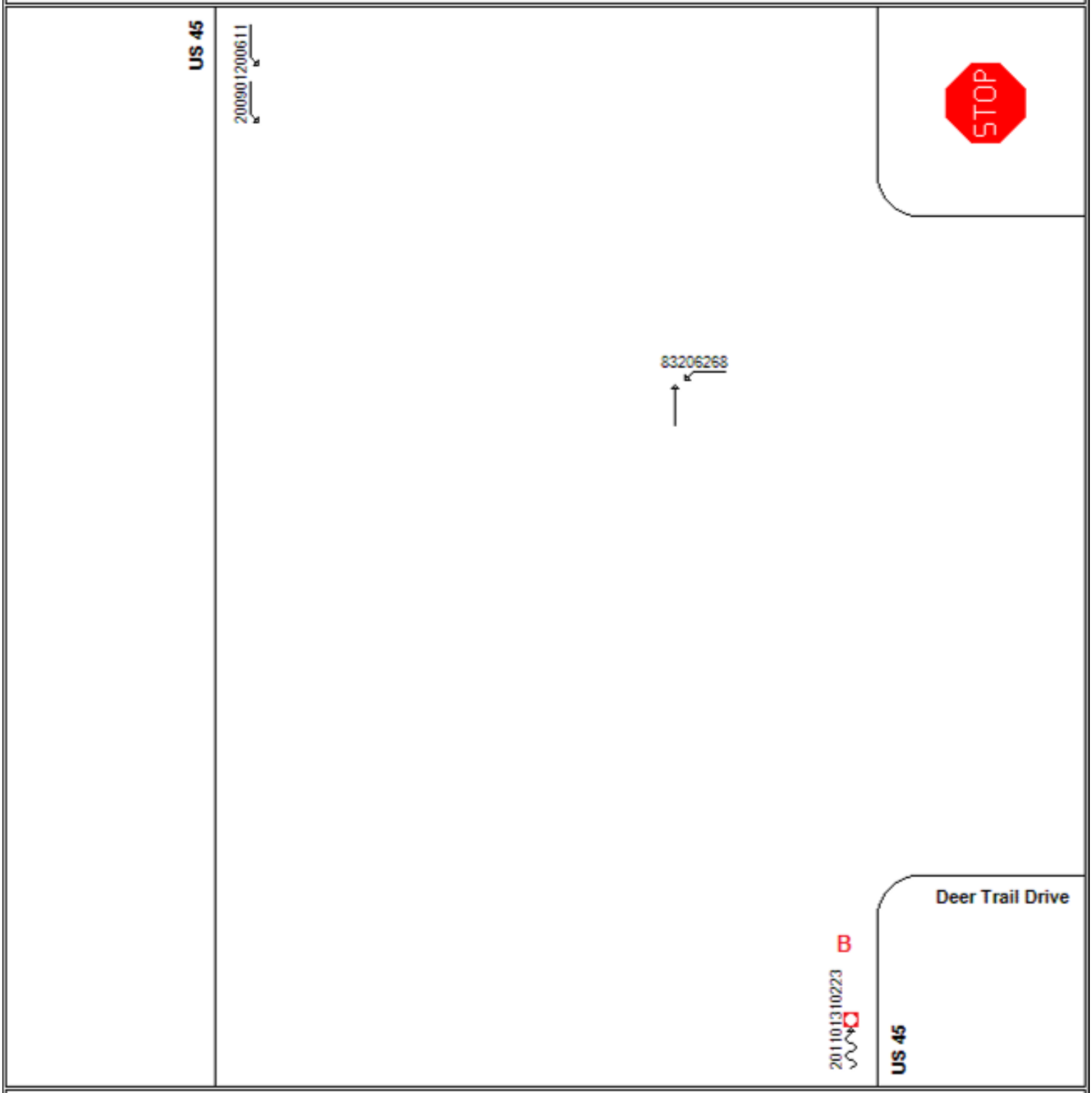


Straight	Backing	Erratic	Injury	S Sideswipe	
Right Turn	Passing	Out of Control	Fatality	N Nighttime	N
Left Turn	U-Turn	Unknown	Pedestrian	D DUI	Not to Scale
Stopped	Parked	Fixed Object	Bicycle		Printed: 1/18/2013

Us Highway 45 & Deer Trail Dr
1/1/2007 - 12/31/2011

FIGURE 4

3 Crashes
(0 crash(es) not drawn)



Straight	Backing	Erratic	Injury	S	Sideswipe
Right Turn	Passing	Out of Control	Fatality	N	Nighttime
Left Turn	U-Turn	Unknown	Pedestrian	D	DUI
Stopped	Parked	Fixed Object	Bicycle		

N

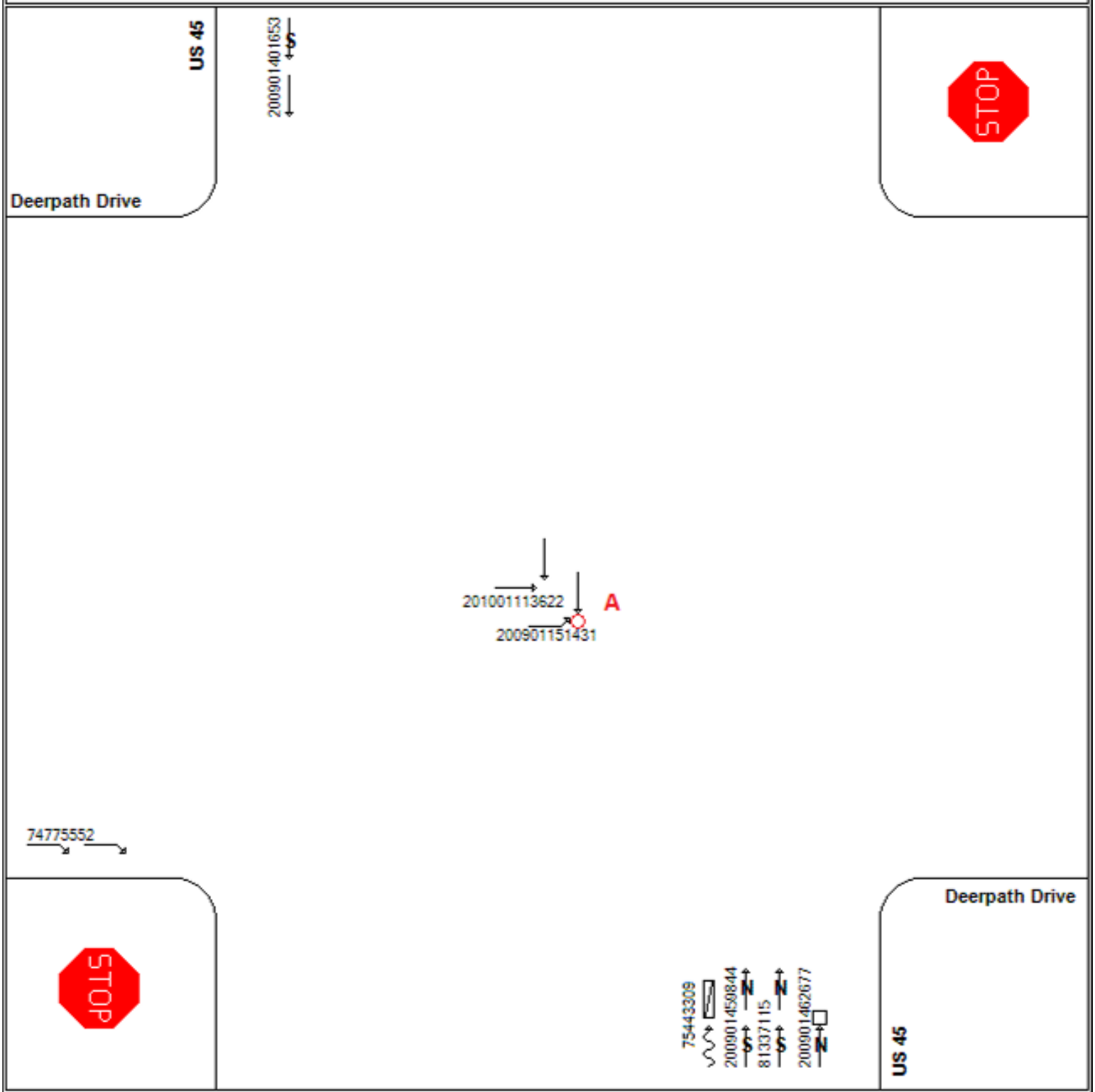
Not to Scale

Printed: 1/18/2013

Us Highway 45 & Deerpath Dr
1/1/2007 - 12/31/2011

FIGURE 5

8 Crashes
(0 crash(es) not drawn)



Straight	Backing	Erratic	Injury	S	Sideswipe
Right Turn	Passing	Out of Control	Fatality	N	Nighttime
Left Turn	U-Turn	Unknown	Pedestrian	D	DUI
Stopped	Parked	Fixed Object	Bicycle		

N

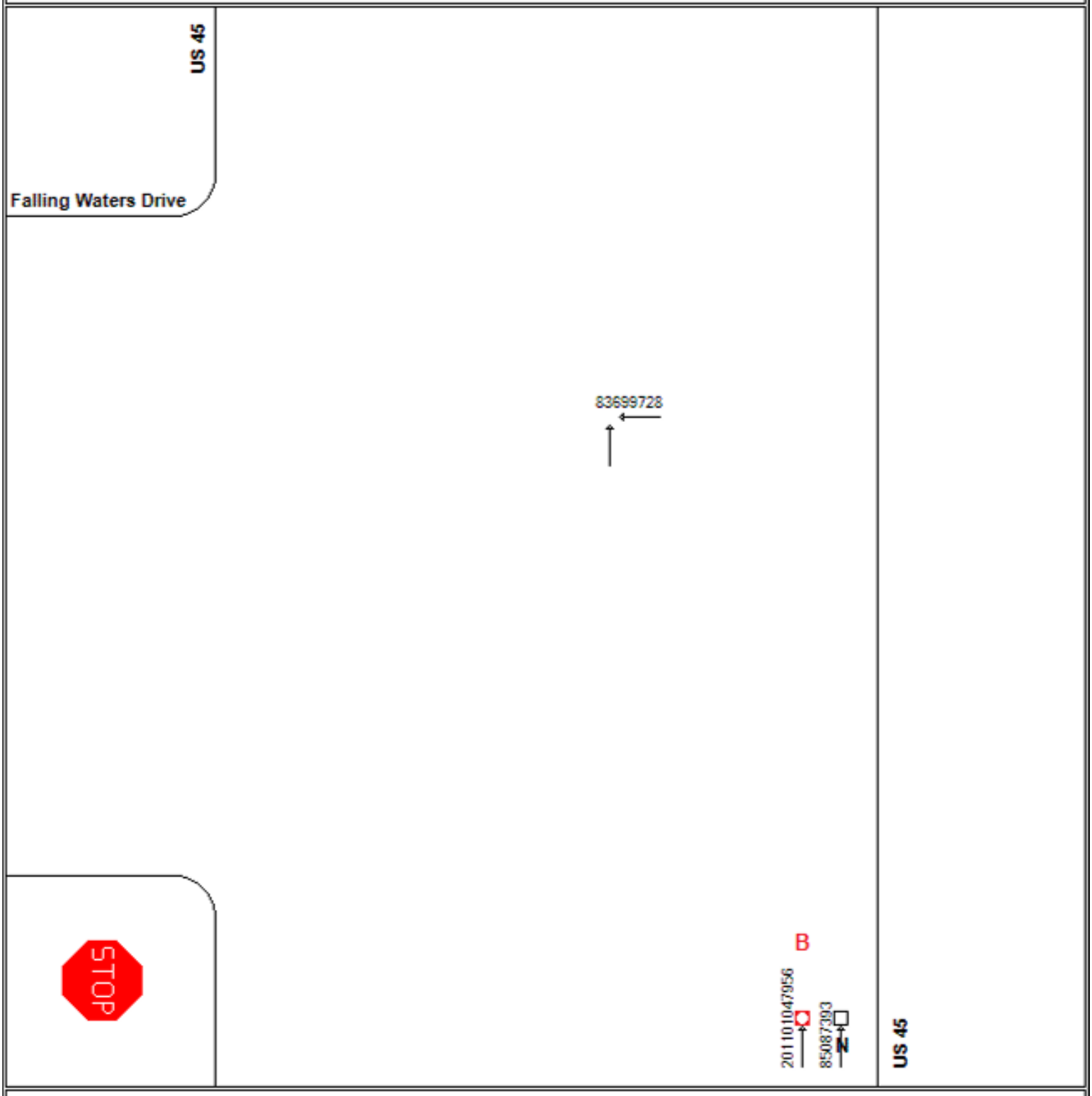
Not to Scale

Printed: 1/18/2013

Us Highway 45 & Falling Waters Dr
1/1/2007 - 12/31/2011

FIGURE 6

3 Crashes
(0 crash(es) not drawn)



Straight	Backing	Erratic	Injury	S	Sideswipe
Right Turn	Passing	Out of Control	Fatality	N	Nighttime
Left Turn	U-Turn	Unknown	Pedestrian	D	DUI
Stopped	Parked	Fixed Object	Bicycle		

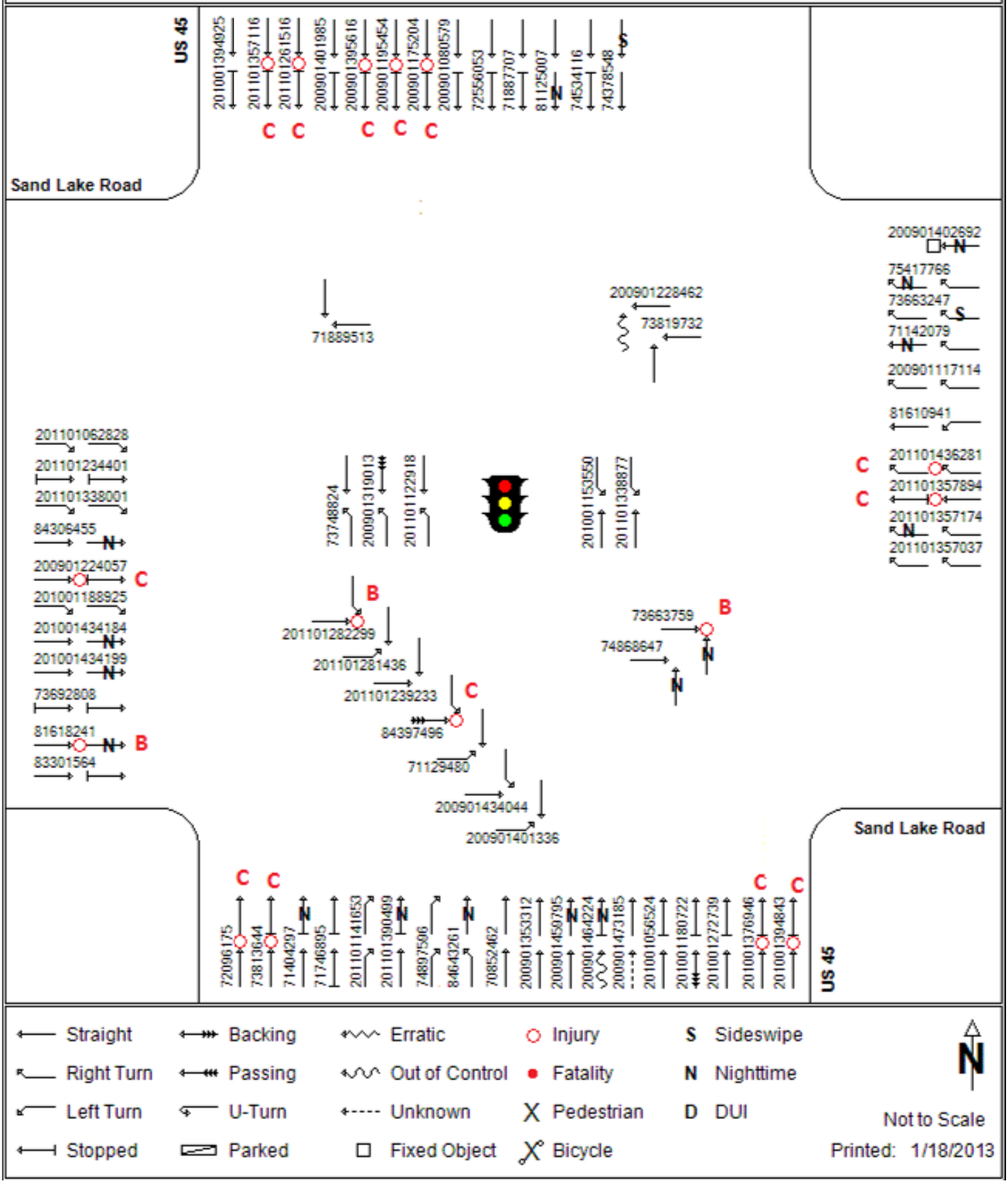
Not to Scale

Printed: 1/18/2013

SAND LAKE RD & US RTE 45
1/1/2007 - 12/31/2011

FIGURE 7

69 Crashes
(0 crash(es) not drawn)



Straight	Backing	Erratic	Injury	S Sideswipe	
Right Turn	Passing	Out of Control	Fatality	N Nighttime	
Left Turn	U-Turn	Unknown	Pedestrian	D DUI	
Stopped	Parked	Fixed Object	Bicycle		

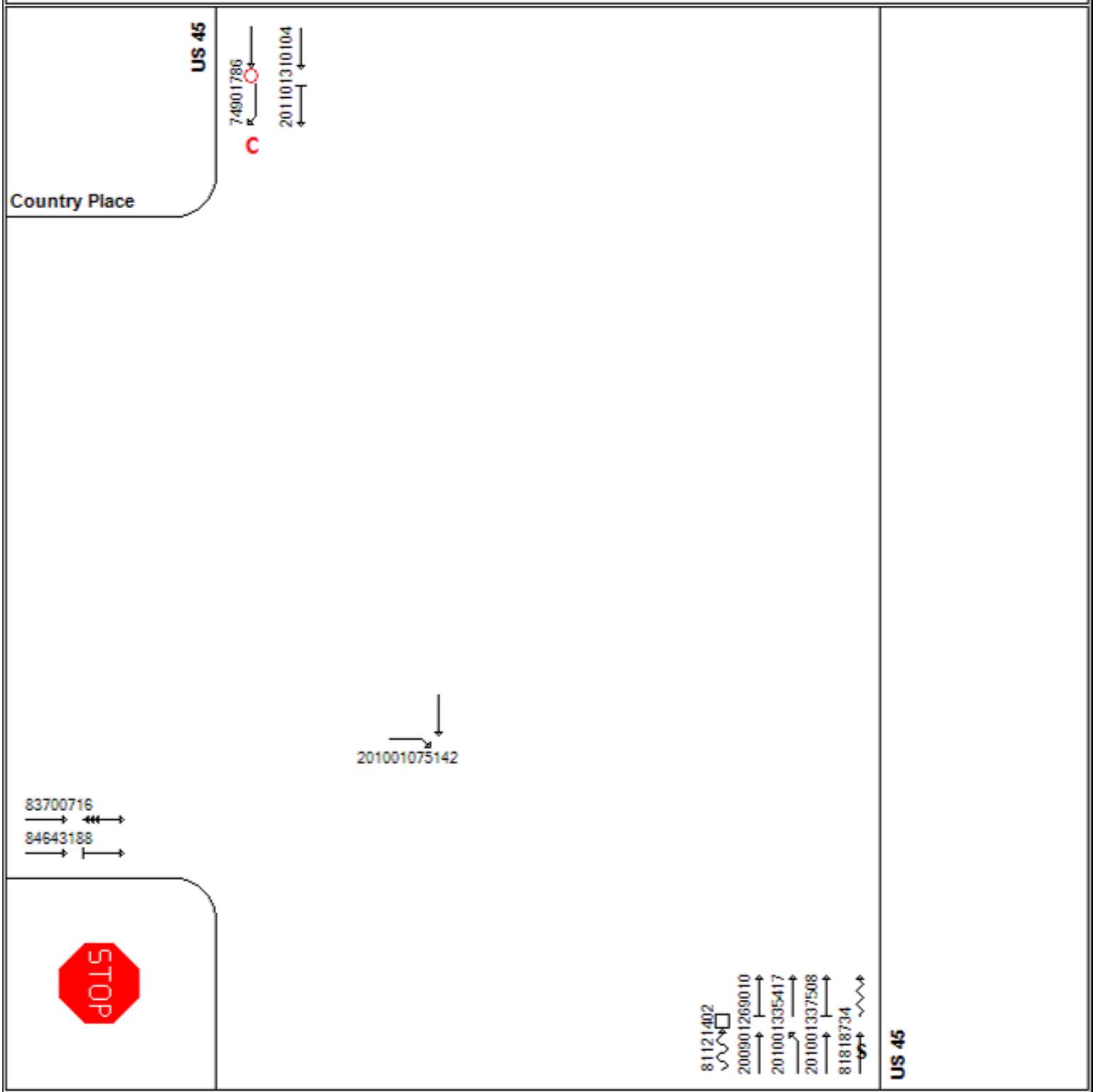
Not to Scale

Printed: 1/18/2013

Us Highway 45 & Country Pl
1/1/2007 - 12/31/2011

FIGURE 8

10 Crashes
(0 crash(es) not drawn)



Straight	Backing	Erratic	Injury	S Sideswipe	
Right Turn	Passing	Out of Control	Fatality	N Nighttime	
Left Turn	U-Turn	Unknown	Pedestrian	D DUI	Not to Scale
Stopped	Parked	Fixed Object	Bicycle		Printed: 1/18/2013

APPENDIX A

CRASH SUMMARY TABLES

ESI

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Excellence, Service, Integrity

Project: US 45 Millburn Bypass

Location: US 45 (IL 132 - Highfield Drive)

Town: Millburn

County: Lake

YEAR	Rear End			Angle			Sideswipe			Turning Left/Right			Fixed Object			Over-turned			Head On			Other Object			Animal			Other Non-Collision			TOTAL
	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count
2007													2	1 - C	1 - CI										1						3
2008							1																		1						2
2009													1	1 - B	1 - BI																1
2010	1	1 - C	1 - CI										1																		2
2011													1												1						2
TOTAL	**1**	**1 - C**	**1 - CI**				**1**						**5**	**1 - B** **1 - C**	**1 - BI** **1 - CI**										**3**						**10**
%	**10.0%**						**10.0%**						**50.0%**												**30.0%**						

	INJURY TYPE											
YEAR	**K**	**A**	**B**	**C**	**PDO**	**WET**		**Snow/Ice**		**Night**		**TOTAL**
2007				1	2			1	33%	2	67%	3
2008					2					1	50%	2
2009			1									1
2010				1	1	1	50%	1	50%	1	50%	2
2011					2					1	50%	2
TOTAL			**1**	**2**	**7**	**1**	**10.0%**	**2**	**20.0%**	**5**	**50.0%**	**10**

Project: US 45 Millburn Bypass

Location: US 45 @ Highfield Drive

Town: Millburn

County: Lake

YEAR	Rear End			Angle			Sideswipe			Turning Left/Right			Fixed Object			Over-turned			Head On			Other Object			Animal			Other Non-Collision			TOTAL
	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count
2007										1																					1
2008										1																					1
2009																															
2010																															
2011																															
TOTAL										**2**																					**2**
%										**100.0%**																					

YEAR	INJURY TYPE K	A	B	C	PDO	WET		Snow/Ice		Night		TOTAL
2007					1					1	100%	1
2008					1			1	100%	1	100%	1
2009												
2010												
2011												
TOTAL					**2**			**1**	**50.0%**	**2**	**100.0%**	**2**

Project: US 45 Millburn Bypass

Location: US 45 (Highfield Drive - Chatham Way)

Town: Millburn

County: Lake

YEAR	Rear End			Angle			Sideswipe			Turning Left/Right			Fixed Object			Over-turned			Head On			Other Object			Animal			Other Non-Collision			TOTAL
	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count
2007																															
2008																															
2009	1												1	1 - B	1 - BI																2
2010													1																		1
2011	1																		1	1 - C	2 - CI										2
TOTAL	**2**												**2**	**1 - B**	**1 - BI**				**1**	**1 - C**	**2 - CI**										**5**
%	**40.0%**												**40.0%**						**20.0%**												

YEAR	INJURY TYPE K	A	B	C	PDO	WET		Snow/Ice		Night		TOTAL
2007												
2008												
2009			1		1	1	50%			1	50%	2
2010					1					1	100%	1
2011				1	1			1	50%			2
TOTAL			**1**	**1**	**3**	**1**	**20.0%**	**1**	**20.0%**	**2**	**40.0%**	**5**

Project: US 45 Millburn Bypass

Location: US 45 @ Chatham Way

Town: Millburn

County: Lake

YEAR	Rear End			Angle			Sideswipe			Turning Left/Right			Fixed Object			Over-turned			Head On			Other Object			Animal			Other Non-Collision			TOTAL
	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count
2007																															
2008																															
2009																															
2010																															
2011																															
TOTAL																															
%																															

	INJURY TYPE											
YEAR	K	A	B	C	PDO	WET		Snow/Ice		Night		TOTAL
2007												
2008												
2009												
2010												
2011												
TOTAL												

Project: US 45 Millburn Bypass

Location: US 45 (Chatham Way - Deer Trail Drive)

Town: Millburn

County: Lake

YEAR	Rear End			Angle			Sideswipe			Turning Left/Right			Fixed Object			Over-turned			Head On			Other Object			Animal			Other Non-Collision			TOTAL
	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count
2007																															
2008																															
2009																															
2010																															
2011	1																														1
TOTAL	1																														1
%																															

	INJURY TYPE											
YEAR	K	A	B	C	PDO	WET		Snow/Ice		Night		TOTAL
2007												
2008												
2009												
2010												
2011					1							1
TOTAL												

Project: US 45 Millburn Bypass

Location: US 45 @ Deer Trail Drive

Town: Millburn

County: Lake

YEAR	Rear End			Angle			Sideswipe			Turning Left/Right			Fixed Object			Over-turned			Head On			Other Object			Animal			Other Non-Collision			TOTAL
	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count
2007																															
2008										1																					1
2009										1																					1
2010																															
2011													1	1 - B	1 - BI																1
TOTAL										**2**			**1**	**1 - B**	**1 - BI**																**3**
%										**66.7%**			**33.3%**																		

	INJURY TYPE											
YEAR	K	A	B	C	PDO	WET		Snow/Ice		Night		TOTAL
2007												
2008					1							1
2009					1							1
2010												
2011			1									1
TOTAL			**1**		**2**							**3**

Project: US 45 Millburn Bypass

Location: US 45 (Deer Trail Drive - Deer Path Drive)

Town: Millburn

County: Lake

YEAR	Rear End			Angle			Sideswipe			Turning Left/Right			Fixed Object			Over-turned			Head On			Other Object			Animal			Other Non-Collision			TOTAL
	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count
2007	1																														1
2008																															
2009																															
2010													1	1 - B	1 - BI										1						2
2011													1	1 - C	1 - CI																1
TOTAL	**1**												**2**	**1 - B** **1 - C**	**1 - BI** **1 - CI**										**1**						**4**
%	**25.0%**												**50.0%**												**25.0%**						

	INJURY TYPE											
YEAR	**K**	**A**	**B**	**C**	**PDO**	**WET**		**Snow/Ice**		**Night**		**TOTAL**
2007					1			1	100%	1	100%	1
2008												
2009												
2010			1		1					2	100%	2
2011				1				1	100%			1
TOTAL			**1**	**1**	**2**			**2**	**50.0%**	**3**	**75.0%**	**4**

Project: US 45 Millburn Bypass

Location: US 45 @ Deer Path Drive / Falling Waters Boulevard

Town: Millburn

County: Lake

YEAR	Rear End			Angle			Sideswipe			Turning Left/Right			Fixed Object			Over-turned			Head On			Other Object			Animal			Other Non-Collision			TOTAL
	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count
2007										1												1									2
2008							1																								1
2009				1	1 - A	2 - AI	2						1																		4
2010				1																											1
2011																															
TOTAL				**2**	**1 - A**	**2 - AI**	**3**			**1**			**1**									**1**									**8**
%				**25.0%**			**37.5%**			**12.5%**			**12.5%**									**12.5%**									

	INJURY TYPE											
YEAR	**K**	**A**	**B**	**C**	**PDO**	**WET**		**Snow/Ice**		**Night**		**TOTAL**
2007					2			1	50%			2
2008					1					1	100%	1
2009		1			3	1	25%			2	50%	4
2010					1							1
2011												
TOTAL		**1**			**7**	**1**	**12.5%**	**1**	**12.5%**	**3**	**37.5%**	**8**

Project: US 45 Millburn Bypass

Location: US 45 (Deer Path Drive - Falling Waters Drive)

Town: Millburn

County: Lake

YEAR	Rear End			Angle			Sideswipe			Turning Left/Right			Fixed Object			Over-turned			Head On			Other Object			Animal			Other Non-Collision			TOTAL
	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count
2007																															
2008																									1						1
2009																									1						1
2010																															
2011																															
TOTAL																									**2**						**2**
%																									**100.0%**						

YEAR	INJURY TYPE K	A	B	C	PDO	WET		Snow/Ice		Night		TOTAL
2007												
2008					1							1
2009					1					1	100%	1
2010												
2011												
TOTAL					**2**					**1**	**50.0%**	**2**

Project: US 45 Millburn Bypass

Location: US 45 @ Falling Waters Drive

Town: Millburn

County: Lake

YEAR	Rear End			Angle			Sideswipe			Turning Left/Right			Fixed Object			Over-turned			Head On			Other Object			Animal			Other Non-Collision			TOTAL
	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count
2007																															
2008				1									1																		2
2009																															
2010																															
2011													1	1 - B	1 - BI 2 - CI																1
TOTAL				**1**									**2**	**1 - B**	**1 - BI 2 - CI**																**3**
%				**33.3%**									**66.7%**																		

	INJURY TYPE											
YEAR	**K**	**A**	**B**	**C**	**PDO**	**WET**		**Snow/Ice**		**Night**		**TOTAL**
2007												
2008					2			1	50%	1	50%	2
2009												
2010												
2011			1									1
TOTAL			**1**		**2**			**1**	**33.3%**	**1**	**33.3%**	**3**

Project: US 45 Millburn Bypass

Location: US 45 (Falling Waters Drive - Sand Lake Road)

Town: Millburn

County: Lake

YEAR	Rear End			Angle			Sideswipe			Turning Left/Right			Fixed Object			Over-turned			Head On			Other Object			Animal			Other Non-Collision			TOTAL
	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count
2007																															
2008																1	1 - B	1 - BI													1
2009	1																														1
2010	1																														1
2011																															
TOTAL	2															1	1 - B	1 - BI													3
%	66.7%															33.3%															

YEAR	INJURY TYPE K	A	B	C	PDO	WET		Snow/Ice		Night		TOTAL
2007												
2008			1									1
2009					1			1	100%			1
2010					1					1	100%	1
2011												
TOTAL			1		2			1	33.3%	1	33.3%	3

Project: US 45 Millburn Bypass

Location: US 45 @ Sand Lake Road

Town: Millburn

County: Lake

YEAR	Rear End			Angle			Sideswipe			Turning Left/Right			Fixed Object			Over-turned			Head On			Other Object			Animal			Other Non-Collision			TOTAL
	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count
2007	10	2 - C	4 - CI	5	1 - B	2 - BI	2			3																					20
2008	5	1 - B	4 - BI							2	1 - C	1 - CI																			7
2009	10	4 - C	5 - CI	1						4															1						16
2010	9	2 - C	2 - CI							1																					10
2011	8	4 - C	5 - CI	1						7	1 - B	1 - BI																			16
TOTAL	**42**	**1 - B 12 - C**	**4 - B 16 - CI**	**7**	**1 - B**	**2 - BI**	**2**			**17**	**1 - B 1 - C**	**1 - BI 1 - CI**													**1**						**69**
%	**60.9%**			**10.1%**			**2.9%**			**24.6%**															**1.4%**						

	INJURY TYPE											
YEAR	**K**	**A**	**B**	**C**	**PDO**	**WET**		**Snow/Ice**		**Night**		**TOTAL**
2007			1	2	17	2	10%			5	25%	20
2008			1	1	5	1	14%			4	57%	7
2009				4	12	3	19%	2	13%	3	19%	16
2010				2	8	1	10%			2	20%	10
2011			1	4	11	3	19%			2	13%	16
TOTAL			**3**	**13**	**53**	**10**	**14.5%**	**2**	**2.9%**	**16**	**23.2%**	**69**

Project: US 45 Millburn Bypass

Location: US 45 (Sand Lake Road to Country Place)

Town: Millburn

County: Lake

YEAR	Rear End			Angle			Sideswipe			Turning Left/Right			Fixed Object			Over-turned			Head On			Other Object			Animal			Other Non-Collision			TOTAL
	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count
2007							2			1			1												1			1			6
2008	1			1						1	1 - B	1 - BI							1	1 - A	2 - AI				1						5
2009	1	1 - B	1 - BI																												1
2010	4	1 - B 2 - C	1 - BI 5 - CI	3	3 - C	9 - CI																									7
2011	1	1 - B	1 - BI	1	1 - C	3 - CI																									2
TOTAL	**7**	**3 - B 2 - C**	**3 - BI 5 - CI**	**5**	**4 - C**	**12 - CI**	**2**			**2**	**1 - B**	**1 - BI**	**1**						**1**	**1 - A**	**2 - AI**				**2**			**1**			**21**
%	**33.3%**			**23.8%**			**9.5%**			**9.5%**			**4.8%**						**4.8%**						**9.5%**			**4.8%**			

	INJURY TYPE											
YEAR	**K**	**A**	**B**	**C**	**PDO**	**WET**		**Snow/Ice**		**Night**		**TOTAL**
2007					6			3	50%	3	50%	6
2008		1	1		3	1	20%			3	60%	5
2009			1							1	100%	1
2010			1	5	1	1	14%			2	29%	7
2011			1	1								2
TOTAL		**1**	**4**	**6**	**10**	**2**	**9.5%**	**3**	**14.3%**	**9**	**42.9%**	**21**

Project: US 45 Millburn Bypass

Location: US 45 @ Country Place

Town: Millburn

County: Lake

YEAR	Rear End			Angle			Sideswipe			Turning Left/Right			Fixed Object			Over-turned			Head On			Other Object			Animal			Other Non-Collision			TOTAL
	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count	Injury Type	Injury Count	Crash Count
2007										1	1 - C	1 - CI																			1
2008	2						1						1																		4
2009	1																														1
2010	1			1						1																					3
2011	1																														1
TOTAL	**5**			**1**			**1**			**2**	**1 - C**	**1 - CI**	**1**																		**10**
%	**50.0%**			**10.0%**			**10.0%**			**20.0%**			**10.0%**																		

	INJURY TYPE											
YEAR	**K**	**A**	**B**	**C**	**PDO**	**WET**		**Snow/Ice**		**Night**		**TOTAL**
2007				1								1
2008					4	1	25%	1	25%			4
2009					1							1
2010					3							3
2011					1							1
TOTAL				**1**	**9**	**1**	**10.0%**	**1**	**10.0%**			**10**

APPENDIX B

RAW CRASH DATA

ESI

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US 45 @ IL 132

2007 - 2011

CRASH ID	CRASH DATE	CRASH TIME	COLLISION TYPE	WEATHER	ROAD SURFACE	LIGHTING	VEHICLES INVOLVED	TOTAL INJURIES	INJURY LEVEL
201101307376	8/21/2011	14:50	Turning	Clear	Dry	Daylight	2	1	A
72555212	4/22/2007	17:45	Fixed object	Clear	Dry	Daylight	1	1	A
201101423525	11/10/2011	19:10	Turning	Clear	Dry	Darkness	2	1	B
201101190286	6/7/2011	13:00	Turning	Clear	Dry	Daylight	2	3	B
201101197161	5/31/2011	21:00	Turning	Clear	Dry	Darkness	2	1	B
201001387653	10/31/2010	16:35	Turning	Clear	Dry	Daylight	3	1	B
201001273851	7/11/2010	15:00	Angle	Clear	Dry	Darkness, lighted road	2	1	B
201001273790	7/10/2010	4:06	Fixed object	Clear	Dry	Darkness, lighted road	1	1	B
201001259972	7/4/2010	14:22	Rear end	Clear	Dry	Daylight	2	1	B
200901274158	7/16/2009	18:30	Turning	Clear	Dry	Daylight	2	1	B
83743765	9/28/2008	13:45	Rear end	Clear	Dry	Daylight	3	3	B
83138669	8/8/2008	15:32	Fixed object	Clear	Dry	Daylight	1	1	B
81764458	4/21/2008	1:20	Rear end	Clear	Dry	Daylight	2	1	B
81650772	1/14/2008	6:36	Fixed object	Clear	Wet	Dawn	1	1	B
75419226	11/4/2007	6:30	Rear end	Clear	Dry	Daylight	2	1	B
74351107	8/16/2007	15:37	Turning	Clear	Dry	Daylight	2	3	B
73694432	7/12/2007	17:50	Angle	Unknown	Unknown	Unknown	2	1	B
71694756	2/27/2007	15:49	Rear end	Clear	Dry	Daylight	2	1	B
201101423776	11/4/2011	12:25	Turning	Clear	Dry	Daylight	2	2	C
201101357106	10/11/2011	7:35	Rear end	Clear	Dry	Daylight	2	1	C
201101121125	3/21/2011	17:31	Rear end	Clear	Dry	Daylight	2	1	C
201101043184	2/21/2011	8:51	Rear end	Rain	Ice	Daylight	2	1	C
201101074810	1/22/2011	18:05	Turning	Clear	Dry	Darkness, lighted road	2	1	C
201001453571	11/28/2010	13:08	Rear end	Clear	Dry	Daylight	2	1	C
201001335493	9/9/2010	15:22	Rear end	Clear	Dry	Daylight	2	1	C
201001230553	6/13/2010	18:15	Angle	Rain	Wet	Daylight	2	2	C
201001158844	4/11/2010	11:34	Turning	Clear	Dry	Daylight	2	1	C
200901400703	10/8/2009	20:47	Turning	Clear	Dry	Darkness	2	1	C
200901236409	6/27/2009	1:45	Turning	Clear	Wet	Darkness, lighted road	2	2	C
200901167001	4/20/2009	1:42	Angle	Clear	Wet	Daylight	2	2	C
200901124176	3/10/2009	17:45	Rear end	Clear	Wet	Daylight	2	1	C
84534742	11/14/2008	16:57	Turning	Clear	Dry	Darkness	2	6	C
82351008	6/14/2008	17:32	Turning	Clear	Dry	Daylight	2	1	C
82121310	5/30/2008	15:47	Turning	Clear	Dry	Daylight	2	1	C
81275307	3/21/2008	1:20	Fixed object	Snow	Snow and slush	Daylight	1	2	C
81572729	1/22/2008	21:49	Fixed object	Clear	Dry	Darkness	1	1	C
73662983	6/15/2007	6:32	Turning	Clear	Dry	Daylight	2	1	C
201101436903	12/15/2011	17:09	Sideswipe	Clear	Dry	Darkness	2	0	PDO
201101423536	12/8/2011	19:35	Sideswipe	Clear	Dry	Darkness	2	0	PDO
201101424683	11/5/2011	20:03	Other object	Clear	Dry	Darkness	1	0	PDO
201101423819	11/4/2011	18:20	Rear end	Clear	Dry	Darkness, lighted road	2	0	PDO
201101357908	10/17/2011	10:22	Turning	Clear	Dry	Daylight	4	0	PDO
201101338493	9/25/2011	17:00	Rear end	Clear	Dry	Daylight	2	0	PDO
201101338018	9/21/2011	14:50	Rear end	Clear	Dry	Daylight	2	0	PDO
201101308458	9/1/2011	14:45	Turning	Clear	Dry	Daylight	2	0	PDO
201101281790	5/14/2011	16:38	Turning	Rain	Wet	Daylight	2	0	PDO
201101169817	5/11/2011	16:00	Angle	Clear	Dry	Daylight	2	0	PDO

US 45 @ IL 132

2007 - 2011

CRASH ID	CRASH DATE	CRASH TIME	COLLISION TYPE	WEATHER	ROAD SURFACE	LIGHTING	VEHICLES INVOLVED	TOTAL INJURIES	INJURY LEVEL
201101122722	3/31/2011	13;14	Rear end	Clear	Dry	Daylight	2	0	PDO
201101079737	2/21/2011	7:30	Fixed object	Clear	Ice	Daylight	1	0	PDO
201101079747	2/21/2011	23:28	Fixed object	Snow	Snow and slush	Darkness, lighted road	1	0	PDO
201101076648	1/28/2011	22:35	Rear end	Clear	Dry	Darkness, lighted road	3	0	PDO
201101085032	1/18/2011	8:10	Sideswipe opposite	Snow	Snow and slush	Daylight	2	0	PDO
201001450910	12/22/2010	22:12	Fixed object	Clear	Dry	Darkness, lighted road	1	0	PDO
201001434301	12/13/2010	14:15	Rear end	Clear	Snow and slush	Daylight	2	0	PDO
201001458081	11/27/2010	3:00	Fixed object	Clear	Dry	Darkness, lighted road	1	0	PDO
201001368837	10/21/2010	8:32	Rear end	Clear	Dry	Daylight	2	0	PDO
201001367159	10/16/2010	8:42	Rear end	Clear	Dry	Daylight	2	0	PDO
201001327185	9/25/2010	22:23	Sideswipe	Clear	Dry	Darkness, lighted road	2	0	PDO
201001294569	8/10/2010	17:08	Rear end	Clear	Dry	Daylight	2	0	PDO
201001293798	8/6/2010	18:16	Sideswipe	Clear	Dry	Daylight	2	0	PDO
201001259097	6/24/2010	23:38	Turning	Clear	Dry	Darkness, lighted road	2	0	PDO
201001181924	5/22/2010	15:15	Rear end	Clear	Dry	Daylight	2	0	PDO
201001114861	3/18/2010	10:02	Turning	Clear	Dry	Daylight	2	0	PDO
201001075204	2/2/2010	6:53	Angle	Snow	Snow and slush	Daylight	2	0	PDO
201001054724	1/15/2010	6:52	Sideswipe	Clear	Dry	Daylight	2	0	PDO
200901467079	12/21/2009	7:15	Turning	Clear	Dry	Darkness	2	0	PDO
200901401310	10/30/2009	17:00	Angle	Other	Wet	Daylight	2	0	PDO
200901349506	9/20/2009	23:20	Angle	Rain	Wet	Darkness, lighted road	3	0	PDO
200901316968	8/2/2009	19:15	Rear end	Clear	Dry	Daylight	2	0	PDO
200901274722	7/20/2009	22:00	Sideswipe opposite	Clear	Dry	Darkness	2	0	PDO
200901230563	6/24/2009	14:40	Rear end	Clear	Dry	Daylight	2	0	PDO
200901227093	6/16/2009	6:00	Turning	Clear	Dry	Daylight	2	0	PDO
200901237086	6/16/2009	18:50	Rear end	Clear	Dry	Daylight	3	0	PDO
200901191750	5/21/2009	9:10	Rear end	Clear	Dry	Daylight	2	0	PDO
200901148559	4/14/2009	7:20	Rear end	Rain	Wet	Daylight	2	0	PDO
200901148621	4/13/2009	1:52	Angle	Rain	Dry	Daylight	2	0	PDO
200901149685	4/8/2009	23:20	Rear end	Clear	Dry	Darkness	2	0	PDO
200901114384	3/6/2009	16:35	Rear end	Clear	Dry	Daylight	2	0	PDO
200901116301	3/3/2009	6:45	Rear end	Clear	Dry	Daylight	2	0	PDO
200901084755	2/1/2009	19:05	Rear end	Clear	Dry	Darkness, lighted road	3	0	PDO
200901077402	1/26/2009	7:30	Rear end	Clear	Dry	Daylight	2	0	PDO
200901075247	1/16/2009	14:00	Turning	Clear	Wet	Daylight	2	0	PDO
85249456	12/24/2008	9:40	Angle	Snow	Snow and slush	Daylight	2	0	PDO
85092120	12/23/2008	22:20	Rear end	Snow	Snow and slush	Darkness	2	0	PDO
84510528	11/8/2008	1:00	Turning	Rain	Dry	Daylight	2	0	PDO
83844738	10/8/2008	7:15	Rear end	Rain	Wet	Daylight	2	0	PDO
83764100	9/30/2008	8:30	Turning	Clear	Dry	Daylight	2	0	PDO
83579151	9/11/2008	13:30	Angle	Clear	Dry	Daylight	2	0	PDO
83503813	9/8/2008	6:06	Rear end	Clear	Dry	Dawn	2	0	PDO
83263285	8/23/2008	19:14	Sideswipe	Clear	Dry	Daylight	2	0	PDO
83196832	8/16/2008	19:54	Overturned	Clear	Dry	Dusk	1	0	PDO
83115568	8/8/2008	13:25	Sideswipe	Clear	Dry	Daylight	2	0	PDO
82895202	7/28/2008	16:31	Fixed object	Clear	Dry	Daylight	1	0	PDO
82885328	7/27/2008	21:15	Turning	Clear	Dry	Darkness	2	0	PDO

US 45 @ IL 132

2007 - 2011

CRASH ID	CRASH DATE	CRASH TIME	COLLISION TYPE	WEATHER	ROAD SURFACE	LIGHTING	VEHICLES INVOLVED	TOTAL INJURIES	INJURY LEVEL
82650540	7/8/2008	0:30	Fixed object	Rain	Wet	Darkness	1	0	PDO
82527482	6/25/2008	16:47	Turning	Clear	Wet	Daylight	2	0	PDO
82121302	5/30/2008	16:00	Sideswipe opposite	Clear	Dry	Daylight	2	0	PDO
82011941	5/26/2008	16:47	Rear end	Clear	Dry	Daylight	2	0	PDO
81914210	5/14/2008	7:55	Rear end	Clear	Wet	Daylight	2	0	PDO
81815565	5/13/2008	14:10	Turning	Clear	Dry	Daylight	2	0	PDO
81794547	4/28/2008	16:12	Rear end	Rain	Wet	Daylight	2	0	PDO
81664013	4/25/2008	15:11	Angle	Clear	Dry	Daylight	2	0	PDO
81627507	4/17/2008	7:25	Rear end	Clear	Dry	Daylight	2	0	PDO
81292021	3/20/2008	7:35	Rear end	Clear	Dry	Daylight	2	0	PDO
81128068	2/27/2008	17:49	Sideswipe	Clear	Dry	Darkness	2	0	PDO
81138083	2/22/2008	15:17	Sideswipe	Clear	Dry	Daylight	4	0	PDO
81121469	2/7/2008	9:00	Sideswipe	Clear	Snow and slush	Daylight	2	0	PDO
81197071	2/1/2008	6:20	Angle	Snow	Snow and slush	Dawn	2	0	PDO
81585440	1/31/2008	17:11	Fixed object	Snow	Snow and slush	Daylight	1	0	PDO
81589715	1/30/2008	5:43	Turning	Snow	Ice	Darkness	2	0	PDO
81686362	1/7/2008	20:45	Other object	Clear	Wet	Darkness	1	0	PDO
75448068	12/29/2007	15:13	Rear end	Clear	Dry	Daylight	4	0	PDO
75439992	12/18/2007	7:45	Rear end	Clear	Wet	Daylight	2	0	PDO
75437889	12/15/2007	15:30	Rear end	Snow	Snow and slush	Daylight	2	0	PDO
75441287	12/1/2007	13:15	Rear end	Snow	Snow and slush	Daylight	2	0	PDO
75420323	11/23/2007	21:00	Sideswipe	Clear	Dry	Darkness	2	0	PDO
75417261	11/17/2007	16:42	Rear end	Rain	Wet	Dusk	2	0	PDO
75419200	11/2/2007	10:34	Turning	Clear	Dry	Daylight	2	0	PDO
74902206	10/22/2007	20:30	Rear end	Rain	Wet	Darkness	2	0	PDO
74855644	10/6/2007	16:24	Turning	Clear	Dry	Daylight	2	0	PDO
74506304	9/12/2007	19:54	Rear end	Clear	Dry	Darkness	2	0	PDO
74488818	9/10/2007	16:00	Rear end	Rain	Wet	Daylight	2	0	PDO
74511510	9/10/2007	21:45	Rear end	Rain	Wet	Darkness	2	0	PDO
74512633	9/8/2007	14:20	Sideswipe	Fog	Dry	Daylight	2	0	PDO
74337189	8/16/2007	17:17	Angle	Clear	Dry	Daylight	2	0	PDO
73707168	7/21/2007	16:00	Rear end	Clear	Dry	Daylight	2	0	PDO
73720260	7/12/2007	12:20	Rear end	Fog	Dry	Daylight	2	0	PDO
73653073	6/4/2007	6:45	Rear end	Rain	Wet	Daylight	2	0	PDO
73653198	6/4/2007	6:45	Rear end	Rain	Wet	Daylight	2	0	PDO
73071714	5/28/2007	12:00	Rear end	Clear	Dry	Daylight	2	0	PDO
73051401	5/11/2007	0:00	Turning	Clear	Dry	Darkness, lighted road	2	0	PDO
73050767	5/8/2007	15:00	Sideswipe	Clear	Dry	Daylight	2	0	PDO
71877765	3/26/2007	8:00	Rear end	Clear	Dry	Daylight	2	0	PDO
71874796	3/5/2007	7:57	Rear end	Clear	Dry	Daylight	2	0	PDO
71711923	2/16/2007	14:25	Rear end	Clear	Dry	Daylight	4	0	PDO
71660310	2/13/2007	7:37	Turning	Snow	Snow and slush	Daylight	2	0	PDO
71651616	2/7/2007	11:50	Rear end	Clear	Dry	Daylight	2	0	PDO
71118723	1/30/2007	13:55	Turning	Clear	Wet	Daylight	2	0	PDO
70561899	1/26/2007	19:38	Turning	Clear	Dry	Darkness	2	0	PDO
71133193	1/26/2007	21:27	Turning	Clear	Dry	Darkness	2	0	PDO
71130926	1/12/2007	7:25	Turning	Fog	Wet	Daylight	2	0	PDO

US 45 @ IL 132

2007 - 2011

CRASH ID	CRASH DATE	CRASH TIME	COLLISION TYPE	WEATHER	ROAD SURFACE	LIGHTING	VEHICLES INVOLVED	TOTAL INJURIES	INJURY LEVEL
71129977	1/12/2007	16:44	Turning	Rain	Wet	Darkness	2	0	PDO
71131429	1/4/2007	14:25	Fixed object	Rain	Wet	Daylight	1	0	PDO

TOTAL CRASHES: **143**

TOTAL INJURIES: **53**

US 45 (IL 132 to Highfield Drive)

2007 - 2011

CRASH ID	CRASH DATE	CRASH TIME	COLLISION TYPE	WEATHER	ROAD SURFACE	LIGHTING	VEHICLES INVOLVED	TOTAL INJURIES	INJURY LEVEL
200901027105	1/6/2009	14:09	Fixed object	Clear	Dry	Daylight	1	1	B
201001320520	9/1/2010	8:43	Rear end	Rain	Wet	Daylight	3	1	C
75442426	12/23/2007	19:10	Fixed object	Snow	Snow and slush	Darkness	1	1	C
201101215281	5/29/2011	2:00	Animal	Fog/smoke/haze	Dry	Darkness	1	0	PDO
201101081587	2/5/2011	12:53	Fixed object	Clear	Dry	Daylight	1	0	PDO
201001439517	12/12/2010	4:00	Fixed object	Snow	Snow	Darkness	1	0	PDO
84768258	12/5/2008	21:20	Animal	Clear	Dry	Darkness	1	0	PDO
83278556	3/27/2008	9:05	Sideswipe Opp.	Clear	Dry	Daylight	2	0	PDO
73747917	6/24/2007	21:23	Animal	Clear	Dry	Darkness	1	0	PDO
72555758	4/24/2007	18:15	Fixed object	Clear	Dry	Daylight	1	0	PDO

TOTAL CRASHES: **10**

TOTAL INJURIES: **3**

US 45 @ Highfield Drive

2007 - 2011

CRASH ID	CRASH DATE	CRASH TIME	COLLISION TYPE	WEATHER	ROAD SURFACE	LIGHTING	VEHICLES INVOLVED	TOTAL INJURIES	INJURY LEVEL
81112385	2/9/2008	18:00	Turning	Snow	Ice	Darkness, lighted road	2	0	PDO
74340373	8/17/2007	19:50	Turning	Clear	Dry	Darkness, lighted road	2	0	PDO

TOTAL CRASHES: 2

TOTAL INJURIES: 0

US 45 (Highfield Drive to Chatham Way)

2007 - 2011

CRASH ID	CRASH DATE	CRASH TIME	COLLISION TYPE	WEATHER	ROAD SURFACE	LIGHTING	VEHICLES INVOLVED	TOTAL INJURIES	INJURY LEVEL
200901274435	7/24/2009	21:13	Rear end	Rain	Wet	Darkness	2	*1*	B
201101084276	2/21/2011	7:58	Head On	Rain	Ice	Daylight	2	*2*	C
201101139250	4/25/2011	12:23	Rear end	Clear	Dry	Daylight	2	*0*	PDO
201001180796	4/30/2010	0:17	Fixed Object	Clear	Dry	Darkness	1	*0*	PDO
200901435038	11/12/2009	13:00	Fixed Object	Clear	Dry	Daylight	1	*0*	PDO

TOTAL CRASHES: **5**

TOTAL INJURIES: **3**

US 45 @ Chatham Way

2007 - 2011

CRASH ID	CRASH DATE	CRASH TIME	COLLISION TYPE	WEATHER	ROAD SURFACE	LIGHTING	VEHICLES INVOLVED	TOTAL INJURIES	INJURY LEVEL

TOTAL CRASHES: **0**

TOTAL INJURIES: **0**

US 45 (Chatham Way to Deer Trail Drive)

2007 - 2011

CRASH ID	CRASH DATE	CRASH TIME	COLLISION TYPE	WEATHER	ROAD SURFACE	LIGHTING	VEHICLES INVOLVED	TOTAL INJURIES	INJURY LEVEL
201101092405	2/10/2011	9:15	Rear end	Clear	Dry	Daylight	3	0	PDO

TOTAL CRASHES: 1

TOTAL INJURIES: 0

US 45 @ Deer Trail Drive

2007 - 2011

CRASH ID	CRASH DATE	CRASH TIME	COLLISION TYPE	WEATHER	ROAD SURFACE	LIGHTING	VEHICLES INVOLVED	TOTAL INJURIES	INJURY LEVEL
201101310223	8/6/2011	846	Fixed object	Clear	Dry	Daylight	1	1	B
200901200611	5/7/2009	0:00	Turning	Clear	Dry	Daylight	2	0	PDO
83206268	18-Aug-08	4:08 PM	Turning	Clear	Dry	Daylight	2	0	PDO

TOTAL CRASHES: **3**

TOTAL INJURIES: **1**

US 45 (Deer Trail Drive to Deer Path Drive / Falling Waters Boulevard)

2007 - 2011

CRASH ID	CRASH DATE	CRASH TIME	COLLISION TYPE	WEATHER	ROAD SURFACE	LIGHTING	VEHICLES INVOLVED	TOTAL INJURIES	INJURY LEVEL
201001369395	10/24/2010	21:50	Fixed Object	Clear	Dry	Darkness	1	1	B
201101108670	2/21/2011	5:20	Fixed Object	Other	Ice	Dawn	1	1	C
201001367698	10/25/2010	20:18	Animal	Clear	Dry	Darkness	1	0	PDO
75438978	12/31/2007	19:15	Rear End	Snow	Snow and slush	Darkness	2	0	PDO

TOTAL CRASHES: **4**

TOTAL INJURIES: **2**

US 45 @ Deer Path Drive / Falling Waters Boulevard

2007 - 2011

CRASH ID	CRASH DATE	CRASH TIME	COLLISION TYPE	WEATHER	ROAD SURFACE	LIGHTING	VEHICLES INVOLVED	TOTAL INJURIES	INJURY LEVEL
200901151431	4/17/2009	1:58	Angle	Clear	Dry	Daylight	2	2	A
201001113622	3/21/2010	17:25	Angle	Clear	Dry	Daylight	2	0	PDO
200901459844	12/21/2009	17:08	Sideswipe	Clear	Dry	Darkness	2	0	PDO
200901462677	12/13/2009	1:15	Fixed object	Rain	Wet	Darkness, lighted road	1	0	PDO
200901401653	10/3/2009	1:34	Sideswipe	Clear	Dry	Daylight	2	0	PDO
81337115	4/2/2008	20:10	Sideswipe	Clear	Dry	Darkness	2	0	PDO
75443309	12/1/2007	13:15	Parked Motor Vehicle	Fog	Snow and slush	Daylight	2	0	PDO
74775552	11/18/2007	10:45	Turning	Clear	Unknown	Daylight	2	0	PDO

TOTAL CRASHES: 8

TOTAL INJURIES: 2

US 45 (Deer Path Drive / Falling Waters Boulevard to Falling Waters Drive)

2007 - 2011

CRASH ID	CRASH DATE	CRASH TIME	COLLISION TYPE	WEATHER	ROAD SURFACE	LIGHTING	VEHICLES INVOLVED	TOTAL INJURIES	INJURY LEVEL
200901463190	12/15/2009	18:14	Animal	Clear	Dry	Darkness	1	0	PDO
84266733	10/13/2008	6:39	Animal	Clear	Dry	Dawn	1	0	PDO

TOTAL CRASHES: **2**

TOTAL INJURIES: **0**

US 45 @ Falling Waters Drive

2007 - 2011

CRASH ID	CRASH DATE	CRASH TIME	COLLISION TYPE	WEATHER	ROAD SURFACE	LIGHTING	VEHICLES INVOLVED	TOTAL INJURIES	INJURY LEVEL
201101047956	1/16/2011	15:10	Fixed object	Clear	Dry	Daylight	1	3	B
85087393	12/4/2008	17:15	Fixed object	Snow	Snow and slush	Darkness	1	0	PDO
83699728	9/27/2008	13:19	Angle	Clear	Dry	Daylight	2	0	PDO

TOTAL CRASHES: **3**

TOTAL INJURIES: **3**

US 45 (Falling Waters Drive to Sand Lake Road)

2007 - 2011

CRASH ID	CRASH DATE	CRASH TIME	COLLISION TYPE	WEATHER	ROAD SURFACE	LIGHTING	VEHICLES INVOLVED	TOTAL INJURIES	INJURY LEVEL
80601552	1/27/2008	1:12	Overturned	Clear	Dry	Daylight	1	1	B
201001463906	12/3/2010	17:05	Rear End	Clear	Dry	Darkness	3	0	PDO
200901042108	1/14/2009	13:55	Rear End	Clear	Snow and slush	Daylight	2	0	PDO

TOTAL CRASHES: **3**

TOTAL INJURIES: **1**

US 45 @ Sand Lake Road

2007 - 2011

CRASH ID	CRASH DATE	CRASH TIME	COLLISION TYPE	WEATHER	ROAD SURFACE	LIGHTING	VEHICLES INVOLVED	TOTAL INJURIES	INJURY LEVEL
201101282299	8/14/2011	15:20	Turning	Clear	Dry	Daylight	2	1	B
81618241	1/11/2008	6:15	Rear end	Snow	Wet	Darkness	5	4	B
73663759	6/23/2007	9:13 PM	Angle	Clear	Dry	Darkness	2	2	B
201101436281	12/20/2011	13:30	Rear end	Clear	Dry	Daylight	2	1	C
201101357116	10/5/2011	7:09	Rear end	Clear	Dry	Daylight	2	1	C
201101357894	10/4/2011	12:31	Rear end	Clear	Dry	Daylight	2	2	C
201101261516	7/29/2011	9:58	Rear end	Clear	Dry	Daylight	2	1	C
201001394843	11/6/2010	14:30	Rear end	Clear	Dry	Daylight	2	1	C
201001376946	10/6/2010	13:32	Rear end	Clear	Dry	Daylight	2	1	C
200901395616	10/18/2009	17:14	Rear end	Clear	Dry	Daylight	3	1	C
200901195454	5/14/2009	16:01	Rear end	Clear	Dry	Daylight	3	1	C
200901224057	5/7/2009	1:12	Rear end	Clear	Dry	Daylight	3	1	C
200901175204	4/22/2009	7:12	Rear end	Clear	Dry	Daylight	3	2	C
84397496	10/31/2008	8:30	Turning	Fog	Dry	Daylight	2	1	C
73813644	9/5/2007	4:25 PM	Rear end	Clear	Dry	Daylight	3	3	C
72096175	5/24/2007	10:20 AM	Rear end	Clear	Dry	Daylight	2	1	C
201101390499	11/26/2011	16:13	Rear end	Rain	Wet	Darkness, lighted road	2	0	PDO
201101357174	10/6/2011	20:45	Turning	Clear	Dry	Darkness, lighted road	2	0	PDO
201101357037	10/5/2011	16:54	Turning	Clear	Dry	Daylight	2	0	PDO
201101338001	9/28/2011	17:30	Rear end	Rain	Wet	Daylight	2	0	PDO
201101338877	9/13/2011	12:00	Turning	Clear	Dry	Daylight	2	0	PDO
201101281436	8/8/2011	15:20	Turning	Rain	Wet	Daylight	2	0	PDO
201101239233	6/30/2011	11:49	Angle	Clear	Dry	Daylight	2	0	PDO
201101234401	6/4/2011	10:00	Rear end	Clear	Dry	Daylight	2	0	PDO
201101141653	4/9/2011	12:45	Rear end	Clear	Dry	Daylight	2	0	PDO
201101122918	4/2/2011	13:35	Turning	Clear	Dry	Daylight	2	0	PDO
201101062828	1/21/2011	7:50	Turning	Clear	Dry	Daylight	2	0	PDO
201001434184	11/26/2010	16:49	Rear end	Clear	Dry	Darkness	2	0	PDO
201001434199	11/26/2010	16:49	Rear end	Clear	Dry	Darkness	2	0	PDO
201001394925	11/7/2010	12:55	Rear end	Clear	Dry	Daylight	2	0	PDO
201001272739	7/18/2010	17:04	Rear end	Clear	Dry	Daylight	2	0	PDO
201001188925	5/16/2010	15:05	Rear end	Clear	Dry	Daylight	2	0	PDO
201001153550	4/25/2010	11:54	Turning	Clear	Dry	Daylight	2	0	PDO
201001180722	4/18/2010	16:00	Rear end	Clear	Dry	Daylight	2	0	PDO
201001056524	1/24/2010	14:16	Rear end	Clear	Wet	Daylight	2	0	PDO
200901473185	12/19/2009	13:13	Rear end	Fog/smoke/haze	Snow and slush	Daylight	2	0	PDO
200901464224	12/8/2009	18:00	Rear end	Snow	Snow and slush	Darkness	2	0	PDO
200901459795	12/5/2009	23:35	Rear end	Clear	Dry	Darkness	2	0	PDO
200901434044	11/17/2009	15:27	Turning	Rain	Wet	Daylight	2	0	PDO
200901401336	10/30/2009	17:07	Turning	Clear	Wet	Daylight	2	0	PDO
200901402692	10/17/2009	3:35	Animal	Clear	Dry	Darkness	1	0	PDO
200901401985	10/5/2009	7:40	Rear end	Clear	Dry	Daylight	2	0	PDO
200901353312	9/22/2009	9:48	Rear end	Clear	Dry	Daylight	2	0	PDO
200901319013	8/14/2009	16:07	Turning	Clear	Dry	Daylight	2	0	PDO
200901228462	6/18/2009	13:57	Angle	Clear	Dry	Daylight	2	0	PDO
200901117114	3/20/2009	1:20	Turning	Clear	Dry	Daylight	2	0	PDO
200901080579	1/20/2009	8:40	Rear end	Clear	Wet	Daylight	2	0	PDO

US 45 @ Sand Lake Road

2007 - 2011

CRASH ID	CRASH DATE	CRASH TIME	COLLISION TYPE	WEATHER	ROAD SURFACE	LIGHTING	VEHICLES INVOLVED	TOTAL INJURIES	INJURY LEVEL
84643261	11/20/2008	19:38	Rear end	Clear	Dry	Darkness	2	0	PDO
84306455	10/19/2008	18:56	Rear end	Clear	Dry	Darkness, lighted road	2	0	PDO
83301564	8/23/2008	1:53	Rear end	Clear	Dry	Daylight	2	0	PDO
81610941	4/4/2008	19:33	Turning	Clear	Dry	Daylight	2	0	PDO
81125007	3/11/2008	5:42	Rear end	Clear	Dry	Darkness	2	0	PDO
75417766	11/25/2007	3:55 PM	Turning	Rain	Wet	Darkness	2	0	PDO
74897596	10/27/2007	3:47 PM	Turning	Clear	Dry	Daylight	2	0	PDO
74868647	10/11/2007	6:53 PM	Angle	Clear	Dry	Darkness	2	0	PDO
74534116	9/20/2007	5:02 PM	Rear end	Clear	Dry	Daylight	2	0	PDO
73819732	9/11/2007	8:00 AM	Angle	Clear	Dry	Daylight	2	0	PDO
74378548	8/4/2007	11:35 AM	Sideswipe	Clear	Dry	Daylight	2	0	PDO
73663247	6/18/2007	1:30 PM	Sideswipe	Clear	Dry	Daylight	2	0	PDO
73748824	6/16/2007	2:49 PM	Turning	Clear	Dry	Daylight	2	0	PDO
73692808	6/7/2007	6:23 AM	Rear end	Clear	Dry	Daylight	2	0	PDO
72556053	4/24/2007	8:20 AM	Rear end	Clear	Dry	Daylight	2	0	PDO
71746895	4/7/2007	3:50 PM	Rear end	Clear	Dry	Daylight	2	0	PDO
71887707	3/21/2007	9:55 AM	Rear end	Rain	Wet	Daylight	2	0	PDO
71889513	3/15/2007	3:35 PM	Angle	Clear	Dry	Daylight	2	0	PDO
71404297	3/4/2007	6:42 PM	Rear end	Clear	Dry	Darkness	2	0	PDO
70852462	2/17/2007	10:45 AM	Rear end	Clear	Dry	Daylight	2	0	PDO
71129480	1/20/2007	11:50 AM	Angle	Clear	Dry	Daylight	2	0	PDO
71142079	1/2/2007	12:00 AM	Rear end	Clear	Dry	Darkness	2	0	PDO

TOTAL CRASHES: **69**

TOTAL INJURIES: **24**

US 45 (Sand Lake Road to Country Place)

2007 - 2011

CRASH ID	CRASH DATE	CRASH TIME	COLLISION TYPE	WEATHER	ROAD SURFACE	LIGHTING	VEHICLES INVOLVED	TOTAL INJURIES	INJURY LEVEL
82879958	7/26/2008	20:23	Head on	Clear	Dry	Dusk	2	2	A
201101123230	4/5/2011	17:15	Rear end	Clear	Dry	Daylight	2	1	B
201001047236	1/25/2010	17:27	Rear end	Snow	Wet	Darkness	2	1	B
200901115039	3/4/2009	18:50	Rear end	Clear	Dry	Darkness, lighted road	2	1	B
83116145	8/13/2008	20:10	Turning	Rain	Wet	Darkness	2	1	B
201101422921	10/22/2011	13:42	Angle	Clear	Dry	Daylight	2	3	C
201001273808	7/10/2010	9:47	Rear end	Clear	Dry	Daylight	2	3	C
201001276378	7/2/2010	12:04	Angle	Clear	Dry	Daylight	2	4	C
201001250310	5/27/2010	16:40	Angle	Clear	Dry	Daylight	2	3	C
201001180211	5/4/2010	11:34	Rear end	Clear	Dry	Daylight	2	2	C
201001047463	1/27/2010	8:57	Angle	Clear	Dry	Daylight	2	2	C
201001450951	12/23/2010	17:00	Rear end	Clear	Dry	Darkness	2	0	PDO
84557362	11/15/2008	23:16	Animal	Clear	Dry	Darkness	1	0	PDO
83543652	9/6/2008	13:45	Angle	Clear	Dry	Daylight	2	0	PDO
83278416	8/25/2008	16:55	Rear end	Clear	Dry	Daylight	2	0	PDO
75440115	12/31/2007	6:28	Sideswipe Opp	Snow	Snow and slush	Darkness	2	0	PDO
75441709	12/28/2007	9:00	Fixed object	Snow	Snow and slush	Daylight	1	0	PDO
75417865	11/15/2007	0:00	Animal	Clear	Dry	Darkness	2	0	PDO
73662306	6/19/2007	12:53	Turning	Clear	Dry	Daylight	2	0	PDO
71879498	3/14/2007	14:50	Other Non-Coll	Clear	Dry	Daylight	2	0	PDO
71871768	3/2/2007	19:41	Sideswipe Opp	Snow	Ice	Darkness	2	0	PDO

TOTAL CRASHES: **21**

TOTAL INJURIES: **23**

US 45 @ Country Place

2007 - 2011

CRASH ID	CRASH DATE	CRASH TIME	COLLISION TYPE	WEATHER	ROAD SURFACE	LIGHTING	VEHICLES INVOLVED	TOTAL INJURIES	INJURY LEVEL
74901786	10/24/2007	4:37:00 PM	Turning	Clear	Dry	Daylight	2	1	C
201101310104	12-Sep-11	807	Rear end	Clear	Dry	Daylight	2	0	PDO
201001337508	9/25/2010	1323	Rear end	Clear	Dry	Daylight	4	0	PDO
201001335417	9/10/2010	1700	Turning	Clear	Dry	Daylight	2	0	PDO
201001075142	2/1/2010	724	Angle	Clear	Dry	Daylight	2	0	PDO
200901269010	7/3/2009	14:11	Rear end	Clear	Dry	Daylight	2	0	PDO
84643188	11/21/2008	7:05	Rear end	Clear	Unknown	Daylight	2	0	PDO
83700716	9/8/2008	18:50	Rear end	Rain	Wet	Daylight	2	0	PDO
81818734	5/10/2008	13:40	Sideswipe	Clear	Dry	Daylight	2	0	PDO
81121402	2/7/2008	1:10	Fixed object	Clear	Snow and slush	Daylight	1	0	PDO

TOTAL CRASHES: **10**

TOTAL INJURIES: **1**

APPENDIX F

TREE SURVEY

TREE INVENTORY LISTING
ROUTE 45 EXISTING RIGHT OF WAY

(CBBEL PROJECT NUMBER 10-63)

NOTE:
1. INVENTORY INCLUDES TREES PLOTTED BY CBBEL SURVEY STAFF ON PROJECT PLAN AND PROFILE SHEETS IN OCTOBER, 2011.
2. VALUES ASSIGNED FOR CONDITION AND FORM OF TREES ARE SHOWN IN RIGHT COLUMN BELOW. RATINGS ARE BASED ON GENERAL OBSERVATIONS AND ON A SCALE OF 1 (EXCELLENT) TO 5 (POOR).
3. SIZES RECORDED BY CBBEL SURVEY STAFF

TAG NO.	BOTANICAL CODE	COMMON NAME	SIZE (inches)	CONDITION/ FORM	COMMENTS	CBBEL ID	SEQUENCE	POINT X	POINT Y	IMPACTED SOUTH SECTION
106A	ULAM	AMERICAN ELM	8	3/3						
107A	ULAM	AMERICAN ELM	6	3/3						
108A	ULAM	AMERICAN ELM	6	3/3						
159A	ULAM	AMERICAN ELM	16	3/3						
160A	ACSAI	SILVER MAPLE	22	3/3						
161A	JUVI	RED CEDAR	15	3/3						
162A	ULAM	AMERICAN ELM	12	3/4						
163A	ULAM	AMERICAN ELM	8	3/3						
164A	ACNE	BOX ELDER	8	3/4						
165A	ULAM	AMERICAN ELM	8	3/4						
166A	ACNE	BOX ELDER	8	3/4						
167A	RHCA	BUCKTHORN	6	3/3						
168A	MOAL	WHITE MULBERRY	6	3/2						
169A	MOAL	WHITE MULBERRY	8	3/3						
170A	ULAM	AMERICAN ELM	8	3/3						
171A	JUVI	RED CEDAR	8	3/3						
172A	JUVI	RED CEDAR	8	3/3						
173A	TIAM	BASSWOOD	7	2/2						
174A	TIAM	BASSWOOD	7	2/2						
175A	TIAM	BASSWOOD	7	2/2						
176A	TIAM	BASSWOOD	7	2/2						
177A	RHCA	BUCKTHORN	10	3/3						
178A	MOAL	WHITE MULBERRY	12	3/4						
179A	MOAL	WHITE MULBERRY	4	3/3						
180A	ULAM	AMERICAN ELM	14	3/3						
181A	TIAM	BASSWOOD	15	2/2						
182A	ACSAI	SILVER MAPLE	12	3/4						
183A	ACNE	BOX ELDER	18	3/3						
184A	ACNE	BOX ELDER	16	3/4						
185A	ACNE	BOX ELDER	16	3/4						
186A	ACNE	BOX ELDER	6	3/4						
187A	ULAM	AMERICAN ELM	18	3/3						
188a	RHCA	BUCKTHORN	8	3/2						
189A	RHCA	BUCKTHORN	10	3/3						
190A	RHCA	BUCKTHORN	6	3/3						
191A	ULAM	AMERICAN ELM	12	3/3						
192A	ACSAI	SILVER MAPLE	12	3/3						
193A	ULAM	AMERICAN ELM	8	2/2						
194A	ULAM	AMERICAN ELM	8	2/2						
195A	ACSAI	SILVER MAPLE	6	2/2						
196A	ULAM	AMERICAN ELM	12	2/2						
197A	ULAM	AMERICAN ELM	8	3/3						
198A	ACNE	BOX ELDER	10	3/4						
199A	ULAM	AMERICAN ELM	6	3/3						
200A	ACNE	BOX ELDER	8	3/3						
201A	CEOC	HACKBERRY	8	2/2						
202A	CEOC	HACKBERRY	10	2/2						
203A	JUVI	RED CEDAR	12	3/3						
204A	ULPU	SIBERIAN ELM	22	3/4						
205A	ACPL	NORWAY MAPLE	18	3/4						
206A	TIAM	BASSWOOD	12	2/2						
207A	FRPE	GREEN ASH	7	2/2						
208A	GLTR	HONEYLOCUST	7	2/2						
209A	FRPE	GREEN ASH	6	2/2						
210A	FRPE	GREEN ASH	6	2/2						
211A	FRPE	GREEN ASH	8	2/2						
212A	PIPU	BLUE SPRUCE	7	2/2						
213A	FRPE	GREEN ASH	8	2/2						
214A	ULAM	AMERICAN ELM	22	2/2						
215A	ACSAI	SILVER MAPLE	7	2/2						
216A	CEOC	HACKBERRY	14	2/2						
217A	FRPE	GREEN ASH	10	3/3						
218A	FRPE	GREEN ASH	10	3/3						
219A	FRPE	GREEN ASH	14	3/3						
220A	FRPE	GREEN ASH	14	3/4						
221A	FRPE	GREEN ASH	10	3/3						
222A	FRPE	GREEN ASH	8	3/3						
223A	FRPE	GREEN ASH	8	3/4						
224A	FRPE	GREEN ASH	6	3/3						
225A	QUMA	BUR OAK	30	3/3						
226A	ULAM	AMERICAN ELM	10	3/3						
227A	QUMA	BUR OAK	8	3/4						
228A	CASP	CATALPA	14	3/3						
229A	QUMA	BUR OAK	14	3/3						
230A	FRPE	GREEN ASH	6	3/4						
231A	FRPE	GREEN ASH	12	3/4						

TAG NO.	BOTANICAL CODE	COMMON NAME	SIZE (inches)	CONDITION/ FORM	COMMENTS	CBBEL ID	SEQUENCE	POINT X	POINT Y	IMPACTED SOUTH SECTION
232A	CASP	CATALPA	8	3/3						
233A	ACSAI	SILVER MAPLE	14	3/2						
234A	CASP	CATALPA	14	3/3						
235A	CASP	CATALPA	10	3/3						
236A	ULPU	SIBERIAN ELM	12	3/3						
237A	FRAM	WHITE ASH	10	3/3						
238A	FRAM	WHITE ASH	15	2/2						
239A	ULPU	SIBERIAN ELM	18	2/2						
240A	ACSAI	SILVER MAPLE	28	3/3						
241A	FRPE	GREEN ASH	34	3/3						
242A	JUNI	BLACK WALNUT	12	2/2						
243A	JUNI	BLACK WALNUT	14	2/2						
244A	JUNI	BLACK WALNUT	13	2/2						
245A	ACNE	BOX ELDER	14	4/4	LEAN					
246A	ULAM	AMERICAN ELM	9	3/3						
247A	JUNI	BLACK WALNUT	14	2/2						
248A	ACNE	BOX ELDER	14	3/3						
249A	ACNE	BOX ELDER	12	3/4						
250A	QUMA	BUR OAK	48	2/2						
251A	ULAM	AMERICAN ELM	8	3/3						
252A	ULAM	AMERICAN ELM	13	3/3						
253A	ULAM	AMERICAN ELM	13	3/3						
254A	ULAM	AMERICAN ELM	9	3/4						
255A	ULAM	AMERICAN ELM	10	3/3						
256A	POAL	SILVER POPLAR	18	3/3						
257A	ULAM	AMERICAN ELM	7	3/4						
258A	ULAM	AMERICAN ELM	13	3/3						
259A	POAL	SILVER POPLAR	15	3/3						
260A	POAL	SILVER POPLAR	10	3/3						
261A	POAL	SILVER POPLAR	21	3/4						
262A	POAL	SILVER POPLAR	24	3/3						
263A	GLTR	HONEYLOCUST	11	3/3						
264A	ULAM	AMERICAN ELM	10	3/4						
265A	POAL	SILVER POPLAR	15	3/4						
266A	POAL	SILVER POPLAR	15	3/3						
267A	POAL	SILVER POPLAR	17	3/2						
268A	ULAM	AMERICAN ELM	7	3/3						
269A	ULAM	AMERICAN ELM	6	3/3						
270A	POAL	SILVER POPLAR	14	3/3						
271A	ULAM	AMERICAN ELM	6	3/3						
272A	POAL	SILVER POPLAR	13	3/3						
273A	POAL	SILVER POPLAR	11	3/3						
274A	POAL	SILVER POPLAR	6	3/3						
275A	ACPL	NORWAY MAPLE	10	3/4						
276A	JUNI	BLACK WALNUT	6	3/3						
277A	ULAM	AMERICAN ELM	9	3/3						
278A	ULAM	AMERICAN ELM	8	3/4						
279A	ULAM	AMERICAN ELM	12	3/3						
280A	ULAM	AMERICAN ELM	9	3/3						
281A	QUMA	BUR OAK	7	3/3						
282A	QUMA	BUR OAK	12	3/4						
283A	QUMA	BUR OAK	6	3/3						
284A	QUMA	BUR OAK	8	3/3						
285A	QUMA	BUR OAK	6	3/4						
286A	QUMA	BUR OAK	12	3/4						
287A	QUMA	BUR OAK	6	3/3						
288A	QUMA	BUR OAK	7	3/2						
289A	QUMA	BUR OAK	8	3/3						
290A	QUMA	BUR OAK	8	3/3						
291A	QUMA	BUR OAK	6	3/3						
292A	QUMA	BUR OAK	8	3/3						
293A	QUMA	BUR OAK	8	3/3						
294A	QUMA	BUR OAK	8	3/3						
295A	QUMA	BUR OAK	6	3/3						
296A	QUMA	BUR OAK	6	3/4						
297A	ACSAI	SILVER MAPLE	9	3/3						
298A	ACSAI	SILVER MAPLE	12	3/3						
299A	ACSAI	SILVER MAPLE	15	3/4						
300A	ACSAI	SILVER MAPLE	12	3/3						
301A	ACSAI	SILVER MAPLE	8	3/3						
302A	ACSAI	SILVER MAPLE	12	3/3						
303A	ACSAI	SILVER MAPLE	13	3/4						
304A	ACSAI	SILVER MAPLE	9	3/3						
305A	ACSAI	SILVER MAPLE	6	3/3						
306A	ROPS	BLACK LOCUST	8	3/4						
307A	ROPS	BLACK LOCUST	6	3/4						
308A	ROPS	BLACK LOCUST	9	3/3						
309A	ROPS	BLACK LOCUST	12	3/2						
310A	ROPS	BLACK LOCUST	7	3/3						
311A	ROPS	BLACK LOCUST	12	3/3						
312A	ROPS	BLACK LOCUST	12	3/3						
313A	ROPS	BLACK LOCUST	12	3/3						
314A	ROPS	BLACK LOCUST	9	3/3						
315A	ACSAI	SILVER MAPLE	10	3/3						
316A	ROPS	BLACK LOCUST	7	3/3						
317A	PRSE	BLACK CHERRY	8	3/4						
318A	MOAL	WHITE MULBERRY	10	3/3						
319A	RHCA	BUCKTHORN	7	3/3						
320A	ACSAI	SILVER MAPLE	12	3/3						

TAG NO.	BOTANICAL CODE	COMMON NAME	SIZE (inches)	CONDITION/ FORM	COMMENTS	CBBEL ID	SEQUENCE	POINT X	POINT Y	IMPACTED SOUTH SECTION
321A	GLTR	HONEYLOCUST	12	3/3						
322A	ACSAI	SILVER MAPLE	14	3/3						
323A	GLTR	HONEYLOCUST	6	3/4						
324A	GLTR	HONEYLOCUST	6	3/3						
325A	GLTR	HONEYLOCUST	6	3/3						
326A	GLTR	HONEYLOCUST	14	3/4						
327A	ACSAI	SILVER MAPLE	14	3/3						
328A	GLTR	HONEYLOCUST	12	3/3						
329A	ACSAI	SILVER MAPLE	14	3/3						
330A	RHCA	BUCKTHORN	6	3/4						
331A	ACSAI	SILVER MAPLE	30	3/3						
332A	ACSAI	SILVER MAPLE	13	3/3						
333A	FRPE	GREEN ASH	15	3/4						
334A	JUNI	BLACK WALNUT	24	3/4						
335A	JUNI	BLACK WALNUT	10	3/3						
336A	DEAD	DEAD	6	3/2						
337A	JUNI	BLACK WALNUT	8	3/3						
338A	ULAM	AMERICAN ELM	15	3/3						
339A	FRPE	GREEN ASH	12	3/3						
340A	ULAM	AMERICAN ELM	12	3/3						
341A	FRPE	GREEN ASH	12	3/3						
342A	FRPE	GREEN ASH	10	3/3						
343A	ACNE	BOX ELDER	12	3/3						
344A	ACNE	BOX ELDER	7	3/4						
345A	ACSAI	SILVER MAPLE	12	3/3						
346A	FRPE	GREEN ASH	6	3/3						
347A	FRPE	GREEN ASH	12	3/4						
348A	ROPS	BLACK LOCUST	8	3/3						
349A	ROPS	BLACK LOCUST	18	3/3						
350A	ACSAI	SILVER MAPLE	15	3/3						
351A	RHCA	BUCKTHORN	18	3/3						
352A	ROPS	BLACK LOCUST	15	3/3						
353A	ACSAI	SILVER MAPLE	11	2/2						
354A	RHCA	BUCKTHORN	18	3/3						
355A	ACPL	NORWAY MAPLE	13	3/3						
356A	ROPS	BLACK LOCUST	11	3/3						
357A	ROPS	BLACK LOCUST	11	3/3						
358A	ROPS	BLACK LOCUST	11	3/2						
359A	ACPL	NORWAY MAPLE	13	3/4						
360A	MOAL	WHITE MULBERRY	15	3/3						
361A	ACSAI	SILVER MAPLE	15	3/3						
362A	JUNI	BLACK WALNUT	12	3/3						
363A	QUMA	BUR OAK	10	3/3						
364A	MOAL	WHITE MULBERRY	11	3/3						
365A	ROPS	BLACK LOCUST	9	2/3						
366A	ROPS	BLACK LOCUST	21	3/3						
367A	ACSAI	SILVER MAPLE	16	3/3						
368A	ACSAI	SILVER MAPLE	24	3/3						
369A	ACSAI	SILVER MAPLE	6	3/3						
370A	ACSAI	SILVER MAPLE	8	3/3						
371A	ACSAI	SILVER MAPLE	15	3/3						
372A	ACSAI	SILVER MAPLE	24	3/4						
373A	ACSAI	SILVER MAPLE	15	3/4						
374A	JUNI	BLACK WALNUT	6	3/3						
375A	ACSAI	SILVER MAPLE	14	3/3						
376A	ROPS	BLACK LOCUST	10	3/3						
377A	ULAM	AMERICAN ELM	13	3/3						
378A	ULAM	AMERICAN ELM	8	3/3						
379A	ULAM	AMERICAN ELM	6	3/3						
380A	ULAM	AMERICAN ELM	6	3/4						
381A	MOAL	WHITE MULBERRY	8	3/3						
382A	MOAL	WHITE MULBERRY	11	3/3						
383A	ACSAI	SILVER MAPLE	10	3/3						
384A	PRSE	BLACK CHERRY	8	3/3						
385A	QUMA	BUR OAK	7	3/3						
386A	QUMA	BUR OAK	8	2/2						
387A	QUMA	BUR OAK	10	3/3						
388A	QUMA	BUR OAK	8	3/3						
389A	ULAM	AMERICAN ELM	12	3/3						
390A	PINI	AUSTRIAN PINE	15	3/3						
391A	PINI	AUSTRIAN PINE	14	3/2						
392A	PINI	AUSTRIAN PINE	12	3/4						
393A	PINI	AUSTRIAN PINE	8	3/3						
394A	PINI	AUSTRIAN PINE	12	3/3						
395A	PINI	AUSTRIAN PINE	12	3/3						
396A	PINI	AUSTRIAN PINE	8	3/3						
397A	PINI	AUSTRIAN PINE	16	3/3						
398A	ULAM	AMERICAN ELM	6	2/3						
399A	ULAM	AMERICAN ELM	20	3/3						
400A	PRSE	BLACK CHERRY	15	3/3						
401A	PRSE	BLACK CHERRY	15	3/3						
402A	ACSAI	SILVER MAPLE	10	3/3						
403A	PRSE	BLACK CHERRY	12	3/3						
404A	PRSE	BLACK CHERRY	8	3/3						
405A	FRPE	GREEN ASH	15	3/4						
406A	PRSE	BLACK CHERRY	9	3/4						
407A	ACNE	BOX ELDER	11	3/3						
408A	ULAM	AMERICAN ELM	24	3/3						
409A	ACNE	BOX ELDER	11	3/3						

TAG NO.	BOTANICAL CODE	COMMON NAME	SIZE (inches)	CONDITION/ FORM	COMMENTS	CBBEL ID	SEQUENCE	POINT X	POINT Y	IMPACTED SOUTH SECTION
410A	ULAM	AMERICAN ELM	6	3/3						
411A	ULAM	AMERICAN ELM	10	3/3						
412A	PRSE	BLACK CHERRY	21	3/3						
413A	ULAM	AMERICAN ELM	18	3/4						
414A	ULAM	AMERICAN ELM	7	3/3						
415A	ULAM	AMERICAN ELM	11	3/3						
416A	ULAM	AMERICAN ELM	12	3/3						
417A	ULAM	AMERICAN ELM	6	3/3						
418A	ULAM	AMERICAN ELM	6	3/3						
419A	ULAM	AMERICAN ELM	6	2/2						
420A	ULAM	AMERICAN ELM	12	3/3						
421A	ULAM	AMERICAN ELM	13	3/3						
422A	ULAM	AMERICAN ELM	8	3/3						
423A	ULAM	AMERICAN ELM	11	3/3						
424A	ULAM	AMERICAN ELM	18	3/2						
425A	ULAM	AMERICAN ELM	8	3/4						
426A	ULAM	AMERICAN ELM	18	3/3						
427A	ULAM	AMERICAN ELM	11	3/3						
428A	ULAM	AMERICAN ELM	14	3/3						
429A	ACPL	NORWAY MAPLE	12	3/3						
430A	DEAD	DEAD	10	3/3						
431A	ULAM	AMERICAN ELM	20	2/3						
432A	QUMA	BUR OAK	11	3/3						
433A	QUMA	BUR OAK	12	3/3						
434A	QUMA	BUR OAK	18	3/3						
435A	QUMA	BUR OAK	17	3/3						
436A	QUMA	BUR OAK	11	3/3						
437A	PRSE	BLACK CHERRY	10	3/3						
438A	PRSE	BLACK CHERRY	10	3/4						
439A	QUMA	BUR OAK	12	3/4						
440A	QUMA	BUR OAK	14	3/3						
441A	QUMA	BUR OAK	8	3/3						
442A	QUMA	BUR OAK	10	3/3						
443A	QUMA	BUR OAK	12	3/3						
444A	ROPS	BLACK LOCUST	6	3/3						
445A	ROPS	BLACK LOCUST	9	3/3						
446A	ROPS	BLACK LOCUST	10	3/4						
447A	ROPS	BLACK LOCUST	6	3/3						
448A	ROPS	BLACK LOCUST	10	3/3						
449A	ROPS	BLACK LOCUST	6	3/3						
450A	ROPS	BLACK LOCUST	12	3/3						
451A	ROPS	BLACK LOCUST	8	3/3						
452A	ACPL	NORWAY MAPLE	10	3/3						
453A	ROPS	BLACK LOCUST	7	3/3						
454A	ROPS	BLACK LOCUST	6	3/3						
455A	ACPL	NORWAY MAPLE	15	3/3						
456A	ROPS	BLACK LOCUST	6	3/3						
457A	ROPS	BLACK LOCUST	6	3/2						
458A	ROPS	BLACK LOCUST	8	3/4						
459A	ROPS	BLACK LOCUST	12	3/3						
460A	ROPS	BLACK LOCUST	12	3/3						
461A	ROPS	BLACK LOCUST	13	3/3						
462A	ULAM	AMERICAN ELM	15	3/3						
463A	ROPS	BLACK LOCUST	12	3/3						
464A	ROPS	BLACK LOCUST	6	2/3						
465A	ROPS	BLACK LOCUST	9	3/3						
466A	ROPS	BLACK LOCUST	8	3/3						
467A	ROPS	BLACK LOCUST	15	3/3						
468A	ROPS	BLACK LOCUST	7	3/3						
469A	ROPS	BLACK LOCUST	12	3/3						
470A	ROPS	BLACK LOCUST	7	3/3						
471A	ACNE	BOX ELDER	10	3/4						
472A	ACNE	BOX ELDER	18	3/4						
473A	ACNE	BOX ELDER	12	3/3						
474A	MAPU	APPLE	8	3/3						
475A	MAPU	APPLE	7	3/3						
476A	PIPU	BLUE SPRUCE	18	3/3						
477A	JUNI	BLACK WALNUT	16	3/3						
478A	JUNI	BLACK WALNUT	12	3/3						
479A	ACSAI	SILVER MAPLE	12	3/3						
480A	ACSAI	SILVER MAPLE	15	3/3						
481A	ACSAI	SILVER MAPLE	8	3/3						
482A	ACSAI	SILVER MAPLE	8	3/3						
483A	ACSAI	SILVER MAPLE	10	3/3						
484A	ACSAI	SILVER MAPLE	12	3/3						
485A	ROPS	BLACK LOCUST	12	3/3						
486A	ROPS	BLACK LOCUST	6	3/3						
487A	ROPS	BLACK LOCUST	8	3/3						
488A	ROPS	BLACK LOCUST	10	3/3						
489A	ACPL	NORWAY MAPLE	12	3/3						
490A	ROPS	BLACK LOCUST	12	3/3						
491A	ACSAI	SILVER MAPLE	13	3/3						
492A	ROPS	BLACK LOCUST	6	3/3						
493A	ROPS	BLACK LOCUST	6	3/3						
494A	ROPS	BLACK LOCUST	10	3/3						
495A	ACSAI	SILVER MAPLE	8	3/3						
496A	ULAM	AMERICAN ELM	8	3/3						
497A	ULAM	AMERICAN ELM	15	3/3						
498A	ULAM	AMERICAN ELM	20	3/3						

TAG NO.	BOTANICAL CODE	COMMON NAME	SIZE (inches)	CONDITION/ FORM	COMMENTS	CBBEL ID	SEQUENCE	POINT X	POINT Y	IMPACTED SOUTH SECTION
499A	ULAM	AMERICAN ELM	12	3/4						
500A	ACPL	NORWAY MAPLE	10	3/4						
501A	ULAM	AMERICAN ELM	16	3/3						
502A	ACPL	NORWAY MAPLE	10	4/4	TOPPED					
503A	ACPL	NORWAY MAPLE	10	4/4	TOPPED					
504A	ACPL	NORWAY MAPLE	8	4/4	TOPPED					
505A	QUMA	BUR OAK	8	4/4	TOPPED					
506A	QUMA	BUR OAK	11	4/4	TOPPED					
507A	ACPL	NORWAY MAPLE	6	4/4	TOPPED					
508A	ACPL	NORWAY MAPLE	8	4/4	TOPPED					
509A	ACPL	NORWAY MAPLE	8	4/4	TOPPED					
510A	ACPL	NORWAY MAPLE	8	4/4	TOPPED					
511A	ACPL	NORWAY MAPLE	12	4/4	TOPPED					
512A	ACPL	NORWAY MAPLE	6	4/4	TOPPED					
513A	ACNE	BOX ELDER	15	4/4	TOPPED					
514A	ACNE	BOX ELDER	18	4/4	TOPPED					
515A	ACNE	BOX ELDER	6	3/3						
516A	ACNE	BOX ELDER	6	3/3						
517A	ACNE	BOX ELDER	15	3/3						
518A	ACNE	BOX ELDER	10	3/4						
519A	PRSE	BLACK CHERRY	6	3/4						
520A	ACNE	BOX ELDER	8	3/4						
521A	ACNE	BOX ELDER	9	3/3						
522A	ACPL	NORWAY MAPLE	12	3/3						
523A	ACNE	BOX ELDER	12	3/3						
524A	ACSAI	SILVER MAPLE	12	3/3						
525A	PIPU	BLUE SPRUCE	18	2/2						
526A	QUMA	BUR OAK	9	2/2						
527A	ACNE	BOX ELDER	20	3/3						
528A	PRSE	BLACK CHERRY	6	3/3						
529A	POAL	SILVER POPLAR	13	3/3						
530A	ACPL	NORWAY MAPLE	10	3/3						
531A	POAL	SILVER POPLAR	8	3/3						
532A	POAL	SILVER POPLAR	15	3/3						
533A	POAL	SILVER POPLAR	6	3/3						
534A	POAL	SILVER POPLAR	8	3/3						
535A	POAL	SILVER POPLAR	8	3/4						
536A	POAL	SILVER POPLAR	7	3/4						
537A	POAL	SILVER POPLAR	16	3/3						
538A	POAL	SILVER POPLAR	6	3/3						
539A	POAL	SILVER POPLAR	8	3/3						
540A	POAL	SILVER POPLAR	8	3/3						
541A	POAL	SILVER POPLAR	9	3/3						
542A	POAL	SILVER POPLAR	16	3/3						
543A	ACPL	NORWAY MAPLE	10	3/4						
544A	ACPL	NORWAY MAPLE	11	3/3						
545A	ACPL	NORWAY MAPLE	8	3/3						
546A	POAL	SILVER POPLAR	6	3/3						
547A	POAL	SILVER POPLAR	21	3/3						
548A	POAL	SILVER POPLAR	12	3/3						
549A	ACPL	NORWAY MAPLE	10	3/3						
550A	ACPL	NORWAY MAPLE	9	3/3						
551A	ACPL	NORWAY MAPLE	8	3/3						
552A	ACPL	NORWAY MAPLE	10	3/3						
553A	ACPL	NORWAY MAPLE	26	3/3						
554A	ACPL	NORWAY MAPLE	8	3/3						
555A	ACPL	NORWAY MAPLE	6	3/4						
556A	ACPL	NORWAY MAPLE	18	3/4						
557A	QUMA	BUR OAK	21	3/3						
558A	ACPL	NORWAY MAPLE	12	3/3						
559A	FRAM	WHITE ASH	19	3/3						
560A	ACPL	NORWAY MAPLE	9	3/3						
561A	ACPL	NORWAY MAPLE	10	3/3						
562A	FRAM	WHITE ASH	16	3/3						
563A	FRAM	WHITE ASH	18	3/4						
564A	ACPL	NORWAY MAPLE	12	3/3						
565A	PRSE	BLACK CHERRY	15	3/3						
566A	ACPL	NORWAY MAPLE	12	3/3						
567A	ACPL	NORWAY MAPLE	15	3/3						
568A	PODE	COTTONWOOD	18	3/3						
569A	PODE	COTTONWOOD	15	3/3						
570A	MOAL	WHITE MULBERRY	6	3/3						
571A	ACPL	NORWAY MAPLE	22	3/3						
572A	QURU	RED OAK	24	3/3						
573A	ACPL	NORWAY MAPLE	12	3/3						
574A	ACSAI	SILVER MAPLE	18	3/3						
575A	ACPL	NORWAY MAPLE	12	3/4						
576A	ACNE	BOX ELDER	10	3/4						
577A	ACPL	NORWAY MAPLE	8	3/3						
578A	ACPL	NORWAY MAPLE	12	3/3						
579A	ACPL	NORWAY MAPLE	8	3/3						
580A	ACPL	NORWAY MAPLE	28	3/3						
581A	ACSAI	SILVER MAPLE	26	3/3						
582A	ACSAI	SILVER MAPLE	26	3/3						
583A	ACPL	NORWAY MAPLE	12	3/4						
584A	JUVI	RED CEDAR	6	3/3						
585A	ACSAI	SILVER MAPLE	22	3/3						
586A	ACPL	NORWAY MAPLE	38	3/3						
587A	ACPL	NORWAY MAPLE	15	3/3						

TAG NO.	BOTANICAL CODE	COMMON NAME	SIZE (inches)	CONDITION/ FORM	COMMENTS	CBBEL ID	SEQUENCE	POINT X	POINT Y	IMPACTED SOUTH SECTION
588A	ACPL	NORWAY MAPLE	6	3/3						
589A	ACPL	NORWAY MAPLE	18	3/3						
590A	ACSAI	SILVER MAPLE	14	3/3						
591A	ACPL	NORWAY MAPLE	10	3/3						
592A	ACPL	NORWAY MAPLE	24	3/3						
593A	ACPL	NORWAY MAPLE	6	3/3						
594A	ACPL	NORWAY MAPLE	7	3/3						
595A	ULAM	AMERICAN ELM	6	3/4						
596A	ULAM	AMERICAN ELM	8	3/4						
597A	ULAM	AMERICAN ELM	8	3/3						
598A	ULAM	AMERICAN ELM	10	3/3						
599A	ULAM	AMERICAN ELM	6	3/3						
600A	ULPU	SIBERIAN ELM	9	3/3						
601A	ULAM	AMERICAN ELM	8	3/3						
602A	ULAM	AMERICAN ELM	10	3/3						
603A	ACNE	BOX ELDER	6	3/4						
604A	ULAM	AMERICAN ELM	6	3/3						
605A	ULAM	AMERICAN ELM	6	3/3						
606A	ACNE	BOX ELDER	14	3/3						
607A	CRMO	HAWTHORN	9	3/3						
608A	ACPL	NORWAY MAPLE	16	3/3						
609A	PIAB	NORWAY SPRUCE	18	3/3						
610A	GLTR	HONEYLOCUST	20	3/3						
611A	ACNE	BOX ELDER	6	3/4						
612A	MOAL	WHITE MULBERRY	12	3/3						
613A	ACNE	BOX ELDER	8	3/3						
614A	GLTR	HONEYLOCUST	21	3/4						
615A	ULAM	AMERICAN ELM	8	3/3						
616A	ACNE	BOX ELDER	12	3/3						
617A	ACSAI	SILVER MAPLE	13	3/3						
618A	ACNE	BOX ELDER	8	3/4						
619A	ACNE	BOX ELDER	9	3/3						
620A	ACPL	NORWAY MAPLE	6	3/4						
621A	ACPL	NORWAY MAPLE	12	3/4						
622A	ACPL	NORWAY MAPLE	7	3/4						
623A	ACPL	NORWAY MAPLE	9	3/3						
624A	QUMA	BUR OAK	12	3/2						
625A	QUMA	BUR OAK	8	3/3						
626A	QUMA	BUR OAK	8	3/3						
627A	ACPL	NORWAY MAPLE	12	3/3						
628A	QURU	RED OAK	15	3/3						
629A	QURU	RED OAK	15	2/2						
630A	ACPL	NORWAY MAPLE	10	2/2						
631A	ACPL	NORWAY MAPLE	15	2/2						
632A	ACPL	NORWAY MAPLE	11	2/2						
633A	ACPL	NORWAY MAPLE	16	3/3						
634A	ACPL	NORWAY MAPLE	8	3/4						
635A	ACPL	NORWAY MAPLE	11	3/3						
636A	ACPL	NORWAY MAPLE	16	3/3						
637A	QUMA	BUR OAK	26	3/3						
638A	ACSAI	SILVER MAPLE	14	3/3						
639A	PIPU	BLUE SPRUCE	14	3/3						
640A	PIPU	BLUE SPRUCE	15	3/3						
641A	PIPU	BLUE SPRUCE	15	3/3						
642A	CAOV	SHAGBARK HICKORY	20	3/3						
643A	PIPU	BLUE SPRUCE	15	3/3						
644A	PRSE	BLACK CHERRY	17	3/3						
645A	ACNE	BOX ELDER	21	4/4	TOPPED					
646A	ACNE	BOX ELDER	20	3/3						
647A	SABA	WEEPING WILLOW	26	3/3						
648A	ACNE	BOX ELDER	8	3/4						
649A	ULAM	AMERICAN ELM	18	3/3						
650A	SANI	BLACK WILLOW	28	3/3						
651A	ACNE	BOX ELDER	13	3/4						
652A	PIPU	BLUE SPRUCE	13	3/3						
653A	PIPU	BLUE SPRUCE	16	3/3						
654A	MOAL	WHITE MULBERRY	6	3/3						
655A	PIPU	BLUE SPRUCE	14	3/4						
656A	ACPL	NORWAY MAPLE	28	3/3						
657A	ULAM	AMERICAN ELM	6	3/4						
658A	FRPE	GREEN ASH	12	3/4						
659A	SANI	BLACK WILLOW	12	3/4						
660A	ACNE	BOX ELDER	12	3/3						
661A	SABA	WEEPING WILLOW	36	4/4	TOPPED					
662A	QURU	RED OAK	32	4/4	TOPPED					
663A	ACSAI	SILVER MAPLE	10	3/3						
664A	GLTR	HONEYLOCUST	18	3/3						
665A	GLTR	HONEYLOCUST	18	3/3						
666A	CEOC	HACKBERRY	9	2/2						
667A	ULAM	AMERICAN ELM	8	2/2						
668A	CEOC	HACKBERRY	11	2/2						
669A	CEOC	HACKBERRY	13	2/2						
670A	CEOC	HACKBERRY	20	3/3						
671A	CEOC	HACKBERRY	12	3/4						
672A	CEOC	HACKBERRY	8	3/3						
673A	CEOC	HACKBERRY	6	3/3						
674A	CEOC	HACKBERRY	12	3/3						
675A	CEOC	HACKBERRY	12	3/3						
676A	CASP	CATALPA	15	3/3						

TAG NO.	BOTANICAL CODE	COMMON NAME	SIZE (inches)	CONDITION/ FORM	COMMENTS	CBBEL ID	SEQUENCE	POINT X	POINT Y	IMPACTED SOUTH SECTION
677A	ACSAI	SILVER MAPLE	18	3/3						
678A	ULAM	AMERICAN ELM	8	3/4						
679A	ULAM	AMERICAN ELM	18	3/3						
680A	ULAM	AMERICAN ELM	12	3/3						
681A	FRPE	GREEN ASH	6	3/4						
682A	FRPE	GREEN ASH	12	3/3						
683A	FRPE	GREEN ASH	7	3/3						
684A	ULAM	AMERICAN ELM	14	3/3						
685A	FRPE	GREEN ASH	12	3/4						
686A	FRPE	GREEN ASH	13	3/3						
687A	FRPE	GREEN ASH	8	3/4						
688A	FRPE	GREEN ASH	8	3/4						
689A	FRPE	GREEN ASH	6	3/4						
690A	FRPE	GREEN ASH	12	3/3						
691A	FRPE	GREEN ASH	8	3/3						
692A	ULAM	AMERICAN ELM	12	3/3						
693A	ACPL	NORWAY MAPLE	11	3/3						
694A	FRPE	GREEN ASH	7	3/4						
695A	ACPL	NORWAY MAPLE	10	3/3						
696A	PRSE	BLACK CHERRY	7	3/3						
697A	FRPE	GREEN ASH	10	3/4						
698A	PRSE	BLACK CHERRY	13	3/3						
699A	ACPL	NORWAY MAPLE	18	3/3						
700A	ACPL	NORWAY MAPLE	16	3/3						
701A	MAPO	OSAGE ORANGE	26	3/4						
702A	PIPU	BLUE SPRUCE	17	3/3						
703A	JUVI	RED CEDAR	20	3/4						
704A	ULAM	AMERICAN ELM	14	3/4						
705A	ULAM	AMERICAN ELM	14	3/4						
706A	ULAM	AMERICAN ELM	8	3/3						
707A	ACNE	BOX ELDER	12	3/3						
708A	MAPU	APPLE	9	3/3						
709A	PRSE	BLACK CHERRY	14	3/3						
710A	ACNE	BOX ELDER	12	3/4						
711A	ULAM	AMERICAN ELM	12	3/3						
712A	FRPE	GREEN ASH	10	3/3						
713A	FRPE	GREEN ASH	6	3/4						
714A	FRPE	GREEN ASH	6	3/3						
715A	ULAM	AMERICAN ELM	6	3/3						
716A	ULAM	AMERICAN ELM	20	3/3						
717A	ULAM	AMERICAN ELM	6	3/4						
718A	FRPE	GREEN ASH	9	3/3						
719A	ULAM	AMERICAN ELM	6	3/4						
720A	QUMA	BUR OAK	6	3/4						
721A	ULAM	AMERICAN ELM	6	3/4						
722A	QUMA	BUR OAK	24	3/3						
723A	ULAM	AMERICAN ELM	8	3/3						
724A	ULAM	AMERICAN ELM	15	3/3						
725A	ULAM	AMERICAN ELM	6	3/3						
726A	ULAM	AMERICAN ELM	10	3/4						
727A	FRPE	GREEN ASH	12	3/3						
728A	ACSAI	SILVER MAPLE	12	3/3						
729A	ULAM	AMERICAN ELM	15	3/4						
730A	QUMA	BUR OAK	16	3/3						
731A	ULAM	AMERICAN ELM	10	3/3						
732A	ULAM	AMERICAN ELM	12	3/3						
733A	QUMA	BUR OAK	10	3/4						
734A	ULAM	AMERICAN ELM	8	3/3						
735A	PRSE	BLACK CHERRY	6	3/4						
736A	ULAM	AMERICAN ELM	10	3/4						
737A	ULAM	AMERICAN ELM	10	3/4						
738A	ACSAI	SILVER MAPLE	14	3/3						
739A	MOAL	WHITE MULBERRY	12	3/3						
740A	PRSE	BLACK CHERRY	12	3/3						
741A	FRPE	GREEN ASH	20	3/3						
742A	FRPE	GREEN ASH	18	3/4						
743A	FRPE	GREEN ASH	18	3/3						
744A	FRPE	GREEN ASH	16	3/3						
745A	JUNI	BLACK WALNUT	8	3/4						
746A	CEOC	HACKBERRY	12	3/3						
747A	ULAM	AMERICAN ELM	12	3/3						
748A	CEOC	HACKBERRY	12	3/3						
749A	CEOC	HACKBERRY	10	3/4						
750A	CEOC	HACKBERRY	8	3/3						
751A	JUNI	BLACK WALNUT	7	3/4						
752A	PRSE	BLACK CHERRY	6	3/4						
753A	ACSAI	SILVER MAPLE	12	3/4						
754A	ACSAI	SILVER MAPLE	12	3/3						
755A	ACSAI	SILVER MAPLE	14	3/3						
756A	ACSAI	SILVER MAPLE	12	3/3						
757A	CEOC	HACKBERRY	12	3/3						
758A	ULAM	AMERICAN ELM	10	3/4						
759A	FRPE	GREEN ASH	8	3/3						
760A	ULAM	AMERICAN ELM	10	3/3						
761A	ULAM	AMERICAN ELM	8	3/4						
762A	MOAL	WHITE MULBERRY	8	3/3						
763A	MOAL	WHITE MULBERRY	10	3/3						
764A	MOAL	WHITE MULBERRY	16	3/3						
765A	QUMA	BUR OAK	14	3/3						

TAG NO.	BOTANICAL CODE	COMMON NAME	SIZE (inches)	CONDITION/ FORM	COMMENTS	CBBEL ID	SEQUENCE	POINT X	POINT Y	IMPACTED SOUTH SECTION
766A	MOAL	WHITE MULBERRY	10	3/4						
767A	QUMA	BUR OAK	14	3/3						
768A	ACNE	BOX ELDER	22	3/3						
769A	QUMA	BUR OAK	14	3/4						
770A	MOAL	WHITE MULBERRY	8	3/3						
771A	CEOC	HACKBERRY	10	3/3						
772A	ULAM	AMERICAN ELM	10	3/3						
773A	ULAM	AMERICAN ELM	10	3/4						
774A	ULAM	AMERICAN ELM	6	3/3						
775A	CEOC	HACKBERRY	18	3/4						
776A	CEOC	HACKBERRY	20	3/4						
777A	JUNI	BLACK WALNUT	8	3/4						
778A	ULAM	AMERICAN ELM	24	3/3						
779A	QUMA	BUR OAK	10	3/3						
780A	ACNE	BOX ELDER	14	3/3						
781A	ULAM	AMERICAN ELM	8	3/3						
782A	ACNE	BOX ELDER	15	3/4						
783A	ACNE	BOX ELDER	12	3/3						
784A	ACNE	BOX ELDER	12	3/3						
785A	ACNE	BOX ELDER	6	3/4						
786A	ACNE	BOX ELDER	8	3/3						
787A	ACNE	BOX ELDER	10	3/3						
788A	ACNE	BOX ELDER	14	3/3						
789A	ACNE	BOX ELDER	24	3/4						
790A	MOAL	WHITE MULBERRY	8	3/3						
791A	MOAL	WHITE MULBERRY	10	3/4						
792A	QUMA	BUR OAK	10	3/4						
793A	QUMA	BUR OAK	8	3/4						
794A	GLTR	HONEYLOCUST	10	3/3						
795A	ACNE	BOX ELDER	12	3/3						
796A	QUMA	BUR OAK	38	3/3						
797A	QUMA	BUR OAK	36	3/3						
798A	QUMA	BUR OAK	34	3/4						
799A	QUMA	BUR OAK	10	4/4	TOPPED					
800A	QUMA	BUR OAK	8	4/4	TOPPED					
801A	QUMA	BUR OAK	6	4/4	TOPPED					
802A	QUMA	BUR OAK	10	4/4	TOPPED					
803A	QUMA	BUR OAK	6	4/4	TOPPED					
804A	QUMA	BUR OAK	34	4/4	TOPPED					
805A	GLTR	HONEYLOCUST	12	3/3						
806A	GLTR	HONEYLOCUST	17	3/4						
807A	QUMA	BUR OAK	18	3/3						
808A	MOAL	WHITE MULBERRY	16	3/3						
809A	MOAL	WHITE MULBERRY	6	3/4						
810A	MOAL	WHITE MULBERRY	12	3/3						
811A	QUMA	BUR OAK	19	3/3						
812A	PRSE	BLACK CHERRY	12	3/3						
813A	QUMA	BUR OAK	8	3/4						
814A	QUMA	BUR OAK	10	4/4	TOPPED					
815A	QUMA	BUR OAK	18	4/4	TOPPED					
816A	QUMA	BUR OAK	19	4/4	TOPPED					
817A	QUMA	BUR OAK	12	4/4	TOPPED					
818A	ACNE	BOX ELDER	18	3/3						
819A	QUMA	BUR OAK	8	3/3						
820A	ACNE	BOX ELDER	12	3/3						
821A	QUMA	BUR OAK	12	3/3						
822A	GLTR	HONEYLOCUST	6	3/4						
823A	GLTR	HONEYLOCUST	14	3/3						
824A	PIPU	BLUE SPRUCE	14	3/3						
825A	PIPU	BLUE SPRUCE	18	3/4						
826A	PIPU	BLUE SPRUCE	18	3/3						
827A	PIPU	BLUE SPRUCE	19	3/3						
828A	PIPU	BLUE SPRUCE	18	3/3						
829A	PIPU	BLUE SPRUCE	20	3/4						
830A	PIPU	BLUE SPRUCE	18	3/3						
831A	PIPU	BLUE SPRUCE	12	3/4						
832A	PIPU	BLUE SPRUCE	18	3/4						
833A	PIPU	BLUE SPRUCE	18	3/4						
834A	PIPU	BLUE SPRUCE	8	3/3						
835A	PIPU	BLUE SPRUCE	8	3/3						
836A	PIPU	BLUE SPRUCE	14	3/3						
837A	QUMA	BUR OAK	8	3/3						
838A	GLTR	HONEYLOCUST	24	3/4						
839A	QUMA	BUR OAK	12	3/3						
840A	QUMA	BUR OAK	10	3/3						
841A	GLTR	HONEYLOCUST	12	3/4						
842A	QUMA	BUR OAK	6	2/2						
843A	QUMA	BUR OAK	6	2/2						
844A	QUMA	BUR OAK	10	2/2						
845A	GLTR	HONEYLOCUST	12	2/2						
846A	GLTR	HONEYLOCUST	10	2/2						
847A	GLTR	HONEYLOCUST	14	2/2						
848A	GLTR	HONEYLOCUST	18	2/2						
849A	GLTR	HONEYLOCUST	12	2/2						
850A	GLTR	HONEYLOCUST	14	2/2						
851A	GLTR	HONEYLOCUST	20	2/2						
852A	GLTR	HONEYLOCUST	24	2/2						
853A	GLTR	HONEYLOCUST	8	2/2						
854A	GLTR	HONEYLOCUST	17	2/2						

TAG NO.	BOTANICAL CODE	COMMON NAME	SIZE (inches)	CONDITION/ FORM	COMMENTS	CBBEL ID	SEQUENCE	POINT X	POINT Y	IMPACTED SOUTH SECTION
855A	GLTR	HONEYLOCUST	17	2/2						
856A	ACNE	BOX ELDER	8	3/3						
857A	ACNE	BOX ELDER	6	3/3						
858A	PIPU	BLUE SPRUCE	16	2/2						
859A	PIPU	BLUE SPRUCE	8	2/2						
860A	QUMA	BUR OAK	14	2/3						
861A	ACNE	BOX ELDER	8	3/3						
862A	CEOC	HACKBERRY	20	3/3						
863A	ULAM	AMERICAN ELM	10	3/3						
864A	QUMA	BUR OAK	20	3/4						
865A	QUMA	BUR OAK	18	3/3						
866A	QUMA	BUR OAK	18	3/3						
867A	MOAL	WHITE MULBERRY	14	3/4						
868A	ACNE	BOX ELDER	6	3/3						
869A	ACNE	BOX ELDER	8	3/3						
870A	QUMA	BUR OAK	18	3/3						
871A	ACNE	BOX ELDER	10	3/4						
872A	AEHI	HORSE CHESTNUT	8	3/3						
873A	ACNE	BOX ELDER	12	3/4						
874A	ROPS	BLACK LOCUST	7	3/4						
875A	ROPS	BLACK LOCUST	6	3/4						
876A	ROPS	BLACK LOCUST	8	2/3						
877A	ROPS	BLACK LOCUST	12	3/3						
878A	ROPS	BLACK LOCUST	6	3/3						
879A	ACNE	BOX ELDER	10	3/3						
880A	ROPS	BLACK LOCUST	12	3/4						
881A	ROPS	BLACK LOCUST	13	3/3						
882A	ROPS	BLACK LOCUST	6	3/3						
883A	ROPS	BLACK LOCUST	8	3/4						
884A	ACNE	BOX ELDER	8	3/3						
885A	ULAM	AMERICAN ELM	16	3/3						
886A	MOAL	WHITE MULBERRY	12	3/3						
887A	MOAL	WHITE MULBERRY	10	3/3						
888A	ACNE	BOX ELDER	24	3/4						
889A	ACNE	BOX ELDER	18	3/3						
890A	ULAM	AMERICAN ELM	8	3/3						
891A	ULAM	AMERICAN ELM	10	3/4						
892A	MOAL	WHITE MULBERRY	10	3/3						
893A	MOAL	WHITE MULBERRY	6	2/3						
894A	MOAL	WHITE MULBERRY	6	3/3						
895A	ACNE	BOX ELDER	12	3/4						
896A	PIPU	BLUE SPRUCE	13	3/3						
897A	PIPU	BLUE SPRUCE	8	3/4						
898A	PIPU	BLUE SPRUCE	8	3/4						
899A	PIPU	BLUE SPRUCE	17	3/4						
900A	PIPU	BLUE SPRUCE	19	2/3						
901A	PIPU	BLUE SPRUCE	18	3/3						
902A	PIPU	BLUE SPRUCE	18	3/3						
903A	PIPU	BLUE SPRUCE	18	3/3						
904A	SABA	WEEPING WILLOW	50	3/4						
905A	SABA	WEEPING WILLOW	40	2/3						
906A	SABA	WEEPING WILLOW	54	3/3						
907A	ACSAI	SILVER MAPLE	8	3/4						
908A	QUAL	WHITE OAK	28	3/3						
909A	QUAL	WHITE OAK	24	3/3						
910A	JUNI	BLACK WALNUT	12	3/3						
911A	JUNI	BLACK WALNUT	12	2/3						
912A	JUNI	BLACK WALNUT	6	3/4						
913A	JUNI	BLACK WALNUT	11	3/3						
914A	JUNI	BLACK WALNUT	12	3/3						
915A	JUNI	BLACK WALNUT	12	3/4						
916A	JUNI	BLACK WALNUT	24	3/3						
917A	TIAM	BASSWOOD	24	3/3						
918A	TIAM	BASSWOOD	8	3/3						
919A	JUNI	BLACK WALNUT	26	3/4						
920A	ACSAI	SILVER MAPLE	12	3/3						
921A	ACSAI	SILVER MAPLE	11	3/4						
922A	ACSAI	SILVER MAPLE	24	3/3						
923A	ACSAI	SILVER MAPLE	11	3/4						
924A	ACSAI	SILVER MAPLE	10	3/3						
925A	ACSAI	SILVER MAPLE	14	3/3						
926A	ACSAI	SILVER MAPLE	8	3/3						
927A	ACSAI	SILVER MAPLE	15	3/3						
928A	ACSAI	SILVER MAPLE	16	3/4						
929A	ACSAI	SILVER MAPLE	20	3/3						
930A	ACSAI	SILVER MAPLE	14	3/3						
931A	ACSAI	SILVER MAPLE	6	3/4						
932A	ACSAI	SILVER MAPLE	9	3/3						
933A	ACSAI	SILVER MAPLE	15	3/3						
934A	ACSAI	SILVER MAPLE	12	3/3						
935A	ACSAI	SILVER MAPLE	15	2/2						
936A	QUMA	BUR OAK	12	3/4						
937A	QURU	RED OAK	8	3/3						
938A	QUMA	BUR OAK	6	3/3						
939A	PRSE	BLACK CHERRY	7	3/4						
940A	JUNI	BLACK WALNUT	23	3/3						
941A	PRSE	BLACK CHERRY	8	3/3						
942A	ACSAI	SILVER MAPLE	36	3/3						
943A	PIPU	BLUE SPRUCE	8	2/2						

TAG NO.	BOTANICAL CODE	COMMON NAME	SIZE (inches)	CONDITION/ FORM	COMMENTS	CBBEL ID	SEQUENCE	POINT X	POINT Y	IMPACTED SOUTH SECTION
944A	PIPU	BLUE SPRUCE	10	2/2						
945A	PIPU	BLUE SPRUCE	6	2/2						
946A	PIPU	BLUE SPRUCE	8	2/2						
947A	PIPU	BLUE SPRUCE	6	2/2						
948A	PIPU	BLUE SPRUCE	8	2/2						
949A	PIPU	BLUE SPRUCE	8	2/2						
950A	ACNE	BOX ELDER	18	2/3						
951A	ULPU	SIBERIAN ELM	26	3/3						
952A	ACSAI	SILVER MAPLE	30	3/4						
953A	ACSAI	SILVER MAPLE	18	3/3						
962A	CAOV	SHAGBARK HICKORY	14	2/2						
965A	QUMA	BUR OAK	36	3/3						
969A	FRPE	GREEN ASH	14	3/3						
970A	FRPE	GREEN ASH	12	3/3						
971A	FRPE	GREEN ASH	14	3/3						
972A	FRPE	GREEN ASH	12	3/3						
973A	FRPE	GREEN ASH	12	3/3						
974A	FRPE	GREEN ASH	14	3/3						
975A	FRPE	GREEN ASH	12	3/3						
976A	FRPE	GREEN ASH	14	3/3						
977A	FRPE	GREEN ASH	14	3/3						
978A	FRPE	GREEN ASH	14	3/3						
979A	FRPE	GREEN ASH	10	3/3						
980A	FRPE	GREEN ASH	14	3/3						
981A	ACSAI	SILVER MAPLE	14	3/3						
982A	PLOC	SYCAMORE	8	3/3						
983A	FRPE	GREEN ASH	14	3/3						
984A	FRPE	GREEN ASH	14	3/3						
985A	FRPE	GREEN ASH	12	3/3						
986A	FRPE	GREEN ASH	18	3/3						
987A	FRPE	GREEN ASH	12	3/3						
988A	FRPE	GREEN ASH	10	3/3						
989A	ROPS	BLACK LOCUST	14	3/3						
990A	ROPS	BLACK LOCUST	14	3/3						
991A	ROPS	BLACK LOCUST	12	3/3						
992A	ROPS	BLACK LOCUST	18	3/3						
993A	JUNI	BLACK WALNUT	12	3/3						
994A	JUNI	BLACK WALNUT	16	3/3						
995A	FRPE	GREEN ASH	12	3/3						
996A	FRPE	GREEN ASH	12	3/3						
997A	QUMA	BUR OAK	10	3/3						
998A	PLOC	SYCAMORE	24	3/3						
999A	DEAD	DEAD	15	5/5	DEAD					
1000A	QUMA	BUR OAK	12	3/3						
1001A	QUMA	BUR OAK	10	3/3						
1002A	PRSE	BLACK CHERRY	6	3/3						
1003A	ACNE	BOX ELDER	6	3/3						
1004A	ACNE	BOX ELDER	6	3/3						
1005A	SABA	WEEPING WILLOW	24	3/4						
1006A	SABA	WEEPING WILLOW	22	3/4						
1007A	ULPU	SIBERIAN ELM	18	3/3						
1008A	SABA	WEEPING WILLOW	20	3/4						
1009A	PIPU	BLUE SPRUCE	6	2/2						
1010A	PIPU	BLUE SPRUCE	8	2/2						
1011A	PIPU	BLUE SPRUCE	10	2/2						
1012A	PIPU	BLUE SPRUCE	12	2/2						
1013A	QUMA	BUR OAK	30	3/3						
1014A	ACPL	NORWAY MAPLE	8	3/3						
1015A	FRPE	GREEN ASH	8	3/3						
1016A	FRPE	GREEN ASH	10	3/3						
1017A	ACPL	NORWAY MAPLE	10	3/3						
1018A	PINI	AUSTRIAN PINE	12	3/3						
1019A	FRPE	GREEN ASH	10	3/3						
1020A	FRAM	WHITE ASH	10	3/3						
1021A	FRPE	GREEN ASH	8	3/3						
1022A	FRPE	GREEN ASH	12	3/3						
1023A	ACPL	NORWAY MAPLE	6	3/3						
1024A	ACPL	NORWAY MAPLE	6	3/3						
1025A	FRPE	GREEN ASH	8	3/3						
1026A	FRPE	GREEN ASH	11	3/3						
1027A	FRPE	GREEN ASH	11	3/3						
1028A	FRPE	GREEN ASH	14	3/3						
1029A	FRPE	GREEN ASH	15	3/3						
1030A	ULAM	AMERICAN ELM	20	3/3						
1031A	CEOC	HACKBERRY	8	3/3						
1032A	FRPE	GREEN ASH	12	3/3						
1033A	FRPE	GREEN ASH	14	3/3						
1034A	ACPL	NORWAY MAPLE	12	3/4						
1035A	DEAD	DEAD	8	5/5	DEAD					
1036A	ULPU	SIBERIAN ELM	12	3/3						
1037A	FRPE	GREEN ASH	14	3/3						
1038A	QUMA	BUR OAK	12	2/2						
1039A	QUMA	BUR OAK	12	2/2						
1040A	QUMA	BUR OAK	14	2/2						
1041A	QUMA	BUR OAK	14	2/2						
1042A	GLTR	HONEYLOCUST	10	3/3						
1043A	QUMA	BUR OAK	10	2/2						
1044A	QUMA	BUR OAK	12	2/2						
1045A	QUMA	BUR OAK	6	2/2						

TAG NO.	BOTANICAL CODE	COMMON NAME	SIZE (inches)	CONDITION/ FORM	COMMENTS	CBBEL ID	SEQUENCE	POINT X	POINT Y	IMPACTED SOUTH SECTION
1046A	QUMA	BUR OAK	10	2/2						
1047A	QUMA	BUR OAK	10	2/2						
1048A	QUMA	BUR OAK	12	2/2						
1049A	QUMA	BUR OAK	8	2/2						
1050A	QUMA	BUR OAK	12	2/2						
1051A	QUMA	BUR OAK	8	2/2						
1052A	QUMA	BUR OAK	14	2/2						
1053A	QUMA	BUR OAK	8	2/2						
1054A	ACPL	NORWAY MAPLE	8	2/2						
1055A	FRPE	GREEN ASH	14	3/3						
1056A	FRPE	GREEN ASH	14	3/3						
1057A	FRPE	GREEN ASH	10	3/3						
1058A	ACSAI	SILVER MAPLE	12	3/3						
1059A	GLTR	HONEYLOCUST	10	3/3						
1060A	ULAM	AMERICAN ELM	8	3/3						
1061A	GLTR	HONEYLOCUST	10	3/3						
1062A	FRAM	WHITE ASH	12	3/3						
1063A	PRSE	BLACK CHERRY	10	3/3						
1064A	FRPE	GREEN ASH	12	3/3						
1065A	CASP	CATALPA	6	3/3						
1066A	MOAL	WHITE MULBERRY	14	3/3						
1067A	MOAL	WHITE MULBERRY	8	3/3						
1068A	ROPS	BLACK LOCUST	12	3/3						
1069A	ROPS	BLACK LOCUST	6	3/3						
1070A	PIAB	NORWAY SPRUCE	28	3/3						
1071A	PIPU	BLUE SPRUCE	18	3/3						
1072A	PIPU	BLUE SPRUCE	18	3/3						
1073A	ACPL	NORWAY MAPLE	18	3/3						
1074A	JUNI	BLACK WALNUT	14	3/3						
1075A	JUNI	BLACK WALNUT	8	3/3						
1076A	ULAM	AMERICAN ELM	8	3/3						
1077A	ULAM	AMERICAN ELM	10	3/4						
1078A	ULAM	AMERICAN ELM	40	3/3						
1079A	JUNI	BLACK WALNUT	26	3/3						
1080A	JUNI	BLACK WALNUT	18	3/3						
1081A	QUMA	BUR OAK	12	3/3						
1082A	JUNI	BLACK WALNUT	15	3/3						
1083A	QUMA	BUR OAK	8	3/3						
1084A	JUNI	BLACK WALNUT	15	3/3						
1085A	CASP	CATALPA	12	3/3						
1086A	ULAM	AMERICAN ELM	6	3/3						
1087A	QUMA	BUR OAK	15	3/3						
1088A	JUNI	BLACK WALNUT	20	3/3						
1089A	ULAM	AMERICAN ELM	6	3/3						
1090A	ULAM	AMERICAN ELM	7	3/3						
1091A	ULAM	AMERICAN ELM	12	3/3						
1092A	ULAM	AMERICAN ELM	8	3/3						
1093A	ULAM	AMERICAN ELM	6	3/3						
1094A	ULAM	AMERICAN ELM	12	3/3						
1095A	ULAM	AMERICAN ELM	8	3/3						
1096A	ULAM	AMERICAN ELM	6	3/3						
1097A	ULAM	AMERICAN ELM	8	3/3						
1098A	FRAM	WHITE ASH	6	3/3						
1099A	FRAM	WHITE ASH	8	3/3						
1100A	JUNI	BLACK WALNUT	28	3/3						
1101A	FRAM	WHITE ASH	6	3/3						
1102A	FRAM	WHITE ASH	6	3/4						
1103A	FRAM	WHITE ASH	8	3/3						
1104A	FRAM	WHITE ASH	16	3/3						
1105A	PIPU	BLUE SPRUCE	8	3/3						
1106A	PIPU	BLUE SPRUCE	8	2/2						
1107A	PIPU	BLUE SPRUCE	6	2/2						
1108A	JUNI	BLACK WALNUT	24	2/2						
1109A	JUNI	BLACK WALNUT	24	2/2						
1110A	JUNI	BLACK WALNUT	9	2/2						
1111A	JUNI	BLACK WALNUT	28	2/2						
1112A	JUNI	BLACK WALNUT	8	2/2						
1113A	JUNI	BLACK WALNUT	17	2/2						
1114A	PIAB	NORWAY SPRUCE	18	2/2						
1115A	PIAB	NORWAY SPRUCE	8	2/2						
1116A	PINI	AUSTRIAN PINE	8	2/2						
1117A	PIAB	NORWAY SPRUCE	14	2/2						
1118A	QURU	RED OAK	36	2/2						
1119A	QUMA	BUR OAK	32	2/2						
1120A	PIPU	BLUE SPRUCE	8	2/2						
1121A	PIPU	BLUE SPRUCE	14	2/2						
1122A	MAPU	APPLE	9	3/4						
1123A	MAPU	APPLE	10	3/4						
1124A	JUNI	BLACK WALNUT	15	3/3						
1125A	JUNI	BLACK WALNUT	18	3/3						
1126A	JUNI	BLACK WALNUT	8	3/3						
1127A	JUNI	BLACK WALNUT	11	3/3						
1128A	JUNI	BLACK WALNUT	12	3/3						
1129A	JUNI	BLACK WALNUT	17	3/3						
1130A	JUNI	BLACK WALNUT	18	3/3						
1131A	QUMA	BUR OAK	8	3/3						
1132A	QUMA	BUR OAK	24	3/3						
1133A	DEAD	DEAD	8	3/3						
1134A	QUMA	BUR OAK	12	3/3						

TAG NO.	BOTANICAL CODE	COMMON NAME	SIZE (inches)	CONDITION/ FORM	COMMENTS	CBBEL ID	SEQUENCE	POINT X	POINT Y	IMPACTED SOUTH SECTION
1135A	QUMA	BUR OAK	12	3/3						
1136A	JUNI	BLACK WALNUT	18	3/3						
1137A	ACNE	BOX ELDER	18	3/3						
1138A	QURU	RED OAK	6	3/3						
1139A	QURU	RED OAK	8	3/3						
1140A	QURU	RED OAK	8	3/3						
1141A	FRAM	WHITE ASH	18	3/3						
1142A	QURU	RED OAK	11	3/3						
1143A	QURU	RED OAK	12	3/3						
1144A	DEAD	DEAD	15	3/3						
1145A	QUMA	BUR OAK	15	3/3						
1146A	QUMA	BUR OAK	26	3/3						
1147A	JUNI	BLACK WALNUT	18	3/3						
1148A	ACNE	BOX ELDER	12	3/3						
1149A	JUNI	BLACK WALNUT	17	3/3						
1150A	JUNI	BLACK WALNUT	18	3/3						
1151A	JUNI	BLACK WALNUT	15	3/3						
1152A	JUNI	BLACK WALNUT	15	3/3						
1153A	JUVI	RED CEDAR	6	3/3						
1154A	JUVI	RED CEDAR	12	3/3						
1155A	ACPL	NORWAY MAPLE	12	3/3						
1156A	JUVI	RED CEDAR	13	3/3						
1157A	JUVI	RED CEDAR	13	3/3						
1158A	JUVI	RED CEDAR	13	3/3						
1159A	JUNI	BLACK WALNUT	24	3/3						
1160A	ACSAI	SILVER MAPLE	17	3/3						
1161A	JUNI	BLACK WALNUT	8	3/3						
1162A	QUMA	BUR OAK	12	3/3						
1163A	FRPE	GREEN ASH	12	3/3						
1164A	FRPE	GREEN ASH	10	3/3						
1165A	FRPE	GREEN ASH	10	3/3						
1166A	FRPE	GREEN ASH	6	3/3						
1167A	JUNI	BLACK WALNUT	9	3/3						
1168A	JUNI	BLACK WALNUT	10	3/3						
1169A	FRAM	WHITE ASH	12	3/3						
1170A	JUNI	BLACK WALNUT	18	3/3						
1171A	FRAM	WHITE ASH	12	3/3						
1172A	QUMA	BUR OAK	10	3/3						
1173A	QUMA	BUR OAK	6	3/3						
1174A	QUMA	BUR OAK	13	3/3						
1175A	QUMA	BUR OAK	20	3/3						
1176A	JUNI	BLACK WALNUT	18	3/3						
1177A	QUMA	BUR OAK	27	3/3						
1178A	MOAL	WHITE MULBERRY	8	3/3						
1179A	CAOV	SHAGBARK HICKORY	13	3/3						
1180A	CAOV	SHAGBARK HICKORY	15	3/3						
1181A	QUMA	BUR OAK	8	3/3						
1182A	MOAL	WHITE MULBERRY	8	3/3						
1183A	PRSE	BLACK CHERRY	8	3/3						
1184A	QURU	RED OAK	8	3/3						
1185A	QUMA	BUR OAK	12	3/3						
1186A	QUMA	BUR OAK	12	3/3						
1187A	MOAL	WHITE MULBERRY	6	3/3						
1188A	MOAL	WHITE MULBERRY	8	3/3						
1189A	MOAL	WHITE MULBERRY	12	3/3						
1190A	MOAL	WHITE MULBERRY	6	3/3						
1191A	MOAL	WHITE MULBERRY	9	3/3						
1192A	MOAL	WHITE MULBERRY	9	3/4						
1193A	ACNE	BOX ELDER	10	3/3						
1194A	ACNE	BOX ELDER	9	3/3						
1195A	ACNE	BOX ELDER	11	3/4						
1196A	ACNE	BOX ELDER	12	3/3						
1197A	TIAM	BASSWOOD	8	2/3						
1198A	JUNI	BLACK WALNUT	8	3/3						
1199A	ACNE	BOX ELDER	6	3/4						
1200A	ACNE	BOX ELDER	6	3/3						
1201A	ROPS	BLACK LOCUST	8	3/4						
1202A	ROPS	BLACK LOCUST	15	3/3						
1203A	ROPS	BLACK LOCUST	10	3/3						
1204A	ROPS	BLACK LOCUST	13	3/4						
1205A	ROPS	BLACK LOCUST	8	3/3						
1206A	ROPS	BLACK LOCUST	10	3/3						
1207A	ROPS	BLACK LOCUST	11	3/4						
1208A	ROPS	BLACK LOCUST	18	3/3						
1209A	DEAD	DEAD	26	2/3						
1210A	DEAD	DEAD	30	3/3						
1211A	ROPS	BLACK LOCUST	14	3/4						
1212A	QURU	RED OAK	9	3/3						
1213A	QURU	RED OAK	7	3/4						
1214A	ROPS	BLACK LOCUST	6	3/4						
1215A	QUAL	WHITE OAK	18	3/4						
1216A	QUAL	WHITE OAK	25	3/4						
1217A	DEAD	DEAD	23	3/3						
1218A	DEAD	DEAD	27	3/3						
1219A	ULAM	AMERICAN ELM	10	3/3						
1220A	ROPS	BLACK LOCUST	6	3/3						
1221A	ROPS	BLACK LOCUST	6	3/4						
1222A	QUMA	BUR OAK	26	3/3						
1223A	QUMA	BUR OAK	36	3/3						

TAG NO.	BOTANICAL CODE	COMMON NAME	SIZE (inches)	CONDITION/ FORM	COMMENTS	CBBEL ID	SEQUENCE	POINT X	POINT Y	IMPACTED SOUTH SECTION
1224A	ROPS	BLACK LOCUST	6	3/4						
1225A	ROPS	BLACK LOCUST	11	3/3						
1226A	ROPS	BLACK LOCUST	10	3/3						
1227A	DEAD	DEAD	19	3/3						
1228A	ROPS	BLACK LOCUST	12	3/4						
1229A	ROPS	BLACK LOCUST	8	3/3						
1230A	ROPS	BLACK LOCUST	6	3/4						
1231A	ROPS	BLACK LOCUST	10	3/4						
1232A	ROPS	BLACK LOCUST	6	3/4						
1333A	DEAD	DEAD	24	3/3						
1234A	ROPS	BLACK LOCUST	6	3/3						
1235A	ROPS	BLACK LOCUST	6	3/3						
1236A	ROPS	BLACK LOCUST	6	3/3						
1237A	ROPS	BLACK LOCUST	7	3/4						
1238A	ROPS	BLACK LOCUST	8	3/3						
1239A	ROPS	BLACK LOCUST	12	3/3						
1240A	ROPS	BLACK LOCUST	10	3/4						
1241A	ROPS	BLACK LOCUST	10	3/3						
1242A	ROPS	BLACK LOCUST	12	3/3						
1243A	ROPS	BLACK LOCUST	12	3/3						
1244A	MOAL	WHITE MULBERRY	10	3/3						
1245A	ROPS	BLACK LOCUST	12	3/4						
1246A	ACNE	BOX ELDER	10	3/3						
1247A	ROPS	BLACK LOCUST	11	3/3						
1248A	ROPS	BLACK LOCUST	12	3/4						
1249A	ROPS	BLACK LOCUST	12	3/3						
1250A	ROPS	BLACK LOCUST	12	3/3						
1251A	ROPS	BLACK LOCUST	12	3/3						
1252A	ROPS	BLACK LOCUST	6	3/4						
1253A	ACNE	BOX ELDER	11	3/3						
1254A	ACNE	BOX ELDER	12	3/4						
1255A	ROPS	BLACK LOCUST	12	3/4						
1256A	ROPS	BLACK LOCUST	6	3/4						
1257A	ACNE	BOX ELDER	13	3/3						
1258A	ACNE	BOX ELDER	13	3/3						
1259A	ACNE	BOX ELDER	14	3/4						
1260A	PRSE	BLACK CHERRY	6	3/4						
1261A	PRSE	BLACK CHERRY	6	3/4						
1262A	ACNE	BOX ELDER	6	3/3						
1263A	MOAL	WHITE MULBERRY	11	3/3						
1264A	MOAL	WHITE MULBERRY	12	3/3						
1265A	ACNE	BOX ELDER	12	3/3						
1453A	ACSAI	SILVER MAPLE	31	3/4						
1454A	ACSAI	SILVER MAPLE	36	3/3						

TREE INVENTORY LISTING
ROUTE 45 EXISTING RIGHT OF WAY

(CBBEL PROJECT NUMBER 10-63)

NOTE:
1. INVENTORY INCLUDES TREES PLOTTED BY CBBEL SURVEY STAFF ON PROJECT PLAN AND PROFILE SHEETS IN OCTOBER, 2011.
2. VALUES ASSIGNED FOR CONDITION AND FORM OF TREES ARE SHOWN IN RIGHT COLUMN BELOW. RATINGS ARE BASED ON GENERAL OBSERVATIONS AND ON A SCALE OF 1 (EXCELLENT) TO 5 (POOR).
3. SIZES RECORDED BY CBBEL SURVEY STAFF

TAG NO.	BOTANICAL CODE	COMMON NAME	SIZE (inches)	CONDITION/ FORM	COMMENTS	CBBEL ID	SEQUENCE	POINT X	POINT Y	IMPACTED SOUTH SECTION
1A	SABA	WEEPING WILLOW	48	4/4	DEADWOOD					Y
2A	SABA	WEEPING WILLOW	34	4/4	TOPPED					Y
3A	JUVI	RED CEDAR	13	3/3						Y
4A	ACSAI	SILVER MAPLE	18	3/3						Y
5A	ULAM	AMERICAN ELM	8	4/4	LEAN					Y
6A	ULAM	AMERICAN ELM	12	4/4	LEAN					Y
7A	ACSAI	SILVER MAPLE	24	3/3						Y
8A	ACSAI	SILVER MAPLE	12	3/3						Y
9A	JUVI	RED CEDAR	12	3/3						Y
10A	RHCA	BUCKTHORN	12	3/3						Y
11A	RHCA	BUCKTHORN	12	3/3						Y
12A	RHCA	BUCKTHORN	12	3/3						Y
13A	RHCA	BUCKTHORN	14	3/3						Y
14A	RHCA	BUCKTHORN	8	3/3						Y
15A	RHCA	BUCKTHORN	14	3/3						Y
16A	CRMO	HAWTHORN	8	3/3						Y
17A	JUVI	RED CEDAR	12	3/4	TOPPED					Y
18A	PINI	AUSTRIAN PINE	14	3/3						Y
19A	PINI	AUSTRIAN PINE	14	3/3						Y
20A	PINI	AUSTRIAN PINE	14	3/3						Y
21A	FRAM	WHITE ASH	8	2/2						Y
22A	QUMA	BUR OAK	30	2/2						Y
23A	JUNI	BLACK WALNUT	8	3/3						Y
24A	ACSAI	SILVER MAPLE	24	2/2						Y
25A	JUVI	RED CEDAR	18	3/4	TOPPED					Y
26A	FRPE	GREEN ASH	10	3/3						Y
27A	FRPE	GREEN ASH	10	3/3						Y
28A	FRPE	GREEN ASH	10	3/3						Y
29A	FRPE	GREEN ASH	10	3/3						Y
30A	FRPE	GREEN ASH	8	3/3						Y
31A	JUNI	BLACK WALNUT	8	2/2						Y
32A	FRPE	GREEN ASH	8	3/3						Y
33A	FRPE	GREEN ASH	8	3/3						Y
34A	FRPE	GREEN ASH	10	3/3						Y
35A	FRPE	GREEN ASH	10	3/3						Y
36A	FRPE	GREEN ASH	6	3/2						Y
37A	ULAM	AMERICAN ELM	8	3/4						Y
38A	FRPE	GREEN ASH	8	3/3						Y
39A	ULAM	AMERICAN ELM	8	3/3						Y
40A	ULAM	AMERICAN ELM	10	3/3						Y
41A	ULAM	AMERICAN ELM	10	3/3						Y
42A	FRPE	GREEN ASH	10	3/3						Y
43A	QUMA	BUR OAK	26	2/3	LEAN					Y
44A	ULAM	AMERICAN ELM	22	3/3						Y
45A	ULAM	AMERICAN ELM	22	3/3						Y
46A	ULAM	AMERICAN ELM	16	3/3						Y
47A	ULAM	AMERICAN ELM	24	3/3						Y
48A	ULAM	AMERICAN ELM	20	3/3						Y
49A	ULAM	AMERICAN ELM	12	3/3						Y
50A	ULAM	AMERICAN ELM	10	3/4						Y
51A	ULAM	AMERICAN ELM	10	3/4	LEAN					Y
52A	ULAM	AMERICAN ELM	10	3/3						Y
53A	ULAM	AMERICAN ELM	12	3/3						Y
54A	ACSAI	SILVER MAPLE	14	3/3						Y
55A	ACSAI	SILVER MAPLE	12	3/3						Y
56A	ACSAI	SILVER MAPLE	12	3/3						Y
57A	ACSAI	SILVER MAPLE	10	3/3						Y
58A	ACNE	BOX ELDER	6	4/4	LEAN					Y
59A	ACSAI	SILVER MAPLE	10	5/5	TOPPED					Y
60A	ACSAI	SILVER MAPLE	10	3/4						Y
61A	ACSAI	SILVER MAPLE	12	3/4						Y
62A	ACSAI	SILVER MAPLE	12	3/4						Y
63A	TIAM	BASSWOOD	10	2/2						Y
64A	ULAM	AMERICAN ELM	12	3/3						Y
65A	PRSE	BLACK CHERRY	8	3/3						Y
66A	ACSAC	SUGAR MAPLE	8	3/3						Y
67A	ULAM	AMERICAN ELM	8	3/3						Y
68A	ULAM	AMERICAN ELM	8	3/3						Y
69A	ULAM	AMERICAN ELM	8	3/3						Y
70A	PRSE	BLACK CHERRY	8	3/3						Y
71A	ULAM	AMERICAN ELM	10	3/3						Y
72A	ULAM	AMERICAN ELM	15	3/3						Y
73A	ULAM	AMERICAN ELM	18	3/3						Y
74A	CEOC	HACKBERRY	6	2/2						Y
75A	PIST	WHITE PINE	12	2/2						Y
76A	PIPU	BLUE SPRUCE	14	2/2						Y

TAG NO.	BOTANICAL CODE	COMMON NAME	SIZE (inches)	CONDITION/ FORM	COMMENTS	CBBEL ID	SEQUENCE	POINT X	POINT Y	IMPACTED SOUTH SECTION
77A	PIST	WHITE PINE	15	2/2						Y
78A	PIST	WHITE PINE	18	2/2						Y
79A	MOAL	WHITE MULBERRY	8	3/3						Y
80A	ULAM	AMERICAN ELM	6	3/3						Y
81A	PIST	WHITE PINE	19	2/2						Y
82A	ACNE	BOX ELDER	8	3/3						Y
83A	PIST	WHITE PINE	22	2/2						Y
84A	MOAL	WHITE MULBERRY	8	3/3						Y
85A	MOAL	WHITE MULBERRY	10	3/3						Y
86A	MOAL	WHITE MULBERRY	6	3/3						Y
87A	PIST	WHITE PINE	18	2/2						Y
88A	PIST	WHITE PINE	18	2/2						Y
89A	ROPS	BLACK LOCUST	6	3/3						Y
90A	ROPS	BLACK LOCUST	10	3/3						Y
91A	ROPS	BLACK LOCUST	8	3/3						Y
92A	ROPS	BLACK LOCUST	8	3/3						Y
93A	ROPS	BLACK LOCUST	6	3/3						Y
94A	ROPS	BLACK LOCUST	8	3/3						Y
95A	ROPS	BLACK LOCUST	6	3/3						Y
96A	ROPS	BLACK LOCUST	6	3/3						Y
97A	ROPS	BLACK LOCUST	12	3/3						Y
98A	ACNE	BOX ELDER	8	3/4						Y
99A	JUNI	BLACK WALNUT	8	3/3						Y
100A	JUNI	BLACK WALNUT	12	3/3						Y
101A	JUNI	BLACK WALNUT	12	3/3						Y
102A	JUNI	BLACK WALNUT	12	3/3						Y
103A	JUNI	BLACK WALNUT	7	2/2						Y
104A	JUNI	BLACK WALNUT	6	2/2						Y
105A	GLTR	HONEYLOCUST	7	2/2						Y
109A	ACSAI	SILVER MAPLE	7	3/3						Y
110A	ACSAI	SILVER MAPLE	7	3/2						Y
111A	ACSAI	SILVER MAPLE	6	2/2						Y
112A	ACSAI	SILVER MAPLE	6	2/2						Y
113A	ACSAI	SILVER MAPLE	7	2/2						Y
114A	ACSAI	SILVER MAPLE	6	2/2						Y
115A	ACSAI	SILVER MAPLE	8	2/2						Y
116A	CASP	CATALPA	7	2/2						Y
117A	CASP	CATALPA	7	3/3						Y
118A	CASP	CATALPA	6	2/2						Y
119A	CASP	CATALPA	7	3/2						Y
120A	CASP	CATALPA	6	3/2						Y
121A	MOAL	WHITE MULBERRY	8	3/3						Y
122A	MOAL	WHITE MULBERRY	8	3/3						Y
123A	MOAL	WHITE MULBERRY	8	3/3						Y
124A	MOAL	WHITE MULBERRY	8	3/3						Y
125A	ACNE	BOX ELDER	10	3/4						Y
126A	ACNE	BOX ELDER	8	4/4	TOPPED					Y
127A	ACNE	BOX ELDER	18	3/3						Y
128A	ACNE	BOX ELDER	12	3/4	LEAN					Y
129A	ULAM	AMERICAN ELM	14	3/2						Y
130A	ACNE	BOX ELDER	12	3/3						Y
131A	ACNE	BOX ELDER	12	3/3						Y
132A	ACNE	BOX ELDER	8	3/3						Y
133A	ACNE	BOX ELDER	10	3/3						Y
134A	ACNE	BOX ELDER	8	3/4						Y
135A	ULAM	AMERICAN ELM	12	3/3						Y
136A	ACNE	BOX ELDER	8	3/4						Y
137A	ACNE	BOX ELDER	8	3/4						Y
138A	ACNE	BOX ELDER	18	3/4						Y
139A	ACNE	BOX ELDER	6	3/3						Y
140A	ACNE	BOX ELDER	6	3/2						Y
141A	ACNE	BOX ELDER	6	3/3						Y
142A	ACNE	BOX ELDER	8	3/3						Y
143A	ACNE	BOX ELDER	12	3/3						Y
144A	ACNE	BOX ELDER	10	3/3						Y
145A	ACNE	BOX ELDER	7	3/4						Y
146A	ACNE	BOX ELDER	18	3/3						Y
147A	ACNE	BOX ELDER	6	3/3						Y
148A	ACNE	BOX ELDER	6	3/3						Y
149A	ACNE	BOX ELDER	6	3/3						Y
150A	ACNE	BOX ELDER	8	3/2						Y
151A	ACNE	BOX ELDER	15	3/3						Y
152A	ACNE	BOX ELDER	14	3/3						Y
153A	ACNE	BOX ELDER	10	3/3						Y
154A	ULAM	AMERICAN ELM	6	3/3						Y
155A	ULAM	AMERICAN ELM	10	3/4						Y
156A	ACNE	BOX ELDER	8	3/3						Y
157A	ULAM	AMERICAN ELM	8	3/3						Y
158A	JUVI	RED CEDAR	15	3/4						Y
954A	JUVI	RED CEDAR	12	3/3						Y
955A	ULAM	AMERICAN ELM	30	3/4						Y
956A	JUVI	RED CEDAR	12	3/3						Y
957A	JUVI	RED CEDAR	14	3/3						Y
958A	ULPU	SIBERIAN ELM	20	3/3						Y
959A	ACSAI	SILVER MAPLE	10	3/3						Y
960A	MAPU	APPLE	16	3/3						Y
961A	PIPU	BLUE SPRUCE	8	3/3						Y
963A	QUMA	BUR OAK	45	3/3						Y
964A	QUMA	BUR OAK	32	3/3						Y

TAG NO.	BOTANICAL CODE	COMMON NAME	SIZE (inches)	CONDITION/ FORM	COMMENTS	CBBEL ID	SEQUENCE	POINT X	POINT Y	IMPACTED SOUTH SECTION
966A	QUMA	BUR OAK	24	3/3						Y
967A	QUMA	BUR OAK	36	2/2						Y
968A	QUMA	BUR OAK	36	2/2						Y
1266A	ULPU	SIBERIAN ELM	20	3/4						Y
1267A	ACNE	BOX ELDER	48	3/3						Y
1268A	ACNE	BOX ELDER	18	3/3						Y
1269A	PRSE	BLACK CHERRY	15	3/4						Y
1270A	ACNE	BOX ELDER	10	3/3						Y
1271A	ACPL	NORWAY MAPLE	10	3/3						Y
1272A	MOAL	WHITE MULBERRY	15	3/3						Y
1273A	ULAM	AMERICAN ELM	18	3/4						Y
1274A	PRSE	BLACK CHERRY	15	3/3						Y
1275A	ACSAI	SILVER MAPLE	10	3/4						Y
1276A	ACNE	BOX ELDER	8	3/4						Y
1277A	ACNE	BOX ELDER	10	3/4						Y
1278A	CEOC	HACKBERRY	10	3/3						Y
1279A	CEOC	HACKBERRY	8	3/3						Y
1280A	ACNE	BOX ELDER	18	3/3						Y
1281A	CEOC	HACKBERRY	6	3/3						Y
1282A	CEOC	HACKBERRY	10	3/4						Y
1283A	CEOC	HACKBERRY	6	3/3						Y
1284A	CEOC	HACKBERRY	14	3/3						Y
1285A	CEOC	HACKBERRY	12	3/4						Y
1286A	CEOC	HACKBERRY	21	3/3						Y
1287A	CEOC	HACKBERRY	27	3/3						Y
1288A	CEOC	HACKBERRY	12	3/3						Y
1289A	CEOC	HACKBERRY	10	3/3						Y
1290A	CEOC	HACKBERRY	15	3/4						Y
1291A	CEOC	HACKBERRY	30	3/3						Y
1292A	CEOC	HACKBERRY	24	3/3						Y
1293A	CEOC	HACKBERRY	24	3/4						Y
1294A	CEOC	HACKBERRY	8	3/3						Y
1295A	CEOC	HACKBERRY	15	3/3						Y
1296A	CEOC	HACKBERRY	18	3/3						Y
1297A	CEOC	HACKBERRY	24	3/4						Y
1298A	CEOC	HACKBERRY	8	3/3						Y
1299A	CEOC	HACKBERRY	10	3/4						Y
1300A	CEOC	HACKBERRY	10	3/4						Y
1301A	CEOC	HACKBERRY	10	3/4						Y
1302A	CEOC	HACKBERRY	15	3/3						Y
1303A	CEOC	HACKBERRY	10	3/3						Y
1304A	CEOC	HACKBERRY	10	3/3						Y
1305A	CEOC	HACKBERRY	10	3/3						Y
1306A	CEOC	HACKBERRY	15	3/3						Y
1307A	CEOC	HACKBERRY	6	3/3						Y
1308A	CEOC	HACKBERRY	12	3/3						Y
1309A	CEOC	HACKBERRY	15	3/3						Y
1310A	CEOC	HACKBERRY	10	3/3						Y
1311A	CEOC	HACKBERRY	12	3/3						Y
1312A	CEOC	HACKBERRY	15	3/3						Y
1313A	CEOC	HACKBERRY	8	3/3						Y
1314A	CEOC	HACKBERRY	12	3/4						Y
1315A	CEOC	HACKBERRY	12	3/3						Y
1316A	CEOC	HACKBERRY	8	3/3						Y
1317A	CEOC	HACKBERRY	6	3/4						Y
1318A	CEOC	HACKBERRY	8	3/3						Y
1319A	ACPL	NORWAY MAPLE	10	2/3						Y
1320A	TIAM	BASSWOOD	8	3/3						Y
1321A	TIAM	BASSWOOD	6	3/4						Y
1322A	TIAM	BASSWOOD	15	3/3						Y
1323A	TIAM	BASSWOOD	15	3/4						Y
1324A	TIAM	BASSWOOD	15	3/3						Y
1325A	TIAM	BASSWOOD	24	3/3						Y
1326A	TIAM	BASSWOOD	8	3/4						Y
1327A	QUAL	WHITE OAK	6	3/3						Y
1328A	TIAM	BASSWOOD	21	3/3						Y
1329A	TIAM	BASSWOOD	8	3/4						Y
1330A	TIAM	BASSWOOD	8	3/3						Y
1331A	TIAM	BASSWOOD	6	2/3						Y
1332A	TIAM	BASSWOOD	6	3/3						Y
1333A	TIAM	BASSWOOD	6	3/4						Y
1334A	TIAM	BASSWOOD	21	3/3						Y
1335A	TIAM	BASSWOOD	8	3/4						Y
1336A	TIAM	BASSWOOD	18	3/4						Y
1337A	TIAM	BASSWOOD	8	3/4						Y
1338A	TIAM	BASSWOOD	18	3/4						Y
1339A	TIAM	BASSWOOD	10	3/3						Y
1340A	TIAM	BASSWOOD	8	3/3						Y
1341A	TIAM	BASSWOOD	8	3/3						Y
1342A	TIAM	BASSWOOD	6	3/3						Y
1343A	TIAM	BASSWOOD	8	3/4						Y
1344A	TIAM	BASSWOOD	6	3/3						Y
1345A	TIAM	BASSWOOD	18	3/4						Y
1346A	TIAM	BASSWOOD	18	3/3						Y
1347A	TIAM	BASSWOOD	6	3/3						Y
1348A	TIAM	BASSWOOD	10	3/3						Y
1349A	TIAM	BASSWOOD	12	3/3						Y
1350A	TIAM	BASSWOOD	10	3/4						Y
1351A	TIAM	BASSWOOD	6	3/3						Y

TAG NO.	BOTANICAL CODE	COMMON NAME	SIZE (inches)	CONDITION/ FORM	COMMENTS	CBBEL ID	SEQUENCE	POINT X	POINT Y	IMPACTED SOUTH SECTION
1352A	TIAM	BASSWOOD	12	3/3						Y
1353A	TIAM	BASSWOOD	18	3/4						Y
1354A	QUMA	BUR OAK	6	3/3						Y
1355A	TIAM	BASSWOOD	6	3/3						Y
1356A	TIAM	BASSWOOD	6	3/3						Y
1357A	TIAM	BASSWOOD	10	3/4						Y
1358A	TIAM	BASSWOOD	27	3/3						Y
1359A	TIAM	BASSWOOD	12	3/4						Y
1360A	TIAM	BASSWOOD	12	3/4						Y
1361A	TIAM	BASSWOOD	16	3/4						Y
1362A	TIAM	BASSWOOD	16	3/3						Y
1363A	TIAM	BASSWOOD	24	3/3						Y
1364A	ACPL	NORWAY MAPLE	12	3/4						Y
1365A	TIAM	BASSWOOD	15	3/4						Y
1366A	QUAL	WHITE OAK	30	3/4						Y
1367A	TIAM	BASSWOOD	15	3/3						Y
1368A	TIAM	BASSWOOD	6	3/3						Y
1369A	TIAM	BASSWOOD	6	3/3						Y
1370A	TIAM	BASSWOOD	27	3/3						Y
1371A	ACPL	NORWAY MAPLE	10	3/4						Y
1372A	ULPU	SIBERIAN ELM	14	3/3						Y
1373A	TIAM	BASSWOOD	12	3/3						Y
1374A	TIAM	BASSWOOD	6	3/4						Y
1375A	TIAM	BASSWOOD	8	3/3						Y
1376A	MAPU	APPLE	10	3/3						Y
1377A	TIAM	BASSWOOD	10	3/3						Y
1378A	MAPU	APPLE	8	3/4						Y
1379A	ULAM	AMERICAN ELM	8	3/3						Y
1380A	JUVI	RED CEDAR	6	3/4						Y
1381A	ACPL	NORWAY MAPLE	21	3/4						Y
1382A	TIAM	BASSWOOD	21	3/4						Y
1383A	TIAM	BASSWOOD	10	3/3						Y
1384A	TIAM	BASSWOOD	10	3/3						Y
1385A	TIAM	BASSWOOD	18	3/3						Y
1386A	TIAM	BASSWOOD	6	3/3						Y
1387A	TIAM	BASSWOOD	6	3/3						Y
1388A	TIAM	BASSWOOD	6	3/4						Y
1389A	TIAM	BASSWOOD	12	3/3						Y
1390A	TIAM	BASSWOOD	10	3/3						Y
1391A	TIAM	BASSWOOD	10	3/4						Y
1392A	TIAM	BASSWOOD	12	3/3						Y
1393A	TIAM	BASSWOOD	10	3/3						Y
1394A	ACPL	NORWAY MAPLE	8	3/3						Y
1395A	TIAM	BASSWOOD	6	3/3						Y
1396A	TIAM	BASSWOOD	16	3/3						Y
1397A	TIAM	BASSWOOD	8	3/4						Y
1398A	TIAM	BASSWOOD	6	3/3						Y
1399A	TIAM	BASSWOOD	12	3/3						Y
1400A	TIAM	BASSWOOD	10	3/3						Y
1401A	TIAM	BASSWOOD	12	3/4						Y
1402A	TIAM	BASSWOOD	10	3/3						Y
1403A	TIAM	BASSWOOD	10	3/4						Y
1404A	TIAM	BASSWOOD	10	3/4						Y
1405A	TIAM	BASSWOOD	12	3/4						Y
1406A	TIAM	BASSWOOD	14	3/3						Y
1407A	TIAM	BASSWOOD	10	3/3						Y
1408A	TIAM	BASSWOOD	10	3/3						Y
1409A	TIAM	BASSWOOD	12	3/3						Y
1410A	ACNE	BOX ELDER	10	3/4						Y
1411A	PRSE	BLACK CHERRY	6	3/4						Y
1412A	PRSE	BLACK CHERRY	6	3/3						Y
1413A	ULPU	SIBERIAN ELM	21	3/3						Y
1414A	ULPU	SIBERIAN ELM	12	3/3						Y
1415A	ULPU	SIBERIAN ELM	18	3/3						Y
1416A	ULPU	SIBERIAN ELM	15	3/3						Y
1417A	ULPU	SIBERIAN ELM	6	3/3						Y
1418A	TIAM	BASSWOOD	6	3/3						Y
1419A	TIAM	BASSWOOD	8	3/3						Y
1420A	TIAM	BASSWOOD	6	3/3						Y
1421A	TIAM	BASSWOOD	15	3/3						Y
1422A	TIAM	BASSWOOD	8	3/3						Y
1423A	ULPU	SIBERIAN ELM	12	3/3						Y
1424A	ULPU	SIBERIAN ELM	10	3/3						Y
1425A	ULPU	SIBERIAN ELM	10	3/3						Y
1426A	ULPU	SIBERIAN ELM	8	3/3						Y
1427A	ULPU	SIBERIAN ELM	15	3/3						Y
1428A	TIAM	BASSWOOD	12	3/3						Y
1429A	ULPU	SIBERIAN ELM	8	3/3						Y
1430A	ULPU	SIBERIAN ELM	10	3/3						Y
1431A	ULPU	SIBERIAN ELM	6	3/3						Y
1432A	ULPU	SIBERIAN ELM	15	3/3						Y
1433A	ULPU	SIBERIAN ELM	6	3/3						Y
1434A	ULPU	SIBERIAN ELM	12	3/3						Y
1435A	ULPU	SIBERIAN ELM	6	3/3						Y
1436A	ULPU	SIBERIAN ELM	8	3/3						Y
1437A	ULPU	SIBERIAN ELM	12	3/3						Y
1438A	ULPU	SIBERIAN ELM	8	3/4						Y
1439A	ULPU	SIBERIAN ELM	6	3/4						Y
1440A	ULPU	SIBERIAN ELM	10	3/3						Y

TAG NO.	BOTANICAL CODE	COMMON NAME	SIZE (inches)	CONDITION/ FORM	COMMENTS	CBBEL ID	SEQUENCE	POINT X	POINT Y	IMPACTED SOUTH SECTION
1441A	ULPU	SIBERIAN ELM	12	3/4						Y
1442A	ULPU	SIBERIAN ELM	10	3/3						Y
1443A	ULPU	SIBERIAN ELM	6	3/3						Y
1444A	ULPU	SIBERIAN ELM	10	3/3						Y
1445A	ULPU	SIBERIAN ELM	8	3/3						Y
1446A	ULPU	SIBERIAN ELM	10	3/4						Y
1447A	ULPU	SIBERIAN ELM	8	3/3						Y
1448A	ULPU	SIBERIAN ELM	10	3/3						Y
1449A	ULPU	SIBERIAN ELM	8	3/4						Y
1450A	ULPU	SIBERIAN ELM	10	3/3						Y
1451A	ACSAI	SILVER MAPLE	36	3/3						Y
1452A	ACSAI	SILVER MAPLE	30	3/3						Y
1455A	TIAM	BASSWOOD	6	3/4						Y
1456A	TIAM	BASSWOOD	6	3/4						Y
1457A	PIPU	BLUE SPRUCE	15	3/4						Y
1458A	MAPU	APPLE	12	3/3						Y
1459A	MAPU	APPLE	12	3/3						Y
1460A	PIST	WHITE PINE	15	3/3						Y
1461A	PRSE	BLACK CHERRY	15	3/3						Y
1462A	TIAM	BASSWOOD	14	3/4						Y
1463A	TIAM	BASSWOOD	18	3/3						Y
1464A	SABA	WEEPING WILLOW	36	3/3						Y
1465A	PINI	AUSTRIAN PINE	8	3/4						Y
1466A	JUVI	RED CEDAR	8	3/3						Y
1467A	QUMA	BUR OAK	18	3/3						Y
1468A	ULPU	SIBERIAN ELM	20	3/3						Y
1469A	QUMA	BUR OAK	18	3/3						Y
1470A	QUMA	BUR OAK	12	3/4						Y
1471A	QUMA	BUR OAK	13	3/3						Y
1472A	ACNE	BOX ELDER	10	3/3						Y
1473A	ACNE	BOX ELDER	10	3/4						Y
1474A	ACNE	BOX ELDER	12	3/3						Y
1475A	ACNE	BOX ELDER	12	3/3						Y
1476A	ACNE	BOX ELDER	15	3/3						Y
1477A	PIPU	BLUE SPRUCE	10	3/4						Y
1478A	PIPU	BLUE SPRUCE	8	3/3						Y
1479A	ACNE	BOX ELDER	15	3/4						Y
1480A	MOAL	WHITE MULBERRY	8	3/4						Y
1481A	JUVI	RED CEDAR	6	3/4						Y
1482A	JUVI	RED CEDAR	6	3/3						Y
1483A	JUVI	RED CEDAR	6	3/3						Y
1484A	ACSAI	SILVER MAPLE	36	3/4						Y
1485A	MOAL	WHITE MULBERRY	6	3/4						Y
1486A	PIPU	BLUE SPRUCE	15	3/3						Y
1487A	JUVI	RED CEDAR	12	3/3						Y
1488A	JUVI	RED CEDAR	6	3/3						Y
1489A	JUVI	RED CEDAR	6	3/4						Y
1490A	ACPL	NORWAY MAPLE	18	3/3						Y
1491A	JUVI	RED CEDAR	6	3/3						Y
1492A	JUVI	RED CEDAR	8	3/4						Y
1493A	ULPU	SIBERIAN ELM	12	3/3						Y
1494A	ACPL	NORWAY MAPLE	12	3/3						Y
1495A	ULPU	SIBERIAN ELM	24	3/3						Y
1496A	GLTR	HONEYLOCUST	18	3/4						Y
1497A	ACNE	BOX ELDER	10	3/3						Y
1498A	JUVI	RED CEDAR	8	3/4						Y
1499A	ULPU	SIBERIAN ELM	18	3/4						Y
1500A	ACNE	BOX ELDER	21	3/4						Y
1501A	RHCA	BUCKTHORN	10	3/3						Y
1502A	RHCA	BUCKTHORN	6	3/3						Y
1503A	ACPL	NORWAY MAPLE	10	3/3						Y
1504A	JUVI	RED CEDAR	6	3/3						Y
1505A	CRMO	HAWTHORN	12	3/4						Y
1506A	ACPL	NORWAY MAPLE	27	3/3						Y
1507A	ACPL	NORWAY MAPLE	30	3/3						Y
1508A	ACPL	NORWAY MAPLE	21	3/4						Y
1509A	ACPL	NORWAY MAPLE	6	3/3						Y
1510A	ACPL	NORWAY MAPLE	6	3/3						Y
1511A	ACPL	NORWAY MAPLE	8	3/3						Y
1512A	ACPL	NORWAY MAPLE	8	3/4						Y
1513A	ACPL	NORWAY MAPLE	12	3/3						Y
1514A	ACPL	NORWAY MAPLE	27	3/4						Y
1515A	ACNE	BOX ELDER	8	3/4						Y
1516A	ACNE	BOX ELDER	21	3/3						Y
1517A	ACNE	BOX ELDER	21	3/3						Y
1518A	ACNE	BOX ELDER	10	3/3						Y
1519A	ACNE	BOX ELDER	18	3/3						Y
1520A	ACNE	BOX ELDER	10	3/4						Y
1521A	ACNE	BOX ELDER	12	3/3						Y
1522A	ACNE	BOX ELDER	12	3/3						Y
1523A	ACNE	BOX ELDER	18	3/4						Y
1524A	MOAL	WHITE MULBERRY	18	3/3						Y
1525A	MOAL	WHITE MULBERRY	10	3/3						Y
1526A	ACNE	BOX ELDER	7	3/3						Y
1527A	ACNE	BOX ELDER	12	3/4						Y
1528A	ACNE	BOX ELDER	8	3/3						Y
1529A	MOAL	WHITE MULBERRY	11	3/4						Y
1530A	FRPE	GREEN ASH	8	3/4						Y

APPENDIX G

PAVEMENT DESIGN

PAVEMENT DESIGN

US ROUTE 45- IL 132 TO IL 173
MILLBURN BYPASS

LAKE COUNTY, ILLINOIS

March 5, 2013

PREPARED FOR:
Christopher B. Burke Engineering, LTD.
9575 West Higgins Road, Suite 600
Rosemont, Illinois 60018

PREPARED BY:
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1979 North Mill Street
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Naperville, Illinois 60563

ESI CONSULTANTS, LTD
Excellence, Service, Integrity

Table of Contents

1. Project Location and Proposed Improvement

Project Location

The project is located along US Route 45 with a northern terminus at IL Route 173 and a southern terminus at IL Route 132, a distance of approximately 5.5 miles. There are five (5) signalized intersections within the project limits at IL 132, Sand Lake Road, Millburn Road, Grass Lake Road, and IL Route 173. Within the project limits, US Route 45 is typically a two lane roadway (one in each direction) with aggregate shoulders and open ditch drainage.

US Route 45 as well as IL Route 173 and Il Route 132 are classified as Other Principal Arterials and are all under the jurisdiction of the Illinois Department of Transportation (IDOT). All three roadways are also classified as Strategic Regional Arterial (SRA) roadways and are on the National Highway System (NHS). US Route 45 is a designated Class II Truck Route. Lake County Division of Transportation (LCDOT) has jurisdiction of Grass Lake Road (County Hwy A10), Millburn Road (County Hwy A14) and Sand Lake Road (County Hwy A74).

Existing land use along US Route 45 within the project limits is a combination of agricultural, residential, light commercial, and recreational. The area west of US Route 45 is predominantly residential subdivisions while the areas east of US Route 45 are predominantly agricultural with some forested natural habitats along North Mill Creek.

Proposed Improvement

Pavement designs were prepared for US 45, IL 173, Grass Lake Road and Sand Lake Road. Proposed improvements to each of these roadways follows:

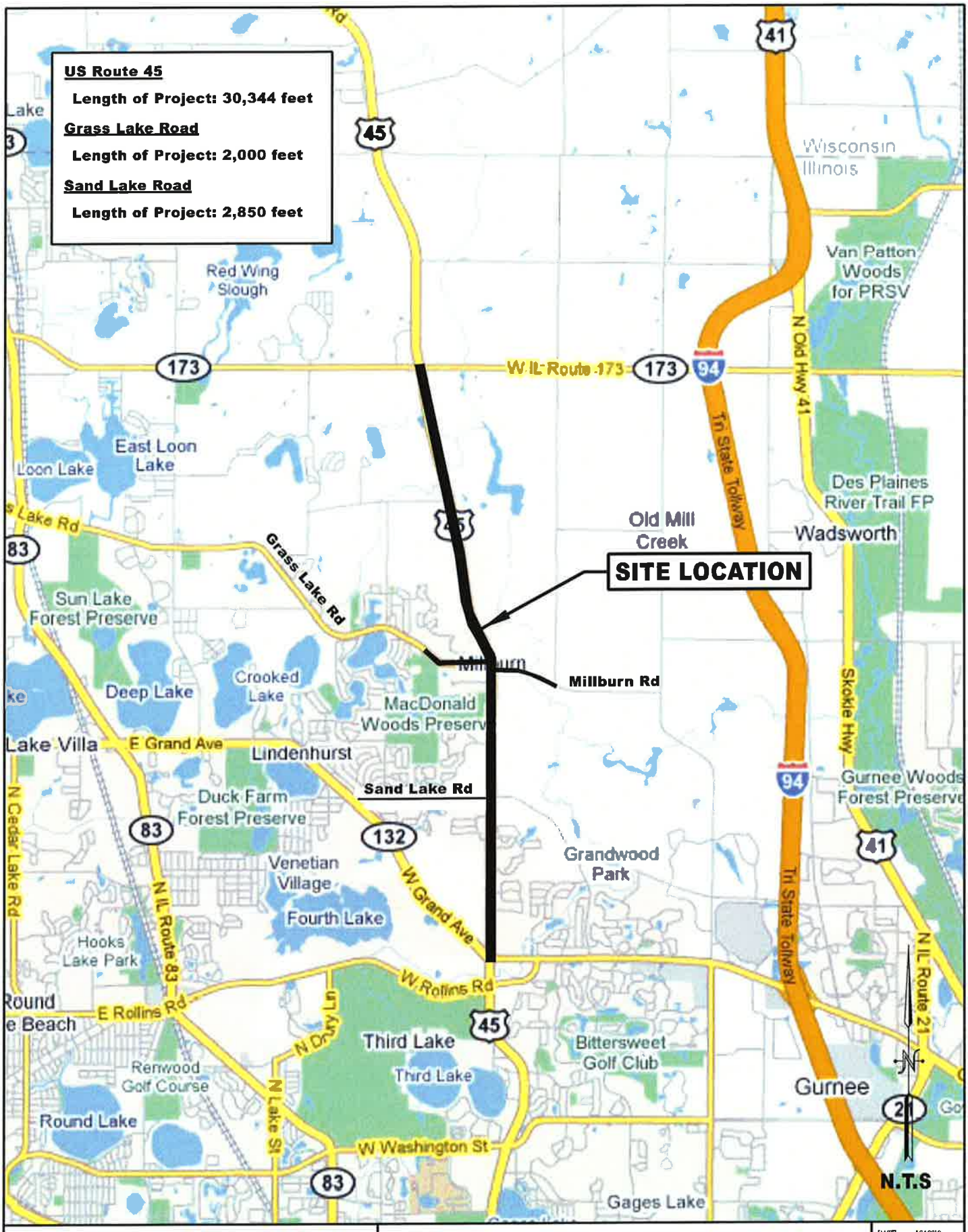
US Route 45 from IL 173 to IL 132 will be reconstructed to a four lane cross section (2 lanes in each direction) with a 22' grass median, curb and gutter. Left and right turn channelization will be provided where needed. US Route 45 will be realigned from north of Independence Boulevard to Country Place which will bypass the Millburn Historic District.

IL Route 173 from west of Pedersen Drive to east of US Route 45 will be reconstructed to a four lane cross section (two lanes in each direction) with a left turn lane at the intersection of US Route 45.

Grass Lake Road from west of Heritage Drive to existing US Route 45 will be reconstructed to a three lane cross section (one lane eastbound and 2 lanes westbound) with left turn lanes at each intersection. Grass Lake Road will be realigned to match the intersection of Millburn Road.

Sand Lake Road from west of Cross Creek Lane to east of US Route 45 will be reconstructed to a four lane cross section (two lanes in each direction) with a left and right turn lane at the intersection of US Route 45.

2. Location Map



ESI CONSULTANTS, LTD
1979 N. MILL STREET, SUITE 100
NAPERVILLE, IL 60563
(630) 420-1700
WWW.ESICONSULTANTSLTD.COM
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184-003885

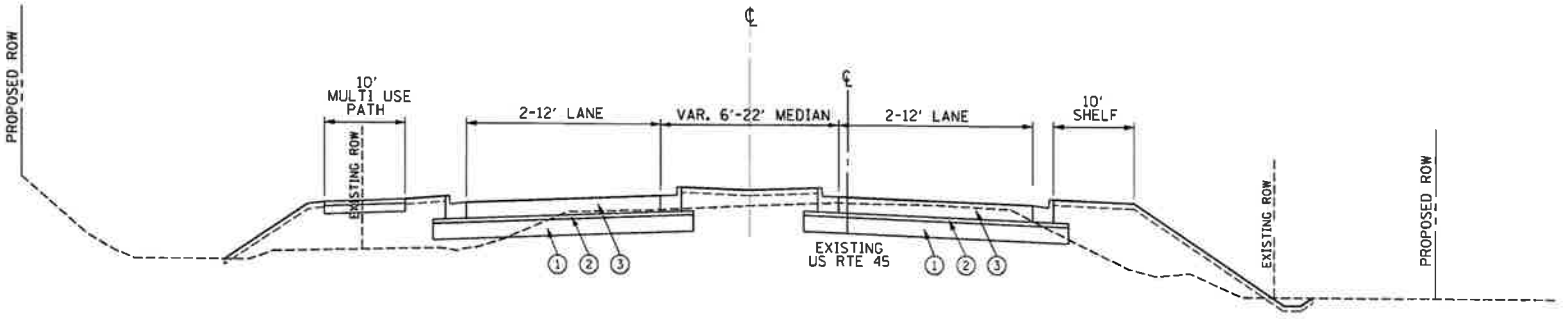
US 45 MILLBURN BYPASS
SITE LOCATION MAP

DATE: 6/4/2012
SHEET NO. 1

EXHIBIT 1

3. Typical Sections

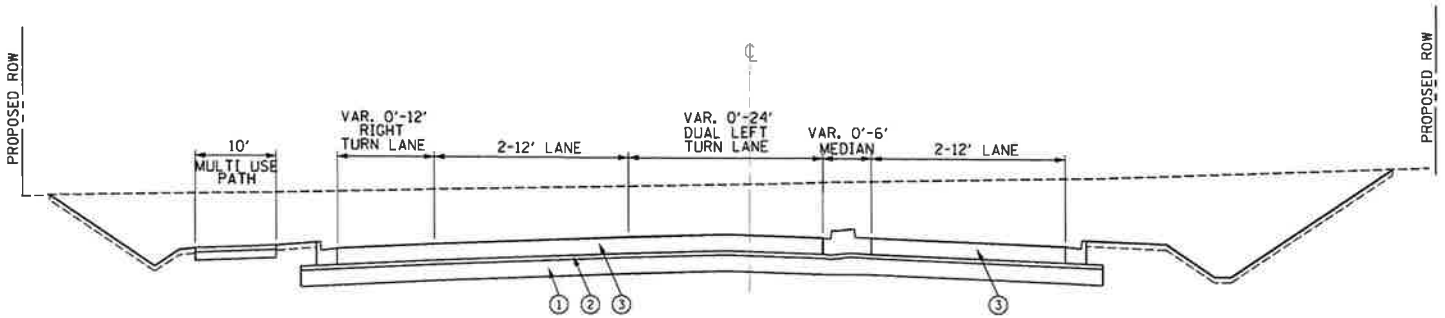
A. US Route 45
B. IL Route 173
C. Grass Lake Road and Sand Lake Road



LEGEND

1. AGGREGATE SUB-GRADE IMPROVEMENT, 12" (TYP.)
2. HMA STABILIZED SUB-BASE, 4.5" (TYP.)
3. P.C.C. PAVEMENT, 10"

TYPICAL SECTION
US ROUTE 45 AT GRASS MEDIAN



LEGEND

1. AGGREGATE SUB-GRADE IMPROVEMENT, 12" (TYP.)
2. HMA STABILIZED SUB-BASE, 4.5" (TYP.)
3. P.C.C. PAVEMENT, 10"

TYPICAL SECTION
US ROUTE 45 AT INTERSECTION

ESI CONSULTANTS, LTD
ILLINOIS DEPARTMENT OF PROFESSIONAL REGULATION REGISTRATION #184-002269

CHRISTOPHER B. BURKE ENGINEERING, LTD

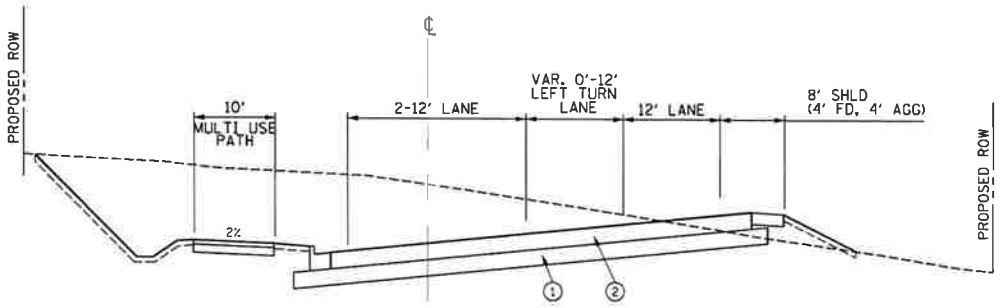
NO.	DATE	DESCRIPTION OF REVISIONS	NO.	DATE	DESCRIPTION OF REVISIONS

ESI PROJECT NO. XX.XXX | ENGR.
FILE: US 45 Typical | TECH.
DATE: XX/XX/XXXX | DAOC:

US ROUTE 45- MILBURN BYPASS
PAVEMENT DESIGN

TYPICAL SECTIONS
US ROUTE 45- IL 132 TO IL 173

DRAWING NO.



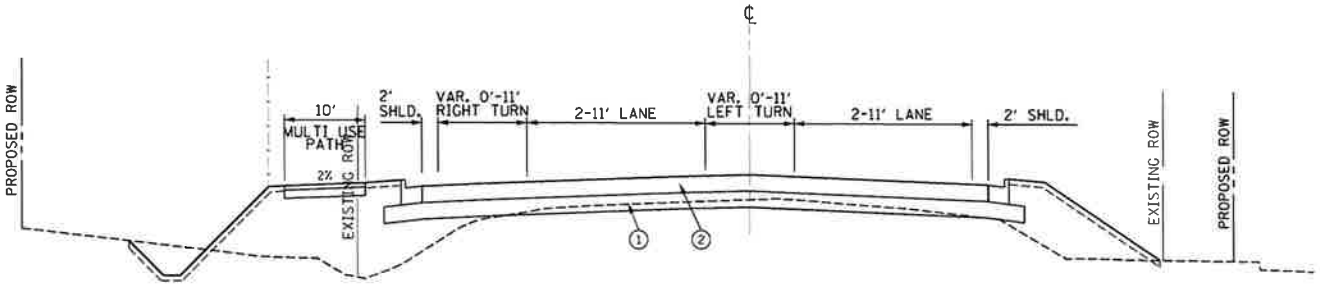
LEGEND

(1) AGGREGATE SUB-GRADE IMPROVEMENT, 12" (TYP.)

(2) P.C.C. PAVEMENT, 9"

TYPICAL SECTION

GRASS LAKE ROAD AT INTERSECTION



LEGEND

(1) AGGREGATE SUB-GRADE IMPROVEMENT,12" (TYP.)

(2) P.C.C. PAVEMENT, 9"

TYPICAL SECTION

SAND LAKE ROAD AT INTERSECTION

NOTE: PAVEMENT STRUCTURE ON GRASS LAKE ROAD AND SAND LAKE ROAD IS SUBJECT TO LAKE COUNTY DIVISION OF TRANSPORTATION PREFERENCE.

ESI CONSULTANTS, LTD

NO.	DATE	DESCRIPTION OF REVISIONS	NO.	DATE	DESCRIPTION OF REVISIONS

ESI PROJECT NO: XX-XXX

FILE: Sand Lake Typical

DATE: XX-XX-XXXX

DRAWN BY:

TECH:

CHKD:

US ROUTE 45- MILBURN BYPASS

PAVEMENT DESIGN

TYPICAL SECTIONS

GRASS LAKE ROAD AND SAND LAKE ROAD

DRAWING NO:

4. Design Calculations

A. US Route 45
B. IL Route 173
C. Grass Lake Road
D. Sand Lake Road

4. Design Calculations

A. US Route 45- IL Route 173 to IL 132

- Project Description
  - IL 173 to IL 132
    - Existing 1 lane in each direction, aggregate shoulder, urban
    - Proposed Asphalt or Concrete pavement with curb and gutter
    - Existing subgrade soil is assumed to have Poor Subgrade Support Rating according to the IDOT Subgrade Stability Rating (SSR)
    - Target construction in 2015
- Traffic Forecasts
  - 2009 ADT = 16,600
  - 2020 ADT = 22,771
  - **2030 ADT= 28,381**
  - 2040 ADT= 34,000
- General Assumptions:
  - Referencing IDOT's BDE Pavement Design Policy, Chapter 54
  - Design Period – For Class I use 30 year for Rigid or Flexible for pavement areas over 25,000 sq ft
  - Traffic Percentage from RWA Traffic Count Spreadsheet
    - PV = 91.5%
    - SU = 5%
    - MU = 3.5%
  - Pavement Design will focus on urban segment only.

PCC Pavement Design

- Class I, 4 Lane Pavement
- Design Period: 30 years
- Design Traffic
  - 2030 ADT: 28,381
  - 91.5% PV (25969), 5% SU (1419), 3.5% MU (993)
  - Subgrade Support Rating: Poor
  - Shoulders: tied curb and gutter
  - 4-1/2" HMA Stabilized Sub-base needed when area is over 25,000 sq yd

- Traffic Factor: 12.13
- Dowel Bar diameter (figure 54-4A): 1.5 inches
- Final Slab Thickness = 9.85 inches, round to 10.0 inches with 15 foot Transverse Joint Spacing

Full Depth HMA Pavement Design

- Class I, 4 Lane Pavement
- Design Period: 30 years
- Design Traffic
    - ADT: 28,381
    - 91.5% PV (25969), 5% SU (1419), 3.5% MU (993)
    - Subgrade Support Rating: Poor
- Traffic Factor: 9.05
- HMA Mixture Temperature (Figure 54-5C): 73 Degrees F
- E (HMA) (Figure 54-5D): 760
- Design HMA Strain (Figure 54-5G): 65
- Final HMA thickness from Figure 54-5F (Poor Subgrade Design Chart) is 11.35 inches rounded to 11.50 inches

MILLBURN BYPASS

US ROUTE 45- IL ROUTE 173 TO IL ROUTE 132

ADT USED: 28,381 ADT YEAR: 2030 CLASS OF ROADWAY : CLASS I

SOIL CONDITIONS : POOR

% TOTAL ADT (Actual or Figure 54-2.A)

			VEH
PV	91.5	% =	25969
SU	5	% =	1419
MU	3.5	% =	993

% TOTAL VEH. CLASS VOLUME (Figure 54-2.B)

PV	32	%
SU	45	%
MU	45	%

DESIGN PERIOD (DP) 30 YEARS

MIN. VEH. CLASS VOL. (Actual or Figure 54-2.C)

			VEH
SU		% =	250
MU		% =	750

MECHANISITIC DESIGN - RIGID PAVEMENT

TRAFFIC FACTOR (Figure 54-4.C)

$$TF\ (actual) = 30 * \frac{[\ 0.15 * 25969 * 0.32\ ] + [\ 143.81 * 1419 * 0.45\ ] + [\ 696.42 * 993 * 0.45\ ]}{1{,}000{,}000}$$

TF (actual) = 12.13

$$TF\ (minimum) = 30 * \frac{[\ 143.81 * 250 * 0.45\ ] + [\ 696.42 * 750 * 0.45\ ]}{1{,}000{,}000}$$

TF (minimum) = 7.54

TIED SHOULDERS = YES

PAVEMENT THICKNESS = 9.95 inches ROUNDED : 10.00 inches

(Figure 54-4.F)

MECHANISITIC DESIGN - FLEXIBLE PAVEMENT

TRAFFIC FACTOR (Figure 54-5.B)

$$TF\ (actual) = 30 * \frac{[\ 0.15 * 25969 * 0.32\ ] + [\ 132.5 * 1419 * 0.45\ ] + [\ 482.53 * 993 * 0.45\ ]}{1{,}000{,}000}$$

TF (actual) = 9.05

$$TF\ (minimum) = 30 * \frac{[\ 132.5 * 250 * 0.45\ ] + [\ 482.53 * 750 * 0.45\ ]}{1{,}000{,}000}$$

TF (minimum) = 5.33

HMA MIXTURE TEMP (Figure 54-5.C) = 73 Degrees F

E (HMA) (Figure 54-5.D) = 760

DESIGN HMA STRAIN (Figure 54-5.G) = 65

PAVEMENT THICKNESS (Figure 54-5.G) = 11.35 inches ROUNDED : 11.50 inches

D. Sand Lake Road @ US Route 45

- Project Description
  - Sand Lake Road
    - Existing 1 lane in each direction, urban cross-section
    - Proposed Asphalt or Concrete pavement with curb and gutter
    - Existing subgrade soil is assumed to have Poor Subgrade Support Rating according to the IDOT Subgrade Stability Rating (SSR)
    - Target construction in 2015
- Traffic Forecasts
  - 2009 ADT = 11,900
  - 2010 ADT = 12,065
  - 2020 ADT = 13,715
  - **2025 ADT= 14,540**
  - 2030 ADT= 15,365
  - 2040 ADT= 17,000

Assumptions:

- Referencing IDOT's BDE Pavement Design Policy, Chapter 54
- Design Period – For Class I use 20 year for Rigid or Flexible.
- Traffic Percentage from Figure 54-2.A
  - PV = 95.5%
  - SU = 4%
  - MU = 0.5%
- Pavement Design will focus on urban segment only.

PCC Pavement Design

- Class I, 4 Lane Pavement
- Design Period: 20 years
- Design Traffic
  - 2025 ADT: 14,540
  - 95.5% PV (13,886), 4% SU (582), 0.5% MU (73)
  - Subgrade Support Rating: Poor
  - Shoulders: tied curb and gutter
- Traffic Factor: 4.93
- Dowel Bar diameter (figure 54-4A): 1.5 inches
- Final Slab Thickness = 8.85 inch, round to 9.00 inch with 15 foot Transverse Joint Spacing

Full Depth HMA Pavement Design

- Class I, 4 Lane Pavement
- Design Period: 20 years
- Design Traffic
    - ADT: 14,540
    - 95.5% PV (13,886), 4% SU (582), 0.5% MU (73)
    - Subgrade Support Rating: Poor
- Traffic Factor: 3.56
- HMA Mixture Temperature (Figure 54-5C): 73 Degrees F
- E (HMA) (Figure 54-5D): 760
- Design HMA Strain (Figure 54-5G): 86
- Final HMA thickness from Figure 54-5F (Poor Subgrade Design Chart) is 9.5 inches

MILLBURN BYPASS

SAND LAKE ROAD @ US ROUTE 45

ADT USED: 14540 | ADT YEAR: 2025 | CLASS OF ROADWAY : CLASS I | SOIL CONDITIONS : POOR

% TOTAL ADT (Actual or Figure 54-2.A)

			VEH
PV	95.5	% =	13886
SU	4	% =	582
MU	0.5	% =	73

% TOTAL VEH. CLASS VOLUME (Figure 54-2.B)

PV	32 %
SU	45 %
MU	45 %

DESIGN PERIOD (DP) 20 YEARS

MIN. VEH. CLASS VOL. (Actual or Figure 54-2.C)

			VEH
SU		% =	250
MU		% =	750

MECHANISITIC DESIGN - RIGID PAVEMENT

TRAFFIC FACTOR (Figure 54-4.C)

$$TF\ (actual) = 20 * \frac{[\ 0.15 * 13886 * 0.32\ ] + [\ 143.81 * 582 * 0.45\ ] + [\ 696.42 * 73 * 0.45\ ]}{1{,}000{,}000}$$

TF (actual) = 1.22

$$TF\ (minimum) = 20 * \frac{[\ 143.81 * 250 * 0.32\ ] + [\ 696.42 * 750 * 0.45\ ]}{1{,}000{,}000}$$

TF (minimum) = 4.93

TIED SHOULDERS = YES

PAVEMENT THICKNESS = 8.85 inches ROUNDED : 9.00 inches

(Figure 54-4.F)

MECHANISITIC DESIGN - FLEXIBLE PAVEMENT

TRAFFIC FACTOR (Figure 54-5.B)

$$TF\ (actual) = 20 * \frac{[\ 0.15 * 13886 * 0.32\ ] + [\ 132.5 * 582 * 0.45\ ] + [\ 482.53 * 73 * 0.45\ ]}{1{,}000{,}000}$$

TF (actual) = 1.02

$$TF\ (minimum) = 20 * \frac{[\ 132.5 * 250 * 0.45\ ] + [\ 482.53 * 750 * 0.45\ ]}{1{,}000{,}000}$$

TF (minimum) = 3.56

HMA MIXTURE TEMP (Figure 54-5.C) = 73 Degrees F

E (HMA) (Figure 54-5.D) = 760

DESIGN HMA STRAIN (Figure 54-5.G) = 86

PAVEMENT THICKNESS (Figure 54-5.G) = 9.50 inches

5. Other Information

A. Mechanistic Pavement Design
   Life Cycle Cost Analysis
B. ADT Exhibits
C. Traffic Counts
D. Email from LDOT
E. IDOT Pavement Design Form

Mechanistic Pavement Design

Date: 4/20/2012 | US Route 45
Calculations By: Don Naughton | Section:
Checked By: Mark Reznicek | Lake County
Class I Roads and Streets | Location: IL 132 to IL 173
Urban X Rural

Limits of Analysis | Station 9+37.2 | To Station 312+81.6
Length 30,344.4 Feet 5.75 Miles

Structural Design Traffic

PV = 25969
SU= 1419
MU= 993

Percent of S.D.T. in Design Lane

P= 32 %
S= 45 %
U= 45 %

Minimum Subgrade Support Rating - POOR

Rigid Pavement Design

Actual TF (F)= 12.13 | Minimum TF (F)= 7.54

Extended Lane= --- Inch

15 ft Panel PCC Thickness for:

Tied Shoulder= 10.00 Inch | Untied Shoulder= ---- Inch

Total Present Worth= $ 11,731,221.33 | Annual Cost/ Year= $ 83,263.05

Flexible Pavement Design

Actual TF (F)= 9.05 | Minimum TF (F)= 5.33

Selected Design AC type= 64-22

Design AC Mixture Temp.= 73 ° F | Design E (AC)= 760 KSI

Design AC Microstrain= 65 | AC Thickness= 11.5 Inch

Total Present Worth= $ 12,950,416.57 | Annual Cost/ Year= $ 91,916.36

Rigid Pavement

Date: 4/20/2012 | US Route 45
Quantities By: Don Naughton | Section:
Checked By: | Lake County
Unit Prices By: Don Naughton
Checked By: Mark Reznicek

Net Length= 30,344.40 Lin. Ft. 5.75 Miles

Number Lanes= 4 Urban= X Rural=

Itemized Construction Cost:

Quantity	Unit	Item			Unit Cost		Total Cost
161,837	Sq Yd	10.00	-Inch	Jointed PCC	@ $ 40.00	= $	6,473,472.00
182,066	Sq Yd	4.5- Inch	(HMA Stabilized Subbase)		@ $ 15.00	= $	2,730,996.00
1,371	Sq Yd	8.00	-Inch	PCC Shoulders	@ $ 50.00	= $	68,550.00
	Lin Ft	Pipe Underdrains			@ $	= $	0.00
	Sq Yd	Subbase Granular Material			@ $	= $	0.00
121,378	Lin Ft	100% Shoulder/ Curb & Gutter Joint Seal			@ $ 2.00	= $	242,756.00
60,690	Lin Ft	100% Centerline Joint Seal			@ $ 1.00	= $	60,690.00
					@ $	= $	0.00
					@ $	= $	0.00

Total Cost of Original Pavement Construction= $ 9,576,464.00

Itemized Maintenance And Rehabilitation Activity Cost

Rehabilitation Activity 1- Year 10

161,837	Sq Yd	0.1% Full-Depth PCC Pavement Patching	@ $ 130.00	= $	21,038.78

Total Cost of Rehabilitation Activity 1 = $ 21,038.78

Rehabilitation Activity 2- Year 15

161,837	Sq Yd	0.2% Full-Depth PCC Pavement Patching	@ $ 130.00	= $	42,077.57

Total Cost of Rehabilitation Activity 2 = $ 42,077.57

Rehabilitation Activity 3- Year 20

161,837	Sq Yd	2.0% Full-Depth PCC Pavement Patching	@ $	130.00	= $	420,775.68
1,371	Sq Yd	0.5% Full-Depth PCC Shoulder Patching	@ $	85.00	= $	582.68
121,378	Lin. Ft.	100% Longitudinal/Shoulder Joint Routing & Sealing	@ $	1.00	= $	121,378.00
60,690	Lin. Ft.	100% Centerline Joint Routing & Sealing	@ $	1.00	= $	60,690.00

Total Cost of Rehabilitation Activity 3 = $ 603,426.36

Rehabilitation Activity 4- Year 25

161,837	Sq Yd	3.0% Full-Depth PCC Pavement Patching	@ $	130.00	= $	631,163.52
1,371	Sq Yd	1.0% Full-Depth PCC Shoulder Patching	@ $	85.00	= $	1,165.35

Total Cost of Rehabilitation Activity 4 = $ 632,328.87

Rehabilitation Activity 5- Year 30

161,837	Sq Yd	4.0% Full-Depth PCC Pavement Patching	@ $	130.00	= $	841,551.36
1,371	Sq Yd	1.5% Full-Depth PCC Shoulder Patching	@ $	85.00	= $	1,748.03
161,837	Sq Yd	Policy HMA Overlay- Pavement	@ $	13.30	= $	2,152,429.44
1,371	Sq Yd	Policy HMA Overlay- Shoulder	@ $	13.30	= $	18,234.30

Total Cost of Rehabilitation Activity 5 = $ 3,013,963.13

Rehabilitation Activity 6- Year 35

121,378	Lin. Ft.	100% Longitudinal/Shoulder Joint Routing & Sealing	@ $	1.00	= $	121,378.00
60,690	Lin. Ft.	100% Centerline Joint Routing & Sealing	@ $	1.00	= $	60,690.00
30,344	Lin. Ft.	50% Random Crack Routing and Sealing Assume 100ft/Station	@ $	1.00	= $	15,172.00
97,104	Lin. Ft.	40% Reflective Transverse Crack Routing & Sealing	@ $	1.00	= $	38,841.60
161,837	Sq Yd	0.1% Partial-Depth Pavement Patching (Mill & Fill Surface-Interstates; Mill and Fill 2.5 inches- Non-Interstates)	@ $	130.00	= $	21,038.78

Total Cost of Rehabilitation Activity 6 = $ 257,120.38

Rehabilitation Activity 7- Year 40

161,837	Sq Yd	0.5% Full-Depth PCC Pavement Patching	@ $ 130.00	= $	105,193.92
161,837	Sq Yd	0.5% Partial-Depth Pavement Patching (Mill & Fill Surface-Interstates; Mill and Fill 2.5 inches- Non-Interstates)	@ $ 130.00	= $	105,193.92
97,104	Lin. Ft.	60% Reflective Transverse Crack Routing & Sealing	@ $ 1.00	= $	58,262.40
30,344	Lin. Ft.	50% Random Crack Routing and Sealing Assume 100ft/Station	@ $ 1.00	= $	15,172.00
121,378	Lin. Ft.	100% Longitudinal/Shoulder Joint Routing & Sealing	@ $ 1.00	= $	121,378.00
60,690	Lin. Ft.	100% Centerline Joint Routing & Sealing	@ $ 1.00	= $	60,690.00

Total Cost of Rehabilitation Activity 7 = $ 465,890.24

Annual Cost Determination

Present Worth Calculations:

Total Cost of Orignial Pavement Construction = $ 9,576,464.00

Present Worth of Rehabilitation Activity 1 = $	21,038.78	x	0.7441	= $	15,654.96
Present Worth of Rehabilitation Activity 2 = $	42,077.57	x	0.6419	= $	27,009.59
Present Worth of Rehabilitation Activity 3 = $	603,426.36	x	0.5537	= $	334,117.17
Present Worth of Rehabilitation Activity 4 = $	632,328.87	x	0.4776	= $	302,000.27
Present Worth of Rehabilitation Activity 5 = $	3,013,963.13	x	0.412	= $	1,241,752.81
Present Worth of Rehabilitation Activity 6 = $	257,120.38	x	0.3554	= $	91,380.58
Present Worth of Rehabilitation Activity 7 = $	465,890.24	x	0.3066	= $	142,841.95
			Total	= $	2,154,757.33

Total Life Cycle Cost (Present Worth)= $ 11,731,221.33

Annual Cost Per Mile Calculation

Total Present Worth X CRF (n) / Length = Annual Cost/ Year- Mile

($ 11,731,221.33 X 0.04079/ 5.75 Miles) = $ 83,263.05 Year-Mile

Flexible Pavement

Date: 4/20/2012 | US Route 45
Quantities By: Don Naughton | Section:
Checked By: | Lake County
Unit Prices By: Don Naughton
Checked By: Mark Reznicek

Net Length= 30,344.40 Lin. Ft. 5.75 Miles

Number Lanes= 4 Urban= X Rural=

Single Lane Paving= Dual Lane Paving=

Itemized Construction Cost:

Quantity	Unit	Item		Unit Cost	Total Cost
161,837	Sq Yd	2	-Inch Class I Surface Course	@ $ 12.32 = $	1,993,829.38
161,837	Sq Yd	9.5	-Inch Class I Binder Course	@ $ 45.22 = $	7,318,260.10
1,371	Sq Yd	8	-Inch Stabilized Shoulders	@ $ 45.00 = $	61,695.00
	Lin Ft	Pipe Underdrains		@ $ = $	0.00
	Sq Yd	Subbase Granular Material		@ $ = $	0.00
121,376	Foot	Additional Depth Cost for C&G, B-6.24 (1.5")		@ $ 1.19 = $	144,437.44
				@ $ = $	0.00
				@ $ = $	0.00
				@ $ = $	0.00

Total Cost of Original Pavement Construction= $ 9,518,221.91

Itemized Maintenance And Rehabilitation Activity Cost

Rehabilitation Activity 1- Year 5

33,379	Lin. Ft.	50% Random/ Thermal Crack Routing & Sealing (Assume 110ft/ Station)	@ $ 1.00 = $	16,689.50
121,378	Lin. Ft.	100% Longitudinal Shoulder/ Curb & Gutter Joint Routing & Sealing	@ $ 1.00 = $	121,378.00
60,690	Lin. Ft.	100% Centerline Joint Routing & Sealing	@ $ 1.00 = $	60,690.00
161,837	Sq Yd	0.1% Partial-Depth Pavement Patching Mill & Fill Surface	@ $ 90.00 = $	14,565.31

Total Cost of Rehabilitation Activity 1 = $ 213,322.81

Rehabilitation Activity 2- Year 10

33,379	Lin. Ft.	50% Random/ Thermal Crack Routing & Sealing (Assume 110ft/ Station)	@ $	1.00	= $ 16,689.50
121,378	Lin. Ft.	100% Longitudinal Shoulder Joint Routing & Sealing	@ $	1.00	= $ 121,378.00
60,690	Lin. Ft.	100% Centerline Joint Routing & Sealing	@ $	1.00	= $ 60,690.00
161,837	Sq Yd	0.5% Partial-Depth Pavement Patching Mill & Fill Surface	@ $	90.00	= $ 72,826.56

Total Cost of Rehabilitation Activity 2 = $ 271,584.06

Rehabilitation Activity 3- Year 15

163,208	Sq Yd	2.0-Inch Milling- Pavement & Shoulder	@ $	1.75	= $ 285,613.65
161,837	Sq Yd	1.0% Partial-Depth Pavement Patching (Mill & Fill Additional 2.0-Inch)	@ $	90.00	= $ 145,653.12
163,208	Sq Yd	2.0-Inch HMA Overlay Pavement & Shoulder	@ $	12.32	= $ 2,010,720.10

Total Cost of Rehabilitation Activity 3 = $ 2,441,986.87

Rehabilitation Activity 4- Year 20

33,379	Lin. Ft.	50% Random/ Thermal Crack Routing & Sealing (Assume 110ft/ Station)	@ $	1.00	= $ 16,689.50
121,378	Lin. Ft.	100% Longitudinal Shoulder Joint Routing & Sealing	@ $	1.00	= $ 121,378.00
60,690	Lin. Ft.	100% Centerline Joint Routing & Sealing	@ $	1.00	= $ 60,690.00
161,837	Sq Yd	0.1% Partial-Depth Pavement Patching Mill & Fill Surface	@ $	90.00	= $ 14,565.31

Total Cost of Rehabilitation Activity 4 = $ 213,322.81

Rehabilitation Activity 5- Year 25

33,379	Lin. Ft.	50% Random/ Thermal Crack Routing & Sealing (Assume 110ft/ Station)	@ $	1.00	= $	16,689.50
121,378	Lin. Ft.	100% Longitudinal Shoulder Joint Routing & Sealing	@ $	1.00	= $	121,378.00
60,690	Lin. Ft.	100% Centerline Joint Routing & Sealing	@ $	1.00	= $	60,690.00
161,837	Sq Yd	0.5% Partial-Depth Pavement Patching Mill & Fill Surface	@ $	90.00	= $	72,826.65

Total Cost of Rehabilitation Activity 5 = $ 271,584.15

Rehabilitation Activity 6- Year 30

163,208	Sq Yd	2.0-Inch Milling- Pavement & Shoulder	@ $	1.75	= $	285,613.65
161,837	Sq Yd	2.0% Partial-Depth HMA Pavement Patching (Mill & Fill Additional 2.0-inch All Designs)	@ $	90.00	= $	291,306.60
1,371	Sq Yd	1.0% Full-depth HMA Shoulder Patching (Mill & Fill Surface- Standard Design- Mill & Fill Additional 2.0-inch- Limiting Strain Criterion Design)	@ $	90.00	= $	1,233.90
163,208	Sq Yd	HMA Overlay Pavement	@ $	12.32	= $	2,010,720.10
1,371	Sq Yd	HMA Overlay- Shoulder	@ $	8.96	= $	12,284.16

Total Cost of Rehabilitation Activity 6 = $ 2,601,158.41

Rehabilitation Activity 7- Year 35

33,379	Lin. Ft.	50% Random/ Thermal Crack Routing & Sealing (Assume 110ft/ Station)	@ $	1.00	= $	16,689.50
121,378	Lin. Ft.	100% Longitudinal Shoulder Joint Routing & Sealing	@ $	1.00	= $	121,378.00
60,690	Lin. Ft.	100% Centerline Joint Routing & Sealing	@ $	1.00	= $	60,690.00
161,837	Sq Yd	0.1% Partial-Depth Pavement Patching (Mill & Fill Surface)	@ $	90.00	= $	14,565.33

Total Cost of Rehabilitation Activity 7 = $ 213,322.83

Rehabilitation Activity 8- Year 40

33,379	Lin. Ft.	50% Random/ Thermal Crack Routing & Sealing (Assume 110ft/ Station)	@ $	1.00	= $ 16,689.50
121,378	Lin. Ft.	100% Longitudinal Shoulder Joint Routing & Sealing	@ $	1.00	= $ 121,378.00
60,690	Lin. Ft.	100% Centerline Joint Routing & Sealing	@ $	1.00	= $ 60,690.00
161,837	Sq Yd	0.5% Partial-Depth Pavement Patching (Mill & Fill Surface)	@ $	90.00	= $ 72,826.65

Total Cost of Rehabilitation Activity 8 = $ 271,584.15

Annual Cost Determination

Present Worth Calculations:

Total Cost of Orignial Pavement Construction = $ 9,518,221.91

Present Worth of Rehabilitation Activity 1 = $	213,322.81	x 0.8626	= $	184,012.26
Present Worth of Rehabilitation Activity 2 = $	271,584.06	x 0.7441	= $	202,085.70
Present Worth of Rehabilitation Activity 3 = $	2,441,986.87	x 0.6419	= $	1,567,511.37
Present Worth of Rehabilitation Activity 4 = $	213,322.81	x 0.5537	= $	118,116.84
Present Worth of Rehabilitation Activity 5 = $	271,584.15	x 0.4776	= $	129,708.59
Present Worth of Rehabilitation Activity 6 = $	2,601,158.41	x 0.412	= $	1,071,677.26
Present Worth of Rehabilitation Activity 7 = $	213,322.83	x 0.3554	= $	75,814.93
Present Worth of Rehabilitation Activity 8 = $	271,584.15	x 0.3066	= $	83,267.70
		Total	= $	3,432,194.65

Total Life Cycle Cost (Present Worth)= $ 12,950,416.57

Annual Cost Per Mile Calculation

Total Present Worth X CRF (n) / Length = Annual Cost/ Year- Mile

($ 12,950,416.57 X 0.04079/ 5.75 Miles) = $ 91,916.36 Year-Mile

700 MILLER RD.

TO IL 173

9,300

US ROUTE 45

US 45 & IL ROUTE 173

6,200

16,300
IL 173

15,400

US 45
8,900

INDEPENDENCE BLVD.

10,100

9,700

HERITAGE DR.

W. GRASS LAKE RD.

W. MILLBURN RD.

9,200

HAVEN LN.

15,900

COUNTRY PL.

US ROUTE 45
16,600

11,900
SAND LAKE RD.

11,800

TO IL 132
16,000

US 45 & IL ROUTE 132

19,400

16,000

US 45
19,500

34,600
IL 132

LEGEND

** = A.M. PEAK HOUR VOLUMES

(**) = P.M. PEAK HOUR VOLUMES

*,*** EXISTING 2009 ADT

EXISTING TRAFFIC SIGNAL

CHRISTOPHER B. BURKE ENGINEERING, LTD
9575 W. Higgins Road, Suite 600
Rosemont, Illinois 60018
(847) 823-0500

PATRICK ENGINEERING

LakeCounty
Division of Transportation

US ROUTE 45 – MILLBURN BYPASS

2009 PEAK HOUR VOLUMES

2/22/2011 N:\LCDOT\080677\PHASE1\Traffic\Exhibits\080677_2009 Existing DHV.dgn

MILLER RD.
5,000
TO IL 173
US ROUTE 45
23,000
INDEPENDENCE BLVD.
21,000
2,000
HERITAGE DR.
18,000
W. GRASS LAKE RD.
9,000
W. MILLBURN RD.
14,000
HAVEN LN.
5,000
29,000
COUNTRY PL.
US ROUTE 45
34,000
17,000
SAND LAKE RD.
17,000
32,000
TO IL 132

US 45 & IL ROUTE 173

14,000
23,000
IL 173
21,000
US 45
23,000

US 45 & IL ROUTE 132

30,000
32,000
48,000
IL 132
US 45
31,000

LEGEND
- ## = A.M. PEAK HOUR VOLUMES
- (##) = P.M. PEAK HOUR VOLUMES
- #,### BUILD 2040 ADT
- TRAFFIC SIGNAL

CHRISTOPHER B. BURKE ENGINEERING, LTD.
9575 W. Higgins Road, Suite 600
Rosemont, Illinois 60018
(847) 823-0500

PATRICK ENGINEERING

LakeCounty
Division of Transportation

US ROUTE 45 – MILLBURN BYPASS

2040 A4 BUILD PEAK HOUR VOLUMES

3/9/2011 N:\LCDOT\080677\PHASEI\Traffic\Exhibits\080677_2040 A4 Build DHV.dgn

CIVIL ENGINEERING CONSULTANTS
RWA
Regina Webster & Associates, Inc.
6160 North Cicero Avenue, Suite 500 * Chicago, Illinois 60646-4333
773 283 2600 * FAX 773 283 2602
www.RWAengineers.com

Machine Count Summary			
Street	**Location**	**City**	**Start Date**
US 45	South of Milburn Road	Milburn	1/22/2009

Start Time	SOUTHBOUND			Total SB	NORTHBOUND			Total NB	**Grand Total**
	PC	SU	MU		PC	SU	MU		
0:00	38	2	1	41	42	1	1	44	85
1:00	14	1	1	16	23	1	1	25	41
2:00	8	2	1	11	22	0	2	24	35
3:00	20	0	8	28	17	0	1	18	46
4:00	55	5	4	64	36	0	3	39	103
5:00	176	9	10	195	82	6	10	98	293
6:00	421	28	11	460	190	10	15	215	675
7:00	519	28	14	561	407	13	11	431	992
8:00	571	44	19	634	346	32	14	392	1026
9:00	528	23	23	574	262	16	24	302	876
10:00	326	18	22	366	293	27	20	340	706
11:00	339	19	25	383	341	29	25	395	778
12:00	404	14	28	446	334	37	22	393	839
13:00	341	19	19	379	358	22	15	395	774
14:00	328	14	20	362	450	36	16	502	864
15:00	389	38	12	439	485	52	13	550	989
16:00	472	22	9	503	528	22	9	559	1062
17:00	548	16	3	567	532	23	10	565	1132
18:00	495	6	2	503	475	13	9	497	1000
19:00	321	11	4	336	443	6	4	453	789
20:00	270	7	1	278	329	2	7	338	616
21:00	179	4	2	185	327	2	0	329	514
22:00	159	5	1	165	207	5	0	212	377
23:00	48	2	0	50	83	1	0	84	134
	Total SB Traffic			7546	Total NB Traffic			7200	**14746**

		Southbound		Northbound	
	% SU + MU	SU AM	MU AM	SU PM	MU PM
	5.88%	4.88%	2.44%	2.27%	2.27%
	9.76%	6.25%	6.25%	4.00%	4.00%
	14.29%	18.18%	9.09%	0.00%	8.33%
	19.57%	0.00%	28.57%	0.00%	5.56%
	11.65%	7.81%	6.25%	0.00%	7.69%
	11.95%	4.62%	5.13%	6.12%	10.20%
	9.48%	6.09%	2.39%	4.65%	6.98%
	6.65%	**4.99%**	**2.50%**	**3.02%**	**2.55%**
	10.62%	6.94%	3.00%	8.16%	3.57%
	9.82%	4.01%	4.01%	5.30%	7.95%
	12.32%	4.92%	6.01%	7.94%	5.88%
	12.60%	4.96%	6.53%	7.34%	6.33%
	12.04%	3.14%	6.28%	9.41%	5.60%
	9.69%	5.01%	5.01%	5.57%	3.80%
	9.95%	3.87%	5.52%	7.17%	3.19%
	11.63%	8.66%	2.73%	9.45%	2.36%
	5.84%	4.37%	1.79%	3.94%	1.61%
	4.59%	**2.82%**	**0.53%**	**4.07%**	**1.77%**
	3.00%	1.19%	0.40%	2.62%	1.81%
	3.17%	3.27%	1.19%	1.32%	0.88%
	2.76%	2.52%	0.36%	0.59%	2.07%
	1.56%	2.16%	1.08%	0.61%	0.00%
	2.92%	3.03%	0.61%	2.36%	0.00%
	2.24%	4.00%	0.00%	1.19%	0.00%
24hour		**4.47%**	**3.18%**	**4.94%**	**3.22%**

PV = 91.5%
SU = 5%
MU = 3.5%

CIVIL ENGINEERING CONSULTANTS
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Regina Webster & Associates, Inc.
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773 283 2600 * FAX 773 283 2602
www.RWAengineers.com

Machine Count Summary			
Street	**Location**	**City**	**Start Date**
Sand Lake Road	West of US 45	Milburn	1/22/2009

Start Time	EASTBOUND			Total EB	WESTBOUND			Total WB	Grand Total
	PC	SU	MU		PC	SU	MU		
0:00	20	0	0	20	45	1	0	46	66
1:00	11	0	0	11	27	1	0	28	39
2:00	8	1	0	9	7	0	0	7	16
3:00	18	0	0	18	4	1	0	5	23
4:00	49	2	0	51	10	2	0	12	63
5:00	231	8	0	239	14	1	1	16	255
6:00	521	10	1	532	55	4	0	59	591
7:00	747	17	1	765	102	4	1	107	872
8:00	555	18	1	574	152	10	1	163	737
9:00	349	13	4	366	147	8	2	157	523
10:00	248	6	2	256	153	4	2	159	415
11:00	230	8	1	239	219	13	0	232	471
12:00	238	7	3	248	233	15	0	248	496
13:00	200	11	0	211	255	14	0	269	480
14:00	214	6	1	221	344	21	1	366	587
15:00	269	21	0	290	414	30	0	444	734
16:00	249	8	1	258	591	35	3	629	887
17:00	314	6	1	321	743	24	1	768	1089
18:00	271	5	2	278	683	21	2	706	984
19:00	173	4	0	177	459	19	1	479	656
20:00	108	3	0	111	285	14	1	300	411
21:00	76	1	0	77	224	5	0	229	306
22:00	44	2	0	46	156	4	0	160	206
23:00	28	0	0	28	76	1	0	77	105
	Total EB Traffic			5346	Total WB Traffic			5666	**11012**

	Eastbound		Westbound	
Truck Percentage	SU	MU	SU	MU
1.52%	0.00%	0.00%	2.17%	0.00%
2.56%	0.00%	0.00%	3.57%	0.00%
6.25%	11.11%	0.00%	0.00%	0.00%
4.35%	0.00%	0.00%	20.00%	0.00%
6.35%	3.92%	0.00%	16.67%	0.00%
3.92%	3.35%	0.00%	6.25%	6.25%
2.54%	1.88%	0.19%	6.78%	0.00%
2.64%	2.22%	0.13%	3.74%	0.93%
4.07%	3.14%	0.17%	6.13%	0.61%
5.16%	3.55%	1.09%	5.10%	1.27%
3.37%	2.34%	0.78%	2.52%	1.26%
4.67%	3.35%	0.42%	5.60%	0.00%
5.04%	2.82%	1.21%	6.05%	0.00%
5.21%	5.21%	0.00%	5.20%	0.00%
4.94%	2.71%	0.45%	5.74%	0.27%
6.95%	7.24%	0.00%	6.76%	0.00%
5.30%	3.10%	0.39%	5.56%	0.48%
2.94%	1.87%	0.31%	3.13%	0.13%
3.05%	1.80%	0.72%	2.97%	0.28%
3.66%	2.26%	0.00%	3.97%	0.21%
4.38%	2.70%	0.00%	4.67%	0.33%
1.96%	1.30%	0.00%	2.18%	0.00%
2.91%	4.35%	0.00%	2.50%	0.00%
0.95%	0.00%	0.00%	1.30%	0.00%
Total	**2.94%**	**0.34%**	**4.45%**	**0.28%**

Total	SU	MU
	3.71%	0.31%

Don Naughton

Subject: FW: US 45 Milburn Bypass - Pavement Design

From: Matthew J. Huffman [mailto:mhuffman@cbbel.com]
Sent: Wednesday, January 09, 2013 1:17 PM
To: Mark Reznicek
Cc: mmatkovic@cbbel.com
Subject: FW: US 45 Milburn Bypass - Pavement Design

Mark,
I received feedback from LCDOT regarding the pavement design. Per the below, we should move forward with the HMA design for Sand Lake and Grass Lake/Millburn. Once geotech is performed in Phase II, a pavement design will be performed for the County Routes. Let me know if you need any other information to wrap up the Pavement Design Report.

Thanks,

- Matt

Christopher B. Burke Engineering Ltd.
mhuffman@cbbel.com
847-823-0500

From: Gleason, Chuck L. [mailto:CGleason@lakecountyil.gov]
Sent: Wednesday, January 09, 2013 1:01 PM
To: mhuffman@cbbel.com
Subject: FW: US 45 Milburn Bypass - Pavement Design

FYI

From: Zemaitis, Michael G.
Sent: Wednesday, January 09, 2013 12:45 PM
To: Gleason, Chuck L.
Subject: RE: US 45 Milburn Bypass - Pavement Design

A couple comments on the report -

There seems to be confusion over the intent of showing an HMA pavement thickness on the LCDOT detail drawings. The drawings show 10" surface + 2" binder, but the accompanying design note states that "pavement materials and thicknesses are for an average county road, and will vary with each project's design." So there is no county standard thickness, the intention is that a pavement design be performed for each project, and the resulting thickness would be used.

The economic analysis shows that PCC pavement has a lower annual cost over 40 years for Rt 45.
No analysis was presented for Grass Lake of Sand Lake (was this task included in the phase I contract?)

So, the designs presented in the Recommendations part of the report appear reasonable –

Grass Lake Road – 9.75" HMA on 12" agg subgrade or 9"PCC on 12" agg subgrade
Sand Lake Road – 9.5" HMA on 12" agg subgrade or 9"PCC on 12" agg subgrade
JT part of Grass Lake Road – 2.75" mill/fill

Ok to proceed as per the email below for the report, and refine the pavement design if needed once we get the geotech information.

Without an analysis, I would lean toward HMA for Grass Lake and Sand Lake as the adjoining pavement is HMA, and future maintenance would be less disruptive to traffic.

From: Gleason, Chuck L.
Sent: Tuesday, January 08, 2013 10:43 AM
To: Zemaitis, Michael G.
Subject: FW: US 45 Milburn Bypass - Pavement Design

Mike, can you look at this and let me know your thoughts. From Matt's e-mail, I would agree with his statement for the report, thanks.

From: Matthew J. Huffman [mailto:mhuffman@cbbel.com]
Sent: Tuesday, January 08, 2013 10:29 AM
To: Gleason, Chuck L.
Subject: RE: US 45 Milburn Bypass - Pavement Design

Chuck,
I wanted to touch based with you regarding the pavement design for the County Routes (Grass Lake/Millburn and Sand Lake). It has been a while since we have discussed the pavement design and just wanted to confirm we are proceeding correctly. For the purposes of the Design Report, we have assumed the County Standard for Phase I (12" HMA over 12" Aggregate). We can state in the Design Report, that once geotechnical information the pavement design will be investigated further and that flexible or rigid pavement structures could be implemented.

Thanks,

- Matt

Christopher B. Burke Engineering Ltd.
mhuffman@cbbel.com
847-823-0500

From: Mark Reznicek [mailto:mreznicek@esiltd.com]
Sent: Friday, May 25, 2012 3:58 PM
To: CGleason@lakecountyil.gov
Cc: mhuffman@cbbel.com
Subject: US 45 Milburn Bypass - Pavement Design

Chuck,

Attached are excerpts from the Pavement Design Report which we prepared for the Milburn Bypass as they relate to Lake County's routes: Grass Lake Road and Sand Lake Road. IDOT defers to the County for your preference on these routes. In the last section (Recommendations), I have included for your reference the recommended pavement composition for US Route 45 and IL Route 173.

We note that the County standard is 12 inch HMA over 12 inch Aggregate Subgrade (based on LC4010 and LC4021). This exceeds the minimum required HMA depths of 9-3/4 and 9-1/2 respectively as calculated utilizing IDOT's

mechanistic pavement design for flexible pavement. Alternatively, if the County would like to consider rigid, the required design for both routes includes 9 inch PCC over 12 inch Aggregate Subgrade.

We did not perform a life-cycle cost analysis for the County routes as this is typically only done for the major route. However, if we used unit prices recommended by IDOT, it would likely favor concrete. Another issue to consider is the County's ability/preference for maintaining concrete verses asphalt. Feel free to call if you would like to discuss further.

Mark A. Reznicek, P.E.
Senior Project Manager
ESI Consultants, Ltd.
Office 630.420.1700 ext.2103
Cell 630.222.3182
Fax 630.420.1733
www.esiltd.com

REQUIREMENTS FOR PAVEMENT ANALYSIS

A. Location Information

☒	Location Map	Route:	US Route 45 - IL Rte 132 to IL Rte 173
☒	Scope of Requested Work (from Project Report)	Target Letting:	
☒	Existing and Proposed Typical Cross Sections	Designer:	
☐	Existing and Proposed Intersection Geometry Including Turn Bay and Taper Lengths, Widths (IDS-OK), All Plan Sheets for Reconstruction	Section:	
☒	Highway Type (FAI, FAP, FAU, FAS)	Contract #:	
☐	IBR _____ (Source) _____	Job #:	
	Soil Profile Done (Y/N) _____		
	Pavement Cores (Y/N) _____		

B. Pavement History (State Maintenance Pavements)

Roadway Limits	Original Pavement				Widening				1st Resurfacing		2nd Resurfacing		CRS	Year
	Year	Thickness/Type		Width	Year	Thickness/Type		Width	Year	Thickness	Year	Thickness		
US Route 45 IL Route 173 Grass Lake Rd Sand Lake Rd														

C. Project Description

Roadway Limits	Resurfacing			Widening			Reconstruction			Shoulders			
	Width	Length	Type*	Width	Length	SM(SY)	Width	Length	SM (SY)	C&G Type	R/L	Type	Width
US Route 45							48'	30,330		B-6.24	R & L		
IL Route 173							48'	3,950		B-6.24	R & L		
Grass Lake Rd							48'	2,835			R & L	HMA & Agg	4' each
Sand Lake Rd							48'	1890		B-6.24 (L)	R & L	HMA & Agg	4' each

*Structural/Cosmetic

D. Mainline Traffic Considerations

Mainline	Limits	Roadway Class	Proposed	Existing				Projected	
		I, II, III, IV	JT (Y/N)	Year	ADT	% MU	% SU	Year	ADT
IL Route 45	IL 173 to IL 132	Class I	N	2009	16,600	3.5	5	2040	34,000
Crossroad									
IL 173	w/o Pederson Drive to e/o US Route 45	Class I	N	2009	16,300	1.5	2.5	2040	23,000
Grass Lake Road	w/o Heritage Drive to existing US 45	Class I	N	2009	9,700	0.5	2.5	2040	18,000
Sand Lake Road	w/o Cross Creek Ln to e/o US Route 45	Class I	N	2009	11,900	0.5	4	2040	17,000

E. Intersection Characteristics

Crossroad	Roadway Class	Hwy Type	Juris. *	Pavt. Type Req.	Exist. Pav't Thickness	ADT	Signals	All Way Stop	Skidproof Prop. (Y/N)	High Stress (Y/N)
IL 173	Class I		IDOT			16,300	Yes	No	N	
Grass Lake Road	Class I		LCDOT			9,700	Yes	No	N	
Sand Lake Road	Class I		LCDOT			11,900	Yes	No	N	

***Note:** **For roads which are or will be under local jusisidiciton, information from the local agency specifying any pavement requirements is required in writing with this pavement design request.**

F. Restriction/Considerations (i.e. shallow utilities, vertical clearances, club restraints, location of grades exceeding 3.5%, etc.)

6. Recommendations

The recommended pavement design and the basis for the selection for each roadway follows:

US Route 45 from IL Route 173 to IL Route 132: Mechanistic Design

A summary of the results from the mechanistic design and the life-cycle cost analysis for rigid and flexible pavements follows:

Rigid (Recommended Alternative)

- 10 Inch PCC Pavement with 15 Foot Transverse Joint Spacing
- Shoulders: Curb and gutter tied with 1.5 inch Dowel Bars
- 4 ½ inch HMA Stabilized Sub-base
- 12 inch Aggregate Subgrade
- Total Life Cycle Cost (Present Worth)=$11.731M

Flexible

- 2 inch Polymerized HMA Surface Course, Mix “F”, N90
- 9.5 inch Polymerized HMA Binder Course, IL-19.0, N90
- 12 inch Aggregate Subgrade
- Total Life Cycle Cost (Present Worth)=$12.950M

The life-cycle cost of the rigid alternative is 9.6% less than the flexible alternative. **With the difference in life-cycle costs being almost 10%, the rigid pavement design noted above is recommended for construction.**

IL Route 173 @ US Route 45: Mechanistic Design

The calculated thickness of the PCC alternative for IL Route 173 is 9.5 inches which is one half inch (0.5) less than the recommended thickness along US Route 45. As the area of new pavement along US Route 45 is significantly more than the new pavement along IL Route 173, one can expect a considerable discount in the unit price of the 10 inch PCC pavement. **To simplify construction operations and take advantage of the economy of large quantities, it is recommended to construct IL Route 173 of the same thickness as US Route 45 (10 inch PCC pavement).**

Sand Lake Road @ US Route 45: Mechanistic Design

A summary of the results from the mechanistic design for rigid and flexible pavements follows:

Rigid

- 9.0 Inch PCC Pavement with 15 Foot Transverse Joint Spacing
- 12 inch Aggregate Subgrade

Flexible (Recommended Alternative)

HMA thickness from mechanistic design calculations:

- 2 inch HMA Surface Course, Mix "D", N70
- 7.5 inch HMA Binder Course, IL-19.0, N70
- 12 inch Aggregate Subgrade

Selection of pavement composition and thickness on Sand Lake Road was deferred to Lake County for their preference. Per email correspondence with LDOT in January 2013 (see Other Information, Section D), flexible pavement was preferred as the adjoining pavement is also flexible and future maintenance would be less disruptive to traffic.

The County is open to reevaluating the pavement composition once the geotechnical information is available during Phase II.

APPENDIX H

DESIGN EXCEPTIONS

Design Exception Requests

U.S. Route 45 from IL Route 132 to north of Country Place
P-91-388-10
Lake County

	BDE Standard	Proposed Design	Location of Exception	JUSTIFICATION
1	8% Access to State Highways Chapter IV, Section C	12.8% and 15.1%	Residential Entrance on Stearns School Road at STA. 10+00 LT, east of U.S. Route 45.	Extending the driveway using an 8% grade would impact an existing structure.
2	8% Access to State Highways Chapter IV, Section C	12%	Residential Entrance on U.S. Route 45 at STA. 20+33 LT, between Highfield Drive and Chatham Way; Residential Entrance on U.S. Route 45 at STA. 24+60 LT, between Highfield Drive and Chatham Way; Residential Entrance on U.S. Route 45 at STA. 25+68 RT, between Highfield Drive and Chatham Way.	Extending the driveway using an 8% grade would impact an existing structure; extending the driveway using an 8% grade would impact an existing structure; extending the entrance using an 8% grade would impact the existing circular driveway and the use of the access to the property in which the proposed entrance ties to the beginning of the circular driveway.
3	8% Access to State Highways Chapter IV, Section C	10.2%	Residential Entrance on U.S. Route 45 at STA. 51+00 LT, between Deer Trail Lane and Deer Path Drive; Residential Entrance on U.S. Route 45 at STA. 61+42 RT, between Deer Path Drive and Falling Waters Blvd.	Extending the entrance using an 8% grade would not meet the existing topography adjacent to the roadway within a reasonable distance in which the existing entrance splits to two driveways just past the proposed right-of-way where the proposed entrance meets; extending the entrance using an 8% grade would not meet the existing topography adjacent to the roadway within a reasonable distance and would likely not be compatible with the property use.
4	6% Access to State Highways Chapter V, Section D	8.2%	Commercial Entrance on U.S. Route 45 at STA. 71+57 RT between Falling Waters Blvd and Stearns School Rd.	Extending the entrance using a 6% grade would impact the use of the existing commercial parking lot and structure.
5	6% Access to State Highways Chapter V, Section D	11.7%	Commercial Entrance on U.S. Route 45 at STA. 73+57 RT between Falling Waters Blvd and Stearns School Rd.	Extending the entrance using a 6% grade would impact the use of the existing commercial parking lot and structure.
6	6% Access to State Highways Chapter V, Section D	6.9%	Commercial Entrance on U.S. Route 45 at STA. 75+00 RT between Falling Waters Blvd and Stearns School Rd.	Extending the entrance using a 6% grade would impact the use of the existing commercial parking lot and structure. The entrance is extended as far as possible to not impact the use of the parking lot.

	BDE Standard	Proposed Design	Location of Exception	JUSTIFICATION
7	6% Access to State Highways Chapter V, Section D	11.6%	Commercial Entrance on U.S. Route 45 at STA. 82+84 LT between Stearns School Rd and Country Place.	Extending the commercial entrance using a 6% grade would impact the use of the parking lot and possibly the structure.
8	8% Access to State Highways Chapter IV, Section C	10.9%	Residential Entrance on Sand Lake Road at STA. 1014+64 RT, west of U.S. Route 45.	Extending the grade of the residential entrance using 8% would not meeting the existing topography within a reasonable distance and also likely impact the use of the property.
9	600' minimum Lane Drop Taper BLR FIG. 34-5A	220' Lane Drop Taper	West leg of intersection of Sand Lake Road and U.S. Route 45.	The proposed lane drop is buried to the first residential street, per MUTCD design with deficient distance from the east leg stop bar.
10	Side roads drain away from mainline at 1-2% for 100' before intersection BDE 36-1.06(a)	Side road draining away from mainline at 1% grade for 0'	West leg of intersection of Sand Lake Road and U.S. Route 45	The existing profile of Sand Lake Road is sloped towards the intersection with U.S. Route 45. To meet the required grade and distance from the intersection, the roadway profile would be lowered, resulting in a wider cut section and impacts to surrounding properties with regards to access. As a result, retaining walls would likely be required to limit impacts. The proposed profile provides a small segment to drain away from U.S. Route 45.

Illinois Department of Transportation

Design Exception Request Project Identification

Route	Street	Marked	Contract #	State Job #
FAU Route 344		US Route 45		P-91-388-10

Section	County	Municipality
	Lake	Village of Lindenhurst

Local Agency	LRS Section #	Permit Applicant	Permit #

Project Limits

U.S. Route 45 from IL Route 132 to north of Country Place

Project Length

1.94 miles (10,262 ft)

FHWA Oversight? ☐ Yes ☒ No

Estimate of Cost	Functional Classification	Design Yr	Design Traffic		Current Posted Speed
17,000,000	Minor Arterial	2040	ADT 17,000	DHV 1,785 (PM)	45 MPH

On the NHS System? ☒ Yes ☐ No

Structure Numbers

Type of Project (Construction, Reconstruction, 3R, HES. etc)

Reconstruction

Brief Project Description

Reconstruction and widening of U.S. Route 45 from IL Route 132 to Country Place, where it will tie into the planned U.S. Route 45 Millburn Bypass southern limit.

EXCEPTION DOCUMENTATION

Level of Exception ☐ **Interstate** ☒ **Non-Interstate**

Design Element for Which an Exception is Requested

Residential Entrance Grade

Design Element Policy Value

8% (Access to State Highways Chapter IV, Section C)

Proposed Design Element Value

12.8% and 15.1%

Location(s) of Exception

Residential Entrance on Stearns School Road at STA. 10+00 LT, east of U.S. Route 45.

Account History and Potential of Exception Location(s)

69 total crashes occurred at the nearby intersection of U.S. Route 45 and Sand Lake Road. This location was not a 5% location for 2007-2011. Proposed scope of work will not have an effect on the safety and operations related to this exception request.

Cost of Using Policy Value	Cost of Using Proposed Exception Value
$400,000.00	$20,000.00

Impacts Other Than Cost. of Using Policy Value

Impacts to residential property on the north side of Stearns School Rd.

Proposed Mitigation To Address Exception

None

Geometric Compatibility with Adjacent Sections

Compatible. The driveway ties into the existing residential entrance and the multi-use is not affected.

Potential Effects On Other Design Elements

None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

Extending the driveway using an 8% grade would impact an existing structure.

Coordination Meeting Date	Prepared By	Date
08/09/2016	Matt Huffman (CBBEL)	08/09/2016

PAVEMENT/RESURFACING EXCEPTIONS

☐ **New Pavement** ☐ **Pavement Widening** ☐ **Resurfacing**

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

Design Element Policy Value	Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value	Cost of Using Proposed Element Value

Summary of Justification

Prepared By	Date

APPROVAL/DISAPPROVAL

BDE Approval Date	BDE Disapproval Date
08/09/2016	

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)

Illinois Department of Transportation

Design Exception Request Project Identification

Route	Street	Marked	Contract #	State Job #
FAU Route 344		US Route 45		P-91-388-10

Section	County	Municipality
	Lake	Village of Lindenhurst

Local Agency	LRS Section #	Permit Applicant	Permit #

Project Limits

U.S. Route 45 from IL Route 132 to north of Country Place

Project Length

1.94 miles (10,262 ft)

FHWA Oversight? ☐ Yes ☒ No

Estimate of Cost	Functional Classification	Design Yr	Design Traffic		Current Posted Speed
17,000,000	SRA/Other Principal Arteria	2040	ADT 32,000	DHV 2,475 (PM)	45 MPH

On the NHS System?	Structure Numbers	Type of Project (Construction, Reconstruction, 3R, HES. etc)
☒ Yes ☐ No		Reconstruction

Brief Project Description

Reconstruction and widening of U.S. Route 45 from IL Route 132 to Country Place, where it will tie into the planned U.S. Route 45 Millburn Bypass southern limit.

EXCEPTION DOCUMENTATION

Level of Exception ☐ **Interstate** ☒ **Non-Interstate**

Design Element for Which an Exception is Requested

Residential Entrance Grade

Design Element Policy Value

8% (Access to State Highways Chapter IV, Section C)

Proposed Design Element Value

12%

Location(s) of Exception

Residential Entrance at STA. 20+33 LT, between IL Route 132 and Highfield Drive; Residential Entrance at STA. 24+60 LT, between IL Route 132 and Highfield Drive; Residential Entrance at STA. 25+68 RT, between Highfield Drive and Chatham Way.

Account History and Potential of Exception Location(s)

10 total crashes occurred along the stretch of road between IL Route 132 and Highfield Drive between 2007 and 2011; 10 total crashes occurred along the stretch of road between IL Route 132 and Highfield Drive between 2007 and 2011; 5 total crashes occurred along the stretch of U.S. Route 45 between Highfield Drive and Chatham Way 2007 and 2011. These locations were not a 5% location for 2007 to 2011. Proposed scope of work will not have an effect on the safety and operations related to this exception request.

Cost of Using Policy Value	Cost of Using Proposed Exception Value
$405,000.00	$100,000.00

Impacts Other Than Cost. of Using Policy Value

Impacts to residential properties along the west side of U.S. Route 45; impacts to residential properties along the west side of U.S. Route 45; impacts to residential properties along the east side of U.S. Route 45.

Proposed Mitigation To Address Exception

None

Geometric Compatibility with Adjacent Sections

Compatible. The driveways tie into the existing residential entrances and the sidewalk is not affected.

Potential Effects On Other Design Elements

None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

Extending the driveway using an 8% grade would impact an existing structure; extending the driveway using an 8% grade would impact an existing structure; extending the entrance using an 8% grade would impact the existing circular driveway, the use of the access to the property, and the proposed entrance ties to the beginning of the circular driveway.

Coordination Meeting Date	Prepared By	Date
08/09/2016	Matt Huffman (CBBEL)	08/09/2016

PAVEMENT/RESURFACING EXCEPTIONS

☐ **New Pavement** ☐ **Pavement Widening** ☐ **Resurfacing**

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

Design Element Policy Value	Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value	Cost of Using Proposed Element Value

Summary of Justification

Prepared By	Date

APPROVAL/DISAPPROVAL

BDE Approval Date	BDE Disapproval Date
08/09/2016	

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)

Illinois Department of Transportation

Design Exception Request Project Identification

Route	Street	Marked	Contract #	State Job #
FAU Route 344		US Route 45		P-91-388-10

Section	County	Municipality
	Lake	Village of Lindenhurst

Local Agency	LRS Section #	Permit Applicant	Permit #

Project Limits

U.S. Route 45 from IL Route 132 to north of Country Place

Project Length

1.94 miles (10,262 ft)

FHWA Oversight? ☐ Yes ☒ No

Estimate of Cost	Functional Classification	Design Yr	Design Traffic		Current Posted Speed
17,000,000	SRA/Other Principal Arteria	2040	ADT 32,000	DHV 2,475 (PM)	45 MPH

On the NHS System?	Structure Numbers	Type of Project (Construction, Reconstruction, 3R, HES. etc)
☒ Yes ☐ No		Reconstruction

Brief Project Description

Reconstruction and widening of U.S. Route 45 from IL Route 132 to Country Place, where it will tie into the planned U.S. Route 45 Millburn Bypass southern limit.

EXCEPTION DOCUMENTATION

Level of Exception ☐ **Interstate** ☒ **Non-Interstate**

Design Element for Which an Exception is Requested

Residential Entrance Grade

Design Element Policy Value

8% (Access to State Highways Chapter IV, Section C)

Proposed Design Element Value

10.2%

Location(s) of Exception

Residential Entrance at STA. 51+00 LT, between Deer Trail Lane and Deer Path Drive; Residential Entrance at STA. 61+42 RT, between Deer Path Drive and Falling Waters Blvd.

Account History and Potential of Exception Location(s)

4 total crashes occurred along the stretch of U.S. Route 45 between Deer Trail Lane and Deerpath Drive between 2007 and 2011; 2 total crashes occurred along the stretch of U.S. Route 45 between Deer Path Drive and Falling Waters Blvd. between 2007 and 2011. Both locations were not 5% locations for 2007-2011. Proposed scope of work will not have an effect on the safety and operations related to this exception request.

Cost of Using Policy Value	Cost of Using Proposed Exception Value
$65,000.00	$40,000.00

Impacts Other Than Cost. of Using Policy Value

Impacts to residential properties along the west side of U.S. Route 45; impacts to residential properties along the east side of U.S. Route 45

Proposed Mitigation To Address Exception

None

Geometric Compatibility with Adjacent Sections

Compatible. Both driveways tie into the existing residential entrances and the sidewalk is not affected.

Potential Effects On Other Design Elements

None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

Extending the entrance using an 8% grade would not meet the existing topography adjacent to the roadway within a reasonable distance in which the existing entrance splits to two driveways just past the proposed right-of-way where the proposed entrance meets; extending the entrance using an 8% grade would not meet the existing topography adjacent to the roadway within a reasonable distance and would likely not be compatible with the property use.

Coordination Meeting Date	Prepared By	Date
08/09/2016	Matt Huffman (CBBEL)	08/09/2016

PAVEMENT/RESURFACING EXCEPTIONS

☐ **New Pavement** ☐ **Pavement Widening** ☐ **Resurfacing**

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

Design Element Policy Value	Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value	Cost of Using Proposed Element Value

Summary of Justification

Prepared By	Date

APPROVAL/DISAPPROVAL

BDE Approval Date	BDE Disapproval Date
08/09/2016	

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)

Illinois Department of Transportation

Design Exception Request Project Identification

Route	Street	Marked	Contract #	State Job #
FAU Route 344		US Route 45		P-91-388-10

Section	County	Municipality
	Lake	Village of Lindenhurst

Local Agency	LRS Section #	Permit Applicant	Permit #

Project Limits

U.S. Route 45 from IL Route 132 to north of Country Place

Project Length

1.94 miles (10,262 ft)

FHWA Oversight? ☐ Yes ☒ No

Estimate of Cost	Functional Classification	Design Yr	Design Traffic		Current Posted Speed
17,000,000	SRA/Other Principal Arteria	2040	ADT 32,000	DHV 2,475 (PM)	45 MPH

On the NHS System? ☒ Yes ☐ No

Structure Numbers

Type of Project (Construction, Reconstruction, 3R, HES. etc)

Reconstruction

Brief Project Description

Reconstruction and widening of U.S. Route 45 from IL Route 132 to Country Place, where it will tie into the planned U.S. Route 45 Millburn Bypass southern limit.

EXCEPTION DOCUMENTATION

Level of Exception ☐ **Interstate** ☒ **Non-Interstate**

Design Element for Which an Exception is Requested

Commercial Entrance Grade

Design Element Policy Value

6% (Access to State Highways Chapter V, Section D)

Proposed Design Element Value

8.2%

Location(s) of Exception

Commercial Entrance at STA. 71+57 RT between Falling Waters Blvd and Stearns School Rd.

Account History and Potential of Exception Location(s)

2 total crashes occurred along the stretch of U.S. Route 45 between Falling Waters Blvd and Stearns School Road between 2007 and 2011. This location was not a 5% location for 2007 to 2011. Proposed scope of work will not have an effect on the safety and operations related to this exception request.

Cost of Using Policy Value	Cost of Using Proposed Exception Value
$320,000.00	$20,000.00

Impacts Other Than Cost. of Using Policy Value

Impacts to commercial properties along the east side of U.S. Route 45, including impacting an existing structure and impacting an existing parking lot.

Proposed Mitigation To Address Exception

None

Geometric Compatibility with Adjacent Sections

Compatible. The driveway ties into the existing commercial entrance and minimizes impacts to the existing parking lot.

Potential Effects On Other Design Elements

None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

Extending the entrance using a 6% grade would impact the use of the existing commercial parking lot and structure.

Coordination Meeting Date	Prepared By	Date
08/09/2016	Matt Huffman (CBBEL)	08/09/2016

PAVEMENT/RESURFACING EXCEPTIONS

☐ **New Pavement** ☐ **Pavement Widening** ☐ **Resurfacing**

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

Design Element Policy Value	Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value	Cost of Using Proposed Element Value

Summary of Justification

Prepared By	Date

APPROVAL/DISAPPROVAL

BDE Approval Date	BDE Disapproval Date
08/09/2016	

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)

Illinois Department of Transportation

Design Exception Request Project Identification

Route	Street	Marked	Contract #	State Job #
FAU Route 344		US Route 45		P-91-388-10

Section	County	Municipality
	Lake	Village of Lindenhurst

Local Agency	LRS Section #	Permit Applicant	Permit #

Project Limits

U.S. Route 45 from IL Route 132 to north of Country Place

Project Length

1.94 miles (10,262 ft)

FHWA Oversight? ☐ Yes ☒ No

Estimate of Cost	Functional Classification	Design Yr	Design Traffic		Current Posted Speed
17,000,000	SRA/Other Principal Arteria	2040	ADT 32,000	DHV 2,475 (PM)	45 MPH

On the NHS System? ☒ Yes ☐ No

Structure Numbers

Type of Project (Construction, Reconstruction, 3R, HES. etc)

Reconstruction

Brief Project Description

Reconstruction and widening of U.S. Route 45 from IL Route 132 to Country Place, where it will tie into the planned U.S. Route 45 Millburn Bypass southern limit.

EXCEPTION DOCUMENTATION

Level of Exception ☐ **Interstate** ☒ **Non-Interstate**

Design Element for Which an Exception is Requested

Commercial Entrance Grade

Design Element Policy Value

6% (Access to State Highways Chapter V, Section D)

Proposed Design Element Value

11.7%

Location(s) of Exception

Commercial Entrance at STA. 73+57 RT between Falling Waters Blvd and Stearns School Rd.

Account History and Potential of Exception Location(s)

2 total crashes occurred along the stretch of U.S. Route 45 between Falling Waters Blvd and Stearns School Road between 2007 and 2011. This location was not a 5% location for 2007 to 2011. Proposed scope of work will not have an effect on the safety and operations related to this exception request.

Cost of Using Policy Value	Cost of Using Proposed Exception Value
$320,000.00	$20,000.00

Impacts Other Than Cost. of Using Policy Value

Impacts to commercial properties along the east side of U.S. Route 45, including impacting an existing structure and impacting an existing parking lot.

Proposed Mitigation To Address Exception

None

Geometric Compatibility with Adjacent Sections

Compatible. The driveway ties into the existing commercial entrance and minimizes impacts to the existing parking lot.

Potential Effects On Other Design Elements

None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

Extending the entrance using a 6% grade would impact the use of the existing commercial parking lot and structure.

Coordination Meeting Date	Prepared By	Date
08/09/2016	Matt Huffman (CBBEL)	08/09/2016

PAVEMENT/RESURFACING EXCEPTIONS

☐ **New Pavement** ☐ **Pavement Widening** ☐ **Resurfacing**

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

Design Element Policy Value	Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value	Cost of Using Proposed Element Value

Summary of Justification

Prepared By	Date

APPROVAL/DISAPPROVAL

BDE Approval Date	BDE Disapproval Date
08/09/2016	

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)

Illinois Department of Transportation

Design Exception Request Project Identification

Route	Street	Marked	Contract #	State Job #
FAU Route 344		US Route 45		P-91-388-10

Section	County	Municipality
	Lake	Village of Lindenhurst

Local Agency	LRS Section #	Permit Applicant	Permit #

Project Limits

U.S. Route 45 from IL Route 132 to north of Country Place

Project Length

1.94 miles (10,262 ft)

FHWA Oversight? ☐ Yes ☒ No

Estimate of Cost	Functional Classification	Design Yr	Design Traffic		Current Posted Speed
17,000,000	SRA/Other Principal Arteria	2040	ADT 32,000	DHV 2,475 (PM)	45 MPH

On the NHS System? ☒ Yes ☐ No

Structure Numbers

Type of Project (Construction, Reconstruction, 3R, HES. etc)

Reconstruction

Brief Project Description

Reconstruction and widening of U.S. Route 45 from IL Route 132 to Country Place, where it will tie into the planned U.S. Route 45 Millburn Bypass southern limit.

EXCEPTION DOCUMENTATION

Level of Exception ☐ **Interstate** ☒ **Non-Interstate**

Design Element for Which an Exception is Requested

Commercial Entrance Grade

Design Element Policy Value

6% (Access to State Highways Chapter V, Section D)

Proposed Design Element Value

6.9%

Location(s) of Exception

Commercial Entrance at STA. 75+00 RT between Falling Waters Blvd and Stearns School Rd.

Account History and Potential of Exception Location(s)

2 total crashes occurred along the stretch of U.S. Route 45 between Falling Waters Blvd and Stearns School Road between 2007 and 2011. This location was not a 5% location for 2007 to 2011. Proposed scope of work will not have an effect on the safety and operations related to this exception request.

Cost of Using Policy Value	Cost of Using Proposed Exception Value
$320,000.00	$20,000.00

Impacts Other Than Cost. of Using Policy Value

Impacts to commercial properties along the east side of U.S. Route 45, including impacting an existing structure and impacting an existing parking lot.

Proposed Mitigation To Address Exception

None

Geometric Compatibility with Adjacent Sections

Compatible. The driveway ties into the existing commercial entrance and minimizes impacts to the existing parking lot

Potential Effects On Other Design Elements

None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

Extending the entrance using a 6% grade would impact the use of the existing commercial parking lot and structure. The entrance is extended as far as possible to not impact the use of the parking lot.

Coordination Meeting Date	Prepared By	Date
08/09/2016	Matt Huffman (CBBEL)	08/09/2016

PAVEMENT/RESURFACING EXCEPTIONS

☐ **New Pavement** ☐ **Pavement Widening** ☐ **Resurfacing**

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

Design Element Policy Value	Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value	Cost of Using Proposed Element Value

Summary of Justification

Prepared By	Date

APPROVAL/DISAPPROVAL

BDE Approval Date	BDE Disapproval Date
08/09/2016	

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)

Illinois Department of Transportation

Design Exception Request Project Identification

Route	Street	Marked	Contract #	State Job #
FAU Route 344		US Route 45		P-91-388-10

Section	County	Municipality
	Lake	Village of Lindenhurst

Local Agency	LRS Section #	Permit Applicant	Permit #

Project Limits

U.S. Route 45 from IL Route 132 to north of Country Place

Project Length

1.94 miles (10,262 ft)

FHWA Oversight? ☐ Yes ☒ No

Estimate of Cost	Functional Classification	Design Yr	Design Traffic		Current Posted Speed
17,000,000	SRA/Other Principal Arteria	2040	ADT 32,000	DHV 2,475 (PM)	45 MPH

On the NHS System? ☒ Yes ☐ No

Structure Numbers

Type of Project (Construction, Reconstruction, 3R, HES. etc)

Reconstruction

Brief Project Description

Reconstruction and widening of U.S. Route 45 from IL Route 132 to Country Place, where it will tie into the planned U.S. Route 45 Millburn Bypass southern limit.

EXCEPTION DOCUMENTATION

Level of Exception ☐ **Interstate** ☒ **Non-Interstate**

Design Element for Which an Exception is Requested

Commercial Entrance Grade

Design Element Policy Value

6% (Access to State Highways Chapter V, Section D)

Proposed Design Element Value

11.6%

Location(s) of Exception

Commercial Entrance at STA. 82+84 LT between Stearns School Rd and Country Place.

Account History and Potential of Exception Location(s)

21 total crashes occurred along the stretch of U.S. Route 45 between Stearns School Road and Country Place between 2007 and 2011. This location was not a 5% location for 2007 to 2011. Proposed scope of work will not have an effect on the safety and operations related to this exception request.

Cost of Using Policy Value	Cost of Using Proposed Exception Value
$225,000.00	$20,000.00

Impacts Other Than Cost. of Using Policy Value

Impacts to commercial properties along the west side of U.S. Route 45, including impacting an existing structure and impacting an existing parking lot.

Proposed Mitigation To Address Exception

None

Geometric Compatibility with Adjacent Sections

Compatible. The driveway ties into the existing commerical entrance and minimizes impacts to the existing parking lot.

Potential Effects On Other Design Elements

None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

Extending the commercial entrance using a 6% grade would impact the use of the parking lot and possibly the structure.

Coordination Meeting Date	Prepared By	Date
08/09/2016	Matt Huffman (CBBEL)	08/09/2016

PAVEMENT/RESURFACING EXCEPTIONS

☐ **New Pavement** ☐ **Pavement Widening** ☐ **Resurfacing**

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

Design Element Policy Value	Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value	Cost of Using Proposed Element Value

Summary of Justification

Prepared By	Date

APPROVAL/DISAPPROVAL

BDE Approval Date	BDE Disapproval Date
08/09/2016	

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)

Illinois Department of Transportation

Design Exception Request Project Identification

Route	Street	Marked	Contract #	State Job #
FAU Route 344		US Route 45		P-91-388-10

Section	County	Municipality
	Lake	Village of Lindenhurst

Local Agency	LRS Section #	Permit Applicant	Permit #

Project Limits

U.S. Route 45 from IL Route 132 to north of Country Place

Project Length

1.94 miles (10,262 ft)

FHWA Oversight? ☐ Yes ☒ No

Estimate of Cost	Functional Classification	Design Yr	Design Traffic		Current Posted Speed
17,000,000	Minor Arterial	2040	ADT 17,000	DHV 1,785 (PM)	45 MPH

On the NHS System? ☒ Yes ☐ No

Structure Numbers

Type of Project (Construction, Reconstruction, 3R, HES. etc)

Reconstruction

Brief Project Description

Reconstruction and widening of U.S. Route 45 from IL Route 45 to just north of Country Place, where U.S. Route 45 will tie into the previously approved Millburn Bypass. Some of the improvement is using existing right-of-way and some is on new alignment.

EXCEPTION DOCUMENTATION

Level of Exception ☐ **Interstate** ☒ **Non-Interstate**

Design Element for Which an Exception is Requested

Residential Entrance Grade

Design Element Policy Value

8% (Access to State Highways Chapter IV, Section C)

Proposed Design Element Value

10.9%

Location(s) of Exception

Residential Entrance on Sand Lake Road at STA. 1014+64 RT, west of U.S. Route 45.

Account History and Potential of Exception Location(s)

69 total crashes occurred at the nearby intersection of U.S. Route 45 and Sand Lake Road. This location was not a 5% location for 2007-2011. Proposed scope of work will not have an effect on the safety and operations related to this exception request.

Cost of Using Policy Value	Cost of Using Proposed Exception Value
$25,000.00	$20,000.00

Impacts Other Than Cost. of Using Policy Value

Impacts to residential properties along the south side of Sand Lake Rd.

Proposed Mitigation To Address Exception

None

Geometric Compatibility with Adjacent Sections

Compatible. The driveway ties into the existing residential entrance and the sidewalk is not affected.

Potential Effects On Other Design Elements

None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

Extending the grade of the residential entrance using 8% would not meeting the existing topography within a reasonable distance and also likely impact the use of the property.

Coordination Meeting Date	Prepared By	Date
08/09/2016	Matt Huffman (CBBEL)	08/09/2016

PAVEMENT/RESURFACING EXCEPTIONS

☐ **New Pavement** ☐ **Pavement Widening** ☐ **Resurfacing**

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

Design Element Policy Value	Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value	Cost of Using Proposed Element Value

Summary of Justification

Prepared By	Date

APPROVAL/DISAPPROVAL

BDE Approval Date	BDE Disapproval Date
08/09/2016	

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)

Illinois Department of Transportation

Design Exception Request Project Identification

Route	Street	Marked	Contract #	State Job #
FAU Route 344		US Route 45		P-91-388-10

Section	County	Municipality
	Lake	Village of Lindenhurst

Local Agency	LRS Section #	Permit Applicant	Permit #

Project Limits

U.S. Route 45 from IL Route 132 to north of Country Place

Project Length

1.94 miles (10,262 ft)

FHWA Oversight? ☐ Yes ☒ No

Estimate of Cost	Functional Classification	Design Yr	Design Traffic		Current Posted Speed
17,000,000	Minor Arterial	2040	ADT 17,000	DHV 1,785 (PM)	45 MPH

On the NHS System? ☒ Yes ☐ No

Structure Numbers

Type of Project (Construction, Reconstruction, 3R, HES. etc)

Reconstruction

Brief Project Description

Reconstruction and widening of U.S. Route 45 from IL Route 45 to just north of Country Place, where U.S. Route 45 will tie into the previously approved Millburn Bypass. Some of the improvement is using existing right-of-way and some is on new alignment.

EXCEPTION DOCUMENTATION

Level of Exception ☐ **Interstate** ☒ **Non-Interstate**

Design Element for Which an Exception is Requested

Lane Drop Taper

Design Element Policy Value

600' minimum Lane Drop Taper (BLR FIG. 34-5A)

Proposed Design Element Value

220' Lane Drop Taper

Location(s) of Exception

West leg of intersection of Sand Lake Road and U.S. Route 45

Account History and Potential of Exception Location(s)

69 total crashes occurred at the intersection of Sand Lake Road and U.S. Route 45 between 2007 and 2011. 16 of the crashes resulted in injuries. This location was not a 5% location for 2007 to 2011. Proposed scope of work will not have an effect on the safety and operations related to this exception request.

Cost of Using Policy Value	Cost of Using Proposed Exception Value
$115,000.00	$45,000.00

Impacts Other Than Cost. of Using Policy Value

Impacts to residential and commerical properties on the north and south sides of Sand Lake Road.

Proposed Mitigation To Address Exception

None

Geometric Compatibility with Adjacent Sections

Compatible. The horizontal alignment ties into the existing horizontal alignment and does not bring a lane drop taper through an intersection.

Potential Effects On Other Design Elements

None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

The proposed lane drop is buried to the first residential street, per MUCTD design with deficient distance from the east leg stop bar.

Coordination Meeting Date	Prepared By	Date
08/09/2016	Matt Huffman (CBBEL)	08/09/2016

PAVEMENT/RESURFACING EXCEPTIONS

☐ New Pavement ☐ Pavement Widening ☐ Resurfacing

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

Design Element Policy Value	Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value	Cost of Using Proposed Element Value

Summary of Justification

Prepared By	Date

APPROVAL/DISAPPROVAL

BDE Approval Date	BDE Disapproval Date
08/09/2016	

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)

Illinois Department of Transportation

Design Exception Request Project Identification

Route	Street	Marked	Contract #	State Job #
FAU Route 344		US Route 45		P-91-388-10

Section	County	Municipality
	Lake	Village of Lindenhurst

Local Agency	LRS Section #	Permit Applicant	Permit #

Project Limits

U.S. Route 45 from IL Route 132 to north of Country Place

Project Length

1.94 miles (10,262 ft)

FHWA Oversight? ☐ Yes ☒ No

Estimate of Cost	Functional Classification	Design Yr	Design Traffic		Current Posted Speed
17,000,000	Minor Arterial	2040	ADT 17,000	DHV 1,785 (PM)	45 MPH

On the NHS System?	Structure Numbers	Type of Project (Construction, Reconstruction, 3R, HES. etc)
☒ Yes ☐ No		Reconstruction

Brief Project Description

Reconstruction and widening of U.S. Route 45 from IL Route 45 to just north of Country Place, where U.S. Route 45 will tie into the previously approved Millburn Bypass. Some of the improvement is using existing right-of-way and some is on new alignment.

EXCEPTION DOCUMENTATION

Level of Exception ☐ **Interstate** ☒ **Non-Interstate**

Design Element for Which an Exception is Requested

Profile Approaching Major Road

Design Element Policy Value

Side roads drain away from mainline at 1-2% for 50' to 100' before intersection (BDE 36-1.06(a))

Proposed Design Element Value

Side road draining away from mainline at 1% grade for 0'

Location(s) of Exception

West leg of intersection of Sand Lake Road and U.S. Route 45

Account History and Potential of Exception Location(s)

69 total crashes occurred at the intersection of Sand Lake Road and U.S. Route 45 between 2007 and 2011. 16 of the crashes resulted in injuries. This location was not a 5% location for 2007 to 2011. Proposed scope of work will not have an effect on the safety and operations related to this exception request.

Cost of Using Policy Value	Cost of Using Proposed Exception Value
$250,000.00	$100,000.00

Impacts Other Than Cost. of Using Policy Value

Impacts to residential and commercial buildings on the north and south sides of Sand Lake Road.

Proposed Mitigation To Address Exception

None

Geometric Compatibility with Adjacent Sections

Compatible. The profile ties in with the intersection on the east and the existing profile on the west without impacting any existing buildings.

Potential Effects On Other Design Elements

None

Potential Impacts on Mobility or Traffic Operations

None

Summary of Justification for Exception

The existing profile of Sand Lake Road is sloped towards the intersection with U.S. Route 45. To meet the required grade and distance from the intersection, the roadway profile would be lowered, resulting in a wider cut section and impacts to surrounding properties wth regards to access. As a result, retaining walls would likely be required to limit impacts. The proposed profile provides a small segment to drain away from U.S. Route 45.

Coordination Meeting Date	Prepared By	Date
08/09/2016	Matt Huffman (CBBEL)	08/09/2016

PAVEMENT/RESURFACING EXCEPTIONS

☐ **New Pavement** ☐ **Pavement Widening** ☐ **Resurfacing**

Design Period/ Expected Service Life	Design Year	Structural Design Traffic	%PV	%SU	%MU

Design Element Policy Value	Proposed Design Element Value

Location(s) of Exception

Cost of Using Policy Value	Cost of Using Proposed Element Value

Summary of Justification

Prepared By	Date

APPROVAL/DISAPPROVAL

BDE Approval Date	BDE Disapproval Date
08/09/2016	

BDE Comments on Disapproval

FHWA Approval Date (Interstate Only)	FHWA Disapproval Date (Interstate Only)