Illinois Department of Transportation
2300 South Dirksen Parkway / Springfield, Illinois / 62764

April 19th, 2019

**CIRCULAR LETTER 2019-08**

**FY 2021 LOCAL HIGHWAY SAFETY IMPROVEMENT PROGRAM**

COUNTY ENGINEERS / SUPERINTENDENTS OF HIGHWAYS
MUNICIPAL ENGINEERS / PUBLIC WORKS DIRECTORS / MAYORS
METROPOLITAN PLANNING ORGANIZATIONS – DIRECTORS
TOWNSHIP HIGHWAY COMMISSIONERS
CONSULTING ENGINEERS

The Illinois Department of Transportation is requesting candidate projects for the Highway Safety Improvement Program (HSIP) that will be initiated in FY 2021. Applications for this funding program will be received through Friday, June 14th, 2019, and announcement of the selected projects for funding will be made by August 30th 2019.

HSIP has a goal of achieving a significant reduction in traffic fatalities and serious injuries on all public roads. Fatal and serious injury crashes associated with roadway departure, intersections, and pedestrians are high priority emphasis areas based on the current Illinois Strategic Highway Safety Plan.

Strong consideration will be given to specific safety strategies that offer significant benefit to the reduction of fatal and serious injury crashes. The key is to identify the issue(s) contributing to the fatal and serious injury crashes and how the safety strategy will address these issues. Please note if the roadway(s) you are improving is a rural major collector, rural minor collector, or rural local roads, they will potentially qualify as a High Risk Rural Road (HRRR) project and are encouraged to be submitted. Please contact your applicable IDOT District Local Roads and Streets office for further assistance and to coordinate HSIP applications.

HSIP funds may also be used for system-wide, systemic, safety improvements. These may include items such as signage, pavement markings, rumble strips, chevrons, guardrail improvements / upgrades, guardrail end terminal upgrades, etc. FHWA also provides guidance on systemic approach which can be found here. The funding limitation on guardrail improvements / upgrades and guardrail end treatments will be a maximum of $1,000,000 of federal HSIP funds (plus the ten (10) percent local match) per local public agency per fiscal year. Please note that more effective countermeasures other than guardrails are preferred and will be favorably considered.

Projects with a benefit to cost ratio less than one **(B/C < 1)** may be submitted for consideration. These may be project locations that do not have a fatal crash, but the crash data would support the likelihood of a future fatal or serious injury crash. The project narrative should be used in these cases to explain the proactive countermeasures that will be used at the project location.

The Department intends to add a FY 2021 local increment to the HSIP when we develop the FY2021- 2026 proposed Multi-Year Highway Improvement Program.

The anticipated funding level is approximately $15 million for FY 2021. The federal funding level per project is a maximum 90 percent of the total eligible improvement cost for the project with the local public agency responsible for the ten (10) percent matching funds and any non-participating items. All phases of a safety improvement project are eligible for this program, including preliminary engineering, design, construction and construction engineering. Right-of-way costs are typically not eligible to be covered by this funding program. Local public agencies shall obligate these funds within two (2) years of the fiscal year for which they are announced, or funds will be rescinded.

HSIP funds may be used for a total reconstruction or also to address safety issues without completely reconstructing entire roadway segments or intersections to the latest policies and standards. Several resources have been developed to aid local public agencies in identifying locations and emphasis areas. These include county emphasis area tables, heat maps, data trees, pedestrian corridors, top 50 curves, and the 2017 Local Safety Tier List. These resources should be used to develop your HSIP application.

Please also note the usefulness of the Safety Tiers. The Safety Tiers are broken out in different categories such as Critical/5%, High, Medium, Low and Minimal for both intersection and segment locations. Safety Tiers allow transportation officials to understand relative performance of a location compared to similar types of roadways or intersections. For example, a rural 2-lane roadway segment would be compared to other similar types of rural 2-lane roadways statewide and would not be compared to an urban multi-lane facility. The Safety Tiers allow more locations to be identified and analyzed for similar roadway features and potential crash trends. Attached is the memorandum entitled "*Guidelines for Local Agencies in Using the 2017 Local System Safety Tier Analysis Results*."

The local HSIP application form is attached along with the benefit to cost ratio spreadsheet. Each candidate project must have a completed application form, benefit to cost ratio form, raw crash data in an Excel spreadsheet, project location map, photographs of the project location, estimated project cost breakdown (including contingencies and non-participating items), estimated project timeline, and a project narrative describing the details of the project.

The project narrative should be a brief one to two page summary of the project history, crash locations, and desired safety improvements. The project narrative should not include information on every aspect of every crash on the project, every aspect of the desired improvement, or letters of support from other entities concerned about the project.

The application form should be completed with as much information as possible about the subject project. The crash table should be completely filled in with crash totals or zeros if no crash types were present. The estimated project cost should be the total cost for the completed project. If a lesser amount should be used to calculate the HSIP funding (due to contingencies and non-participating items), please indicate this reduced amount on the application form.

The project location map should include information as to where all crashes occurred within the project limits during the crash evaluation period. The estimated project timeline should include information on time requirements for Phase I engineering, Phase II design, a target letting date, and an estimated construction completion date.

To aid in the application process, an example of a concise, successfully completed application is attached. Please refer to this example as you complete the paperwork required for the FY 2021 HSIP application.

In addition, under the Grant Accountability and Transparency Act (GATA), each candidate project must also complete the Uniform Application for State Grant Assistance, a Uniform Grant Budget Template, a Programmatic Risk Assessment Questionnaire, and a Conflict of Interest Form which are also attached.

The Illinois Department of Transportation (IDOT) provided a Notice of Funding Opportunity (NOFO ) on April 19, 2019. The Funding Opportunity Number is 21-1004-01. This program is listed in the Catalog of State Financial Assistance (CSFA) as 494-00-1004.

The HSIP website contains additional information on the IDOT HSIP Policy and analysis tools which may be used to guide the applicant through the application process.

In summary, each candidate application submittal should contain the following information:

1. BSPE HS1 – Application form
2. Benefit to Cost Ratio form
3. Raw crash data in Excel spreadsheet
4. Project location map
5. Project photographs
6. Estimated project cost breakdown
7. Project timeline
8. Project narrative
9. Uniform Application for State Grant Assistance
10. Uniform Grant Budget Template
11. Programmatic Risk Assessment Questionnaire
12. Conflict of Interest Form

Completed applications should be sent electronically to the appropriate District Local Roads and Streets Engineer by Friday June 14th, 2019. Questions concerning the Local HSIP may be directed to Mr. Stephane B. Seck-Birhame, Local Program Development Engineer, by telephone at (217) 782-3972 or by email at Bablibile.Seck@illinois.gov

Sincerely,

Stephane B. Seck-Birhame, P.E., PTOE
Acting Engineer of Local Roads and Streets

SSB/
Attachments

cc: Alan Ho, FHWA – Illinois Division
Paul Loete, Chief Engineer, IDOT Highway Project Implementation
Cindy Watters, IDOT Bureau of Safety Programs and Engineering
Mike Pedigo, Illinois Association of County Engineers
Brad Cole, Illinois Municipal League
Bryan Smith, Township Officials of Illinois
Charlie Montgomery, Township Highway Commissioners of Illinois

Illinois Department of Transportation

# HSIP Candidate Form

**FY**

| | | | |
|---|---|---|---|
| **ID:** | **Contract:** | **Award Date:** | **Completion Date:** |
| **District:** | **County:** | | **City:** |
| **Key route:** | **Marked route:** | | |
| **Road Name:** | **Intersecting Roadway:** N/A ☐ | | |
| **Length:** ☐ N/A | | **Mile station:** to | |

**Location Description:**

| | | | |
|---|---|---|---|
| ☐ **Rural** | ☐ **Urban** | **Lanes:** | |
| **AADT(Segment):** | **Total Entering AADT (Intersection):** | | **Speed Limit:** mph |
| **Friction Test Results:** | ☐ N/A | **Lighting Present:** ☐ Y ☐ N | |

**CHSP Emphasis Area(s):** ☐ District Documentation ☐ Systematic Improvements ☐ N/A

**Peer Group:** ☐ N/A

**Other:**

**Crashes Details**

| Year | Total Crashes | Fatal Crashes | Fatalities | A-Injury Crashes | A-Injuries | B-Injury Crashes | B-Injuries | C-Injury Crashes | C-Injuries | PDO | Wet-Weather Crashes | Darkness (Not lighted) Crashes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| **Total** | | | | | | | | | | | | |

**Location Description:**

**Problem Description:**

**Previous Safety Improvements:**

**Collision Diagram:** ☐ Y ☐ N **Images:** ☐ Y ☐ N

**Predominant Crash Types:**

**Proposed Improvement(s):**

**Estimated Project Cost ($000's):** $ **Benefit-Cost Ratio:**

**Local Projects:**

**Annual Fatal Crash Rate (Fatal Crashes/100 Miles):** **Annual A-Injury Crash Rate (A-Injury Crashes/100 Miles):**

**Local Roads Rural Functional Class:**

**Approved:** **Central HSIP Approval Date:**

**Signed:**
**State Safety Engineer**

**Funding:** ☐ HSIP ☐ HRRR ☐ RAIL

**Comment:**

**Distribution:** ☐ OPP ☐ District ☐ BSPE ☐ LRS ☐ BDE

TECHNICAL MEMORANDUM

# Guidelines for Local Agencies in Using the 2017 Local System Safety Tier Analysis Results

| | |
|---|---|
| PREPARED FOR: | Illinois Department of Transportation, Bureau of Safety Programs and Engineering |
| PREPARED BY: | CH2M HILL, Inc. (CH2M) |
| DATE: | January 19, 2018 |

## 1.0 Introduction

The Illinois Department of Transportation (IDOT) conducted a safety tier analysis for the local system in 2017, and assigned the safety road index (SRI) for roadway segments and intersections. The local system safety tier analysis focuses on segments under the jurisdiction of county, township, municipality, or private sector, and the intersected points between them. The safety tier categorizes roadway segments and intersections into different SRIs based on their potential for safety improvements, providing a rating for relative comparison. The safety tier analysis results can help local agencies incorporate safety into their transportation management process and be used to identify locations for safety improvements. The 2017 local system safety tier analysis results are provided in the following file formats:

- Microsoft Excel file for all local intersections
- Microsoft Excel file for local intersections with critical SRI ratings
- Microsoft Excel file for all local segments
- Microsoft Excel file for local segments with critical SRI ratings
- Microsoft Access file for all local intersections and local intersections with critical SRI ratings
- Microsoft Access file for all local segments and local segments with critical SRI ratings
- PDF files of maps by county for all local intersections
- PDF files of maps by county for all local segments
- KMZ file for local intersections with critical, high, and medium SRI ratings
- KMZ file for local segments with critical, high, and medium SRI ratings

The technical memorandum summarizes the local system safety tier analysis results provided in the above-listed files, and presents guidelines for local agencies on how to use the safety tier analysis results.

## 2.0 Safety Tier Analysis Results

The local system safety tier analysis results are provided as Microsoft Excel files, Microsoft Access files, PDF maps, and KMZ files for diversified application scenarios and personalized users. The following subsections summarize results provided by the different files, as well as instructions for using the analysis results.

### 2.1 Safety Tier Analysis Results in Microsoft Excel Files

The Microsoft Excel files provide the safety tier analysis results for local intersections and segments. The results are provided in separate rows for individual intersections and segments.

#### 2.1.1 Intersections

For each intersection, the following information is provided in the Microsoft Excel spreadsheet:

- Roadway inventory number and intersection mile station

- Intersection X and Y coordinates
- Major and minor road average annual daily traffic
- Major and minor road name
- Intersection peer group (both code and text)
- Intersection number of legs
- County (both text and code) and IDOT district where the intersection is located
- Intersection SRI rating
- Intersection ID and SRI flag (only for intersections with critical SRI ratings)
- Intersection K (fatal) and KAB (fatal, incapacitating, and non-incapacitating) crash rate (per hundred million equivalent vehicles)
- Intersection weighted potential for safety improvements (PSI)
- Number of K, A (incapacitating), B (non-incapacitating), KAB and KA (fatal and incapacitating) crashes
- Number of KAB crashes by collision type, emphasis area, and surface condition at time of crashes

The SRI for local segments and intersections is categorized by peer group into critical, high, medium, low, or minimal, based on their PSI from high to low, where “critical” means the location has the highest potential for safety improvements, and “minimal” indicates the location is less likely to have safety benefits from treatments. Figure 2-1 is a screenshot of the safety tier analysis results for local intersections in the Microsoft Excel spreadsheet. Each row represents the analysis results for each local intersection. The same information is also provided for local intersections with critical SRI ratings in a separate Microsoft Excel file.

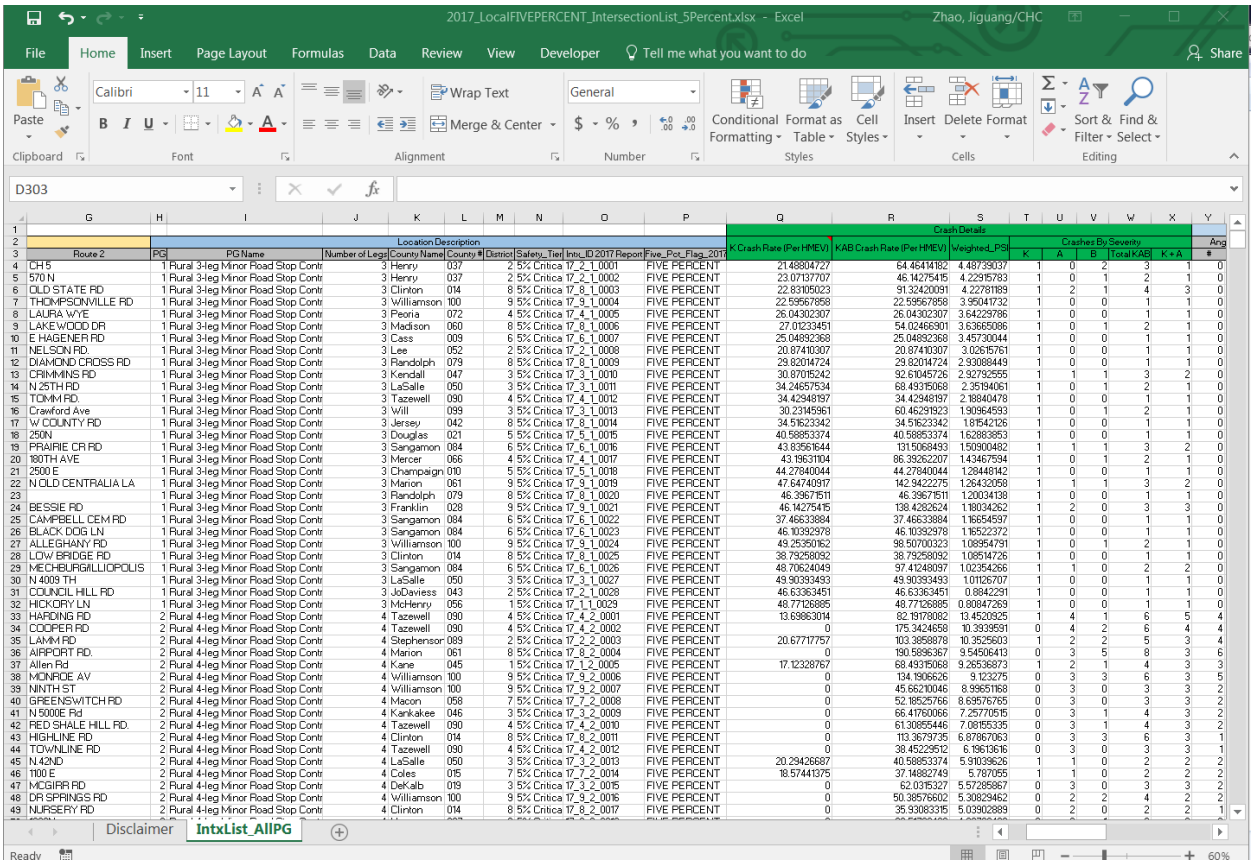



Figure 2-1. Screenshot of Safety Tier Analysis Results for Local Intersections in the Microsoft Excel Spreadsheet

### 2.1.2 Segments

The following information is provided for local segments in the Microsoft Excel spreadsheet:

- Roadway inventory number
- Roadway segment beginning and ending station
- Segment length
- Annual vehicle mileage travelled (VMT)
- Segment peer group (both text and code)
- County (both text and code) and IDOT district where the segment is located
- Road name
- Segment SRI rating
- Segment ID and SRI flag (only for segments with critical SRI ratings)
- K (per hundred million VMT) and KAB (per million VMT) crash rates
- Roadway segment weighted PSI
- Number of K, A, B, KAB, and KA crashes
- Number of KAB crashes by collision type, emphasis area, and surface condition at time of crashes

Figure 2-2 is a screenshot of safety tier analysis results for local segments in the Microsoft Excel spreadsheet. Each row represents the analysis results for one local segment. It should be mentioned that the safety tier analysis results are presented for the sliding windows created in the safety tier analysis, not the original roadway segments in the Illinois Roadway Information Systems database. Users interested in the sliding window analysis can refer to the IDOT technical memorandum *Network Screening Analysis for the Illinois Local Roadways (Local Safety Tier Process)* for more details. The same information is also provided for local segments with critical SRI ratings in a separate Microsoft Excel file.

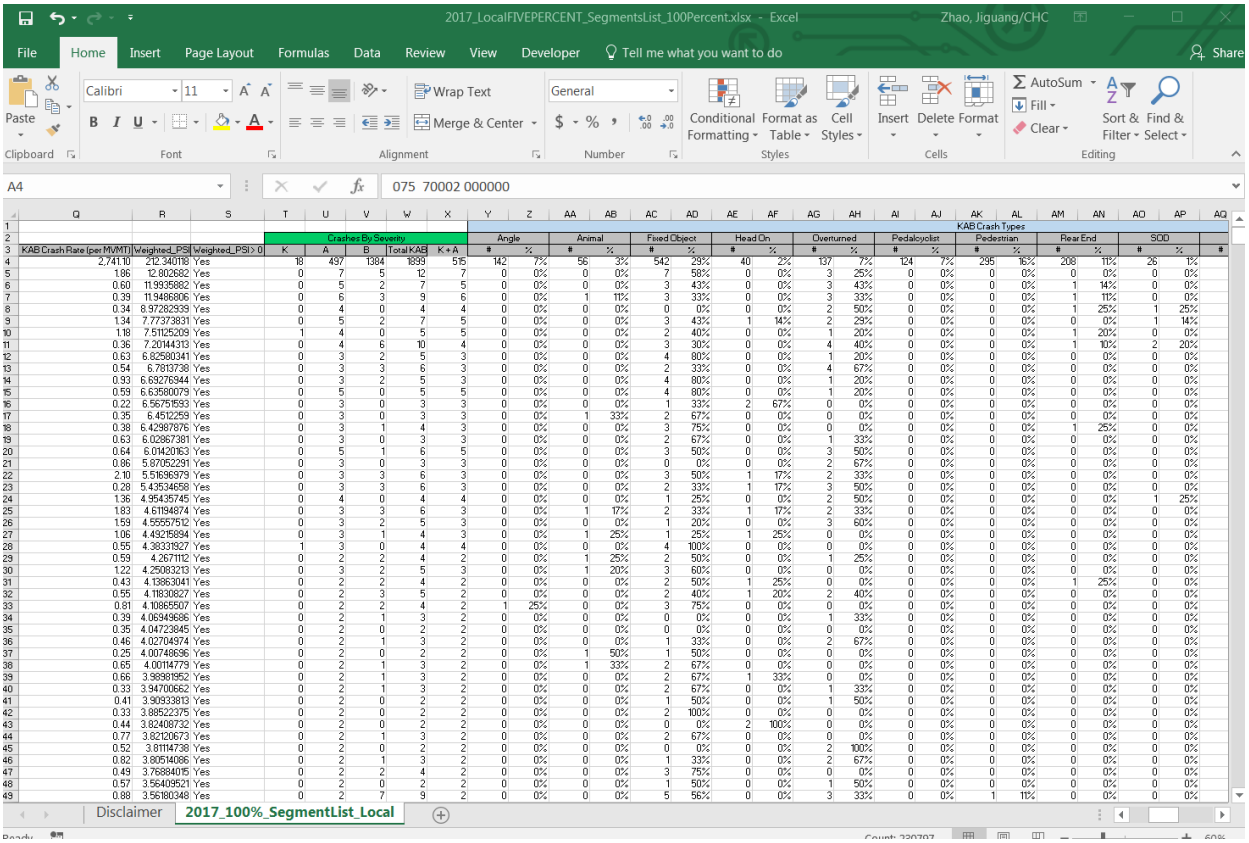



Figure 2-2. Screenshot of Safety Tier Analysis Results for Local Segments in the Microsoft Excel Spreadsheet

## 2.2 Safety Tier Analysis Results in Microsoft Access Files

The Microsoft Access files also provide the safety tier analysis results for local intersections and segments. The data items provided by the Microsoft Access files are the same items as in the Microsoft Excel spreadsheets. The benefit of Microsoft Access file is that geographic information for roadway segments and intersections can also be provided so that users can easily identify the roadway locations in a geographic information system (GIS) environment. Accordingly, a GIS platform (usually ArcGIS 10 or higher version) is required for reviewing the analysis results.

### 2.2.1 Intersections

Figure 2-3 is a screenshot of the safety tier analysis results for local intersections in a GIS environment. Users can find the safety tier analysis results for all local intersections in the corresponding attribute table, and they can even zoom to any intersections by clicking on the related row in that table. Two attribute tables are included in the Microsoft Access file, one for all local intersections and the other for local intersections with critical SRI ratings.

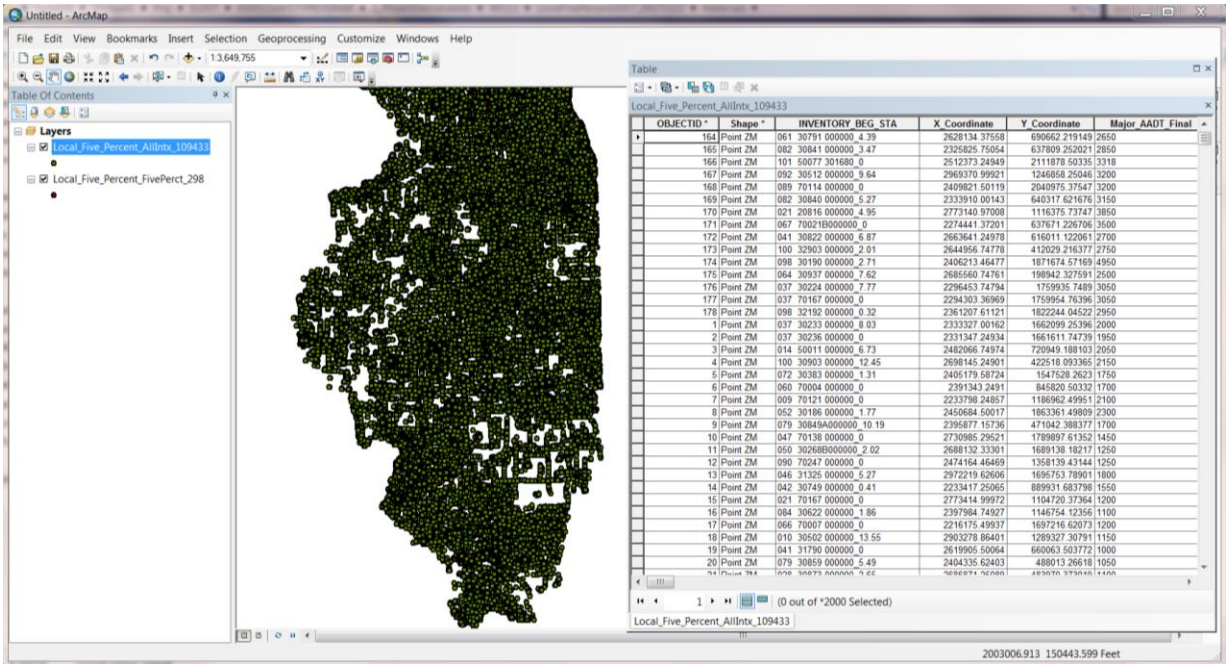



Figure 2-3. Screenshot of the Safety Tier Analysis Results for Local Intersections in the GIS Environment

### 2.2.2 Segments

Figure 2-4 is a screenshot of the safety tier analysis results for local segments in the GIS environment. As with local intersections, users can check the safety tier analysis results for all local segments in the attribute table. Again, two attribute tables are included in the Microsoft Access file, one for all local segments and the other for local segments with critical SRI ratings.

## 2.3 Safety Tier Analysis Results in KMZ Files

Many state and local agencies still do not have access to a GIS platform or are not experienced in applying the tool in their engineering practices. The provided KMZ files allow users to locate the local segments and intersections outside of a GIS platform. Google Earth is required to open the KMZ files.

### 2.3.1 Intersections

For file size limitation, only intersections with critical, high, and medium SRI ratings are included in the KMZ file. In the KMZ file, users are directed to the intersection after clicking the intersection ID on the left side. The detailed intersection safety tier information is visible in a pop-up view, as shown in

Figure 2-5. For convenience, users can place their cursors on the file name in the list on the left side of the screen, and sort the list from A to Z, to more easily locate the intersection under investigation.

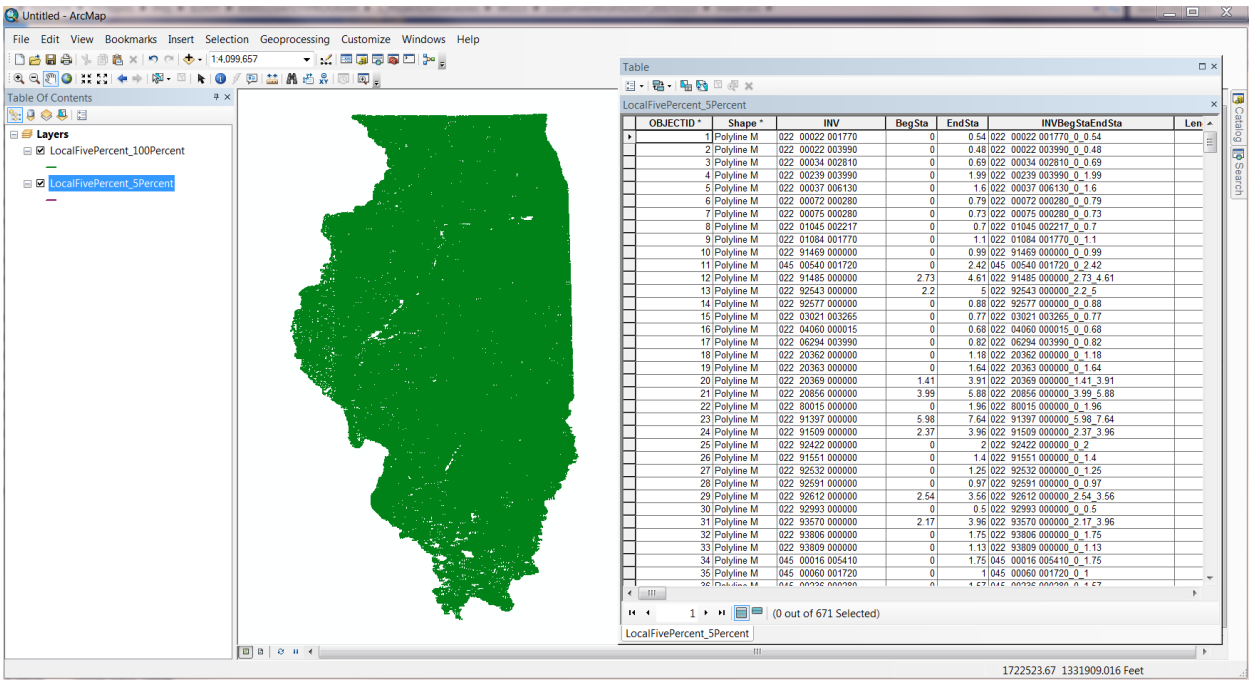



Figure 2-4. Screenshot of the Safety Tier Analysis Results for Local Segments in the GIS Environment

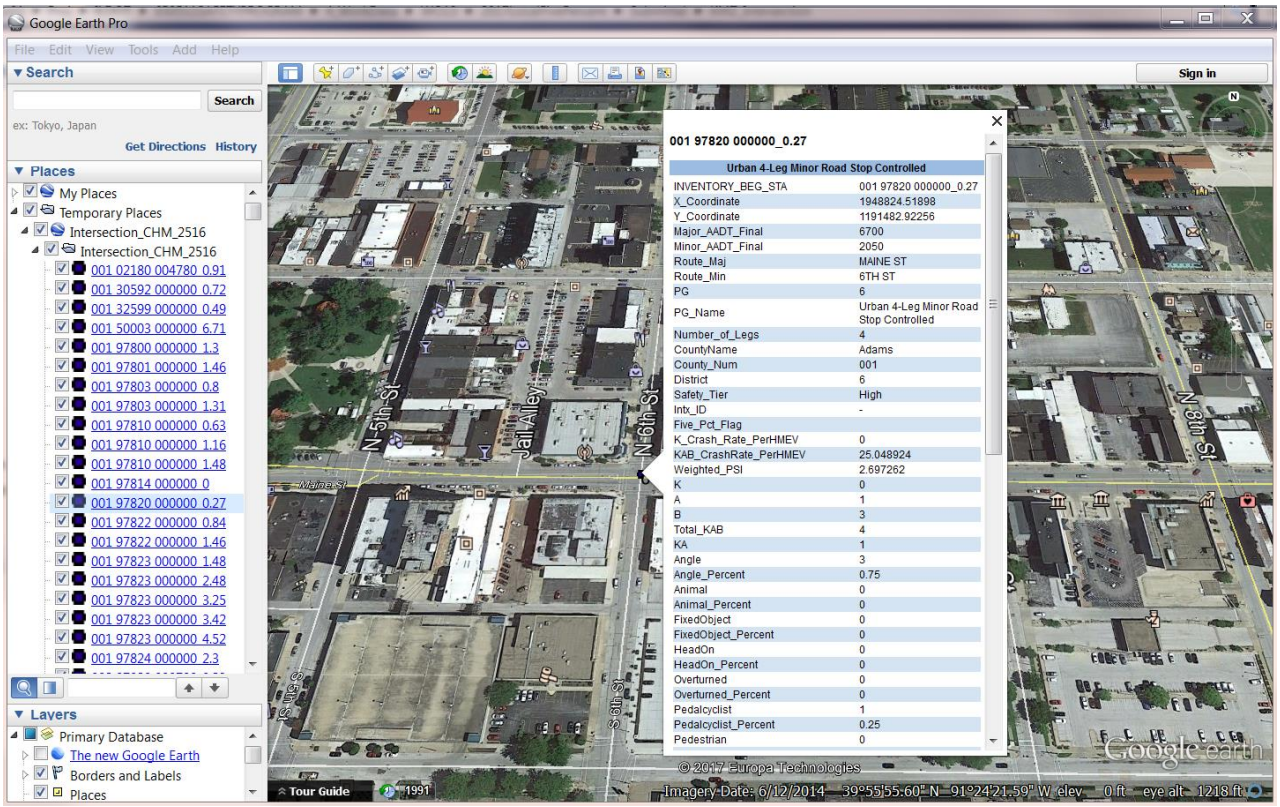



Figure 2-5. Screenshot of the Safety Tier Analysis Results for Local Intersections in KMZ File

### 2.3.2 Segments

Figure 2-6 is a screenshot of the safety tier analysis results for local segments in KMZ File. As a result of file size limitations, only segments with critical, high, and medium SRI ratings are included in the KMZ file. The KMZ file can help users locate the roadway segments and check relevant information. The data items shown alongside the segment are identical to the data items in the Microsoft Access file.

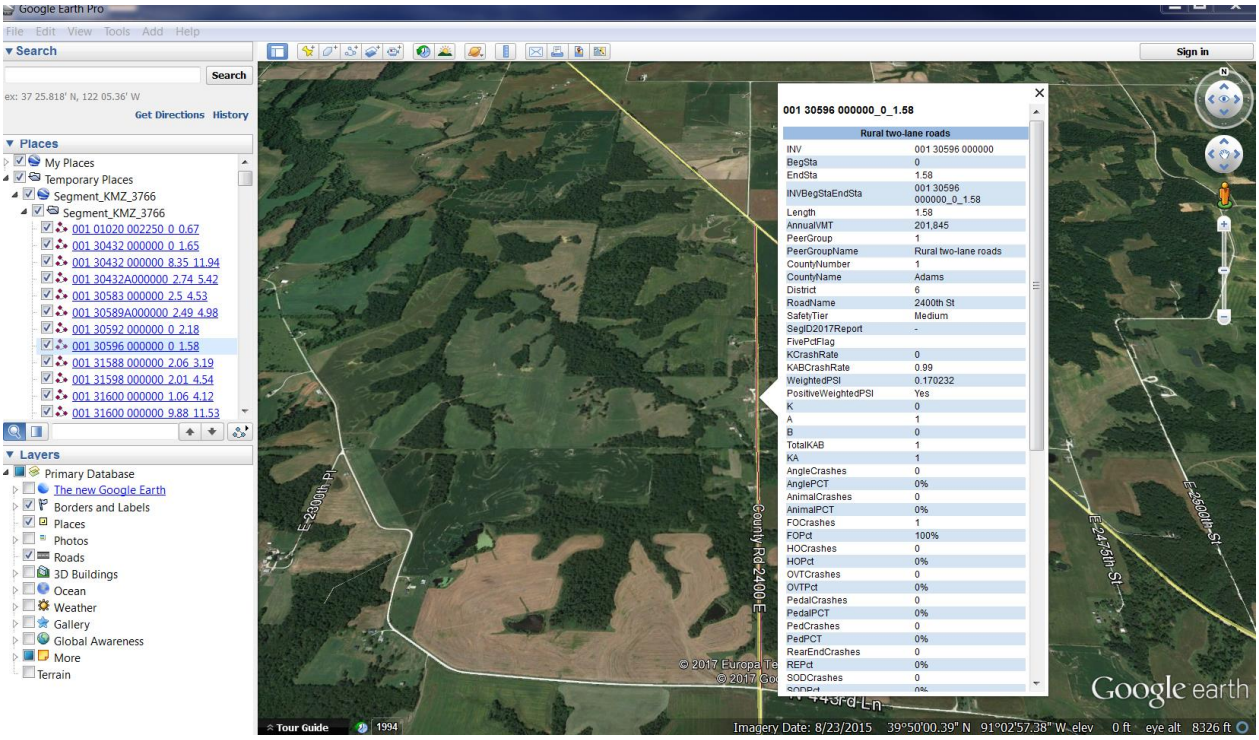



Figure 2-6. Screenshot of the Safety Tier Analysis Results for Local Segments in KMZ File

## 2.4 Safety Tier Analysis Results on Maps

To help local agencies use the local system safety tier analysis results, maps are created by county in ArcGIS and printed into PDF files. Two maps are created for each county, one for segments and the other for intersections. In each map, the local segments and intersections are color-coded by their safety tier, and major state routes are plotted on the map for reference. Specifically, IDs are provided for all locations with critical SRI ratings and printed in red. Local agencies can use the map to evaluate the safety performance of all facilities within their jurisdictions and pinpoint the locations with potential for safety improvements.

### 2.4.1 Intersections

Figure 2-7 is a screenshot of the safety tier analysis results map for local intersections in one county. It should be pointed out that the map is selected for illustration purpose only and does not necessarily indicate any safety concerns for that county. In the map, intersections with different SRI ratings are coded in different colors and point sizes. Specifically, intersections with critical SRI ratings are coded with big red points, and intersection IDs are printed alongside the intersections.

For the selected county, the SRI rating is “minimal” for the majority intersections. The traffic control information for many points is not available or the points are not intersections; therefore, those points are not included in the local intersection safety tier analysis. For those intersections, no SRI ratings are provided.

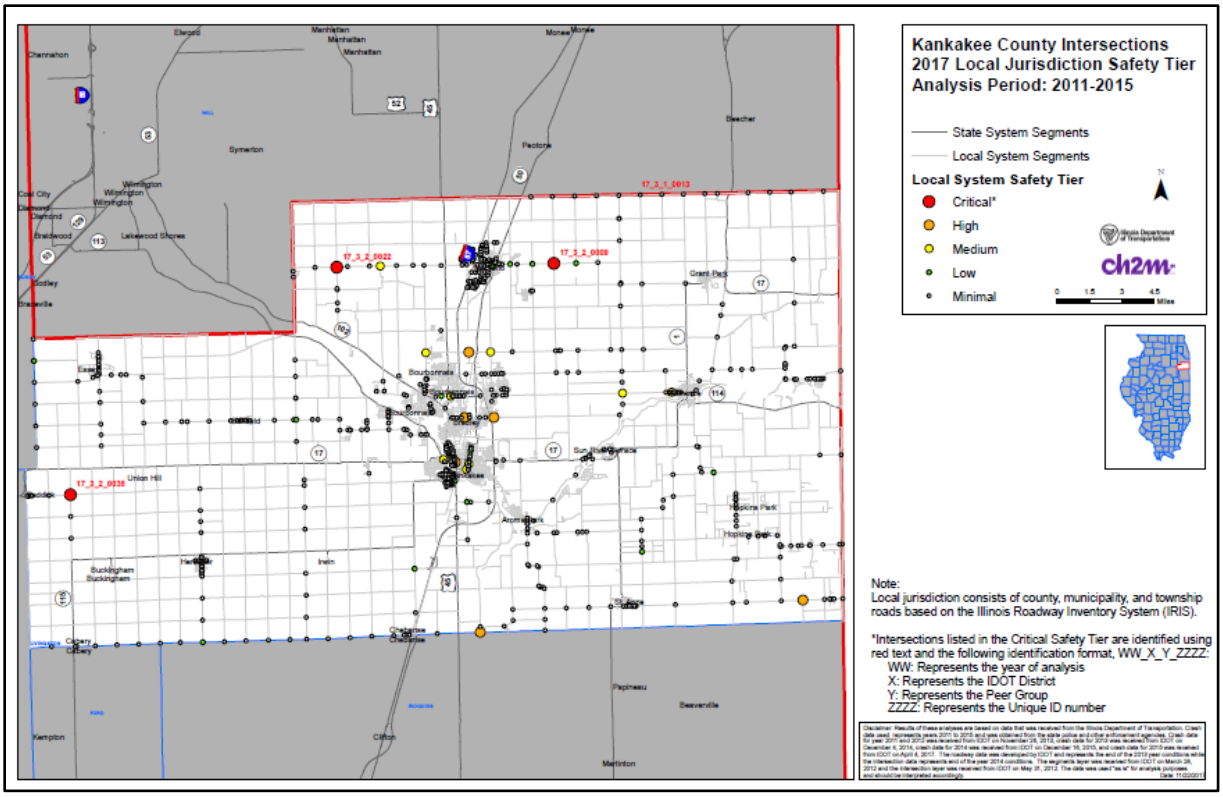



Figure2-7. Screenshot of the Safety Tier Analysis Results for Local Intersections in PDF Map

### 2.4.2 Segments

Figure 2-8 is a screenshot of the safety tier analysis results map for local segments in one county.

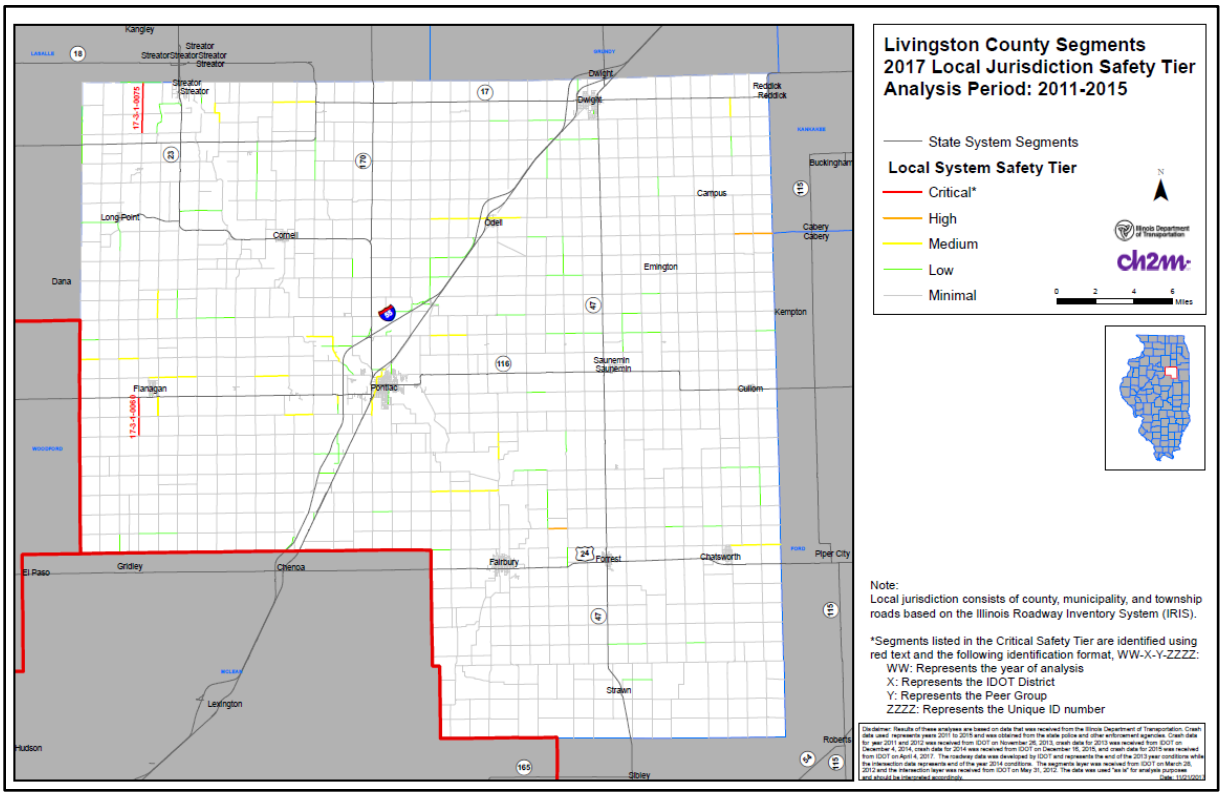



Figure 2-8. Screenshot of the Safety Tier Analysis Results for Local Segments in PDF Map

As with local intersections, roadway segments with different SRI ratings are coded in different colors. Local agencies can use the map to evaluate safety concerns within their jurisdiction and identify projects for safety improvement.

## 3.0 Guidelines for Local Agencies in Using the Analysis Results

IDOT provided local safety tier analysis result data in a number of document formats. Local agencies are encouraged to use the quantitative safety performance in their transportation project planning and programming process. The following guidelines are intended to facilitate local agency access to and use of results:

1. **Apply the analysis results to prioritize safety improvement projects.** The total number of intersections and overall mileage of segments for local system are high; therefore, the safety funding cannot address or alleviate the safety concerns for all of them. Local agencies can prioritize the locations for safety improvements based on the location's SRI rating and focus on those locations with high potential for safety improvements (specifically those locations with a critical SRI rating).
2. **Double-check roadway geometric, traffic control, and other data**. The local system safety tier analysis was conducted based on the data provided by IDOT. Numerous efforts have been endeavored to enhance accuracy of the analysis results. However, because sample sizes are very large, it is possible that some errors exist within the data and on the maps. As candidate safety improvement projects are identified by local agencies, they are encouraged to double-check peer group classifications, geometric features, and other aspects of the data. Please notify the IDOT Bureau of Safety Programs and Engineering (BSPE) if substantial concerns are identified with the data.
3. **Identify safety improvement projects with systemic approach**. Local segments with critical or high SRI ratings are sometimes short and sparsely distributed along a corridor. Under such circumstances, local agencies can apply the systemic approach to identify projects for safety improvements. The IDOT guideline *Systemic Safety Improvements: Analysis, Guidelines and Procedures* (2014) can be referred for more details.
4. **Use the analysis results to identify high risk rural roads.** A high-risk rural road (HRRR) is defined as any roadway functionally classified as a rural major or minor collector, or a rural local road with significant safety risks. Local agencies can use the local safety tier analysis results to identify HRRR locations for funding through the HRRR program.
5. **Refer to results from other safety analysis tool**. IDOT has developed a series of tools, such as Safety Portal, Data Trees, Heat Maps, Emphasis Area Tables and Top 50 Curves, to implement a data-driven roadway safety-management process in Illinois. Local agencies are recommended to check results from these tools and other references when using the local safety tier analysis results in the HSIP application.
6. **Conduct project-level safety analysis for short-list locations**. The local safety tier analysis assigned SRI ratings for segments and intersections. To maximize benefits for safety dollars, it is suggested that local agencies prioritize their investment on locations with critical or high SRI ratings. For the short-list locations with high potential for safety improvements, it is suggested that local agencies conduct project-level safety analysis to identify the crash-contributing factors and propose appropriate countermeasures for alleviating safety concerns. Local agencies can apply tools, such as the IDOT HSM Crash Prediction Tool and Benefit/Cost Tool that IDOT developed previously for the project-level safety analysis.
7. **Update the HSIP status in the response form.** IDOT has developed the "Local System Safety Tier Response Form" to track the HSIP status of locations with critical SRI ratings. It is suggested that

local agencies update the location's HSIP status and return the results back to IDOT annually. The information will be used to evaluate effectiveness of HSIP projects in future.

8. **Reach out to IDOT for additional guidance**. Local agencies are encouraged to reach out to IDOT District Local Roads Engineers, District Safety Committees and BSPE for guidance on HSIP application process. Local agencies can also contact IDOT BSPE by telephone at 217-782-3568 for technical guidance on application of local system safety tier analysis results. IDOT BSPE will guide the local agencies to the appropriate resources to help resolve their technical challenges.

Jeff Denny
County Engineer

Telephone: (618) 776-5242
Fax: (618) 776-5300

*Office of County Engineer*
ALEXANDER COUNTY

26799 State Highway 3
P.O. BOX 216
Olive Branch, Illinois 62969

March 13, 2018

Mr. Jeffrey L Keirn, P.E.
Region Five Engineer/District 9
Illinois Department of Transportation
2801 West Murphysboro,
P.O. Box 100
Carbondale, IL 62903

Example Application

RE: FY 2020 Illinois HSIP Funds
Grapevine Trail (FAS 945)
Alexander County, Illinois

Dear Sir,

In reply to Circular Letter 2018-02 requesting projects for the FY 2020 Highway Safety Improvement Program, please find attached Alexander County's application for funding safety improvements on Grapevine Trail.

The proposed project consists of constructing 4-foot wide hot-mix asphalt shoulders with rumble strips, placing edgeline and centerline pavement markings, and installing chevrons on horizontal curves. There have been six crashes resulting in seven A-injuries and six crashes resulting in ten B-injuries in the last seven years. Grapevine Trail is a winding and rolling rural road through the Shawnee National Forest. On this four mile segment of road, there are seven horizontal curves with radii less than 955 feet and, of those seven, four have radii less than 637 feet. Because most of these crashes are run-off-the-road type crashes, the implementation of the proposed countermeasures will increase safety for the travelling public.

Alexander County is requesting 90% of HSIP funds for preliminary/design engineering, construction, and construction engineering. A proposed funding schedule is shown in the following table.

| | HSIP FUNDS (90%) | LOCAL FUNDS (10%) | TOTAL |
|---|---|---|---|
| Prelim/Design Engr | $22,500 | $2,500 | $25,000 |
| Construction | $495,000 | $55,000 | $550,000 |
| Construction Engr | $22,500 | $2,500 | $25,000 |
| TOTALS | $540,000 | $60,000 | $600,000 |

Included with this letter are the HSIP application form, benefit to cost analysis form, crash data summary, location map, project photographs, and GATA forms.

Thank you for the opportunity to apply for these funds. I believe that these countermeasures will significantly improve the safety of this segment of roadway. If you have any questions or need any additional information, please feel free to contact me at (618) 776-5242.
Sincerely,

Jeff Denny, P.E.
Alexander County Engineer

Enclosures

Illinois Department of Transportation

# HSIP Candidate Form

**FY 2020**

| | | | |
|---|---|---|---|
| **ID:** | **Contract:** | **Award Date:** | **Completion Date:** |
| **District:** 9 | **County:** Alexander | | **City:** |
| **Key route:** | **Marked route:** FAS 945 | | |
| **Road Name:** Grapevine Trail | **Intersecting Roadway:** N/A | | ☐ |
| **Length:** 4 miles | ☐ N/A | | **Mile station:** 0 to 211.2 |

**Location Description:** From just east of Mill Creek/Delta Road at SN 002-3007 west 4 miles

| | | | |
|---|---|---|---|
| ☒ **Rural** | ☐ **Urban** | **Lanes:** 2 | |
| **AADT(Segment):** 1260 | **Total Entering AADT (Intersection):** | | **Speed Limit:** 55 mph |
| **Friction Test Results:** | ☒ N/A | **Lighting Present:** ☐ Y ☐ N | |

**CHSP Emphasis Area(s):** ☐ District Documentation ☐ Systematic Improvements ☐ N/A

**Peer Group:** 4- Rural AADT 1,001-2,500 / two lanes ☐ N/A

**Other:**

**Crashes Details**

| Year | Total Crashes | Fatal Crashes | Fatalities | A-Injury Crashes | A-Injuries | B-Injury Crashes | B-Injuries | C-Injury Crashes | C-Injuries | PDO | Wet-Weather Crashes | Darkness (Not lighted) Crashes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2011 | 5 | 0 | 0 | 0 | 0 | 2 | 3 | 0 | 0 | 3 | 2 | 3 |
| 2012 | 3 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 2 | 1 |
| 2013 | 2 | 0 | 0 | 1 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 1 |
| 2015 | 3 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 2016 | 5 | 0 | 0 | 1 | 2 | 1 | 2 | 0 | 0 | 3 | 3 | 0 |
| **Total** | 18 | 0 | 0 | 5 | 6 | 4 | 7 | 0 | 0 | 9 | 7 | 6 |

**Location Description:** A winding and rolling rural road through the Shawnee National Forest

**Problem Description:** Run-off-the-road crashes due to the winding and rolling road.

**Previous Safety Improvements:** None known

**Collision Diagram:** ☐ Y ☒ N **Images:** ☒ Y ☐ N

**Predominant Crash Types:** Fixed object

**Proposed Improvement(s):** Adding paved shoulder with rumble strip, pavement striping, and signing (chevrons).

**Estimated Project Cost ($000's):** $550,000 **Benefit-Cost Ratio:** 4.4

**Local Projects:**

**Annual Fatal Crash Rate (Fatal Crashes/100 Miles):** **Annual A-Injury Crash Rate (A-Injury Crashes/100 Miles):**

**Local Roads Rural Functional Class:** Major collector

**Approved:** **Central HSIP Approval Date:**

**Signed:**
**State Safety Engineer**

**Funding:** ☒ HSIP ☐ HRRR ☐ RAIL

**Comment:**

**Distribution:** ☐ OPP ☐ District ☐ BSPE ☐ LRS ☐ BDE

## PROJECT DESCRIPTION - PROJECT DATA INPUT (LOCAL SEGMENTS)

| | | | | | |
|---|---|---|---|---|---|
| *Project:* | Alexander County- Grapevine Trail | | | *Prepared by:* | Larry Piche |
| *District:* | 9 | *County:* | Alexander | *City:* | *Date* | 2/16/2018 |
| *Key Route:* | CH 4 | *Marked Route:* | FAS 945 | *MilePost:* | *Current AADT:* | 1260 |
| *Location:* | From just east of Mill Creek/Delta Road at SN 002-3007 west 4 miles | | | | | |
| | | | | | *Length (miles):* | 4.0 |
| *Crash data:* | 7 | Years | | | *Begin Station:* | 0.0 |
| | From | 2010 | to | 2016 | *End Station:* | 211.2 |
| | | | | | *Traffic Growth factor* | 3.0% |
| *Peer Group:* | Peer Group 4 - Rural AADT 1,001-2,500 / two lanes | | | | *Interest rate* | 4.0% |

| *Messages* |
|---|
| Please provide a detailed cost estimation for all countermeasures along with this summary sheet. |
| The combined effect of multiple countermeasures is limited to 0.60 or the smallest CMF |

## LOCAL SEGMENTS CRASH SEVERITY DISTRIBUTION BY CRASH TYPE FOR ANALYSIS PERIOD

| *Crash Type* | All Crashes (Aggregated crash input only) | CRASH TYPE | | | | | | | | | | | | | | | | SPECIAL CASE | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Angle | Animal | Fixed Object | Head On | Left Turn | Other Noncollision | Other Object | Overturned | Pedestrian | Pedalcyclist | Parked Vehicle | Rear End | Right Turn | Sideswipe Same Direction | Sideswipe Opposite Direction | Turning | Train | Night Time | Wet Pavement | |
| *Crash Severity* | *ALL* | *AG* | *AN* | *FO* | *HO* | *LT* | *OtherNC* | *OtherO* | *OVT* | *PD* | *PDC* | *PKV* | *RE* | *RT* | *SSD* | *SOD* | *T* | *TR* | *NGT* | *WP* | *TOT* |
| Fatal Crashes | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 |
| A-Injury Crashes | | | 1 | 2 | | | | 1 | 1 | | | | | | | 1 | | | 1 | 1 | 6 |
| B-Injury Crashes | | | 1 | 1 | 2 | | | | 2 | | | | | | | | | | 3 | 2 | 6 |
| C-Injury Crashes | | | | | | | | | | | | | | | | | | | 0 | 0 | 0 |
| PDO Crashes | | | 3 | 6 | | | | | | | | | | | | | | | 4 | 5 | 9 |

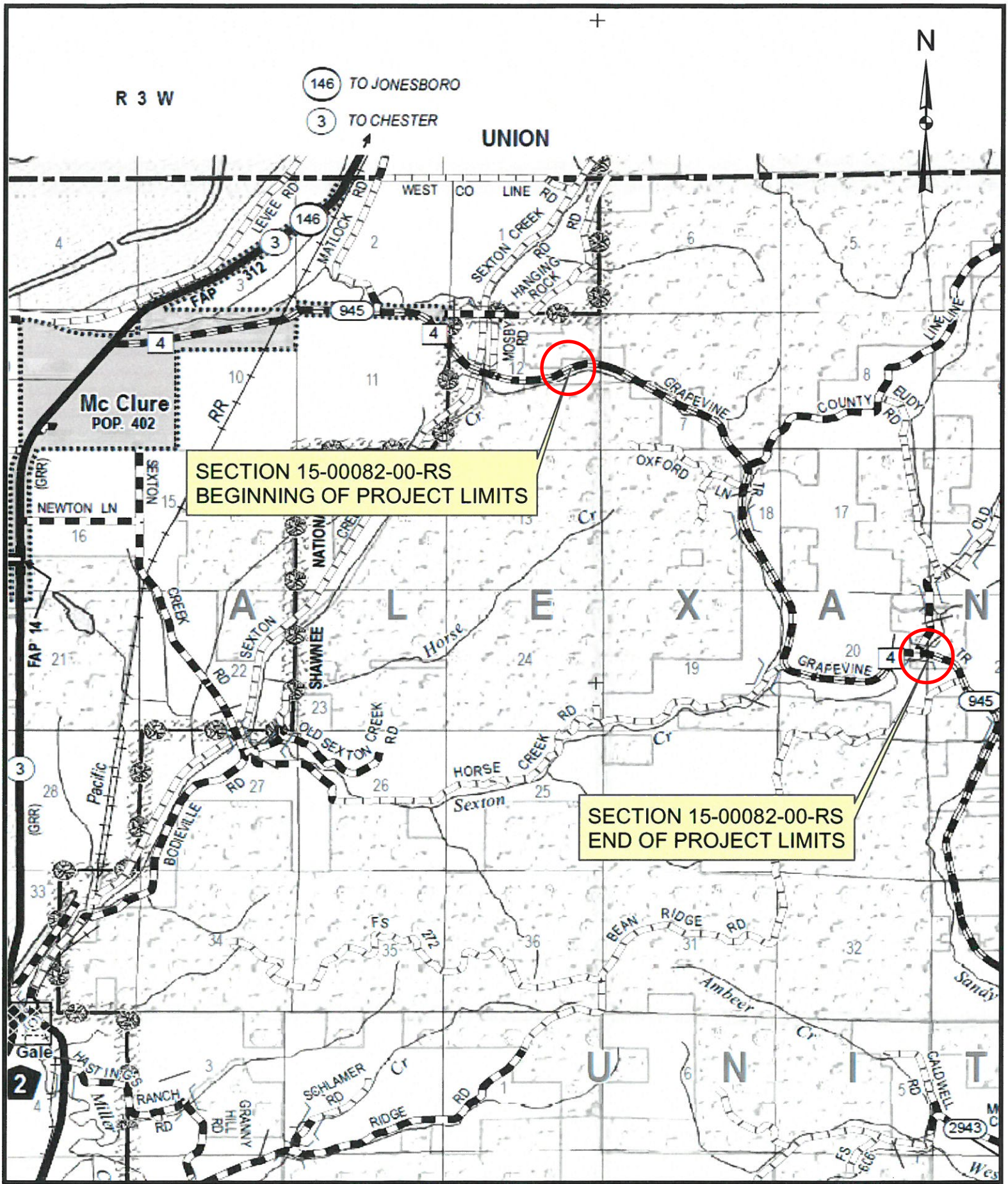
## LOCAL SEGMENTS BENEFIT COST ANALYSIS

| BENEFIT CALCULATIONS | | | | COUNTERMEASURE COST CALCULATIONS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| *COUNTERMEASURE* | *CMF ** | *Crash Type affected by this improvement* | *Unit Cost* | *Quantity* | *Units* | *Total Cost* | *Service Life* | *Present worth* | *EUAC *** |
| 4.1.3.S1.1 - Pavement Treatments - Add or Widen Paved Shoulder | 0.83 | ROR, FO, HO, OVT, SOD, SSD | $60,000 | 8 | Miles | $480,000 | 15 | $480,000 | $43,200 |
| 4.1.9.S1.1 - Pavement Treatments - Install Rumble Strips (Shoulder) | 0.67 | FO, OVT | $4,000 | 8 | Miles | $32,000 | 8 | $55,382 | $5,000 |
| 4.3.5.S1.1 - Pavement Markings - Place Edgeline and Centerline Markings | 0.76 | All | $1,250 | 8 | Miles | $10,000 | 1 | $115,632 | $10,400 |
| 4.6.7.S1.1 - Curves - Install chevron signs on horizontal curves | 0.84 | FO, HO, OtherNC, OtherO, OVT, SSD, SOD | $400 | 70 | Unit Qnty | $28,000 | 10 | $46,916 | $4,250 |
| | | | | | | | | | |
| *TOTAL BENEFIT* | *$273,800* | | *TOTAL COST* | | | | | | *$62,850* |

| | | | | | |
|---|---|---|---|---|---|
| **BENEFIT/ COST** | **4.40** | **ANNUAL NUMBER OF FATALITIES POTENTIALLY PREVENTED** | **0.00** | **TOTAL FATALITIES PREVENTED** | **0.00** |

* CMF = Crash Modification Factor

** EUAC = Estimated Uniform Annual Cost




323 W. 3RD ST.
P.O. BOX 160
MT. CARMEL, IL 62863

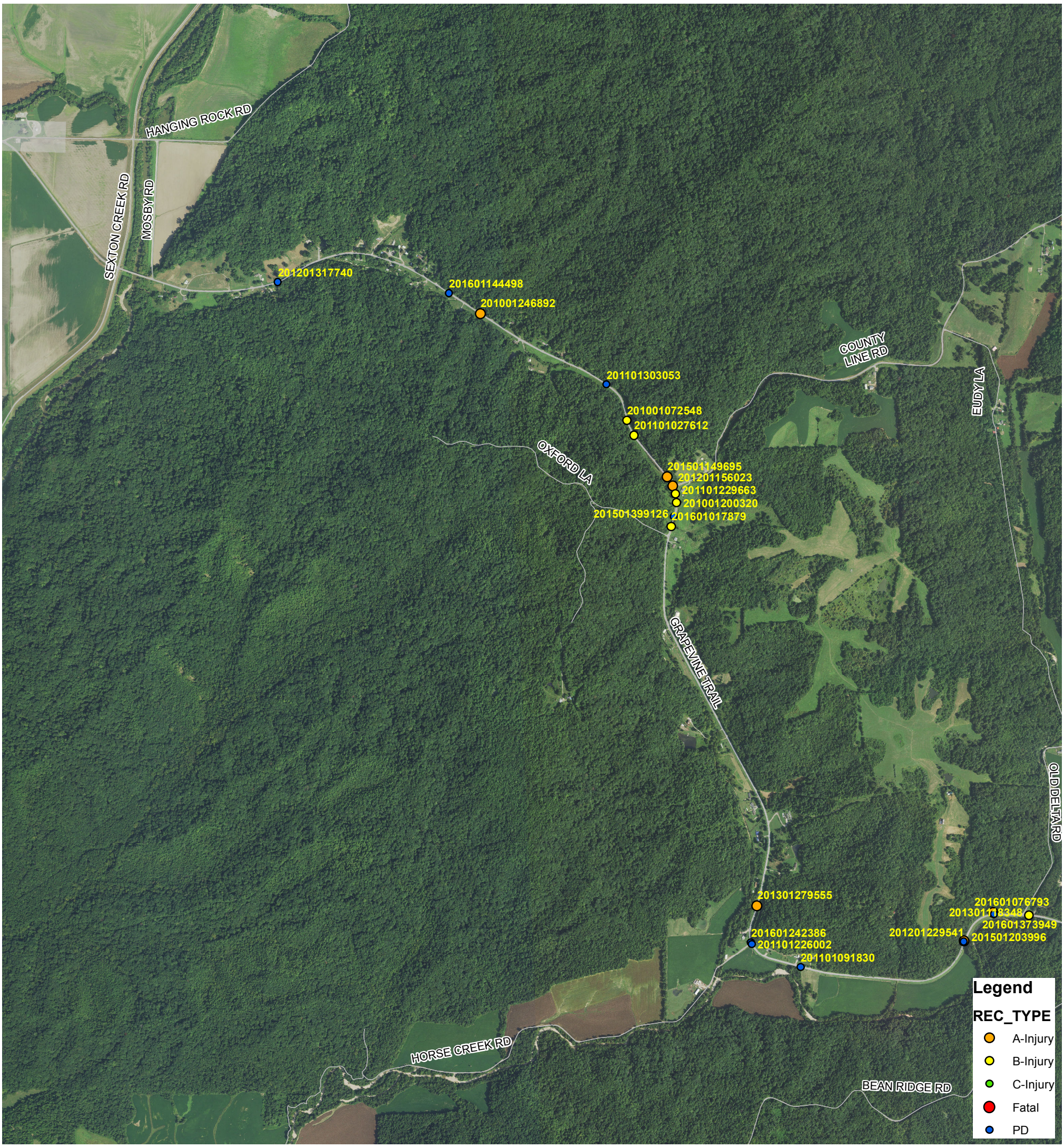
PHONE: (618)-262-8651
FAX: (618)-263-3327

PROFESSIONAL DESIGN FIRM- LAND SURVEYING,
PROFESSIONAL ENGINEERING AND STRUCTURAL
ENGINEERING CORPORATION: 184-000959

LAMAC ENGINEERING
A division of Hampton, Lenzini and Renwick, Inc.

| | |
|---|---|
| SHEET TITLE: TRAFFIC MAP | 1 OF 1 SHEETS |
| SCALE: NTS | SHEET NO. 1 |
| BY: C.L.D. | |
| DATE: 1/11/18 | |
| REV: | |

# Grapevine Trail Crashes



# PHOTO LOG

# ALEXANDER COUNTY

# SECTION 15-00082-00-RS

# GRAPEVINE TRAIL ROAD

# COST ESTIMATE

Grapevine Trail
Alexander County, Illinois

| | HSIP FUNDS (90 %) | LOCAL FUNDS (10%) | TOTALS |
|---|---|---|---|
| HMA Shoulders | 414,000 | 46,000 | 460,000 |
| Rumble Strips | 28,800 | 3,200 | 32,000 |
| Pavt Markings | 9,000 | 1,000 | 10,000 |
| Signage | 25,200 | 2,800 | 28,000 |
| Mobilization | 9,000 | 1,000 | 10,000 |
| Traffic Control | 9,000 | 1,000 | 10,000 |
| Prelim/Design Engr | 22,500 | 2,500 | 25,000 |
| Construction Engr | 22,500 | 2,500 | 25,000 |
| TOTALS | 540,000 | 60,000 | 600,000 |

# PROJECT TIMELINE

June 15, 2018 – HSIP funds awarded

September 15, 2018 – Preliminary/Design engineering agreement is approved and design begins

March 1, 2019 – Design is completed and IDOT approves plans for letting

June 14, 2019 – Project letting

August 1, 2019 – Construction begins

# ILLINOIS DEPARTMENT OF TRANSPORTATION

GIS Crash Analysis Report - Crash Data Summary



## Grapevine Trail Crashes 2010-2017

| Route | Mile | Case Number | Collision Type | Injury Type | Fatal Count | Injury Count | Surface Condition | Weather Description | Lighting Conditions | Vehicle Direction 1 | Vehicle Direction 2 | Crash Date | Day of Week |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.00 | 20160101787 | Head On | B-Injury | 0 | 2 | Ice | Fog/Smoke/Haze | Darkness | East | West | 01/14/16 | Thu |
| | 0.00 | 20160107679 | Fixed Object | A-Injury | 0 | 2 | Dry | Clear | Daylight | East | | 03/28/16 | Mon |
| | 0.00 | 20160114449 | Fixed Object | PD | 0 | 0 | Wet | Rain | Daylight | East | | 06/26/16 | Sun |
| | 0.00 | 20160124238 | Fixed Object | PD | 0 | 0 | Wet | Rain | Daylight | West | | 10/14/16 | Fri |
| | 0.00 | 20160137394 | Fixed Object | PD | 0 | 0 | Wet | Rain | Daylight | West | | 04/11/16 | Mon |
| | 0.00 | 20150120399 | Animal | A-Injury | 0 | 1 | Dry | Clear | Dusk | East | | 09/25/15 | Fri |
| | 0.00 | 20150114969 | Sideswipe Opposite | A-Injury | 0 | 1 | Dry | Clear | Dawn | Southeast | Northwest | 08/05/15 | Wed |
| | 0.00 | 20150139912 | Fixed Object | PD | 0 | 0 | Wet | Rain | Darkness | Northwest | | 05/20/15 | Wed |
| | 0.00 | 20130111834 | Fixed Object | B-Injury | 0 | 2 | Dry | Clear | Daylight | West | | 04/14/13 | Sun |
| | 0.00 | 20130127955 | Overturned | A-Injury | 0 | 1 | Dry | Clear | Darkness | East | | 07/14/13 | Sun |
| | 0.00 | 20120122954 | Fixed Object | PD | 0 | 0 | Wet | Rain | Daylight | West | | 09/28/12 | Fri |
| | 0.00 | 20120115602 | Fixed Object | A-Injury | 0 | 1 | Wet | Rain | Daylight | East | | 07/01/12 | Sun |
| | 0.00 | 20120131774 | Animal | PD | 0 | 0 | Dry | Clear | Darkness | West | | 11/19/12 | Mon |
| | 0.00 | 20110102761 | Head On | B-Injury | 0 | 2 | Snow or | Snow | Dawn | East | West | 02/07/11 | Mon |
| | 0.00 | 20110109183 | Animal | PD | 0 | 0 | Wet | Clear | Darkness | East | | 04/12/11 | Tue |
| | 0.00 | 20110122966 | Animal | B-Injury | 0 | 1 | Dry | Clear | Darkness | South | | 07/03/11 | Sun |
| | 0.00 | 20110122600 | Animal | PD | 0 | 0 | Dry | Clear | Darkness | West | | 07/27/11 | Wed |
| | 0.00 | 20110130305 | Fixed Object | PD | 0 | 0 | Wet | Rain | Daylight | West | | 09/09/11 | Fri |
| | 0.00 | 20100107254 | Overturned | B-Injury | 0 | 2 | Dry | Fog/Smoke/Haze | Darkness | East | | 03/23/10 | Tue |
| | 0.00 | 20100124689 | Other Object | A-Injury | 0 | 1 | Dry | Clear | Daylight | West | | 08/17/10 | Tue |
| | 0.00 | 20100120032 | Overturned | B-Injury | 0 | 1 | Wet | Rain | Daylight | West | | 07/09/10 | Fri |

**Total Fatalities:** **0** **Total Injuries:** **17** **Total Crashes:** **21**