



Announcement of a **Meeting** for the  
***DATS Policy Committee***  
Danville Area Transportation Study

**DATE:** Thursday, July 17, 2014  
**TIME:** 10:30 AM  
**PLACE:** Danville City Hall  
Mayor Conference Room, 2<sup>nd</sup> Floor  
17 W. Main St.  
Danville, IL 61832

## **AGENDA**

- I. Call to Order & Roll Call**
- II. Approval of Agenda**
- III. Approval of Minutes**
  - a. Policy Meeting of May 15, 2014*
- IV. Public Comment Period**
- V. New Business**
  - a. Items of Information:*
    - i. STU Funding Table*
    - ii. East Main Street Study- State of the Corridor Report*
  - b. Discussion & Vote:*
    - i. LRTP 2040 Update- Request for Proposals*
    - ii. Quiet Zone Final Documents*
    - iii. At Grade Study Final Documents*
    - iv. FY 15-18 TIP Amendments*
      - VC 17-06
      - DA 18-01
- VI. Old Business**
  - a. Agency Reports*
    - i.** Danville Township
    - ii.** Village of Westville
    - iii.** City of Danville
    - iv.** Vermilion County
    - v.** IDOT
- VII. Adjournment**

*If you are unable to attend this meeting please contact me.  
Adam Aull, MPO Director (217) 431-2325.*

## **DATS POLICY COMMITTEE MINUTES**

May 15, 2014

A meeting of the Danville Area Transportation Study (DATS) Policy Committee was held on Thursday, May 15, 2014 at Danville City Hall, 17 W. Main St., Danville, IL.

DATS Technical Committee Chairman Scott Eisenhower proxy Chris Milliken called the meeting to order at 10:28 AM

### **I. Roll Call:**

**MEMBERS IN ATTENDANCE:** Craig Emberton, IDOT District 5  
Gary Weinard, County Board Chairman  
*Doug Staske* (Proxy)  
Scott Eisenhower (Chairman), Mayor of Danville  
*Chris Milliken* (Proxy)  
Mike West, Danville Township  
Mayor Mike Weese, Mayor of Westville

**MEMBERS NOT PRESENT:** None

**OTHERS IN ATTENDANCE:** Jaclyn Marganski, DATS Director  
Doug Staske, Vermilion County Highway Department  
David Schnelle, Engineering & Urban Services Department  
Tom Kelso, IDOT  
Nick Spanhook, IDOT  
Paul Faraci, IDOT  
Linda Bolton, Vermilion Advantage  
Jennifer Bailey, Commercial-News  
Ross Hilleary, DATS Planner

### **II. Approval of Agenda –Motion to approve the agenda made by Mayor Mike Weese and seconded by Doug Staske.**

a. Voice vote:    Yea   5                Nay     0                Absent 0                Abstain 0

### **III. Approval of Minutes from Technical Committee Meeting of April 10<sup>th</sup> 2014 made by Craig Emberton and seconded by Doug Staske.**

a. Voice vote:    Yea   5                Nay     0                Absent 0                Abstain 0

### **IV. Public Comment Period** No public comments.

### **V. New Business**

#### **a. Items of information**

##### **i. Quiet Zone Study Memo**

1. Director Marganski suggested including the crossing on W Newell, which is outside of City Limits, but does affect Danville Citizens.
2. URS said this will not be an issue to include this intersection.
3. This could be included in the Liberty Lane Quiet Zone or on itself.
4. Reminder that the Study still has to be completed by June 30<sup>th</sup>, 2014.

#### **b. Discussion & Vote**

##### **i. Final Approval of FY15 UPWP**

1. One change is of the addition of State Metro funding though changes the additional staff help including DATS GIS coordinator and interns.
2. Motion to approve the City of Danville's project made by Doug Staske and seconded by Craig Emberton.
3. Voice vote: Yea 5              Nay 0              Absent 0              Abstain 0
- ii. Final Approval of FY15-18 TIP
  1. One change is on page 15 for IDOT for FY17 items moved to FY19 which are projects A007W and A007E.
  2. One addition of federal compliance required map.
  3. Motion to approve the City of Danville's project made by Doug Staske and seconded by Mayor Mike Weese.
  4. Voice vote: Yea 5              Nay 0              Absent 0              Abstain 0

## VI. Old Business

### a. Agency Reports

- i. Vermilion County
  1. No Report
- ii. IDOT
  1. Main Street (US 136) estimated completion is mid-to-late June.
- iii. Westville
  1. Some small sewer and road projects coming up.
- iv. City of Danville
  1. No Report
- v. Danville Township
  1. Mike West reported on the Greenwood Cemetery Road in which the State of Illinois is now in charge of the project after contractors were fired. This road is a major project and is being addressed by Danville Township.

## VII. Adjournment

- a. Motion to adjourn made by Doug Staske and seconded by Craig Emberton.
- b. Meeting adjourned by DATS Policy Committee Chairman proxy Chris Milliken, at 10:39 am.

## DATS - STU FUNDS

-\$333,575.96 STU Unobligated Balance as of date below

<b>FY 2015</b>	\$443,940.32	Allotment	
	-\$333,575.96	Begin Bal.	TIP No
	\$110,364.36	End Bal.	

<b>FY 2016</b>	\$443,940.32	Allotment	
	\$554,304.68	Begin Bal.	TIP No
	\$554,304.68	End Bal.	

<b>FY 2017</b>	\$443,940.32	Allotment	
	\$998,245.00	Begin Bal.	TIP No
	\$998,245.00	End Bal.	

<b>FY 2018</b>	\$443,940.32	Allotment	
	\$1,442,185.32	Begin Bal.	TIP No
	\$1,442,185.32	End Bal.	

24-Jun-14





# City of Danville, Illinois

## EAST MAIN STREET CORRIDOR PLAN

### **DRAFT**

### *State of the Corridor Report*

JUNE 26, 2014

LAKOTA



### **Project Start Meeting and Corridor Tour (March 28, 2014)**

A meeting with City staff and officials was conducted to initiate the planning process and to discuss specific items related to the project schedule, scheduling of stakeholder and focus group interview sessions, and formation of the Steering Committee. The Planning Team, along with City staff, also conducted a reconnaissance tour of the East Main Street Corridor to observe and document existing conditions. The Planning Team also met with the Illinois Department of Transportation's (IDOT) District 5 office (*located in Paris, Illinois*) to collect information and discuss recent East Main Street improvements with District staff and engineers.

### **Stakeholder Interview Sessions (May 7-8, 2014)**

Several interview and focus group sessions were conducted over a two-day period with various Corridor stakeholders, including the Veteran's Affairs (VA) hospital complex, Danville Area Community College, Neighborhood Association, and School District. Concurrently with the interview sessions, in-depth field work to document existing land uses and building and roadway conditions were also undertaken. Stakeholder interviews and focus group proceedings were documented for public review.

### **Steering Committee Meeting (May 7, 2014)**

In addition to stakeholder focus group sessions, an interview session with the Steering Committee was also conducted to gather thoughts and opinions regarding key planning issues and potential development strategies and recommendations. Proceedings of the Steering Committee sessions were also documented for public review.

### **Field Work and Additional Interviews (May 22, 2014)**

In-depth field work to document and verify base map information and existing conditions was conducted during a single-day site visit. Additional interviews were also conducted with business owners, non-profit groups and City Council members.

### **State of the Corridor Report (June 26, 2014)**

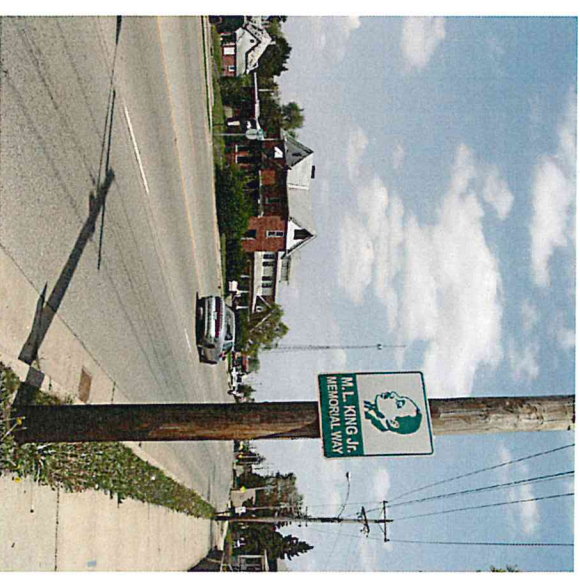
Following the completion of the Phase 1 assessment and analysis, the Planning Team prepared the *State of the Corridor Report*, which summarizes the East Main Street Corridor's key strengths, challenges and opportunities for its long-term revitalization.

### **Phase 2: Corridor Visioning**

The second phase of the planning process will involve the creation and development of specific planning concepts and revitalization strategies for enhancing East Main Street's physical appearance and overall economic environment. As part of the visioning process, planning concepts will be presented during two community open house workshops.

### **Phase 3: Corridor Plan Report and Implementation Strategy**

Based on the information analysis and community input gathered from the first two project phases, a *Draft East Main Street Corridor Plan Report* and implementation strategy will be prepared and delivered to the City of Danville. The Draft Plan will be reviewed and discussed during a Steering Committee meeting in order to receive additional input before preparing a *Final Plan* document for review and adoption by the Planning Commission and City Council.

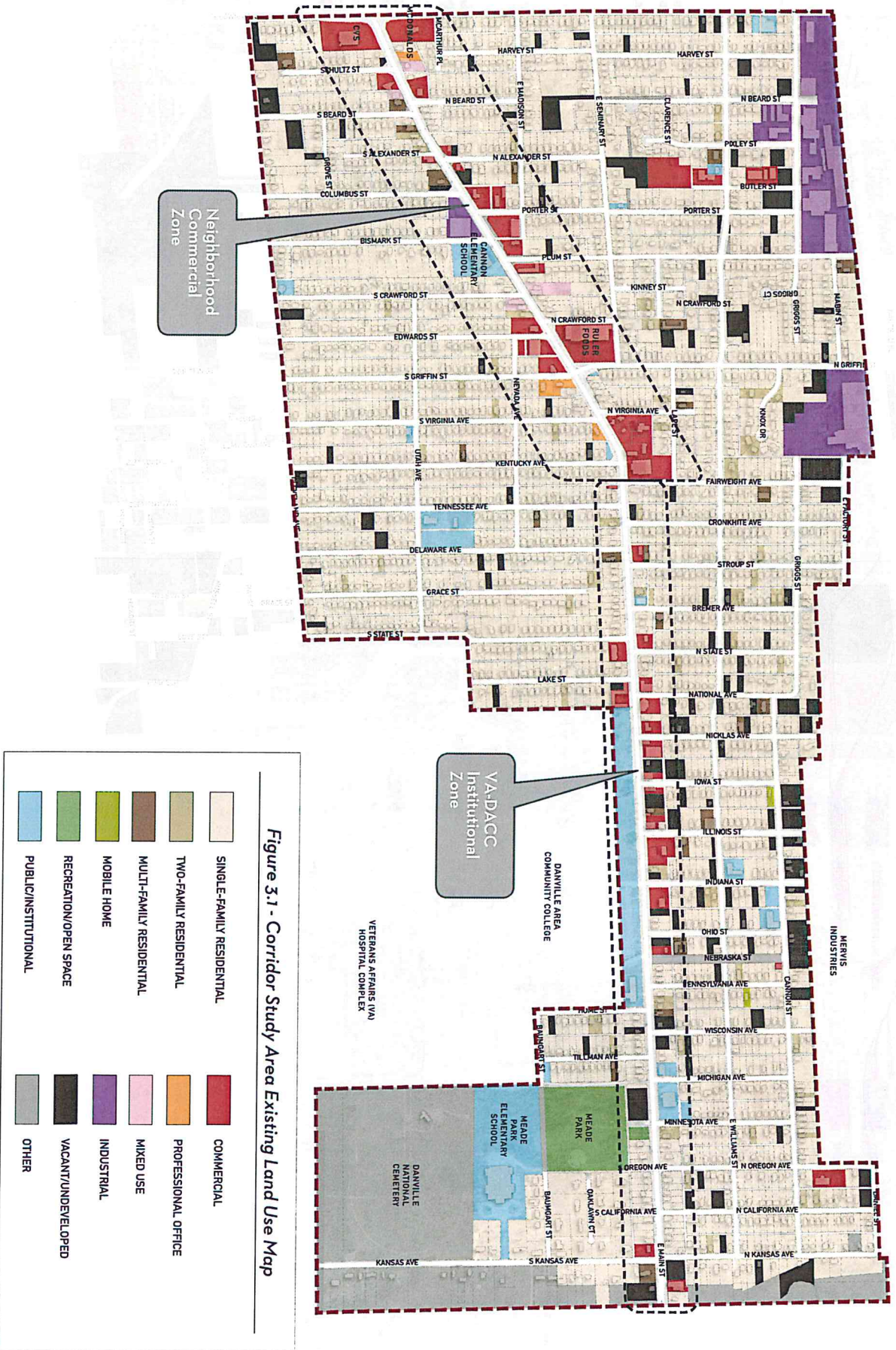


Existing signage along East Main Street





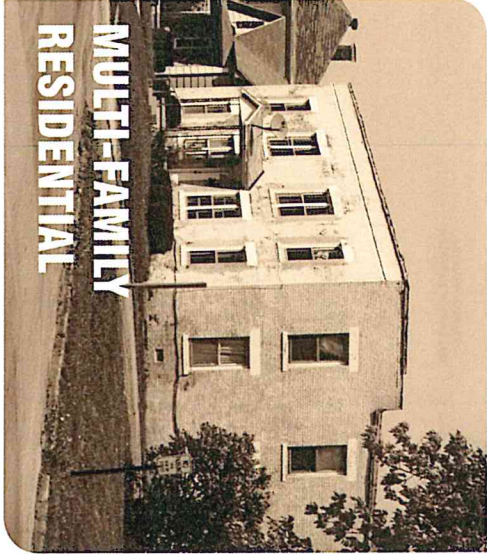




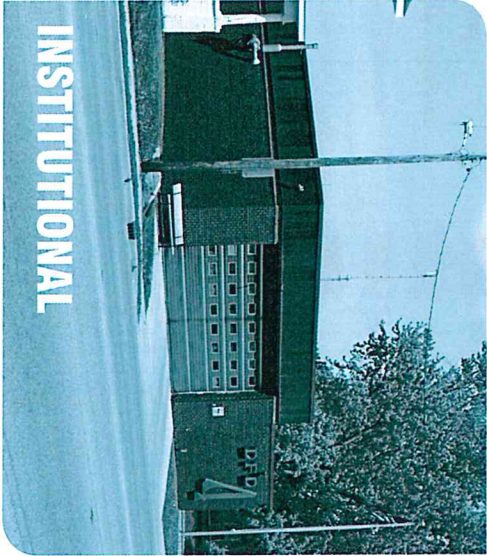


**VA-DACC Institutional Zone**

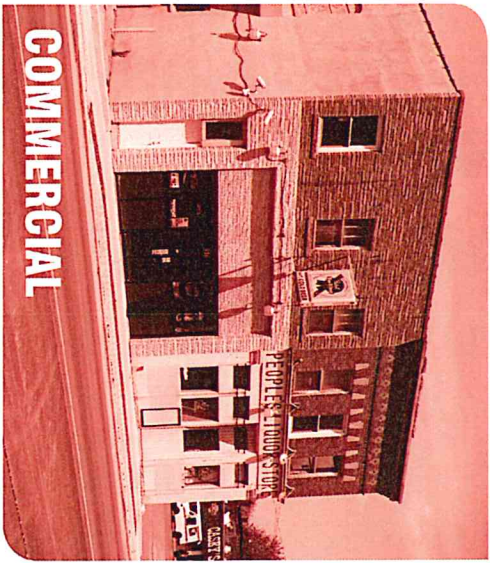
The eastern portion of the Corridor extends from Fairweight Avenue on the west to just beyond Kansas Street to the municipal boundary on the east. From Fairweight Avenue to State Street the frontage of East Main Street is predominately single-family residential in character. One institutional use in this area is the Danville Fire Station #4 located at Bremer Avenue. Station #4 serves the residential neighborhoods around the station plus the Eastgate Industrial Area on the East side of the City. On the south side of East Main Street, two noteworthy commercial properties are located at State and Lake Streets. Danville Grocery and Deli and Danville Liquors are located in a small, single-story strip center at State Street while the two-story American Inn Motel is located at Lake Street.



*Multi-family residential are dispersed along the Corridor*



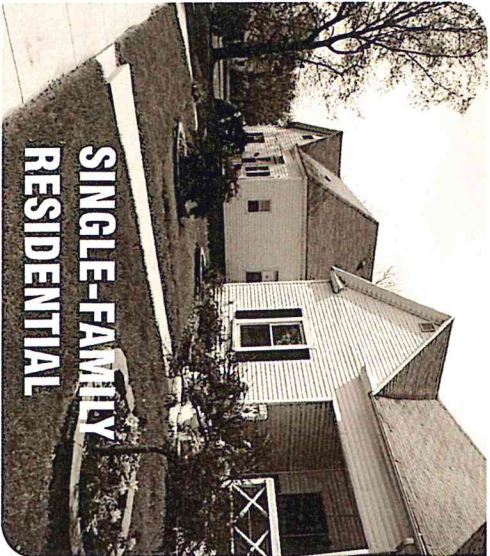
*Danville Fire Station #4 located at East Main Street and Bremer Avenue*



*People's Liquor Store located at East Main and Illinois Streets*



*Meade Park is located south of the East Main Street and Minnesota Avenue intersection*



*East of Nebraska and Home Streets the frontage along East Main is predominately residential*



### 3.5 Urban Design

In general, the streetscape and urban design conditions along East Main Street are in fair condition. New sidewalks have recently been constructed on both the north and south sides of the street for the entire length of the study area. Sidewalks have been separated from the roadway curb with a parkway buffer. This buffer however is narrow with little to no room for landscaping treatments aside from lawn. This also limits the potential for pedestrian amenities such as benches, kiosks and trash receptacles.

Most sidewalks are interrupted by curb cuts and most parking lots about the sidewalk with little landscape buffering. Lighting standards attached to utility poles do not lend to an attractive appearance and there is a general lack of appropriate wayfinding signage to important destinations within the study area.

On many of the secondary streets throughout the adjacent neighborhoods there is a lack of crosswalks. Some blocks are missing sidewalks while others appear to have “disappearing sidewalks” where weeds and lawn have begun to grow over failing concrete. Curbs and gutters are also missing from some of the secondary streets, resulting in streetscape conditions characterized by gravel shoulders and deteriorating roadway edges.



*Most sidewalks are interrupted by curb cuts and most parking lots about the sidewalk with little landscape buffering*



*Lighting standards attached to utility poles do not lend to an attractive appearance*



*Curbs and gutters are missing from some streets resulting in streetscape conditions characterized by gravel shoulders*



*Parkway buffers are narrow with little to no room for landscaping treatments aside from lawn.*



*Some blocks appear to have “disappearing sidewalks” where weeds and lawn have begun to grow over failing concrete*



*There is a general lack of appropriate wayfinding signage to important destinations within and nearby the study area*



## 4.2 Landscaping Requirements

Landscaping treatments are required in all zoning classifications (*except single and two-family dwellings or agricultural uses*) and are specified for three areas including:

- Off-street Parking Areas and Other Vehicular Use Areas
- Exterior Building Walls
- Other Open Areas

### *Off-street Parking Areas and Other Vehicular Use Areas*

Landscaping treatments are required in and around all off-street parking areas and around all other vehicular use areas. The perimeter of these areas which front public streets are required to incorporate a minimum setback of ten feet between the edge of the right-of-way and a minimum setback of five feet between abutting lots. These areas are intended as landscaped buffers and are required to include one large tree and a minimum of six plant units of landscape material for each 75 linear feet with the remainder of the area landscaped with grass, ground cover or other landscape treatment of which 70 percent must be live plant material.

Off-street parking areas and other vehicle use areas with at least 32,000 square feet are required to provide interior landscaping for 5 percent of the area. Landscape islands are required at the ends of all rows of parking and for rows of parking greater than 30 spaces in length, one island is required for every 20 spaces. Landscape islands are required to be at least 100 square feet with a minimum interior dimension of five feet and must also be protected by a barrier curb. Additionally, each island is required to contain at least one tree. Islands may be evenly spaced in between two end islands or combined to form one large island, however there may be no more than 60 spaces between islands. All islands are required to be landscaped with grass, ground cover or other acceptable landscape treatment of which 70 percent must be live plant material.

### *Exterior Building Walls*

Landscaping is also required along any blank exterior building wall that fronts a public street. A minimum of six plant units of landscape material is required for each 75 linear feet of wall and the landscape material must be installed within 20 feet of the building foundation.

### *Other Open Areas*

Portions of a property that are not paved for off-street parking or vehicular use areas or in the required landscaped buffers are also required to be landscaped with grass or other approved landscape materials.

### *Corridor Appearance*

Landscaping treatments provide an important opportunity for improving East Main Street's overall appearance and sense of vibrancy. Good site design and landscaping contribute to a more cohesive urban design environment that attracts pedestrians, shoppers and new investors in properties and businesses along the Corridor.



Many properties along East Main Street do not comply with the current landscaping requirements

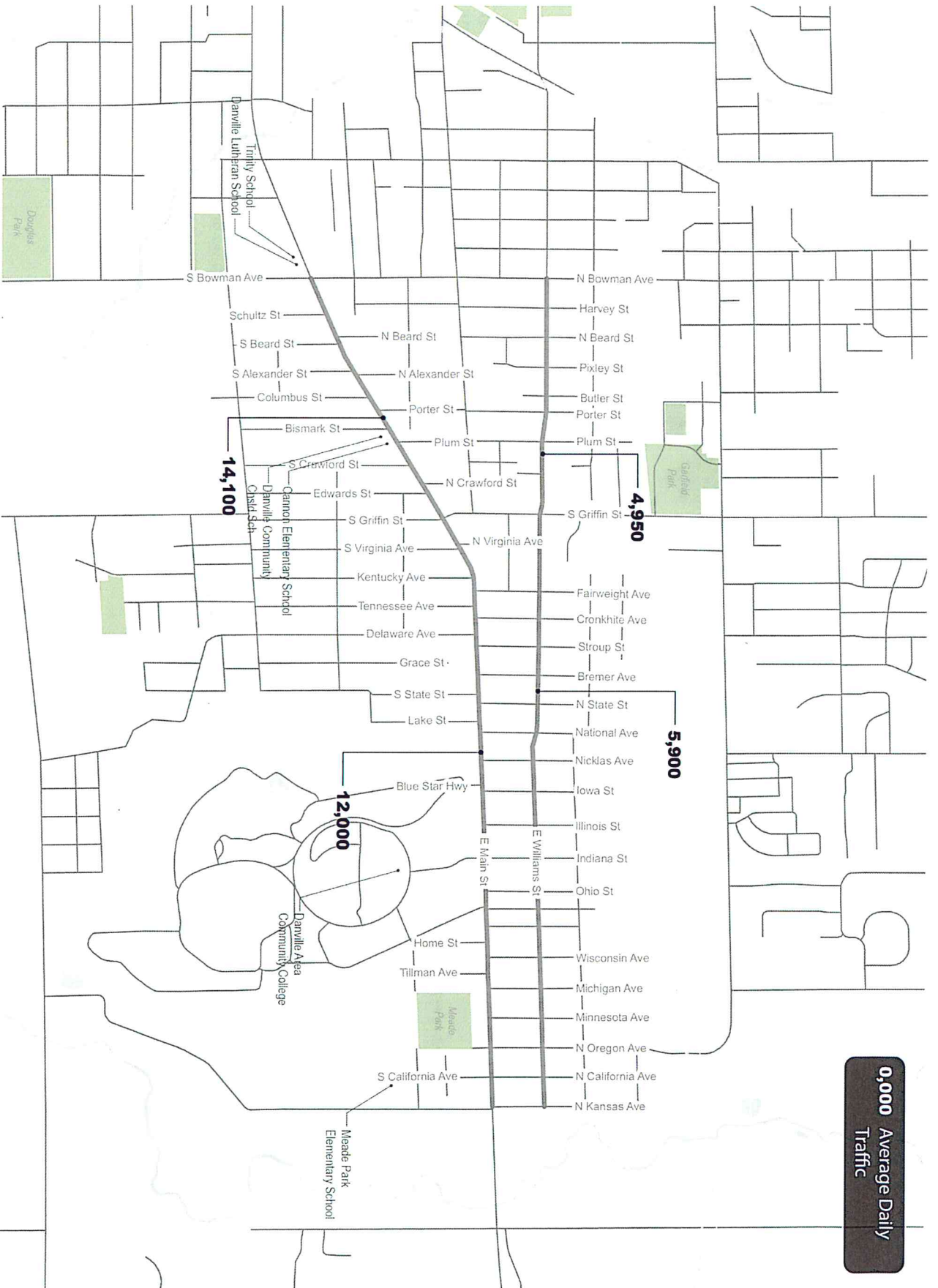


Figure 5.1 - Average Daily Traffic

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EAST MAIN STREET CORRIDOR PLAN



Capacity

Average daily traffic (ADT) on East Main Street ranges from 12,000 to 14,100. A roadway of this size typically can accommodate an average daily traffic (ADT) of approximately 30,000, which suggests that more than half of available roadway capacity is going unused.

Williams Street

Williams Street is a local collector street that travels east-west through the corridor study area. It is a two-lane roadway with a posted speed of 30 mph and a 2012 ADT between 4,950 and 5,900. ADT for Williams Street was collected during construction of East Main Street. Figure 5.4 shows the typical cross section of Williams Street east of State Street and Figure 5.5 shows the typical cross section of Williams Street west of State Street.

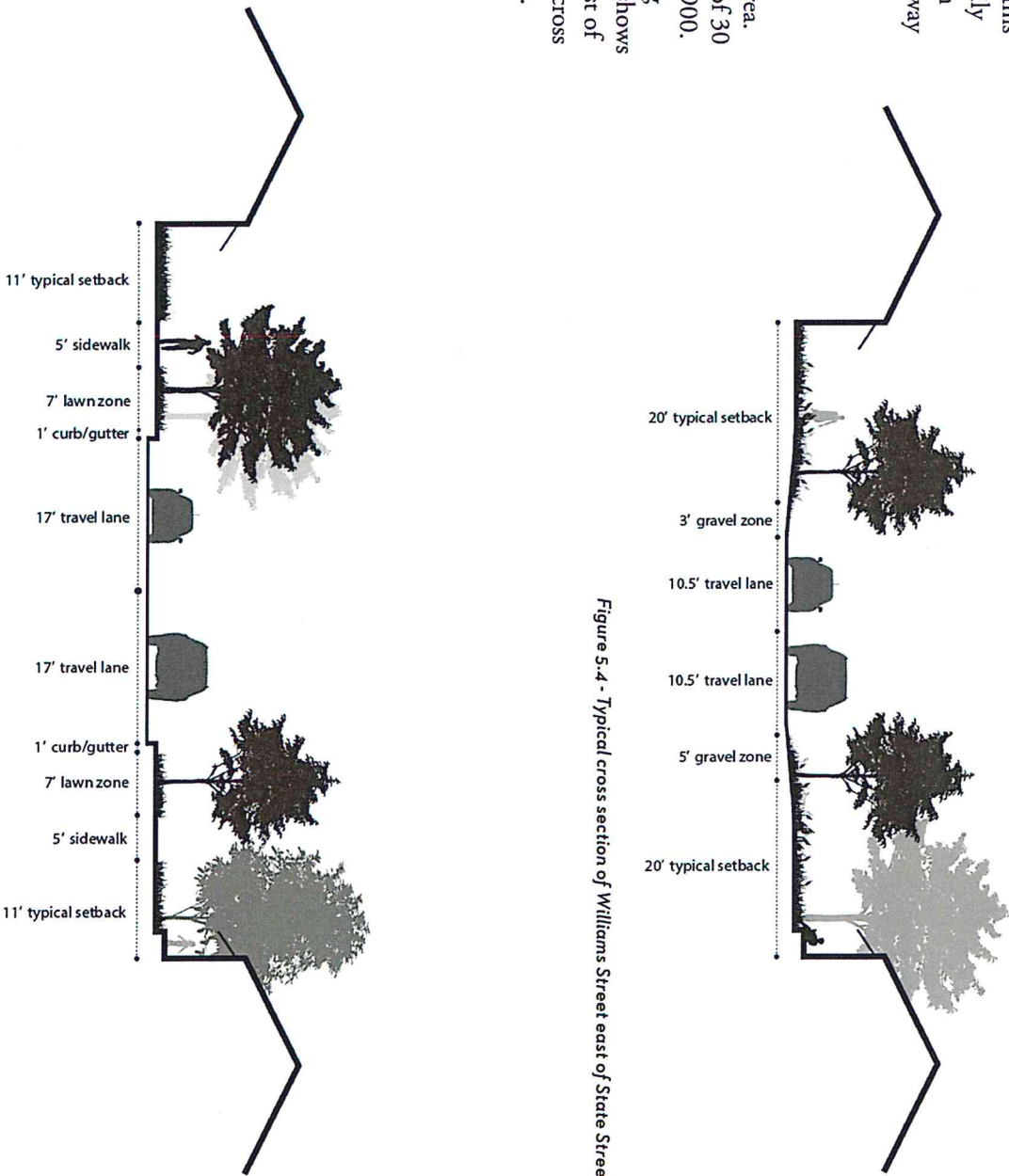


Figure 5.5 - Typical cross section of Williams Street west of State Street

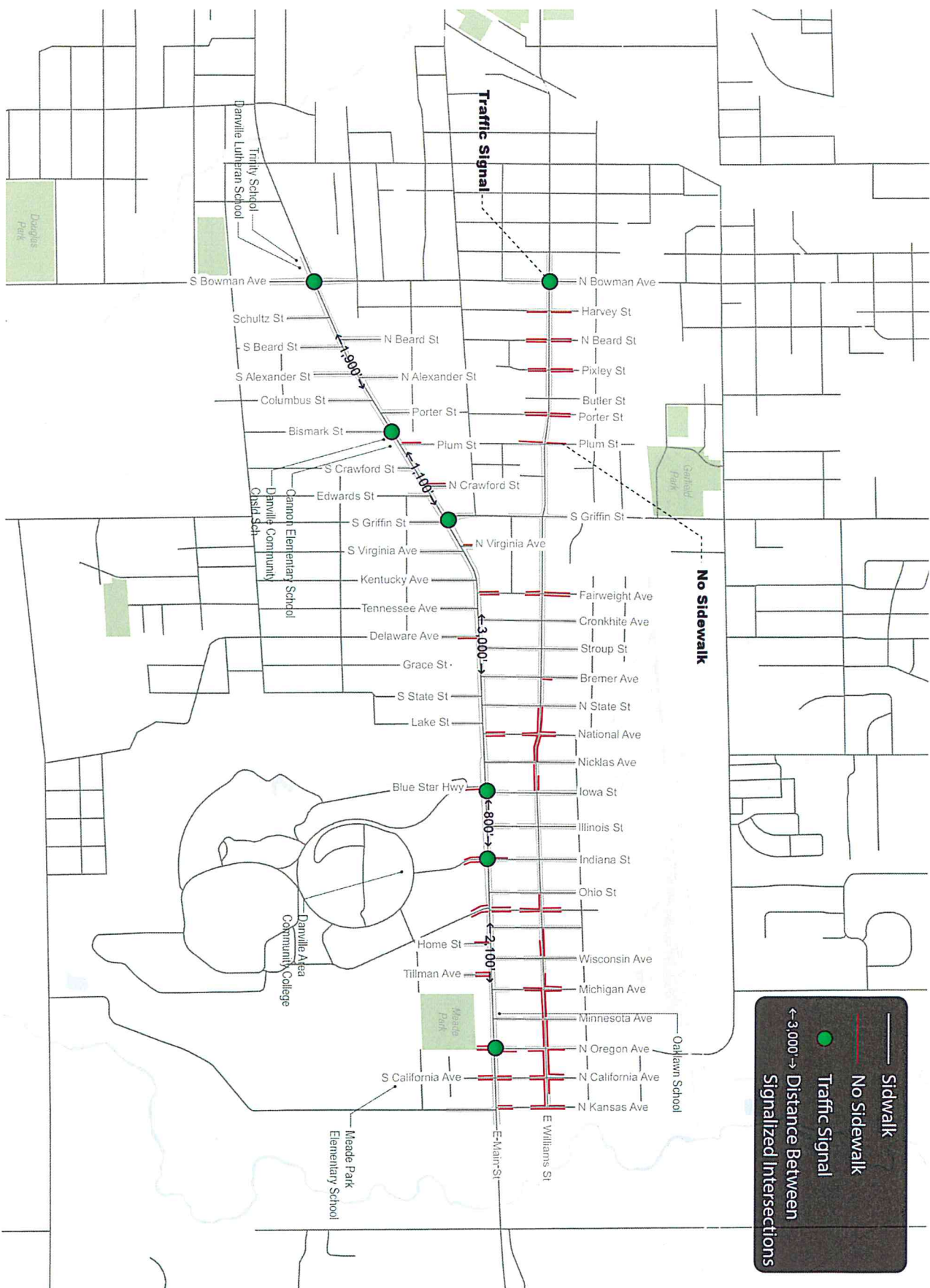


Figure 5.6 - Sidewalk Assessment

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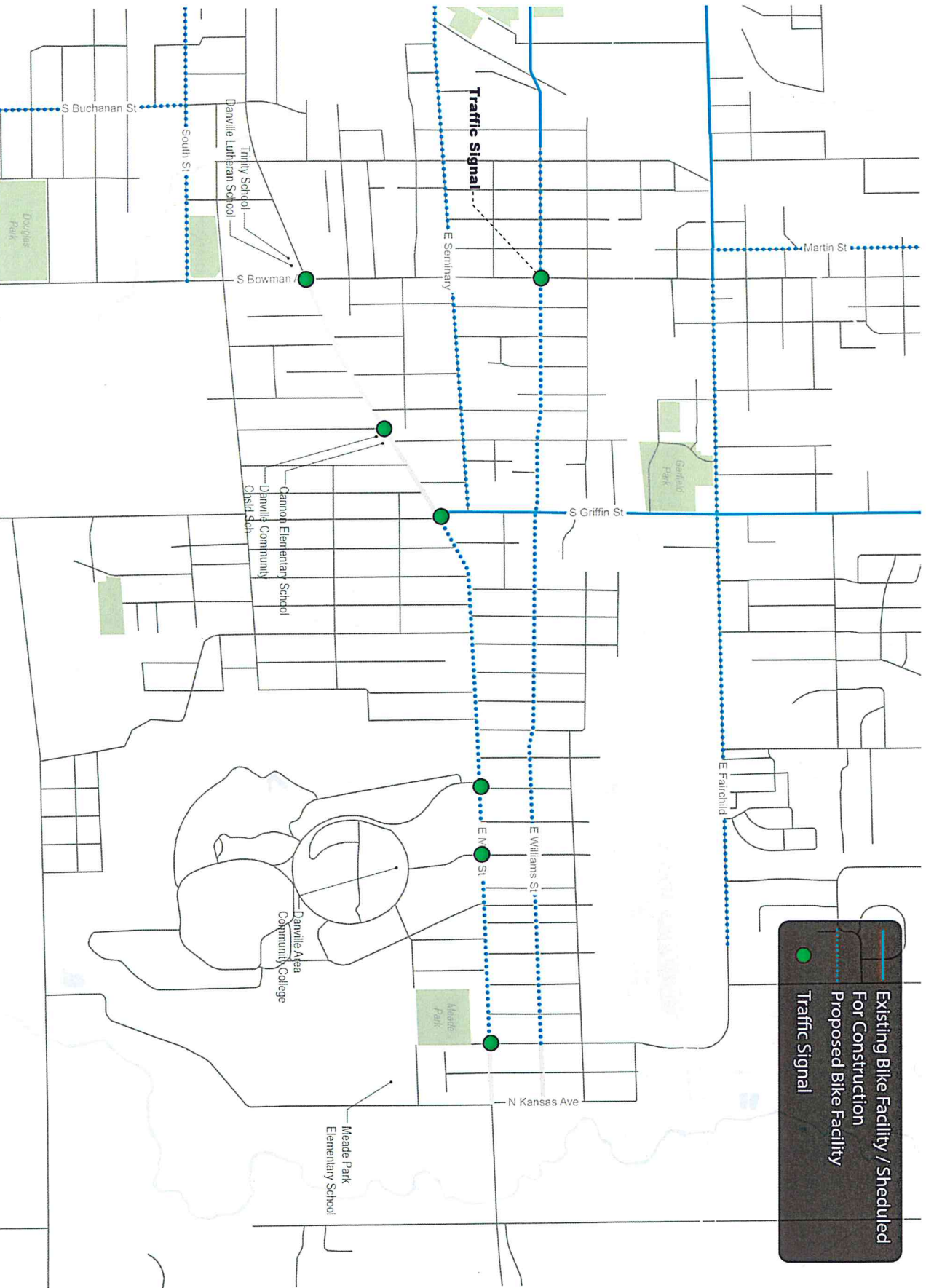


Figure 5.7 - Bicycle Facilities

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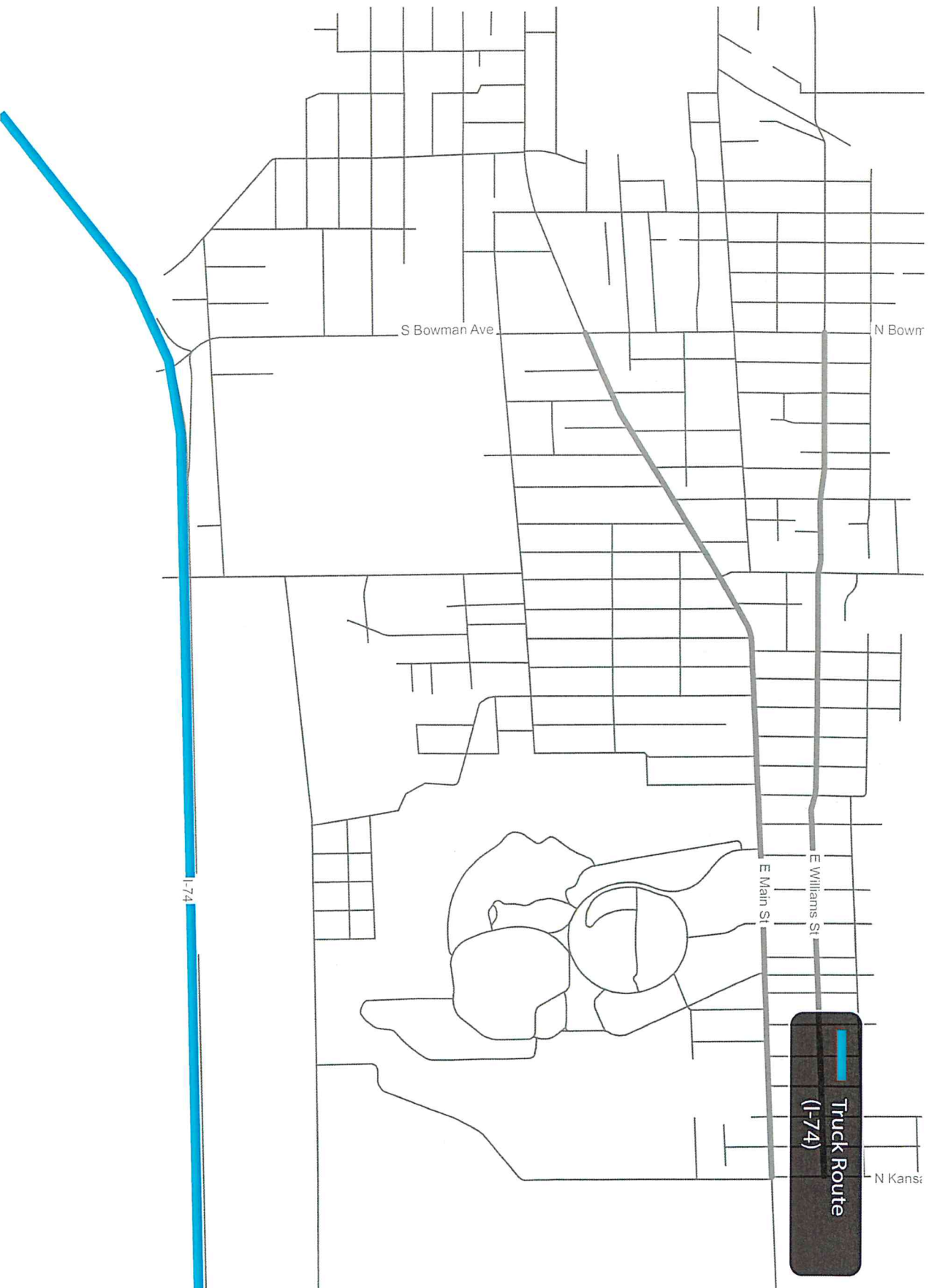


Figure 5.8 - Truck Routes

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EAST MAIN STREET CORRIDOR PLAN



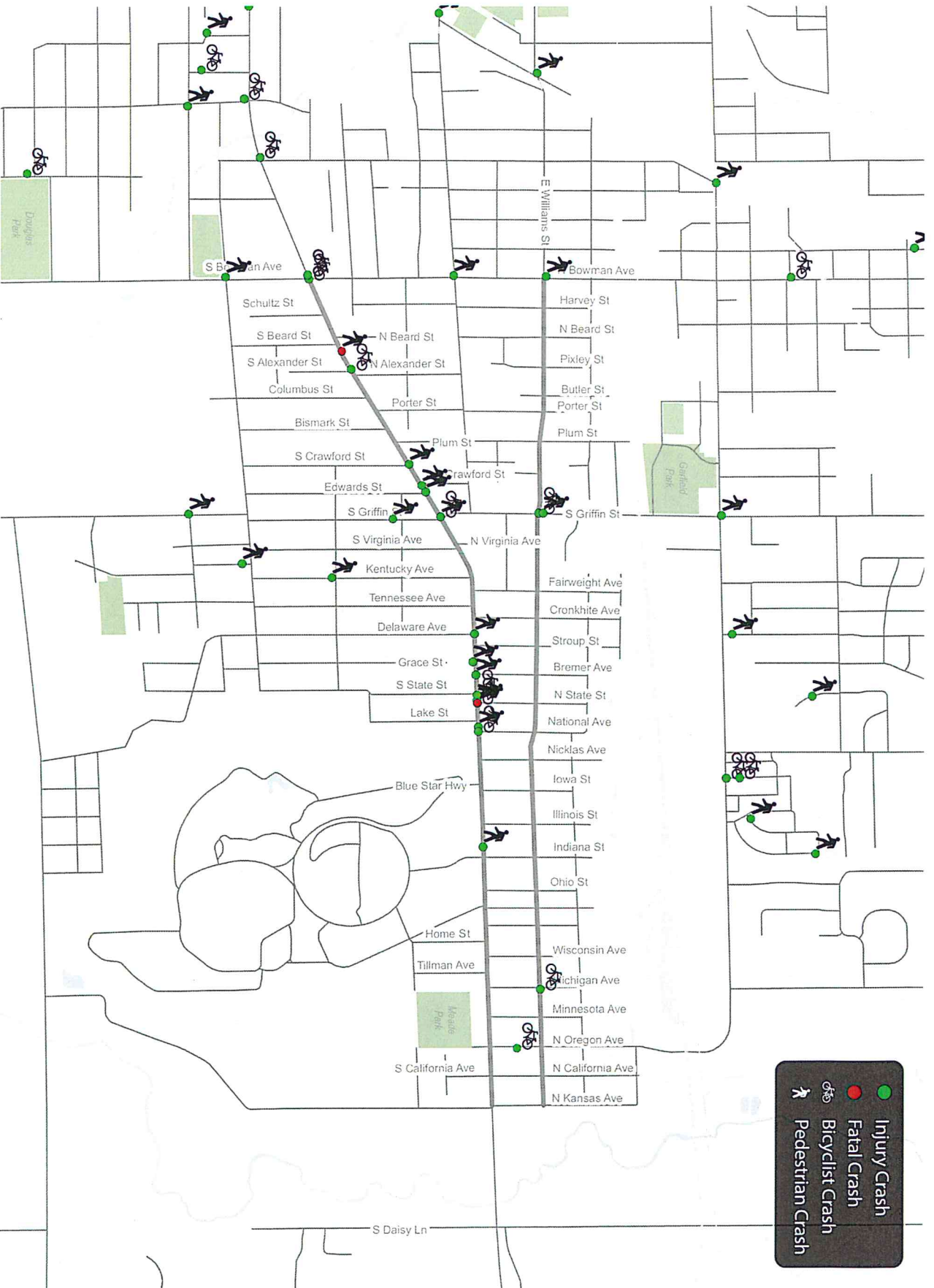


Figure 5.9 - Crashes

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EAST MAIN STREET CORRIDOR PLAN

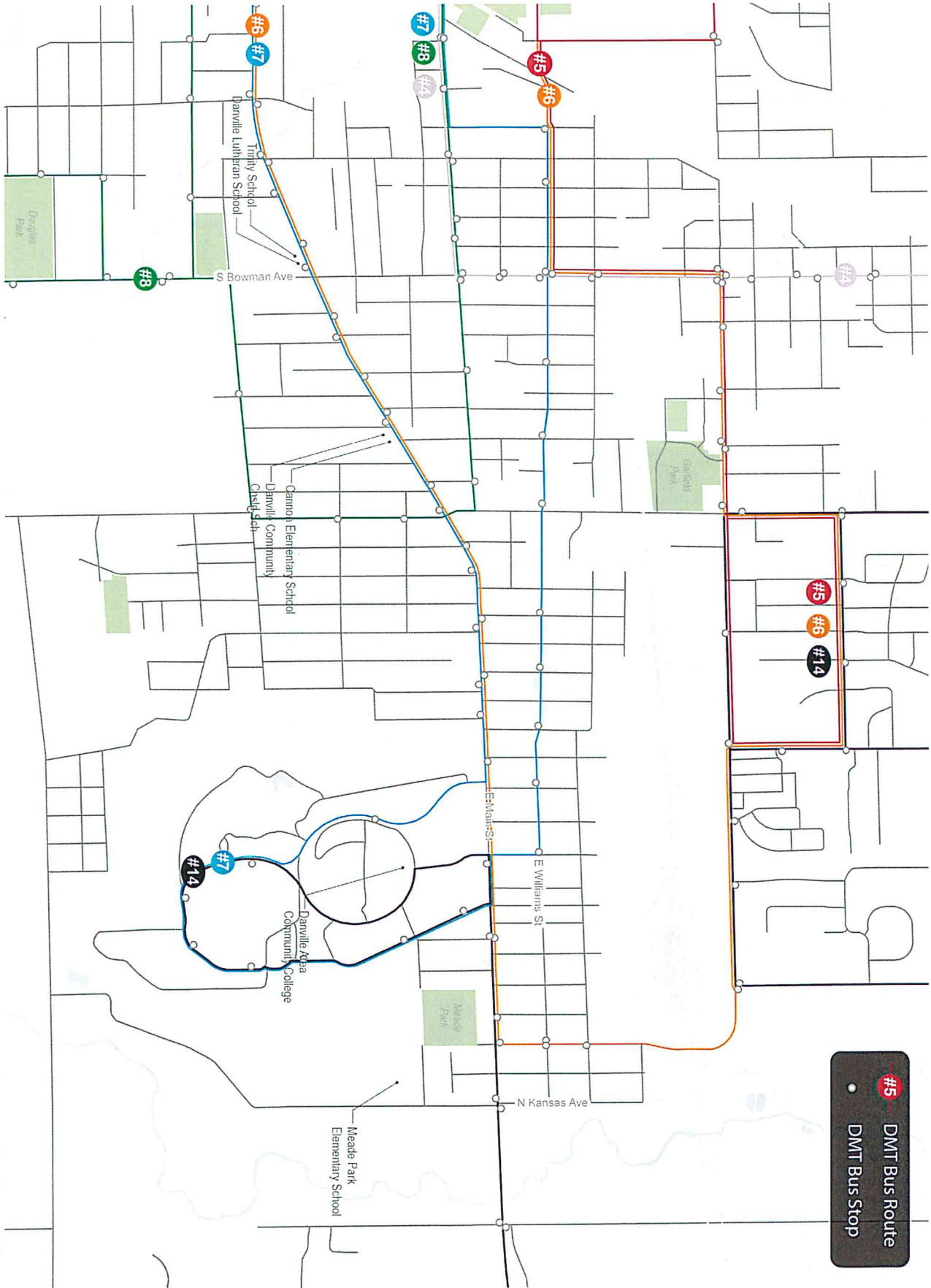


Figure 5.10 - Bus Routes and Stops

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EAST MAIN STREET CORRIDOR PLAN



Figure 5.11 - Infrastructure Removal



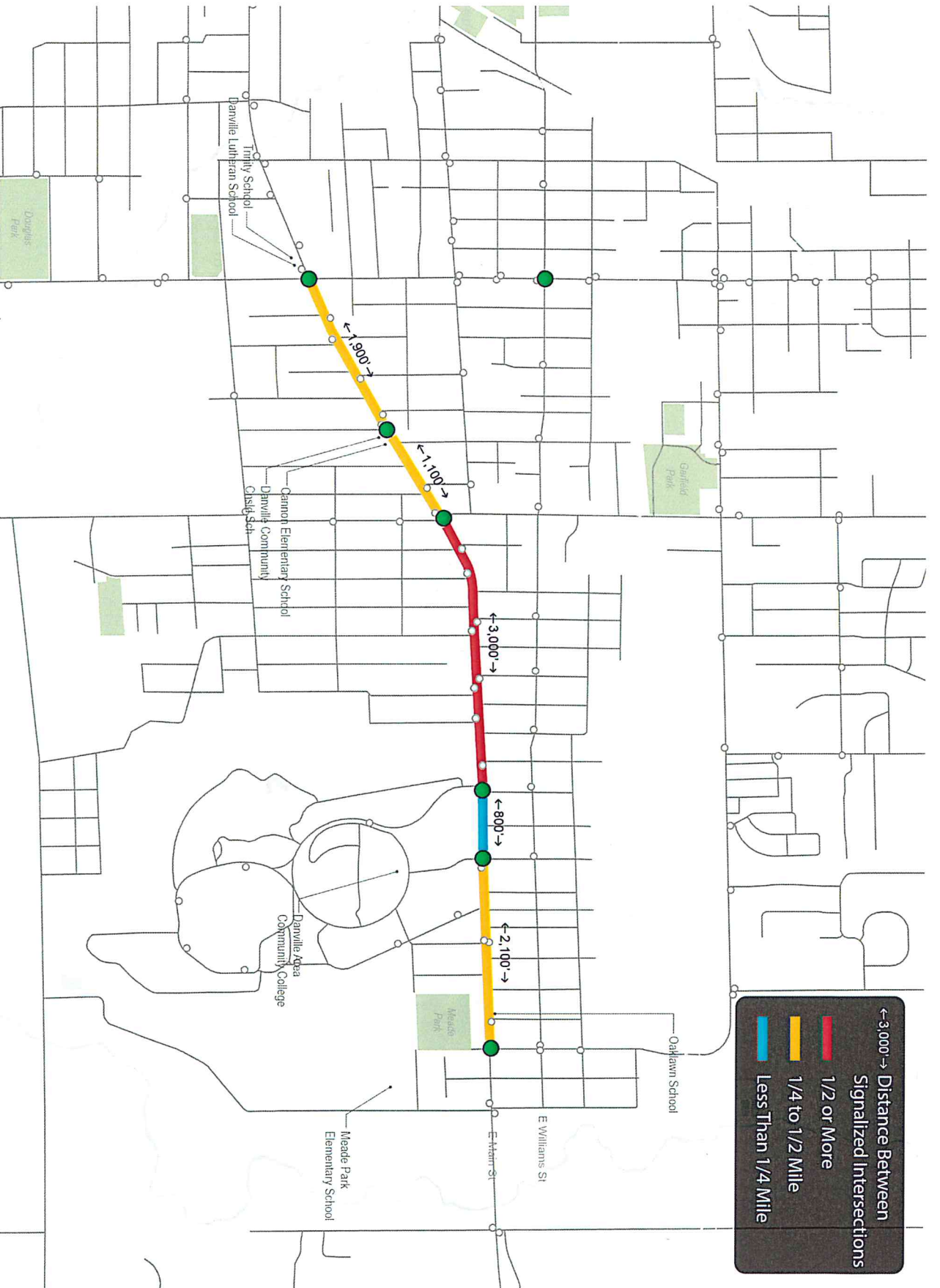


Figure 5.12 - Walkability Barriers



Race and Ethnicity

The racial and ethnic makeup of the Study Area is slightly more diverse than the city's, in having both a slightly greater proportion of African American and Hispanic residents. (*The county's population is significantly less diverse than the city's.*)

Most consumer behaviors vary more by household income than by race or ethnicity. This is true especially for commodity items, such as many groceries and household goods. But some consumer purchases are more directly affected by the culture, race and ethnicity of the household. These include specialty foods (*whether groceries or dining out*), fashion and accessories, personal care products and services, entertainment, etc. The diversity of the Study Area (*and Danville overall*) could be leveraged in shaping East Main's economic development strategy.

Table 6.2: Race and Ethnicity Profile Comparison

Race or Ethnicity	East Main Study Area	Danville City	Vermilion County
White Alone	58%	63%	82%
Black Alone	32%	29%	13%
American Indian Alone	0%	0%	0%
Asian Alone	0%	1%	1%
Pacific Islander Alone	0%	0%	0%
Some Other Race Alone	4%	2%	2%
Two or More Races	5%	3%	2%
Hispanic Origin (Any Race)	10%	7%	5%

The diversity of the Study Area could be leveraged in shaping East Main Street's economic development strategy.

**Table 6.3: Household Spending con't**

Indoor plants + fresh flowers	38,000	Medical services	727,000	Water sports equipment	3,000
Closet and storage items	13,000	Nonprescription drugs	115,000	Other sports, recreation and exercise	30,000
Furniture rental	14,000	Nonprescription vitamins	59,000	Photographic equipment + supplies	37,000
Luggage	12,000	Prescription drugs	553,000	Live entertainment + supply rental	8,000
Computers/hardware	141,000	Eyeglasses and contact lenses	61,000	Personal care	
Computer software/accessories	9,000	Hearing aids	17,000	Hair care products	78,000
Other misc. household equipment	93,000	Topicals and dressings	50,000	Wigs + hairpieces	8,000
Apparel and footwear		Medical equipment (rental + sales)	13,000	Shaving needs	19,000
Men's clothes	274,000	Entertainment		Oral hygiene products	45,000
Boys' clothes	106,000	Social, recreation, and health club	58,000	Cosmetics, perfume, bath preparations	180,000
Women's clothes	643,000	Fees for participant sports	73,000	Other personal care products	58,000
Girls' clothes	129,000	Movie, theatre, and other admissions	114,000	Personal care services	275,000
Clothes for children under 2	133,000	Admissions to sporting events	30,000	Reading	
Footwear	428,000	Fees for recreational lessons	36,000	Newspapers + magazines	65,000
Matches, jewelry + repair	93,000	All other fees and admissions	27,000	Newsletters	1,000
Shoe repair	1,000	Musical instruments + accessories	428,000	Books	40,000
Tailoring, alterations, repair	5,000	Cable and satellite services	907,000	Education	
Laundry + dry cleaning	126,000	A/V equipment, recorded music+movies	314,000	College tuition	732,000
Fabric and patterns for making clothing	14,000	Pets, pet supplies, pet care	513,000	High school and elementary school	43,000
Clothing storage	0	Toys, games, arts, crafts, tricycles	122,000	Vocational and technical school	8,000
Transportation		Stamp and coin collecting	5,000	School supplies	188,000
Vehicle purchase	2,274,000	Playground equipment	4,000	Other education-related expenses	49,000
Gasoline and motor oil	2,629,000	Athletic gear, game tables, exercise	48,000	Tobacco products/smoking supplies	
Other vehicle expenses	2,710,000	Bicycles	15,000	Tobacco products/smoking supplies	22,000
Public transportation	383,000	Camping equipment	12,000	Miscellaneous	
Health care		Hunting + fishing equipment	32,000	Miscellaneous (bank and legal fees, etc.)	836,000
Health insurance	2,415,000	Winter sports equipment	4,000	Cash contributions (alimony, charity, etc.)	1,497,000





## 2

***Define, stabilize and revitalize distinct residential neighborhoods***

From a housing standpoint, the East Main Street Corridor's adjacent neighborhoods have a high level of rental housing along with vacancy and neglect of some properties. While the City requires landlords to register rental property and has a program for the demolition of dilapidated homes, the demolition process and transfer of vacant properties should be more focused and strategic. Additionally, landlords should be held more accountable for the condition of their rental properties.

With most of the neighborhoods' housing being built more than 80 years ago as worker cottages, housing needs and preferences have changed and new housing should be introduced along the Corridor to diversify housing options. In addition to strategic rehabilitation of existing housing, new housing should address the shortage of quality affordable family housing, specifically three to four bedroom units. There is also a demand for higher-quality leased housing, especially for medical professionals and student housing.



## 3

***Enhance East Main Street as the City's gateway from the East***

In many ways the East Main Street Corridor is a gateway into Danville for those arriving from the East or visiting the Danville Area Community College (DACC) or Veteran's Affairs (VA) hospital complex. Not only do DACC and the VA draw local visitors, many come from the greater central Illinois and west-central Indiana region as well. For some of these visitors, the Corridor is their only exposure to the City of Danville.

Though the planning process many stakeholders expressed a desire for East Main Street to incorporate more landscaping and green improvements to make the Corridor more visually attractive and representative of the quality of life and services that Danville has to offer. Additionally, the poor condition of many properties along the Corridor has become of primary concern to DACC, the VA and Cannon and Meade Park Elementary Schools. Keeping quality teachers and staff depends on having a welcoming and comfortable environment that also offers recreational and commercial service opportunities.





## 6

**Create stronger connections to the region to increase transit and recreation opportunities**

Danville has a multitude of great natural resources along with attractive County and State Parks. These areas have excellent biking trails and other recreational opportunities. Downtown Danville has also seen a rebirth as a destination for entertainment, shopping, and dining. The East Main Street Corridor should capitalize on these assets by creating stronger connections to these and other facilities throughout the community.

Stronger connections means more than vehicular access. Nationwide trends have seen a significant increase in the use of bicycles and walking as an alternative mode of transportation, especially by young people. For students who are considering DACC or potential residents of the neighborhoods better connections to the region would enhance the overall quality of life by making recreation and transit more convenient and accessible.



## 7

**Build an image for the Corridor to communicate its history and importance**

Before the McDonald's on East Main Street was built, a community focus group was pulled together to come up with a design theme. The military flags garden and "Highway of Heroes" ideas came out of that focus group and was implemented by the owners. This has brought a new identity and image to the intersection of East Main Street and Bowman Avenue.

Many stakeholders have expressed a need to change the 'East End' image to make redevelopment and revitalization possible. Establishing a unique identity or brand for an area can be a valuable tool for attracting investment. The identity should be based on how a community sees and expresses itself and the message established by a unified brand represents a powerful marketing tool, helping to raise awareness and create broad interest in the area. The overall approach should be to take a fresh look at East Main Street's identity and to provide a new culture and attitude.





Danville Area Transportation Study (DATS)  
Danville Urbanized Area, Vermilion County, Illinois

## **REQUEST FOR PROPOSALS**

### **Long Range Transportation Plan Update – Technical Analysis Needed**

#### **A. Study Purpose**

The Long Range Transportation Plan (LRTP) for Year 2040 is an update to the long-range vision for how the Metropolitan Planning Area's (MPA) surface transportation system will develop over the next 25 years. The LRTP is the foundation of the transportation planning process as regulated by Map-21. The plan conveys the area's priorities and creates the overarching planning framework to guide future transportation decisions. The plan's fundamental purpose is to guide resources to be used in ways that best meet the economic, community, and environmental needs of the metropolitan planning area. Through analysis of existing conditions and projected 2040 conditions, the plan will outline goals, objectives, and projects for the well being of the regional transportation network.

While the LRTP update document will be written by DATS staff, consulting is needed for a number of technical analyses, 2040 projections, and financial analyses listed in detail below. The consultant will be asked to provide the requested data to DATS staff. The consultant will NOT be asked to complete the LRTP update process individually.

#### **B. Study Area**

The study area for the LRTP includes the Metropolitan Planning Area (MPA) for the DATS MPO. The MPA encompasses city, village, township, and county governments in an effort to coordinate transportation planning for the region as a whole. Governmental entities within the MPA include the City of Danville, the City of Georgetown, the Village of Tilton, the Village of Belgium, the Village of Westville, the Village of Catlin, Catlin Township, Danville Township, Newell Township, Georgetown Township, and Vermilion County.

#### **C. Background**

The most recent federal legislation regarding the LRTP is the Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21), enacted in October 2012. Under MAP-21 the LRTP is required to be updated every five years. This LRTP will be a full update with a 25 year planning outlook into the year 2040 for the Danville MPA.

The LRTP is a transportation planning tool used to identify existing issues and project future demand of a metropolitan area's transportation system. This plan will analyze the transportation network as a whole by examining roadways, transit, intermodal, and pedestrian travel within the MPA. Through this analysis, the LRTP will estimate cost for future projects and identify reasonably available funding sources. The goal of the LRTP is to plan for the efficient use of the existing transportation system and organize an effort to coordinate regional land use, development, and employment in agreement with future transportation plans and projections.



## **D. Study Participants**

Study participants include but are not limited to DATS staff and committees. The consultant will coordinate all project activities with the DATS MPO. Based on input received from the MPO, the consultant will make the appropriate revisions and produce the requested final product.

## **E. Study Tasks**

The consultant will NOT be completing the LRTP process individually. As mentioned above, consulting is needed for a number of technical analyses, 2040 projections, and financial analyses. The consultant will provide the requested technical data to DATS staff. Necessary final products from the consultant are listed below.

### **Phase 1**

#### *Existing Conditions:*

The consultant will provide an existing conditions traffic analysis for the MPA. This analysis will utilize provided traffic counts for roadways, show existing high traffic and congestion areas, and produce an overall roadway capacity analysis.

#### *Phase 1 Outline – Existing Conditions:*

1. Traffic analysis
  - a. Traffic counts
  - b. Congestion areas
  - c. Traffic flow
  - d. Overall road capacity analysis

#### *2040 Projections:*

In this section, the consultant will provide projections for the year 2040. These projections will help the MPO plan for future improvements. First, basic demographic projections are requested. This includes a population projection for the year 2040 broken down by gender and age. The consultant will also provide an employment projection by industry for the year 2040.

The remaining projections deal with the transportation system. The consultant will provide roadway projections for the year 2040 under the “no-build” scenario. This will include projected traffic counts, traffic congestion levels, and a capacity analysis for major roadways and intersections for the year 2040. Projections are also needed for airport, rail, and truck traffic in the MPA.

#### *Phase 1 Outline – 2040 Projections:*

1. Population projections for 2040 by gender and age
2. Employment projections for 2040 by industry
3. 2040 Roadway projections for
  - a. Traffic Counts
  - b. Congestion levels and areas



- c. Traffic flow
- d. Overall capacity analysis
- 4. 2040 volume projections for airport, rail, truck traffic

## Phase 2

### *Project Impact and Financial Analysis:*

Phase two of this project requires the consultant to provide technical analysis for potential major transportation projects in each transportation category of roadways, transit, rail, and pedestrian/bicycles. The consultant will coordinate with current TIP projects and MPO projects to provide a full analysis for at least one project in each transportation category (including multiple roadway projects). *The MPO will guide at a later time specifically which projects to provide extended analysis for.*

Potential project analysis will focus on providing data on project impact, project cost, available funding sources, and overall financial feasibility. Project impact should discuss potential benefits of the project and include *road capacity/congestion impact and safety impact* analyses in relationship to the surrounding transportation system. Each project's analysis should have an individual congestion projection as part of its impact analysis. Project cost should be indicated along with available funding sources. The project analysis should conclude with a financial feasibility statement and a summary comparing the project's potential benefits with the project's projected cost. The final data set should include a table indicating the project, estimated cost, and potential congestion impacts. All costs will be projected in each project's build year amount.

### *Phase 2 Outline:*

- 1. Potential/Planned *Roadway* projects
  - a. Project description
  - b. Congestion impact
  - c. Project cost
  - d. Available funding sources
  - e. Financial feasibility/benefit-cost summary
- 2. Potential/Planned *Transit* project
  - a. Project description
  - b. Congestion impact
  - c. Project cost
  - d. Available funding sources
  - e. Financial feasibility/benefit-cost summary
- 3. Potential/Planned *Rail/Roadway* project
  - a. Project description
  - b. Congestion impact
  - c. Project cost
  - d. Available funding sources
  - e. Financial feasibility/benefit-cost summary
- 4. Potential/Planned *Pedestrian/Bicycle* project
  - a. Project description
  - b. Congestion impact





- c. Project cost
- d. Available funding sources
- e. Financial feasibility/benefit-cost summary

## **F. Final Products**

The final product will include two reports encompassing the detailed points discussed above. The project will be two parts and be completed in two phases. Phase 1 includes the existing conditions data and 2040 projection data. Phase 2 includes analysis of specific projects within each of the transportation categories. As mentioned above, these projects will be specified by DATS. This report will list potential projects and outline them according to impact, cost, available funding sources, and financial feasibility. **Final reports will be completed no later than May 29, 2015.**

1. One (1) copy of Phase 1 Draft Report.
2. One (1) copy of Phase 1 Final Report.
3. One (1) copy of Phase 2 Draft Report
4. One (1) copy of Phase 2 Final Report
5. One (1) copy of all electronic data in (MS Excel files, MS Word files, GIS files, etc.). Final Report Phase 1 and Final Report Phase 2 in electronic (Adobe PDF and MS Word) formats.
6. [Other products, as necessary]

DATS will provide the *selected* consultant the necessary existing data files related to the current LRTP, a copy of the current LRTP, and the outline for the LRTP update document. Note that in writing the LRTP update document, DATS will conduct all required public participation and public open house sessions.

## **G. Project Schedule**

Notification to the successful firm is anticipated by August 29, 2014. The entire project must be completed by May 2015, with the target completion date for Phase 1 as January 16, 2015, and the target completion date for Phase 2 as April 17, 2015

## **H. Proposal Format / Requirements**

*Proposals must be succinct and in no case exceed 60 pages, inclusive of requirements #1 through #6 below.*

1. Firm Identification & Qualifications  
Provide a brief description of the consultant's firm, size and organizational structure, number of full-time and part-time employees, area of practice, and number of years the firm has been in the business of conducting the described services. Provide a brief description of the consultant's qualifications for this project including a short history of the consultant's experience in similar projects. The firm's background, resources (financial and personnel), and capabilities in the relevant areas shall be described.



## 2. Project Understanding

A demonstration of the consultant's understanding of the proposed project and its various tasks must be submitted as part of the proposal.

## 3. Technical Approach, Scope of Work, and Schedule

Provide a detailed description of the consultant's proposed technical approach and scope of services for the completion of the tasks identified in Section E of this RFP. The consultant may propose alternate tasks that will meet the study objectives. A preliminary schedule for completing the study along with key study tasks should be included.

## 4. Project Staffing

The proposal should include information on how the consultant proposes to staff this project. This should include identification of the consultant's key project team members by name, field of expertise, specific responsibilities on the project and the *estimated number of hours* they will work on the project. Include any relevant experience, such as the number of similar projects the employee has directly participated in.

## 5. Recent Clients

The proposal must include a list of three (3) most recent clients for whom the consultant has provided services similar to those required herein. The list should include the name, address, and telephone number of the client contact person. Identify when work was performed and the type of work and services performed. The MPO may contact these references.

## 6. Price Proposal

The consultant's Price Proposal should set forth the fee for services and the method of calculating the rates for the different services to be provided.

## I. Disadvantaged Business Enterprise (DBE)

In the event that subcontractors are utilized for this contract, consultants shall make a good faith effort to utilize qualified DBE contractors for sub-consulting opportunities. Only those DBE firms that are certified by the Illinois State Department of Transportation as DBE Firms qualify under this provision. In accordance with Federal regulations, consultants shall demonstrate and document their good faith efforts to utilize certified DBE firms.

To obtain a listing of certified DBE firms or information about the Illinois State Department of Transportation's DBE Certification Program, contact:

Illinois State Department of Transportation  
Office of Business and Workforce Diversity  
Bureau of Small Business Enterprises  
2300 S. Dirksen Parkway, Room 319  
Springfield, IL 62764  
Phone: (217) 782-5490



## **J. Proposal Submittal**

1. Two copies of the proposal must be received on or before **Friday, August 8, 2014 at 4:00 p.m.** Proposals should be addressed to:

**Danville Area Transportation Study  
Attn: Jaclyn Marganski, MPO Director  
1155 E. Voorhees Street  
Danville, IL 61832**

2. The outside of the package should be clearly marked "**LRTP Update 2040**". Each firm is fully responsible for the timely delivery of its Proposal. Reliance upon mail or public carriers is at the firm's own risk. Proposals received after the time and date specified will not be considered.
3. This RFP does not commit DATS to award a contract, to pay for any costs incurred in the preparation of a proposal, or to pay for any costs incurred in the preparation of a contract for services. DATS reserves the right to accept or reject any or all proposals received, or to cancel, in part or in whole, this RFP.
4. Any questions about this RFP should be directed to:

**Jaclyn Marganski, MPO Director  
1155 E. Voorhees Street  
Danville, IL 61832  
Tel: (217) 431-2873  
E-Mail: [jmarganski@cityofdanville.org](mailto:jmarganski@cityofdanville.org)**

*Questions regarding clarification of the RFP must be submitted in writing on or before 4:00 p.m., Friday, August 1, 2014.*

## **K. Proposal Evaluation**

The Evaluation Team will review and rank the technical proposals using the factors listed below to select the preferred consultant. Based upon the evaluation of the technical proposals, DATS reserves the right to invite any or all consultants for an interview with the Evaluation Team before making a final selection. Such an invitation does not commit DATS to pay any costs incurred in participating in said interview.

The evaluation factors are:

1. Experience, Qualifications, and Capacity of the Consultant

The capabilities of each responding firm will be evaluated in these specific areas:

- a. Recent relevant experience of the firm in similar projects



- b. The extent to which the firm has personnel, equipment, and facilities to perform the scope of work
  - c. Experience of recent clients for similar services
- 2. Qualifications of the Project Team
  - a. The quality and experience of the proposed staff and the proper balance of relevant skills
  - b. The quality and experience of any proposed sub-contractors
- 3. Proposals

The proposals will be evaluated for their demonstrated understanding of the requirements of this RFP and their ability to meet the study objectives. This will include:

- a. Project understanding
- b. Clarity of the Proposal
- c. Proposed scope of work and study approach

# DATS Quiet Zone Feasibility Study

## Final Draft



**Four Quadrant Gates**



**Channelization**



**Median Barrier**



May 20, 2014

Ms. Jaclyn Marganski  
DATS Director  
City of Danville  
115 E. Voorhees Street Suite A  
Danville, IL. 61832

Dear Jaclyn,

URS is pleased to provide you with this draft final Railroad Quiet Zone Feasibility Study for your review and the review of the Technical Committee. This document contains all four of the Technical Memorandums we have previously provided to DATS as project deliverables, along with the final Technical Memorandum V delivered as part of this final draft document.

If you have any questions regarding this document, please do not hesitate to contact me. We look forward to receiving your comments by May 30, 2014 to prepare the Final Document for this important project.

Thank you.

Sincerely,

A handwritten signature in black ink, which appears to read "John Schwalbach". The signature is fluid and cursive.

John Schwalbach

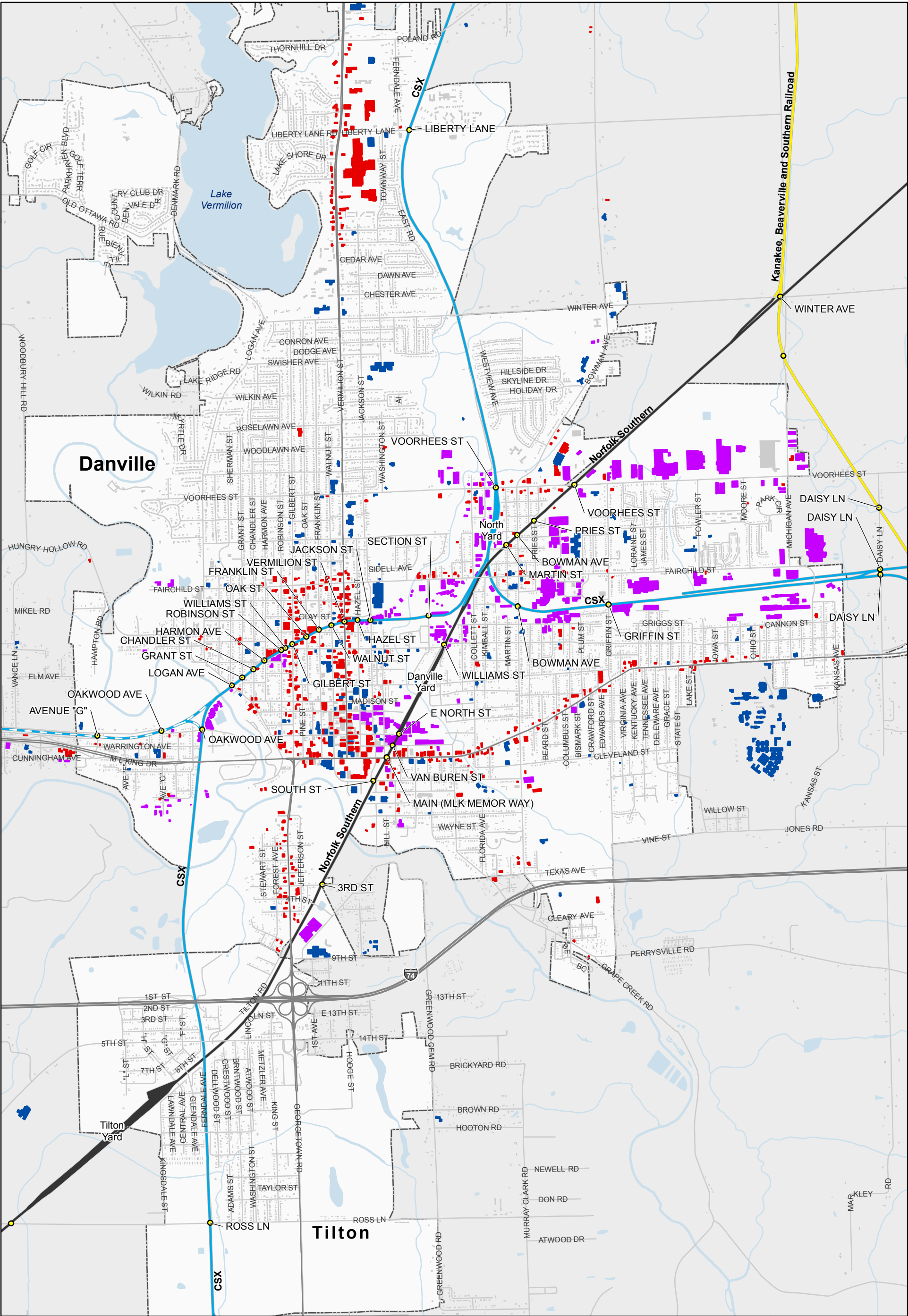
Vice President, URS Corporation

URS Corporation  
345 E. Ash Avenue  
Suite B  
Decatur, IL 62526  
Tel: 217.875.4800  
Fax: 217.875.3577

TAB 1

Technical Memo 1





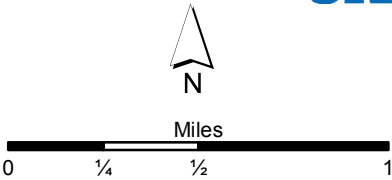
**Danville Illinois Railroad Crossings and Vehicular Generators**

- Railroad Right of Way**

  - CSX - 26 Trains Per Day (Approx.)
  - Norfolk Southern - 30 Trains Per Day (Approx.)
  - Kankakee, Beaverville & Southern Railroad

Right of way is generally 100 feet wide.
- Buildings**

  - Commercial
  - Industrial
  - Institutional
  - Other Buildings
  - Railroad Crossing





TAB 2

Technical Memo 2

# Existing Conditions Phase II Technical Memorandum

## DATS Quiet Zone Feasibility Study

This technical memo will summarize key deliverables and project progress in Phase II of the DATS Quiet Zone Feasibility Study.

### Existing Condition

A field check was conducted February 14, 2014 to compare the actual field conditions of each highway rail grade crossing in Danville, IL and Catlin, IL to the Illinois Commerce Commission Grade Crossing Inventory, which was completed in 2012. There were three differences found; the first was at Griffin Street where crossing AAR #543151P is now out of service. The second and third are at two highway rail grade crossings at Daisy Lane AAR #372813N, and N. Michigan Avenue AAR #372813N where yield signs were added to the existing cross bucks at both crossings. These are the only three differences noted between actual field conditions and the warning devices noted in the ICC inventory. There have been no recent upgrades to grade crossings that have flashers only or gates and flashers. There are no grade crossings within Danville that are equipped with four quad gates.

In addition, we looked for highway-rail grade crossings that are on one-way streets within the community as SSM's may be more easily and less expensively installed at those locations. Unfortunately, none were found in our field review.

### Rail Operations

URS has verified through train observations and dispatch systems that the majority of trains operating through Danville, are run through in nature. That is, they do not stop in Danville for any pick up or delivery while en route to their final destinations. However there are a small number of trains per week that are "local" in nature that operate to and from a handful of Danville industries that are served by rail. Nevertheless, these numbers are very small and 90% of trains in Danville are "run through".

### Community Survey

URS developed a community survey to gauge the importance to and interest in the implementation of a train horn ban. This was accomplished by questions that asked of the impact of train horns in the community and disruptions they may cause. This quality of life survey was advertised in the local newspaper, with a link to the website placed on the DATS website. In addition, hard copies of the surveys were distributed within the community to those who prefer to answer in a hard copy fashion. The survey began on February, 20, 2014 and will run for approximately 30 days or until the end of March 2014. Initial response to the survey has been positive with a higher than expected participation rate. Collection and evaluation of these surveys will take place in the next project phase.

### Emergency Service Provider Outreach

URS planning staff based in Chicago will initiate outreach efforts to engage the police, fire, ambulance, and public transit providers regarding grade crossings issues and to obtain the respective agencies input on the train horn community impacts. These interviews will be conducted by telephone, rather than survey completion as each of these organizations has a unique public service responsibility and that perspective may not be clearly represented by completion of the general public survey.

### Railroad and Federal Agency Existing Documentation Regarding Quiet Zones

We have included three appendices, the Quiet Zone information provided by CSX and Norfolk Southern as a general guideline for local municipalities to follow if they are interested in establishing a Quiet Zone. None of these activities need to be undertaken at the feasibility stage of this process, but are illustrative of requirements in future phases. We also include the “Guide to the Quiet Zone Establishment Process” document as an information resource. URS staff is familiar with and have utilized these documents associated with the Quiet Zone process.

# Appendix A

## CSX Quiet Zone Information



# Quiet Zone Proposals

## Key Points and Procedures

- This section was developed as a guideline for communities that approach CSXT in regards to the implementation of a Quiet Zone under the Federal Railroad Administration's ("FRA") final rule on the use of locomotive horns at public highway-rail grade crossings (the "Rule"), and to ensure CSXT's full compliance and cooperation with respect to the Rule.
- According to the FRA's commentary on the Rule, implementation of Quiet Zones – without appropriate safeguards and equipment – increases the risk of accidents at highway-rail grade crossings. In this context, CSXT encourages communities considering whether to implement Quiet Zones to take into account the installation of appropriate Supplemental Safety Measures ("SSMs"), as defined in the Rule, as well as the consolidation and/or closing of adjacent crossings, all of which will act as a safeguard to potentially reduce the risk of accidents at each crossing below the risk level that existed prior to the implementation of the Quiet Zone.
- Communities that wish to implement Quiet Zones will be required to strictly comply with the Rule.
- Pursuant to the Rule, notifications and/or applications to implement or continue Quiet Zones are to be made to the FRA and involve relevant state and local agencies, CSXT, and other rail carriers operating in the area.
- CSXT will seek to be reimbursed for work performed to design, implement, and maintain railroad facilities within Quiet Zones.
- CSXT desires to be a good corporate citizen. CSXT also places importance on the quality and timeliness of service to its customers and the communities it serves. As such, consistent with the Rule, CSXT will seek to encourage communities requesting Quiet Zones to implement solutions and SSMs that optimally achieve safety while minimizing the impact on railroad operations.

## Overview

CSXT will fully comply with the Rule, which provides requirements for the sounding of locomotive horns when approaching public highway-rail grade crossings. The Rule also will provide guidance for conditions under which Public Authorities may apply for and establish Quiet Zones. A Quiet Zone is a section of a rail line that contains one or more consecutive public crossings at which locomotive horns are not routinely sounded. (For full details on the rules, CSXT recommends that communities either visit the FRA web site at [www.fra.dot.gov](http://www.fra.dot.gov) or contact the FRA's Office of Safety at 202-493-6299.)

## Policy on Quiet Zones

The Rule clearly defines requirements that must be satisfied by the Public Authority requesting that a Quiet Zone be established or continued. CSXT will expect the Public Authority to strictly comply with these requirements.

## Identification of the Crossing and Location

Each crossing has a unique DOT inventory identification number posted at the crossing. There is often more than one crossing on the same road. The crossing number (such as 123456A) must be used to identify the specific crossing in all communications with the railroad to reduce possible confusion about the specific location.

## Preliminary Planning for Quiet Zones

Preliminary work by CSXT personnel and/or its consultants is likely to be required in connection with the proposed new or continued Quiet Zone, including, but not limited to: updating crossing inventory information; attending meetings; participating, to the extent feasible, in diagnostic reviews of the public, private and pedestrian crossings in a proposed Quiet Zone; preparing and processing estimates covering the cost of work to be performed by CSXT, if applicable; and processing necessary agreements. CSXT will coordinate preliminary planning activities with each Public Authority pursuant to an initial agreement that will also provide for payment to CSXT for services

provided during development of Quiet Zones.

### **Getting Started: Process for Pursuing a Quiet Zone**

1. Groups or individuals interested in Quiet Zones should first contact the Public Authority responsible for the highway where the Quiet Zone would be located. Public Authorities should then contact the FRA for additional information on Quiet Zone requirements and procedures.
2. The Public Authority should direct initial CSXT contact relating to possible Quiet Zones to: Director of Public Safety, 500 Water Street (C205), Jacksonville, Florida 32202. Those making this contact will be furnished with the Quiet Zone policy and advised of the appropriate contact within the CSXT Public Projects Group for the initial planning activities with CSXT.
3. If the Public Authority decides to proceed with preliminary planning for a Quiet Zone CSXT will assist by providing, when required, DOT inventory information and attending diagnostic review meetings, to the extent schedules permit. CSXT resources to attend these meetings are limited and thus CSXT will seek flexibility in establishing meeting dates and times in order to permit CSXT representatives to attend.
4. The Preliminary Planning for a Quiet Zone project should include a review of the following principles:
  - a. CSXT will cooperate and work in good faith with local communities and the appropriate Public Authority to provide all possible assistance in a manner that protects the safety of local citizens and their communities as well as CSXT's employees. Communities should keep in mind that, because of the anticipated large volume of Quiet Zone applications and the demands placed on CSXT resources by other transportation and safety projects, it is difficult at this time to estimate how long the planning and implementation process will take.
  - b. In accordance with the Rule, CSXT's support of a Quiet Zone proposal will require the plan to meet very specific FRA measures and requirements, which, in some cases, may be subject to FRA review, approval and on-going oversight. Accordingly, CSXT retains the right to review and comment on the requests.
  - c. CSXT expects the involvement of the state DOT, FRA, and/or state regulatory authority in any diagnostic review of a public, private and pedestrian crossing in the Quiet Zone corridor being proposed.
  - d. As discussed above, the appropriate Public Authority will be expected to reimburse CSXT for its cost of installation and future maintenance of Quiet Zones, including, but not limited to, its installation of Supplemental Safety Measures (SSMs) and Alternative Safety Measures (ASMs). As an example, CSXT installs and maintains active warning systems at Highway-Rail Grade Crossings that may be modified or expanded for a Quiet Zone. Curbs, medians, pavement markings and other traffic control signs such as advance warning signs are installed and maintained by Public Authorities. The specific responsibilities are expected to be resolved during the Preliminary Planning for a Quiet Zone.
  - e. If one or more SSMs or ASMs selected to be installed require work by CSXT, a separate standard Preliminary Engineering Agreement will be required to cover CSXT's engineering, review, handling, and estimate preparation connected with the proposed work. A separate Construction Agreement will be used for implementation of the projects. The cost of this work will be the responsibility of the requesting Public Authority.

- f. SSMs or ASMs installed and maintained by the Public Authority as described above are important parts of traffic control at each crossing. The Public Authority is responsible for periodic inspection and repair of these items.
- 5. Standard CSXT Public Projects Group design and estimating procedures will be used for projects related to Quiet Zones.

## Appendix B

### Norfolk Southern Quiet Zone Information



# QUIET ZONE INFORMATION



Locomotive horns enhance safety at highway-rail crossings by warning of approaching trains. The Federal Railroad Administration requires horns be sounded where trains approach public grade crossings. An exception is where a public authority has created a valid “quite zone.”

The rule was published in the Federal Register April 27, 2005, Volume 70, No. 80, beginning on page 21,888.

Learn more about the [locomotive horn rule](#).

## Community request to establish a new quiet zone

All requirements of the FRA rule must be met to establish a new quiet zone, including submitting a written notification to initiate the process. Proposed quiet zones involving NS public grade crossings should be submitted to:

W.L. (Bill) Barringer  
Norfolk Southern Corporation  
Director Grade Crossing Safety  
1200 Peachtree St. N.E., Box 36  
Atlanta GA 30309-0036

To implement safety enhancements to comply with Part 222 involving active warning devices at crossings, contact the NS Communications & Signal Department. Upgrades will be performed under NS' direction, and the city will cover costs of installation and maintenance.

For more info:

Cayela J. Wimberly  
Administrator Highway Grade Crossings  
Norfolk Southern Corporation  
1200 Peachtree St. N.E.  
Atlanta GA 30309  
Telephone: 404-529-1234

A \$2,800 quiet zone administrative handling fee applies. Requesting parties will be responsible for payment before completion of NS' review.

## Costs of quiet zone safety measures

NS' primary concern at rail-highway grade crossings is safety. The company will assist communities as necessary, but the responsible public authority must fully comply with federal rules. Public authorities pay for preliminary engineering, construction, maintenance, and replacement of active warning devices or their components installed at crossings to meet quiet zone standards. Public authorities must enter into a contract guaranteeing reimbursement to the railroad 30 days after railroad work is completed. Costs to install safety measures vary. Examples include:

Four-Quadrant Gate Systems - \$300,000 to \$500,000

Basic Active Warning System including flashing lights and gates, constant warning time, power out indicator, and cabin - \$185,000 to \$400,000

Basic Interconnect - \$5,000 to \$15,000-

Annual Maintenance - \$4,000 to \$10,000

## WHERE WE STAND

Where we stand creates possibilities today and tomorrow.

Balanced regulation »

Stay informed about NS' impact in your community.

JOIN THE LINE

## RELATED LINKS

---

### IN YOUR COMMUNITY

Working together to create prosperity

**Appendix C**

**Guide to the Quiet Zone Establishment Process**

**Federal Railroad Administration**



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## GUIDE TO THE QUIET ZONE ESTABLISHMENT PROCESS

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AN INFORMATION GUIDE

**Federal Railroad Administration**

1200 New Jersey Avenue S.E.

Washington, DC 20590

Telephone: 202-493-6299

[www.fra.dot.gov](http://www.fra.dot.gov)

**Federal Railroad Administration**

**Highway-Rail Crossing and Trespasser Programs Division**

Follow FRA on [Facebook](#) and [Twitter](#)



## **Purpose of the Guide**

This brochure was developed to serve as a guide for local decision makers seeking a greater understanding of train horn sounding requirements and how to establish quiet zones. Its purpose is to provide a general overview and thus does not contain every detail about the quiet zone establishment process. For more detailed and authoritative information, the reader is encouraged to review the official regulations governing the use of locomotive horns at public highway-rail grade crossings and the establishment of quiet zones that are contained in 49 CFR Part 222. A copy of the rule can be downloaded or printed at <http://www.fra.dot.gov/eLib/Details/L02809>.

## **About Quiet Zones**



FRA is committed to reducing the number of collisions at highway-rail grade crossings, while establishing a consistent standard for communities who opt to preserve or enhance quality of life for their residents by establishing quiet zones within which routine use of train horns at crossings is prohibited.

Federal regulation requires that locomotive horns begin sounding 15–20 seconds before entering public highway-rail grade crossings, no more than one-quarter mile in advance. Only a public authority, the governmental entity responsible for traffic control or law enforcement at the crossings, is permitted to create quiet zones.

A quiet zone is a section of a rail line at least one-half mile in length that contains one or more consecutive public highway-rail grade crossings at which locomotive horns are not routinely sounded when trains are approaching the crossings. The prohibited use of train horns at quiet zones only applies to trains when approaching and entering crossings and does not include train horn use within passenger stations or rail yards. Train horns may be sounded in emergency situations or to comply with other railroad or FRA rules even within a quiet zone. Quiet zone regulations also do not eliminate the use of locomotive bells at crossings. Therefore, a more appropriate description of a designated quiet zone would be a “reduced train horn area.”

Communities wishing to establish quiet zones must work through the appropriate public authority that is responsible for traffic control or law enforcement at the crossings.

## Historical Context

Historically, railroads have sounded locomotive horns or whistles in advance of grade crossings and under other circumstances as a universal safety precaution. Some States allowed local communities to create whistle bans where the train horn was not routinely sounded. In other States, communities created whistle bans through informal agreements with railroads.

In the late 1980's, FRA observed a significant increase in nighttime train-vehicle collisions at certain gated highway-rail grade crossings on the Florida East Coast Railway (FEC) at which nighttime whistle bans had been established in accordance with State statute. In 1991, FRA issued Emergency Order #15 requiring trains on the FEC to sound their horns again. The number and rate of collisions at affected crossings returned to pre-whistle ban levels.



In 1994, Congress enacted a law that required FRA to issue a Federal regulation requiring the sounding of locomotive horns at public highway-rail grade crossings. It also gave FRA the ability to provide for exceptions to that requirement by allowing communities under some circumstances to establish "quiet zones."

The Train Horn Rule became effective on June 24, 2005. The rule set nationwide standards for the sounding of train horns at public highway-rail grade crossings. This rule changed the criteria for sounding the horn from distance-based to time-based. It also set limits on the volume of a train horn. The rule also established a process for communities to obtain relief from the routine sounding of train horns by providing criteria for the establishment of quiet zones. Locomotive horns may still be used in the case of an emergency and to comply with Federal regulations or certain railroad rules.

## Public Safety Considerations

Because the absence of routine horn sounding increases the risk of a crossing collision, a public authority that desires to establish a quiet zone usually will be required to mitigate this additional risk. At a minimum, each public highway–rail crossing within a quiet zone must be equipped with active warning devices: flashing lights, gates, constant warning time devices (except in rare circumstances) and power out indicators.

***In order to create a quiet zone, one of the following conditions must be met***

1. ***The Quiet Zone Risk Index (QZRI) is less than or equal to the Nationwide Significant Risk Threshold (NSRT)*** with or without additional safety measures such as Supplementary Safety Measures (SSMs) or Alternative Safety Measures (ASMs) described below. The QZRI is the average risk for all public highway–rail crossings in the quiet zone, including the additional risk for absence of train horns and any reduction in risk due to the risk mitigation measures. The NSRT is the level of risk calculated annually by averaging the risk at all of the Nation’s public highway–rail grade crossings equipped with flashing lights and gates where train horns are routinely sounded.
2. ***The Quiet Zone Risk Index (QZRI) is less than or equal to the Risk Index With Horns (RIWH)*** with additional safety measures such as SSMs or ASMs. The RIWH is the average risk for all public highway–rail crossings in the proposed quiet zone when locomotive horns are routinely sounded.
3. ***Install SSMs at every public highway–rail crossing.*** This is the best method to reduce to reduce risks in a proposed quiet zone and to enhance safety.

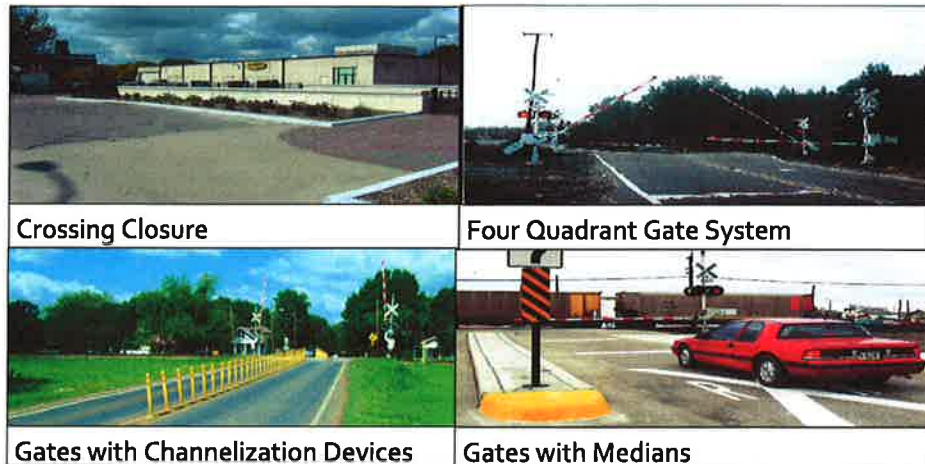
SSMs are pre-approved risk reduction engineering treatments installed at certain public highway–rail crossings within the quiet zone and can help maximize safety benefits and minimize risk. SSMs include: medians or channelization devices, one-way streets with gates, four quadrant gate systems, and temporary or permanent crossing closures. Examples of SSMs are shown on the next page.

ASMs are safety systems, other than SSMs, that are used to reduce risk in a quiet zone. ASMs typically are improvements that do not fully meet the requirements to be SSMs and their risk reduction effectiveness must be submitted in writing and approved by FRA.

FRA strongly recommends that all crossings in the quiet zone be reviewed by a diagnostic team. A diagnostic team typically consists of representatives from the public authority, railroad, and State agency responsible for crossing safety and FRA grade crossing managers.

## Public Safety Considerations continued

### Examples of SSMs



**Wayside Horns** The train horn rule also provides another method for reducing the impact of routine locomotive horn sounding when trains approach public highway-rail grade crossings. A wayside horn may be installed at highway-rail grade crossings that have flashing lights, gates, constant warning time devices (except in rare circumstances), and power out indicators. The wayside horn is positioned at the crossing and will sound when the warning devices are activated. The sound is directed down the roadway, which greatly reduces the noise footprint of the audible warning. Use of wayside horns is not the same as establishing a quiet zone although they may be used within quiet zones.

## Cost Considerations

The enabling Federal statute did not provide funding for the establishment of quiet zones. Public authorities seeking to establish quiet zones should be prepared to finance the installation of SSMs and ASMs used. Costs can vary from \$30,000 per crossing to more than \$1 million depending on the number of crossings and the types of safety improvements required.

## Legal Considerations

The courts will ultimately determine who will be held liable if a collision occurs at a grade crossing located within a quiet zone, based upon the facts of each case, as a collision may have been caused by factors other than the absence of an audible warning. FRA's rule is intended to remove failure to sound the horn as a cause of action in lawsuits involving collisions that have occurred at grade crossings within duly established quiet zones.



## The Quiet Zone Establishment Process

Under the Train Horn Rule, only public authorities are permitted to establish quiet zones. Citizens who wish to have a quiet zone in their neighborhood should contact their local government to pursue the establishment of a quiet zone. The following is a typical example of the steps taken to establish a quiet zone:

1. **Determine** which crossings will be included in the quiet zone. All public highway-rail crossings in the quiet zone must have, at a minimum, an automatic warning system consisting of flashing lights and gates. The warning systems must be equipped with constant warning time devices (except in rare circumstances) and power out indicators. The length of the quiet zone must be at least one-half mile in length.
2. **Identify** any private highway-rail grade crossings within the proposed quiet zone. If they allow access to the public or provide access to active industrial or commercial sites, a diagnostic review must be conducted and the crossing(s) treated in accordance with the recommendations of the diagnostic team.
3. **Identify** any pedestrian crossings within the proposed quiet zone and conduct a diagnostic review of those crossings too. They also must be treated in accordance with the diagnostic team's recommendations. *NOTE:* While it is not required by the regulations, FRA recommends that every crossing within a proposed quiet zone be reviewed for safety concerns.
4. **Update** the U.S. DOT Crossing Inventory Form to reflect current physical and operating conditions at each public, private, and pedestrian crossing located within a proposed quiet zone.
5. **Provide** a Notice of Intent (NOI) to all of the railroads that operate over crossings in the proposed quiet zone, the State agency responsible for highway safety and the State agency responsible for crossing safety. The NOI must list all of the crossings in the proposed quiet zone and give a brief explanation of the tentative plans for implementing improvements within the quiet zone. Additional required elements of the NOI can be found in 49 CFR 222.43(b). The railroads and State agencies have 60 days in which to provide comments to the public authority on the proposed plan.
6. **Alternative Safety Measures** – If ASMs are going to be used to reduce risk, an application to FRA must be made. The application must include all of the elements provided in 49 CFR 222.39(b)(1) and copies of the application must be sent to the entities listed in 49 CFR 222.39(b)(3). They will have 60 days to provide comments to FRA on the application. FRA will provide a written decision on the application typically within three to four months after it is received.

## The Quiet Zone Establishment Process continued

7. **Determine** how the quiet zone will be established using one of the following criteria: (Note that Options 2 through 4 will require the use of the FRA Quiet Zone Calculator available at <http://safetydata.fra.dot.gov/quiet/>.)

1. Every public highway-rail crossing in the proposed quiet zone is equipped with one or more SSMs.
2. The Quiet Zone Risk Index (QZRI) of the proposed quiet zone is less than or equal to the Nationwide Significant Risk Threshold (NSRT) without installing SSMs or ASMs.
3. The QZRI of the proposed quiet zone is less than or equal to the Nationwide Significant Risk Threshold (NSRT) after the installation of SSMs or ASMs.
4. The QZRI of the proposed quiet zone is less than or equal to the Risk Index with Horns (RIWH) after the installation of SSMs or ASMs.



8. **Complete** the installation of SSMs and ASMs and any other required improvements determined by the diagnostic team at all public, private, and pedestrian crossings within the proposed quiet zone.

9. **Ensure** that the required signage at each public, private, and pedestrian crossing is installed in accordance with 49 CFR Sections 222.25, 222.27, and 222.35, and the standards outlined in the Manual on Uniform Traffic Control Devices. These signs may need to be covered until the quiet zone is in effect.

10. **Establish** the quiet zone by providing a Notice of Quiet Zone Establishment to all of the parties that are listed in 49 CFR Section 222.43(a)(3). Be sure to include all of the required contents in the notice as listed in 49 CFR Section 222.43(d). The quiet zone can take effect no earlier than 21 days after the date on which the Notice of Quiet Zone Establishment is mailed.

**\*\*\*Appendix C to the Train Horn Rule provides detailed, step by step guidance on how to create a quiet zone.\*\*\***

### Required Documentation

Public authorities interested in establishing a quiet zone are required to submit certain documentation during the establishment process. FRA has provided checklists for the various documents that can be found at <http://www.fra.dot.gov/Elib/Details/L03055>.

FRA's Regional Grade Crossing Managers are available to provide technical assistance. A State's department of transportation or rail regulatory agency also may be able to provide assistance to communities pursuing quiet zones.

Public authorities are encouraged to consult with the agencies in their State that have responsibility for crossing safety. Some States may have additional administrative or legal requirements that must be met in order to modify a public highway-rail grade crossing.

### Role of Railroads

Communities seeking to establish a quiet zone are required to send a Notice of Intent and a Notice of Quiet Zone Establishment to railroads operating over the public highway-rail grade crossings within the proposed quiet zone. Railroad officials can provide valuable input during the quiet zone establishment process and should be included on all diagnostic teams. Listed below are links to the Class I Railroads and Amtrak.

<a href="#">BNSF Railway (BNSF)</a>	<a href="#">Canadian Pacific (CP)</a>
<a href="#">CSX Transportation (CSX)</a>	<a href="#">Norfolk Southern (NS)</a>
<a href="#">Canadian National (CN)</a>	<a href="#">Union Pacific (UP)</a>
<a href="#">Kansas City Southern (KCS)</a>	<a href="#">Amtrak (ATK)</a>

### FINAL NOTE

*The information contained in this brochure is provided as general guidance related to the Quiet Zone Establishment Process and should not be considered as a definitive resource. FRA strongly recommends that any public authority desiring to establish quiet zones take the opportunity to review all aspects of safety along its rail corridor. Particular attention should be given to measures that prevent trespassing on railroad tracks since investments made to establish a quiet zone may be negated if the horn has to be routinely sounded to warn trespassers.*

## **POINTS OF CONTACT**

### **General Questions:**

Inga Toye, 202-493-6305  
Debra Chappell, 202-493-6018  
Ron Ries, 202-493-6285

### **Regional Contacts**

**Region 1** Connecticut, Maine, Massachusetts, New Hampshire, New Jersey,  
New York, Rhode Island, and Vermont  
1-800-724-5991

**Region 2** Delaware, Maryland, Ohio, Pennsylvania, Virginia, West Virginia ,  
and Washington, D.C.  
1-800-724-5992

**Region 3** Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina,  
South Carolina, and Tennessee  
1-800-724-5993

**Region 4** Illinois, Indiana, Michigan, Minnesota, and Wisconsin  
1-800-724-5040

**Region 5** Arkansas, Louisiana, New Mexico, Oklahoma, and Texas  
1-800-724-5995

**Region 6** Colorado, Iowa, Kansas, Missouri, and Nebraska  
1-800-724-5996

**Region 7** Arizona, California, Nevada, and Utah  
1-800-724-5997

**Region 8** Alaska, Idaho, Montana, North Dakota, South Dakota, Oregon,  
Washington, and Wyoming  
1-800-724-5998





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**September 2013**

TAB 3

Technical Memo 3

# Community Survey, Phase III Technical Memorandum

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## DATS Quiet Zone Feasibility Study

Prepared by URS Corporation

For the Danville Area Transportation Study

April 2014



## Community Survey Phase III Technical Memorandum DATS Quiet Zone Feasibility Study

This technical memorandum will serve to aid the analysis of the Danville Area Transportation Study (DATS) community survey associated with the DATS Quiet Zone Feasibility Study. The survey was available to the public for approximately 30 days from February 23 thru March 24, 2014. The survey was developed by URS and distribution of the survey into the community was undertaken by the DATS, and the link was distributed to a myriad of civic and volunteer groups throughout the community. The hard copies of the survey were distributed via regular post. 100 surveys were sent out to businesses and private residences adjacent to the rail line corridors in the study. Additionally, 20 surveys were mailed directly to the Danville neighborhood associations.

In total, there were 73 responses to the survey from community members. The surveys could be completed on-line (managed by URS) or a hard copy could be filled out and returned to the Study Director, who subsequently submitted them to URS for processing. 59 of the responses (80%) were on-line, and the remaining 14 (20%) were hard copies. While the raw survey numbers are not statistically significant, it does not diminish from the overall objective of this survey, which is to identify train horn impacts to the community and other railroad issues in Danville and Catlin. The survey results by question are presented as an attachment to this Technical Memorandum.

### Question #1 "Please select what best describes where you live."

The vast majority of respondents identified themselves as Danville residents (83.6%), with a few respondents from Catlin (8.2%), other areas in Vermilion County (6.8%) and outside of Vermilion County (1.4%). It is evident that the survey reached its target market of Danville and Catlin and is not skewed towards individuals who do not live in these communities in general.

### Question #2 "Please select what best describes where you work"

The distribution of respondents also mirrored the response in Question #1; over 90% are from the Danville and Catlin area. We can say with some certainty that the reach to the



target market is confirmed both at work and at home from the answers to the first two questions.

Question #3 “Do you live or work near a railroad line or crossing?”

It is significant to note that 90% of respondents live or work near a railroad line. As railroad lines traverse Danville and Catlin from multiple directions, it is important to verify from the respondents that they have a familiarity with the rail lines and are aware of their presence and significance within the community. There is also an understanding within the community of the importance to the railroads to the city as a transportation hub and as a job creation source.

Question #4 “In your time living and/or working in the area, do you feel that train traffic has impacted any of the following?”

By far the greatest impact identified in the survey is the disruption to vehicular traffic caused by grade crossings. This is to be expected as everyone has been stopped by a train at a grade crossing, but not everyone lives close to an area where a train horns are sounded frequently. This impact to the motoring public is followed by the “quality of life” response with most of the comments referencing train noise, either by horns or idling locomotives. Lesser importance was attached to the overall roadway safety and non- motorized safety survey choices.

Question #5 On a scale of 1 to 10 where 1 represents “no problem” and 10 represents a “very significant problem”, what is your opinion of overall train traffic in the area?

We again see confirmation of the response to Question #4 with the overall average response at 6.95 out of 10 for this question. It is clear that train traffic in general is an issue for the people of Danville and Catlin. Our supposition from comments relates to long delays at crossings at key locations with switching moves blocking traffic for extraordinarily long times. A contributing factor is the number of train movements in and out of the 4 rail yards in the study area, which are CSX North and Brewer Yards and NS Danville and Tilton Yards.

Question #6 On a scale of 1 to 10 where 1 represents “no problem” and 10 represents a “very significant problem”, what is your opinion specifically related to train horn noise in the area?

The train horn noise average value is 5.91, a full point lower than train traffic issue raised in Question #5. There also seems to be a significant dichotomy with both extremes (1 and 10) with high representations at either end of the spectrum and a relatively low representation of the middle values (4-7).

Question #7 Do you believe there is an issue with the frequency of train horns in the area?

Two-thirds of the survey respondents think the frequency of train horns being activated in the area is a minor or no problem. However, it appears that a vocal one-third minority are affected and voiced their concerns in the comments section.

Question #8 What time of the day do you believe this problem exists?

The greatest percentage response to this question is “all day”. This is borne out by the Class I railroad freight operations which operate 24 hours a day/7 days a week with the trains normally distributed throughout the day. The next highest value, at night, is reflective of the population’s expectations for quiet in the evening, but then it is disrupted by the train horn noise.

Question #9 If you live in Vermillion County provide the nearest roadway intersection to your home

See Exhibit A identifies location of residential population of survey submissions.

Question #10 If you work in Vermillion County provide the nearest roadway intersection to your place of employment.

See Exhibit B identifies location of workplace population of survey submissions.

Question #11 How many trains per day do you believe operate in the following areas?

The actual number of trains per day 56, the average survey estimate of trains per day is 38. The survey values are somewhat close to the actual train volumes through Danville.

Question #12 Additional comments related to the rail/roadway crossings in the Danville/Catlin area.

There were significant comments received from the survey participants, which usually indicates an interest in the subject of the survey. The types of comments were divided into four categories; each of the four categories had a roughly equal number of comments:

1. Railroads are Part of the Community: There were comments that stated that trains are a long standing part of the community and that if you live here you should just accept that fact. There is also an understanding that the railroad presence contributed to the growth of Danville and is important to the community as a whole.
2. Trains blocking Crossings for Extended Periods: There were also comments that addressed long train crossing blockages as a disruptor of the smooth flow of the roadway system; examples were also provided of extraordinarily long blocked crossings at specific locations.
3. Train Horn Noise: Comments also were addressing the train horn blowing and how disruptive it is to the quality of life. There were several statements regarding the engineers “laying on the horn” when they do not have to.
4. Rail Safety at Crossings: The last category of comments addressed rail safety, lack of gates at some crossings, trains being too long and trains not moving.

Conclusion

Residents of Danville generally accept that railroads are part of the City and understand that rail traffic has benefits.

Residents agree that vehicular traffic delays caused by highway rail grade crossings blockages are the most problematic rail issue.

Residents agree that train noise, while perhaps not the most significant rail issue, is something that affects the quality of life for many that live or work close to highway rail grade crossings. A resident may be able to find an alternate route to avoid a blocked

crossing, but there is no alternative to 24 hours a day/7 days a week train horn noise, if you live in close proximity to the railroad tracks.

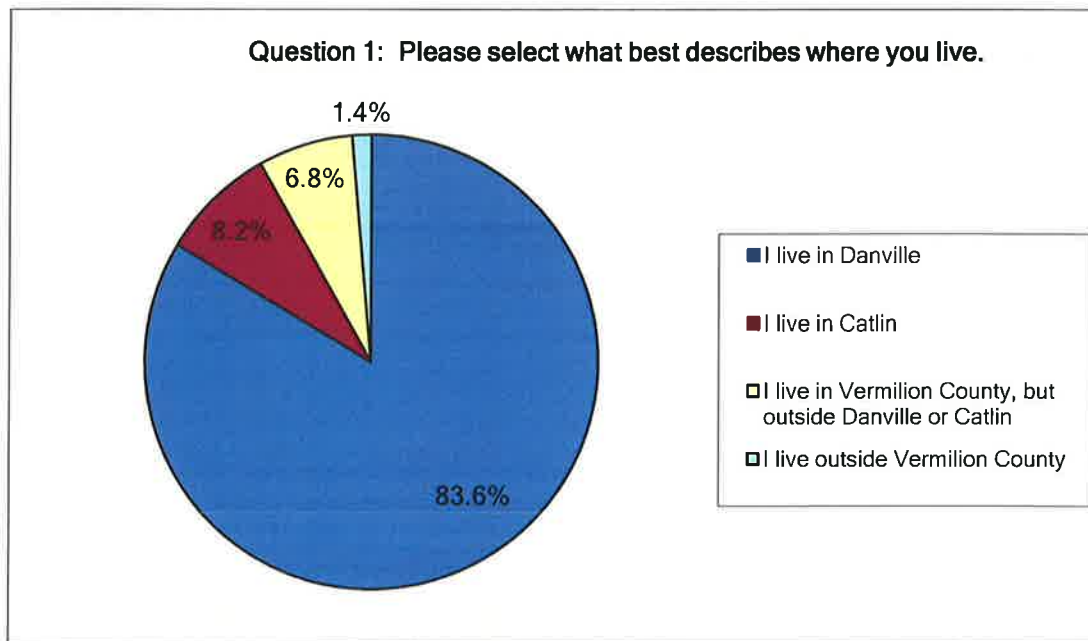


# Survey Data Attachment

## DATS Quiet Zone Study

Question 1: Please select what best describes where you live.

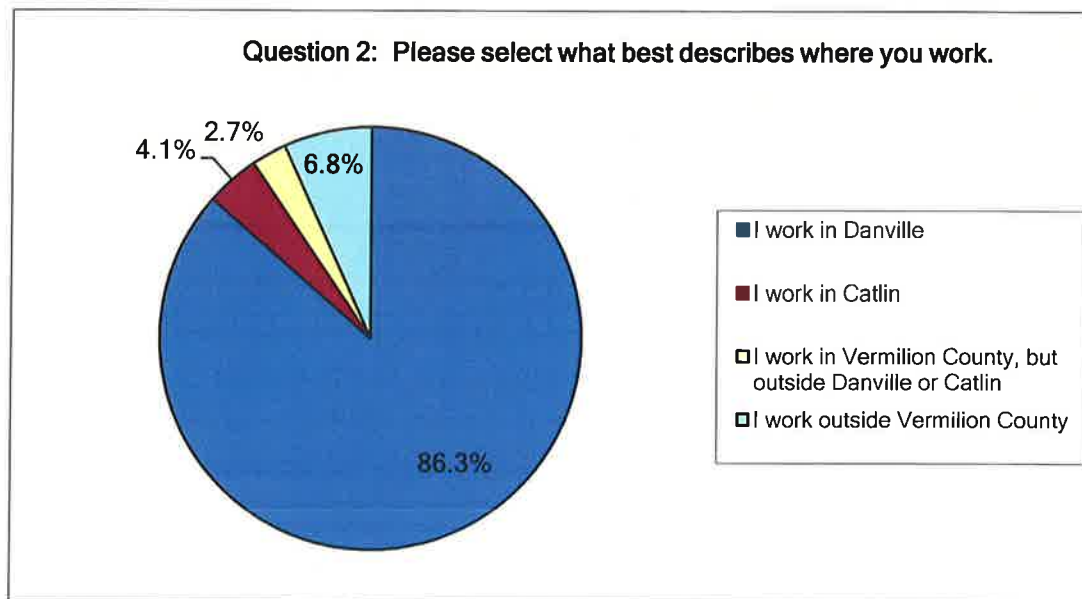
Answer Options	Response Percent	Response Count
I live in Danville	83.6%	61
I live in Catlin	8.2%	6
I live in Vermilion County, but outside Danville or Catlin	6.8%	5
I live outside Vermilion County	1.4%	1
<b>answered question</b>		<b>73</b>
<b>skipped question</b>		<b>0</b>



## DATS Quiet Zone Study

Question 2: Please select what best describes where you work.

Answer Options	Response Percent	Response Count
I work in Danville	86.3%	63
I work in Catlin	4.1%	3
I work in Vermilion County, but outside Danville or Catlin	2.7%	2
I work outside Vermilion County	6.8%	5
<b>answered question</b>		<b>73</b>
<b>skipped question</b>		<b>0</b>

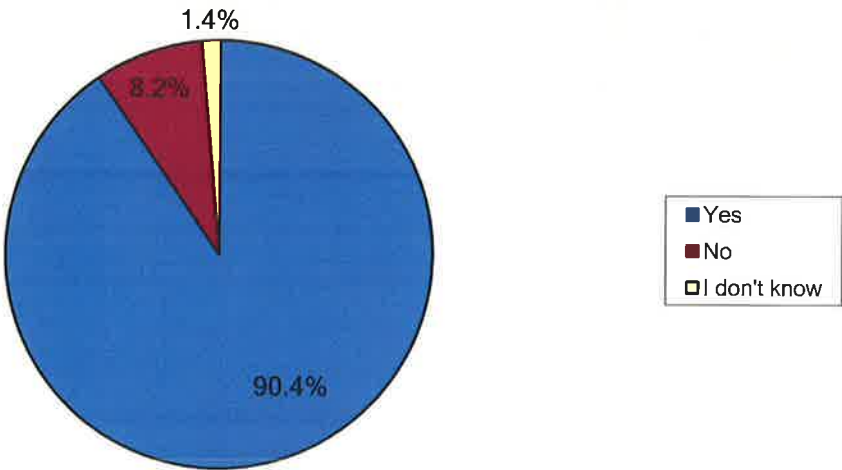


DATS Quiet Zone Study

Question 4: Do you live or work near a railroad line or crossing?

Answer Options	Response Percent	Response Count
Yes	90.4%	66
No	8.2%	6
I don't know	1.4%	1
<i>answered question</i>		<b>73</b>
<i>skipped question</i>		<b>0</b>

Question 3: Do you live or work near a railroad line or crossing?

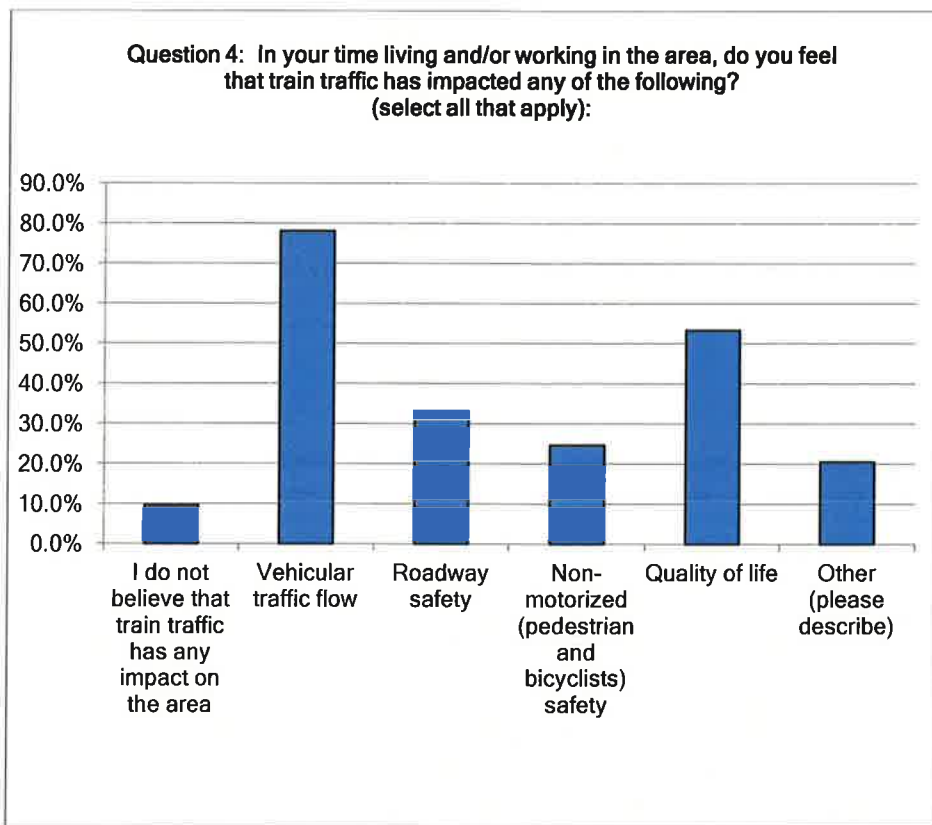




## DATS Quiet Zone Study

**Question 4: In your time living and/or working in the area, do you feel that train traffic has impacted any of the following? (select all that apply):**

Answer Options	Response Percent	Response Count
I do not believe that train traffic has any impact on the	9.6%	7
Vehicular traffic flow	78.1%	57
Roadway safety	32.9%	24
Non-motorized (pedestrian and bicyclists) safety	24.7%	18
Quality of life	53.4%	39
Other (please describe)	20.5%	15
<b>answered question</b>		<b>73</b>
<b>skipped question</b>		<b>0</b>



## DATS Quiet Zone Study

**Question 4: In your time living and/or working in the area, do you feel that train traffic has impacted any of the following? (select all that apply):**

Number	Response Date	Other (please describe)	Categories
1	Mar 31, 2014 2:33 PM	In Feb train sat idling on track 2 1/2 days can hear it inside house - don't know how people next to track can stand it.	
2	Mar 26, 2014 8:54 PM	I have seen several ambulances and fire trucks stuck behind trains	
3	Mar 21, 2014 6:21 PM	Train horns	
4	Mar 19, 2014 5:52 PM	Air Quality & Noise Issues when the trains sit idle for hours / days near our home	
5	Mar 14, 2014 4:50 PM	Decreases property value	
6	Mar 7, 2014 11:55 PM	Train horns wake me up all hours of the night in the Bowman Fairchild corridor	
7	Mar 5, 2014 7:00 PM	Train traffic allows for commerce which has a positive overall impact.	
8	Feb 26, 2014 11:24 AM	Emergency response capabilities	
9	Feb 25, 2014 6:28 PM	All medical crews	
10	Feb 25, 2014 1:28 PM	Just that I'm late every so often, the train on Main and Washington	
11	Feb 24, 2014 6:20 PM	Noise	
12	Feb 23, 2014 5:04 PM	Noise, can't have windows open due to noise	
13	Feb 21, 2014 4:47 PM	All rail roads should have working gates	
14	Feb 21, 2014 3:21 PM	High train traffic in this town, I used to live by noisy tracks, no longer affected so much	
15	Feb 21, 2014 2:05 PM	Emergency Response	

## DATS Quiet Zone Study

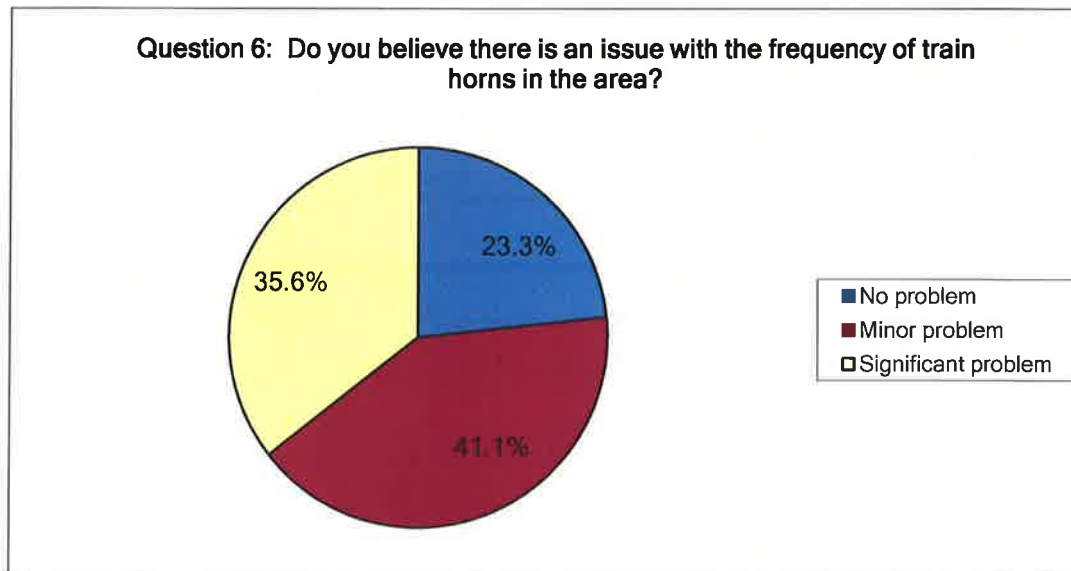
**Question 5:** On a scale of 1 to 10, where 1 represents "no problem" and 10 represents a "very significant problem," what is your opinion on the below issues?

Severity Rating	1	2	3	4	5	6	7	8	9	10	Response Count
Answer Options											
Overall Train Traffic	8	1	0	1	9	8	11	15	3	17	73
Train Horn Noise	14	9	3	3	6	2	5	6	2	23	73
Question Totals											73
										answered question	73
										skipped question	0

## DATS Quiet Zone Study

**Question 6: Do you believe there is an issue with the frequency of train horns in the area?**

Answer Options	Response Percent	Response Count
No problem	23.3%	17
Minor problem	41.1%	30
Significant problem	35.6%	26
<b><i>answered question</i></b>		<b>73</b>
<b><i>skipped question</i></b>		<b>0</b>



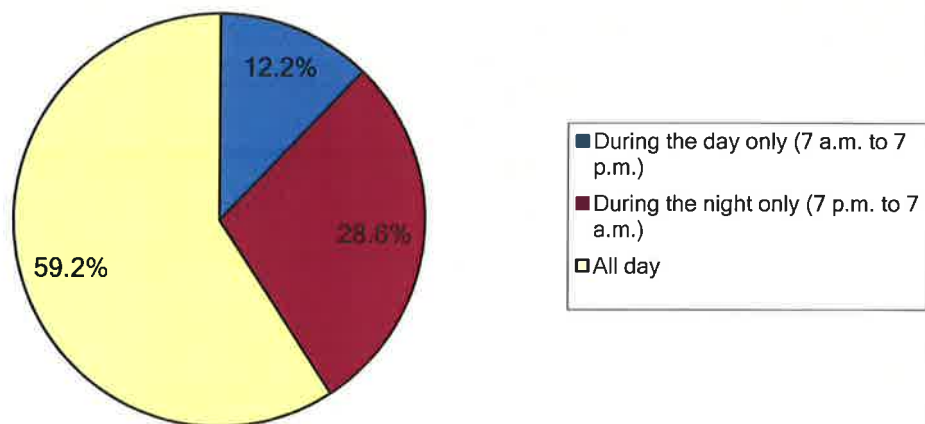


## DATS Quiet Zone Study

### Question 7: What time of day do you believe the problem exists?

Answer Options	Response Percent	Response Count
During the day only (7 a.m. to 7 p.m.)	12.2%	6
During the night only (7 p.m. to 7 a.m.)	28.6%	14
All day	59.2%	29
<i>answered question</i>		<b>49</b>
<i>skipped question</i>		<b>24</b>

### Question 7: What time of day do you believe the problem exists?



## DATS Quiet Zone Study

Question 8: If you live in Vermilion County, please provide the nearest roadway intersection to your home? As an example, please using the following format to provide your response: Fairchild and Bowman (example only)

Answer Options	Response Count
	47
<i>answered question</i>	<b>47</b>
<i>skipped question</i>	<b>26</b>

Number	Response Date	Response Text
1	Mar 31, 2014 2:34 PM	N. Cedarwood and East Road
2	Mar 26, 2014 8:56 PM	Bowman and Voorhees
3	Mar 26, 2014 8:51 PM	Voorhees and Bowman
4	Mar 21, 2014 6:22 PM	Saratoga and Voorhees
5	Mar 21, 2014 6:21 PM	Voorhees and Bowman
6	Mar 21, 2014 6:19 PM	English and Giddings
7	Mar 21, 2014 6:17 PM	Payne Ave. and North St.
8	Mar 21, 2014 6:15 PM	Williams and Bowman
9	Mar 21, 2014 6:13 PM	Skyline Drive and Hillside
10	Mar 21, 2014 6:11 PM	Bowman and Voorhees
11	Mar 21, 2014 6:10 PM	Winter and Gilbert
12	Mar 21, 2014 6:08 PM	South and Jackson
13	Mar 19, 2014 5:58 PM	Winter & Monterey
14	Mar 14, 2014 4:51 PM	Allison St. & Orchard St.
15	Mar 7, 2014 11:59 PM	Fairchild and Bowman at rescue mission.
16	Mar 3, 2014 6:05 PM	Voorhees and Bowman
17	Mar 2, 2014 11:38 PM	Chester Ave. & Smith Ave.
18	Feb 28, 2014 1:40 PM	Liberty and Townway
19	Feb 27, 2014 6:39 PM	Woodlawn & Terrace
20	Feb 26, 2014 1:00 AM	Main and Jackson
21	Feb 25, 2014 9:12 PM	Girffin and Williams
22	Feb 24, 2014 7:45 PM	Voorhees and Griffin
23	Feb 24, 2014 6:22 PM	Fairchild and Bowman
24	Feb 24, 2014 6:09 PM	Voorhees and Griffin
25	Feb 24, 2014 3:05 PM	Logan and Main
26	Feb 24, 2014 2:33 AM	Liberty lane
27	Feb 24, 2014 2:05 AM	N. Daisy Lane
28	Feb 24, 2014 12:13 AM	Main Street
29	Feb 24, 2014 12:01 AM	Griffin St., Bowman St., Voorhees St.
30	Feb 23, 2014 6:01 PM	Winter / Vermilion
31	Feb 23, 2014 5:47 PM	Chester Ave. & Smith Ave.
32	Feb 23, 2014 5:09 PM	Orchard and Gernand
33	Feb 23, 2014 4:31 PM	N. Daisy Lane
34	Feb 23, 2014 3:50 PM	Liberty Lane
35	Feb 23, 2014 1:28 PM	Voorhees and Bowman
36	Feb 23, 2014 10:26 AM	Liberty and Townway
37	Feb 22, 2014 5:57 PM	Logan and Terrace
38	Feb 22, 2014 4:01 PM	Winter & Franklin
39	Feb 22, 2014 3:46 PM	Liberty and Townway
40	Feb 22, 2014 1:57 AM	Winter & Jackson
41	Feb 21, 2014 5:18 PM	Liberty Lane and Ferndale
42	Feb 21, 2014 4:48 PM	Fairchild and Bowman
43	Feb 21, 2014 3:45 PM	Wayne & Florida
44	Feb 21, 2014 3:43 PM	Paris St., Catlin and Vermilion St., Catlin
45	Feb 21, 2014 3:27 PM	Vermilion and Williams
46	Feb 21, 2014 2:06 PM	Voorhees and Bowman
47	Feb 20, 2014 10:03 PM	Sandusky - Catlin

## DATS Quiet Zone Study

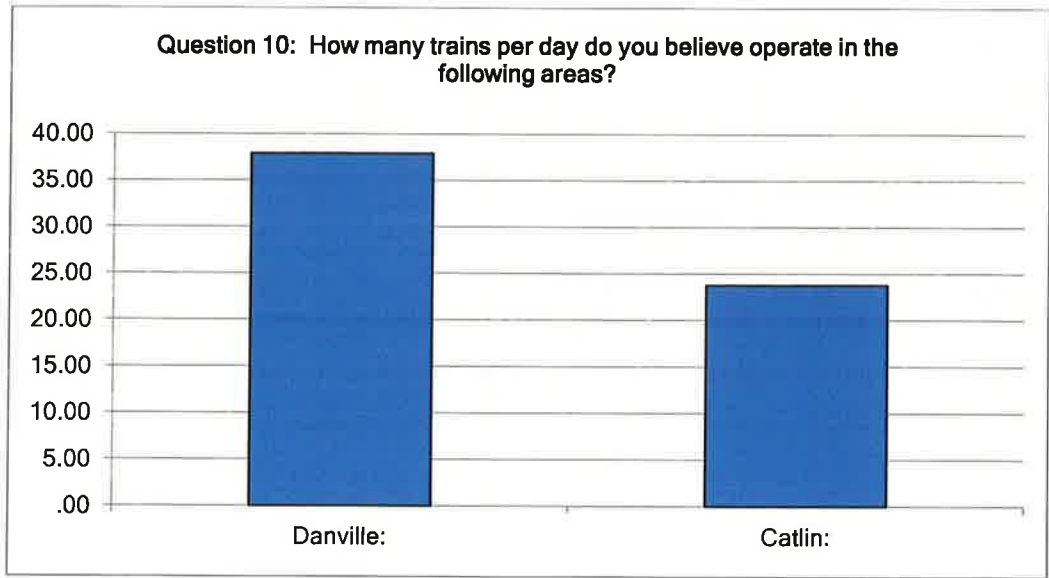
Question 9: If you work in Vermilion County, please provide the nearest roadway intersection to your place of employment. As an example, please use the following format to provide your response: Fairchild and Bowman (example only)

Answer Options	Response Count
	36
<i>answered question</i>	<b>36</b>
<i>skipped question</i>	<b>37</b>

Number	Response Date	Response Text
1	Mar 31, 2014 2:34 PM	Voorhees and Bowman
2	Mar 26, 2014 8:56 PM	Bowman and Voorhees
3	Mar 26, 2014 8:51 PM	Main and Jackson
4	Mar 21, 2014 6:15 PM	Griffin and Fairchild
5	Mar 21, 2014 6:13 PM	South St. and Jackson
6	Mar 21, 2014 6:11 PM	Jackson and South
7	Mar 21, 2014 6:10 PM	Voorhees and Bowman
8	Mar 19, 2014 5:58 PM	Gilbert & English
9	Mar 7, 2014 11:59 PM	Fairchild and Bowman at rescue mission
10	Mar 3, 2014 6:05 PM	N/A
11	Mar 2, 2014 11:38 PM	I work all over town as I do home visits for therapy
12	Feb 27, 2014 6:39 PM	Hazel & Madison
13	Feb 26, 2014 1:00 AM	Bowman
14	Feb 25, 2014 9:12 PM	Voorhees and Griffin
15	Feb 24, 2014 7:45 PM	Voorhees and Grffin
16	Feb 24, 2014 6:22 PM	Gilbert and 9th
17	Feb 24, 2014 6:09 PM	Main and Griffin
18	Feb 24, 2014 3:05 PM	Main and Jackson
19	Feb 24, 2014 2:33 AM	Griffin
20	Feb 24, 2014 12:13 AM	Main St.
21	Feb 24, 2014 12:01 AM	Voorhees
22	Feb 23, 2014 6:01 PM	Winter / Vermilion
23	Feb 23, 2014 5:47 PM	I am a contractor but I would said the entire North and South EAST sides of town.
24	Feb 23, 2014 5:09 PM	Retired
25	Feb 23, 2014 3:50 PM	Lynch Road
26	Feb 23, 2014 1:28 PM	Fairchild and Bowman
27	Feb 22, 2014 5:57 PM	Vermilion and North
28	Feb 22, 2014 4:01 PM	North & Jackson
29	Feb 22, 2014 3:46 PM	North and Jackson
30	Feb 21, 2014 5:18 PM	Main and Washington
31	Feb 21, 2014 4:48 PM	near Garfield Park
32	Feb 21, 2014 3:45 PM	Woodbury and Franklin
33	Feb 21, 2014 3:43 PM	Voorhees and Bowman, Danville
34	Feb 21, 2014 3:27 PM	Vermilion and Williams
35	Feb 21, 2014 2:06 PM	Voorhees and Griffin
36	Feb 20, 2014 10:03 PM	Sandusky - Catlin

# DATS Quiet Zone Study

Question 10: How many trains per day do you believe operate in the following areas?			
Answer Options	Response Average	Response Total	Response Count
Danville:	37.87	2,310	61
Catlin:	23.75	855	36
answered question			61
skipped question			12





## DATS Quiet Zone Study

Question 10: How many trains per day do you believe operate in the following areas?

Number	Response Date	Danville:	Categories	Catlin:
1	Mar 26, 2014 8:56 PM	25		10
2	Mar 26, 2014 8:53 PM	12		
3	Mar 26, 2014 8:51 PM	8		7
4	Mar 21, 2014 6:21 PM	50		
5	Mar 21, 2014 6:19 PM	30		
6	Mar 21, 2014 6:17 PM	25		
7	Mar 21, 2014 6:15 PM	6		
8	Mar 21, 2014 6:13 PM	20		
9	Mar 21, 2014 6:11 PM	75		
10	Mar 21, 2014 6:10 PM	20		10
11	Mar 21, 2014 6:08 PM	10		
12	Mar 19, 2014 5:58 PM	25		10
13	Mar 14, 2014 4:51 PM	50		35
14	Mar 7, 2014 11:59 PM	25		10
15	Mar 5, 2014 7:01 PM	6		6
16	Mar 3, 2014 6:05 PM	6		
17	Mar 2, 2014 11:38 PM	100		
18	Mar 2, 2014 5:53 PM	10		10
19	Feb 28, 2014 1:40 PM	15		
20	Feb 27, 2014 6:39 PM	12		3
21	Feb 27, 2014 6:44 AM	200		50
22	Feb 26, 2014 2:45 AM	40		22
23	Feb 26, 2014 12:55 AM	100		
24	Feb 25, 2014 9:12 PM	20		10
25	Feb 25, 2014 1:31 PM	10		5
26	Feb 25, 2014 12:07 AM	30		10
27	Feb 24, 2014 8:31 PM	300		150
28	Feb 24, 2014 7:45 PM	30		10
29	Feb 24, 2014 7:06 PM	15		10
30	Feb 24, 2014 6:22 PM	30		20
31	Feb 24, 2014 6:09 PM	10		5
32	Feb 24, 2014 5:52 PM	20		10
33	Feb 24, 2014 4:17 PM	50		20
34	Feb 24, 2014 3:05 PM	20		20
35	Feb 24, 2014 2:33 AM	15		5
36	Feb 24, 2014 2:05 AM	5		
37	Feb 24, 2014 12:13 AM	15		
38	Feb 24, 2014 12:01 AM	15		
39	Feb 23, 2014 6:01 PM	35		20
40	Feb 23, 2014 5:47 PM	50		
41	Feb 23, 2014 5:09 PM	60		
42	Feb 23, 2014 4:31 PM	3		
43	Feb 23, 2014 3:50 PM	100		50
44	Feb 23, 2014 1:28 PM	100		100
45	Feb 23, 2014 12:20 PM	50		15
46	Feb 23, 2014 10:26 AM	60		
47	Feb 22, 2014 7:07 PM	15		
48	Feb 22, 2014 5:57 PM	10		0
49	Feb 22, 2014 4:01 PM	13		5
50	Feb 22, 2014 3:46 PM	40		30
51	Feb 22, 2014 1:57 AM	20		
52	Feb 21, 2014 5:18 PM	30		15

## DATS Quiet Zone Study

Number	Response Date	Danville:	Categories	Catlin:
53	Feb 21, 2014 4:48 PM	10		
54	Feb 21, 2014 3:46 PM	10		
55	Feb 21, 2014 3:45 PM	20		
56	Feb 21, 2014 3:43 PM	5		5
57	Feb 21, 2014 3:27 PM	100		100
58	Feb 21, 2014 2:06 PM	75		45
59	Feb 20, 2014 11:11 PM	10		
60	Feb 20, 2014 10:55 PM	4		2
61	Feb 20, 2014 10:03 PM	35		20

## DATS Quiet Zone Study

If you have any additional comments related to rail/roadway crossings in the Danville or Catlin area, please use the space below to provide this

Answer Options	Response Count
	42
<i>answered question</i>	<b>42</b>
<i>skipped question</i>	<b>31</b>

Number	Response Date	Response Text
1	Mar 31, 2014 2:34 PM	When working either trains or switches at track by Voorhees and Bowman and trains by Bob's Market went to work at about 6:20 am and the switch people never seem to care about tying up traffic or for how long can't guess 'em either
2	Mar 26, 2014 8:56 PM	The tracks on Voorhees by the Bowman intersection are closed periodically for long periods of time at high traffic times. I don't know how there has not been an accident at the intersection due to backed up traffic from the railroad tracks.
3	Mar 26, 2014 8:53 PM	I live close to the train tracks Chester Deadends at the tracks. Trains don't bother us at all. When you live close you are used to them.
4	Mar 26, 2014 8:51 PM	The people knew the railroads were here when they moved into the neighborhood
5	Mar 21, 2014 6:22 PM	There is constant train traffic on Voorhees tracks (Norfolk and SCX) also CSX on Griffen
6	Mar 21, 2014 6:19 PM	too long trains, can't wait for the Fairchild overpass is open
7	Mar 21, 2014 6:17 PM	trains blocks Gilbert St. for over an hour
8	Mar 21, 2014 6:15 PM	No rear problem the horn comes from when trains approach intersection
9	Mar 21, 2014 6:13 PM	By getting the Fairchild Bridge done it will help all matters
10	Mar 21, 2014 6:11 PM	Some engineers leave the horn on all the way through the intersection
11	Mar 19, 2014 5:58 PM	In February, 2014, a train stopped & sat idling the diesel engines for 4 DAYS @ our back yard. It rumbling with Air Brake noises throughout the entire time. The air was full of diesel smell. It was AWFUL for 4 days & nights. Trains often stop here for more than a day, but normally do not continue running (but this DOES happen a few times a year!).
12	Mar 7, 2014 11:59 PM	the tracks all have crossing arms but yet the trains will sound a horn up to 7 blasts in a row

## DATS Quiet Zone Study

Number	Response Date	Response Text
13	Mar 5, 2014 7:01 PM	How can I get more information about becoming a hobbo?
14	Mar 2, 2014 11:38 PM	Train noise at night is my main problem but it can also be during the day as well. Also train frequency on the East side of town seems to disturb traffic virtually every time I go on that side of town.
15	Mar 2, 2014 5:53 PM	Extremely tired of hearing the train engine idling at all hours of the day and night. I know there are two tracks but this noise is unnecessary. Also tired of hearing the horn sounding and the echo that follows. The train rarely moves.
16	Feb 28, 2014 1:40 PM	The trains blow the horn way before their location to blow the horn. I know where their spot is located and horns are blown unnecessarily.
17	Feb 27, 2014 6:44 AM	The railroad has been a part of this area for years. What do people expect in a blue collar community? Very much in disbelief that this has been such an issue for people in the area!!!
18	Feb 26, 2014 1:00 AM	The amount of time you have to wait for the trains to pass is so long. Also sometimes one train will be done and immediately another train will start.
19	Feb 26, 2014 12:55 AM	I have been late to work because of trains. I have also cancelled plans for recreation when more than one train stopped me and I would have been late. If I could plan for them, I could work around them.
20	Feb 25, 2014 9:12 PM	The train horns disrupt sleep in the night hours. Trains prevent emergency vehicles from timely response. Not all have crossing arms giving motorist and pedestrians too much opportunity to cross with train approaching
21	Feb 25, 2014 1:31 PM	if you have grown up in vermilion County, odds are you sleep right through the horns!
22	Feb 25, 2014 12:07 AM	Pretty sure most of these tracks have been there for a long time. Want to get you ups or mail or other goods....deal with it. Trains were here long before we were
23	Feb 24, 2014 8:31 PM	Trains are an essential part of our community and provide jobs for the area. We should not impose any greater restrictions upon them for fear they might leave the area.

## DATS Quiet Zone Study

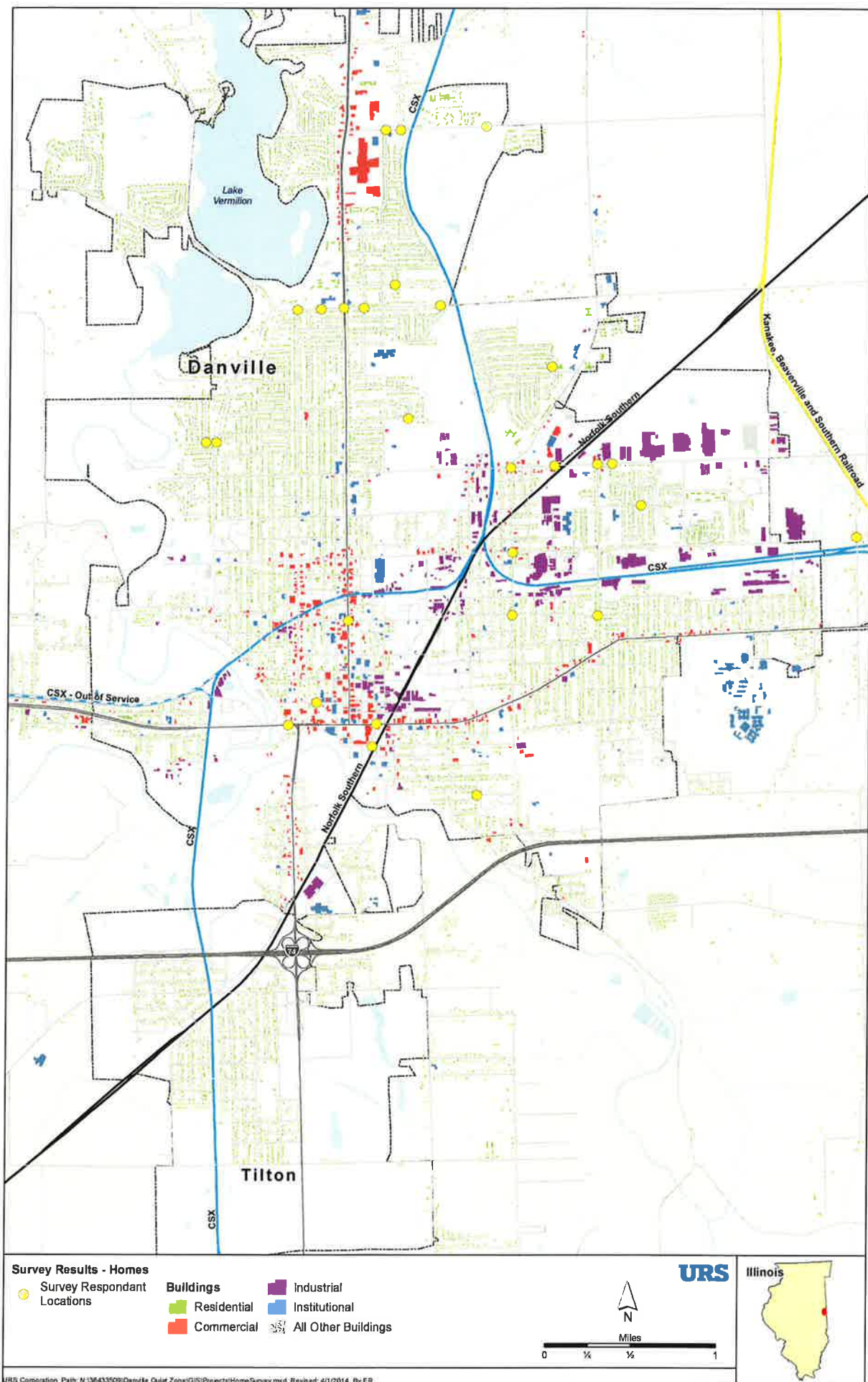
Number	Response Date	Response Text
24	Feb 24, 2014 6:22 PM	i think all crossings should have gates
25	Feb 24, 2014 6:09 PM	i live 1 1/2 blocks away from a train crossing, it seems there are trains running there constantly. we will go down road to gas station, get 1 or 2 trains at the same time. then when we head back home, again another train or two. just to go a few minutes down the road. also at night, they constantly wake me up w/ their noise, mainly idling. it's very frustrating.
26	Feb 24, 2014 5:52 PM	I find trains fascinating. Most of the time I don't mind getting stopped by a train at a crossing -- they're amazing to watch. Ocassionally, I am in a hurry and they add to the stress of driving; but it's a small inconvenience, really!! They keep countless additional trucks off the roadways and conserve energy!
27	Feb 24, 2014 3:05 PM	It is the long horn sounds that are a nuisance. Shorter less aggressive sounds would help.
28	Feb 24, 2014 2:33 AM	Make them fix the tracks. Most in town are horrible.
29	Feb 23, 2014 6:01 PM	Being a native, train noise is something I'm inured to. But the affect on traffic is. at times, ridiculous. It would be wonderful to be able to get to downtown or DACC without catching a train. At night it's not unusual at all to catch a train going out to DACC, and another on the way home.
30	Feb 23, 2014 5:47 PM	While I am annoyed by traffic problems and delays that the trains present, my main problem is train noise and horns at night during evening & sleeping hours. The noise very negatively affects quality of life for everyone within earshot of it. Of course, some people sleep during the day due to their work schedule, so I could see how eliminating noise at all times in town would be beneficial for everyone.
31	Feb 23, 2014 5:09 PM	excessive horn blowing & noise levels prevents us from sleeping with window open. So loud if you are outside can't carry on a conversation when horn blowing.
32	Feb 23, 2014 4:31 PM	They also are stopped longer than they are supposed to be, but nothing ever gets done about it. Even if you call the phone number provided, nothing ever gets done, no fines, tickets issued, etc.



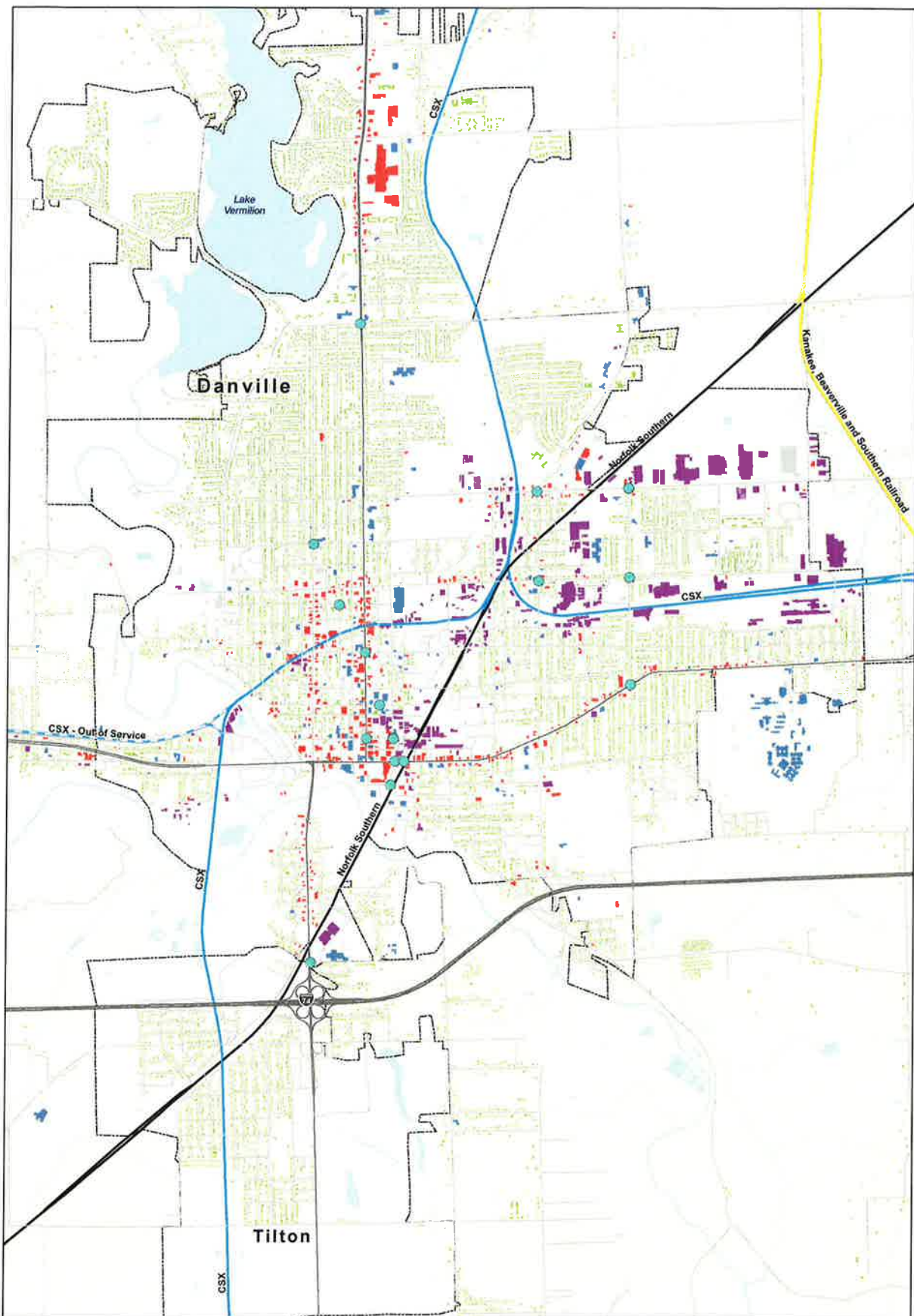
## DATS Quiet Zone Study

Number	Response Date	Response Text
33	Feb 23, 2014 3:50 PM	The crossings on Voorhees St, both east and west of Bowman, cause the most traffic delays.
34	Feb 23, 2014 1:28 PM	A quiet zone would be an excellent idea!
35	Feb 23, 2014 12:20 PM	Moving trains mean a moving economy.
36	Feb 22, 2014 5:57 PM	No doubt the trains were the heart and soul of this town at one time.....but now.....
37	Feb 22, 2014 3:46 PM	Rail relocation around the city would be ideal
38	Feb 21, 2014 4:48 PM	limit train traffic, they back up and take forever especially without a viaduct its terrible
39	Feb 21, 2014 3:46 PM	train over aqueduct on winter has woken me up in the middle of the night, trains crossing Main st near Bunge greatly disrupt traffic flow
40	Feb 21, 2014 3:27 PM	I have no idea number of trains, annoyed I have to put in a number b/c I have no clue... I live near the hospital, seldom trains on vermilion and williams. Sometimes I can hear the Junction/ Williams St. horn and train, seems far away
41	Feb 20, 2014 10:55 PM	some need repair
42	Feb 20, 2014 10:03 PM	They do need to blow there horn all throughout the town. I understand there was a law suit years ago: however, they still do not need to "lay on the horn"

# Exhibit A



## Exhibit B



#### Survey Results - Workplaces

Survey Respondant Locations

#### Buildings

Residential

Commercial

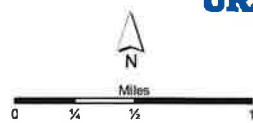
Industrial

Institutional

All Other Buildings

URS

Illinois





TAB 4

Technical Memo 4

Analysis and Recommendations of Quiet Zone  
Improvements, Phase IV Technical Memorandum

DATS Quiet Zone Feasibility Study

Prepared by URS Corporation

For the Danville Area Transportation Study

May 2014

## Technical Memo IV Analysis and Recommendations of Quiet Zone Improvements

### Introduction

The sounding of a locomotive horn is a common occurrence in our daily lives. The Federal Railroad Administration (FRA) regulations determine when the horn shall be blown and for how long. It even specifies that the sounding of a locomotive horn will be two long blasts, one short blast and one long blast when approaching a highway-rail grade crossing. Failure to sound the horn or failure to sound the horn in the prescribed pattern will subject the offender to civil penalties up to \$7,500 for a willful violation.

In August 2006, the FRA changed the regulations to allow for quiet zones, where the locomotive train horn is exempt from sounding if a quiet zone is established and maintained. Nevertheless, train horns will continue to be sounded in all rail yards; the Quiet Zone process does not impact train horn noise generated within a yard.

This study is designed to investigate the feasibility of establishing a Quiet Zone in Danville or Catlin, based upon the Request for Proposal (RFP) released by the Danville Metropolitan Planning Organization (MPO) in December 2013. This Technical Memo IV is designed to analyze and recommend a Quiet Zone Improvement within the study area.

### Details of the Quiet Zone (QZ) Safety Measures

The details of the appropriate Federal Regulations associated with Supplementary Safety Measures (SSM) and Alternative Safety Measures (ASM) are found in the Code of Federal Regulations (CFR) Title 49: Transportation Part 222 Appendices A and B. All of the information associated with the QZ process is contained within Part 222.

In order for a quiet zone to be implemented, certain SSMs and/or ASMs need to be implemented within the proposed quiet zones. For example, at a minimum, each highway rail grade crossing within the QZ must have gates, flashers, Constant Warning Time devices, and “power-out” indicators. In addition to the above-specified requirements, certain additional safety methods must be implemented- SSMs. The FRA has approved five SSMs that may be installed at highway rail grade crossings within QZs for risk credit reductions. Each SSM has been assigned an effectiveness rate which becomes a factor in the QZ analysis when using the Quiet Zone Calculator.

### **Supplementary Safety Measures (SSMs)**

- 1. & 2. Closure of a Public Highway-Rail Grade Crossing –Temporary or Permanent**

Effectiveness	1.0
---------------	-----

If a grade crossing is closed, it must effectively prevent a vehicle or a pedestrian entrance into the crossings; hence the probability of a collision with a train at the crossing is zero. However, one must take into account the redistribution of the traffic that would have used that closed crossing into other adjacent crossings or grade separations as part of the QZ. If a grade separation is implemented at an adjacent crossing, then there is no redistribution of the old traffic to adjacent crossings. The FRA also allows for a “temporary” closure of a grade crossing during certain hours as an SSM, however, this is allowed only if there is a “Partial Quiet Zone” that will be implemented.

### 3. Four-Quadrant Gate Systems

Effectiveness, no presence detection	0.82
Effectiveness with presence detection	0.77
Effectiveness with traffic of at least 60 feet (regardless of presence detection)	0.92

Four-quadrant gate systems must comply with the standards contained within the Manual of Uniform Traffic Control Devices (MUTCD). This will result in all highway approach and exit lanes on both sides of the grade crossings spanned by gates, thus denying the motorist the opportunity to switch lanes and cross the grade crossing while the gates are in the down position. Four Quad Gate Systems also must have Constant Warning Time devices and “power out” indicators in place.

Further determination regarding Vehicle Presence Detectors (VPDs) will need to be made. This technology allows for the detection of a “trapped” vehicle between all four-quad gates in the down position. The vehicle presence will be detected by the inductive loops in the crossing surface and an exit gate will raise allowing passage out the grade crossing surface and away from an oncoming train. VPD is not a requirement for the installation of the four-quad gates at the crossing to implement a QZ.

Four-quadrant gate systems with VPDs are being implemented on the Chicago to St. Louis High Speed Intercity Passenger Rail corridor with many systems are already operational.

### 4. Gates with Medians or Channelization Devices

Effectiveness with channelization devices	0.75
Effectiveness with non-traversable curbs with or without channel devices	0.80

In this case, opposing traffic lanes on both sides of the grade crossings, which are equipped with gates and flashers, must be separated by either channelization devices or non-traversable curbs. These medians or channelization devices must extend 100 feet from the crossing gate, but at least 60 feet if there is an intersection within 100 feet of the crossing. Both Constant Warning Time devices and "power out" indicators are required at these grade crossings.

These devices must be considered in light of nearby driveways, alleys and streets as disruption of access needs to be considered when implementing. Complex issues involving this SSM are addressed thoroughly in the next project phase, which involves a grade crossing diagnostic process that will engage the railroad, FRA, Illinois Commerce Commission (ICC), the railroads (owners and those with operating rights), and local officials.

## 5. One Way Street with Gate(s)

Effectiveness	0.82
---------------	------

In this case, the gate arms on the approach side of the crossing must extend across the road to within one foot of the far edge of the pavement. The edge of the road opposite the gate mechanism must be configured with a non-traversable curb extending at least 100 feet. Unfortunately, there are no one way streets within the project limits that are applicable to this SSM.

## Alternative Safety Measures (ASMs)

The FRA has designated three types of Alternative Safety measures available to an agency interested in implementing a QZ. They are: Modified SSM, Non-Engineering ASM and Engineering ASM. The traits of each are described below.

### Modified SSM

In certain instances, the FRA will allow, under unique circumstances, "partial credit" for an SSM that is not quite fully compliant of the full requirements of the SSM. The public authority must provide the effectiveness estimate and present it to the FRA for their review and approval. The FRA will also call upon similar examples in other communities in helping the local agency determine the effectiveness value.

### Non-Engineering ASM

Non engineering ASMs require a programmed enforcement program, public education and awareness, or photo enforcement. Each of these options requires a vigorous statistically valid establishment of a baseline violation rate and a continuous law enforcement effort that must be



well defined, along with a three-month continual monitoring effort. The same is applicable to a proposed public education program. Photo enforcement is also subject to the same audit and a statistically valid baseline rate through monitoring.

The effectiveness value determination is determined by a formula that takes into account the baseline and the violation rate reduction as a result of the ASM. The ASM violation rates are monitored for the first two quarters after implementation, and every second quarter thereafter for five years.

### **Engineering ASM**

A similar process of monitoring for three months and auditing that applied to Non-Engineering ASMs also applies to Engineering ASMs. Engineering ASMs focus on geometric conditions, such as sight distance improvements that are the source of the increased risk. After the improvement is made, the audit continues, with the train horns still sounding, in order to evaluate incidents that occur at the crossing through the monitoring period. After the monitoring is completed, evaluation continues for additional quarters, as above.

## **Analysis of Quiet Zone (QZ) Performance and Measurement of Risk**

In order for a QZ to be implemented it must be shown that the lack of a train horn does not represent a significant risk with respect to loss of life or serious personal injury, or that the significant risk has been compensated for by other means. Since the implementation of this rule in 2006 there have been four ways in which a quiet zone may be established:

1. One or more SSMs (as identified above) are installed at each public crossing in the QZ.
2. The Quiet Zone Risk Index (QZRI) must be less than or equal to the Nationwide Significant Risk threshold without implementation of any further safety measures.
3. Additional safety measures are implemented at selected crossings, that result in the QZRI reduced to a level less than or equal to the Nationwide Significant Risk Threshold.
4. Additional safety measures are taken at selected crossings resulting in the QZRI being reduced to at least the level of the Risk Index with Horns.

The Nationwide Significant Risk Threshold is a value calculated by the FRA annually and can be found on their website. The QZRI is obtained from inputs to the Quiet Zone Risk Index Calculator that is also on the FRA website and is utilized in the scenarios below. Other inputs to the QZRI calculator include the grade crossing U. S. Department of Transportation (USDOT) number for each crossing within the proposed Quiet Zone. The USDOT number for each crossing also contains an average daily traffic (ADT) value for the crossing. However, if that

ADT value is older than three years, the sponsoring agency must provide recent ADT values to insure the existing conditions are properly reflected in the QZRI calculations. Our research shows that the USDOT ADT values for Danville crossings are from 2008; new ADTs will need to be provided if the Danville QZ process continues past this feasibility phase.

It should be noted, and the FRA cautions, that the use of the QZRI calculator only provides an output that is a relative cost for the proposed improvements and does not take into account local conditions and actual costs that can only be determined by a detailed grade crossing field diagnostic exercise. These diagnostics, which would occur at the next phase of this project, are staffed by personnel from the FRA, ICC, host railroad and railroads with operating rights, highway jurisdiction, and agency sponsoring the QZ effort.

## **Quiet Zone Scenarios**

Several different scenarios are presented for review for consideration in Danville/Catlin. It should be noted that a Quiet Zone must be a minimum length of ½ mile and each of these scenarios meet that test. The scenarios are identified as follows:

### **Scenario A**

Location:	Catlin
Affected Railroad:	Norfolk Southern
Grade Crossings with USDOT Crossing Numbers:	<ul style="list-style-type: none"> <li>• Sandusky St 479876T</li> <li>• Paris St 479875L</li> <li>• Catlin Rd 479874E</li> </ul>
Existing Warning Devices:	Gates and Flashers

### **Scenario B**

Location:	Danville – North
Affected Railroad:	CSX Transportation
Grade Crossings with USDOT Crossing Numbers:	<ul style="list-style-type: none"> <li>• Liberty Lane 353708L</li> </ul>
Existing Warning Devices:	Gates and Flashers

### **Scenario C**

Location:	Danville – Downtown
Affected Railroad:	Norfolk Southern
Grade Crossings with USDOT Crossing Numbers:	<ul style="list-style-type: none"> <li>• Third St 479864Y</li> <li>• South St 479863S</li> <li>• Main (MLK) St 479862K</li> <li>• Van Buren St 479861D</li> <li>• Williams St 479859C</li> </ul>
Existing Warning Devices:	<ul style="list-style-type: none"> <li>• Gates and Flashers</li> <li>• Cantilever at Main St</li> </ul>

### **Scenario D**

Location:	Danville - Northeast
Affected Railroad:	Norfolk Southern
Grade Crossings with USDOT Crossing Numbers:	<ul style="list-style-type: none"> <li>• Main St 479857N</li> <li>• Bowman Ave 479856G</li> <li>• Pries St 479855A</li> <li>• Voorhees St 479854T</li> </ul>
Existing Warning Devices:	Gates and Flashers

### **Scenario E**

Location:	Danville - East
Affected Railroad:	CSX Transportation
Grade Crossings with USDOT Crossing Numbers:	<ul style="list-style-type: none"> <li>• Bowman Ave 353714P</li> <li>• Griffin St 357715W</li> </ul>
Existing Warning Devices:	Gates and Flashers at Bowman Ave Flashers only at Griffin St

## **QZRI Analysis of Scenarios Presented**

### **Scenario A: Catlin**

This scenario involves three consecutive highway-rail grade crossings in Catlin and implementation of a QZ in this location would result in no train horn noise generated for approximately two miles in either direction. There are several options available to the decision makers at this location: some of the options are constrained by the geometrics at intersections because of the 100-foot length of the raised medians SSMs.

All of the grade crossings could remain open if non-traversable medians were installed at all grade crossings, or in the alternative, four-quadrant gate systems could be installed also at each grade crossing. Installation of these medians could be problematic as interference to existing traffic patterns at businesses on Catlin Road and Paris Street could be severely impacted. Detailed engineering would be needed to investigate these options at the next phase of this project. Nevertheless, it is feasible that a QZ in Catlin could be established. Below is the QZ calculator output from the FRA website for the existing condition (Figure 1, the installation of the raised barrier SSM (Figure 2) and the four-quadrant gate SSM (Figure 3).

Figure 1: Catlin Existing Condition QZ Calculator

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[Cancel](#)
Change Scenario: test1Danvi\_41983
[Continue](#)

**Create New Zone**

**Manage Existing Zones**

**Log Off**

Crossing	Street	Traffic	Warning Device	Pre-SSM	SSM	Risk	
479874E	CATLIN RD	1200	Gates	0	0	77,601.17	<a href="#">MODIFY</a>
479875L	PARIS ST	3550	Gates	0	0	37,530.98	<a href="#">MODIFY</a>
479876T	SANDUSKY ST	750	Gates	0	0	71,961.46	<a href="#">MODIFY</a>

**Step by Step Instructions:**

**Step 1:** To specify New Warning Device (For Pre-Rule Quiet Zone Only) and/or SSM, click the [MODIFY](#) Button

**Step 2:** Select proposed warning device or SSM. Then click the [UPDATE](#) button. To generate a spreadsheet of the values on this page, click on [ASM](#) button—This spreadsheet can then be used for ASM calculations.

**Step 3:** Repeat Step (2) until the [SELECT](#) button is shown at the bottom right side of this page. Note that the [SELECT](#) button is shown ONLY when the Quiet Zone Risk Index falls below the NSRT or the Risk Index with Horn.

**Step 4:** To save the scenario and continue, click the [SELECT](#) button

\* Only Public At Grade Crossings are listed.

[Click](#) for [Supplementary Safety Measures \[SSM\]](#)

[Click](#) for ASM spreadsheet: [ASM](#) \* Note: The use of ASMs requires an application to and approval from the FRA.

Summary	
<b>Proposed Quiet Zone:</b>	test1Danville
<b>Type:</b>	New 24-hour QZ
<b>Scenario:</b>	test1Danvi_41983
<b>Estimated Total Cost:</b>	\$0.00
<b>Nationwide Significant Risk Threshold:</b>	14347 .00
<b>Risk Index with Horns:</b>	37388.81
<b>Quiet Zone Risk Index:</b>	62364.54

Figure 2: Catlin Raised Median SSMs

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**Cancel**
Change Scenario: test1Danvl\_42028
**Continue**

**Create New Zone**

**Manage Existing Zones**

**Log Off**

Crossing	Street	Traffic	Warning Device	Pre-SSM	SSM	Risk	
479874E	CATLIN RD	1200	Gates	0	13	15,520.23	<b>MODIFY</b>
479875L	PARIS ST	3550	Gates	0	13	7,506.20	<b>MODIFY</b>
479876T	SANDUSKY ST	750	Gates	0	13	14,392.29	<b>MODIFY</b>

**Step by Step Instructions:**

**Step 1:** To specify New Warning Device (For Pre-Rule Quiet Zone Only) and/or SSM, click the **MODIFY** Button

**Step 2:** Select proposed warning device or SSM. Then click the **UPDATE** button. To generate a spreadsheet of the values on this page, click on **ASM** button—This spreadsheet can then be used for ASM calculations.

**Step 3:** Repeat Step (2) until the **SELECT** button is shown at the bottom right side of this page. Note that the **SELECT** button is shown **ONLY** when the Quiet Zone Risk Index falls below the NSRT or the Risk Index with Horn.

**Step 4:** To save the scenario and continue, click the **SELECT** button

*\* Only Public At Grade Crossings are listed.*

**ALERT:** Quiet Zone qualifies because SSM has been applied in each crossing.

**Click** for Supplementary Safety Measures [SSM]

**Click** for ASM spreadsheet: **ASM** *\* Note: The use of ASMs requires an application to and approval from the FRA.*

Summary	
<b>Proposed Quiet Zone:</b>	test1Danville
<b>Type:</b>	New 24-hour QZ
<b>Scenario:</b>	test1Danvl_42028
<b>Estimated Total Cost:</b>	\$45,000.00
<b>Nationwide Significant Risk Threshold:</b>	14347 .00
<b>Risk Index with Horn:</b>	37388.81
<b>Quiet Zone Risk Index:</b>	<b>12472.91</b>
<b>Select</b>	



Figure 3: Catlin Four-Quad Gate SSM's

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[Cancel](#)
Change Scenario: test1Danvl\_42029
[Continue](#)

**Create New Zone**

**Manage Existing Zones**

**Log Off**

Crossing	Street	Traffic	Warning Device	Pre-SSM	SSM	Risk	
479874E	CATLIN RD	1200	Gates	0	4	13,968.21	<a href="#">MODIFY</a>
479875L	PARIS ST	3550	Gates	0	4	6,755.58	<a href="#">MODIFY</a>
479876T	SANDUSKY ST	750	Gates	0	4	12,953.06	<a href="#">MODIFY</a>

**Step by Step Instructions:**

**Step 1:** To specify New Warning Device (For Pre-Rule Quiet Zone Only) and/or SSM, click the [MODIFY](#) Button

**Step 2:** Select proposed warning device or SSM. Then click the [UPDATE](#) button. To generate a spreadsheet of the values on this page, click on [ASM](#) button—This spreadsheet can then be used for ASM calculations.

**Step 3:** Repeat Step (2) until the [SELECT](#) button is shown at the bottom right side of this page. Note that the [SELECT](#) button is shown ONLY when the Quiet Zone Risk Index falls below the NSRT or the Risk Index with Horn.

**Step 4:** To save the scenario and continue, click the [SELECT](#) button

\* Only Public At Grade Crossings are listed.

**ALERT: Quiet Zone qualifies because SSM has been applied in each crossing.**

[Click](#) for [Supplementary Safety Measures \[SSM\]](#)

[Click](#) for ASM spreadsheet: [ASM](#) \* Note: The use of ASMs requires an application to and approval from the FRA.

Summary	
<b>Proposed Quiet Zone:</b>	test1Danville
<b>Type:</b>	New 24-hour QZ
<b>Scenario:</b>	test1Danvl_42029
<b>Estimated Total Cost:</b>	\$300,000.00
<b>Nationwide Significant Risk Threshold:</b>	14347 .00
<b>Risk Index with Horns:</b>	37388.81
<b>Quiet Zone Risk Index:</b>	<b>11225.62</b>
<a href="#">Select</a>	

## Scenario B: Danville North

This scenario involves only one grade crossing, Liberty Lane, located in an area with expanding residential and commercial businesses. Since this location is quite a distance from the closest crossing, train horn noise would be nearly undetectable from other crossings.

At a cursory review of the grade crossing geometrics, it appears that the raised median SSM option would not be a good solution because of a business' close proximity to the grade crossing; raised medians could affect customer access to the business. The installation of four-quadrant gates at this location is a feasible alternative at this location as the QZ calculator results indicate in Figure 4-Liberty Lane Existing Conditions and Figure 5-Liberty Lane Four Quadrant Gate SSM.

Figure 4: Liberty Lane Existing Condition QZ Calculator

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[Cancel](#)
Change Scenario: DANVILLE N\_42031
[Continue](#)

Crossing	Street	Traffic	Warning Device	Pre-SSM	SSM	Risk	
353708L	LIBERTY LANE	4450	Gates	0	0	62,621.12	<a href="#">MODIFY</a>

**Create New Zone**  
**Manage Existing Zones**  
**Log Off**

**Step by Step Instructions:**

**Step 1:** To specify New Warning Device (For Pre-Rule Quiet Zone Only) and/or SSM, click the [MODIFY](#) Button

**Step 2:** Select proposed warning device or SSM. Then click the [UPDATE](#) button. To generate a spreadsheet of the values on this page, click on [ASM](#) button—This spreadsheet can then be used for ASM calculations.

**Step 3:** Repeat Step (2) until the [SELECT](#) button is shown at the bottom right side of this page. Note that the [SELECT](#) button is shown **ONLY** when the Quiet Zone Risk Index falls below the NSRT or the Risk Index with Horn.

**Step 4:** To save the scenario and continue, click the [SELECT](#) button

\* Only Public At Grade Crossings are listed.

**Click** for [Supplementary Safety Measures \[SSM\]](#)

**Click** for ASM spreadsheet: [ASM](#) \* Note: The use of ASMs requires an application to and approval from the FRA.

Summary	
<b>Proposed Quiet Zone:</b>	Danville North Liberty Lane
<b>Type:</b>	New 24-hour QZ
<b>Scenario:</b>	DANVILLE N_42031
<b>Estimated Total Cost:</b>	\$0.00
<b>Nationwide Significant Risk Threshold:</b>	14347 .00
<b>Risk Index with Horns:</b>	37542.64
<b>Quiet Zone Risk Index:</b>	62621.12

Figure 5: Liberty Lane with Four-Quad Gate SSM

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**Create New Zone**

**Manage Existing Zones**

**Log Off**

**Step by Step Instructions:**

**Step 1:** To specify New Warning Device (For Pre-Rule Quiet Zone Only) and/or SSM, click the **MODIFY** Button

**Step 2:** Select proposed warning device or SSM. Then click the **UPDATE** button. To generate a spreadsheet of the values on this page, click on **ASM** button—This spreadsheet can then be used for ASM calculations.

**Step 3:** Repeat Step (2) until the **SELECT** button is shown at the bottom right side of this page. Note that the **SELECT** button is shown **ONLY** when the Quiet Zone Risk Index falls below the NSRT or the Risk Index with Horn.

**Step 4:** To save the scenario and continue, click the **SELECT** button

Crossing	Street	Traffic	Warning Device	Pre-SSM	SSM	Risk	
353708L	LIBERTY LANE	4450	Gates	0	4	11,271.80	<a href="#">MODIFY</a>

\* Only Public At Grade Crossings are listed.

ALERT: Quiet Zone qualifies because SSM has been applied in each crossing.

Click for [Supplementary Safety Measures \[SSM\]](#)

Click for ASM spreadsheet: [ASM](#) \* Note: The use of ASMs requires an application to and approval from the FRA.

Summary	
<b>Proposed Quiet Zone:</b>	DANVILLE NORTH LIBERTY LANE
<b>Type:</b>	New 24-hour QZ
<b>Scenario:</b>	DANVILLE N_42031
<b>Estimated Total Cost:</b>	\$100,000.00
<b>Nationwide Significant Risk Threshold:</b>	14347 .00
<b>Risk Index with Horns:</b>	37542.64
<b>Quiet Zone Risk Index:</b>	<b>11271.8</b>
<b>Select</b>	

### **Scenario C: Danville - Downtown**

This location contains high traffic volume areas and is in the heart of the downtown Danville area. Many of the respondents to the survey that was conducted in Phase III of this project either work or live nearby and addressing a QZ in the downtown area may have a greater impact within the community as it affects so much of the population.

This proposed five grade crossing QZ starts at the south at Third Street and continues north to South Street, Main Street (MLK Memorial) Van Buren Street, and Williams Street, for a total distance of just over 1.5 miles. This QZ also encompasses one private at-grade industrial crossing, North Street. In addition, trains are still required to sound their horns while traversing within the NS yard between North Street and Williams Street.

In order to develop a feasible QZ for this scenario, significant infrastructure improvements will need to be made. This will require the closing of the existing Van Buren Street grade crossing, the installation of two four -Quad gate SSM systems at Main Street and Williams Street and 100-foot long, non-traversable median SSMs at South Street. As with the other scenarios, significant engineering and review, including the private crossing at North Street, will be needed in the next phase of this project.

Figure 6: Danville Downtown Existing Conditions QZ Calculator

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**Create New Zone**  
**Manage Existing Zones**  
**Log Off**

**Step by Step Instructions:**

**Step 1:** To specify New Warning Device (For Pre-Rule Quiet Zone Only) and/or SSM, click the **MODIFY** button

**Step 2:** Select proposed warning device or SSM. Then click the **UPDATE** button. To generate a spreadsheet of the values on this page, click on **ASM** button—This spreadsheet can then be used for ASM calculations.

**Step 3:** Repeat Step (2) until the **SELECT** button is shown at the bottom right side of this page. Note that the **SELECT** button is shown **ONLY** when the Quiet Zone Risk Index falls below the NSRT or the Risk Index with Horn.

**Step 4:** To save the scenario and continue, click the **SELECT** button

Crossing	Street	Traffic	Warning Device	Pre-SSM	SSM	Risk	
479859C	WILLIAMS ST	5600	Gates	0	0	38,152.10	<a href="#">MODIFY</a>
479861D	VAN BUREN ST	550	Gates	0	0	24,305.91	<a href="#">MODIFY</a>
479862K	MAIN (MLK MEMOR W	12200	Gates	0	0	73,305.80	<a href="#">MODIFY</a>
479863S	SOUTH ST	4350	Gates	0	0	38,652.09	<a href="#">MODIFY</a>
479864Y	3RD ST	1200	Gates	0	0	30,956.71	<a href="#">MODIFY</a>

\* Only Public At Grade Crossings are listed.

**Click** for [Supplementary Safety Measures \[SSM\]](#)

**Click** for ASM spreadsheet: **ASM** | \* Note: The use of ASMs requires an application to and approval from the FRA.

Summary	
<b>Proposed Quiet Zone:</b>	Danville Downtown
<b>Type:</b>	New 24-hour QZ
<b>Scenario:</b>	Danville D_42053
<b>Estimated Total Cost:</b>	\$0.00
<b>Nationwide Significant Risk Threshold:</b>	14347 .00
<b>Risk Index with Horns:</b>	24625.01
<b>Quiet Zone Risk Index:</b>	41074.52



Figure 7: Danville Downtown with SSMs and Closures

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**Create New Zone**

**Manage Existing Zones**

**Log Off**

**Step by Step Instructions:**

**Step 1:** To specify New Warning Device (For Pre-Rule Quiet Zone Only) and/or SSM, click the **MODIFY** Button

**Step 2:** Select proposed warning device or SSM. Then click the **UPDATE** button. To generate a spreadsheet of the values on this page, click on **ASM** button—This spreadsheet can then be used for ASM calculations.

**Step 3:** Repeat Step (2) until the **SELECT** button is shown at the bottom right side of this page. Note that the **SELECT** button is shown **ONLY** when the Quiet Zone Risk Index falls below the NSRT or the Risk Index with Horn.

**Step 4:** To save the scenario and continue, click the **SELECT** button

Crossing	Street	Traffic	Warning Device	Pre-SSM	SSM	Risk	
479859C	WILLIAMS ST	6150	Gates	0	4	6,997.34	<a href="#">MODIFY</a>
479861D	VAN BUREN ST	0	<b>CLOSED(SSM 2)</b>	0	2	0	Closed
479862K	MAIN (MLK MEMOR W	12200	Gates	0	4	13,195.04	<a href="#">MODIFY</a>
479863S	SOUTH ST	4350	Gates	0	13	7,730.42	<a href="#">MODIFY</a>
479864Y	3RD ST	1200	Gates	0	0	30,956.71	<a href="#">MODIFY</a>

*\* Only Public At Grade Crossings are listed.*

**Click** for [Supplementary Safety Measures \[SSM\]](#)

**Click** for ASM spreadsheet: **ASM** *\* Note: The use of ASMs requires an application to and approval from the FRA.*

Summary	
<b>Proposed Quiet Zone:</b>	Danville Downtown
<b>Type:</b>	New 24-hour QZ
<b>Scenario:</b>	Danville D_42033
<b>Estimated Total Cost:</b>	\$220,000.00
<b>Nationwide Significant Risk Threshold:</b>	14347 .00
<b>Risk Index with Horns:</b>	24625.01
<b>Quiet Zone Risk Index:</b>	<b>11775.9</b>
<b>Select</b>	

## Scenario D: Danville - Northeast

This location also demonstrated, through survey responses, a significant interest in the train noise issue based on the volume and location of respondents. This proposed four grade crossing QZ begins at Martin Street and includes Bowman Ave., Pries Street, and Voorhees Street, a distance of 0.5 miles, on the Norfolk Southern tracks.

The feasibility of this QZ requires the installation of a raised median barrier SSM at South Street, closing of Pries Street and Martin Street, and the installation of four-quad gate SSMs at Voorhees Street and Bowman Avenue. As part of the QZRI process, existing traffic from Pries Street and Martin Street is channeled into the highway rail grade crossings that remain open.

Figure 8: Danville Northeast Existing Conditions QZ Calculator

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**Create New Zone**  
**Manage Existing Zones**  
**Log Off**

**Step by Step Instructions:**

**Step 1:** To specify New Warning Device (For Pre-Rule Quiet Zone Only) and/or SSM, click the **MODIFY** Button

**Step 2:** Select proposed warning device or SSM. Then click the **UPDATE** button. To generate a spreadsheet of the values on this page, click on **ASM** button—This spreadsheet can then be used for ASM calculations.

**Step 3:** Repeat Step (2) until the **SELECT** button is shown at the bottom right side of this page. Note that the **SELECT** button is shown **ONLY** when the Quiet Zone Risk Index falls below the NSRT or the Risk Index with Horn.

**Step 4:** To save the scenario and continue, click the **SELECT** button

Crossing	Street	Traffic	Warning Device	Pre-SSM	SSM	Risk	
479854T	VOORHEES ST	15800	Gates	0	0	52,519.15	<a href="#">MODIFY</a>
479855A	PRIES ST	50	Gates	0	0	14,103.81	<a href="#">MODIFY</a>
479856G	BOWMAN AVE	8000	Gates	0	0	110,411.08	<a href="#">MODIFY</a>
479857N	MARTIN ST	550	Gates	0	0	18,084.26	<a href="#">MODIFY</a>

\* Only Public At Grade Crossings are listed.

**Click** for [Supplementary Safety Measures \[SSM\]](#)

**Click** for ASM spreadsheet: [ASM](#) + Note: The use of ASMs requires an application to and approval from the FRA.

Summary	
<b>Proposed Quiet Zone:</b>	Danville Northeast
<b>Type:</b>	New 24-hour QZ
<b>Scenario:</b>	Danville N_42054
<b>Estimated Total Cost:</b>	\$0.00
<b>Nationwide Significant Risk Threshold:</b>	14347 .00
<b>Risk Index with Horns:</b>	29244.35
<b>Quiet Zone Risk Index:</b>	48779.58

Figure 9: Danville Northeast with Four Quad Gate SSM's and Closures

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**Create New Zone**

**Manage Existing Zones**

**Log Off**

Crossing	Street	Traffic	Warning Device	Pre-SSM	SSM	Risk	
479854T	VOORHEES ST	15800	Gates	0	4	9,453.45	<a href="#">MODIFY</a>
479855A	PRIES ST	0	CLOSED(SSM 2)	0	2	0	Closed
479856G	BOWMAN AVE	8600	Gates	0	4	20,085.06	<a href="#">MODIFY</a>
479857N	MARTIN ST	0	CLOSED(SSM 2)	0	2	0	Closed

**Step by Step Instructions:**

**Step 1:** To specify New Warning Device (For Pre-Rule Quiet Zone Only) and/or SSM, click the [MODIFY](#) Button

**Step 2:** Select proposed warning device or SSM. Then click the [UPDATE](#) button. To generate a spreadsheet of the values on this page, click on [ASM](#) button—This spreadsheet can then be used for ASM calculations.

**Step 3:** Repeat Step (2) until the [SELECT](#) button is shown at the bottom right side of this page. Note that the [SELECT](#) button is shown ONLY when the Quiet Zone Risk Index falls below the NSRT or the Risk Index with Horn.

**Step 4:** To save the scenario and continue, click the [SELECT](#) button

\* Only Public At Grade Crossings are listed.

**ALERT:** Quiet Zone qualifies because SSM has been applied in each crossing.

[Click](#) for [Supplementary Safety Measures \[SSM\]](#)

[Click](#) for ASM spreadsheet: [ASM](#) \* Note: The use of ASMs requires an application to and approval from the FRA.

Summary	
<b>Proposed Quiet Zone:</b>	DANVILLE NORTHEAST
<b>Type:</b>	New 24-hour QZ
<b>Scenario:</b>	DANVILLE N_42034
<b>Estimated Total Cost:</b>	\$210,000.00
<b>Nationwide Significant Risk Threshold:</b>	14347 .00
<b>Risk Index with Horns:</b>	29244.35
<b>Quiet Zone Risk Index:</b>	<b>7384.63</b>
<a href="#">Select</a>	

## Scenario E: Danville East

This location involves the CSX and grade crossings at Bowman Avenue and Griffin Street. Bowman currently is equipped with gates and flashers, however Griffin is only equipped with flashers (no gates). Consequently, the Griffin Street grade crossing fails the requirement of having gates and flashers as the existing condition of the QZ. However, if Danville were to discuss this with CSX and they were to install gates at this location, along with the existing

flashers, this could become a viable candidate for a QZ. However, for now, this Scenario E is not feasible for a Quiet Zone.

## Infrastructure Costs Associated with Quiet Zones

The costs presented in the FRA QZ calculator are only to be considered as *relative* costs for the improvement, primarily with the objective of helping QZ applicants compare the costs of different QZ's that are anticipated for review. It is very important for Danville to understand that these FRA relative values should not be used to develop a true project cost estimate.

<u>Scenario</u>	<u>Improvement</u>	<u>FRA relative cost from QZRI Calculator</u>
Scenario A Catlin	Raised Medians	\$45,000
Scenario A Catlin	4 Quad Gates	\$300,000
Scenario B Liberty Lane	4 Quad Gates	\$100,000
Scenario C Downtown	4 Quad gates and Closures	\$220,000
Scenario D Northeast	4 Quad gates and Closures	\$210,000
Scenario E East	Not Feasible	N/A

Although a Feasibility Study such as this does not include an engineer's cost estimate, we can identify certain cost drivers that must be considered by the local agency in their decision making process:

- Four Quad Gate SSMs without VPD's are at least \$495,000 per installation
- Property acquisition costs for installation of the median SSMs should be considered, as the geometrics of the project area will be expanded.
- If a traffic signal device is close to the grade crossing or on an adjacent street, an interconnect with the grade crossing warning device may be needed.
- Constant Warning Time installation and "Power Out" indicators are at least \$175,000 per grade crossing. It appears that none of the grade crossings in Danville currently have these features.
- Maintenance of the QZ improvements is the responsibility of the QZ applicant.
- Grade Crossing closures may incur costs associated with public hearings and costs associated with the Administrative Law process of the Illinois Commerce Commission.

## **Path Forward to Implement a Quiet Zone**

In order to implement a QZ there are very specific steps that need to be followed, involving production of specific documents and initiation of the QZ process. The four steps are as follows:

Prepare a QZ Study Document

Provide a Notice of Intent (NOI) to Create a Quiet Zone

Provide a Notice of Intent to Establish a Quiet Zone

Provide a Notice of Intent to Implement a Quiet Zone

### **Quiet Zone Study Document**

- Purpose is to document the existing conditions of the proposed QZ.
- Conduct the Field Diagnostic Review. Invite the FRA, ICC, IDOT, local agencies, host railroads, and railroads with operating rights on the track. FRA, local agency and host railroad must participate. Make sure the ICC is invited also; their input is critical and ICC will need to approve the proposed crossing improvements through their petition and public hearing process during the final design phase.
- Document the Diagnostic Review and include photos and comments from all participants.
- Based on the diagnostic review options discussed, run the QZ calculator for the QZ Zone.
- Prepare conceptual exhibit plans for the crossing improvements.
- Prepare engineering cost estimates.
- Update the Average daily traffic Counts (ADT) if data is greater than three years old.
- Update the USDOT crossing inventory forms with latest ADT values and any other changes to the grade crossing that are not reflected in the existing inventory.
- Update the ICC crossing inventory forms with latest ADT values and any other changes to the grade crossing that are not reflected in the existing inventory.
- Public Involvement is not required at this stage, it is up to the local agency to include public involvement in the process.

### **Notice of Intent to Create a Quiet Zone**

- Provide a Notice of Intent to all the railroads that operate over the crossings in the proposed quiet zone, the FRA, ICC, and IDOT.



- The NOI must list all of the crossings within the proposed QZ and provide a brief explanation of the proposed plans to implement the improvements within the QZ. It must also state the time period when the restrictions would be imposed on the sounding of the train horn. The NOI must also state the name and title of the person who is the point of contact during the development process and how that person should be contacted. The agency must also list the names and addresses of each party that will receive the NOI. The required elements of the NOI can be found at 49 CFR § 222.43 (b).
- For 60 days after the NOI was mailed, any party that receives a copy of the NOI may comment or submit information about the proposed QZ to the public authority advancing the project.
- The public authority must address the comments received during this 60 day period.

### **Notice of Intent to Establish a Quiet Zone**

- A means for the public authority to formally advise the affected parties that a quiet zone is being established, specific requirements can be found at 49 CFR § 222.43 (d)
- If the agency will utilize ASMs within the Quiet Zone, these ASM applications to the FRA should be submitted at this stage and copies to all others as listed. FRA will take three to four months to provide a written decision.
- Engineering final design and detailed cost estimates will be prepared and submitted.
- Improvements to the highway rail grade crossings are constructed.
- Proper signage must be in place at each public, private, and pedestrian crossing per MUTCD standards.

### **Notice of Intent to Implement a Quiet Zone**

- This Notice is submitted when all field work is completed.
- There is a 60 day notice required.

### **Final Comments**

In the implementation of a QZ, it must be borne in mind that the safety of the highway rail grade crossing is of paramount importance in the process. While many factors come into play, it is important to realize that it is the totality of the improvement at the grade crossing that needs to be most closely considered. Consequently, the Diagnostic Review and the comments that come from that review will give the MPA the best understanding of the probability of a QZ. The diagnostic review is critical as new perspectives about the proposed improvements will be

developed, with the full evaluation of each SSMs' and ASMs' effectiveness reviewed. It is possible that initial thoughts about the suitable SSM will be summarily dismissed, but other alternatives might be suggested as this stage by respective participants that will have a greater potential for success that are based on experiences with QZ implementation across the United States.

It is also important for the MPA to revisit the Danville LRTP, as QZs are discussed within that document. Those organizations who will participate in the diagnostics should be made aware that establishment of a QZ in Danville is a well thought out strategy to improve the quality of life for the residents and not a quick fix to rectify a short-term problem.

While the opinions provided within this document are based on sound reasoning and interpretation of 49 CFR § Part 222, the actual language contained within this regulation supersedes any language contained within this deliverable to the MPA.

TAB 5

Technical Memo 5

# Phase V Draft Final Report DATS QZ Feasibility Study

## Summary of the Feasibility Study

The Danville Area Transportation Study (DATS) Railroad Quiet Zone (QZ) Feasibility Study commenced in January 2014. Information was collected and developed to support the preparation of four Technical Memoranda which are included as Tabs to this study:

- I. Study Area Map and Project Objectives (Tab I)
- II. Existing Conditions (Tab II)
- III. Community Survey (Tab III)
- IV. Analysis and Recommendations for QZ Improvements (Tab IV)

## **Phase I: Study Area Map and Proposed Objectives**

A map of the Study Area was prepared which identified the appropriate railroad corridors by operating railroad including ownership. Included within this information was the number of trains per day on each of the corridors. Identified were certain key drivers which identified the locations of highway-rail grade crossings within the study area, along with existing development within the community. The map contains the locations of businesses and commercial developments as they currently exist. This map was submitted to DATS on January 31, 2014. The study area map was used as basis for developing that is presented in the feasibility study and the exhibits.

## **Phase II: Existing Conditions**

The Phase II Technical memorandum focused on evaluating the existing conditions of the highway rail grade crossing in the study area.

### **Existing Conditions**

On February 14, 2014, a field check was conducted to compare the existing conditions of each highway rail grade crossing in Danville and Catlin to the 2012 Illinois Commerce Commission (ICC) Grade Crossing Inventories. Table 2 presents the three crossings where the field conditions were not consistent with those on the ICC Grade Crossing Inventory forms.

**Table 1: Update on Highway-Rail Grade Crossing Existing Conditions**

Highway Rail Crossing	U.S. DOT Number	Existing Condition
Griffin Street	543151P	Crossing is out of service.
Daisy Lane	372813N	YIELD signs were added to existing cross bucks
North Michigan Avenue	372813N	YIELD signs were added to existing cross bucks.

There have been no upgrades by the railroads to the flashers only or gates and flashers at the highway-rail crossings. No highway-rail crossings are equipped with four-quadrant gates in Danville.

A check was made for highway-rail crossings that are on one-way streets within the study area as Supplemental Safety Measures (SSMs) may be more easily and less expensively installed at those locations. There were no locations within the City that met these criteria.

### **Outreach to Public Service Agencies**

Subsequent to the completion the Phase II Technical memorandum, URS reached out to several public service agencies for their input regarding the implementation of a Quiet Zone(s) in Danville. The organizations contacted were:

- Village of Catlin
- Vermillion County Sheriff's Department
- Presence United Samaritan Medical Center
- City of Danville, Director of Public Safety
- Vermillion County Technology Services/Emergency Management Agency

The comments about general rail safety were wide ranging, but the comments specific to train horn noise were that the train horn blowing is inconsistent from train to train. In some cases the perception is that it is either excessive, or in some cases non-existent. None of the organizations contacted had a strong opinion about the implementation of a Quiet Zone, although there were negative comments about train horn noise in general.

### **Rail Operations**

Through train observations and dispatch systems, it was verified that the majority of the trains operating through Danville are run through in nature. That is, trains do not stop in Danville for any pick up or delivery while en route to their final destinations. However, it was noted that there are about 18 trains per week that are "local" in nature and operate to and from a handful of Danville industries that are served by rail. From observations, approximately 90% of the trains in Danville operate as run-throughs.

### **Regulation and Railroad Requirements**

On June 24, 2005, 49 Code of Federal Regulations (CFR) § Part 222 established the Train Horn Rule that set the rules for the nationwide standards for sounding train horns at public highway-rail grade crossings. Since that time, the railroads have worked closely with the Federal Railroad Administration (FRA) on establishing quiet zones nationwide. As a result, the railroads have established their own guidelines for establishing quiet zones. Table 2 presents the federal and railroad guidelines that were provided as Appendices to Technical Memorandum II.



**Table 2: Federal and Railroad Guidelines on Establishment of Quiet Zones**

<b>Agency or Railroad</b>	<b>Document</b>	<b>Revision/Source</b>
<b>FRA</b>	Guide to the Quiet Zone Establishment Process	September 2013
<b>CSX Corporation (CSX)</b>	Quiet Zone Proposals	Revised July 23, 2005
<b>Norfolk Southern (NS)</b>	Quiet Zone Information	<a href="http://www.nscorp.com">www.nscorp.com</a>

### **Phase III: Community Survey**

To gage the impact of the train horn noise on the community, a survey was developed and distributed. Promotion of this survey was managed by DATS. Distribution of the surveys was accomplished through the use of a link on the DATS website and also hard copy via U.S. mail. Approximately 100 surveys were sent to businesses and private residences adjacent to the rail corridors in the study area. Additionally, 20 surveys were mailed directly to the Danville neighborhood associations. The survey was available to the public for approximately 30 days during the period from February 23 through March 24, 2014.

In total, there were 73 responses to the survey from community members. Although the number of responses was not statistically significant, a great deal of useful information was collected. To many residents the train horn and train idling noise were significant disruptors to their quality of life, to others the noise is just an accepted as living in an urban environment; and there was also the recognition by some that trains are important to Danville and train horn noise is just a fact of life.

The report quantifies, in some detail, the opinions of the residents; however most of the responses were received in the areas where train traffic and train horn noise could be problematic. Responses were heavy in the downtown, on the east side and near the area where CSX and NS meet; the locations of the responses are plotted on the map to help DATS make decisions regarding community impacts in specific neighborhoods. This information used to develop the quiet zone scenarios to be analyzed.

### **Phase IV: Analysis and Recommendations of Quiet Zone Improvements**

The analysis and recommendation component analyzes the feasibility for implementing quiet zones in the study area. Five different scenarios for consideration by of quiet zones were developed. The rationale is to illustrate a range of options available for consideration, based upon relative cost and also community impact.

Ranging all the way from a single highway-rail grade crossing to other scenarios that required multiple SSMs including highway-rail grade crossing closures was the objective of this section. QZRI (Quiet Zone Risk Indicator) values were determined for each scenario from the FRA Quiet

Zone Calculator to illustrate relative costs of improvement and also to consider the location of the proposed quiet zone relative to the cost effectiveness of the impact to the businesses and resident. Also taken into account was the location of the survey responses received so as to be responsive to areas of the community with the greatest level of concern and disruption due to train horn noise. Finally, consideration for the locations of the highest train traffic is a factor as this would generate the highest number of train horn noise incidents per day that would be mitigated by a quiet zone. Lastly, we developed a path forward for the DATS to pursue a Quiet Zone and identified next steps in the process involving the railroads, the FRA, ICC, railroads and other interested parties.

## **Conclusion**

The Danville LRTP: Directions to 2035 presents the Quiet Zone issue as significant enough within the community for the it to be raised in Chapter 7 of the document under Rail and Aviation Recommendations and Performance measures. Item #3a states: *“Identify potential improvements at at-grade crossings that would eliminate the need for trains to sound their horns at all at-grade rail crossings.”* While it is impractical financially to implement a Quiet Zone that contains the entire study area, it makes more sense to focus on selected areas where train noise greatly impacts the greatest number of citizens and is cost effective. This was the premise used in developing the scenarios contained in Technical Memorandum IV.

In reviewing the analysis of the scenarios proposed, it is recommended that consideration or quiet zone implementation is most feasible in the following ranking order.

1. Scenario B: Liberty Lane – 4 Quad gates
2. Scenario A Catlin: Raised medians or channelization
3. Scenario D Northeast Danville: 4 Quad gates and closures
4. Scenario C Downtown: 4 Quad gates and closures
5. Scenario A Catlin: 4 Quad gates

Each of these has its strengths and weaknesses. Liberty Lane is a one-off example that will require a 4-quad gate installation with an immediate impact to the neighborhood. The Catlin median scenario is relatively less expensive but has significant challenges concerning traffic patterns in the community. Scenarios D and C requires substantial financial outlay for Quad Gates and the sometimes unpopular approach of closing existing grade crossings. Each of these scenarios are feasible Quiet Zones, but the local agency now needs to decide which are practical and financially feasible relative to municipal budgets. It is anticipated that each railroad will request a fee before commencing any work associated with a Quiet Zone; we would anticipate the City should expect at least \$25,000 as an upfront fee and perhaps more.

The use non-engineered or engineered ASMs (Alternative Safety Measures) are not recommended as a tool to reduce the Quiet Zone Risk Index. The Quiet Zone Risk Index must

be reduced to a level that is at or below either the Risk Index with Horns or the Nationwide Significant Risk Threshold in order to implement any Quiet Zone. The baseline information and required monitoring in order to establish a statistically valid violation rate is too unpredictable and will take too long to implement. A modified SSM which, because of its modified nature, becomes an ASM, is an acceptable method for application. The burden is on the local agency to develop the effectiveness rate but a modification to an SSM is acceptable. An example of this is a channelized median that does not meet the 100-foot approved length with a median length that is reduced to 75 feet, for example. ASMs will need to be discussed with the FRA, ICC, railroads and other key stakeholders during the crossing diagnostic review process.

The use of a fully compliant SSM to lower the QZRI rate is strongly recommended. This assures that the agency is not subject to the fluctuation of the Nationwide Significant Risk threshold (which can change annually). When the agency implements the appropriate SSM, a formal application to the FRA and approval is not necessary per 49 CFR §Part 222.39 (a) to implement the quiet zone.

The FRA also allows for the use a “Wayside Horn” in place of the locomotive horn. This horn is mounted at each highway rail grade crossing and is sounded at the approach of the train; the horn that is on the train itself is not sounded. Although the sound is focused towards the grade crossing itself, there is still a horn sounding when the train passes. The local agency can decide if this approach may be acceptable to the community, but there is still “horn noise” associated with each passing train.

The objective of this study was to determine the Feasibility of a Quiet Zone or Quiet Zones implementations within the study limits. It is clear that there are several locations, described in the Scenarios A through E, which are certainly feasible and are worth pursuing with the FRA, ICC, railroads and other key stakeholders. Each of them has their own issues that need resolution. Those issues are best resolved during the Quiet Zone crossing diagnostic review process. Which proposed quiet zone to pursue is a function of key factors such as SSM cost, property acquisition, community interest, and maintenance expense to the local agency. The relative weight assigned to these factors will drive the decision making process to advance the Quiet Zone process.

### **Newell Road**

As this document was going to print, URS received an inquiry from DATS to address the Newell Road location as an additional Quiet Zone scenario. Newell Road is outside the initial study area of the project but at DATS request, it will be addressed here.

Newell Road lies on the north end of the CSX route through Danville, approximately 2 miles north of Liberty Lane and is in a rural location. URS was asked to evaluate a stand-alone Quiet Zone for this location. At this location there may be a vehicular access issue because of the driveways that are within 100 feet of the grade crossing, but those issues may be worked out with

the property owners during the diagnostic phase. We do not believe that constant warning time or power out devices are in place at this location today. This crossing could be a prime candidate for the utilization of a raised median or channelization SSM to allow a Quiet Zone to be implemented. It is feasible for a Quiet Zone to be implemented at this location. The QZRI for this location is as follows:

FRA - Quiet Zone Calculator

Page 1 of 1

Print This Page

Home | Help | Contact | logoff john.schwaibach@fra.com

Cancel

Change Scenario: NEWELL\_ROA\_42223

Continue

Creates New Zone

Manage Existing Zones

Log Off

Crossing Street

Traffic Warning Device

Pre-SSM Risk

SSM Risk

MODIFY

3537043 NEWELL RD

6100 Series

0

13

13,803.83

\* Only Public At Grade Crossings are listed

Step by Step Instructions:

Step 1: To specify New Warning Device (For the Rule Quiet Zone Only) and/or SSM, click the MODIFY button.

Step 2: Select proposed warning device or SSM. Then click the UPDATE button. To generate a spreadsheet of the values on this page, click on the SSM button--This spreadsheet can then be used for ASM calculations.

Step 3: Repeat Step (2) until the SELECT button is shown at the bottom right side of this page. Note that the SELECT button is shown ONLY when the Quiet Zone Risk Index falls below the NSRT or the Risk Index with Horn.

Step 4: To save the scenario and continue, click the SELECT button

Click for Supplementary Safety Measures SSM

Click for ASM spreadsheet: ASM \* Note: The use of ASMs requires an application to and approval from the FRA.

Summary

Proposed Quiet Zones:	NEWELL ROAD
Type:	New 24-hour QZ
Scenario:	NEWELL ROAD_42223
Estimated Total Cost:	\$15,000.00
Nationwide Significant Risk Threshold:	14347.00
Risk Index with Horn:	41378.4
Quiet Zone Risk Index:	13803.83
Select	

http://safetydata.fra.dot.gov/quiet/scen.aspx?zoneid=33101

</10/7/14



# DANVILLE AREA TRANSPORTATION STUDY

Metropolitan Planning Organization

## **DRAFT** At-Grade Railroad Crossing Study

# Danville and Catlin

Vermillion County, Illinois

*June 2014*

***Prepared for:***

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Appendix B – Draft Voorhees / NS ICC GCPF Application for Raised Median

Appendix C – Draft Voorhees / NS ICC GCPF Application for Grade Separation

Appendix D – Draft Bowman / NS IDOT HSIP Application for Flexible Delineator Installation

Appendix E – Draft Bowman / NS ICC GCPF Application for Flexible Delineator Installation

Appendix F – Draft Williams / NS IDOT HSIP Application for Flexible Delineator Installation and Circuitry Upgrade

Appendix G – Draft Williams / NS ICC GCPF Application for Flexible Delineator Installation and Circuitry Upgrade

Appendix H – Draft Griffin / CSX IDOT HSIP Application for Warning Gates Installation and Circuitry Upgrade

Appendix I – Draft Griffin / CSX ICC GCPF Application for Warning Gates Installation and Circuitry Upgrade

Appendices are currently in development and have not been included in this draft.

## 1. Introduction

This study was prepared to evaluate eight mainline at-grade crossings along the Norfolk Southern Railway (NS) and CSX Railroad (CSX) through the City of Danville and Village of Catlin, located in Vermillion County, Illinois (see Figure 1.1). The purpose of the evaluation was to identify the highest priority safety improvements among the studied at-grade crossings for submission to the Illinois Department of Transportation (IDOT) Highway Safety Improvement Program (HSIP). The IDOT HSIP has a railway component that targets crossings to reduce the number of fatalities and serious injuries at public highway-railway crossings through the elimination of hazards and/or the installation/upgrade of protective devices at crossings.

Two levels of evaluation were completed in the study to narrow down the initial eight crossings to identify the top priority crossings. The top two recommended crossings from the study have had HSIP applications prepared for their submission to IDOT.

## 2. Initial Crossing Screening

The initial screening for the eight crossings included collecting the following data for evaluation:

- Existing and Proposed ADT
- Existing and Proposed Daily Train Traffic
- Warning Components at each site
- Vehicular Crashes
- Vehicle-Train Crashes

Calculations completed for each crossing include:

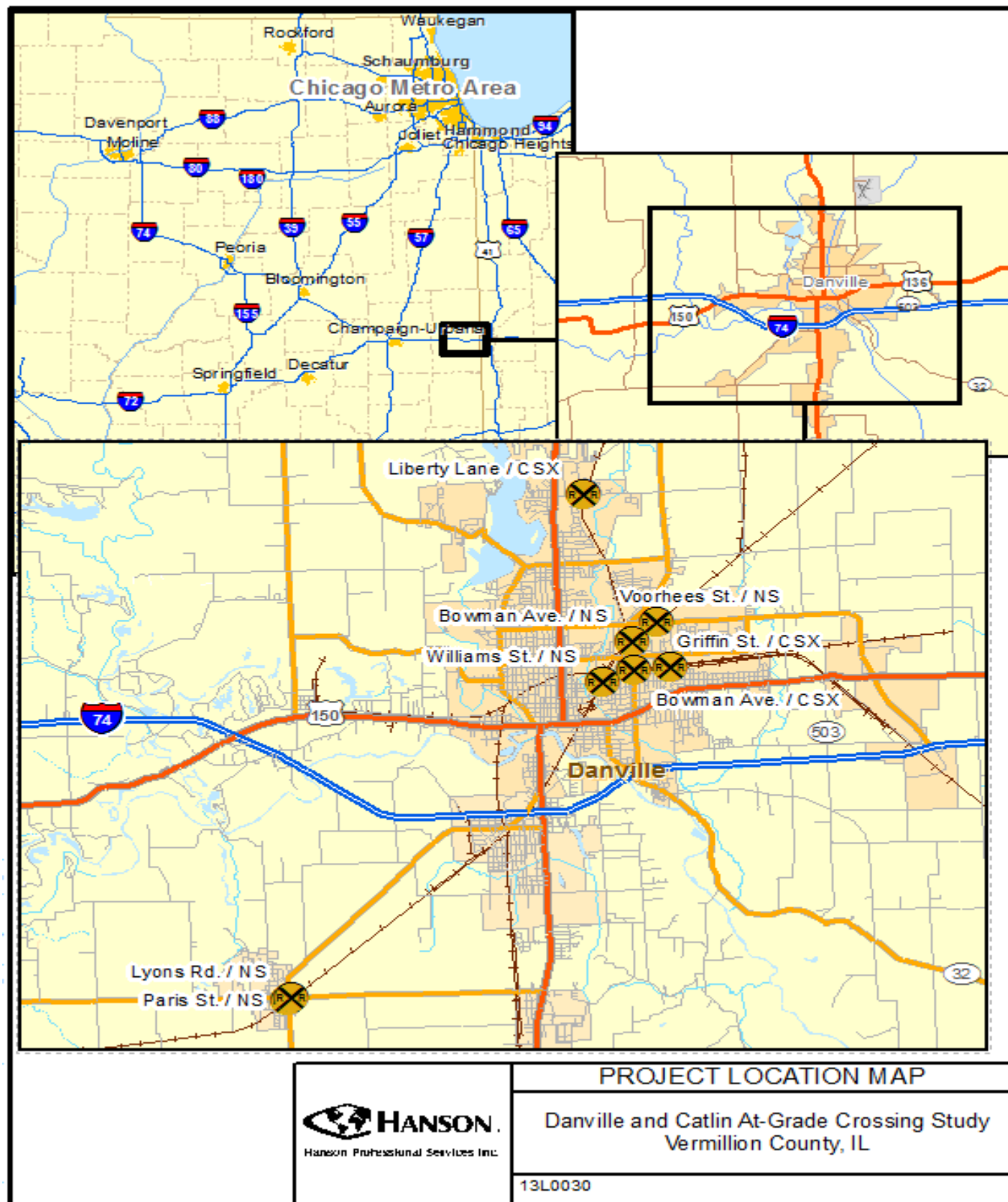
- Expected Crash Frequency
- Delay Time
- 20 Year Exposure Factor

Table 2.1 lists the sources for the data collected and the source of the calculation.

Data	Source
Current ADT	Getting Around Illinois Database
Projected 2035 ADT Values	Danville Area Transportation Study (High Projection Values)
Projected 2024, 2034 ADT Values	Interpolated using the growth rate between current and 2035 ADTs
Current Train Traffic	ICC Crossing Database. Daily Train traffic for Lyons was reported at 17, but adjacent crossings reported at 47 and to remain consistent through the entire corridor, 47 was used. Daily train traffic for Williams and Voorhees was reported at 22, but all surrounding crossings were reported at 48. To keep the value consistent throughout the corridor, 48 was used because it seemed more logical considering Catlin traffic and a higher frequency of 48 being reported.
Projected Train Crossing	Assumed 1.2% Growth
Warning Components at Crossings	Google Earth/ICC Database
Expected Crash Frequency Procedure	IDOT BLRS Chapter 40 Equation 40-2.1
Historic Crashes	IDOT Safety Mart/ICC Database
Delay Time Procedure	ICC Working Paper 2002-03, Motorist Delay at Public Highway Rail Grade Crossings in Northeastern Illinois
Grade Separation Study Suggested	A report part of the Chicago to St. Louis High-Speed Rail Tier 1 EIS that identified a standard 20-Year Exposure value that would suggest a grade separation study for the relative population.

**Table 2.1 Data Collection Sources**

Figure 1.1 Project Location/At-Grade Crossings Studied





## 2.1 Expected Crash Frequency

The crash expectancy was calculated using equation 40-2.1 from the Illinois Department of Transportation (IDOT) Bureau of Local Roads and Streets (BLRS) Manual. The calculated expected crash frequency was compared to the standard of 0.02 crashes per year maximum to determine if current warning devices were sufficient. Table 2.2 shows the data and calculations for the expected crash frequency. Traffic factor and component factor come from table 40-2A in the BLRS Manual.

**Table 2.2 Calculated Expected Crash Frequency**

Rail Line	Road	City	10 Year ADT	Traffic Factor	Trains Per Day	Signal Component	Component Factor	Expected Crash Frequency Per Year	Years Expected Between Crashes
NS	Voorhees Street	Danville	17680	0.023877	48	Gates, Urban	0.08	0.0917	10.9
NS	Bowman Avenue	Danville	9668	0.012674	48	Gates, Urban	0.08	0.0487	20.5
NS	Williams Street	Danville	6061	0.00772	48	Gates, Urban	0.08	0.0296	33.7
NS	Lyons Road	Catlin	1694	0.002627	47	Gates, Urban	0.08	0.0099	101.2
NS	Paris Street	Catlin	2840	0.003981	47	Gates, Urban	0.08	0.0150	66.8
CSX	Liberty Lane	Danville	6790	0.010278	15	Gates, Urban	0.08	0.0123	81.1
CSX	Bowman Avenue	Danville	10873	0.012674	15	Gates, Urban	0.08	0.0152	65.8
CSX	Griffin Street	Danville	8063	0.010278	15	Flashing Lights, Urban	0.23	0.0355	28.2

## 2.2 Crash History

The crash history was analyzed from both the IDOT Safety Mart and the ICC railroad crossing database. The numbers are summarized in Table 2.3 below.

**Table 2.3 Historical Crash History**

Rail Line	Road	City	IDOT Safety Mart Data (2007-2011)							ICC Collision History				
			Total Collisions	K	A	B	C	PD	Calculated Crash Frequency Per Year Based on Data	Total Collisions (1955-2012)	Number of Fatalities	Number of Injuries	Most Recent Collision	Calculated Crash Frequency Per Year Based on Data
NS	Voorhees Street	Danville	9	0	0	2	1	1	2.250	10	1	5	3/15/2004	0.175
NS	Bowman Avenue	Danville	15	0	0	4	4	4	3.750	4	0	5	2/16/2011	0.070
NS	Williams Street	Danville	9	0	1	3	0	0	2.250	11	3	1	2/5/2003	0.193
NS	Lyons Road	Catlin	4	0	0	3	0	0	1.000	2	0	1	1/18/2010	0.035
NS	Paris Street	Catlin	5	0	0	1	1	1	1.250	7	0	5	10/7/1998	0.123
CSX	Liberty Lane	Danville	3	0	2	0	0	0	0.750	5	1	1	4/22/2013	0.088
CSX	Bowman Avenue	Danville	15	0	0	2	3	3	3.750	14	0	3	1/6/2002	0.246
CSX	Griffin Street	Danville	4	0	0	2	0	0	1.000	6	0	1	8/8/2002	0.105

The IDOT Safety Mart Data was collected between 2007 and 2011, excluding crashes that only resulted in property damage because data was only available between 2009 and 2011. ICC Collision History includes all crashes recorded since 1955. The calculated crash frequency per year based on the data provided was included for both the IDOT and ICC Collision data. A comparison of the expected crash frequency per year and historical actual crashes per year shows higher actual rates. The IDOT

data is substantially higher because it includes vehicular crashes in the vicinity of the at-grade crossing not just vehicle train collisions as is reported in the ICC Collision data.

### **2.2.1 Total Delay Time**

The total delay time was calculated using the procedure described in the ICC Working Paper 2002-03, Motorist Delay at Public Highway Rail Grade Crossings in Northeastern Illinois. Table 4 summarizes the calculated delay times.

**Table 2.4 Calculated Delay Time**

<b>Rail Line</b>	<b>Road</b>	<b>City</b>	<b>2014 Total Daily Delay (Hours)</b>	<b>2034 Total Daily Delay (Hours)</b>
NS	Voorhees Street	Danville	33.94	54.23
NS	Bowman Avenue	Danville	17.19	31.62
NS	Williams Street	Danville	32.75	48.42
NS	Lyons Road	Catlin	2.52	5.75
NS	Paris Street	Catlin	4.42	9.63
CSX	Liberty Lane	Danville	11.18	12.64
CSX	Bowman Avenue	Danville	13.29	25.47
CSX	Griffin Street	Danville	29.20	46.67

### **2.2.2 Exposure Factor**

As part of the preparation of the Chicago to St. Louis High-Speed Rail Tier 1 EIS, an analysis was developed that identified exposure factors for at-grade crossings to warrant grade separation studies within three population categories: over 200,000, 5,000-200,000 and less than 5,000. These categories were based on existing local agency grade separations currently within the State of Illinois. The averages were determined in each category and the resulting value was used as a threshold to determine if a crossing warranted further grade separation studies. Exposure factors are defined as the product of the roadway ADT and the number of trains along the rail line at the crossing. The Exposure level thresholds for grade separation studies are Urban (over 200,000) = 1,445,011, Urban (5,000-200,000) = 150,379 and Rural (less than 5,000) = 53,267. Danville is urban (5,000-200,000) and Catlin is rural (less than 5,000).

**Table 2.5 Calculated Exposure Factors**

Rail Line	Road	City	Trains Per Day (2012)	Trains Per Day (2034)	Existing ADT	Projected 2034 ADT	20 Year Exposure Factor	Grade Separation Study Suggested
NS	Voorhees Street	Danville	48	62	15800	19417	1,211,711	Yes
NS	Bowman Avenue	Danville	48	62	8000	11320	706,412	Yes
NS	Williams Street	Danville	48	62	5600	6368	397,415	Yes
NS	Lyons Road	Catlin	47	61	1200	2102	128,439	Yes
NS	Paris Street	Catlin	47	61	2100	3523	215,282	Yes
CSX	Liberty Lane	Danville	15	20	7400	6435	125,481	No
CSX	Bowman Avenue	Danville	15	20	8800	12969	252,918	Yes
CSX	Griffin Street	Danville	15	20	7100	8730	170,252	Yes

### 2.2.3 Initial Crossing Screening Recommendation

Table 2.6 and Figure 2.1 show the summary results of all analysis completed for the initial screening. Based on the screening results, the following four rail crossings are suggested for additional analysis for safety improvements based on the following reasons:

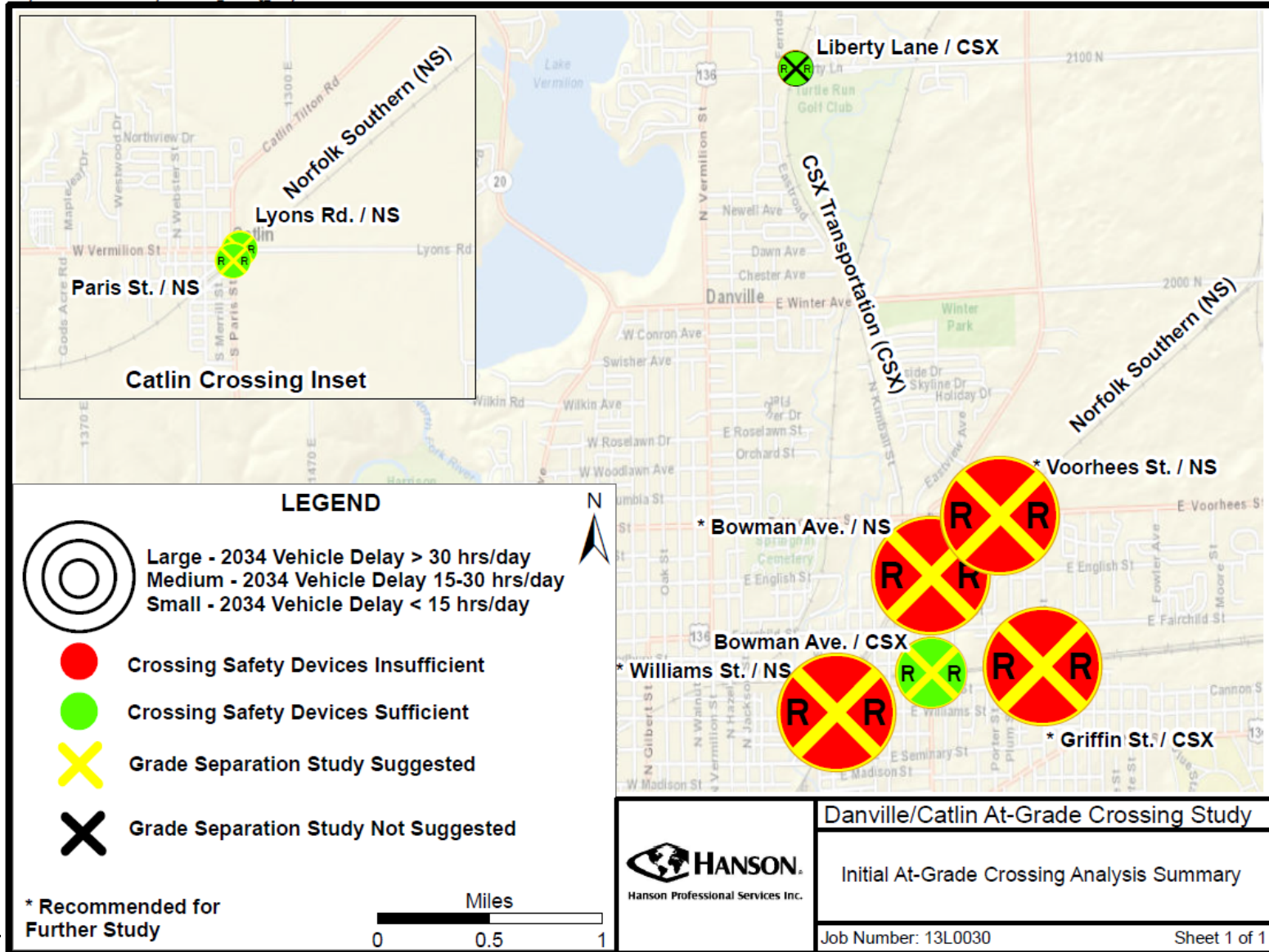
- Voorhees Street at the NS has insufficient warning devices, the highest exposure factor, highest expected crash frequency and the highest delay.
- Bowman Avenue at the NS has insufficient warning devices, the second highest exposure factor, the second highest expected crash frequency and the highest number of crashes according to IDOT data.
- Williams Street at the NS has insufficient warning devices, the second highest delay and the highest number of fatalities according to ICC Collision Data.
- Griffin Street at the CSX has insufficient warning devices, the third highest delay and the third highest expected crash frequency.

**Table 2.6 Initial Crossing Screening Summary**

Rail Line	Road	City	20-Year Exposure Factor	2014 Total Daily Delay (Hours)	2034 Total Daily Delay (Hours)	Expected Crash Frequency Per Year	Years Expected Between Crashes	Sufficient/Insufficient Warning Devices (ECF<0.02 to be sufficient)
NS	Voorhees Street	Danville	1211711	33.94	54.23	0.092	10.9	Insufficient
NS	Bowman Avenue	Danville	706412	17.19	31.62	0.049	20.5	Insufficient
NS	Williams Street	Danville	397415	32.75	48.42	0.030	33.7	Insufficient
NS	Lyons Road	Catlin	128439	2.52	5.75	0.010	101.2	Sufficient
NS	Paris Street	Catlin	215282	4.42	9.63	0.015	66.8	Sufficient
CSX	Liberty Lane	Danville	125481	11.18	12.64	0.012	81.1	Sufficient
CSX	Bowman Avenue	Danville	252918	13.29	25.47	0.015	65.8	Sufficient
CSX	Griffin Street	Danville	170252	29.20	46.67	0.035	28.2	Insufficient

Figure 2.1 Initial Crossing Screening Summary

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This initial crossing summary was submitted to the Danville Area Transportation Study for review and concurrence of the recommended crossings moving forward. After approval was received, additional crossing analysis was conducted on the four recommended crossings.

### 3. Additional Crossing Screening

Alternatives carried forward from the initial screening were reviewed for safety improvements that could be implemented to improve the expected crash frequency to the IDOT standard threshold of 0.02. They were also evaluated to determine the benefits and impacts of the improvements considered, the annual cost and benefit cost ratio of the improvements, the financial cost of delays and the benefits and impacts of grade separating the crossing. The annual cost and benefit/cost ratio of the improvements were determined using IDOT BLRS Manual Chapter 40-2.03. Delay calculations for benefit/cost were developed using the initial screening analysis delay hours calculated and the federal travel rate of \$20 per hour.

In reviewing the alternatives moving forward, it was noted that all alternatives, except for the Griffin Street / CSX crossing which has only flashing lights, already have the lights and gates configuration for crossing warning device. This is the highest type warning light configuration for the two lane urban streets in which these crossings are located. Also, none of the crossings being evaluated in the additional crossing screening are adjacent to signalized intersections which would provide an opportunity to interconnect and coordinate the traffic signal and train signaling systems.



The rail approach signaling system currently installed at the Voorhees/NS and Bowman/NS crossings is a constant warning time (CWT) system that provides uniform warning times between activation and train arrival, typically located where trains travel at different speeds or switching operations occur. This system is the highest level of activation that would be expected at this type of a crossing. As a result, other non-signalized improvements must be considered to improve the expected crash frequency of these crossings.

The Williams/NS and Griffin/CSX crossings currently have the direct current audio frequency overlay (DC-AFO) approach signaling system. This signaling system uses the track to detect the train with the signals being received at the control unit by either a circuit along the track or by radio frequency. The first improvement consideration at these crossing would be to upgrade the signaling system. Other non-signalized improvements will be reviewed at these crossings as well.

The following non-signaling improvements will be considered at each of the crossing locations:

- Flexible Delineator – This includes the installation of a flexible vertical delineator along the centerline of the roadway used to deter motorists from driving over the centerline and attempting to drive around traffic or gates to illegally cross the tracks when the signaling system has been activated. Based on IDOT BLRS figure 40-1C, a minimum distance of 150 feet will be required on either side of the tracks for the delineator installation. The expected crash reduction factor, or the estimated reduction in crashes at the location, for the flexible





delineator's is expected to be 0.75, which was estimated based on the Federal Railroad Administration (FRA) risk factors for mountable medians with channelization devices.

- **Median** – This includes the installation of a mountable or raised curb median to help define the traveled way and deter vehicles from attempting to cross over the centerline to drive around the gates. Signs or flexible delineators are often mounted in the median. Typically this installation requires widening to the outside of the roadway to accommodate the median installation. Like the flexible delineators, a 150 foot minimum length from track will be required for the median installation. For these two-lane urban roadways, a minimum median width of 4 feet was assumed. The expected crash reduction factor for the medians is 0.75 for mountable medians with reflective traffic control devices and 0.80 for raised curb medians.



- **Grade Separation** – This improvement would separate the rail and roadway traffic by way of a bridge structure, eliminating the possibility of train/vehicle collisions. This improvement is the most expensive improvement, but when vehicle delay on highly traveled roadways is considered, may provide a positive cost/benefit ratio. The expected crash reduction factor for grade separations is 1.00, meaning a 100% reduction in rail/train crashes. For this study, a road over rail grade separation was assumed with a touchdown distance of 750 feet each side of the existing tracks.



Four quadrant gates for non-signaling improvements were not considered for these locations as those installations have typically only been included along passenger rail corridors, specifically the High-Speed Rail corridors. The expected crash reduction factor of the four quadrant gate systems is 0.82, only slightly better than the flexible delineator and median measures being evaluated. Also the inclusion of the four quadrant gate systems typically include provisions for automatic vehicle detection for trapped vehicles and signaling systems for the trains along the corridor to detect vehicles within the crossings. The cost of these systems is also substantially higher (typically estimated at \$500,000 per location), so the expected cost/benefit at these locations would not be high.

In addition to the benefits and impacts of the safety improvements, a cost benefit and impact analysis was completed for the crossings for the expected delay. As determined in the initial screening analysis, all crossing carried forward had daily vehicle delays of over 30 hours, with some delays approaching 60 hours. While none of the safety improvements will be able to improve delays, except for the CWT upgrade which does provide a delay reduction, the grade separation alternative would eliminate the delays. However the significant costs of installation will be weighed against the delay and safety improvement benefits.



### 3.1 Voorhees Street / NS

The installation of flexible delineators and mountable medians would not decrease the expected crash frequency to below the 0.20 IDOT threshold, requiring a raised median as a minimum improvement at this location. Table 3.1 summarizes the results for the proposed improvement analysis.

**Table 3.1 Voorhees/NS Safety Improvement Analysis Summary**

Intersection	Existing Expected Crash Frequency	Proposed Installation	Component Crash Reduction	Proposed Expected Crash Frequency	ECF Savings	ECF Annual Safety Benefit	Initial Cost	Annual Cost	Safety Benefit-Cost Ratio
Voorhees/NS	0.092	Flexible Delineators	0.75	0.023	0.069	\$26,073	\$16,000	\$ 1,280.00	20.4
Voorhees/NS	0.092	Mountable Median	0.75	0.023	0.069	\$26,073	\$30,000	\$ 2,400.00	10.9
Voorhees/NS	0.092	Raised Median	0.80	0.018	0.074	\$27,811	\$58,000	\$ 4,640.00	6.0
Voorhees/NS	0.092	Grade Separation	1.00	0.000	0.092	\$34,764	\$7,000,000	\$300,000.00	0.1

Construction of a raised median would require access changes to the City of Danville Public Works facility as well as a parking lot to the Security Ventures, Inc. building southeast of the crossing (see Figure 3.1). It appears the installation of the raised median and required roadway widening could be completed within existing right-of-way, the existing sidewalk on the north side of the street would not be impacted and no other adjacent cross streets would be affected by the raised median installation. The benefit cost ratio for the installation of the raised median is 6.0, which is much higher than the base benefit cost ratio for improvement of one, which indicates that the public benefit is greater than the public cost.

The calculation for benefit/cost of delay with respect to a grade separation is shown in Table 3.2.

**Table 3.2 Voorhees/NS Delay Benefit/Cost Summary**

2034 Total Daily Delay Experienced by All Motorists Collectively	2034 Total Delay Experienced by All Motorists Collectively (Hours/Year)	Annual Delay Benefit	ECF Annual Safety Benefit	Total Benefit for Grade Separation	Annual Cost	Delay and Safety Benefit-Cost Ratio
54.23	19794	\$395,879	\$34,764	\$430,643	\$300,000	1.4

The construction of a grade separation at this location would impact several properties, require total acquisitions due to loss of public highway access or significant changes in the existing access currently provided for from Voorhees Street (see Figure 3.2). The high volume of traffic along Voorhees does cause significant delays and the benefit of the grade separation would result in a combined delay and safety benefit cost ratio of 1.4, indicating that a grade separation should be a consideration at this location.

Figure 3.1 Voorhees/NS Raised Median

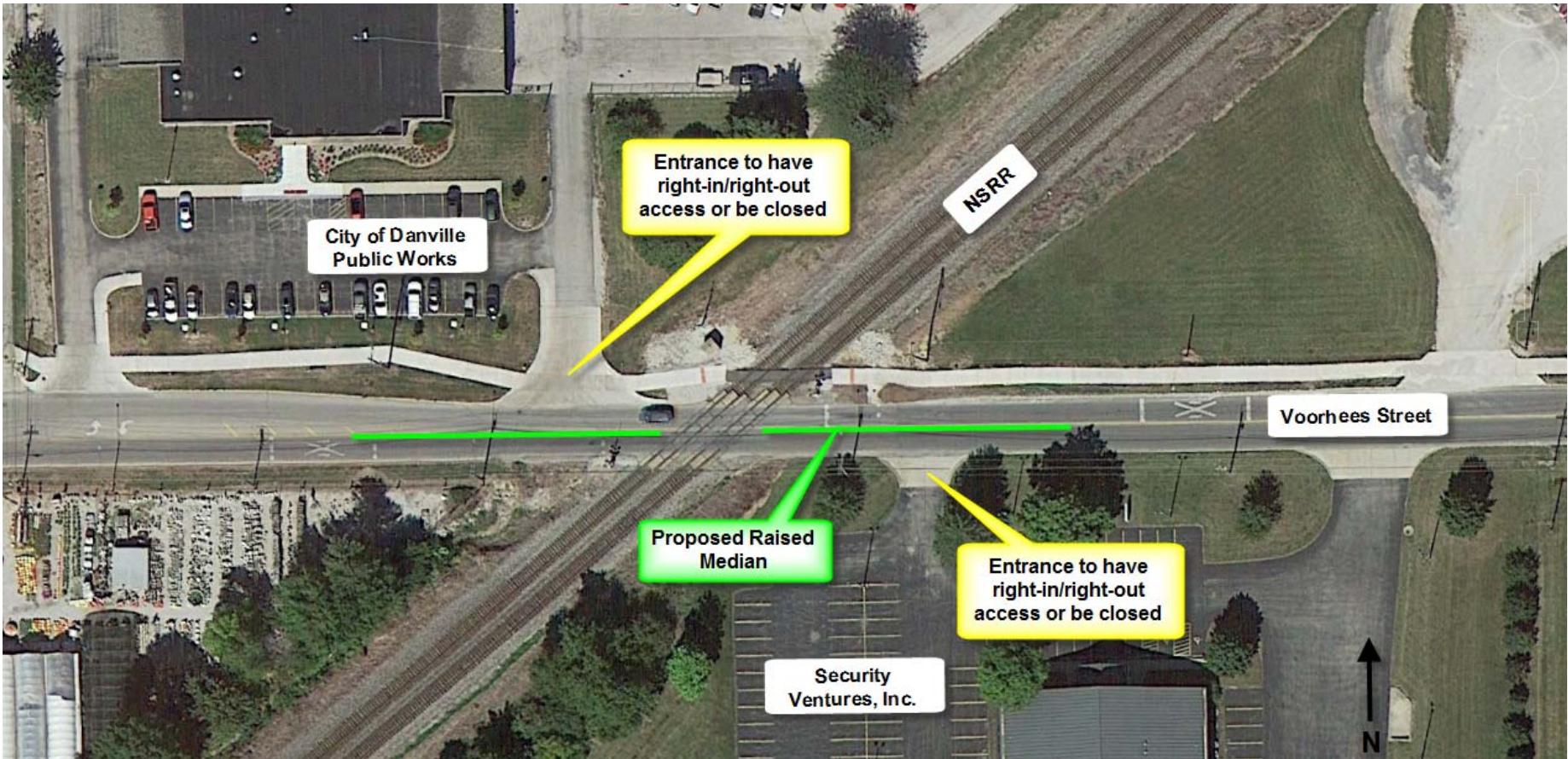
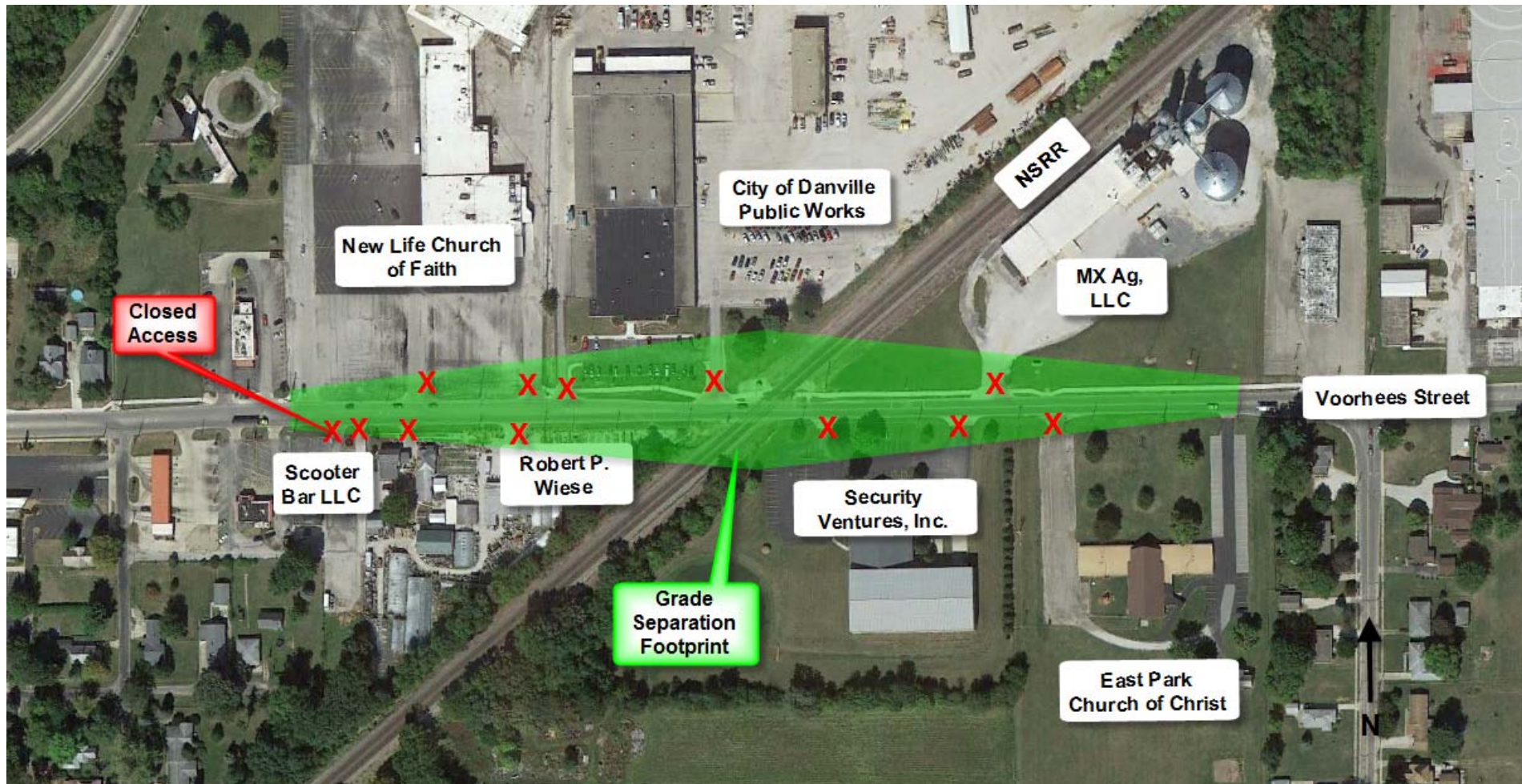




Figure 3.2 Voorhees/NS Grade Separation



### 3.2 Bowman Avenue / NS

The installation of flexible delineators would decrease the expected crash frequency to below the 0.20 IDOT threshold. Table 3.3 summarizes the results for the proposed improvement analysis.

**Table 3.3 Bowman/NS Safety Improvement Analysis Summary**

Intersection	Existing Expected Crash Frequency	Proposed Installation	Component Crash Reduction Factor	Proposed Expected Crash Frequency	ECF Savings	ECF Annual Safety Benefit	Initial Cost	Annual Cost	Safety Benefit-Cost Ratio
Bowman/NS	0.049	Flexible Delineators	0.75	0.012	0.037	\$13,887	\$16,000	\$ 1,280.00	10.8
Bowman/NS	0.049	Mountable Median	0.75	0.012	0.037	\$13,887	\$30,000	\$ 2,400.00	5.8
Bowman/NS	0.049	Raised Median	0.80	0.010	0.039	\$14,812	\$58,000	\$ 4,640.00	3.2
Bowman/NS	0.049	Grade Separation	1.00	0.000	0.049	\$18,516	\$7,000,000	\$ 300,000.00	0.06

Construction of flexible delineators at this location would affect the intersecting roadways of English Street and Maples Street, along with two residential and one commercial entrance access (see Figure 3.3). A determination would need to be made whether or not to modify access to right-in/right-out, provide access from another public street, or purchase the property. The benefit cost ratio for the installation of the flexible delineators is 10.8, indicating an extremely high public benefit.

The calculation for benefit/cost of delay with respect to a grade separation is shown in Table 3.4.

**Table 3.4 Bowman/NS Delay Benefit/Cost Summary**

2034 Total Daily Delay Experienced by All Motorists Collectively (Hours)	2034 Total Delay Experienced by All Motorists Collectively (Hours/Year)	Annual Delay Benefit	ECF Annual Safety Benefit	Total Benefit for Grade Separation	Annual Cost	Delay and Safety Benefit-Cost Ratio
31.62	11541	\$230,826	\$18,516	\$249,342	\$300,000	0.8

The construction of a grade separation at this location would impact several residential properties, require total acquisitions due to loss of public highway access or significant changes in the existing access currently provided for from Bowman Avenue (see Figure 3.4). The benefit cost ratio of the proposed grade separation based on the reduction of delay and safety improvements is 0.8, indicating the benefit would not surpass the expected public cost.



Figure 3.3 Bowman/NS Flexible Delineators

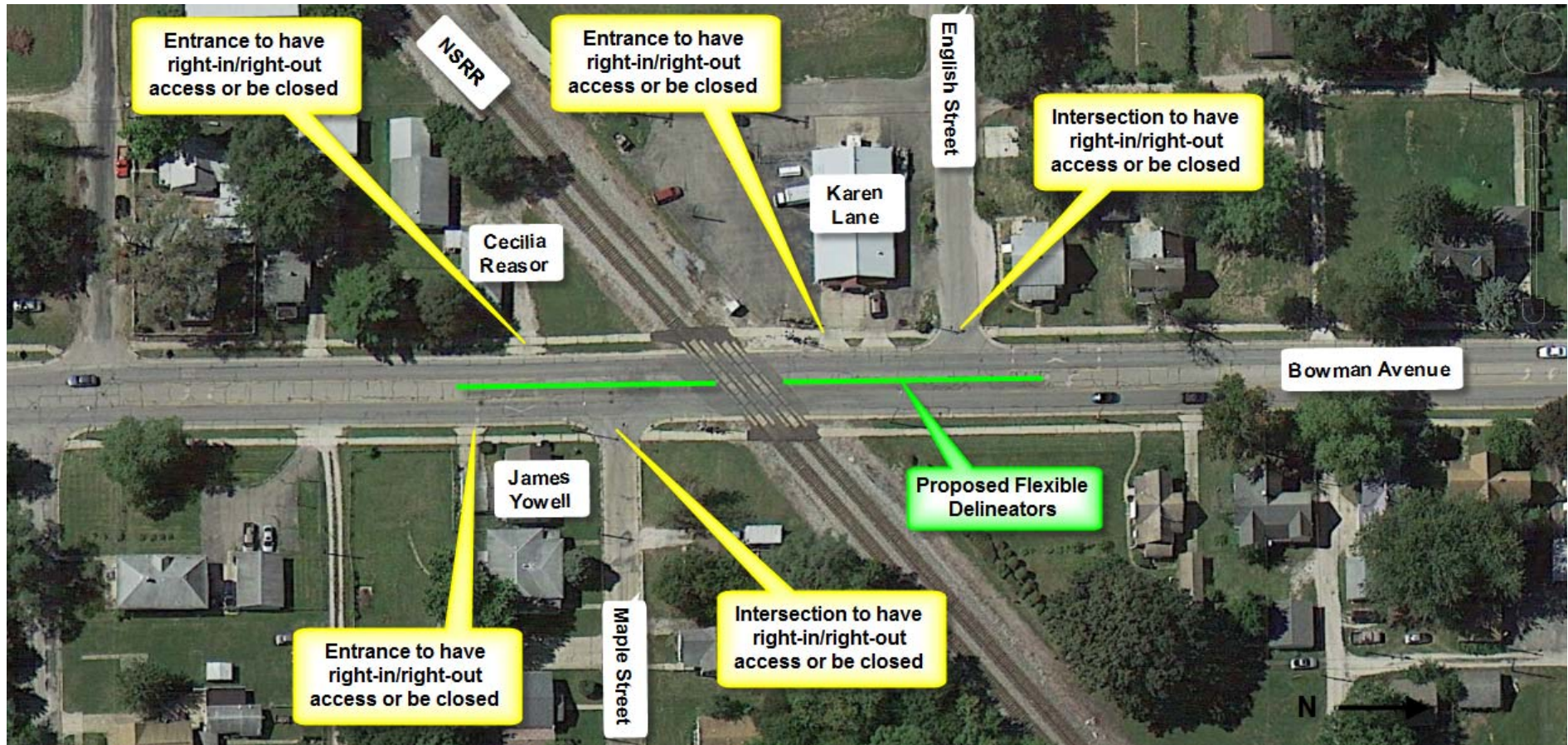
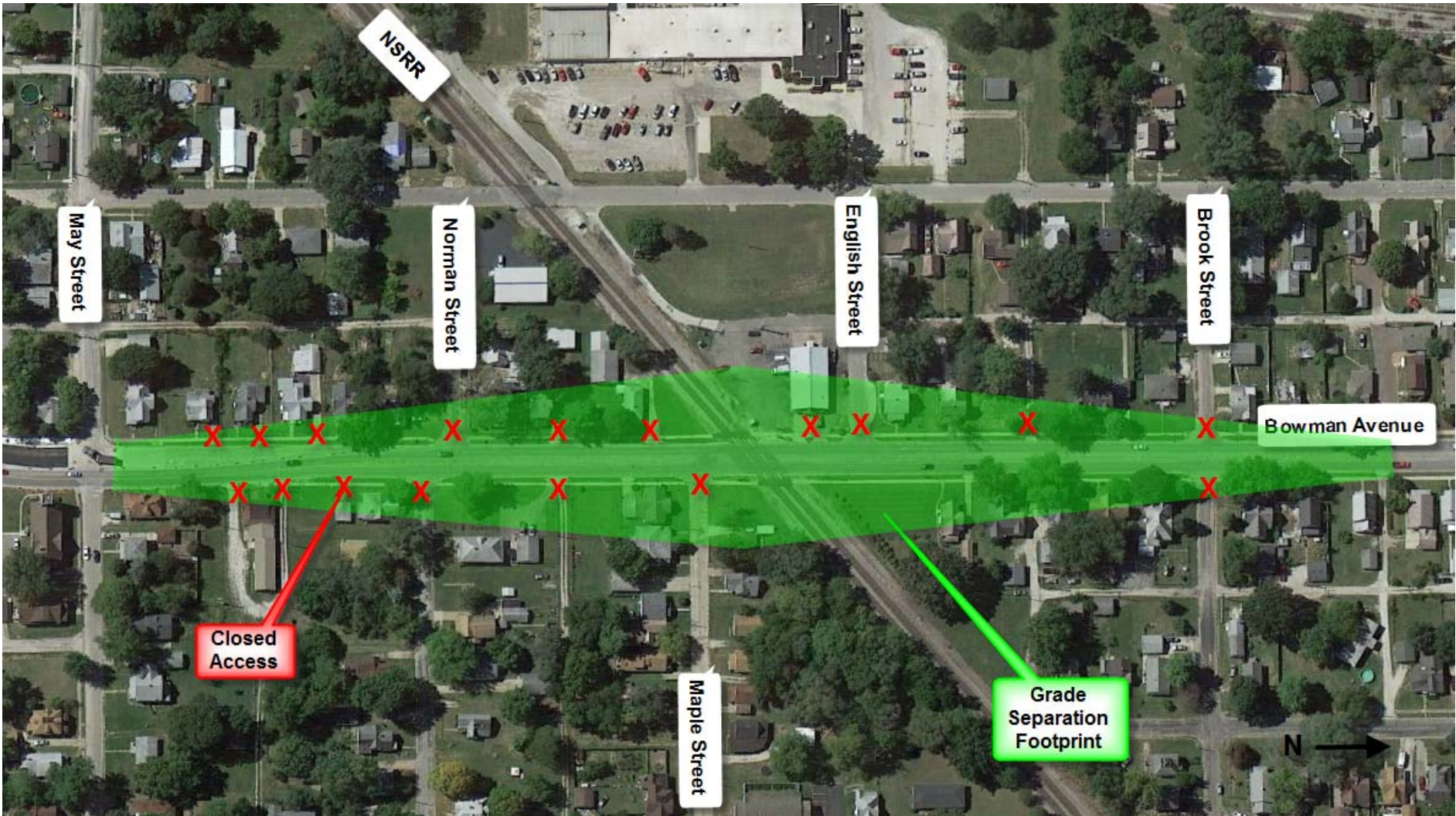




Figure 3.4 Bowman/NS Grade Separation





### 3.3 Williams Street / NS

The installation of flexible delineators would decrease the expected crash frequency to below the 0.20 IDOT threshold. Table 3.5 summarizes the results for the proposed improvement analysis.

**Table 3.5 Williams/NS Safety Improvement Analysis Summary**

Intersection	Existing Expected Crash Frequency	Proposed Installation	Component Crash Reduction Factor	Proposed Expected Crash Frequency	ECF Savings	ECF Annual Safety Benefit	Initial Cost	Annual Cost	Safety Benefit-Cost Ratio
Williams/NS	0.030	CWT Upgrade	0.26	0.022	0.008	\$2,947	\$100,000	\$ 8,000.00	0.4
Williams/NS	0.030	Flexible Delineators	0.75	0.008	0.023	\$8,502	\$16,000	\$ 1,280.00	6.6
Williams/NS	0.030	Mountable Median	0.75	0.008	0.023	\$8,502	\$30,000	\$ 2,400.00	3.5
Williams/NS	0.030	Raised Median	0.80	0.006	0.024	\$9,069	\$58,000	\$ 4,640.00	2.0
Williams/NS	0.030	Grade Separation	1.00	0.000	0.030	\$11,336	\$7,000,000	\$300,000.00	0.04

Construction of flexible delineators at this location would affect the intersecting roadways of Junction Street and Short Street, along with three commercial entrances (see Figure 3.5). A determination would need to be made whether or not to modify access to right-in/right-out, provide access from another public street, or purchase the property. The benefit cost ratio for the installation of the flexible delineators is 6.6.

The calculation for benefit/cost of delay with respect to a grade separation is shown in Table 3.6.

**Table 3.6 Williams/NS Delay Benefit/Cost Summary**

Proposed Installation	2034 Total Daily Delay Experienced by All Motorists Collectively (Hours)	2034 Total Delay Experienced by All Motorists Collectively (Hours/Year)	Annual Delay Benefit	ECF Annual Safety Benefit	Total Benefit for Grade Separation	Annual Cost	Delay and Safety Benefit-Cost Ratio
CWT Upgrade	48.42	17673	\$107,413	\$2,947	\$110,360	\$8,000	13.8
Grade Separation	48.42	17673	\$353,466	\$11,336	\$364,802	\$300,000	1.2

The construction of a grade separation at this location would impact several commercial and residential properties, impact access to Section Street, Junction Street, Short Street and Anderson Street or require total acquisitions due to loss of public highway access or significant changes in the existing access currently provided for from Williams Street (see Figure 3.6). The benefit cost ratio of the proposed grade separation based on the reduction of delay and safety improvements would be 1.2. Upgrading the circuitry to CWT would provide a 30% delay reduction and the benefit cost ratio of this improvement is 13.8. This 30% reduction is based on the USDOT report on *Benefit-Cost Evaluation of a Highway-Railroad Intermodal Control System (ICS)*.

Figure 3.5 Williams/NS Flexible Delineators

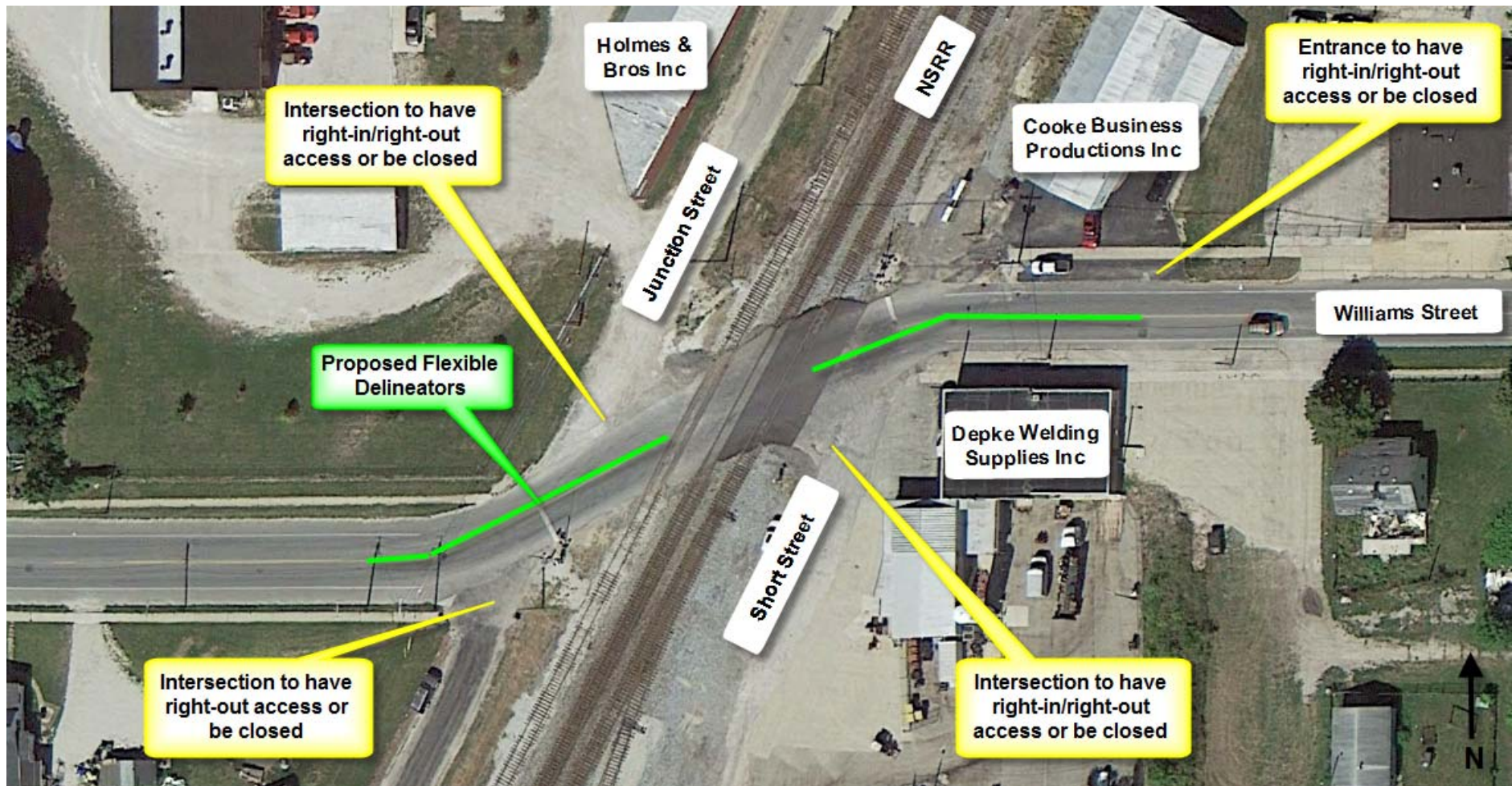
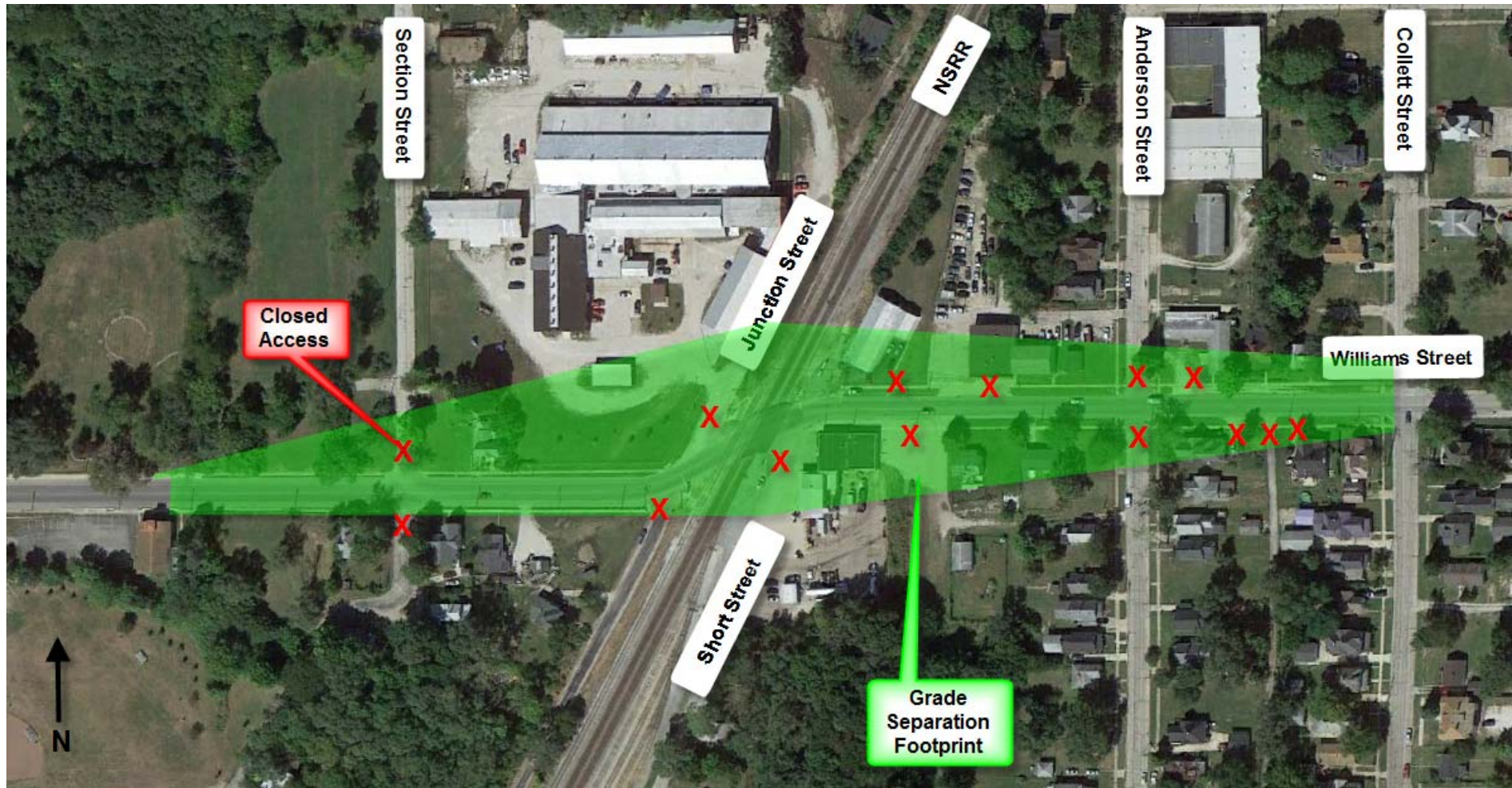




Figure 3.6 Williams/NS Grade Separation



### 3.4 Griffin Street / CSX

The installation of urban gates would decrease the expected crash frequency to below the 0.20 IDOT threshold. Table 3.7 summarizes the results for the proposed improvement analysis.

**Table 3.7 Griffin/CSX Safety Improvement Analysis Summary**

Intersection	Existing Expected Crash Frequency	Proposed Installation	Component Crash Reduction Factor	Proposed Expected Crash Frequency	ECF Savings	ECF Annual Safety Benefit	Initial Cost	Annual Cost	Safety Benefit-Cost Ratio
Griffin/CSX	0.035	CWT Upgrade	0.26	0.026	0.009	\$3,439	\$100,000	\$ 8,000.00	0.4
Griffin/CSX	0.035	Gates, Urban	0.57	0.012	0.023	\$8,691	\$250,000	\$ 20,000.00	0.4
Griffin/CSX	0.035	Gates, Urban with Flexible Delineators	0.89	0.004	0.031	\$11,804	\$266,000	\$ 21,280.00	0.6
Griffin/CSX	0.035	Gates, Urban Mountable Median	0.89	0.004	0.031	\$11,804	\$280,000	\$ 22,400.00	0.5
Griffin/CSX	0.035	Gates, Urban Raised Median	0.91	0.003	0.032	\$12,088	\$308,000	\$ 24,640.00	0.5
Griffin/CSX	0.035	Grade Separation	1.00	0.000	0.035	\$13,225	\$7,000,000	\$300,000.00	0.04

Construction of urban gates at this location would have minimal affect to adjacent properties (see Figure 3.5). The benefit cost ratio for the installation of the urban gates is only 0.4.

The calculation for benefit/cost of delay with respect to a grade separation is shown in Table 3.8.

**Table 3.8 Griffin/CSX Delay Benefit/Cost Summary**

Proposed Installation	2034 Total Daily Delay Experienced by All Motorists Collectively (Hours)	2034 Total Delay Experienced by All Motorists Collectively (Hours/Year)	Annual Delay Benefit	ECF Annual Safety Benefit	Total Benefit for Grade Separation	Annual Cost	Delay and Safety Benefit-Cost Ratio
CWT Upgrade	46.67	17035	\$103,531	\$3,439	\$106,969	\$8,000	13.4
Grade Separation	46.67	17035	\$340,691	\$13,225	\$353,916	\$300,000	1.2

The construction of a grade separation at this location would impact several residential properties, Garfield Park, require total acquisitions due to loss of public highway access or significant changes in the existing access currently provided for from Griffin Street (see Figure 3.8). The benefit cost ratio of the proposed grade separation based on the reduction of delay and safety improvements would be 1.2. Upgrading the circuitry to CWT would provide a 30% delay reduction and the benefit cost ratio of this improvement is 13.4.

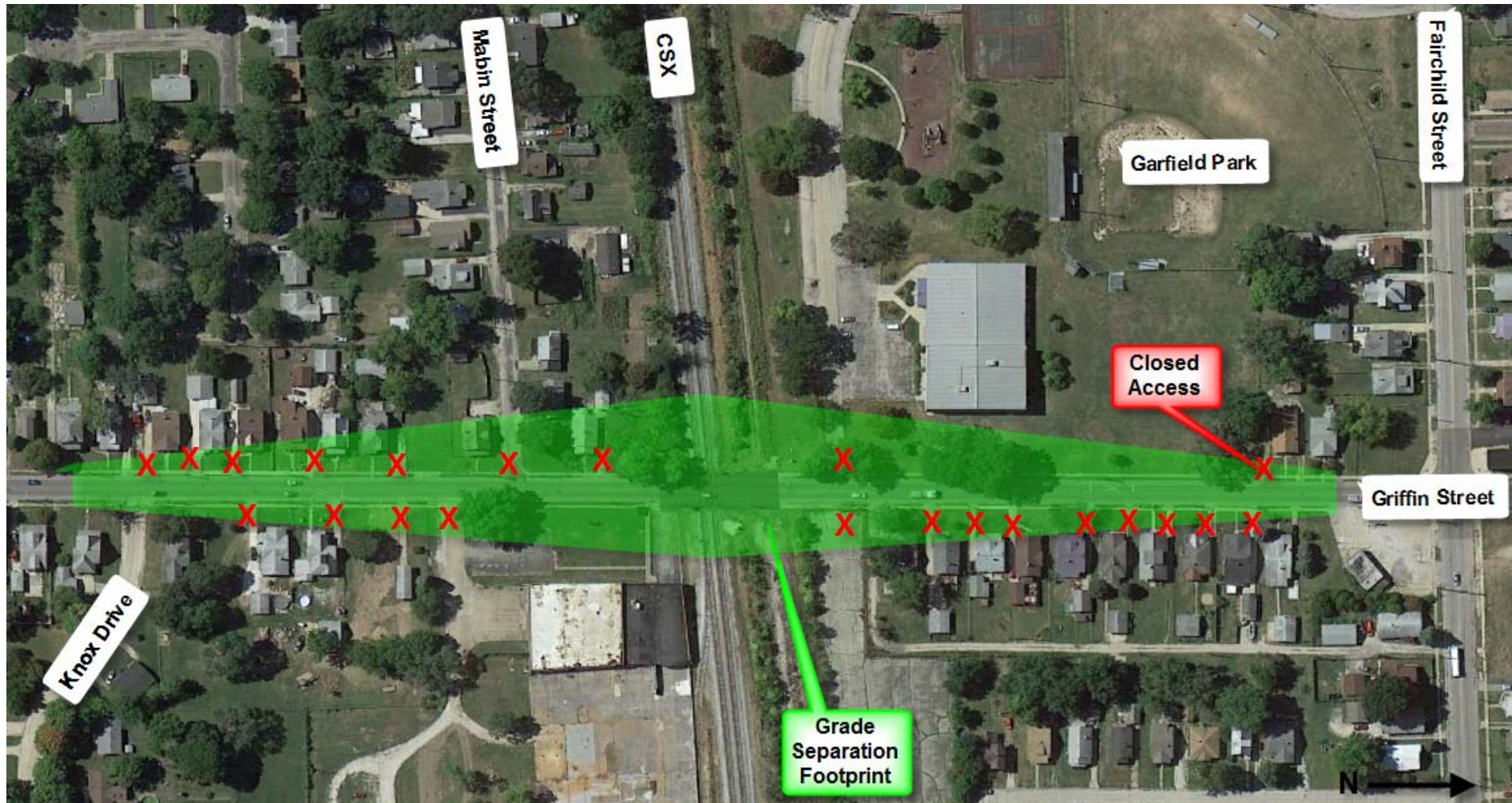


**Figure 3.7 Griffin/CSX Urban Gates**





Figure 3.8 Griffin/CSX Grade Separation



## **4. Recommendations**

This study recommends safety or delay improvements based on the data presented in this document. It should be used as a guide for future improvements, based on additional site specific studies, where required, confirming the assumptions made in this report.

Safety improvements recommended will require the confirmation of improvements based on the analysis of a diagnostic team evaluation of the crossing in the field. While this report recommends the minimum required safety improvement to meet the IDOT guidelines, a diagnostic team evaluation may recommend a lower level improvement if deemed justified by field conditions.

Recommended delay improvements, if provided, will need to be confirmed with a site specific engineering analysis and environmental review.

The preparation of an IDOT Project Development Report (PDR) will most likely be required for the recommended improvements due to the access changes required. These PDR's will most likely be processed as a Categorical Exclusion II (CEII) document.

See Figures 4.1 and 4.2 for a summary of the proposed recommendations.

### **4.1 Voorhees Street / NS**

**Safety Improvement** – It is recommended that a raised median be installed along Voorhees Street to meet the IDOT recommended expected crash frequency at this location. The benefit cost ratio of 6.0 shows a significant public safety benefit for this improvement. This improvement may need to be balanced with the suggested delay improvement, possibly including the installation of flexible delineators as a short term, low cost acceptable solution for increased safety. Either the median or flexible delineator installation will need to address the loss of two-way access to the City of Danville Public Works facility and the commercial business southeast of the crossing. For this study, it was assumed that right-in/right-out access would be maintained, which would not require a payment of damages to the property owner.

**Delay Improvement** – It is recommended that an IDOT Project Development Report (PDR) be completed for a proposed grade separation at this location. The delay and safety benefit cost ratio of 1.4 shows a benefit to the public if this improvement were completed. Based on the 2010 Danville Area Transportation Study (DATS) Long Range Transportation Plan (LRTP), Voorhees Street is expected to be over capacity by 2035. The existence of an at-grade crossing along this route will only exacerbate the delay along the corridor, further supporting the need for a grade separation at this location. A four lane section may be justified based on the future roadway capacity needs.

### **4.2 Bowman Avenue / NS**

**Safety Improvement** – It is recommended that flexible delineators be installed along Bowman Avenue to meet the IDOT recommended expected crash frequency at this location. The benefit cost ratio of 10.8 is extremely high, based on the relatively low cost of the delineators and the high safety return due to the restriction of drivers from driving over the centerline in the vicinity of the rail crossing. However, there may be costs for adjacent commercial businesses due to the change in access along Bowman Avenue which have not been accounted for in this analysis. Changes in access to the adjacent road

intersections of English and Maple Streets may also be undesirable to adjacent landowners. However, even with the mitigation of these impacts, the benefit could still be higher than the costs.

**Delay Improvement** – It is not recommended that a grade separation be constructed at this location at this time. The expected benefit cost ratio does not appear to justify a grade separation. However, Bowman Avenue is identified in the DATS LRTP as a roadway expected to be over capacity within the vicinity of this crossing, therefore as traffic volumes increase along this roadway, continued review of the benefit/cost of a grade separation should be evaluated.

#### **4.3 Williams Street / NS**

**Safety Improvement** – It is recommended that flexible delineators be installed along Williams Street to meet the IDOT recommended expected crash frequency at this location. Also, as a baseline improvement to this location, the train signaling equipment should be upgraded to CWT as well. The benefit cost ratio of 6.6 shows this safety improvement would be beneficial. The challenge of this improvement would also be maintaining access along the major highway, and in this case, the horizontal curve located within the crossing itself. With two adjacent side streets parallel to the tracks and businesses in close proximity, the challenge of access would remain. Also, should the side streets not be restricted to right-in/right-out access or closed, it would be recommended to include side street gates in addition the side street lights currently installed to help prevent vehicles from crossing the tracks when the Williams Street gates are closed.

**Delay Improvement** – It is not recommended that a grade separation be constructed at this location at this time. Even though the expected benefit cost ratio is over one, it is recommended to focus efforts towards the Voorhees Street grade separation in order to have the most significant benefit among the crossings studied. Also, upgrading the circuitry at this location to CWT would decrease the delay by up to 30% for substantially less than the expected cost of the grade separation.

#### **4.4 Griffin Street / CSX**

**Safety Improvement** – It is recommended that this crossing should have warning gates installed and the train signaling system upgraded to CWT to meet the IDOT recommended expected crash frequency criteria. The benefit cost ratio of 0.4 shows that the impact of this safety improvement does not match the significance of other crossing improvements, however the implementation of the CWT and gates for both safety and delay has a very high benefit/cost ratio of 13.4, showing the public benefit that would still be gained by implementing these upgrades.

**Delay Improvement** – It is not recommended that a grade separation be constructed at this location at this time. Even though the expected benefit cost ratio is over one, it is recommended to focus efforts towards the Voorhees Street grade separation in order to have the most significant benefit among the crossings studied. Also, upgrading the circuitry at this location to CWT would decrease the delay by up to 30% for substantially less than the expected cost of the grade separation.



Figure 4.1 Additional Crossing Study Safety Improvement Recommendations

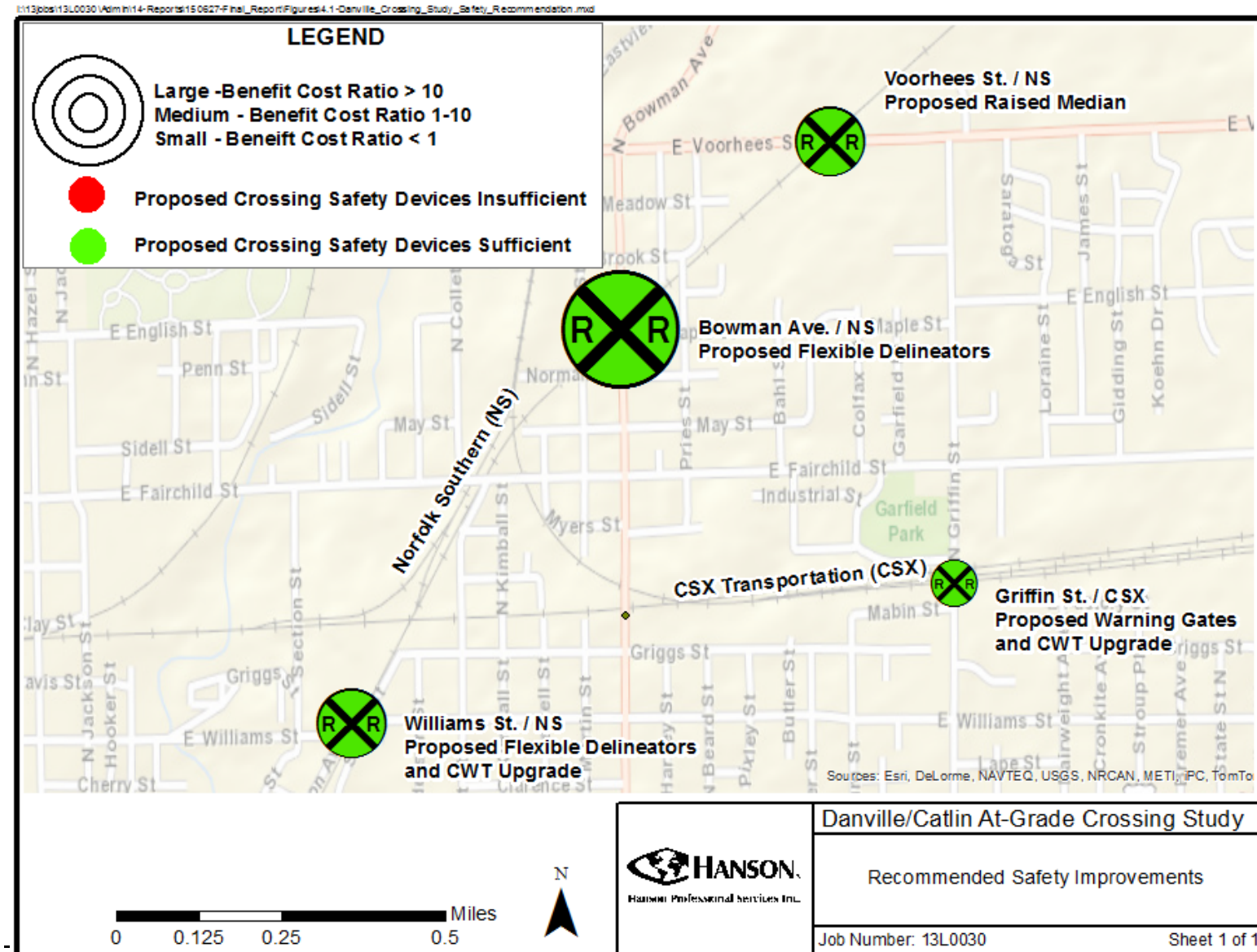
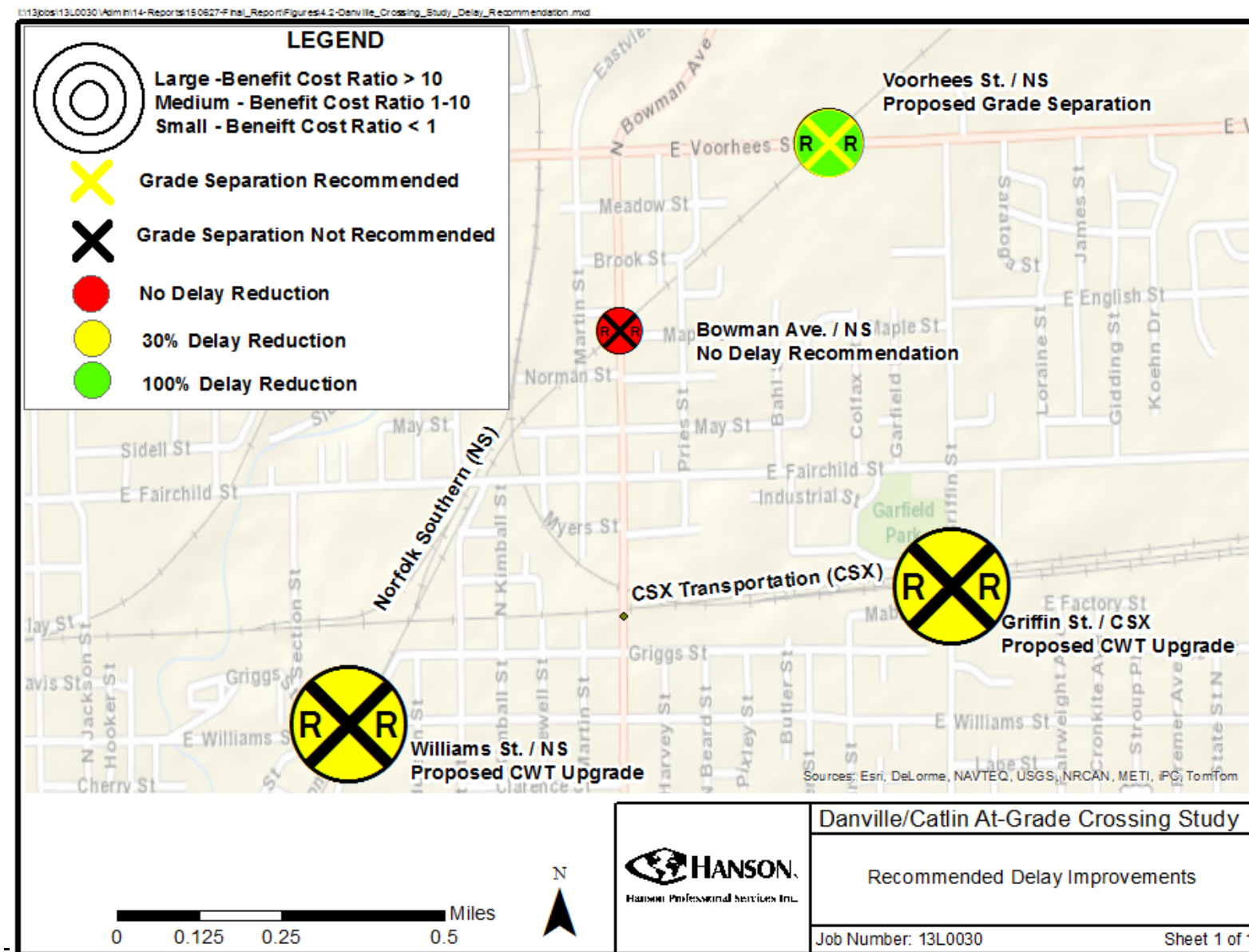


Figure 4.2 Additional Crossing Study Delay Improvement Recommendations





Fiscal Year 2017 Annual Element											
PROJECT NUMBER	PROJECT ROUTE	DESCRIPTION OF PROPOSED IMPROVEMENT	LOCATION		FUND TYPE	Agency Cost (in 1,000's)	Partner Agency Cost (in 1,000's)	State Cost Share (in 1,000's)	Federal Cost Share (in 1,000's)	TOTAL PROJECT COST (in 1,000's)	NOTES
			BEGINNING	END							
VERMILION COUNTY											
VC-17-01	TR 347 MCKENDREE TWP	BRIDGE REPLACEMENT	SN 092-3003		HBP/TBP		9.00	36.00	180.00	225.00	04-11119-00-BR
VC-17-02	TR 222 CATLIN TWP	BRIDGE REPLACEMENT	SN 092-3153		HBP/TBP		27.50	27.50	220.00	275.00	07-04132-00-BR
VC-17-03	COUNTY ROADS	ANNUAL CO RESURFACING	VARIOUS		MFT	200.00				200.00	
VC-17-04	COUNTY ROADS	ANNUAL CO SEAL COAT	VARIOUS		MFT	400.00				400.00	17-00000-00-GM
VC-17-05	TOWNSHIP ROADS	ANNUAL TWP SEAL COAT	VARIOUS		MFT	1,800.00				1,800.00	17-XX000-00-GM
VC-17-06	FAS 331/CH21&10	BRIDGE REPLACEMENT	SN 092-0074		COUNTY BR	136.00			544.00	680.00	13-00202-00-BR
TOTAL (In 1,000's)						2,536.00	36.50	63.50	400.00	3,580.00	

TIP Amendment- 07/10/2014

Addition of project VC-17-06

Fiscal Year 2018 Annual Element											
PROJECT NUMBER	PROJECT ROUTE	DESCRIPTION OF PROPOSED IMPROVEMENT	LOCATION		FUND TYPE	Agency Cost (in 1,000's)	Partner Agency Cost (in 1,000's)	State Cost Share (in 1,000's)	Federal Cost Share (in 1,000's)	TOTAL PROJECT COST (in 1,000's)	NOTES
			BEGINNING	END							
CITY OF DANVILLE											
DA-18-01	Voorhees Street over Stoney Creek	Major Bridge Replacement			MBR	223.00			1,116.65	1,339.65	08-00330-02-PV
TOTAL (In 1,000's)						223.00	0.00	0.00	1,116.65	1,339.65	

TIP Amendment- 07/10/2014

Addition of project DA-18-01