US HIGHWAY 18 Clay, Palo Alto, Kossuth, and Hancock Counties PLANNING AND ENVIRONMENTAL LINKAGES (PEL) STUDY

VISION DOCUMENT

Location and Environment Bureau | October 2021

EXECUTIVE SUMMARY

INTRODUCTION

The Iowa Department of Transportation (DOT) performed a transportation planning study for a portion of the US Highway 18 (US 18) corridor in Clay, Palo Alto, Kossuth, and Hancock Counties in northern Iowa following the Federal Highway Administration Planning and Environmental Linkages (PEL) process. The Study focuses on the goal of recommending roadway improvements: (1) evaluating existing paved or partially paved intersections for turn lane improvement recommendations, (2) identifying recommendations for passing lane locations, (3) identifying spot roadway locations to address operational or safety concerns.

The Study consists of a series of separate analyses and standalone reports including: goals and objectives, evaluate the corridor's existing infrastructure conditions, study area features and possible constraints, as well past safety performance and crash history. The findings of these various studies and public outreach activities are culminated in this Vision Document, which sets forth recommendations for future study and investment in the US 18 Study corridor.

RECOMMENDATION – TURN LANE IMPROVEMENTS AT FULLY PAVED OR PARTIALLY PAVED INTERSECTIONS

The findings of the US 18 PEL Study recommend improving some of the existing turn lanes and proposes new turn lanes at many of the fully paved or partially paved intersections. There are currently 40 partially paved or fully paved intersections with a turn lane. 10 of those intersections should ultimately be upgraded to a major right turn lane. The findings also recommend 49 proposed new turn lanes.

RECOMMENDATION - PROPOSED PASSING LANE LOCATIONS

The findings of the US 18 PEL Study recommend adding a total of 24 passing lanes, 11 of them in the eastbound direction and 13 in the westbound direction.

RECOMMENDATION - SPOT ROADWAY IMPROVEMENTS

The findings of the US 18 PEL Study recommend four spot improvements. All four improvements involve conversion of bypass lanes to left turn lanes.

Basis for Super-2 Recommendation

- Targeted corridor in the Iowa in Motion 2045 State Transportation Plan to improve mobility and safety on a two-lane highway
- Public supports corridor enhancement
- Future projected traffic can be served with a two-lane highway
- Previous Iowa DOT study (US 30 PEL) suggests improving an existing two-lane highway to a Super-2 highway is estimated to cost 15 to 20 percent of what would be required to expand the highway to four lanes.

ACRONYMS AND ABBREVIATIONS

CIN	Commercial and Industrial Network
DOT	Department of Transportation
FHWA	Federal Highway Administration
ICE	Infrastructure Condition Evaluation
HMVMT	Hundred Million Vehicle Miles Traveled
LRTP	Long-Range Transportation Plan
NEPA	National Environmental Policy Act
PEL	Planning and Environmental Linkages
US 18	United States Highway 18
PBDP	Practical Based Design Principals

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDIX A

1 INTRODUCTION

The Iowa Department of Transportation (DOT) prepared a transportation planning study for a portion of the US Highway 18 (US 18) corridor in Clay, Palo Alto, Kossuth, and Hancock Counties in Northern Iowa. This planning study, hereafter referred to as the Study, follows the Federal Highway Administration (FHWA) Planning and Environmental Linkages (PEL) model.

1.1 STUDY OVERVIEW

This model represents an approach to transportation planning decision making that considers environmental, community, and economic goals early in the planning stage, which:

- Minimizes duplication of effort.
- Promotes efficient and cost-effective solutions and environmental stewardship.
- Reduces delays in future project implementation.

The objective of the Study is to gain an understanding of the corridor's safety, mobility, and infrastructure, as well as identify recommendations for Super Two roadway improvements necessary to meet current and future traffic operations and mobility needs. It's also to encourage public involvement and stakeholder input throughout the process. The two-lane highway roadway improvements examined, will primarily focus on turning and passing lane additions. Other spot highway roadway improvements will also be recommended in certain areas to help improve the transportation corridor within the Study Area.

This report will summarize the Study's findings and recommendations. This study will not result directly in a programmed "funded" project but in some components that can be addressed over time and incorporated into future smaller scale projects as they are to be constructed, for example combined with a resurfacing project on a several mile stretch of the corridor. Future projects will further evaluate conditions and help design the improvements accordingly.

The US 18 PEL Study consists of a series of smaller topical studies and public outreach activities, with the various study results and findings culminating in this Vision Document. The US 18 PEL Study includes the following technical reports

- US 18 Clay, Palo Alto, Kossuth and Hancock Counties Planning and Environmental Linkages (PEL) Study – Goals and Guiding Principles.
- US 18 Clay, Palo Alto, Kossuth and Hancock Counties Planning and Environmental Linkages (PEL) Study – Existing Crash History Report.
- US 18 Clay, Palo Alto, Kossuth and Hancock Counties Planning and Environmental Linkages (PEL) Study – Existing Conditions Memorandum.

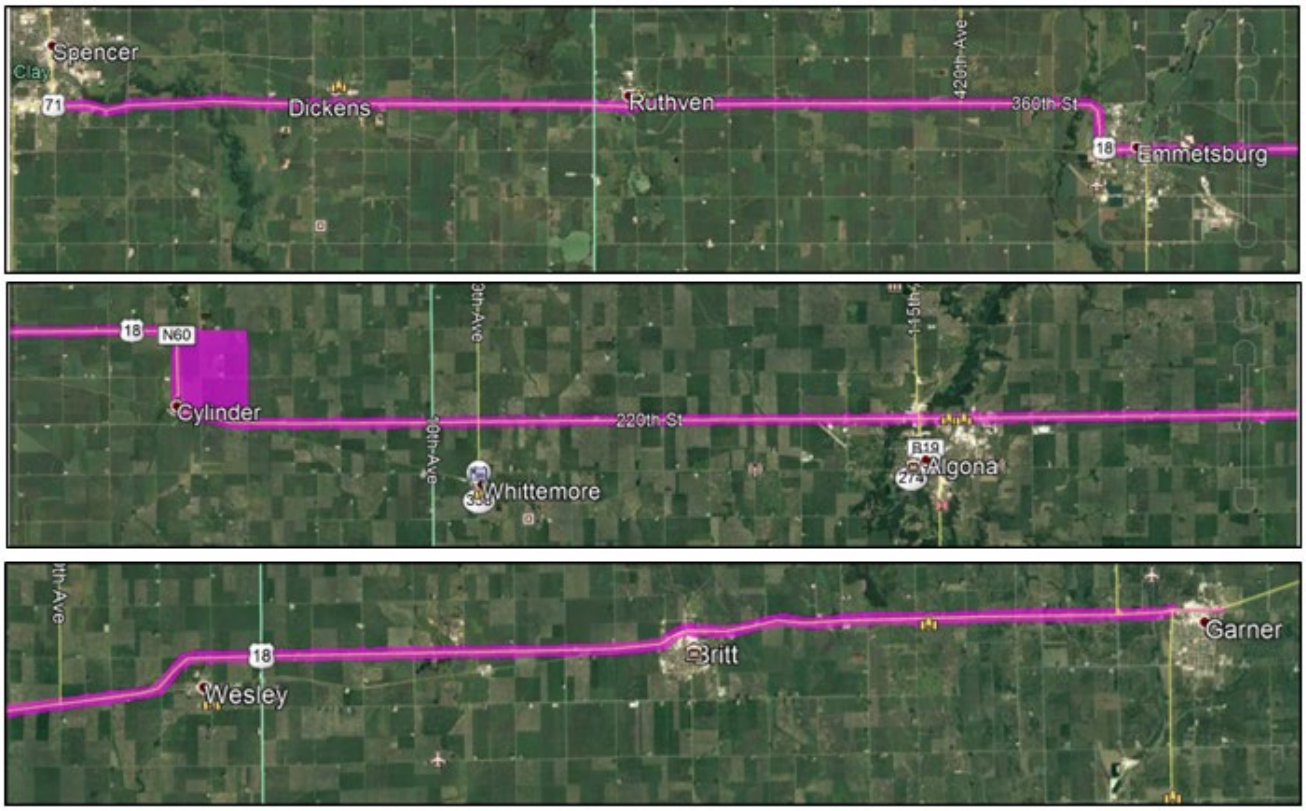
1.2 STUDY AREA

US 18 is a primary highway that spans the State of Iowa, crossing the Big Sioux River from South Dakota into western Iowa and eventually crossing the Mississippi River at Marquette in eastern Iowa

into Wisconsin. Across the state, US 18 connects with other major north-south interstate and primary highway corridors, including Interstate 29 (I-29), US 75, IA 60, US 59, US 169, US 71, IA 4, US 69, I-35, US 65, US 63, US 218, and US 52. Some of the larger urban areas along US 18 in Iowa include (from west to east) the Cities of Spencer, Algona, Clear Lake, Mason City, Charles City, and McGregor. US 18 is considered a primary highway in Iowa and is part of the Commercial and Industrial Network (CIN). Figure 1 shows the US 18 PEL Study Area. The corridor begins just west of S Grand Ave. in Spencer (Clay County) and extends to Country Club Rd. in Garner (Hancock County) The US 18 PEL Study Area is primarily rural in nature and passes through or near the urban areas of several Iowa communities including Dickens, Ruthven, Emmetsburg, Cylinder, Algona, Sexton, Wesley, Britt, Duncan, and Garner.

Existing US 18 traffic volumes within the Study corridor currently range between 2,300 and 7,800 vehicles per day according to the Iowa DOT 2019 Annual Average Daily Traffic (AADT) maps. Historical Iowa DOT average daily traffic maps suggest that these daily volumes have been nearly constant since 1999.

Figure 1. US 18 PEL Study Area



1.3 US 18 GOALS AND GUIDING PRINCIPLES

The goals and outcomes of the US 18 PEL Study are expected to closely align with the improvement strategies and focus areas defined in the Iowa in Motion 2045 State Transportation Plan (Iowa DOT 2017), including the following:

1. Right-size the highway system and apply cost-effective solutions to locations with existing and anticipated issues.
2. Target investments to address mobility and safety needs on critical two-lane routes.
3. Reduce the number of overall major crashes and the number of secondary crashes.
4. Maximize the use of existing roadway capacity.

The goal of this document is to provide recommendations for two-lane highway roadway improvements within the Study Area. These roadway improvements are intended to increase the operational performance, safety performance, and mobility within this corridor. This Study will determine recommended roadway improvements throughout the corridor to be incorporated in future projects, and primarily focus on:

1. Identifying proposed new and upgrading existing turn lanes.
2. Identifying proposed passing lane locations.
3. Identifying spot roadway improvements.

This Study addresses the goal by following three primary guiding principles:

1. Good Stewardship—providing a safe and efficient transportation system while also being good environmental stewards and appropriately using Iowa tax dollars.
2. Transparency—providing an open and transparent project process where findings are shared publicly, and stakeholders have continuous opportunities to offer input on the project.
3. Design Principles—maintain a transportation network that aligns with core design principles and anticipates needs to the year 2042.

2 EXISTING CONDITIONS ANALYSIS

This section summarizes the major findings of the various existing conditions studies. For additional details, refer to the following technical reports:

- US 18 Clay/Palo Alto/Poweshiek/ and Hancock Counties Planning and Environmental Linkages (PEL) Study – Existing Crash History Report.

- US 18 Clay/Palo Alto/Poweshiek/ and Hancock Counties Planning and Environmental Linkages (PEL Study) – Existing Conditions Memorandum.

2.1 INITIAL STAKEHOLDER OUTREACH

Early in the Study, two small-group meetings were held with the local jurisdictions and other US 18 stakeholders. The goals of these meetings were to share the PEL Study process and objectives as well to solicit stakeholder input and perspectives on the current functionality and future needs of the US 18 corridor. Table 1 lists the small group meetings that were held.

Table 1. US 18 PEL SMALL GROUP MEETINGS

Stakeholder Group	Meeting Date
N. Iowa Area Council of Governments (NIACOG)	October 9, 2019
NW Iowa Planning and Development Commission (NWIPDC)	October 17, 2019

Input was provided at these small group meetings; Super two type improvements were favorably received. A summary of the public outreach effort is described in Section 3.

2.2 EXISTING INFRASTRUCTURE CONDITIONS AND FEATURES

The existing conditions memorandum analyzed the existing corridor's infrastructure conditions and features. In general, the existing US 18 roadway within the Study Area generally meets current engineering design standards, practices, and policies. Key findings are below:

- Horizontal Roadway Curvature
  - Two horizontal curves are below 3R/Urban standards for radiuses*
  - Four locations were identified as visual traps*
  - Stopping sight distances around four horizontal curves were identified as less than desirable*

- Vertical Roadway Curvature
  - Two vertical grades are greater than 5 percent, one of which results in significant reduction in speed. Both vertical grades occur on a stretch of four-lane urban section not part of the scope of this study*

- Roadway Cross Section
  - A typical roadway section includes 12-foot travel lanes and 10-foot granular shoulders
  - Five intersections with turn lanes need to be further examined*

- Intersections
  - Five intersections are highly skewed*

- Infrastructure Conditions
  - Poor pavement conditions are present for 27.2 miles according to current ICE Data*

  - There are sixteen existing bridges on US 18 Highway within the US 18 Study Area. The bridges are all in fair or good condition. None are structurally deficient

- Railroad Crossings
  - The Canadian Pacific Railroad parallels to the US 18 PEL Study Area, with 13 at-grade railroad crossings on local side roads*

- Passing Opportunities
  - Approximately 23 miles, or 28 percent does not allow for passing on a two-lane highway

- Traffic Volumes
  - Traffic volumes ranged 2,300 to 7,800 AADT. Volumes were greater in urban communities than rural areas

*Details provided in Section 4

2.3 CRASH HISTORY AND SAFETY

The crash history and safety analysis included the last 5 full years (2016 to 2020) of crash data available at the time of the analysis. A total of 579 crashes occurred within the Study Area. Of the 579 crashes, eight of them were fatal crashes, 155 were injury or possible injury crashes, and 416 were property damage only crashes.

Study Area statistics were compared against statewide crash statistics for similar roadways in Iowa. Methodology #1 analyzed crash rates against Statewide-US Routes benchmark crash rates, fatal and injury crash rates, and fatal crash rates. A total of 25 of the 81 mile-long segments within the Study Area were identified as having crash rates greater than the Iowa Statewide-US Routes benchmark for Hundred Million Vehicle Miles Traveled (HMVMT) for all crash rates, fatal and injury crash rates, and fatal crash rates. This methodology had eight partial or full segments of the total 81 segments outside the scope of this two-lane highway study. These eight segments have varying cross section widths greater than a typical rural two-lane highway.

Methodology Two was a rural-urban analysis, 47 segments are above the Statewide Benchmark Crash Rates per HMVMT for US rural routes and municipal crash rates. 39 of the segments occurred in rural areas, while eight occurred in municipal (urban) limits of US 18. This methodology has nine partial or full segments of the total 87 segments outside the scope of this two-lane highway study. These nine segments have varying cross section widths greater than a typical rural two-lane highway. Mile long segments were achieved for most of the analysis, however due to the varying urban boundaries certain segments were shorter in length for Methodology 2. The shorter segmented lengths urban limits would skew the analysis.

The analysis found in the US 18 PEL Existing Crash Report (Iowa DOT, July 2021) was used to inform the decision-making process alternative evaluation; however, safety was not the primary driving factor for the recommendations found in this memo.

2.4 ENVIRONMENTAL CONSTRAINTS

A desktop review of known environmental and cultural constraints was conducted as part of the Study. The desktop review focused on environmental areas such as floodplains, wetlands, woodland areas, recreational areas, waterways/protected rivers, sovereign lands, and regulated materials sites. The review also looked at the cultural and community constraints such as cemeteries and churches.

Results of the preliminary environmental desktop review within the Study Area are presented in Figure 3 in Appendix A. The review found no areas of concern for proposed passing lane placements. Areas of turn lane and spot improvements will be reviewed as part of individual project's planning and development in the future.

3 PUBLIC INVOLVEMENT PROCESS AND INPUT

As part of the US 18 PEL Study, a detailed public involvement plan was developed and followed. There were three main forums for public involvement and input gathering: small-group meetings (see Section 2.1), Public Information Meetings (PIMs), and online resources available on the Iowa DOT public involvement website. Much of the public input was received during the initial PIM comment period.

All comments submitted to Iowa DOT at the PIMs or via the online tools have been saved and documented in the Public Involvement Management Application (PIMA) tool, a centralized comment/response management system implemented and managed by Iowa DOT. The goal of this system is to provide a secure and electronically accessible repository for comments. PIMA was also used to maintain a database of stakeholder contact information.

The following subsections summarize the materials presented previously, as well as the general comments received during the Study.

3.1 PIM #1

The initial PIM was hosted online via the Iowa DOT's Public Involvement website beginning on December 5, 2019, with the comment period ending on December 23, 2019. The online PIM consisted of a prepared presentation, complete with audio, that shared information about the US 18 PEL process, study goals and objectives with results from initial data gathering and brief existing conditions analysis.

There were 333 attendees, 93 of the attendees provided ratings. Ratings were either neutral, leaning in-favor, or in-favor of the project. In general, most of the comments received were in favor of the study. The three most common concerns were: concern about increased truck traffic in the corridor, concern about the lack of turn lanes, and desire for more passing opportunities. Figure 1 in Appendix A contains the general comments from PIM #1.

3.2 PIM #2

The second and final PIM was hosted online via the Iowa DOT's Public Involvement website beginning on September 30, 2021, with the comment period ending on October 11, 2021. The purpose of PIM #2 was to discuss the status of the Study and solicit stakeholder input on the recommended improvements.

There were 154 attendees, 74 of the attendees provided ratings. Ratings were either neutral, leaning in-favor, or in-favor of the project. In general, most of the comments received were in favor of the study. Attendees expressed enthusiasm for the proposed improvements and noted the potential to address safety and traffic concerns. Several commented-on road conditions and the desire for improvements in certain areas. Comments were received in response to PIM #2 and included with Figure 2 in Appendix A.

4 RECOMMENDATION ANALYSIS

The following three recommendations address the overarching goals of the US 18 PEL Study. The basis for these recommendations is a combination of the findings and observations of the various topical studies performed as part of this PEL Study and input received from the public and project stakeholder groups. Practical based design methods were used in determining recommendations within the Study Area.

4.1 RECOMMENDED – TURN LANE IMPROVEMENTS AT FULLY PAVED OR PARTIALLY PAVED INTERSECTIONS

The US 18 PEL Study has recommended turn lane improvements within the Study Area for two-lane highway sections. Fully paved or partially paved intersections (one or more paved sideroads) with or without existing turn lanes were analyzed in rural and corporate limits.

Intersections on a rural two-lane highway were evaluated in accordance with Iowa Department of Transportation Design Manual Guidance 6A-1. Intersections for a two-lane highway within corporate limits were evaluated using the *AASHTO Greenbook Chapter 9: A Policy on Geometric Design of Highways and Streets,* 7th edition, 2018, and was aided by the five-year crash history of rear-end collisions (2016-2020).

Additional traffic studies within urban/corporate limits will need to be completed in the development process. Varying factors such as reduced in-town speeds, intersection spacing, driveways, and adjacent traffic intersection signals need to be analyzed in more detail to recommend turn lane improvements. In-town turn lane improvements could include standard turn lanes or continuous center two way left turn lane where applicable.

Where there are proposed single left turn lanes, the Iowa DOT should consider symmetrical turn lane configurations in the opposite direction after traffic, existing pavement, safety, and cost benefit evaluations are completed. Symmetrical turn lanes should be implemented on an individual

intersection basis.

Additional criteria below were used to evaluate turn lane recommendations for a rural two-lane highway.

1. Gravel intersections were omitted based on low historical traffic volumes.
2. Existing channelized turning movements and dedicated right turn lanes on US 18 were not analyzed. These turning movements are beyond the scope of this study.
3. Traffic forecasts for paved or partially paved intersections were provided by the Iowa Department of Transportation Systems Planning Bureau. Right turn lanes were evaluated for Program Year 2022. Left turn lanes were evaluated for Design Year 2042.

The following table shows the analysis for the existing turn lanes within the US 18 Study Area. Recommendations for turn lane improvements at these locations are provided in Table 2. Figure 4 in Appendix A also presents a map of the Existing Turn Lane Analysis.

Table 2. EXISTING TURN LANE ANALYSIS

Intersection (Location)	Direction of Travel on US 18	Existing Turn Lane Present	Upgrade Turn Lane	Recommendations	City/ County
South Grand Ave. and US 18	EB	Left	N/A	No Recommendation due to Four Lane Section	Spencer/Clay
South Grand Ave. and US 18	WB	Left	N/A	No Recommendation due to Four Lane Section	Spencer/Clay
South Grand Ave. and US 18	WB	Right	N/A	No Recommendation due to Four Lane Section	Spencer/Clay
M-50/240th Ave. and US 18	WB	Right	Yes	Upgrade from Minor to Major Turn Lane	E. of Spencer/Clay
M-50/240th Ave. and US 18	EB	Right	No	Existing Turn Lane Adequate	E. of Spencer/Clay
M-54/280th Ave. and US 18	EB	Right	No	Existing Turn Lane Adequate	W. of Dickens/Clay
M-54/280th Ave. and US 18	WB	Right	No	Existing Turn Lane Adequate	W. of Dickens/Clay
N-14/310th Ave. and US 18	EB	Right	No	Existing Turn Lane Adequate	E. of Dickens/Clay
N-14/310th Ave. and US 18	WB	Right	Yes	Upgrade from Minor to Major Turn Lane	E. of Dickens/Clay
N-18/340th Ave. and US 18	EB	Right	No	Existing Turn Lane Adequate	W. of Ruthven/Clay

Intersection (Location)	Direction of Travel on US 18	Existing Turn Lane Present	Upgrade Turn Lane	Recommendations	City/ County
N-18/340th Ave. and US 18	WB	Right	Yes	Upgrade from Minor to Major Turn Lane	W. of Ruthven/Palo Alto
Gowrie St. US 18	EB	Left	N/A	Existing Turn Lane Adequate	Ruthven/Palo Alto
N-28/380th Ave. and US 18	EB	Right	Yes	Upgrade from Minor to Major Turn Lane	E. of Ruthven/Palo Alto
IA 4 (W. JCT) /420th Ave and US 18	WB	Right	Yes	Upgrade from Minor to Major Turn Lane	E. of Ruthven/Palo Alto
Wild Rose Casino and US 18	WB	Right	N/A	No Recommendation due to Three Lane Section	Emmetsburg/Palo Alto
N60/540th Ave. and US 18	EB	Right	No	Existing Turn Lane Adequate	E. of Cylinder/Palo Alto
IA 15 (W. JCT)/10th Ave and US 18	EB	Right	Yes	Upgrade from Minor to Major Turn Lane	E. of Cylinder/ Palo Alto
20th Ave/P16 and US 18	EB	Right	No	Existing Turn Lane Adequate	W. of Algona/Kossuth
IA 15 (E. JCT)/P16/20th Ave and US 18	WB	Right	No	Existing Turn Lane Adequate	W. of Algona/Kossuth
P-20/50th Ave. and US 18	WB	Right	No	Existing Turn Lane Adequate	W. of Algona/Kossuth
P-30/90th Ave. and US 18	EB	Right	No	Existing Turn Lane Adequate	W. of Algona/Kossuth
P-30/90th Ave. and US 18	WB	Right	No	Existing Turn Lane Adequate	W. of Algona/Kossuth
Country Club Road and US 18	EB	Right	N/A	No Recommendation due to Four Lane Section	Algona/Kossuth
140th Ave and US 18	EB	Right	No	Existing Turn Lane Adequate	E. of Algona/Kossuth
P-56/160th Ave and US 18	EB	Right	No	Existing Turn Lane Adequate	E. of Algona/Kossuth
P-56/160th Ave and US 18	WB	Right	No	Existing Turn Lane Adequate	E. of Algona/Kossuth

Intersection (Location)	Direction of Travel on US 18	Existing Turn Lane Present	Upgrade Turn Lane	Recommendations	City/ County
P-60/190th Ave and US 18	EB	Right	Yes	Upgrade from Minor to Major Turn Lane	Sexton/Kossuth
P-64/210th Ave and US 18	EB	Right	No	Existing Turn Lane Adequate	W. of Wesley/Kossuth
P-64/210th Ave and US 18	WB	Right	No	Existing Turn Lane Adequate	W. of Wesley/Kossuth
R-14/240th Ave and US 18	EB	Right	Yes	Upgrade from Minor to Major Turn Lane	Wesley/Kossuth
R-14/240th Ave and US 18	WB	Right	Yes	Upgrade from Minor to Major Turn Lane	Wesley/Kossuth
R-20/Deer Ave and US 18	WB	Right	Yes	Upgrade from Minor to Major Turn Lane	W. of Britt/Hancock
Diagonal St and US 18	EB	Right	No	Existing Turn Lane Adequate	Britt/Hancock
US 69 (W. JCT) Rake Ave and US 18	EB	Left	No	Existing Turn Lane Adequate	W. of Garner/Hancock
US 69 (W. JCT) and US 18	WB	Left	No	Existing Turn Lane Adequate	W. of Garner/Hancock
Sage Ave/ US 69 (E. JCT) and US 18	EB	Right	No	Existing Turn Lane Adequate	Garner/Hancock
State St. and US 18	EB	Right	N/A	No Recommendation (Outside Scope of Study)	Garner/Hancock
State St. and US 18	WB	Right	N/A	No Recommendation (Outside Scope of Study)	Garner/Hancock
County Club Dr. and US 18	EB	Left	No	Existing Turn Lane Adequate	Garner/Hancock
County Club Dr. and US 18	WB	Right	No	Existing Turn Lane Adequate	Garner/Hancock

Fully paved or partially paved intersections (one or more paved sideroads) without turn lanes were analyzed in the Study Area. Recommendations for proposed new turn lanes on US 18 are provided in Table 3 below. Figure 5 in Appendix A also presents proposed new turn lane locations.

Table 3. PROPOSED NEW TURN LANE LOCATIONS

Intersection (Location)	Direction of Travel on US 18	Recommended Turn Lane	City/ County
Rural Two-Lane Intersections			
M-50/240th Ave & US 18	EB	Left	E. of Spencer/Clay
Main St and US 18	WB	Minor Right	Dickens/Clay
Main St. and US 18	EB	Left	Dickens/Clay
N-14/310th Ave and US 18	EB	Left	E. of Dickens/Clay
N-18/340th Ave and US 18	EB	Left	W. of Ruthven/Clay
N-18/340th Ave and US 18	WB	Left	W. of Ruthven/Palo Alto
West St. and US 18	WB	Minor Right	Ruthven/Palo Alto
Haugen St. and US 18	WB	Minor Right	Ruthven/Palo Alto
N-28/380th Ave and US 18	WB	Left	E. of Ruthven/Palo Alto
IA-4 (W. JCT)/420th Ave and US 18	EB	Left	E. of Ruthven/Palo Alto
N-52/480th Ave and US 18	EB	Minor Right	E. of Emmetsburg/Palo Alto
N-52/480th Ave and US 18	WB	Minor Right	E. of Emmetsburg/Palo Alto
N-52/480th Ave and US 18	EB	Left	E. of Emmetsburg/Palo Alto
N-52/480th Ave and US 18	WB	Left	E. of Emmetsburg/Palo Alto
370th St and US 18	EB	Left	N. of Cylinder/Palo Alto
IA-15 (W. JCT)/10th Ave and US 18	WB	Left	E. of Cylinder/Kossuth
IA-15 (E. JCT)/P-16/20th Ave and US 18	WB	Left	W. of Algona/Kossuth
P-20/35th Ave and US 18	EB	Minor Right	W. of Algona/Kossuth
P-30/90th Ave and US 18	WB	Left	W. of Algona/Kossuth
P-60/190th Ave and US 18	WB	Left	E. of Algona/Kossuth
P-64/210th Ave and US 18	EB	Left	W. of Wesley/Kossuth
R-14/240th & US 18	EB	Left	Wesley/Kossuth
R-14/240th & US 18	WB	Left	Wesley/Kossuth
IA-17/250th Ave and US 18	EB	Major Right	E. of Wesley/Kossuth
IA-17/250th Ave and US 18	WB	Left	E. of Wesley/Hancock
Iowa Ave and US 18	EB	Major Right	Britt/Hancock
Iowa Ave and US 18	WB	Left	Britt/Hancock
Diagonal St. and US 18	WB	Left	Britt/Hancock

Intersection (Location)	Direction of Travel on US 18	Recommended Turn Lane	City/ County
Nash Ave/R-44 and US 18	EB	Minor Right	Duncan/Hancock
Nash Ave/R-44 and US 18	WB	Left	Duncan/Hancock
Nation Ave and US 18	EB	Minor Right	Duncan/Hancock
Nation Ave and US 18	WB	Minor Right	Duncan/Hancock
R-44/Oak Ave and US 18	WB	Major Right	E. of Duncan/Hancock
R-44/Oak Ave and US 18	EB	Left	E. of Duncan/Hancock
Urban/ In-Town Two Lane Intersections			
10th St. SE and US 18	EB	Left	Spencer/Clay
Woodland Ave. and US 18	WB	Left	Spencer/Clay
St. Luke Dr. and US 18	WB	Left	Spencer/Clay
College Drive and US 18	EB	Left	Emmetsburg/Palo Alto
1st Street and US 18	EB	Left	Emmetsburg/Palo Alto
5th Street and US 18	EB	Left	Emmetsburg/Palo Alto
Airport Rd and US 18	WB	Left	Emmetsburg/Palo Alto
Hayes St. and US 18	EB	Left	Emmetsburg/Palo Alto
4th St. and US 18	WB	Left	Cylinder/Palo Alto
Iowa St. and US 18	EB	Left	Cylinder/Palo Alto
5th St. NW and US 18	WB	Left	Britt/Hancock
US 69 (E. JCT)/Sage Ave and US 18	WB	Left	Garner/Hancock
Allen Ave and US 18	EB	Left	Garner/Hancock
Allen Ave and US 18	WB	Left	Garner/Hancock
Seymour Ave and US 18	WB	Left	Garner/Hancock

4.2 RECOMMENDED PROPOSED PASSING LANE LOCATIONS

This US 18 PEL Study is recommending 24 proposed passing lane locations within the Study Area. The following criteria were used to evaluate the placement of proposed passing lane locations.

1. Desktop environmental resources
2. Existing infrastructure including box culverts, roadway culverts, bridges, roadway grades, in-town passing opportunities, major utilities, and railroads
3. Crash data history from 2016-2020
4. Iowa Department of Transportation Design Manual Guidance 1C-1, 6C-2; 6D-01

The figures below represents the typical passing lane concepts. Separated passing lane plan layout was used for the majority of the passing lanes recommended and is considered ideal. A separated eastbound and westbound passing lane helps prevent the illusion of a four-lane expressway. A typical expressway cross section allows higher driving speeds than normally allowed for a rural two-lane highway.

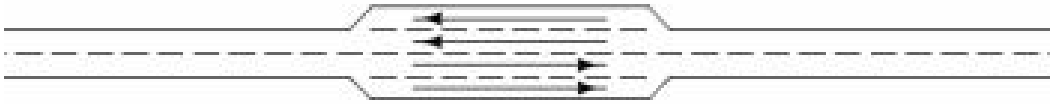
Overlapping or side by side passing lane configurations were necessary in some locations due to the aforementioned criteria. Additional guidance is provided in Iowa Department of Transportation Design Manual 6C-2 for passing lanes spacing.

Figure 2. PASSING LANE CONCEPTS

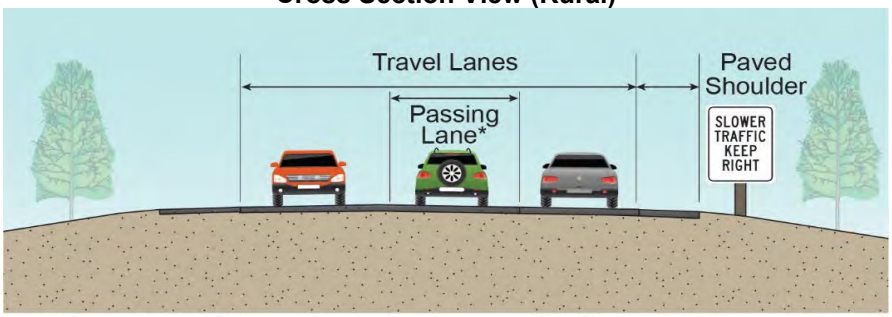
Plan View (Separated Passing Lanes)

Plan View (Overlapping Passing Lanes)

Plan View (Side-by-Side Passing Lanes)



Cross Section View (Rural)



* Passing lanes can be in either direction, are discontinuous, and spaced at established intervals along a corridor.

Passing lanes are proposed in locations to minimize impacts to known environmental resources. Environmental resources are discussed in more detail in Section 2.4.

Large structures such as bridges and large box culverts were avoided. Impacting these structures would be costly for roadway expansion. Smaller box culverts and roadway culverts may be impacted and need to be extended or relocated in several areas where passing lanes are recommended.

Areas of flat roadway grades were chosen for passing lanes to minimize impacts to the surroundings and lessen the need for roadway fill for construction. The grades were examined using visualization tools and

aided with as-built plans/design plans. Passing lane elevations and grades should be further examined for optimization as sections of the road progress into the development process.

In-town passing opportunities exist within the cities of Spencer, Emmetsburg, Algona, and Britt. These cities have roadway cross sections that vary from two to four lane sections, including turn lanes that allow passing in these locations.

A desktop review for major utilities was completed to assess the potential impacts of passing lane placements. The major utilities have been identified as underground pipelines for NuStar, MidAmerican, Black Hills, Koch Amana, and Northern Natural Gas.

Most of the proposed passing lanes will avoid these major utilities; however, certain passing lanes cannot. See Table 4 and Figure 7 in Appendix A for exact passing lane locations. Passing Lane (PL) #6 in both directions (WB & EB), PL #4 WB, and PL #9 in the EB direction, will cross pipelines. It is anticipated that minimal excavation would be needed due to the flat nature of the corridor. Overhead electric is prevalent within the Study Area on both sides of the US 18 highway. Overhead electric may need to be relocated to accommodate passing lanes. Possible impacts to the existing pipelines and other utilities would need to be further examined during the development process.

At-grade railroad crossings on the US 18 highway and sideroads were avoided when determining recommendations for passing lanes. There are four at-grade railroad crossings within the Study Area. The avoidance of the at-grade railroad crossing will help prevent delays of potential projects due to the replacement and relocation of railroads.

Proposed passing lanes are anticipated to require minimal new Right-of-Way (ROW). The proposed passing lanes have been placed in areas with flat grades and foreslopes. See Figure 6 in Appendix A for images of the beginning and ending of proposed passing lanes. ROW varies throughout the Study Area; existing width varies in the rural sections from 110 to 170 feet. Existing ROW from the edge of traveled way also varies from 35 to 100 feet. Passing lanes would be 12 foot wide, with six foot wide paved or granular shoulders.

Table 4 provides recommendations for proposed passing lane locations within the Study Area. Table 4 identifies: approximate locations, direction, approximate elevations of beginning and end of passing lanes, distances of the passing lane and its components. Figure 7 in Appendix A shows proposed passing lane locations.

Table 4. RECOMMENDED PASSING LANE LOCATIONS

Passing Lane # (PL)	Begin MP	End MP	Direction	Begin Elevation	End Elevation	Passing Lane Length (ft)	Total Length (includes tapers)	Distance to Next Directional PL (West to East) (mi)	City/County
PL #1 (EB 1)	83.5	84.5	EB	1270	1266	4500	5400	7.4	E. of Spencer/Clay
PL #1 (WB 1)	87.3	86.3	WB	1217	1208	4500	5400	4.3	W. of Dickens/Clay
PL #2 (WB 2)	92.6	91.6	WB	1310	1281	4600	5500	3.4	W. of Ruthven/Clay
PL #2 (EB 2)	91.9	92.9	EB	1281	1329	4600	5500	5.6	W. of Ruthven/Clay
PL #3 (WB 3)	96.9	96.0	WB	1303	1326	4400	5300	4.6	E. of Ruthven/Palo Alto
PL #3 (EB 3)	98.5	99.4	EB	1223	1205	4400	5300	8.8	E. of Ruthven/Palo Alto
PL #4 (WB 4)	102.7	101.5	WB	1133	1167	5280	6180	5.6	W. of Emmetsburg/Palo Alto
PL #5 (WB 5)	109.1	108.3	WB	1118	1116	3800	4700	3.5	E. of Emmetsburg/Palo Alto
PL #5 (EB 4)	108.2	109.1	EB	1113	1118	3800	4700	3.6	E. of Emmetsburg/Palo Alto
PL #6 (WB 6)	113.4	112.6	WB	1104	1110	3000	3900	4.2	N. of Cylinder/Palo Alto
PL #6 (EB 5)	112.7	113.5	EB	1110	1102	3000	3900	5.0	N. of Cylinder/Palo Alto
PL #7 (WB 7)	118.3	117.6	WB	1118	1111	3000	3900	5.5	E. of Cylinder/Palo Alto
PL #7 (EB 6)	118.5	119.2	EB	1114	1123	3000	3900	5.8	E. of Cylinder/Palo Alto
PL #8 (WB 8)	124.6	123.8	WB	1177	1185	3100	4000	11.0	W. of Algona/Kossuth
PL #8 (EB 7)	125.0	125.7	EB	1164	1144	3100	4000	10.7	W. of Algona/Kossuth

Passing Lane # (PL)	Begin MP	End MP	Direction	Begin Elevation	End Elevation	Passing Lane Length (ft)	Total Length (includes tapers)	Distance to Next Directional PL (West to East) (mi)	City/County
PL #9 (WB 9)	136.4	135.6	WB	1117	1117	3200	4100	3.4	W. of Sexton/Kossuth
PL #9 (EB 8)	136.4	137.2	EB	1116	1111	3200	4100	7.4	W. of Sexton/Kossuth
PL #10 (WB 10)	140.5	139.8	WB	1107	1116	2900	3800	5.4	W. of Wesley/Kossuth
PL #11 (EB 9)	144.6	145.4	EB	1167	1126	3300	4200	4.9	E. of Wesley/Hancock
PL #11 (WB 11)	146.7	145.9	WB	1125	1156	3300	4200	4.2	E. of Wesley/Hancock
PL #12 (EB 10)	150.3	151.1	EB	1124	1119	3300	4200	7.0	W. of Britt/Hancock
PL #12 (WB 12)	151.7	150.9	WB	1112	1119	3300	4200	6.7	W. of Britt/Hancock
PL #13 (EB 11)	158.1	159.3	EB	1191	1139	5280	6180	-	W. of Garner/Hancock
PL #13 (WB 13)	159.5	158.4	WB	1126	1155	5280	6180	-	W. of Garner/Hancock

Passing lane lengths were determined using the Iowa Department of Transportation Design Manual Guidance 6C-2. Total 2019 AADT volumes provided by the Iowa DOT were interpolated to find directional passing lane lengths. A design speed of 60 mph was used to determine the length of the merge taper with a standard 15:1 diverge taper.

As these passing lane recommendations are incorporated into future construction projects, they may need to be modified accommodate unforeseen conditions.

4.3 RECOMMENDED SPOT ROADWAY IMPROVEMENTS

The US 18 PEL Study identified and analyzed some potential spot roadway improvements within the Study Area. The following criteria were used to evaluate a series of spot improvements.

1. Environmental constraints
2. Existing infrastructure including box culverts and bridges
3. Crash data history from 2016-2020
4. Existing two-lane highway roadway conditions

5. Input from stakeholders and DOT officials

RECOMMENDED

Spot improvements recommended includes a series of existing bypass lanes (BL) within the Study Area. There are four existing bypass lanes within the Study Area. It is recommended to replace these bypass lanes with left turn lanes. Conversion of these bypass lanes will eliminate the need for mainline traffic to divert to the right around vehicles turning left. Table 5 below show the locations of the bypass lanes. Figure 8 provided in Appendix A also shows the location of these bypass lanes.

Table 5. EXISTING BYPASS LANES

Intersection (Location)	Direction of Travel on US 18	Mile Post	City/County
IA 17 and 250th Avenue -BL #1	WB	143.9	E. of Wesley/Hancock
Iowa Avenue - BL #2	WB	151.8	Britt/Hancock
Diagonal Street - BL #3	WB	153.1	Britt/Hancock
Sage Avenue and US 69 (E. Jct) - BL #4	WB	161.9	Garner/Hancock

OTHER SPOT LOCATIONS CONSIDERED

Other spot improvements were analyzed but are not recommended at this time.

1. The intersection of 370th St and US 18 north of Cylinder was examined for a spot improvement. The existing curve already has safety measures implemented with an advisory speed sign (35 mph) and large chevron directional signs. The posted speed limit is 55 mph for the highway with two access points at 370th Street and 525th Street. The curve radius is below acceptable 3R standards. The existing radius of the curve is 478 ft (35 mph advisory speed) compared to the minimum 3R acceptable radius of 960 ft (55 mph). The superelevation of the curve meets 3R acceptable design standards at 7.29 percent and is below the maximum eight percent superelevation.

   Crash history was looked at for this intersection. In the five-year crash history from 2016-2020, a total of five crashes occurred within or in proximity to the curve. Four out of the five were property damage related, and the other was a minor injury related crash.

   Turn lane analysis was done for this intersection, and a left turn onto 370th St from US 18 Highway is recommended as a future improvement. The geometry of this intersection should be re-examined concurrently at that time.

2. The intown curve radius within Cylinder, in between Parallel and Iowa Street was examined for a spot improvement. The curve has an advisory speed sign posted for 15 mph, which is a decrease from the posted speed limit of 25 mph. The curve radius is currently 143 ft, below the preferred urban

radius of 198 ft for a 25-mph posted speed. The crash history was reviewed for this curve. From 2016-2020, one crash occurred. The crash occurred north of the curve. The crash was a minor injury related crash and attributed to driving too fast for conditions.

DOT personnel met with local officials at a Cylinder city council meeting to assess the interest in upgrading the curve. The mayor and others expressed concern that increasing the radius would lead to faster traffic in a tight area and would lead to safety issues. Due to the stakeholder concerns and lack of past crashes, it is recommended the Cylinder curve be left as-is at this time.

3. The four locations with less than desirable stopping sight distance (SSD) for horizontal curves are listed for spot improvement considerations in Table 6.

Table 6. LOCATIONS WITH LESS THAN RECOMMENDED SSD

Milepost (Location)	Design Speed	Existing Curve Length(ft)	Design SSD (ft)	Min. Acceptable Radius (3R or Urban) ft.	City/County
111.8 (Rural)	60 mph	225	570	495	NW. of Cylinder/Palo Alto
113.7 (Urban)	40 mph	166	305	250	Cylinder/Palo Alto
113.8 (Urban)	40 mph	164	305	250	Cylinder/Palo Alto
115.3 (Rural)	60 mph	271	570	495	E. of Cylinder/Palo Alto

Crash history from 2016-2020 was examined for each location. In the five-year crash history, no crashes occurred within the curves for the rural locations. However, two property damage crashes occurred adjacent to each location. The urban locations were also examined for crashes. One property damage crash occurred within the urban curve at mile post location 113.7, and no crashes occurred inside the curve for the other urban location.

Considering the past performance of these sections and Practical Based Design Principals (PBDP) no recommendations for improvements for these spot locations is currently proposed.

4. Table 7. shows the location of five turn tapers that are less than today's Iowa DOT design standards. Visualization tools were used to identify these tapers followed by field verification. Crash data from 2016-2020 was reviewed for the intersections below. A turn taper located at South Grand Avenue and US 18 is outside the scope of improvements for this study with a four-lane cross section.

Minimal crashes have occurred for the identified turning movements in the table below. Only one crash on Gowrie Street and US 18 intersection occurred within the turning movement. PBDP takes into account the history of spot locations, so there are no recommendations for taper improvements at this time. However, an existing right turn lane in the eastbound direction at P-60/190th Ave and US 18 in Sexton is recommended to be upgraded from a minor right to a major right turn lane, so this taper will be replaced simultaneously with the turn lane.

Table 7. EXISTING TURN LANE TAPER EVALUATIONS

Intersection (Location)	Direction of Travel on US 18	Existing Turn Lane Present	Existing Taper	Desired Taper	City/County
Gowrie St. and US 18	EB	Left	5:1	10:1	Ruthven/Palo Alto
P-16/20th Ave and US 18	EB	Right	8:1	10:1	W. of Algona/Kossuth
IA -15 (E. Jct)/20th Ave and US 18	WB	Right	6:1	10:1	W. of Algona/Kossuth
140th Ave and US 18	EB	Right	8:1	10:1	E. of Algona/Kossuth
P-60/190th Ave and US 18	EB	Right	8:1	10:1	Sexton/Kossuth

5. There are five intersection skew angles shown in Table 8 that have been found to be below the acceptable 60-degree standard. Three of the five intersections (370th St, 525th St, Parallel St) are explained above under Other Considerations for recommended improvements. The fourth and fifth skew angles (1st St., 450th Ave.) are gravel roads that connect to US 18 Highway with no crash history in the past five years. The lack of crash history combined with the low traffic volumes on these gravel roads lead to no recommendations of improvements at this time.

Table 8. INTERSECTION ALIGNMENTS WITH SKEW LESS THAN 60°

Intersection (Minor Leg)	Approximate Skew Angle (degrees)	Minor Leg Intersects Curve on US 18	Intersection Related Crash History 2016-2020	City/County
370th St	9°	Yes	Multiple crashes in the vicinity	N. of Cylinder/Palo Alto
525th St.	10°	Yes	Multiple crashes in the vicinity	N. of Cylinder/Palo Alto
Parallel St.	40°	Yes	No Notable Crash History	Cylinder/Palo Alto
450th Ave. (Lincoln St.)	20°	Yes	No Notable Crash History	Emmetsburg/Palo Alto
1st St.	49°	No	No Notable Crash History	Dickens/Clay

6. Existing pavement conditions in the Study Area were examined utilizing the Infrastructure Condition Evaluation (ICE) tool. Of the 81 miles in the corridor there were 27.2 miles considered to be in poor condition, 30.4 miles were considered to be in poor to fair condition, and 24 miles were rated in fair or fair to good condition (Existing Conditions Memorandum). Typically, pavement condition projects fall under the categories of resurfacing, rehabilitation, and reconstruction and are broken into smaller cost-effective projects. These projects are implemented over time as budget allows considering all the pavement conditions across the

districts and state. There is no timetable to implement these poor pavement condition projects, and this study doesn't address recommendation for pavement condition driven projects. Though pavement conditions are not a primary driver, the Iowa DOT will utilize the information with the recommendations from this study to prioritize investments to improve the mobility and safety of the corridor.

4.4 NEXT STEPS

Findings, observations, and recommendations developed as part of this PEL Study will serve as the foundation for future projects on this corridor. This study will not result directly in a programmed "funded" project but in some components that can be addressed over time and incorporated into future smaller scale projects as they are to be constructed, like pavement condition driven projects. These recommendations may be modified as they are incorporated into future projects based on changing conditions and new information.

5 REFERENCES

Iowa Department of Transportation (Iowa DOT). 1995, revised 2010. Design Bureau – Design Manual. https://iowadot.gov/design/design-manual.

A Policy on Geometric Design of Highways and Streets. 2018 7th edition. AASHTO Greenbook.

Iowa Department of Transportation (Iowa DOT). 2017. *Iowa In Motion 2045 State Transportation Plan*.

Iowa Department of Transportation (Iowa DOT). 2019. *2020-2024 Iowa Transportation Improvement Program*.

Roadway Visualization Tool http://rams.iowadot.gov/pathweb/

Iowa Department of Transportation (Iowa DOT). 2021 *US 18 Clay, Palo Alto, Kossuth and Hancock Counties Planning and Environmental Linkages (PEL) Study - Existing Crash and Safety Performance Report*. July

Iowa Department of Transportation (Iowa DOT). 2021 *US 18 Clay, Palo Alto, Kossuth and Hancock Counties Planning and Environmental Linkages (PEL Study) – Existing Conditions Memorandum*. July.

Iowa Department of Transportation (Iowa DOT). 2021 *US 18 Clay, Palo Alto, Kossuth and Hancock Counties Planning and Environmental Linkages (PEL) Study – Goals and Guiding Principles*. July.

Iowa Department of Transportation (Iowa DOT). 2020 *US 30 Cedar and Clinton Counties Planning and Environmental Linkages (PEL) Study – Potential Economic Effects of Highway Expansion in Iowa*: Two Lane to Four-lane Case Study. March.

Iowa Department of Transportation (Iowa DOT). 2020 *US 30 Cedar and Clinton Counties Planning and Environmental Linkages (PEL) Study – Vision Document*. June.

Appendix A

Figure 1 – General Comments from PIM#1

1. 69 and 18 could use a stop light. Turning on 18 is a pain in a semi going west
2. Are you considering making this stretch of hwy 18 between garner and spencer all four lane or just segments of it
3. It should be 4 lane all the way to Clear lake. Too many trucks, especially wind turbine trucks and slow traffic bottling up the road. It will also help the communities along 18 economically
4. Highway 18 from Emmetsburg east to Kossuth/Palo Alto county line is in TERRIBLE condition. Increased heavy truck traffic in summer of 2019 moving rock to wind power project in northern Palo Alto county caused excessive pavement damage. The traffic thru the City of Cylinder needs to SLOW down! City of Cylinder plans to install radar speed signs in an effort to slow down southbound traffic to the posted 25 mph speed limit on main street
5. This stretch of highway had several concerns. Safety as there is minimal two lanes, which results in more passing of vehicles which is always a safety factor. The other being is this stretch of highway has extremely poor winter driving conditions which includes drifting, visibility due to drifting. Single lane driving creates more stop and go traffic as Truck drivers have no way to go around
6. I drive highway 18 everyday day. It drives me crazy when I'm coming back to Ruthven from Spencer and I'm turning to go north onto the road to Lost Island Lake and people are passing me on the right. There needs to be a center turning lane at all the turning points onto other paved roads. This would help tremendously with safety and the flow of traffic. I also drive the ambulance for the Palo Alto County Hospital and when we are running lights and sirens to Mason City in the winter people have no place to pull over for us because the roads are not paved on the edges all the way and they are at times snow covered. This really slows down our emergency transports
7. I would like to see a light at intersection of Hwy 69 and 18 nearest to Garner. Also the speed limit needs to decrease to 35 instead of 45 on Hwy 18 through Garner. Also I would appreciate if they could keep up with the painting of lines so they can be seen at night
8. Improvement to this stretch of Highway 18 is needed and I'm hoping for more lanes, and turning lanes. The traffic seems to keep getting heavier especially with large trucks. With winter driving and this roads heavy traffic it is not very safe
9. There's never any plows running during storms, there's no where to pass plows, and there's traffic running to highway 4 all the time causing people to slam on there breaks because they are about to miss the turn

10. I travel Highway 18 every day from Spencer to Emmetsburg every morning and Emmetsburg back to Spencer in the evening. The traffic is terrible with farm equipment, semi trucks, and general traffic. I get passed by people going at least 70 mph in no passing zones because there are few places to pass. It is very dangerous. I have semi trucks constantly pulling out in front of me to the point that I have to slam on my brakes and come to a complete stop on the hwy waiting for them to pull onto the highway. If you get stuck behind any farm equipment or people driving slow there are very few places to pass. I hope you offer some suggestions to help the flow of traffic!
11. Hwy 18 is to busy for 2 lanes and is in bad shape
12. I travel 18 daily on my commute to work. This highway has gotten to be very busy in the last few years. More truck traffic than ever before. It has gotten very difficult to pass slow moving vehicles not to mention dangerous. There Is also a lot of farm traffic. It would be ideal to turn this into a four lane
13. Traffic on hwy 18 is very heavy/congested especially notably when I travel a lot, to and from Mason City. Semi trailers, (farmers ,during the season) cause a huge backup ,especially, between Britt and Garner due to the hills. Maybe add a 4lane section through there?
14. I have traveled Hwy. 18 from Wesley to Algona every day for the past 36 years. This is the worst the road has ever been. It feels like something is wrong with your car. It is in desperate need of resurfacing!
15. Hey 18 needs a turning lane all the way through Garner. Always get hung up multiple times before getting through town. Also could use pedestrian crossing in a few places, specifically by Kwik Star as people walk across Hwy 18 from town to get to that store in Garner
16. Expanding the highway, adding passing lanes more frequently, or even making it a 4 lane highway in some areas would improve safety dramatically. Other great ideas would be increasing shoulder width, and even possibly increasing speed limit by 5 mph, which would then keep some people from passing
17. The Intersection of Highway 18 and 69 on the West end of Garner is very dangerous! People have been killed at the intersection and lots of accidents. I have lived in Garner 53 years and it continues to be a problem
18. I travel from Garner to Mason City on a daily basis. There is a lot of traffic that uses 218. There needs to be more lanes, not just when leaving Garner and when leaving Ventura. Also for safety concerns, in Clear Lake when going from four lanes to two lanes heading west, the road rage that occurs when drivers realize the right lane must turn right needs serious consideration. In the past, when Clear Lake was four lanes all the way through was practical. There can still be a stop light at the Fareway corner with four lanes
19. Would be nice to put a red flashing light by tammys pharmacy in garner like what forest city has! Plus reduce speed!

20. Highway 18 from Clear Lake to Spencer has seen dramatically increased levels of traffic, especially truck traffic, in recent years. Traffic safety, as the highway moves through Clear Lake, Garner, and Britt, has become a great concern for those of us who regularly travel this section. Ideally, this stretch should be four-lane with the amount of traffic that travels it on a daily basis. At a minimum, there should be turning lanes, passing lanes, and access roads. There can be miles-long lines of truck and car traffic with no safe passing areas due to the terrain. In addition, the stretch of highway from Garner to Wesley is in dire need of repair! The rough concrete and blacktop that is breaking up is terrible to ride on and really beats up on vehicles
21. The Iowa DOT needs to scrap any ideas for the existing Highway 18 and finish the 4 lane going West from Clear Lake
22. Why not just expand the freeway of highway 18 to spencer?
23. Hwy. 18 at Garner severely needs a traffic signal at the intersection of Hwy. 18 and Hwy. 69. It is very dangerous there, especially in to-and-from work hours. However, I have found even at random times throughout the day, it is a busy intersection. In November, 2018, a young mother was killed there, through no fault of her own. She was not the one who made the traffic error. PLEASE put some of the funds into a full red/yellow/green changing traffic signal there! Thank you for your time and consideration
24. I deliver parts from clear lake to Spencer so my suggestion is to make the curves around cylinder and emmitsburg be able to go at least 45 or 55 instead of having to slow down all the way to 15 more 2 Lane stretches so people can pass safer like near Spencer and after emmitsburg
25. 4 Lane and or turning lanes, especially near Wesley and Britt
26. Alternating passing lanes would be a great addition to this stretch of Highway. Center turn lanes and lengthened right turn lanes should also be considered
27. The intersection of Hwy 18 and Hwy 69 south in Garner is currently a dangerous intersection. With the added traffic from newer businesses at that intersection and lack of a stop light, entering and exiting Hwy 18 can be very hazardous
28. Please make 4 lane from clear lake to Spencer. I was almost killed in a head on collision near Ventura 20 years ago. So many senseless injuries and deaths with people trying to pass. Please make this 4 lane and save lives. People travel more to doctors and shopping. Please make this change, it stops have been done years ago. Thank you
29. Is there any way to improve the visibility of the lines on the roads. Add reflective paint? Paint them? Most of the lines in the state are difficult to see at night, even worse in rain, fog, etc. Doesn't matter who is driving, EVERYBODY is having difficulty seeing them. Other states you can see them. We pay plenty of taxes, can we get some paint please?
30. The mile between Grant and Hill Avenues in Hancock county have 3 very busy entrances to 18 and are a safety concern. Quick thinking has prevented many accidents

31. Bypass Cylinder, IA. I think we can all agree that is a mess. 😬
32. Roundabout at hwy18 and 169 intersection in Algona", "Remove stop light in Ventura and put in roundabout
33. I'm a bio fuel hauler. Turn and acceleration lanes by AGP East of Algona would be helpful. Spring thru early Fall, there are 50 to 60 trucks a day moving bio diesel to Minnesota out of that facility
34. I work at Stellar in Garner. Before that IMT. For 10 years I've drove 18 from Britt to Garner. Their needs to be a passing lane on the west bound lane. Imt, Stellar, Winnebago all let out within an hour of each other. You have people driving 65mph and older people driving 50 mph. During harvest season its the scariest drive ever.Also, about 3 miles west of Garner there is a section of the eastbound lane that seams to collect water more so than any other stretch
35. Stop light at 69 and 18. Slower speeds entering Garner on both sides of town. Stop light in Britt where stop sign is
36. Please consider reducing the speed limit east out of Spencer because a lot of children cross Hwy 18 at 10th Ave SE to get to the bike trail and swimming pool
37. Given that I currently own a property and will be constructing a new home on it along this potential project I certainly have much interest in its design and safety features. There definitely seems to be line of sight issues when pulling into and out of driveways. Various grades and curves play an affect here, but I believe there needs to be more scrutiny with utilities within the right of way blocking views with large boxes for internet, etc.that are being placed along the route. Also, the behavior of drivers, more over distracted drivers, has been a concern for school buses and generally pulling into driveway lanes. Some properties like mine, need upgraded entry widening that open up the approach to the lane from the hard surface.road. The 50423 area code intersection needs desperate upgrade for safety purposes
38. I would really like to entertain the Bike/Ped potential. This would be a great economic piece and perhaps like Hwy 9, East of Forest City somehow it could be linked eventually (Hwy 9 to Hwy 18)
39. I have traveled highway 18 for past 18 years. As a nurse I used to drive to Spencer for client appointments and past 8 years I have driven to Mason City from Algona at least 2 or 3 days a week. The truck and seasonal farm equipment on Hwy 18 is heavy. Based on that and increasingly poor driving habits of people I encounter it is my opinion that for safety issues Highway 18 should be a 4 lane highway, like it is traveling past Algona
40. You asked what my level of support is for the project..I watched the video and quite frankly I dont really know what the project plan IS??? Is the plan to make it a 4 lane (PLEASE GOD...YES!) Is it to repair roads and bridges and curves in Cylinder??? Not really sure how to answer my level of support when I don't really know what the plan is???

41. Highway 18 has a lot of heavy truck traffic. Is very rough. Any improvements will be welcomed
42. I would like to see the project move forward. The roadway between Garner and Algona in particular is in rough condition. Roadway markings are very important in the winter to help drivers stay in their respective lane. I hope any construction will take that into account
43. Will there be any plans for ditch grading and/or utility relocations needed in the Garner to Wesley stretch? I believe it was mentioned projects are already in the works in the next couple years for this stretch??
44. The Southbound traffic at 3597 240t ave and hwy 18 intersection does not have working lights on the stop sign, Northbound is working.I have asked local and county, and was advised it is controlling a state hwy. Thanks
45. I would like to see a left turn lane incorporated in the project at the hwy 4/18 intersection west of Emmetsburg
46. There needs to be public investment in biking and pedestrian support here. If the DOT invests in alternative modes of transportation other cities will follow their lead. Safety is a huge concern. I hope that your staff considers how design dictates speed. If you have the right of way to do it, roundabouts would be much safer here
47. An overlay with paved shoulders is definitely a good idea. Some areas would benefit from cold in place first due to how poor the roadway is. Maybe another set of passing lanes between Britt and Garner where it is hilly enough that it is difficult to pass safely
48. We need safer passing areas and a better way to control the intersection at HWY 18 and 169. That intersection sees so much traffic that I think traffic control lights are needed
49. Yes, Cylinder is a concern
50. We travel the Hwy 18 corridor constantly, we live near Ruthven, work in Spencer, belong to a church in Emmetsburg, have family in Algona and Garner, and doctor in Mason City. The roadway needs repairs and we feel the addition of turning lanes at major intersection locations would be extremely beneficial to safety and usability of Hwy 18 by all. The urban areas have a higher volume of traffic, but the rural areas share the road with agricultural equipment, extraordinary semi traffic, recreational vehicles and towing, as well as dealing with impatient travelers. Any improvements would help with safety and general mobility for everyone
51. The pavement in Kossuth btw Algona and Whittemore has degraded noticeably in recent years. Channellization from displacement and expansion joint cracks are obvious. Our farm lost nearly 3 acres on its Hwy 18 frontage years ago when sizable right-of-way was taken to accommodate full shoulders and greater pavement width. It seems clear there would be no need for additional ROW purchase and loss of acreage. A pavement design should address issues to better accommodate heavy loads of liquid

manure wagons, among others, and also design to reduce sub-base water intrusion from longitudinal equipment tire furrows in the shoulder adjacent to the slab. Preaching to the choir, eh?

52. I would like to know if the curves in Cylinder re going to be rectified yet?? I have been an advocate of making the track of rHiway 18 from Mason City to Spencer on Hiway 18, as a Tier-4 highway. We need passing on the hills and left/right turn lanes in this stretch. I was in contact with the DOT for the past 2 years, and am very happy we are again looking at the needs of North Iowa, thank you
53. Clearance line of sight from intersections and in many cases a partially paved shoulder would be beneficial. Wide shoulders for equipment, and vehicles pulling off to the side for deliveries would be beneficial. Creating more visibility and eliminated the S curves around and near Cylinder are a must. Again West of Wesley, curves could use fixing. Passing lanes should be placed factoring in residential and commercial driveways to improve safety and traffic flow. Passing lanes we prefer would be on the side with the most residential and commercial driveways. In places where the railroad abuts to Highway 18 consideration should be given to give more distance between the highway and railroad to avoid collisions and some stopping on tracks by longer vehicles, including farm equipment
54. Palo Alto County suggestions: RR tracks between Ruthven and Emmetsburg could use some warning signs several hundred yards in advance of the tracks to flash when the cross arms are down. These tracks are dangerous during fog and wind blown snow situations. Highway 4 intersection west of Emmetsburg could use a turning lane for east bound traffic turning north from 18 onto 4 toward Graettinger. 18 intersection with 480 Ave east of Emmetsburg could use a turn lane for west bound traffic turning south on 480 ave. Busy truck turning lane and difficult to see in fog and wind blown snow situations. Curve north of Cylinder, could use some additional rumble strips to warn drivers of curve
55. Hwy 18 is a highly traveled road. Between cooperatives, ethanol plants, soybean plants, feed mills and livestock not to mention tourism and travel, there are a lot of products and people that travel both intrastate and interstate to get to our small towns along Hwy 18. With the environments and weather we have in NW Iowa Hwy 18 is in need of constant maintenance and/or replacing. At some point the cost of maintenance outweighs the cost of replacement
56. Hwy 18 is a high truck traffic road and needs to be maintained, my hope/desire is to make sure they redo the road the right way and not just put a band aid on it. I believe the truck traffic is only going to increase as we see more end users of corn expand and need more trucks. Also the truck traffic needed to supply all the livestock building in this area is also going to increase. The use of rail in NW Iowa is on the decrease and truck traffic is going to dominate this area

Figure 2 – General Comments from PIM#2

1. This road is heavily used and in poor condition. It can't be fixed quick enough. There are large pot holes in the surface and rough surfaces as well. The design of the road does not allow safe passing in a lot of areas due to the congestion
2. I think it's a good idea that section of the road is getting reworked
3. Love this road project. Long overdue. Hope this goes through!!
4. We travel HWY 18 from Algona to Mason City once a week. The road does need repair and more passing lanes between Algona and Garner. Currently, it is safe to pass in the left lane at Britt, which is great, but HWY 18 needs passing lanes from Britt to Duncan and Duncan to the N. 169 intersection to Forest City. We drive on McGregor Road to HWY 17 just to avoid the traffic from Algona to 17. In the future, please consider a passing lane between Ventura and Clear Lake. There are now many trucks (I counted over 50 on one trip from Algona to Clear Lake) on Highway 18, which makes passing difficult
5. Please build
6. The east junction of 18 & 69. I would like to see something happen with that. When i am in Wisconsin and Minnesota when i used to drive truck there they had roundabouts all over! I know people hate them and think there a pain in the butt. I believe that would be a cheap alternative. Or there is going to have to be a stop light. Traffic needs to slow down and the roundabout will drivers slow down
7. This project cannot be started soon enough. This highway has been in terrible shape for years
8. I drive Hwy 18 between Ruthven and Emmetsburg, daily. I find it very rough and it is hard on my pickup. I would be highly in favor of it being repaired or resurfaced
9. I cannot get to the "own pace document" leading up this survey... But I'd like to see this road expanded to 4 lanes and 65 MPH. My husband uses this road twice a day to and from work from Spencer to Emmetsburg and it's dangerous as is, and slow moving farming traffic causes issues frequently
10. No
11. I would like to get information about this Hwy 18 project
12. I live in Spencer and travel this stretch frequently
13. Obviously a 4 lane highway would be the most desirable, but even an enhanced two lane with a few passing lane would be nice. The wide variety of speeds that people go just between Spencer and Emmetsburg can make things really dangerous. I travel that stretch daily and when you constantly encounter someone going 50 mph it makes for really dangerous situations. Having the ability to go around them without any issues would be really nice

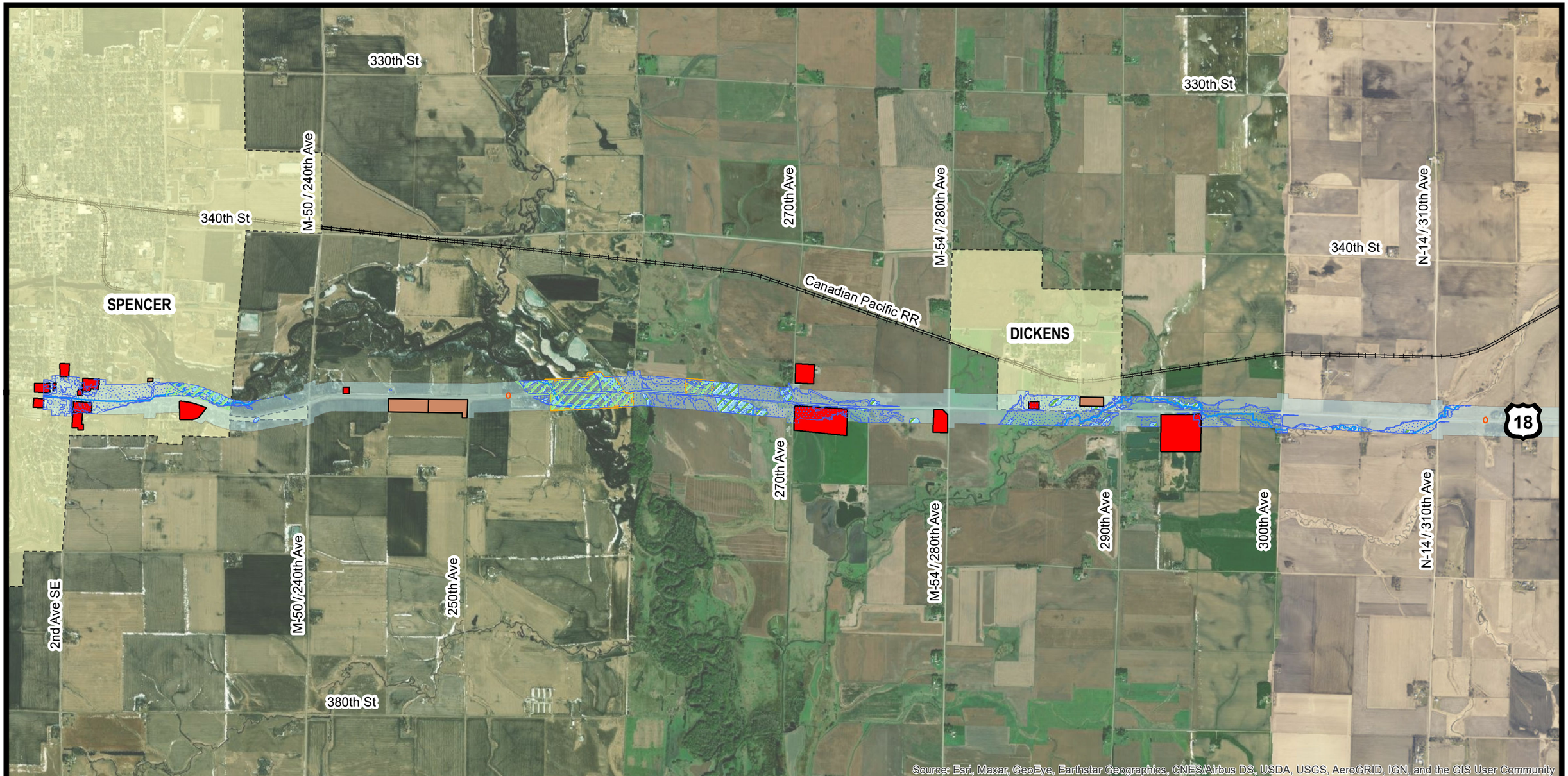
14. I do hope turn a outs or some other idea will be engineered to eliminate traffic lights and stop signs
15. Thank you for the opportunity to review US 18 PEL. I strongly support improvements to this 81 mile section of highway. Although more experienced with travel between Emmetsburg and Algona, I believe the highway between Spencer and Emmetsburg to be most in need of passing lanes as it has more traffic, especially trucks. The full length of the 81 mile section, excluding Whittemore to Algona, is in need of resurfacing
16. improvements are needed
17. This stretch is really rough and is in great need of repair. I travel the stretch from Britt to Algona every weekday. Traffic on this stretch can be a little heavy at times and I would strongly support making passing lines at certain points along this stretch (similar to what is currently at Ventura) or even making it a four lane undivided thruway. The current asphalt patching done is not working and the same holes are appearing after the winter season. I also find that placing a blacktop overlay also attracts icy road conditions more than just a plain cement surface
18. I travel between Algona and Soencer at least 4 times per month
19. Frequent user of the west end of this corridor
20. The video does not work
21. It would be nice for wellness and safety reasons that they could incorporate some bike/ped paths in each county into this project. We have been trying to do this in Hancock county as a wellness group but cant come up with the funding. A number of years a go the state added a 10 cent gas tax. some of that money should be set aside for these types of things
22. Are there any plans to improve the general plans to replace or repair the existing pavement as the road is very rough from Algona to Garner
23. The present road condition and movement of traffic is terrible. Both are a serious impediment to farm business on which we depend
24. im very much in support
25. I farm just north of highway 18 on 310th Ave in Clay County. Many times I need to shuttle equipment or simply go to Spencer, Ruthven, or Emmetsburg and for shuttles especially using my bicycle is very efficient. Not only am I able to do the shuttle myself, I am able to get exercise and save money at the same time. While some sections of Highway 18 between Spencer and Emmetsburg have a very nice and safe shoulder for bike riding, some sections have serious issues. Probably the biggest challenge in going to Spencer is the bridge just east of Dickens which has no shoulder. The next challenge is the quality of the surface. While this section of highway was recently resurfaced, the shoulders did not receive any treatment and in some areas, especially around Dickens are in horrible shape and are quite dangerous to ride. In Palo Alto County where there was previously no paved shoulder, some has been added, but the

section that is beyond the rumble strips is very narrow and quite difficult to navigate on a bicycle. Going forward if highway 18 could have at least 24 inches and hopefully more of smooth paved shoulder free of rumble strips it would do a lot to allowing people to safely travel via bicycle

26. Is a turning planned for hwy 18 in Garner City limits?
27. I am looking forward to these safety and traffic flow improvements to the Hwy 18 corridor. Has there been any consideration of foregoing these changes and extending the Avenue of The Saints west from I-35?
28. With all these needed changes it seems it doesn't go far enough. would widening to 4 lanes be a more realistic proposal as there are times of such dense traffic. Bypassing these towns may also make this a much needed efficient effluent out of this area. This is more likely to bring more enterprise.
29. I support the project in whole as it adds benefit or at least the perceived benefit of ease of commutes from smaller rural towns to regional areas. With behavioral changes in driving habits (texting, etc), my concern is increased speeds due to more passing areas ultimately increasing statistics in crashes. These passing areas can also cause confusion with their design, especially with no median or spacing with the oncoming lane of travel (i.e. the section of Hwy 18 West of Ventura in Cerro Gordo County). A passing car from oncoming traffic (1 lane travel side) and into the dual lane side (the new passing lanes) is a safety issue especially when there is a vehicle in the right travel lane of the passing zone area. There either needs to be a no passing restriction of the oncoming traffic side adjacent to the 2 lane area or a redesign of these passing zone areas
30. I think this plan is a good idea. Something definitely needs to be done with the east junction in garner!!!
31. There is a need to stop traffic from passing in either direction from our driveway @2930 to the bridge East on Hwy 18. More than once we have observed passing traffic nearly have head on collision. If it wasn't for the wide shoulders, I'M sure it would have happen. Traffic is so heavy, not only with trucks but all vehicles that it can be hard to get out of our driveway at all times of the day, not just the Clay County Fair Week any more. Its surprising how much traffic has grown in the last 40 yrs living on this road
32. Would it be safer to divide the 2 lane highway and have a median in between to create less head on collisions?
33. At the intersection of Hwy 69 and Hwy 18 in Garner, something needs to be done to make it safe. It is way too hard to make a turn on to Hwy 18. The way the road curves makes to many blind spots. It'd be great to see a round about or at the least a stop light. With the clinic and pharmacy there is a lot of traffic turning in and out there. A very dangerous intersection that I have to go through everyday for work

34. When trying to leave hwy 69 to turn left onto hwy 18 in garner anywhere from 3:30-4:45 pm, itâ€™s very scary and dangerous. Also not safe going east or west on hwy 18 through garner that same time as Iowa Mold Tooling traffic is entering hwy 18 in 3 places and they will pull out and cross traffic if they have an inch. Not safe!
35. The proposed improvements look very good for safety and traffic flow,thank you for your time and consideration on the Hwy 18 study
36. Corner of HWY 18 and 69 south in Garner needs a stoplight, both to slow down traffic and for safety when people are turning west off of HWY 69S
37. I'm in full support of the project
38. Mostly I am for what you are proposing. In Hancock County the passing area just to the west of Britt which goes from just east of Grant Avenue to the edge of Britt may have an issue you have not thought of. McNeese Tire, which is right where the extra lanes would stop is directly across the highway from an elevator. Between the two businesses there is A LOT of semi traffic especially in the fall. My concern would be the lanes ending before the three driveways and cause congestion and potential accidents
39. I am in favor of this project
40. I am in favor of this project. Thank you.
41. The accidents around Cylinder Iowa on Hy 18 are caused mostly by deer. Drivers are not paying attention
42. Needs wiidening and overlay. Lots of truck traffic since it was designed years ago.
43. I believe this will increase safety for the region
44. I am in Strong favor of the project. I believe traffic will move more smoothly
45. curves through Cylinder are a problem
46. Have passing lanes. Put a traffic light at the Britt intersection. It is unsafe.
47. What actions need to be taken in order for the actual road work to begin?
48. I think the improvements that are proposed make sense for increased safety and ease of traveling Highway 18
49. Personally feel US 18 should be upgraded to freeway or expressway at some point. I feel this study is a short term solution
50. We are wondering how the passing lanes will affect the land owners in those places? Will all passing lanes be added to the side of the road for the direction they are headed? (i.e. east bound on the south side of existing roadway and west bound on the north side)
51. According to the crash history report, the biggest factor for crashes was animals in the roadway. Adding pavement for passing lanes will not decrease the number of animals in the roadway. Stopping distance is directly related to the speed and weight of the vehicle. Therefore, heavy vehicles should be assigned a lower speed limit
52. i feel turn lanes would wok better

53. It doesn't appear as though resurfacing is included in this project. Is resurfacing an assumed part of this project, or is that not something that will be completed. The highway west of Algona which was resurfaced more recently is wonderful for travel, but the rest of the road is really poor. As someone who drives on this road daily, resurfacing similar to west Kossuth county is a must
54. What is the overall goal of the project? How will this decrease travel time through this Corridor?



IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

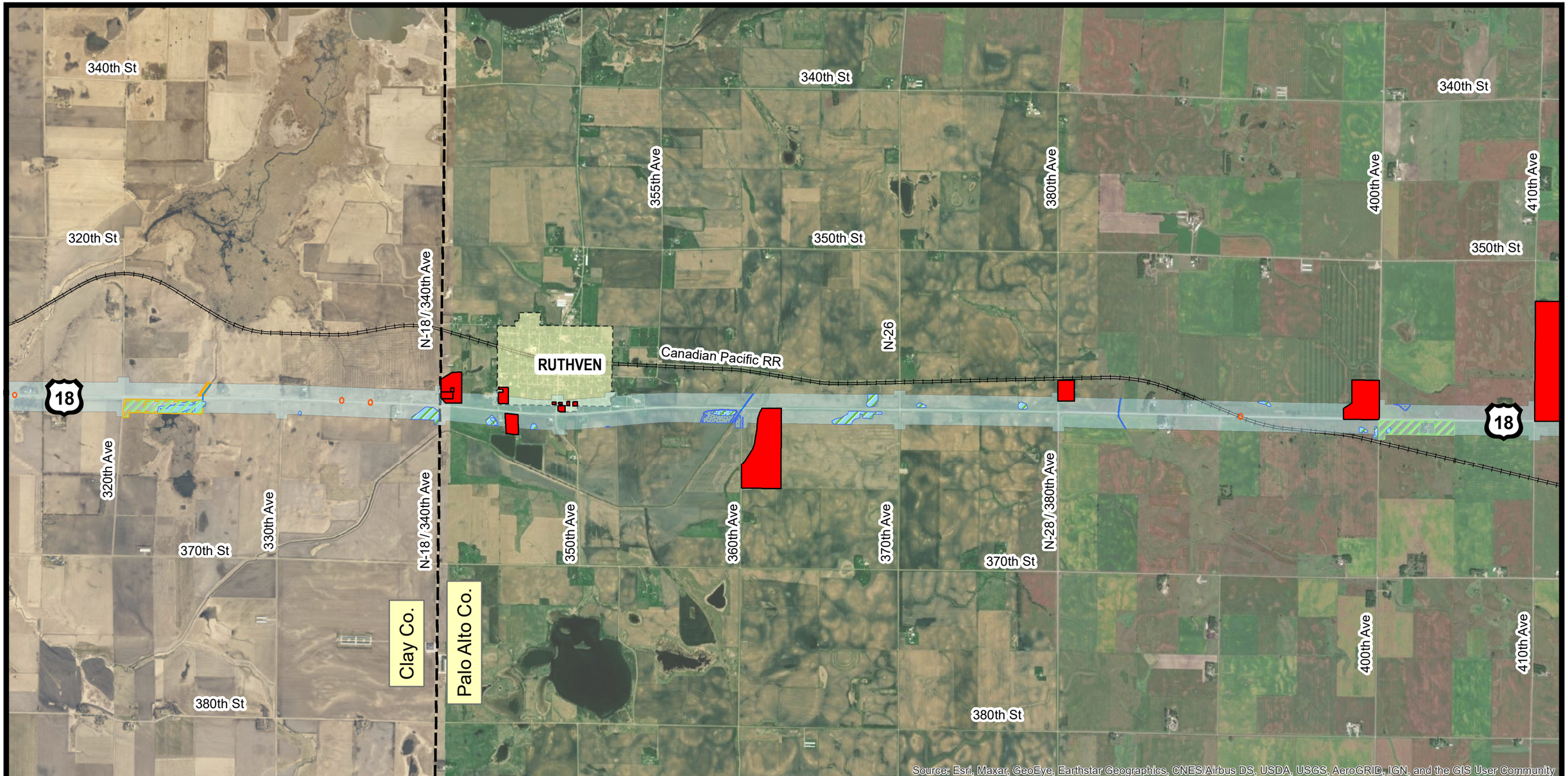
Miles

Legend

- Cemeteries
- Churches
- Floodplains
- Recreational Areas
- Streams
- Regulated Materials
- Threatened and Endangered Species
- Cultural Resources
- Wetlands
- Sovereign Lands
- Study Area
- County Border
- City Limit Boundaries
- Active Railroad

FIGURE 3 - DESKTOP ENVIRONMENTAL CONSTRAINTS

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa



IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

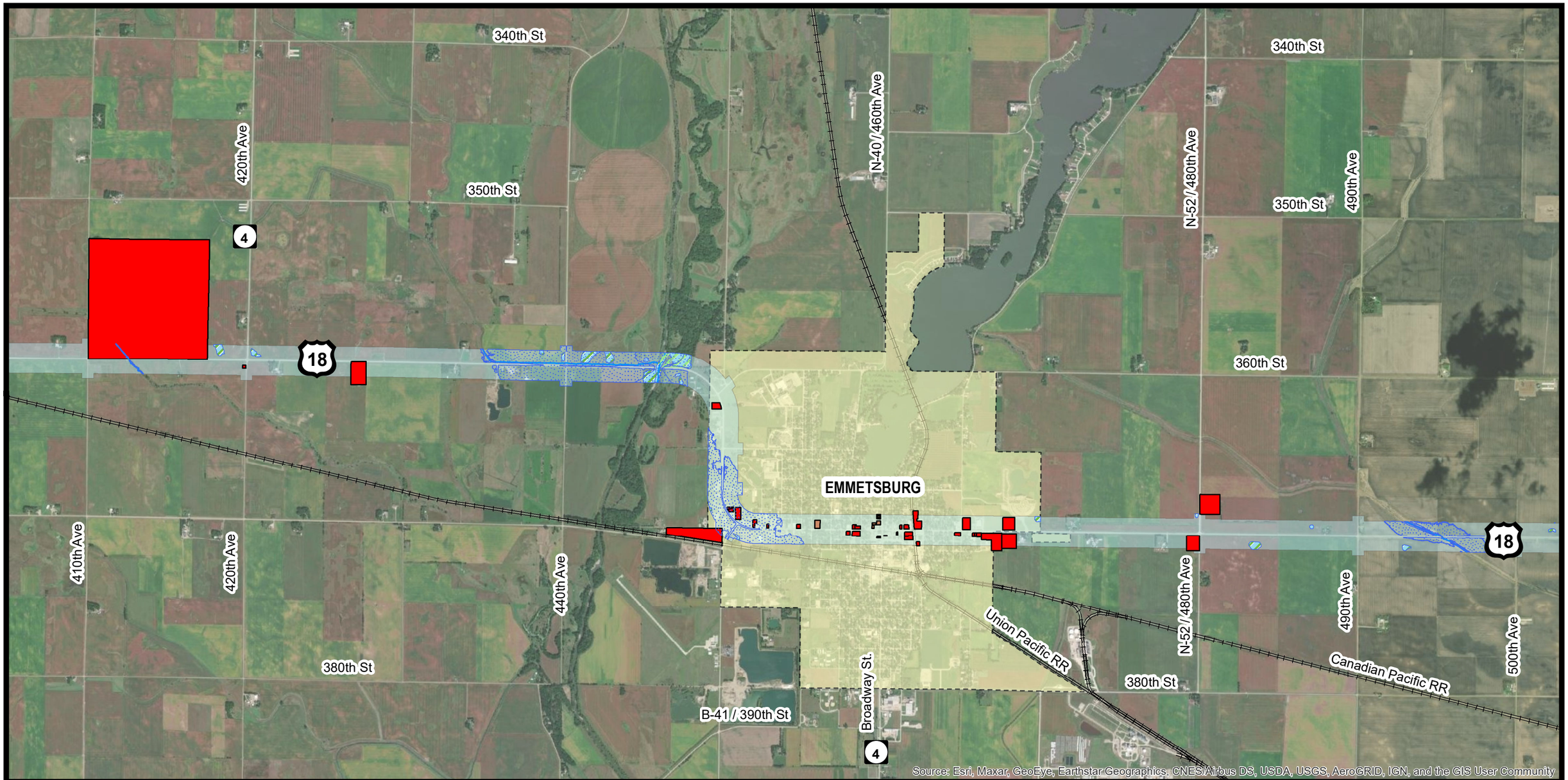
Miles

Legend

- Cemeteries
- Churches
- Floodplains
- Recreational Areas
- Streams
- Regulated Materials
- Threatened and Endangered Species
- Cultural Resources
- Wetlands
- Sovereign Lands
- Study Area
- County Border
- City Limit Boundaries
- Active Railroad

FIGURE 3 - DESKTOP ENVIRONMENTAL CONSTRAINTS

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa



IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

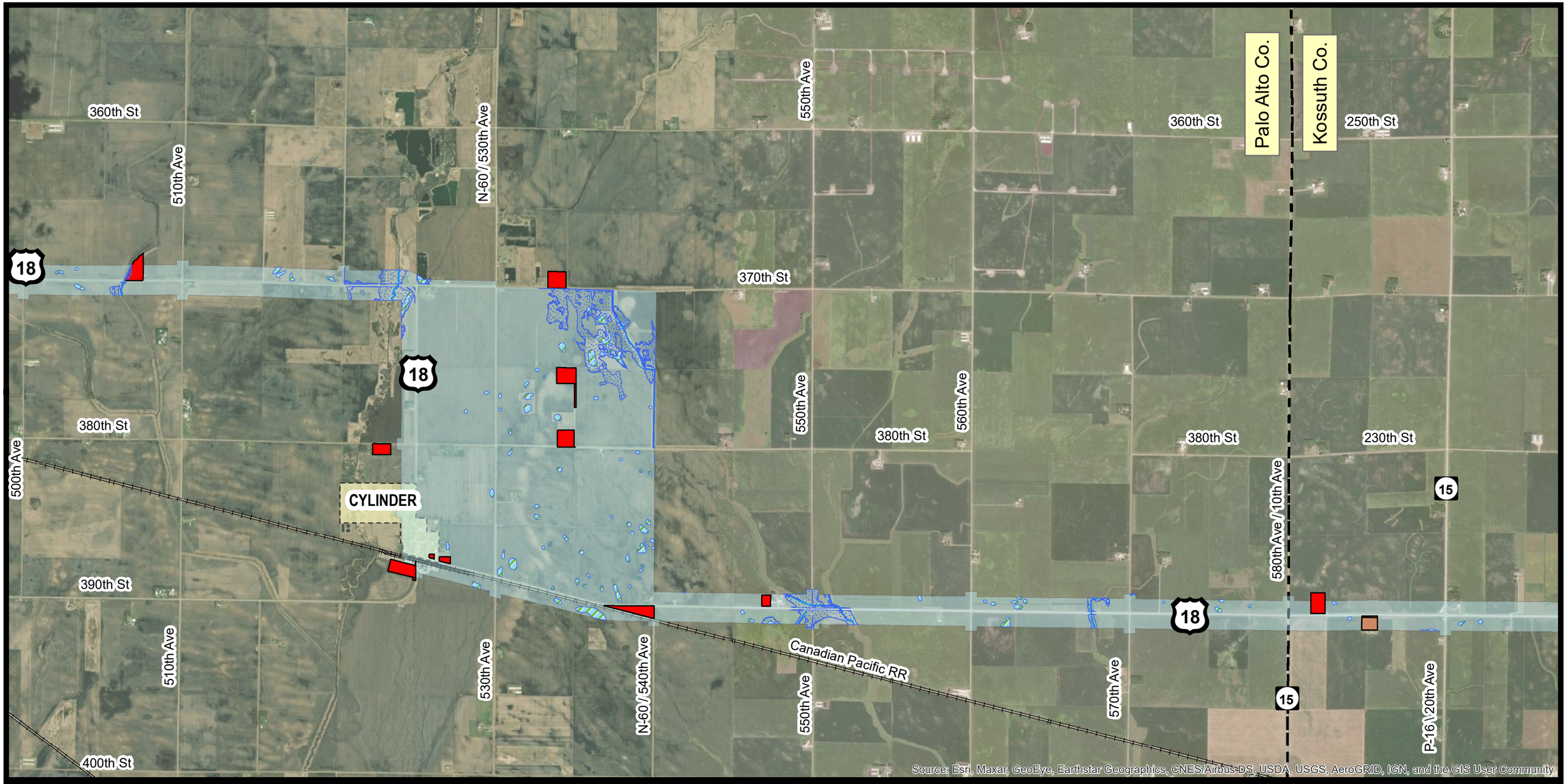
Miles

Legend

- Cemeteries
- Churches
- Floodplains
- Recreational Areas
- Streams
- Regulated Materials
- Threatened and Endangered Species
- Cultural Resources
- Wetlands
- Sovereign Lands
- Study Area
- County Border
- City Limit Boundaries
- Active Railroad

FIGURE 3 - DESKTOP ENVIRONMENTAL CONSTRAINTS

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa



IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

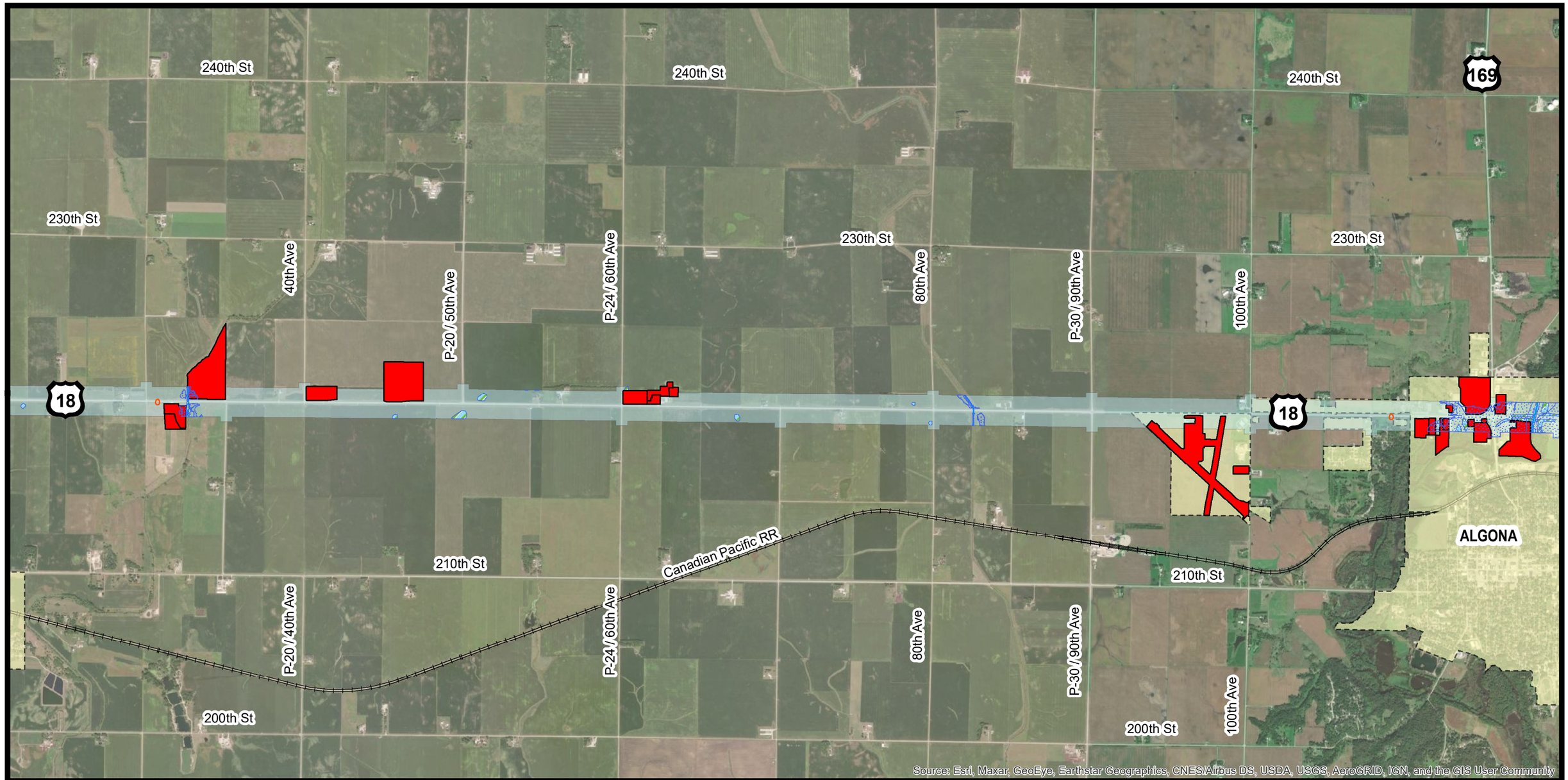
Legend

- Cemeteries
- Churches
- Floodplains
- Recreational Areas
- Streams
- Regulated Materials
- Threatened and Endangered Species
- Cultural Resources
- Wetlands
- Sovereign Lands
- Study Area
- County Border
- City Limit Boundaries
- Active Railroad

FIGURE 3 - DESKTOP ENVIRONMENTAL CONSTRAINTS

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

4/9



IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

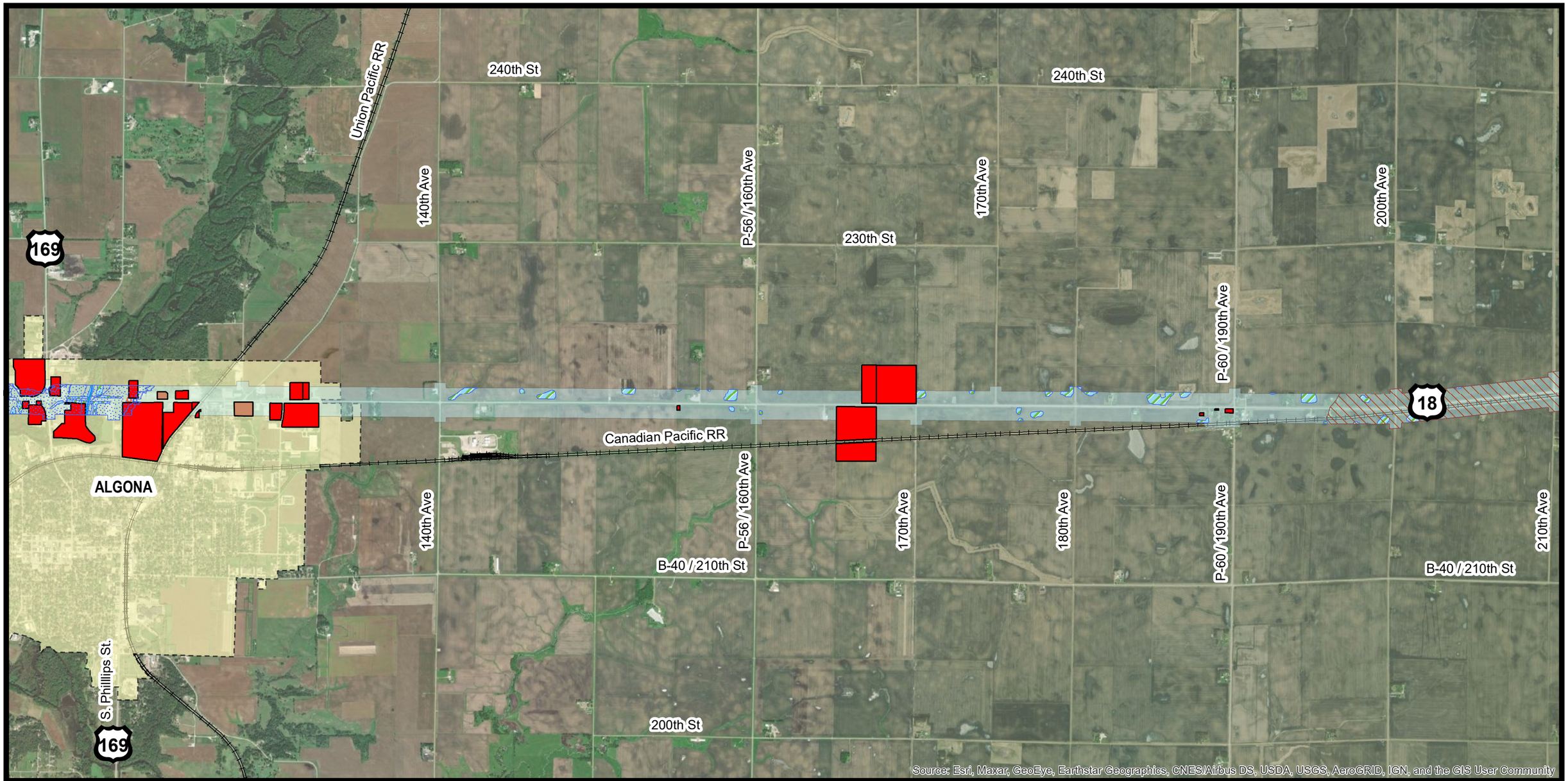
Miles

Legend

- Cemeteries
- Churches
- Floodplains
- Recreational Areas
- Streams
- Regulated Materials
- Threatened and Endangered Species
- Cultural Resources
- Wetlands
- Sovereign Lands
- Study Area
- County Border
- City Limit Boundaries
- Active Railroad

FIGURE 3 - DESKTOP ENVIRONMENTAL CONSTRAINTS

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa



IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

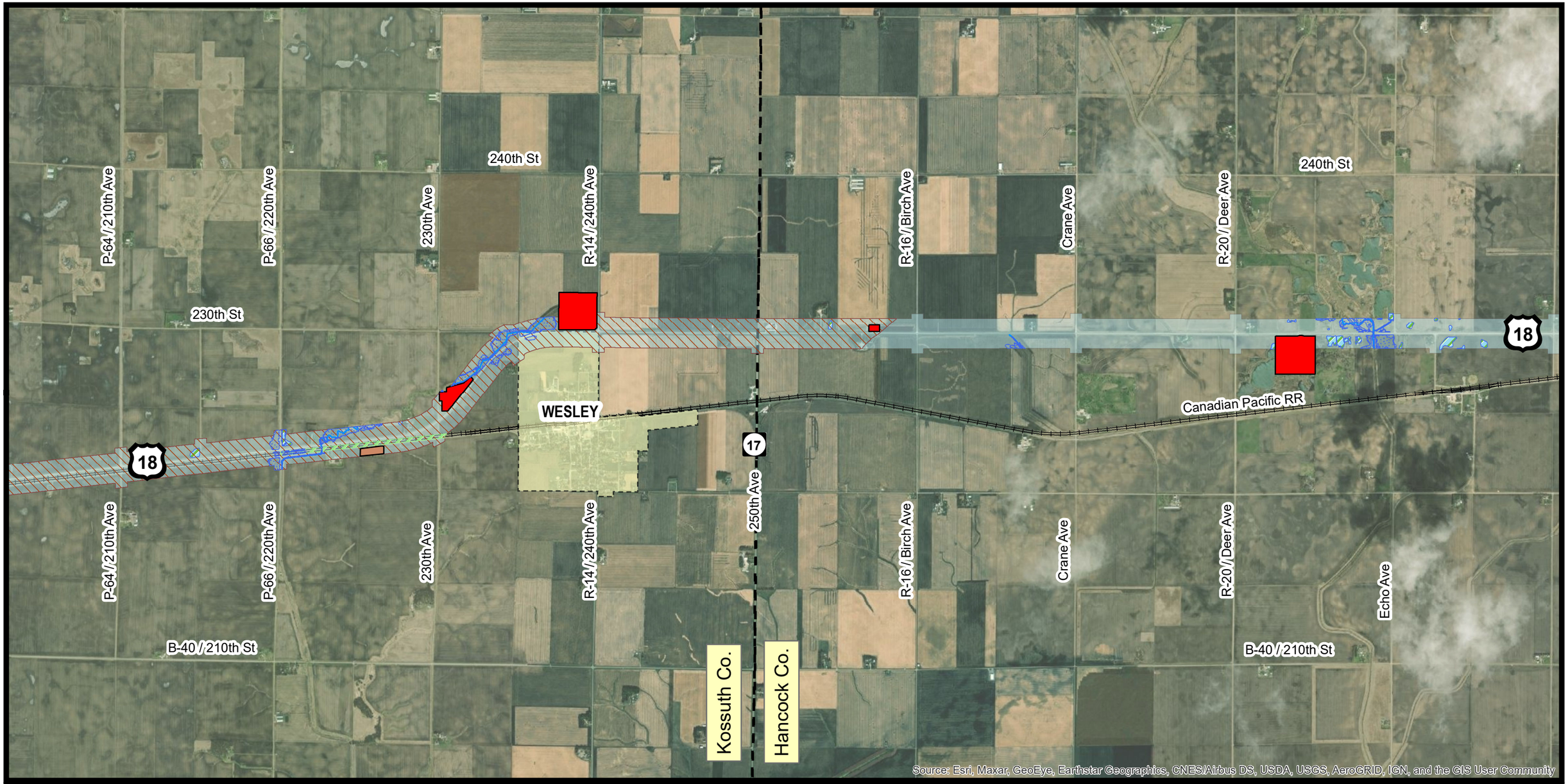
Legend

- Cemeteries
- Churches
- Floodplains
- Recreational Areas
- Streams
- Regulated Materials
- Threatened and Endangered Species
- Cultural Resources
- Wetlands
- Sovereign Lands
- Study Area
- County Border
- City Limit Boundaries
- Active Railroad

FIGURE 3 - DESKTOP ENVIRONMENTAL CONSTRAINTS

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

6/9



IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

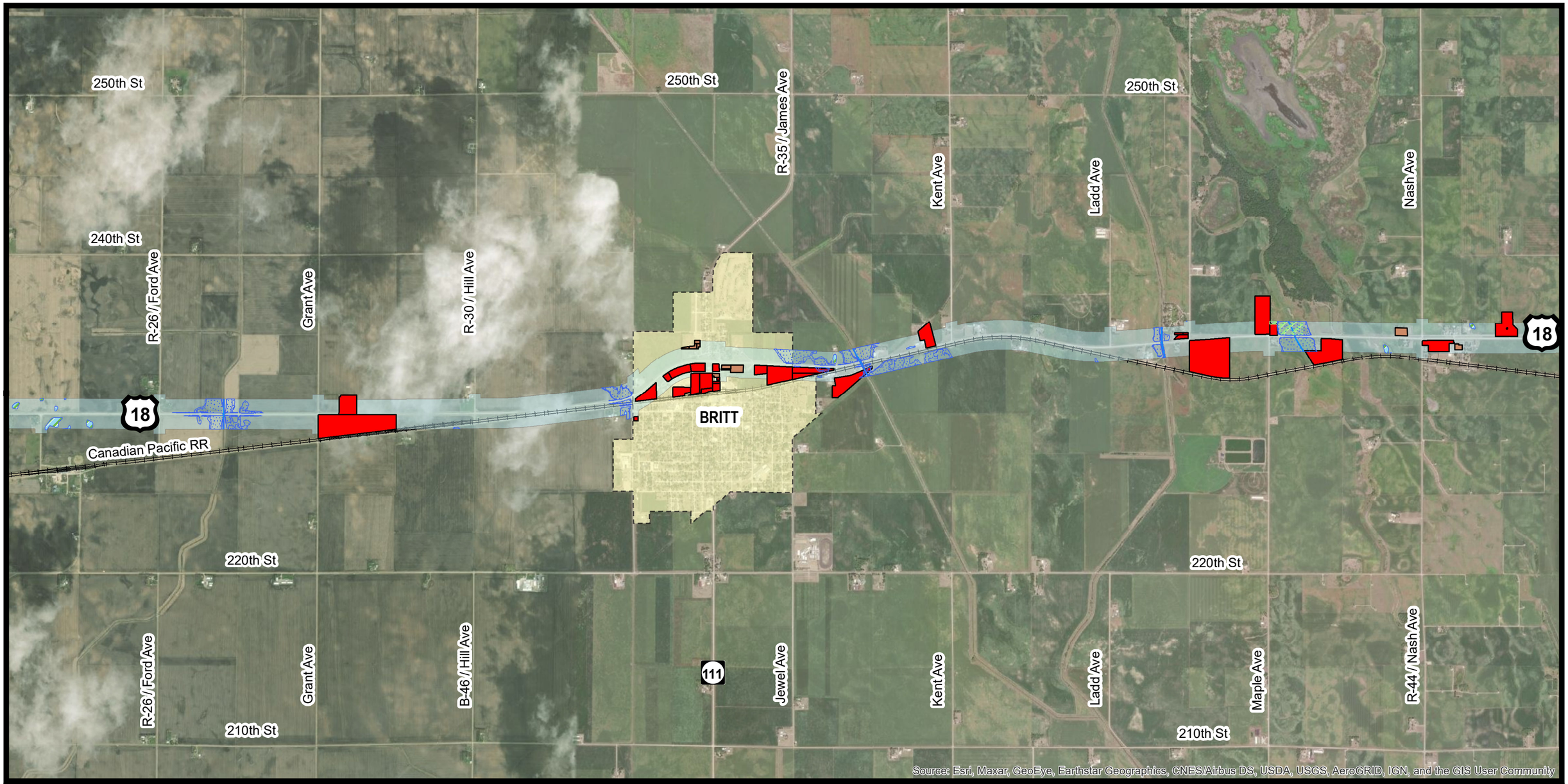
Miles

Legend

- Cemeteries
- Churches
- Floodplains
- Recreational Areas
- Streams
- Regulated Materials
- Threatened and Endangered Species
- Cultural Resources
- Wetlands
- Sovereign Lands
- Study Area
- County Border
- City Limit Boundaries
- Active Railroad

FIGURE 3 - DESKTOP ENVIRONMENTAL CONSTRAINTS

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa



IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

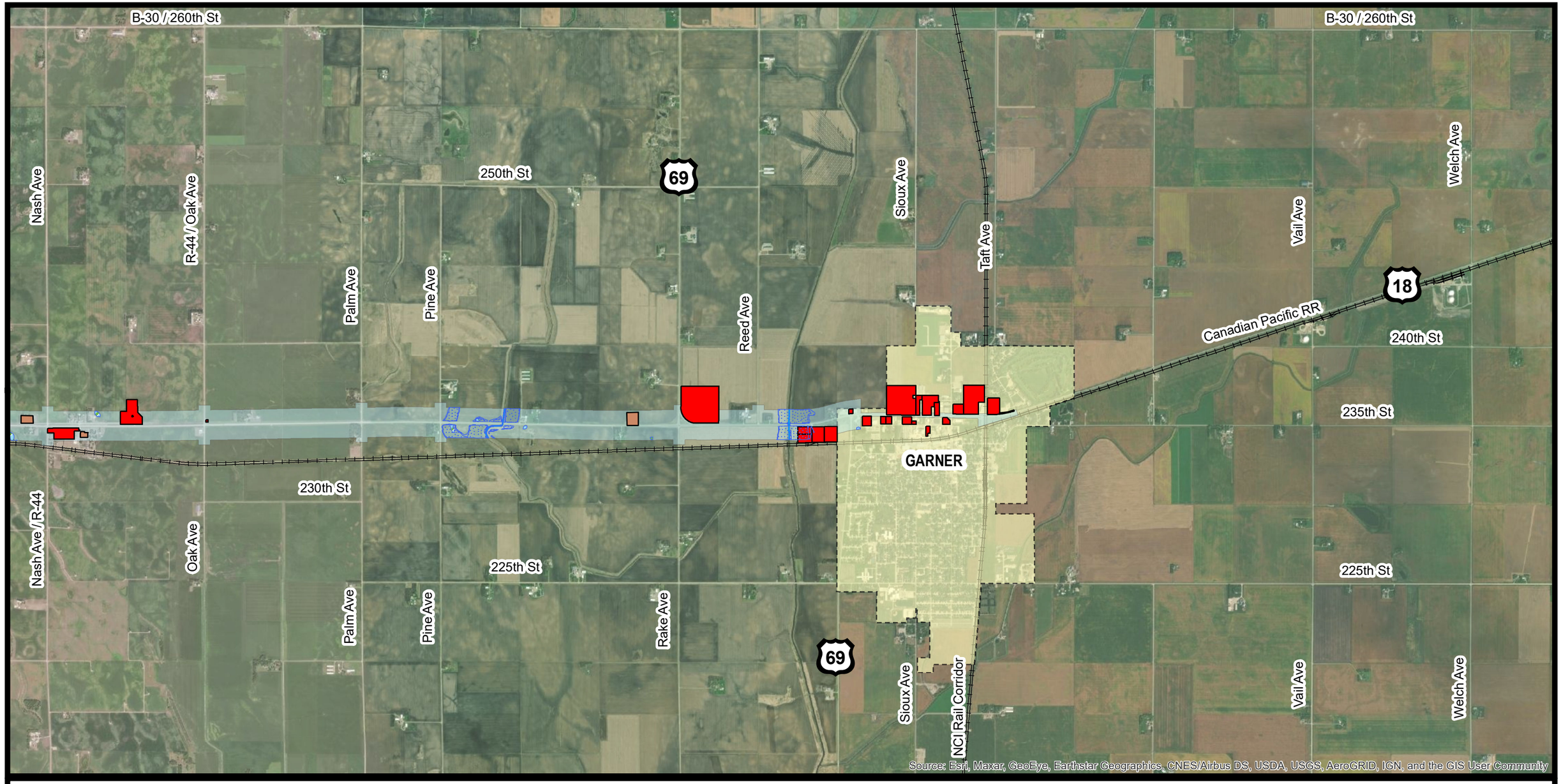
Legend

- Cemeteries
- Churches
- Floodplains
- Recreational Areas
- Streams
- Regulated Materials
- Threatened and Endangered Species
- Cultural Resources
- Wetlands
- Sovereign Lands
- Study Area
- County Border
- City Limit Boundaries
- Active Railroad

FIGURE 3 - DESKTOP ENVIRONMENTAL CONSTRAINTS

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

8/9



IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

Legend

- Cemeteries
- Churches
- Floodplains
- Recreational Areas
- Streams
- Regulated Materials
- Threatened and Endangered Species
- Cultural Resources
- Wetlands
- Sovereign Lands
- Study Area
- County Border
- City Limit Boundaries
- Active Railroad

FIGURE 3 - DESKTOP ENVIRONMENTAL CONSTRAINTS

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

9/9

IOWA DOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

Legend

- Outside Scope of Study
- Adequate Minor Right Turn Lane
- Upgrade to Major Right Turn Lane
- Adequate Left Turn Lane
- Study Area
- City Limit Boundaries
- County Border
- Active Railroad

FIGURE 4 - Existing Turn Lane Analysis

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

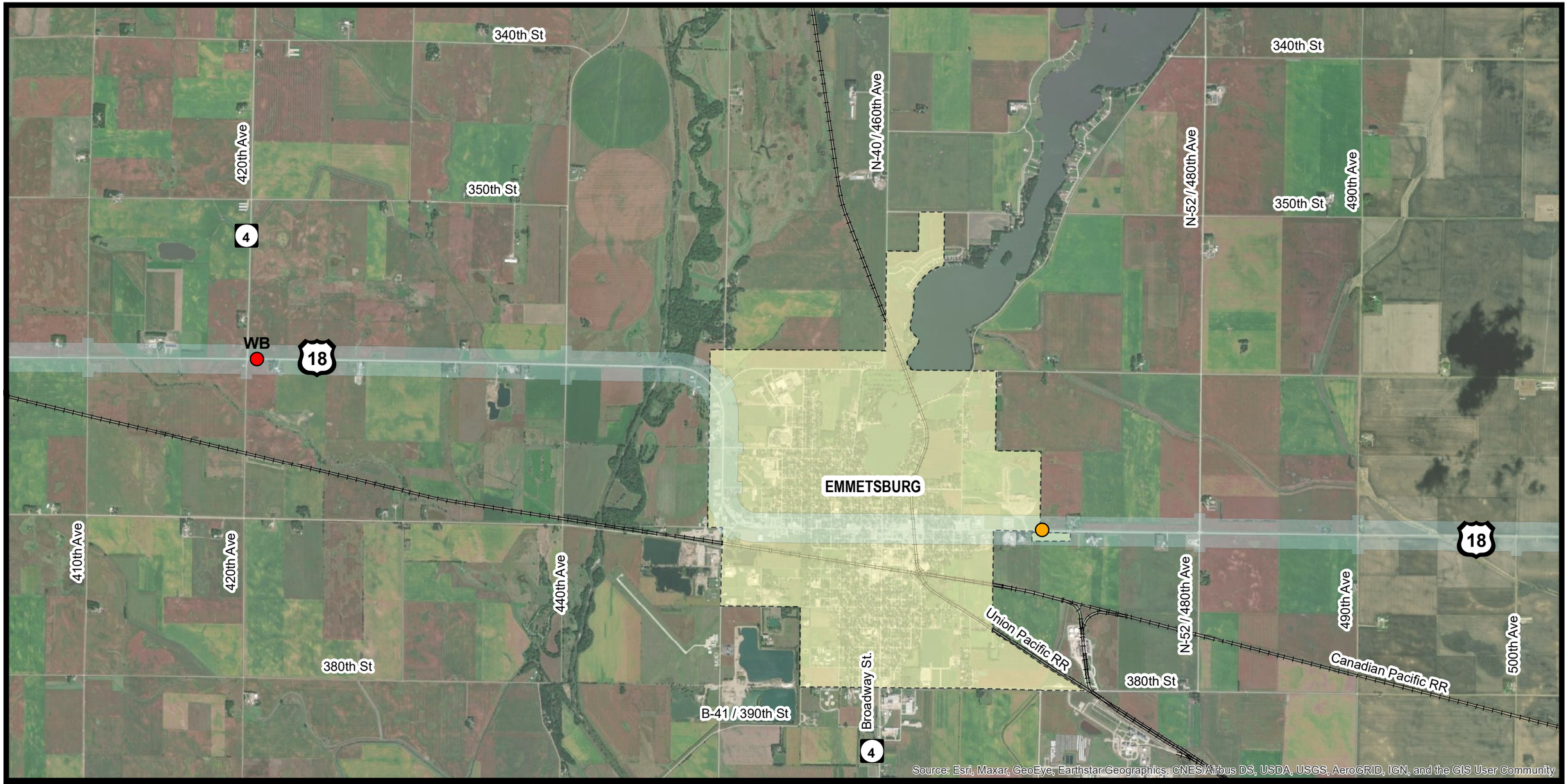
Miles

Legend

- Outside Scope of Study
- Adequate Minor Right Turn Lane
- Upgrade to Major Right Turn Lane
- Adequate Left Turn Lane
- Study Area
- City Limit Boundaries
- County Border
- Active Railroad

FIGURE 4 - Existing Turn Lane Analysis

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa



IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

Legend

- Outside Scope of Study
- Adequate Minor Right Turn Lane
- Upgrade to Major Right Turn Lane
- Adequate Left Turn Lane
- Study Area
- City Limit Boundaries
- County Border
- Active Railroad

FIGURE 4 - Existing Turn Lane Analysis

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

Legend

- Outside Scope of Study
- Adequate Minor Right Turn Lane
- Upgrade to Major Right Turn Lane
- Adequate Left Turn Lane
- Study Area
- City Limit Boundaries
- County Border
- Active Railroad

FIGURE 4 - Existing Turn Lane Analysis

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

4/9

IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

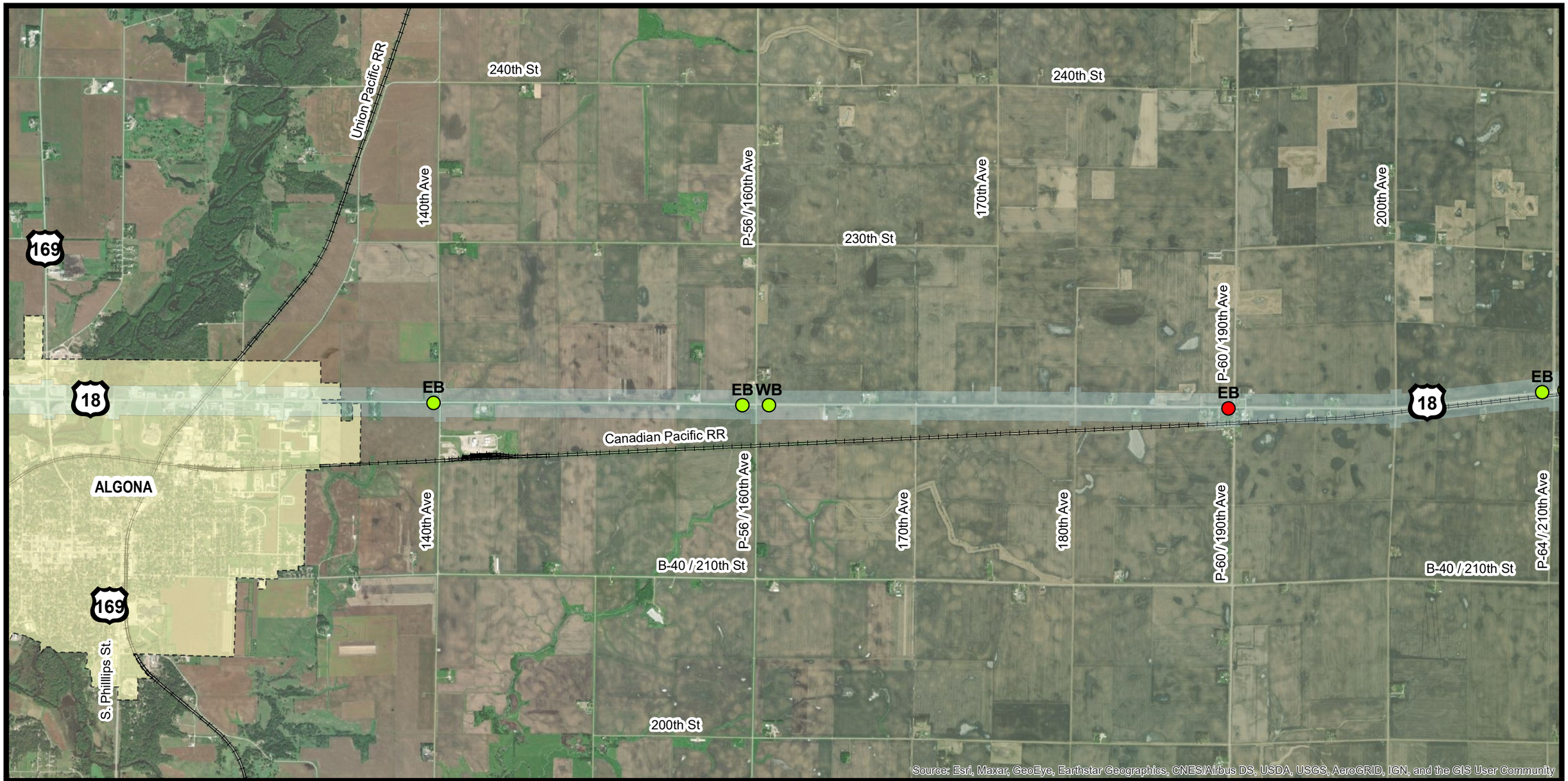
Legend

- Outside Scope of Study
- Adequate Minor Right Turn Lane
- Upgrade to Major Right Turn Lane
- Adequate Left Turn Lane
- Study Area
- City Limit Boundaries
- County Border
- Active Railroad

FIGURE 4 - Existing Turn Lane Analysis

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

5/9



IOWA DOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

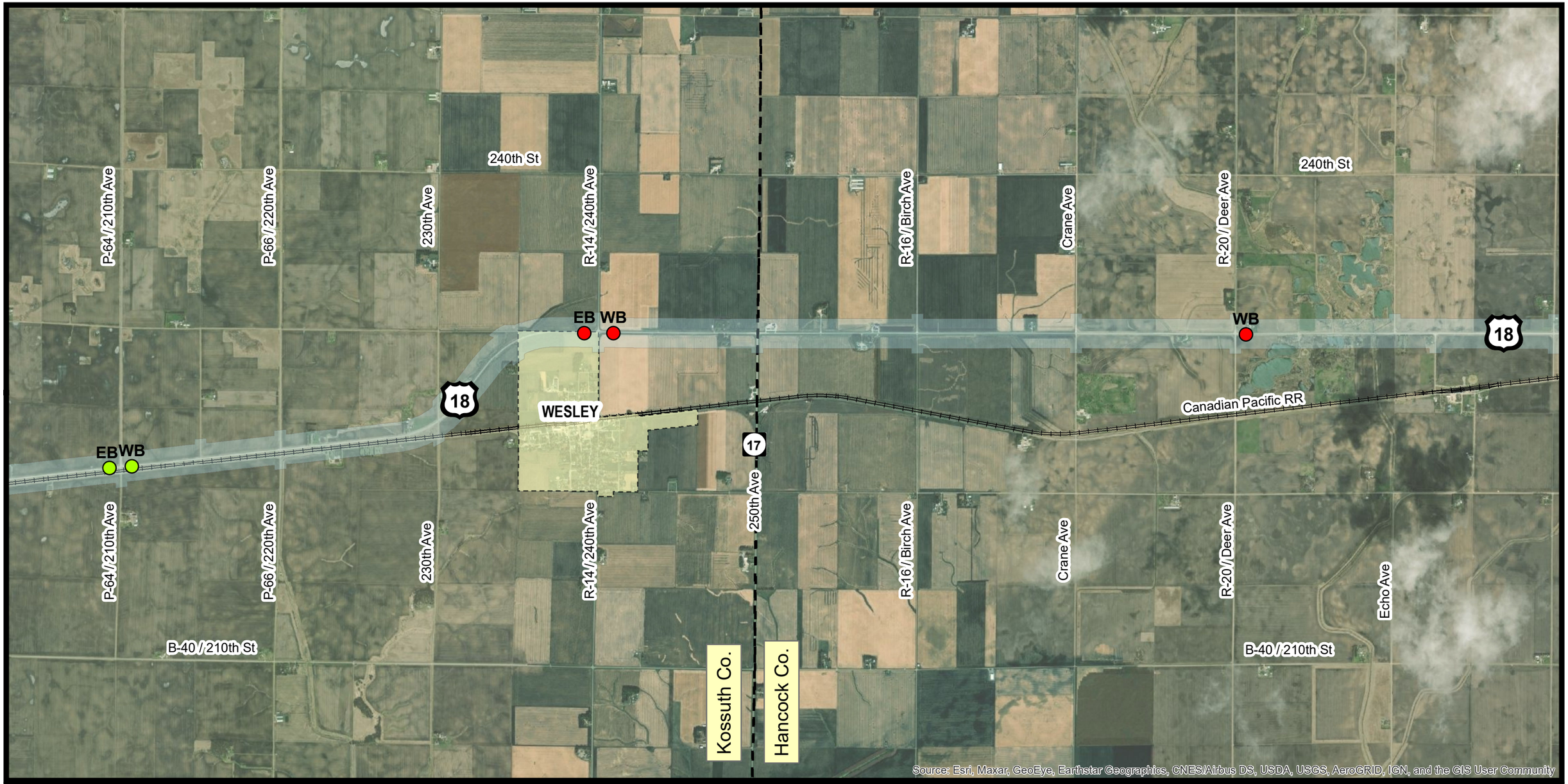
Legend

- Outside Scope of Study
- Adequate Minor Right Turn Lane
- Upgrade to Major Right Turn Lane
- Adequate Left Turn Lane
- Study Area
- City Limit Boundaries
- County Border
- Active Railroad

FIGURE 4 - Existing Turn Lane Analysis

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

6/9



IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

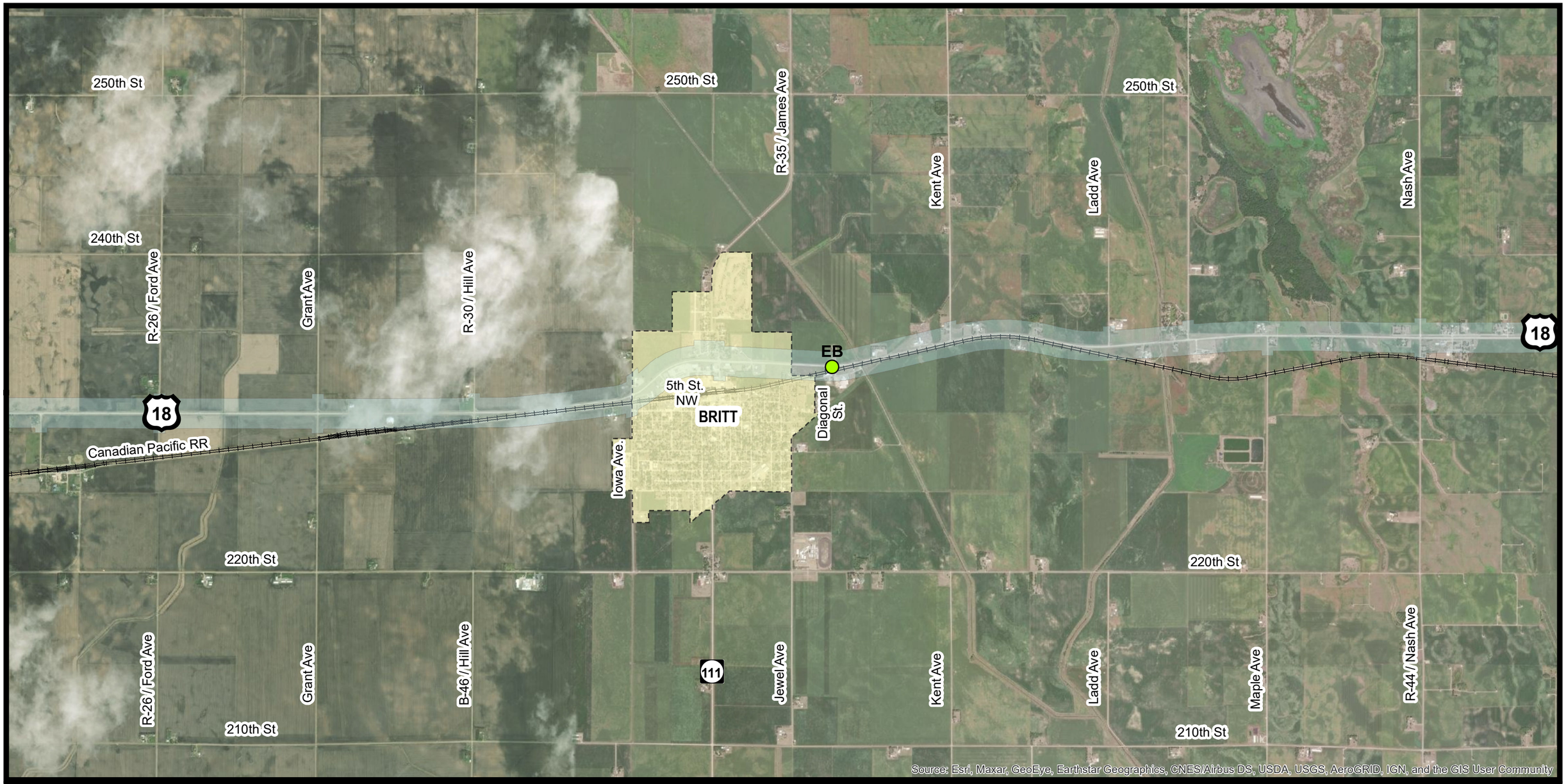
Legend

- Outside Scope of Study
- Adequate Minor Right Turn Lane
- Upgrade to Major Right Turn Lane
- Adequate Left Turn Lane
- Study Area
- City Limit Boundaries
- County Border
- Active Railroad

FIGURE 4 - Existing Turn Lane Analysis

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

7/9



IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

Legend

- Outside Scope of Study
- Adequate Minor Right Turn Lane
- Upgrade to Major Right Turn Lane
- Adequate Left Turn Lane
- Study Area
- City Limit Boundaries
- County Border
- Active Railroad

FIGURE 4 - Existing Turn Lane Analysis

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

8/9

IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

Legend

- Outside Scope of Study
- Adequate Minor Right Turn Lane
- Upgrade to Major Right Turn Lane
- Adequate Left Turn Lane
- Study Area
- City Limit Boundaries
- County Border
- Active Railroad

FIGURE 4 - Existing Turn Lane Analysis

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

9/9

IOWA DOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

Legend

- Proposed Left Turn Lanes
- Proposed Minor Right Turn Lane
- Proposed Major Right Turn Lane
- Study Area
- City Limit Boundaries
- County Border
- Active Railroad

FIGURE 5 - Proposed Turn Lane Analysis - Rural

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

1/14

IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

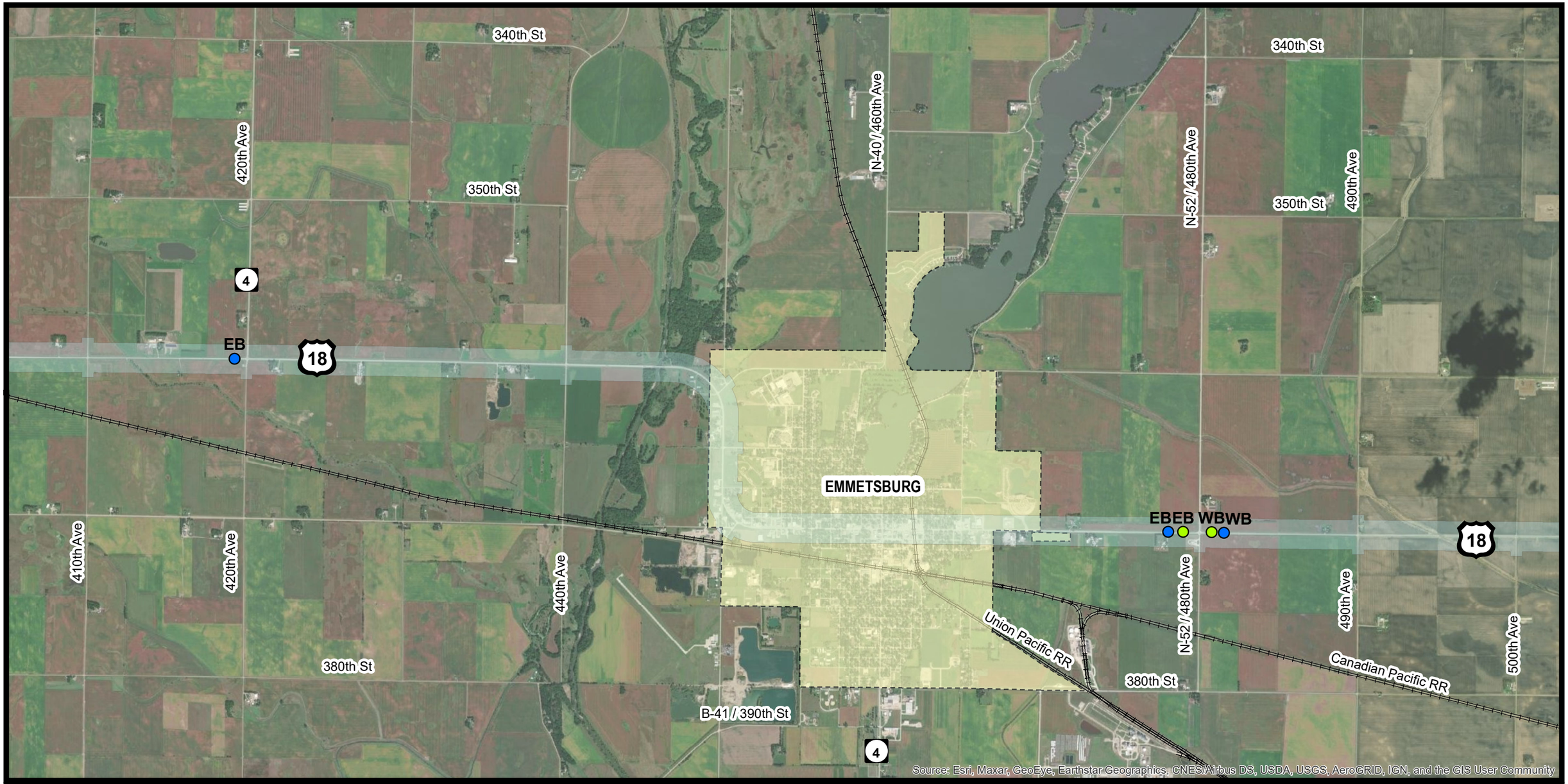
Miles

Legend

- Proposed Left Turn Lanes
- Proposed Minor Right Turn Lane
- Proposed Major Right Turn Lane
- Study Area
- City Limit Boundaries
- County Border
- Active Railroad

FIGURE 5 - Proposed Turn Lane Analysis - Rural

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa



IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

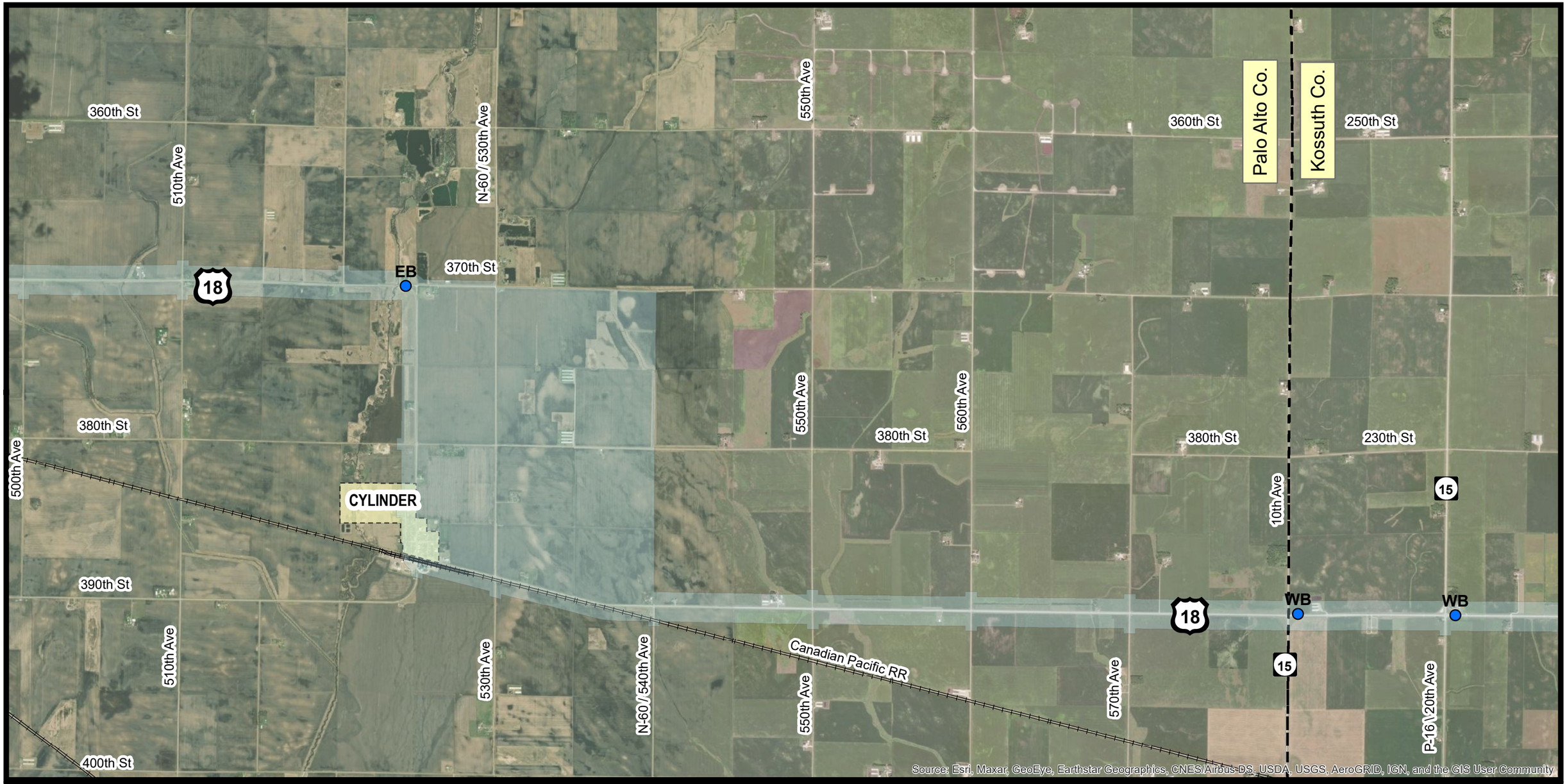
Legend

- Proposed Left Turn Lanes
- Proposed Minor Right Turn Lane
- Proposed Major Right Turn Lane
- Study Area
- City Limit Boundaries
- County Border
- Active Railroad

FIGURE 5 - Proposed Turn Lane Analysis - Rural

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

3/14



IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

Legend

- Proposed Left Turn Lanes
- Proposed Minor Right Turn Lane
- Proposed Major Right Turn Lane
- Study Area
- City Limit Boundaries
- County Border
- Active Railroad

FIGURE 5 - Proposed Turn Lane Analysis - Rural

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

4/14

IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

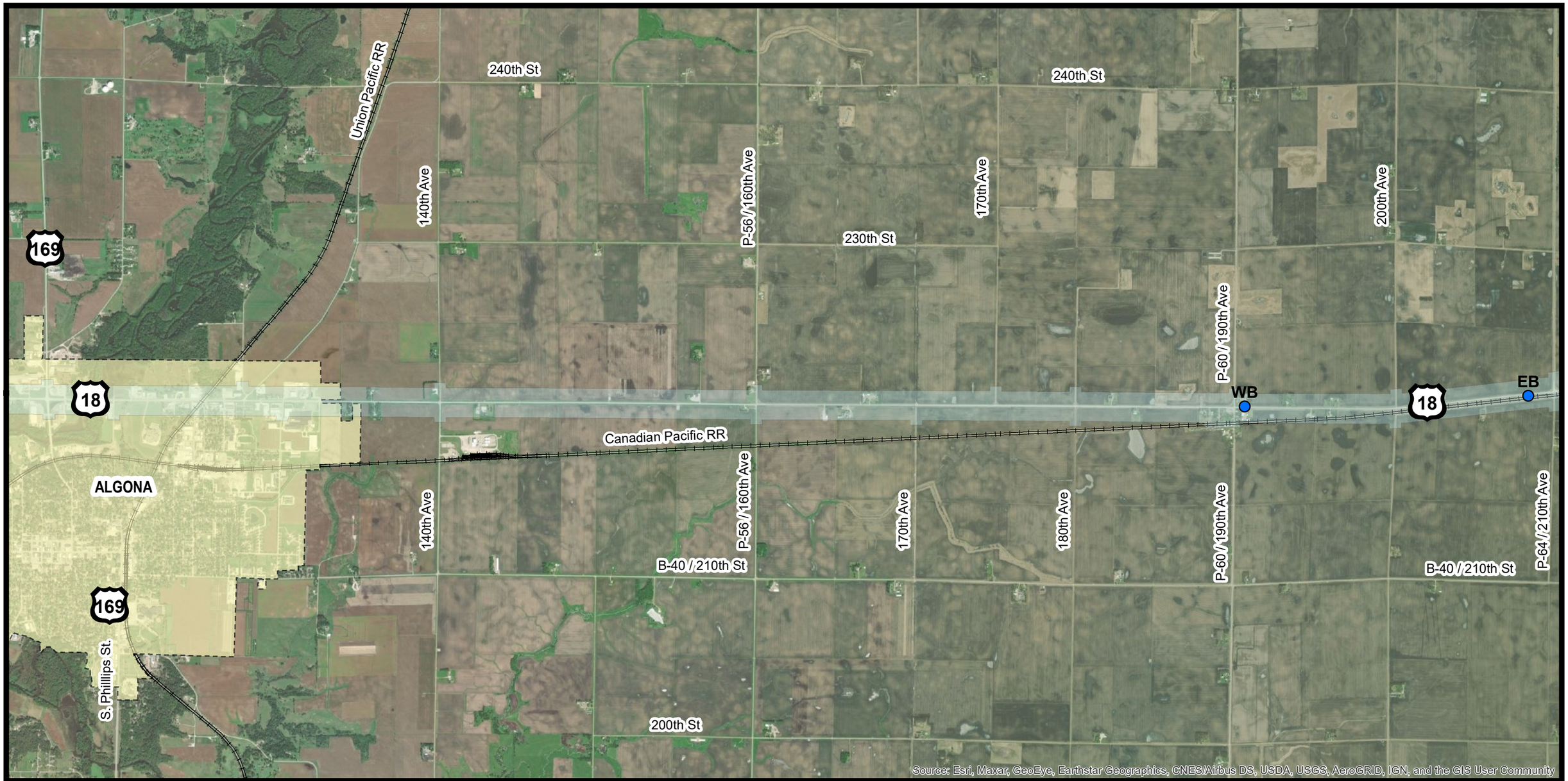
Legend

- Proposed Left Turn Lanes
- Proposed Minor Right Turn Lane
- Proposed Major Right Turn Lane
- Study Area
- City Limit Boundaries
- County Border
- Active Railroad

FIGURE 5 - Proposed Turn Lane Analysis - Rural

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

5/14



IOWA DOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

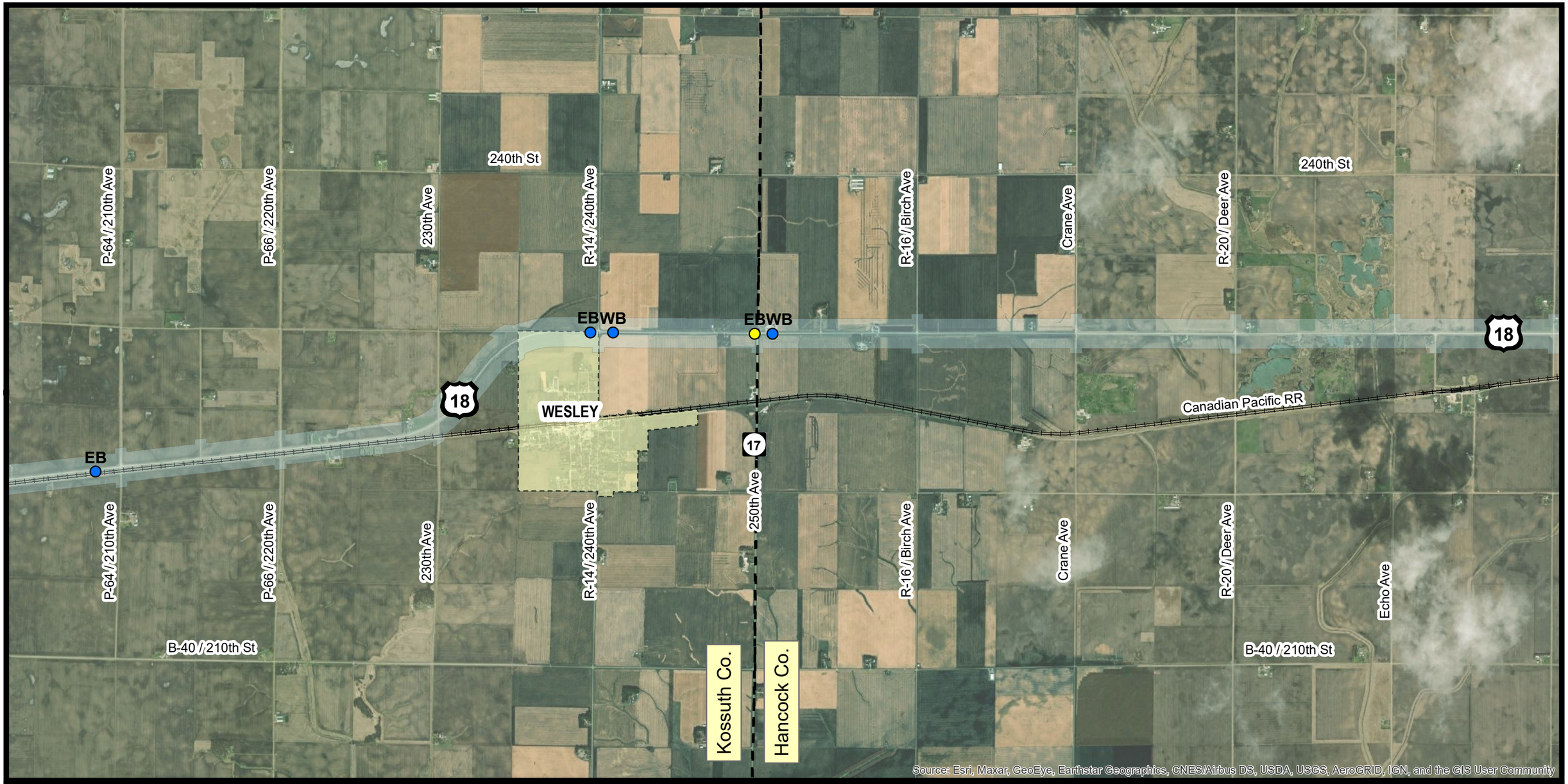
Legend

- Proposed Left Turn Lanes
- Proposed Minor Right Turn Lane
- Proposed Major Right Turn Lane
- Study Area
- City Limit Boundaries
- County Border
- Active Railroad

FIGURE 5 - Proposed Turn Lane Analysis - Rural

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

6/14



IOWA DOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

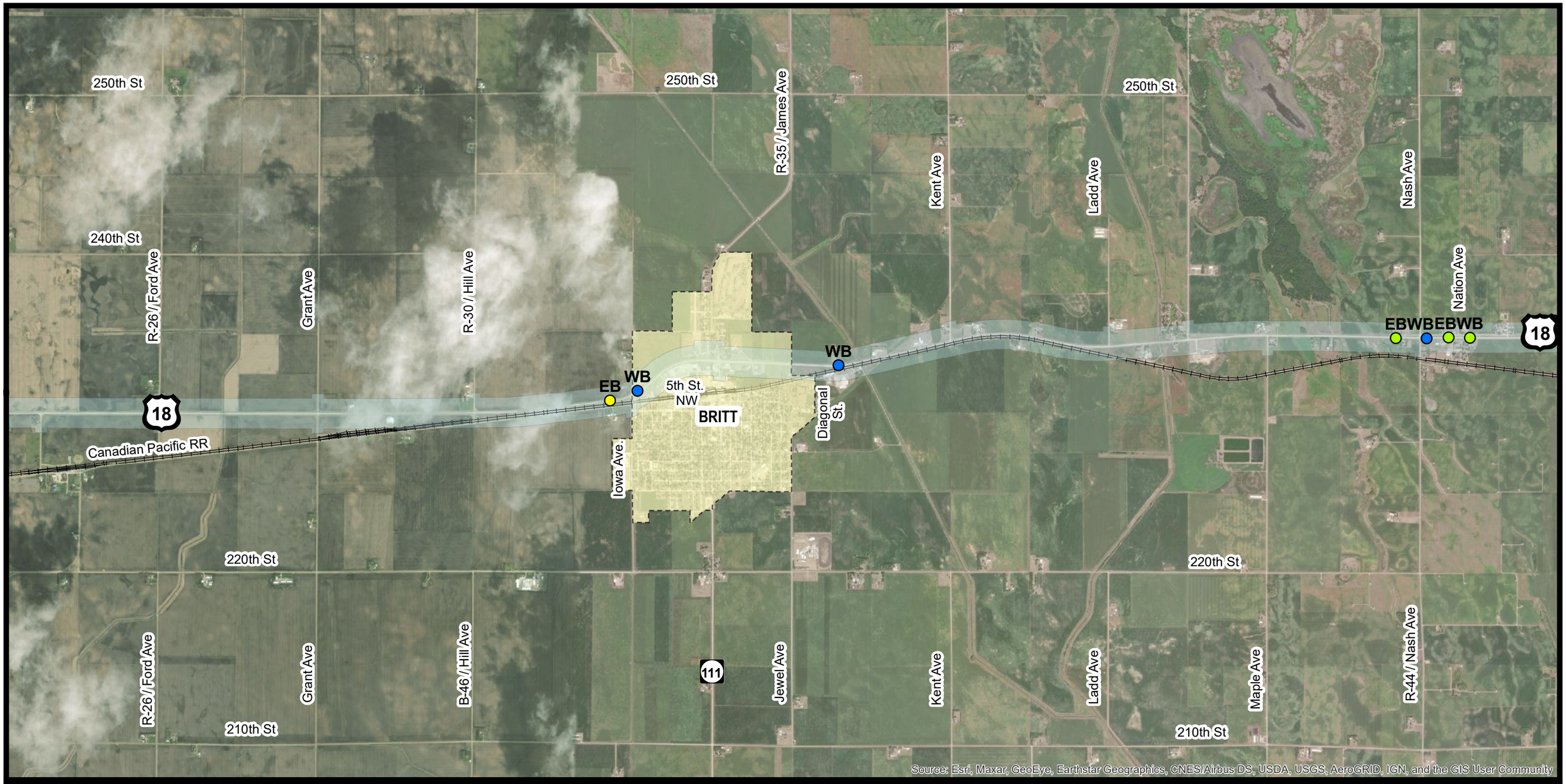
Legend

- Proposed Left Turn Lanes
- Proposed Minor Right Turn Lane
- Proposed Major Right Turn Lane
- Study Area
- City Limit Boundaries
- County Border
- Active Railroad

FIGURE 5 - Proposed Turn Lane Analysis - Rural

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

7/14



IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

Legend

- Proposed Left Turn Lanes
- Proposed Minor Right Turn Lane
- Proposed Major Right Turn Lane
- Study Area
- City Limit Boundaries
- County Border
- Active Railroad

FIGURE 5 - Proposed Turn Lane Analysis - Rural

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

8/14

IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

Legend

- Proposed Left Turn Lanes
- Proposed Minor Right Turn Lane
- Proposed Major Right Turn Lane
- Study Area
- City Limit Boundaries
- County Border
- Active Railroad

FIGURE 5 - Proposed Turn Lane Analysis - Rural

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

9/14

SPENCER

10th St. SE

18

EB

WB

Woodland Ave.

10th Ave. SE

WB

St. Luke Dr.

St. Luke Dr.

M-50 / 240th Ave.

18

M-50 / 240th Ave.

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

IOWADOT

Created October 2021

N

0 0.05 0.1 0.2

Miles

Legend

- Outside Scope of Study
- Proposed Left Turn Lane
- Study Area
- City Limit Boundaries
- Active Railroad

FIGURE 5 - Proposed Turn Analysis - Intown

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

10/14

IOWADOT

Created October 2021

N

0 0.075 0.15 0.3

Miles

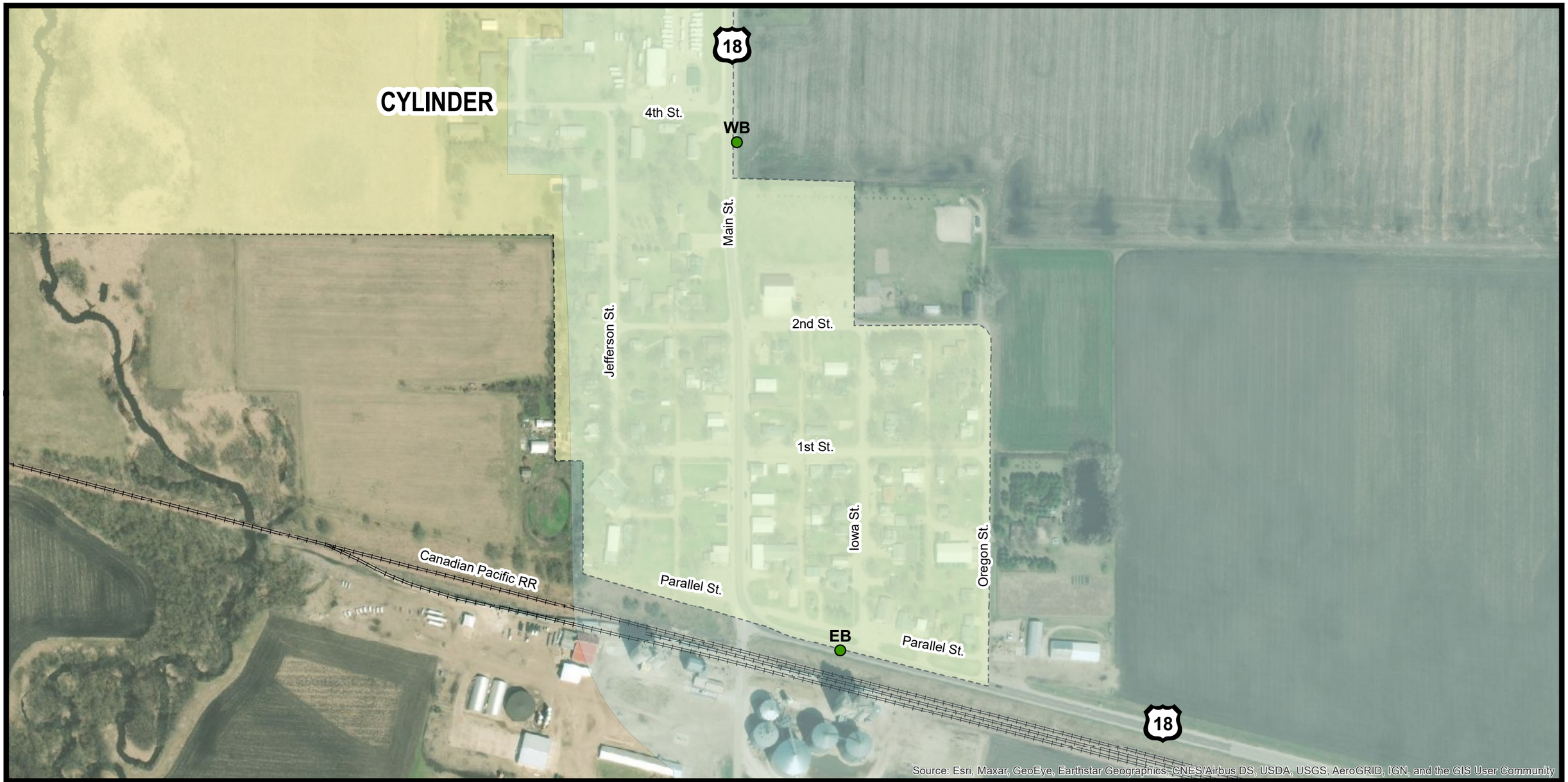
Legend

- Outside Scope of Study
- Proposed Left Turn Lane
- Study Area
- City Limit Boundaries
- Active Railroad

FIGURE 5 - Proposed Turn Analysis - Intown

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

11/14



IOWADOT

Created October 2021

N

0 0.0325 0.065 0.13

Miles

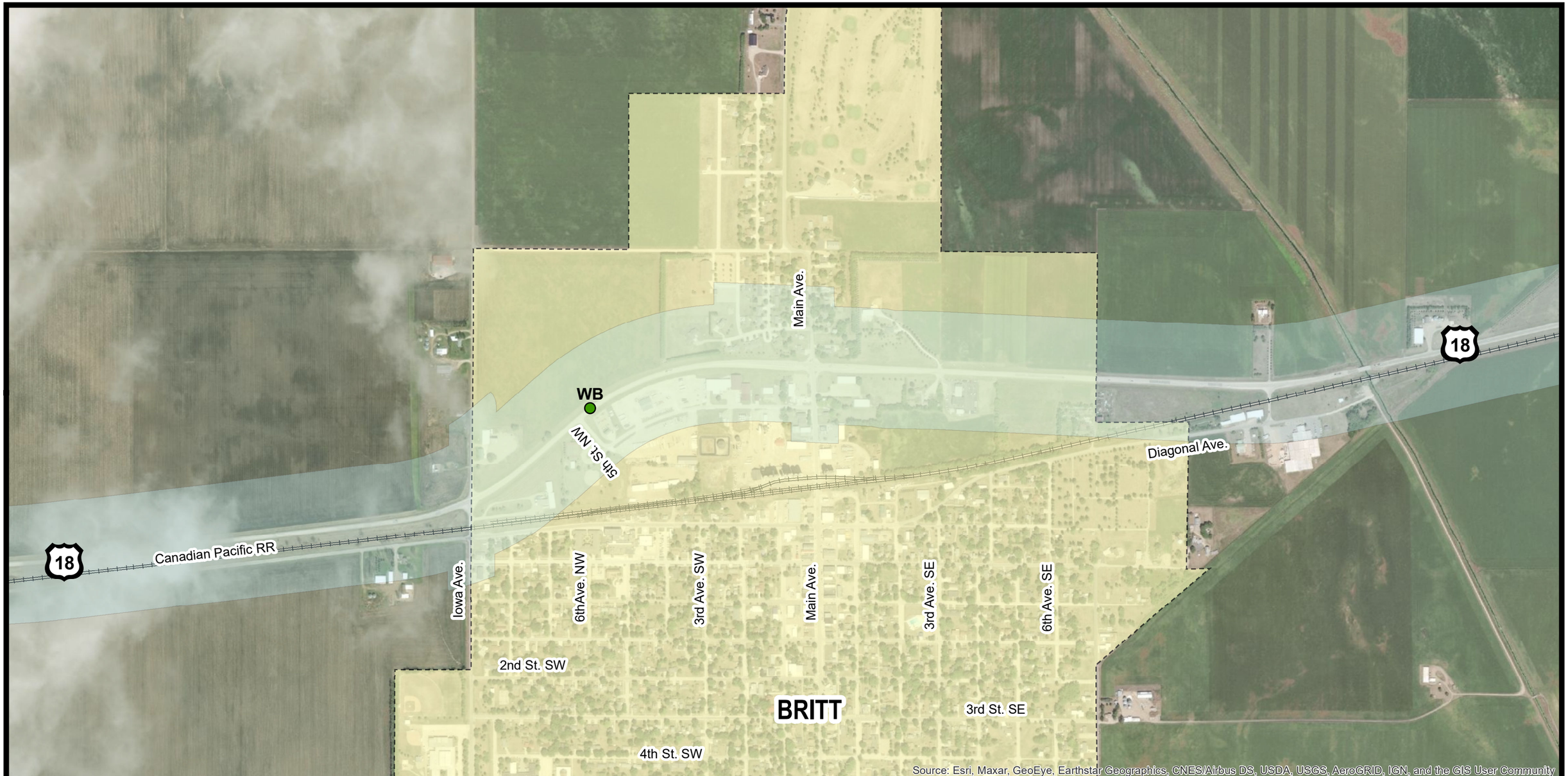
Legend

- Outside Scope of Study
- Proposed Left Turn Lane
- Study Area
- City Limit Boundaries
- Active Railroad

FIGURE 5 - Proposed Turn Analysis - Intown

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

12/14



IOWADOT

Created October 2021

N

0 0.075 0.15 0.3

Miles

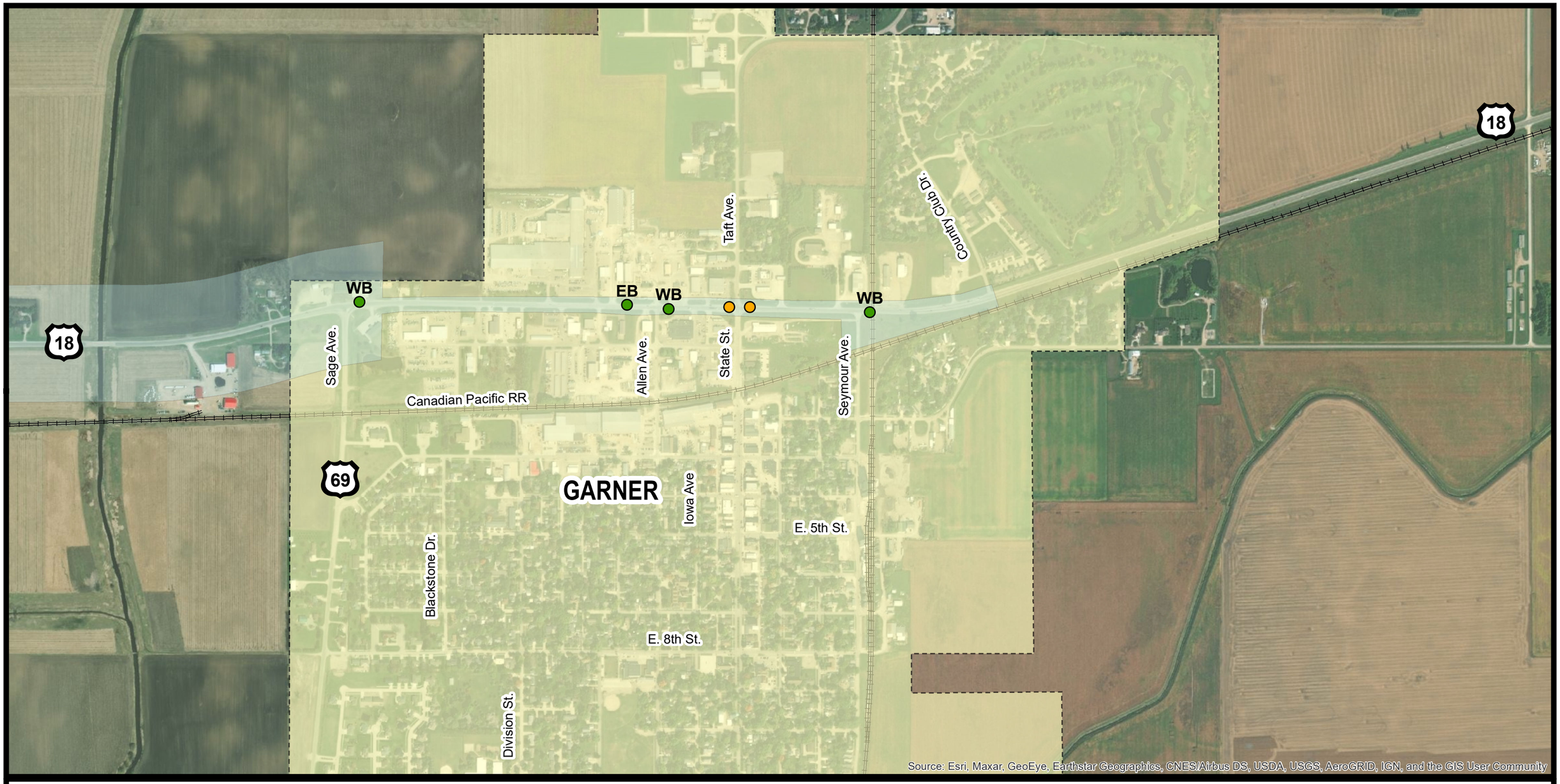
Legend

- Outside Scope of Study
- Proposed Left Turn Lane
- Study Area
- City Limit Boundaries
- Active Railroad

FIGURE 5 - Proposed Turn Analysis - Intown

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

13/14



IOWADOT

Created October 2021

N

0 0.075 0.15 0.3

Miles

Legend

- Outside Scope of Study
- Proposed Left Turn Lane
- Study Area
- City Limit Boundaries
- Active Railroad

FIGURE 5 - Proposed Turn Analysis - Intown

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

Figure 6 – Images of Beginning and End of Proposed Passing Lanes

Start of PL #1 WB #1 Looking West

End of PL #1 WB #1 Looking East

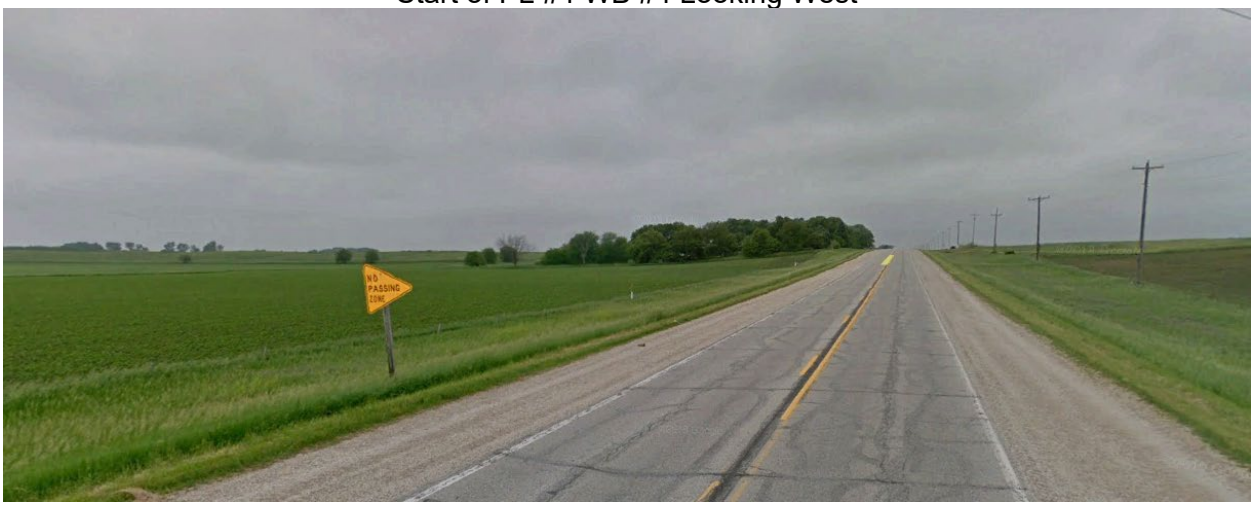
Start of PL #2 WB #2 Looking West

End of PL #2 WB #2 Looking East

Start of PL #3 WB #3 Looking West

End of PL #3 WB #3 Looking East

Start of PL #4 WB #4 Looking West



End of PL #4 WB #4 Looking East

Start of PL #5 WB #5 Looking West

End of PL #5 WB #5 Looking East

Start of PL #6 WB #6 Looking West

End of PL #6 WB #6 Looking East

Start of PL #7 WB #7 Looking West

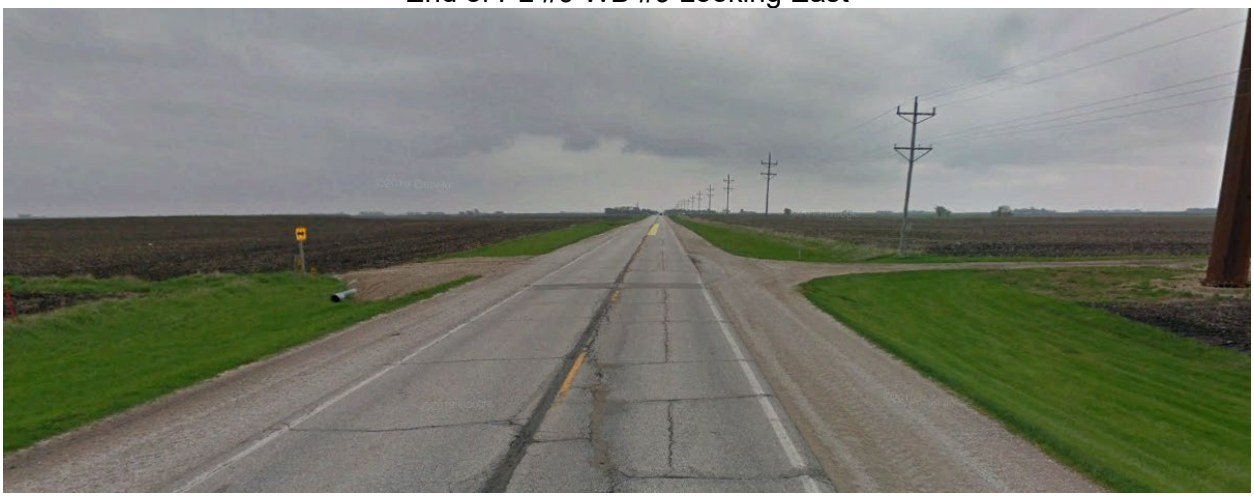
End of PL #7 WB #7 Looking East

Start of PL #8 WB #8 Looking West

End of PL #8 WB #8 Looking East

Start of PL #9 WB #9 Looking West

End of PL #9 WB #9 Looking East



Start of PL #10 WB #10 Looking West

End of PL #10 WB #10 Looking East

Start of PL #11 WB #11 Looking West

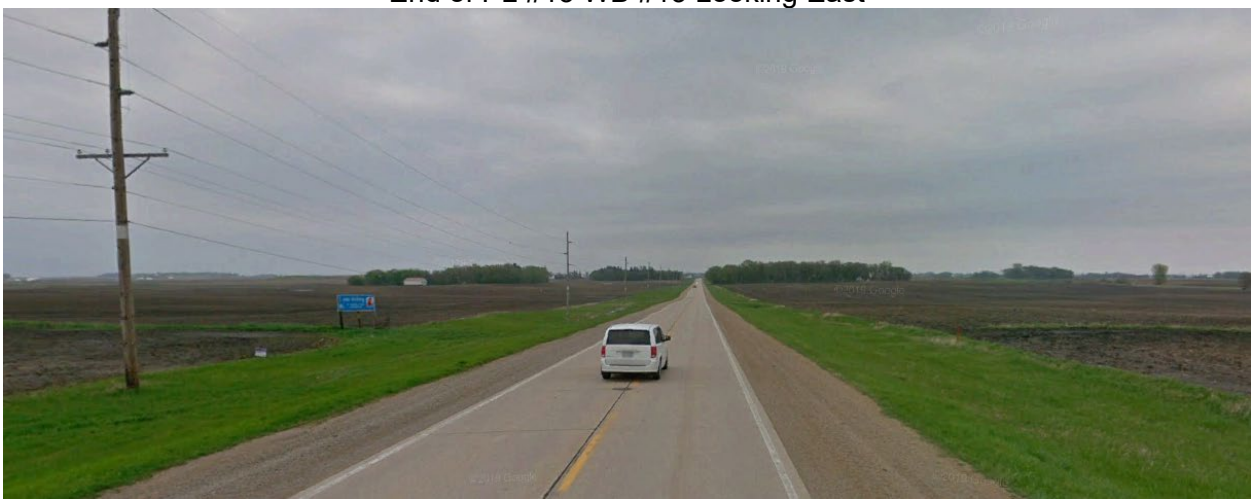
End of PL #11 WB #11 Looking East

Start of PL #12 WB #12 Looking West

End of PL #12 WB #12 Looking East

Start of PL #13 WB #13 Looking West

End of PL #13 WB #13 Looking East



Start of PL #1 EB #1 Looking East

End of PL #1 EB #1 Looking West

Start of PL #2 EB #2 Looking East

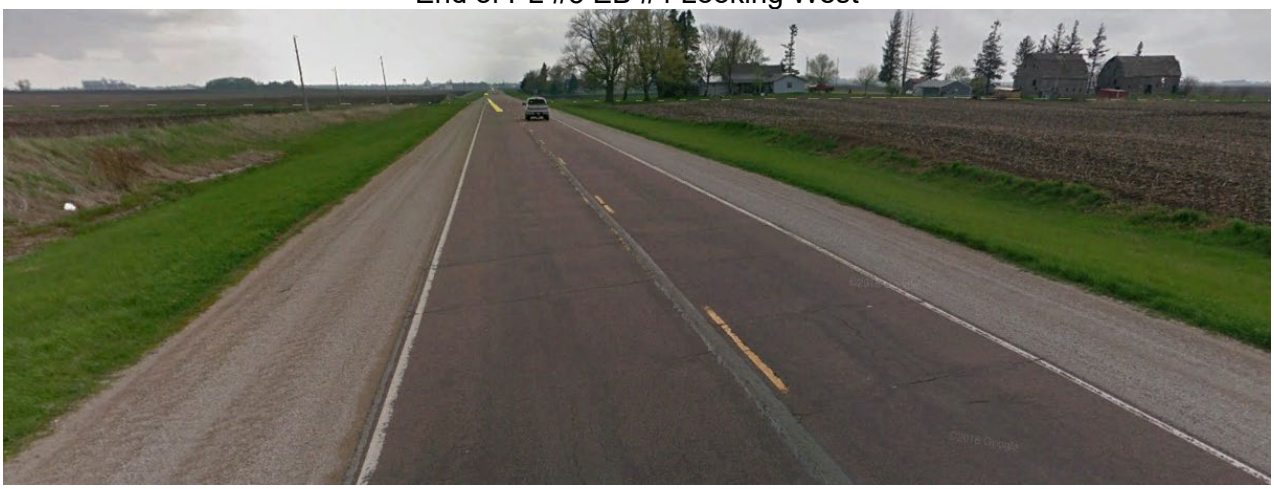
End of PL #2 EB #2 Looking West

Start of PL #3 EB #3 Looking East

End of PL #3 EB #3 Looking West

Start of PL #5 EB #4 Looking East

End of PL #5 EB #4 Looking West



Start of PL #6 EB #5 Looking East

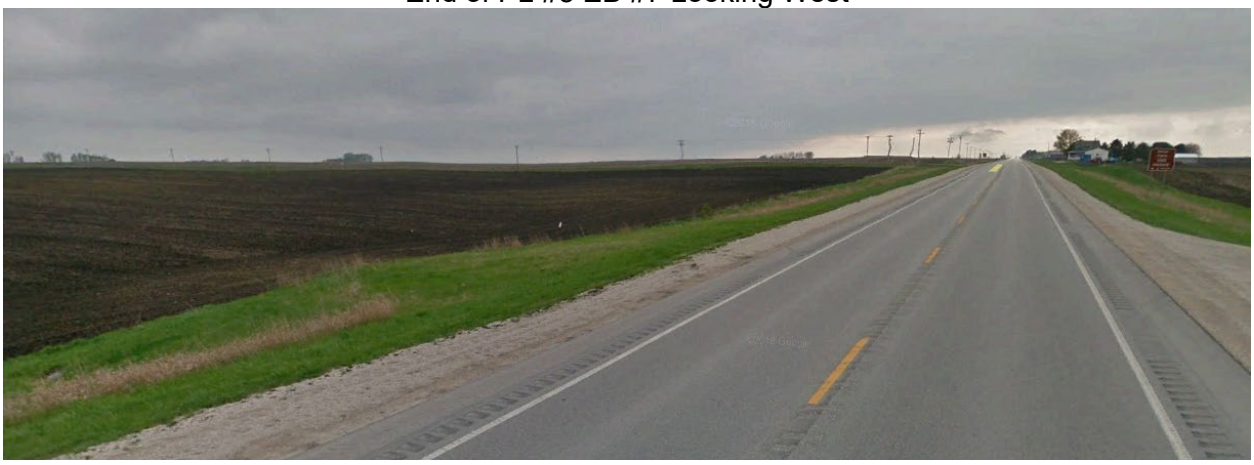
End of PL #6 EB #5 Looking West

Start of PL #7 EB #6 Looking East

End of PL #7 EB #6 Looking West

Start of PL #8 EB #7 Looking East

End of PL #8 EB #7 Looking West

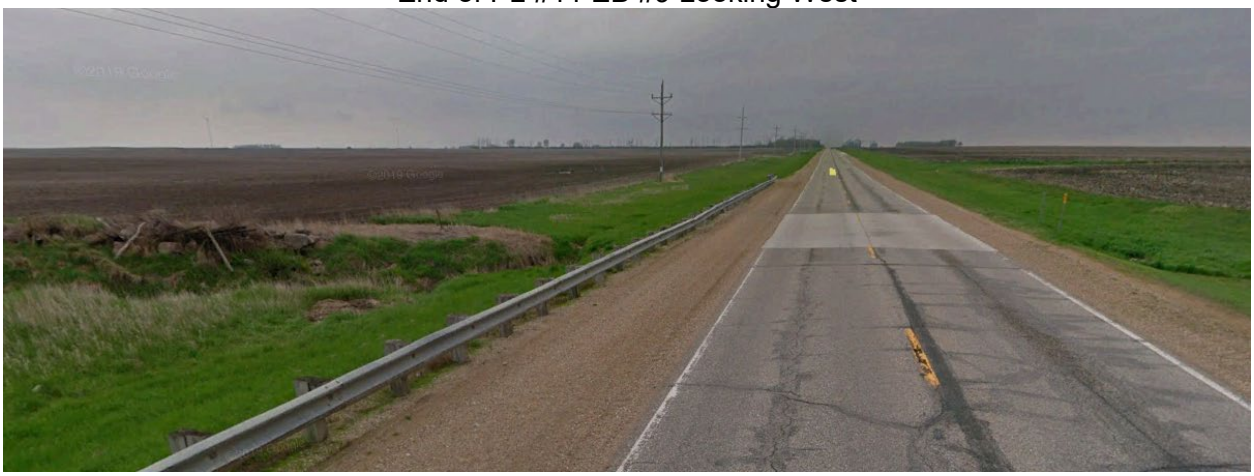


Start of PL #9 EB #8 Looking East

End of PL #9 EB #8 Looking West

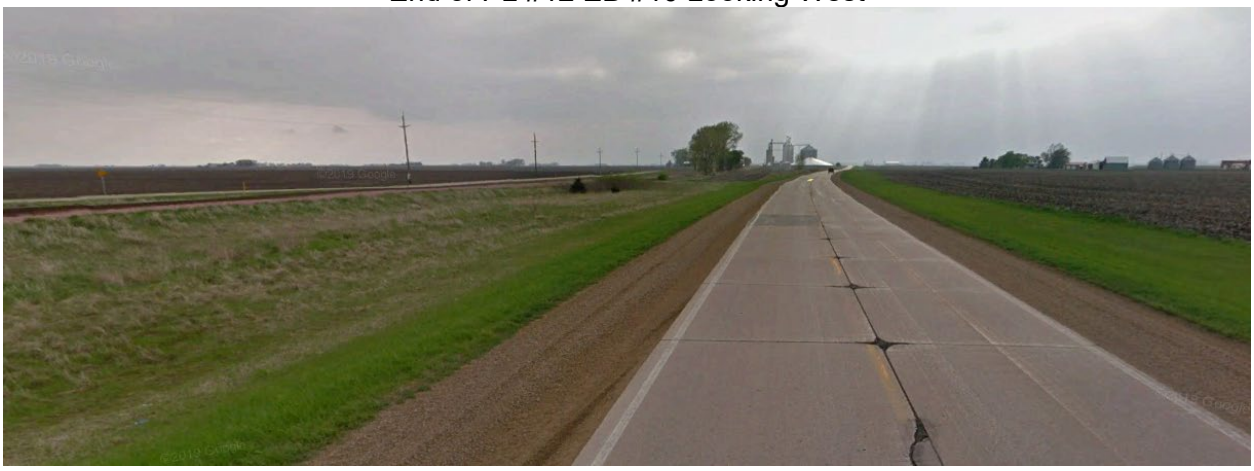
Start of PL #11 EB #9 Looking East

End of PL #11 EB #9 Looking West

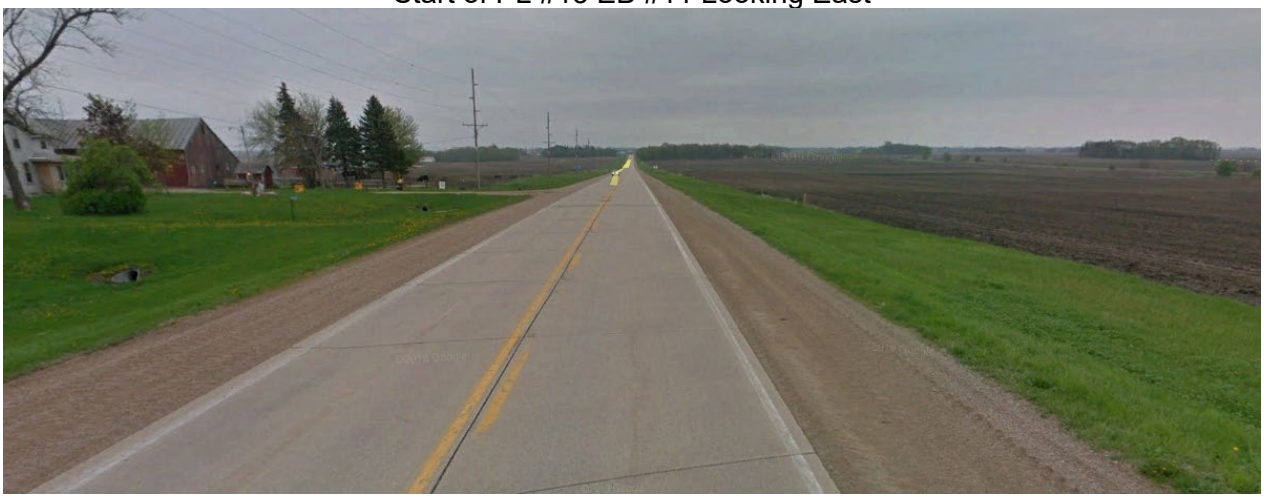


Start of PL #12 EB #10 Looking East

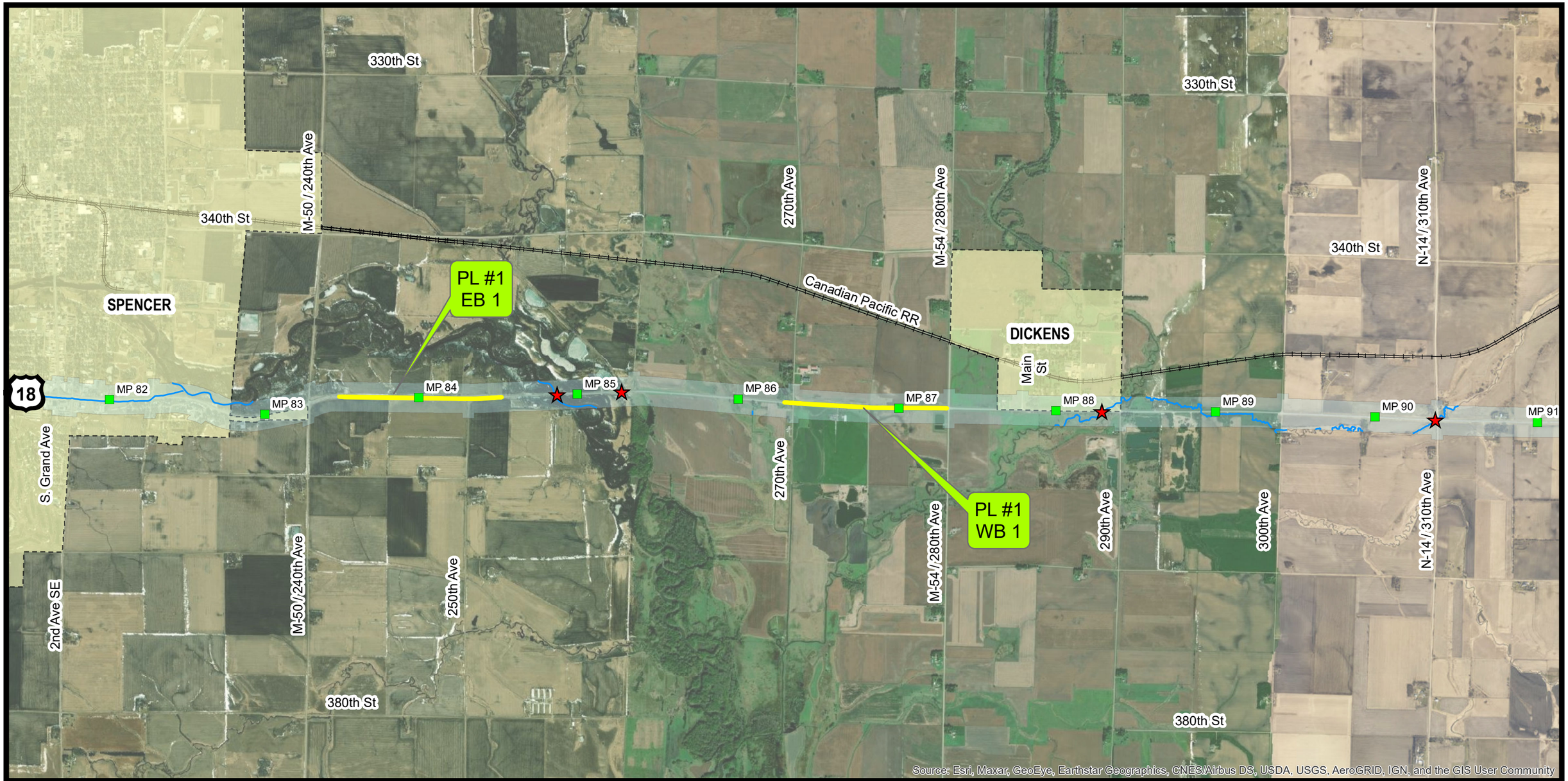
End of PL #12 EB #10 Looking West



Start of PL #13 EB #11 Looking East



End of PL #13 EB #11 Looking West



IOWA DOT

Created October 2021

N

0 0.375 0.75 1.5

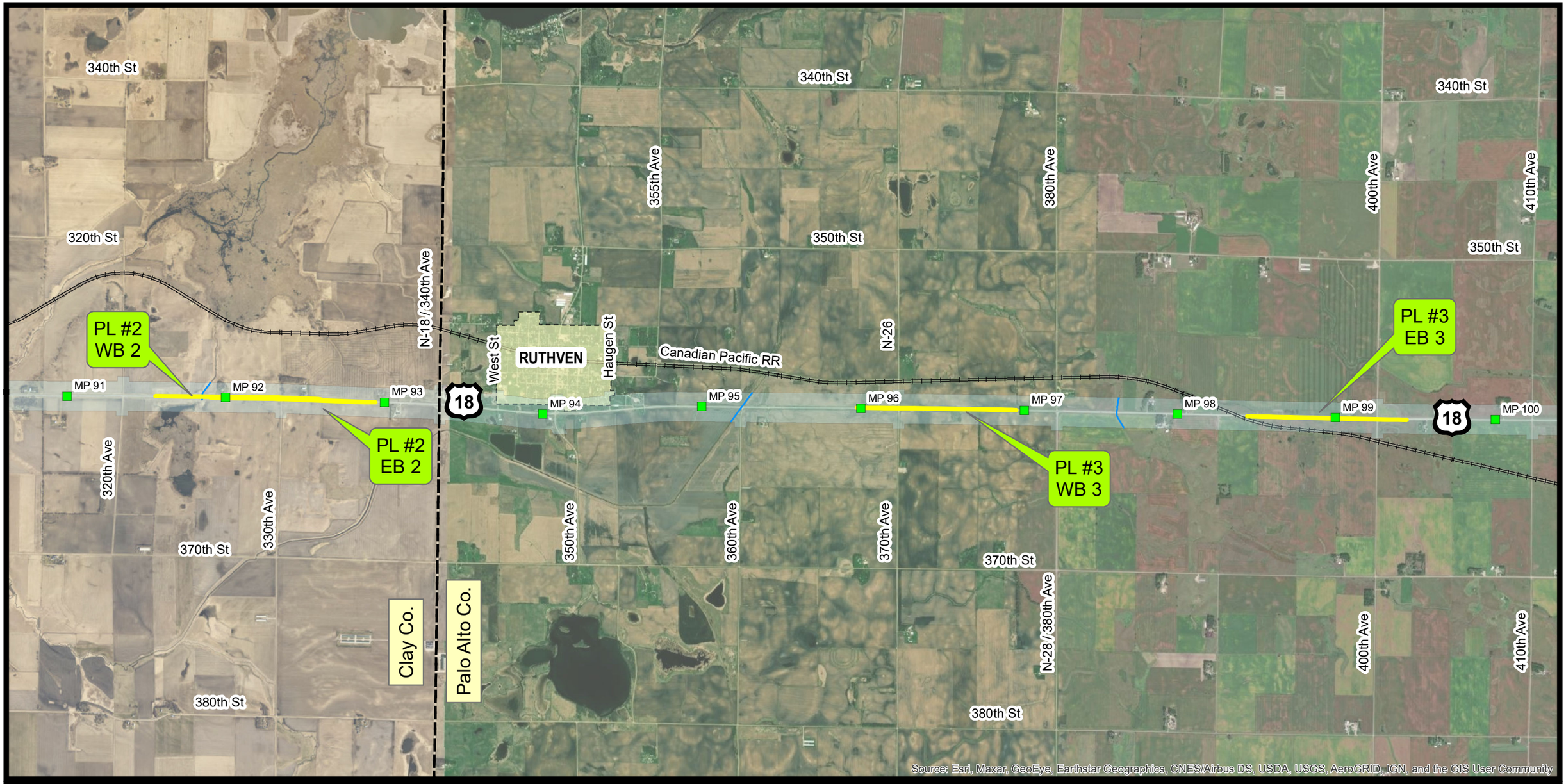
Miles

Legend

- US 18 Mile Posts
- Proposed Passing Lanes
- County Border
- Existing Bridge
- Streams
- Study Area
- City Limit Boundaries
- Active Railroad

FIGURE 7 - Proposed Passing Lanes

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa



IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

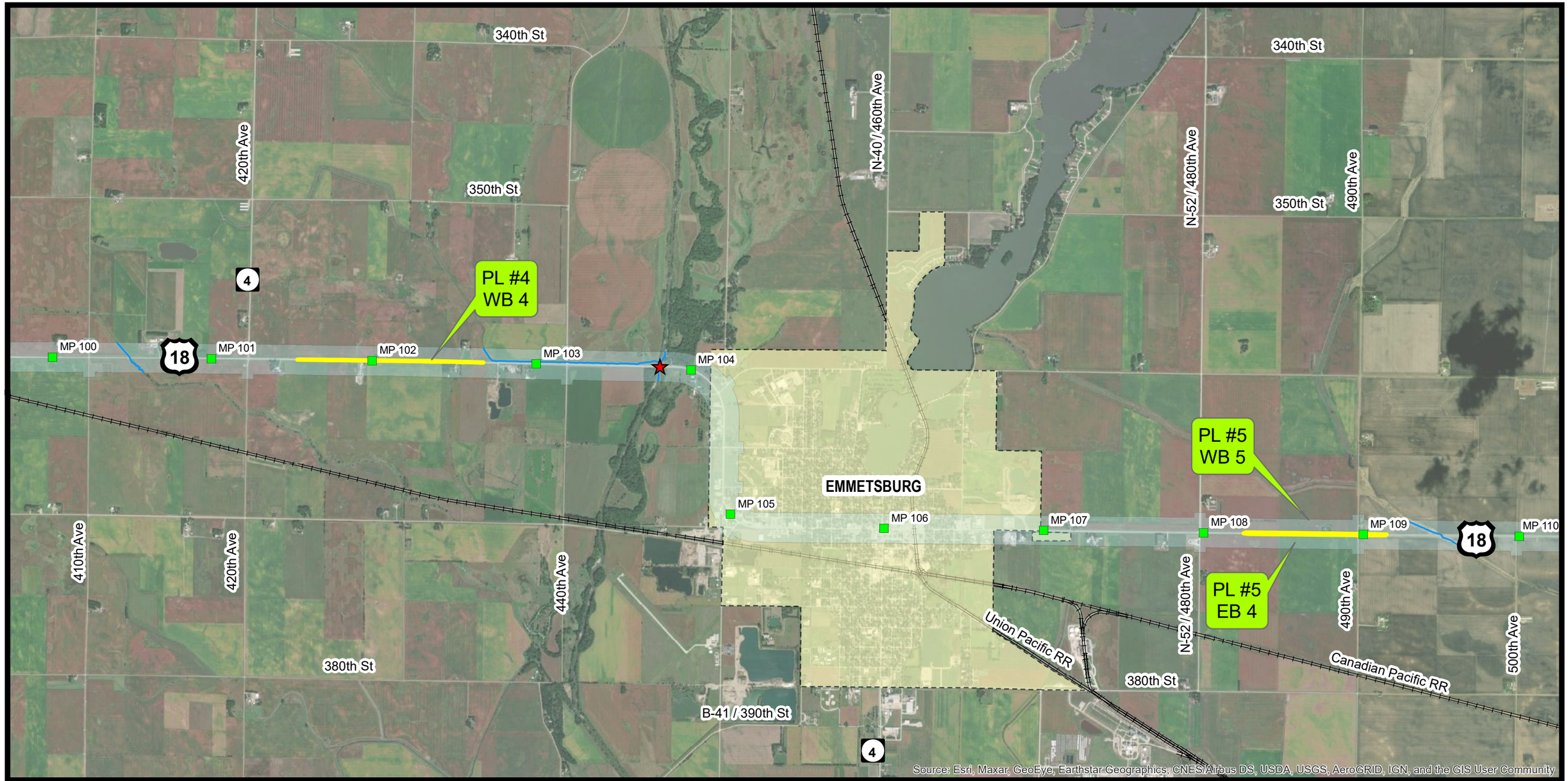
Miles

Legend

- US 18 Mile Posts
- Proposed Passing Lanes
- County Border
- Existing Bridge
- Streams
- Study Area
- City Limit Boundaries
- Active Railroad

FIGURE 7 - Proposed Passing Lanes

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa



IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

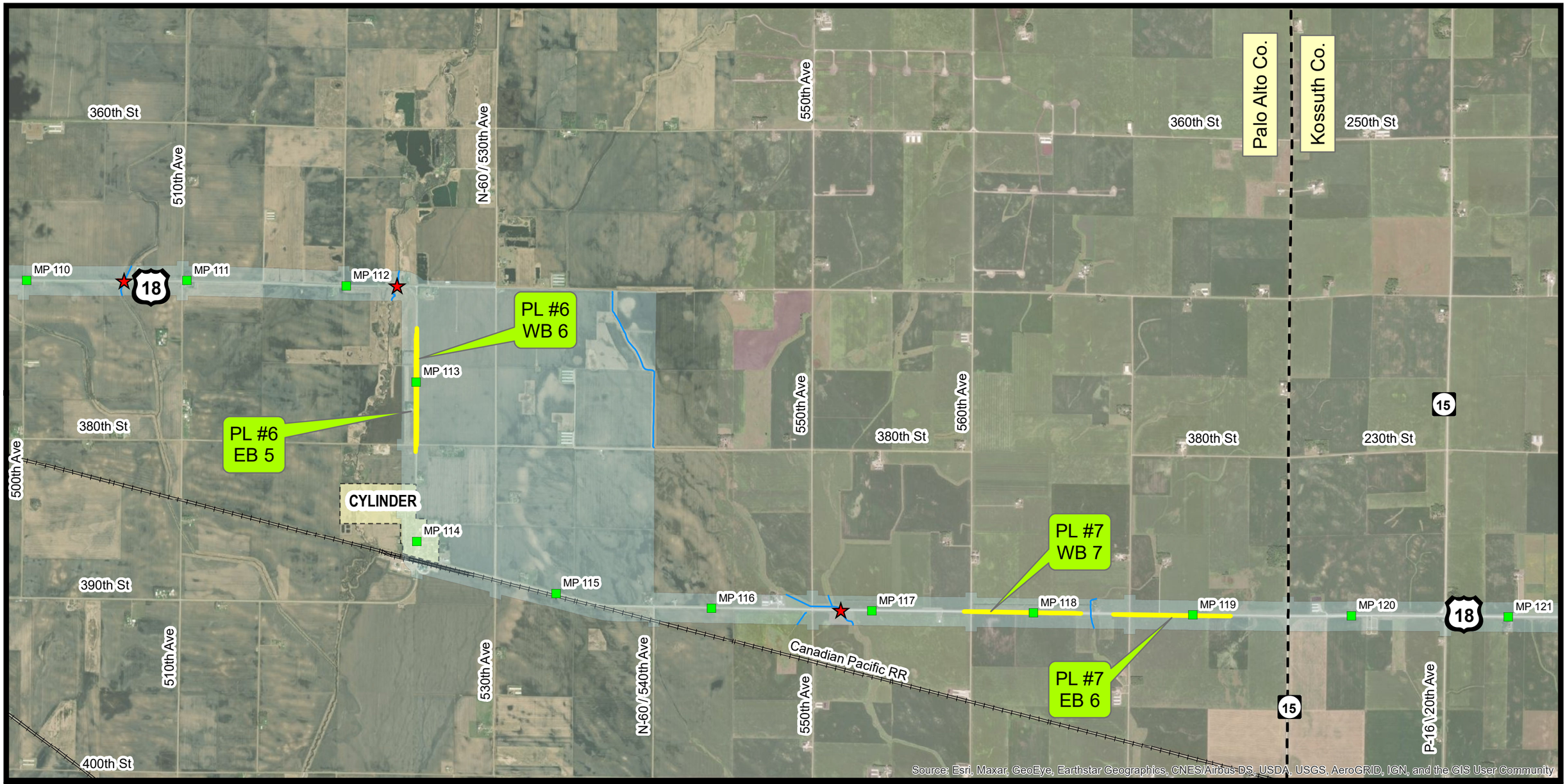
Legend

- US 18 Mile Posts
- Proposed Passing Lanes
- County Border
- Existing Bridge
- Streams
- Study Area
- City Limit Boundaries
- Active Railroad

FIGURE 7 - Proposed Passing Lanes

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

3/9



IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

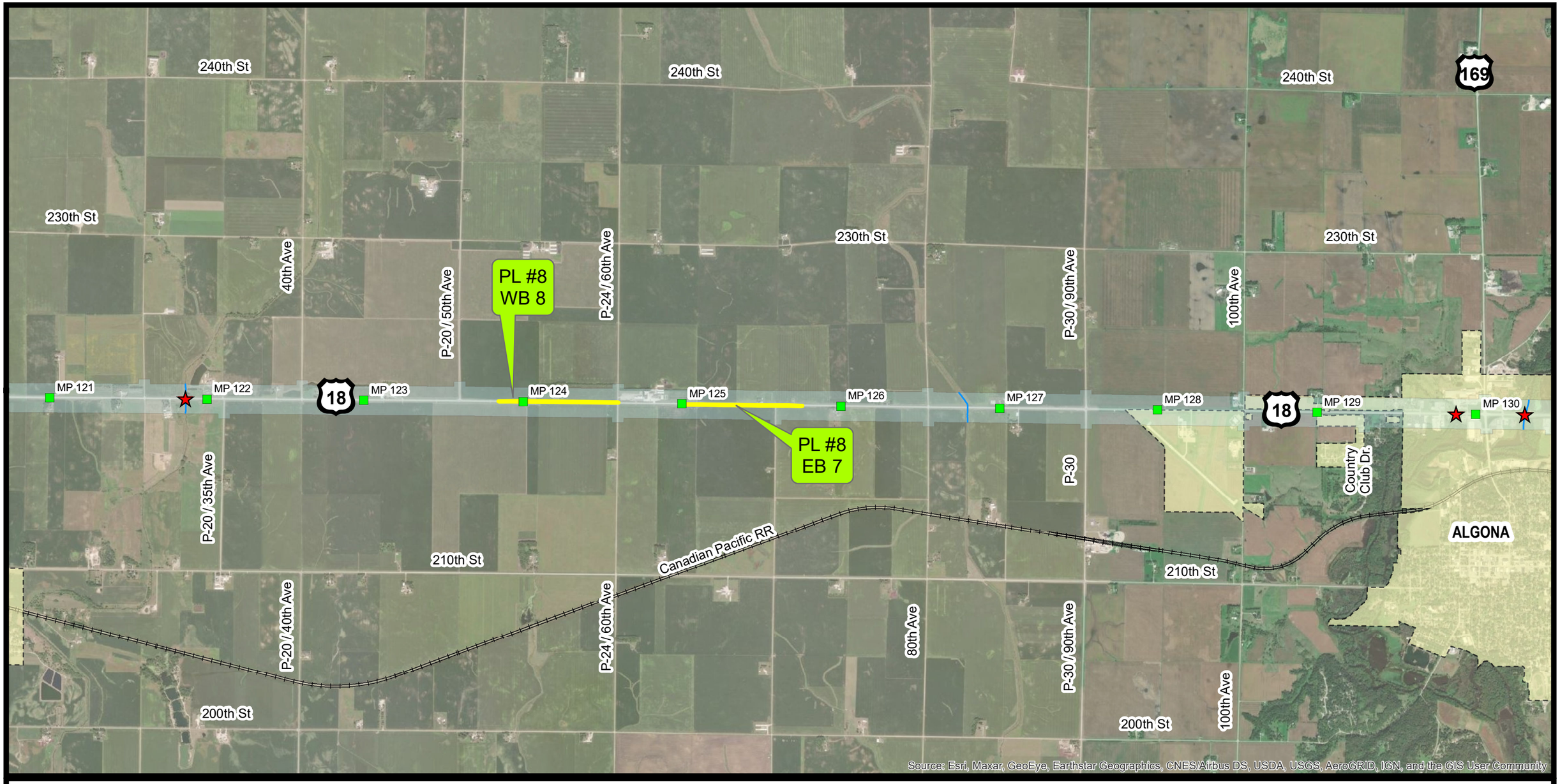
Legend

- US 18 Mile Posts
- Proposed Passing Lanes
- County Border
- Existing Bridge
- Streams
- Study Area
- City Limit Boundaries
- Active Railroad

FIGURE 7 - Proposed Passing Lanes

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

4/9



IOWADOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

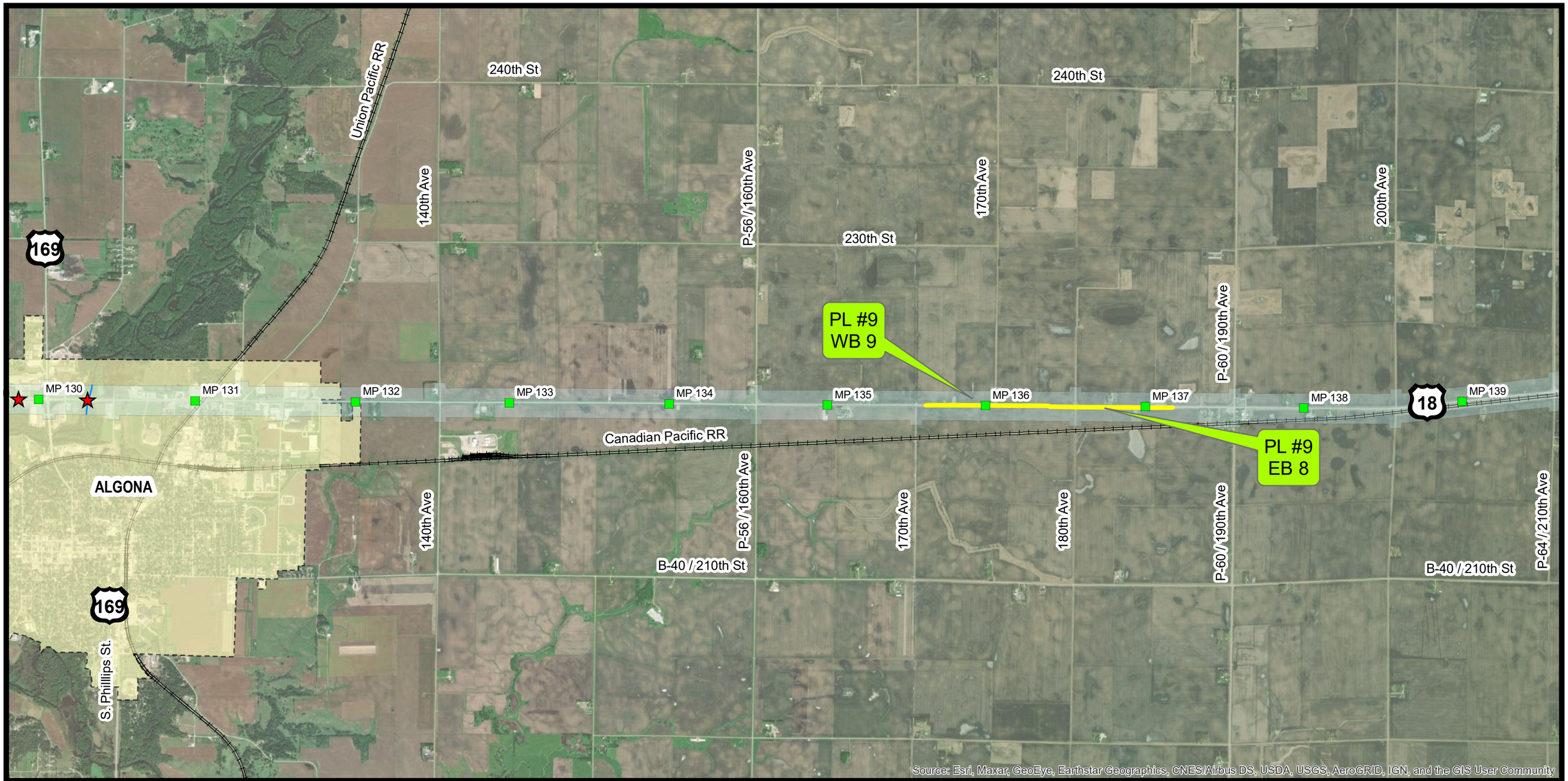
Legend

- US 18 Mile Posts
- Proposed Passing Lanes
- County Border
- Existing Bridge
- Streams
- Study Area
- City Limit Boundaries
- Active Railroad

FIGURE 7 - Proposed Passing Lanes

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

5/9



IOWA DOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

Legend

- US 18 Mile Posts
- Proposed Passing Lanes
- County Border
- Existing Bridge
- Streams
- Study Area
- City Limit Boundaries
- Active Railroad

FIGURE 7 - Proposed Passing Lanes

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

6/9

IOWA DOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

Legend

- US 18 Mile Posts
- Proposed Passing Lanes
- County Border
- Existing Bridge
- Streams
- Study Area
- City Limit Boundaries
- Active Railroad

FIGURE 7 - Proposed Passing Lanes

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

IOWA DOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

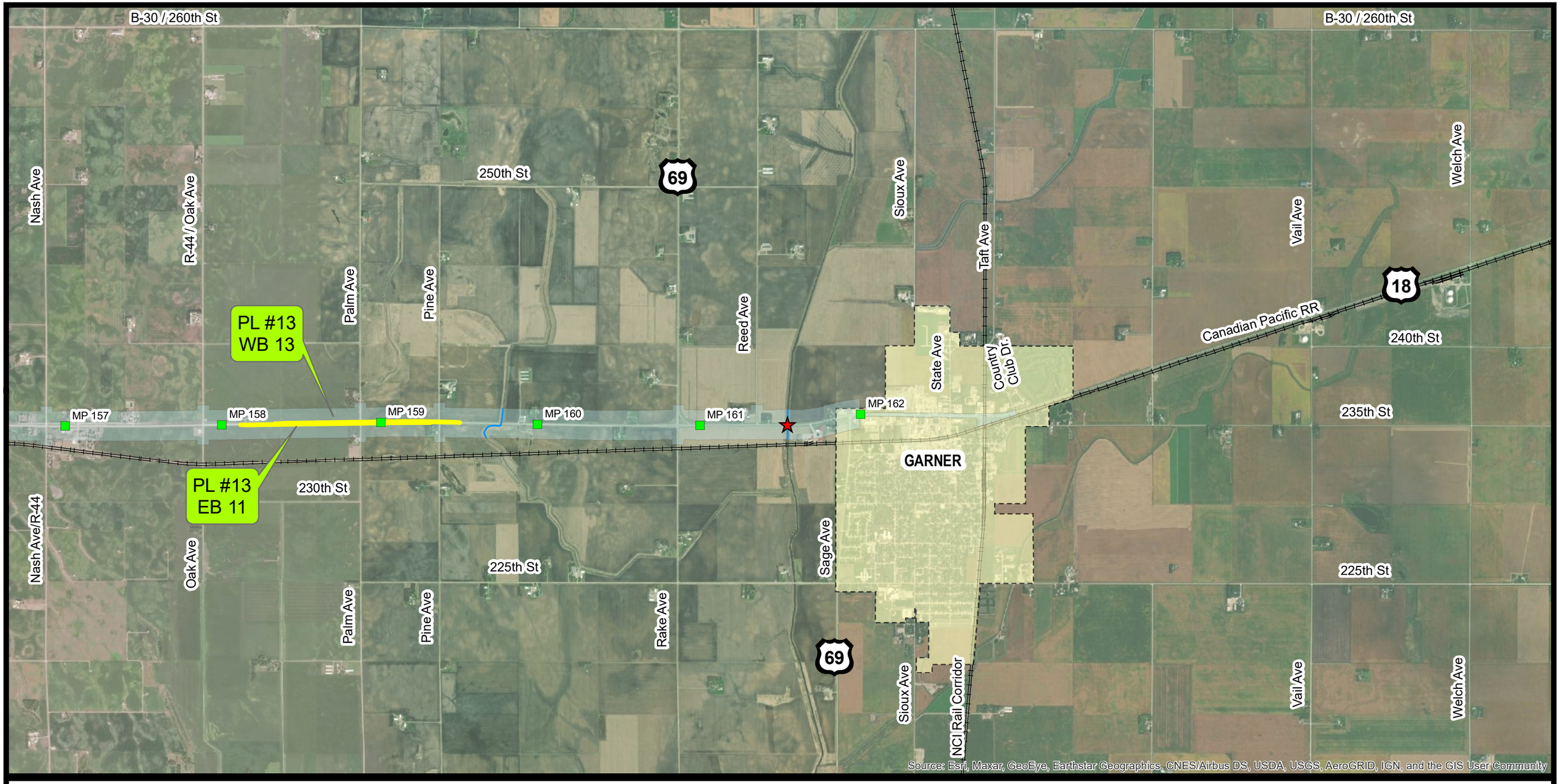
Legend

- US 18 Mile Posts
- Proposed Passing Lanes
- County Border
- Existing Bridge
- Streams
- Study Area
- City Limit Boundaries
- Active Railroad

FIGURE 7 - Proposed Passing Lanes

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

8/9



IOWA DOT

Created October 2021

N

0 0.375 0.75 1.5

Miles

Legend

- US 18 Mile Posts
- Proposed Passing Lanes
- County Border
- Existing Bridge
- Streams
- Study Area
- City Limit Boundaries
- Active Railroad

FIGURE 7 - Proposed Passing Lanes

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

9/9

IOWADOT

Created October 2021

N

0 0.75 1.5 3

Miles

Legend

- Bypass Lane Locations
- City Limit Boundaries
- County Border
- Active Railroad
- Study Area

FIGURE 8 - Bypass Lane Conversions

NHSX-018-2(126)--3H-21
Project Description:
US 18 PEL Study - Spencer to Garner
Clay\Palo Alto\Kossuth\Hancock Counties, Iowa

Figure 9 – Stakeholder Correspondence

September 3, 2021

TO: Dakin S Schultz IOWA DOT

FROM: Harry Bormann Mayor of Cylinder Iowa

SUBJECT: Condition of US Highway 18 in Palo Alto County

Dakin: Thank you VERY much for taking the time to attend the August Cylinder City Council Meeting. As we discussed, the condition of Highway 18 in Palo Alto County is terrible, starting from the Highway 15 intersection on the Kossuth/Palo Alto line to Emmetsburg. It's is very rough, bumpy, and dangerous! Some bumps east of Cylinder are so severe that it causes rear ends of vehicles to leave the road and swerve. The wheel paths are badly worn to the extent hydroplaning occurs each time it rains. I have driven Highway 18 for the past 50 years, and it's currently in the worst condition of any US/Iowa road I travel. PLEASE advise IOWA DOT planners to DRIVE this stretch of road. I'm sure they will see my concern. Per IOWA DOT 2019 count, over 17,000 vehicles travel this stretch EACH week. Emmetsburg has several truck origins and destinations including: POET Bio Refining (process over 80 truckloads of corn per day) AGP Soy Processing (process over 60 truck load of soybeans per day AND daily ship out a similar amount of Soy oil and Soybean meal & hulls) Standard Nutrition receives 20 truckloads of corn per day and ships out 30 to 40 loads of livestock feed each day. Wild Rose Casino entertains hundreds of guests each day, all use Highway 18. Emmetsburg is home to revitalized and dredged Five Island Lake, all boaters and visitors use Highway 18. Emmetsburg is also home to Iowa Lakes Community College and two schools. All students and buses use Highway 18.

As you can see from my comments and concerns above, and from your personal travel on Highway 18 in Palo Alto County, **it needs resurfaced ASAP**. Please pass these comments on to the IOWA DOT decision making team.

Respectively

Harry Bormann, Mayor of Cylinder

[redacted]

From: Harry Bormann [redacted]
Sent: Friday, September 3, 2021 12:28 PM
To: Adam Kerr [redacted] Cary Anderson [redacted] City of Cylinder [redacted] Deb Weisbrod [redacted] Greg Sween [redacted] Kurt Bonnstetter [redacted] Schultz, Dakin [redacted]
Subject: Fwd: Highway 18 BAD condition

Dakin..... Attached is a letter with mine and the Cylinder City Council's concerns on the current terrible condition of Hwy 18 in Palo Alto County.

Concerning the ideas on the South Cylinder curve: The Cylinder City Council was in favor of leaving the curve AS IS. Improving the curve would only speed up northbound traffic, which speed is already an issue. We also ask the NO PASSING Zone be extended north to 4th street. Many times northbound vehicles are starting to pass as vehicles are turning south on to Hwy 18. PLEASE give this consideration

Thanks again for attending our August meeting

--

Harry Bormann
Cylinder Iowa
[redacted]