

# US HIGHWAY 63 Poweshiek, Tama, and Black Hawk Counties PLANNING AND ENVIRONMENTAL LINKAGES (PEL) STUDY

## VISION DOCUMENT

Location and Environment Bureau | February 2022



## EXECUTIVE SUMMARY

### INTRODUCTION

The Iowa Department of Transportation (DOT) completed a transportation planning study for a portion of the US Highway 63 (US 63) corridor in Poweshiek, Tama, and Black Hawk Counties in central Iowa following the Federal Highway Administration Planning and Environmental Linkages (PEL) process. The Study focuses on the following roadway improvements: (1) evaluating existing paved or partially paved intersections for turn lane improvements, (2) identifying climbing/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 Guiding Principles, Existing Conditions, as well as Existing 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 63 study corridor.

### RECOMMENDATION - TURN LANE IMPROVEMENTS AT FULLY PAVED OR PARTIALLY PAVED INTERSECTIONS

The findings of the US 63 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 17 partially paved or fully paved intersections with a turn lane. Three of those intersections should ultimately be upgraded to include a major right turn lane. One of those intersections should add a deceleration lane with tapers. The findings also recommend 16 proposed new turn lanes.

### RECOMMENDATION - PROPOSED PASSING LANE LOCATIONS

The findings of the US 63 PEL Study recommend adding a total of 18 climbing and passing lanes. The 18 climbing and passing lanes consist of five climbing lanes and four passing lanes in each of the northbound and southbound directions.

#### 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

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## 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 63	United States Highway 63
PBDP	Practical Based Design Principles

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## 1 INTRODUCTION

The Iowa Department of Transportation (DOT) prepared a transportation planning study for a portion of the US Highway 63 (US 63) corridor in Poweshiek, Tama, and Black Hawk Counties in Central 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. Another objective of the study is to encourage public involvement and stakeholder input throughout the process. The two-lane highway improvements examined will primarily focus on turning and passing/climbing lane additions. Other recommendations have also been made in spot locations to help improve transportation within the study corridor.

This report will summarize the Study's findings and recommendations. This study will not result directly in a funded projects, but some components will be addressed over time and incorporated into future smaller scale projects. For example, recommendations from the study could be combined with a resurfacing project on several miles of the corridor. Future projects will further evaluate conditions and help design the improvements accordingly.

The US 63 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 63 PEL Study includes the following technical reports

- US 63 Poweshiek, Tama, and Black Hawk Counties Planning and Environmental Linkages (PEL) Study – Goals and Guiding Principles.
- US 63 Poweshiek, Tama, and Black Hawk Counties Planning and Environmental Linkages (PEL) Study – Existing Crash History Report.
- US 63 Poweshiek, Tama, and Black Hawk Counties Planning and Environmental Linkages (PEL) Study – Existing Conditions Memorandum.

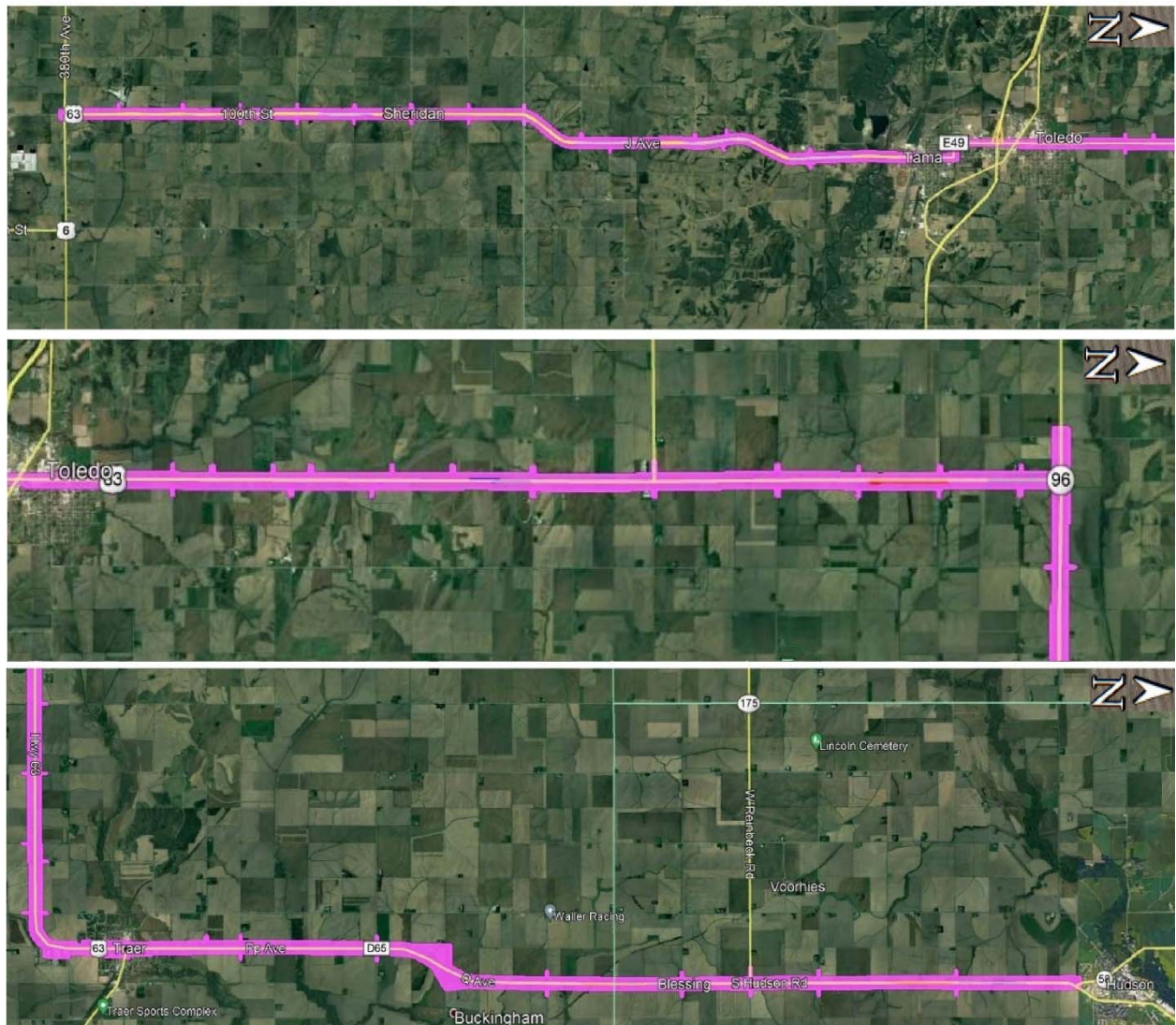
### 1.2 STUDY AREA

US 63 is a primary highway that spans the State of Iowa, crossing from Missouri into southern Iowa and eventually crossing at the city of Chester in northern Iowa into Minnesota. Across the state, US 63

connects with other major west-east interstate and primary highway corridors, including IA 2, US 34, IA 149, IA 92, IA 146, IA 85, I-80, US 6, US 30, IA 229, IA 8, US 20, IA 3, IA 93, IA 188, US 18, IA 142, IA 24, IA 9. Some urban areas along US 63 include (from south to north) the Cities of Bloomfield, Ottumwa, Eddyville, Oskaloosa, New Sharon, Montezuma, Malcolm, Tama, Toledo, Traer, Hudson, Waterloo, Denver, New Hampton.

Existing US 63 traffic volumes within the Study corridor currently range between 2,100 and 7,400 vehicles per day according to the Iowa DOT 2019 Annual Average Daily Traffic (AADT) maps. Historical Iowa DOT average daily traffic maps suggest the daily volumes have remained constant.

**Figure 1. US 63 PEL Study Area**



### 1.3 US 63 GOALS AND GUIDING PRINCIPLES

The goals and outcomes of the US 63 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 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 into future projects and will primarily focus on:

1. Identifying proposed new and upgrading existing turn lanes.
2. Identifying proposed passing/climbing 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 2044.

## 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 63 Poweshiek, Tama, and Black Hawk Counties Planning and Environmental Linkages (PEL) Study – Existing Crash History Report.
- US 63 Poweshiek, Tama, and Black Hawk Counties Planning and Environmental Linkages (PEL Study) – Existing Conditions Memorandum.



## 2.1 INITIAL STAKEHOLDER OUTREACH

Early in the Study, a small-group meeting was held with the local jurisdictions and other US 63 stakeholders. The goals of this 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 63 corridor. Table 1 lists the small group meeting that was held.

**Table 1. US 63 PEL MEETING**

Stakeholder Group	Meeting Date
Iowa Northland Regional Council of Governments (INRCOG)	December 19, 2019

Input was provided at this small group meeting. 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 corridor’s infrastructure conditions and features. In general, the existing US 63 roadway meets current engineering design standards, practices, and policies. Key findings are below:

- Horizontal Roadway Curvature
  - No horizontal curves radii are below 3R/Urban standards
  - No locations were identified as visual traps
  - Stopping sight distances around two horizontal curves were identified as less than desirable\*
- Vertical Roadway Curvature
  - There are 30 locations where the roadway grades are equal to or more than the preferred maximum of 3 percent.\*
- Roadway Cross Section
  - A typical roadway section includes two 12-foot travel lanes and two 10-foot granular shoulders
- Intersections
  - One intersection is considered highly skewed\*
- Infrastructure Conditions
  - Poor pavement conditions are present for 11.4 miles according to current ICE Data\*
  - There are twelve existing bridges on US 63 within the Study Area. The bridges are all in fair or good condition. None are structurally deficient

- Railroad Crossings
  - The Union Pacific Railroad crosses US 63 in the City of Tama. There are also two at-grade railroad crossings on local side roads within the Study Area\*
- Passing Opportunities
  - Approximately 19.5 miles, or 38 percent of the study corridor does not allow for passing
- Traffic Volumes
  - Traffic volumes ranged from 2,100 to 7,400 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 354 crashes occurred within the Study Area. Of the 354 crashes, two of them were fatal crashes, 61 were injury or possible injury crashes, and 291 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 benchmarks for crash rates, fatal and injury crash rates, and fatal crash rates. A total of 18 of the 52 one-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. This methodology had six partial or full segments of the total 52 segments outside the scope of this two-lane highway study. These six segments have varying cross section widths greater than a typical rural two-lane highway.

Methodology #2 was a rural-urban analysis, 31 segments are above the Statewide Benchmark Crash Rates per HMVMT for US rural routes and municipal crash rates. Twenty-seven of the segments occurred in rural areas, while four occurred in municipal (urban) limits of US 63. This methodology has seven partial or full segments of the total 52 segments outside the scope of this two-lane highway study. These seven 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 within urban limits could skew the analysis.

The analysis found in the US 63 PEL Existing Crash Report (Iowa DOT, December 2021) was used to inform the decision-making process and 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 areas of future study needed for proposed passing/climbing lane placements. Those areas will be prioritized based on upcoming projects in the five year program. 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 63 PEL Study, a detailed public involvement plan was developed and followed. There were three main forums for public involvement and input gathering: small-group meeting (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 March 30, 2020, with the comment period ending on April 06, 2020. The online PIM consisted of a prepared presentation, complete with audio, that shared information about the US 63 PEL process, study goals and objectives with results from initial data gathering and brief existing conditions analysis.

There were 214 attendees, eight of the attendees provided comments. In general, most of the comments received were in favor of the study. Figure 1 in Appendix A contains 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 May 04, 2022, with the comment period ending on May 25, 2022. The purpose of PIM #2 was to discuss the status of the Study and solicit stakeholder input on the recommended improvements.

There were 81 attendees, 63 of the attendees gave a rating for the project. Ratings ranged from not in favor, less in favor, neutral, leaning in favor, and in favor of the project. The majority of the ratings (52) were either neutral, leaning in favor, and in favor of the project. In general, most of the comments received were in favor of the study's recommendations. Attendees expressed need 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 received in response to PIM #2 are included with Figure 2 in Appendix A.

## 4 RECOMMENDATION ANALYSIS

The following three recommendations address the overarching goals of the US 63 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 63 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 Chapter 6A-1* (Iowa DOT, 2019). 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*, 7<sup>th</sup> 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. The type (parallel, taper, offset) of turn lane for both minor or major rights and lefts shall be determined 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.

- 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 2024. Left turn lanes were evaluated for Design Year 2044.

The following table shows the analysis for the existing turn lanes within the US 63 Study Area. Recommendations for turn lane improvements at these locations are provided in Table 2. Figure 4 in Appendix A presents a map of the Existing Turn Lane Analysis.

**Table 2. EXISTING TURN LANE ANALYSIS**

Intersection (Location)	Direction of Travel on US 63	Existing Turn Lane Present	Upgrade Turn Lane	Recommendations	City/ County
US 63 and US 6	SB	Right	No	Existing channelized/island with deceleration lane and diverge taper	S. of Tama/Poweshiek
US 63 and 340 <sup>th</sup> St.	SB	Right	Yes	Upgrade from Minor to Major Turn Lane	S. of Tama/Tama
US 63 and 295 <sup>th</sup> St/Co. Rd E-43.	NB	Right	Yes	Upgrade from Minor to Major Turn Lane	N of Toledo/Tama
US 63 and Co. Rd E-29	NB	Right	No	Existing Turn Lane Adequate	N of Toledo/Tama
US 63 and Co. Rd E-29	SB	Left	No	Existing Turn Lane Adequate	N of Toledo/Tama
US 63 and Co. Rd E-29	NB	Left	No	Existing Turn Lane Adequate	N of Toledo/Tama
US 63 and IA 96	SB	Left	No	Existing Turn Lane Adequate	SW of Traer/Tama
US 63 and IA 96	NB	Right	Yes	Upgrade channelized/island with deceleration lane and diverge taper	SW of Traer/Tama
US 63 and S. Jct of D-65	SB	Right	No	Existing Turn Lane Adequate	N. of Traer/Tama
US 63 and N. Jct of D-65	NB	Right	No	Existing Turn Lane Adequate	N. of Traer/Tama
US 63 and W. Tama Rd	NB	Right	No	Existing Turn Lane Adequate	N. of Toledo/Black Hawk
US 63 and IA-175/W. Reinbeck Rd	SB	Right	Yes	Upgrade from Minor to Major Turn Lane	S. of Hudson/Black Hawk
US 63 and IA-175/W. Reinbeck Rd	SB	Left	No	Existing Turn Lane Adequate	S. of Hudson/Black Hawk
US 63 and IA-175/W. Reinbeck Rd	NB	Left	No	Existing Turn Lane Adequate	S. of Hudson/Black Hawk
US 63 and W. Eagle Rd	SB	Right	No	Existing Turn Lane Adequate	S. of Hudson/Black Hawk

US 63 and W. Eagle Rd	NB	Right	No	Existing Turn Lane Adequate	S. of Hudson/Black Hawk
US 63 and IA 58	NB	Left	No	Existing Turn Lane Adequate	S. of Hudson/Black Hawk

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 63 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 63	Recommended Turn Lane	City/ County
<b>Rural Two-Lane Intersections</b>			
US 63 & 390 <sup>th</sup> St./E-69	SB	Minor Right	S. of Tama/Tama
US 63 & 350 <sup>th</sup> St./E-64	SB	Minor Right	S. of Tama/Tama
US 63 & 350 <sup>th</sup> St./E-64	NB	Minor Right	S. of Tama/Tama
US 63 & 350 <sup>th</sup> St./E-64	SB	Left	S. of Tama/Tama
US 63 & 340 <sup>th</sup> St.	NB	Left	S. of Tama/Tama
US 63 & IA-229/E-29	SB	Minor Right	N. of Toledo/Tama
US 63 & IA-96	SB	Minor Right	SW. of Traer/Tama
US 63 & IA-96	NB	Left	SW. of Traer/Tama
US 63 & 160 <sup>th</sup> St.	SB	Minor Right	N. of Traer/Tama
US 63 & W. Tama Rd	SB	Left	S. of Hudson/Black Hawk
US 63 & W. Eagle Rd	SB	Left	S. of Hudson/Black Hawk
US 63 & IA-58	SB	Major Right	Hudson/Black Hawk
Intersection (Location)	Direction of Travel on US 63	Recommended Turn Lane	City/ County
<b>Urban/ In-Town Two Lane Intersections</b>			
US 63 & S. 1 <sup>st</sup> St	SB	Left	Tama/Tama
US 63 & E. 1 <sup>st</sup> St	SB	Left	Tama/Tama
US 63 & E. 1 <sup>st</sup> St	NB	Left	Tama/Tama
US 63 & 2 <sup>nd</sup> St	NB	Left	Tama/Tama

#### 4.2 RECOMMENDED PROPOSED PASSING LANE LOCATIONS

This US 63 PEL Study is recommending 18 proposed climbing and passing lanes 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 Chapters 1C-1, 6C-2; 6D-01

The figures below represent the typical climbing/passing lane concepts. Separated climbing/passing lane plan layout was used for the majority of the lanes recommended and is considered ideal. A separated northbound and southbound climbing/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 climbing/passing lane configurations were necessary in some locations due to the aforementioned criteria. Additional guidance is provided in Iowa Department of Transportation Design Manual Chapter 6C-2 for spacing.

**Figure 2. CLIMBING/PASSING LANE CONCEPTS**

**Plan View (Separated Climbing/Passing Lanes)**



**Plan View (Overlapping Climbing/Passing Lanes)**



**Plan View (Side-by-Side Climbing/Passing Lanes)**



**Cross Section View (Rural)**



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

Both passing lanes and climbing lanes are proposed in locations to minimize impacts to known environmental resources. Environmental resources are discussed in more detail in Section 2.4 and can be found Appendix A, Figure 3.

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 climbing and 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 Tama, Toledo, and Traer. These cities have roadway cross sections that vary from two to four lane sections, including turn lanes that allow passing in these locations.

Climbing lane placements were evaluated in areas with longitudinal grades greater than three percent for extended lengths. There are 30 locations where the roadway grades are equal to or more than the preferred maximum of 3 percent. Two evaluation methods were used at these locations. The first method evaluated critical lengths of grade for a typical recreational vehicle. There were no locations with a reduction of speed greater than 10 mph.

The second method evaluated the locations for critical lengths of grade for a typical heavy truck. This method yielded 12 locations with speed reductions greater than 10 mph. This analysis method showed multiple climbing lanes are needed in close proximity to one another. However, using design guidance and Practical Based Design Principle's methods, climbing lanes were strategically placed to avoid oversaturation in an area. DOT maintenance officials were also consulted for input of climbing lane locations.

A desktop review for major utilities was completed to assess the potential impacts of climbing/passing lane placements. The major utilities have been identified as underground pipelines and cables for WindStream, MidAmerican, Aureon, NuStar, ICN, NNG, and Poweshiek water. Overhead electric with MidAmerican and Alliant energy are prevalent on both sides of the US 63 in the Study Area. Overhead electric will need to be relocated to accommodate proposed climbing and passing lane placements. Possible impacts to the existing pipelines and other utilities need to be further examined during the development process.

Proposed passing lanes are anticipated to require minimal new Right-of-Way (ROW). The proposed passing lanes have been placed in areas with flatter grades and foreslopes. Climbing lanes have been placed in areas with steeper grades and foreslopes. Climbing lanes, will typically require more ROW due to their placement in hilly terrain. See Figure 6 in Appendix A for images of the beginning and ending of proposed climbing/passing lanes. ROW varies throughout the Study Area; existing width varies in the rural sections typically from 180 to 400 feet. Existing ROW from the edge of traveled way also varies from 70 to 200 feet. Climbing/Passing lanes would be 12-foot-wide, with six-foot-wide paved or granular shoulders.



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

**Table 4. RECOMMENDED CLIMBING/PASSING LANE LOCATIONS**

Climbing Lane # (CL)/Passing Lane # (PL)	Appr. Begin MP	Appr. End MP	Direction	Appr. Begin Elevation	Appr. End Elevation	Climbing /Passing Lane Length (ft)	Total Length (with tapers)	Distance to Next Directional CL/PL (South to North) (mi)	City/County
Existing CL #1 (SB 1)	103.1	102.8	SB	884	934	1230	1980	1.9	S. of Tama/Poweshiek
CL #2 (SB 2)	106.2	105.0	SB	900	987	5300	6140	4.9	S. of Tama/Poweshiek
CL #3 (NB 1)	106.3	107.4	NB	901	983	5200	6040	4.9	S. of Tama/Poweshiek
CL #4 (SB 3)	112.2	111.1	SB	858	992	5960	6140	0.9	S. of Tama/Tama
CL #5 (NB 2)	112.3	113.5	NB	868	964	5300	6140	1.2	S. of Tama/Tama
CL #6 (SB 4)	114.2	113.1	SB	877	983	4690	5540	1.5	S. of Tama/Tama
CL #7 (NB 3)	114.7	115.2	NB	868	860	2070	2910	6.7	S. of Tama/Tama
CL #8 (SB 5)	116.3	115.7	SB	817	823	2740	3580	8.6	S. of Tama/Tama
CL #9 (NB 4)	121.9	122.3	NB	908	925	1575	2415	2.0	N. of Toledo/Tama
Existing CL #10 (NB 5)	124.3	124.9	NB	912	980	1768	2610	5.0	N. of Toledo/Tama
PL #1 (SB 6)	125.7	124.9	SB	943	985	3168	4068	5.7	N. of Toledo/Tama
PL #2 (NB 6)	129.9	130.6	NB	972	1008	2904	3804	4.2	SW. of Traer/Tama
PL #3 (SB 7)	132.1	131.4	SB	987	1020	2904	3804	6.4	SW. of Traer/Tama
PL #4 (NB 7)	134.8	135.6	NB	933	987	2960	3860	7.9	SW. of Traer/Tama
PL #5 (SB 8)	137.8	137.1	SB	940	974	2960	3860	7.5	SW. of Traer/Tama
CL #11 (NB 8)	143.5	144.1	NB	922	925	1675	2516	4.1	N. of Traer/Tama
CL #12 (SB 9)	146.0	145.3	SB	935	938	2760	3600	6.4	N. of Traer/Tama

PL #6 (NB 9)	146.2	147.0	NB	928	989	3280	4180	3.7	N. of Traer/Tama
PL #7 (NB 10)	150.7	151.7	NB	974	972	4540	5440	-	S. of Hudson/Black Hawk
PL #8 (SB 10)	152.8	151.7	SB	954	970	4540	5440	-	S. of Hudson/Black Hawk

Passing lanes PL#4 (NB 7) and PL#5(SB 8) are listed for optional placement. The pair of passing lanes would be placed in the future if US 63 is reduced from a four to a three-lane cross section through the City of Traer.

Passing lane lengths were determined using the Iowa Department of Transportation Design Manual Guidance Chapter 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.

Climbing lanes were determined using a combination of AASHTO Greenbook Chapter 9, Iowa Department of Transportation Design Manual Guidance Chapter 6C-2. Directional climbing lane length varying due to existing conditions, such as length of grade and passing opportunities. A typical climbing lane merge taper is 55:1 with a standard 15:1 diverge taper.

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

### 4.3 RECOMMENDED SPOT ROADWAY IMPROVEMENTS

The US 63 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

### SPOT LOCATIONS CONSIDERED

Spot improvements were analyzed but are not recommended at this time.

1. Two locations with less than desirable stopping sight distance (SSD) for horizontal curves are listed for spot improvement considerations in Table 5.

**Table 5. 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
118.40 (Urban)	45 mph	200	360	305	Tama/Tama
118.35 (Urban)	45 mph	200	30	305	Tama/Tama

Crash history from 2016-2020 was examined for each location. In the five-year crash history, no crashes occurred within the curves for the locations. However, one property damage crash occurred on the intersecting side road. Considering the past performance of these sections PBDP's no recommendations for improvements for these spot locations are currently proposed.

- There are 30 locations where the roadway grades are equal to or more than the preferred maximum of 3 percent. Two evaluation methods were used at these locations see Section 4.2.
- One intersection has been identified with a skew angle slightly below the acceptable 60-degree standard as shown in Table 6. The intersection is in the City of Toledo at US 63 and Lincoln Highway (US 30 Business). US 63 at this intersection location has a four-lane cross section, the cross section is beyond the scope of this Super-Two Highway study. There are no recommendations of improvements at this location at this time.

**Table 6. INTERSECTION ALIGNMENTS WITH SKEW LESS THAN 60°**

Intersection (Minor Leg)	Approximate Skew Angle (degrees)	Minor Leg Intersects Curve on US 63	Intersection Related Crash History 2016-2020	City/County
Lincoln Highway	56°	Yes	Multiple crashes in the vicinity	Toledo/Tama

- Existing pavement conditions in the Study Area were examined utilizing the Infrastructure Condition Evaluation (ICE) tool. Of the 52 miles in the corridor there were 11.4 miles considered to be in poor condition, 32.6 miles were considered to be in poor to fair condition, and 8 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 are no timetables 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 funded projects; although, some of the components from this study can be addressed over time with smaller scale projects as they are constructed, like pavement condition driven projects. This Study's recommendations may be modified as they are incorporated into future projects based on new information and changing conditions in the corridor.

## 5 REFERENCES

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# Appendix A

Figure 1 – Comments from PIM#1

Figure 2 – Comments from PIM#2

Figure 3 – Desktop Environmental Constraints in the Study Area

Figure 4 – Existing Turn Lanes Analysis

Figure 5 – Proposed New Turn Lanes Analysis

Figure 6 – Images of Start and End of Proposed Climbing/ Passing Lanes  
(North to South)

Figure 7 – Proposed Climbing/Passing Lanes Locations

## Figure 1 – Comments from PIM#1

1. Would the paved shoulders from Traer to Hudson in 2020 be only shoulders or also include the main traffic lanes? The main traffic lanes are extremely bumpy from the 63-175 intersection to Hudson. When would shoulder paving be and how long could it last? Is any of this related to potential 4 lanes in the future? If 4 lanes was ever a topic, property values in those areas would plummet.
2. I think you need to reevaluate the part of Hwy 63 that is in Poweshiek County. It is all poor. I don't think there is a seam that hasn't been patched multiple times.
3. 4 lane over this entire route would be unnecessary, and would negatively affect property values.
4. The IDOT has greatly improved the East-West traffic flow with US 30 improvements. However, the North-South traffic flow has been left behind. (1) There is NO efficient North-South travel except for I35. US 63 is 2-lane, 55 mph, 25 mph through central parts of small town Iowa. It is beyond time to address this inefficiency especially coming from I80. (2) Living in town on US 63 we are faced with constant traffic including school zones, jake braking semis, trash, and in winter DOT road crews throwing buckets of snow, ice, and road junk as far as onto my front porch. (3) I am a senior who has traveled this roadway extensively since the 50's with relatives in Waterloo, Cedar Falls, and Dike. It is beyond time to bring this North-South route into the 22nd century. Instead of constant spending on basic improvements maybe it's beyond time to look at the bigger picture and change the route.
5. Well, just like most things governmental, this site is a joke. I've been working all day on a brand new computer. US 63 online meeting crashes after 9 seconds.
6. Do think you should include two key intersections located in the town of Hudson in this study. Intersection of 63 and Shrock and 63 and Eldora both see more accidents than normal because are not square intersections. In my opinion traffic circles should be installed in these areas to slow traffic
7. Thank you for reaching out and including the citizens of Tama County. I look forward to hearing more in the future. The acceleration lanes on the hills for trucks on high traffic areas seem to be a good idea
8. We understand that a project like this takes time to study and plan. However, the majority of the road is essentially too far gone to be repaired or improved upon. Most of the road needs to be destroyed and totally started over to be worthwhile. As a farmer and trucker, the road is so rough and hard on my equipment, that it is actually causing damage to it such as a broken axle, broken windows, front end damage, etc. Please redo this road as soon as possible as it is simply miserable to be on, especially when it is required to do so.

## Figure 2 – Comments from PIM#2

1. How do I find out if I'm losing part of my yard due to the expansion?
2. Favor creation of climbing/passing lanes. Extremely opposed to converting road in Traer to 3 lanes.
3. I'd like to see a left turn lane added on NB 63 at 130th/D65 and an upgraded right hand turn lane on SB 63 at the same intersection. Also, as I'm the resident that lives on the northwest corner of that intersection, I don't feel safe braking to turn into my driveway when traveling SB because other drivers following me assume I'm signaling to turn onto D65 farther down the road and don't brake soon enough. I can't count the number of times I've had to swerve off onto the shoulder as I'm approaching my driveway because I thought I was going to be rear ended. In addition to an improved right turn lane, I'd like to have my driveway moved to the south of my property to D65 to be safer for anyone entering or exiting my property. Another suggestion I have is to improve the right turn lane on NB 63 at 125th/D65 and add a left turn lane on SB 63 at the same spot. There is heavy turning traffic at this intersection especially during harvest in the fall with trucks and tractors hauling grain to the Buckingham co-op. I feel it would be safer for motorist passing by the area and especially for farmers that have to slow way down and sometimes stop in the middle of the road to make a left turn.
4. I have some comments/requests to be considered on this project at the intersections of 130th/63 close to mile marker 143 and 125th/63 near mile marker 144 regarding safety of the residents who live at the intersection and for safety during fall harvest, specifically with increased truck/tractor traffic at the 125th/63 intersection. It would be great to speak with someone to explain these ideas if someone would like to reach out. Thanks for the consideration.
5. A turning lane does not make sense at the crossroads of 63 and W Griffith road because this road is a gravel road. Having a specific turning lane for a gravel road doesn't make sense. Additionally, a four lane road in Black Hawk county is not needed. I live just off where this project is located and the road noise would be astronomical. Also having to turn off of a gravel road across three lanes of traffic several times a day with my children is not a hazard we signed up for when we purchased our house. We have several young families that live on west Griffith road that would have the same safety issue.
6. I'm concerned about the south-bound and north-bound passing lanes at the intersection of Hwy 63 and W Griffith Rd. That is where my family lives. The road noise is already bad, and is much worse as vehicles pass each other (especially semis, motorcycles). These passing lanes will increase speeds and increase passing. I'm also concerned with the impact this will have on my property value. If my property value is \$400,000 now it would likely drop to \$300,000 after this project (where is the payment to

compensate me for the loss - impacts my children's future too). Few parents want to raise their kids on a four-lane road! Lastly, my wife will cross three lanes of traffic with my two kids in the car every morning during rush hour to take them to school. That is not safe. There's not much value hurrying to pass going into Hudson where the speed limit will be dropped to 45mph. Going south, the visibility is already good enough for fast vehicles to make a pass. Living here I can confidently say there is already way too much speeding on this road.

7. We live S of intersection W Griffith Rd and S Hudson Rd. We've lived in our home since 11/6/2014 and we knew purchasing our home we lived off a 2 lane Highway with extra traffic going high speeds, semis jake breaking, vehicles passing hearing the rumble strip in center. Since we've lived in our home we've personally witnessed 1 accident which happened to be right in front of our home as a car went into the ditch with driver trying to commit suicide. The only casualty since we've lived in our home was either 2021 or 2020 just S over the straight-away with driver passing two live-stock trailers coming up on a hill where he didn't have visibility. The intent is to help with casualties/crashes, help the flow of traffic, safety and infrastructure conditions, but this doesn't solve the issue of vehicles driving well over the speed limit because there isn't a repercussion in place. The clear stretch of visibility that you're proposing adding these changes won't help the fact that the vehicles are already traveling at well over the 55 mph speed limit (at least 65 mph) and once they see that wide open visibility they travel at even higher speeds to pass. If the Highway Patrol want to reach their monthly quota they can park off that stretch and get that in a week if they wanted. The problem of speeding and passing also should have the same concerns and conditions as Hwy 58 N of Hudson having more hills with less visibility, so vehicles don't pass as much, but they would if they could and Hudson Police know to park on that stretch to help control the unnecessary high speeds. How does that look when you have the same amount of traffic on the open stretch in a two-lane then having to go back into a single lane going through the School District, so vehicles will be struggling to merge over in that space as well. Continuing N on Hwy 63 N of Hudson you're in a 2 lane road speed limit 55 mph and there's multiple turn-off's for either business or residential, so vehicles have to slow down which is no different that the stretch of road you're looking to make changes on in front of our homes. If you want to help control excess speeds why not look into installing the speed cameras that are in place on Broadway St and Burton Ave area and corner of Hwy 63 and W Ridgeway because people know they're being watched they will purposely slow down to prevent paying an unnecessary speeding fine. I, Heather Brady, am also a Realtor for the State of Iowa with Coldwell Banker Elevated Real Estate and have been licensed for 10 years now. The concerns for property values is always a question and should be a question for all home owners who this will effect. I contacted Clinton Cota, President and CEO of Residential Operations with Rally Appraisal located at 209 W. Franklin St, Cedar Falls IA 50613, providing his professional opinion pertaining to property values with our home and surrounding homes. Once I receive his professional opinion I will send his statement to you. With a 4-lane highway in the proposal the additional roads and adding another ditch for water drainage will be right up to our property line or encroach which won't be acceptable. My



husband and I are in the process of starting a Labrador Breeding Business which will start with our first litter due January 2023. If the proposal is to install a turn-off lane specifically for our own personal property/driveway then that could be an option, but widening the road to accommodate vehicles speeding and passing when it's not necessary isn't acceptable to waste the funds and resources to create a stretch for people to drive recklessly, because they already do without repercussion.

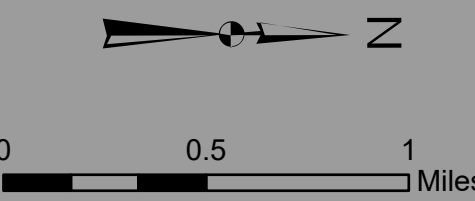
8. Very much in favor of this project. It should help the traffic flow.
9. I would like to see a 4 lane.
10. Updates are needed.
11. Looks good!
12. This looks like a very good project.
13. I feel like a super two would be appropriate, because of the towns that 63 goes through. Four lane would be ideal but sometimes ideal isn't always the cheaper route. Anything would be better than nothing. 63 is a very rough road to travel on.
14. Why does it not get to be a 4 lane like most of 63 in Iowa and in Minnesota and Missouri. But I guess a Super 2 is better than nothing the road really needs work bad. It is a pretty busy highway between Traer and Hudson I know for sure drive it 2 times a day.
15. Climbing Lane #8, SB#5 south of Tama in Tama County is on completely FLAT river bottom land. There is nothing to climb in that stretch of road. This is an unnecessary modification. The terrain rises rapidly at the south end of this indicated section, and a climbing lane (not currently proposed) would possibly be beneficial there.
16. PL # 2 NB #6 - We live right in between 200-210th St. on highway 63. We have a trucking business and brokerage that we run out of our house. Currently small but not sure how big it could someday grow to. Not sure if it could be dangerous having semis with trailers turning into our driveway right in a passing lane? They have to slow down and turn very wide. If done here, needs to be long enough or done right. Our place is on the west side.
17. Don't think upgrades are needed.
18. Let's get the job done I like it!
19. This project can't happen soon enough!!! Would also like to see one or two more passing or climbing lanes between Traer and Hudson as this area is very congested most days with people commuting to Waterloo/ Cedar Falls.

20. I haven't noticed that much traffic or problems on this highway to justify all this work and expenditure.
21. Thank you for the information, when will the decision be finalized?
22. All these improvements seem to make sense, and will create a safer highway.
23. It doesn't seem that this stretch is as busy as Hwy 63 from I80 south to Oskaloosa especially when all the various county roads from Pella to I80 are taken into consideration. I can't say I've had many issues on the proposed stretch when running to Waterloo.
24. It would of been nice to do this when redoing the road this year north and south of Traer.

## Figure 3 – Desktop Environmental Constraints in the Study Area




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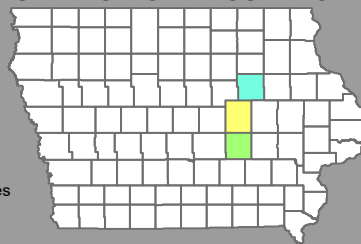
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- Potential Bat Habitats
- Paddling Route
- Streams
- Wetlands
- Floodplains
- Recreational Areas
- Cemetery
- Church
- Desktop Study Area
- Iowa Counties
- City Limit Boundaries
- + Active Rail Lines

**Project Area Counties**

County Name

- Black Hawk
- Tama
- Poweshiek
- Other Counties

**STATE OF IOWA COUNTIES**



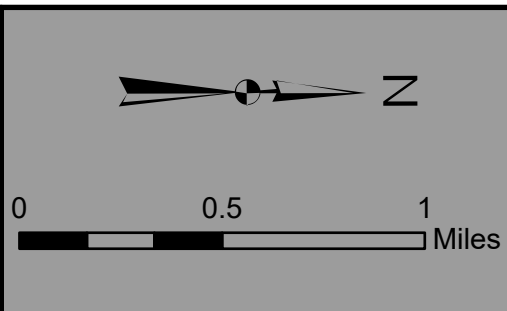
**FIGURE 3 - Desktop Environmental Constraints**

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US 63 PEL Study - JCT. HWY 6 E. of Grinnell to S. of Hudson

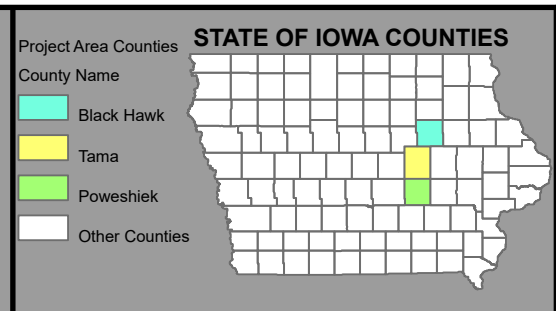
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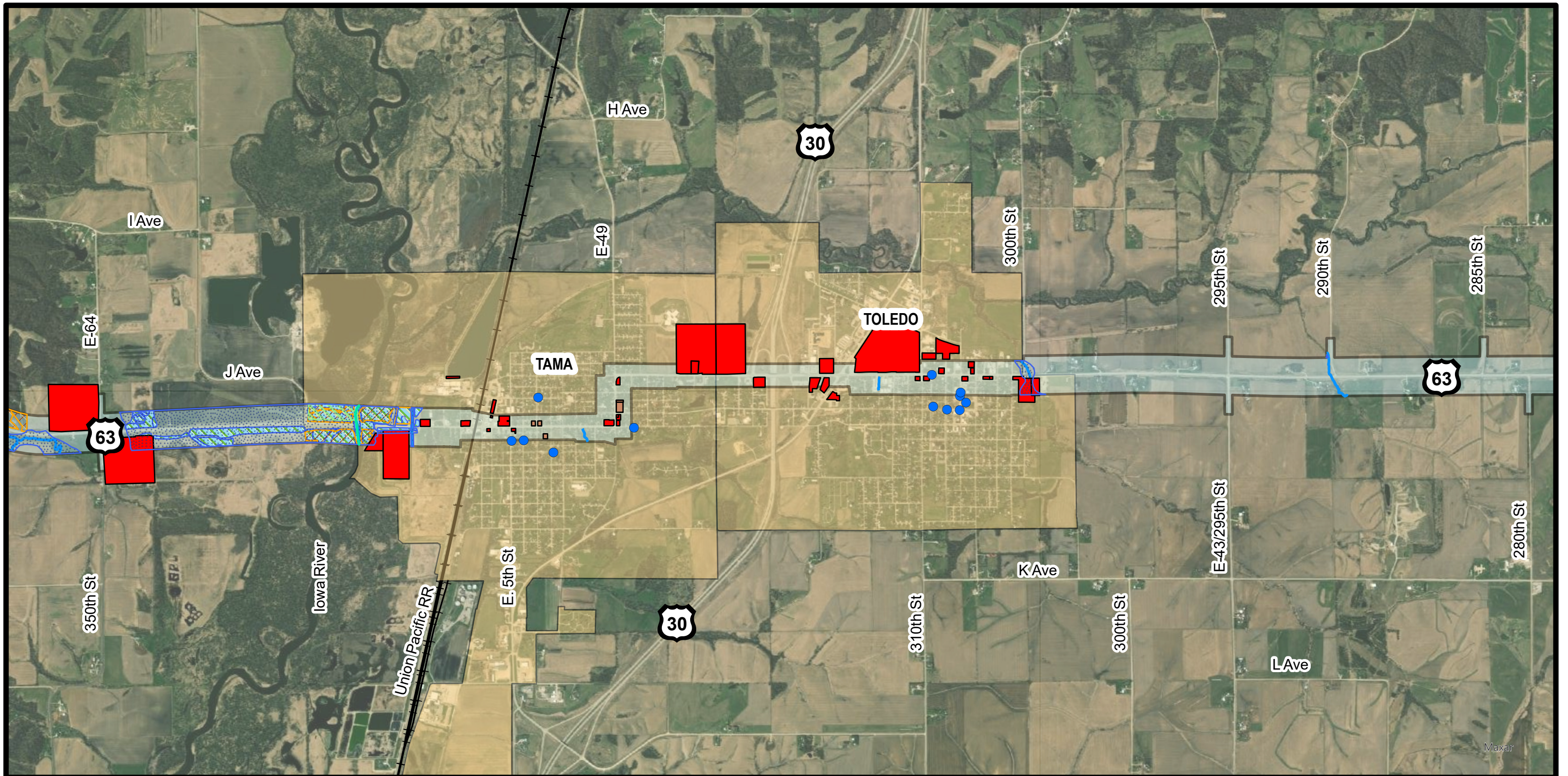
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Historic Sites	Recreational Areas
Regulated Materials	Cemetery
Woodlands Sites	Church
Potential Bat Habitats	Desktop Study Area
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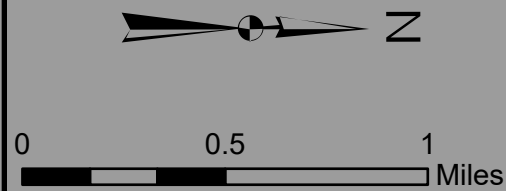


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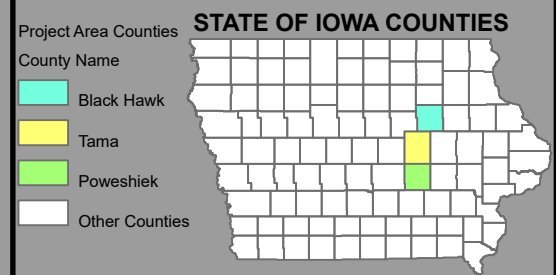
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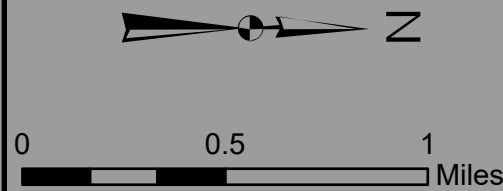
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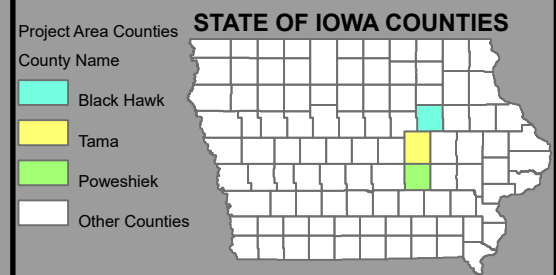
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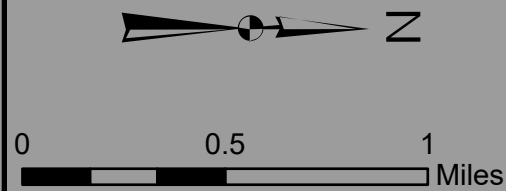
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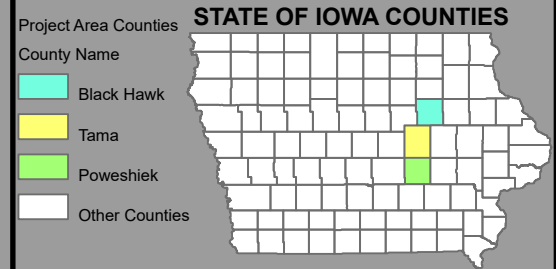
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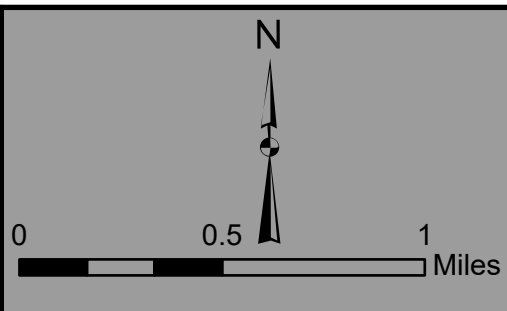
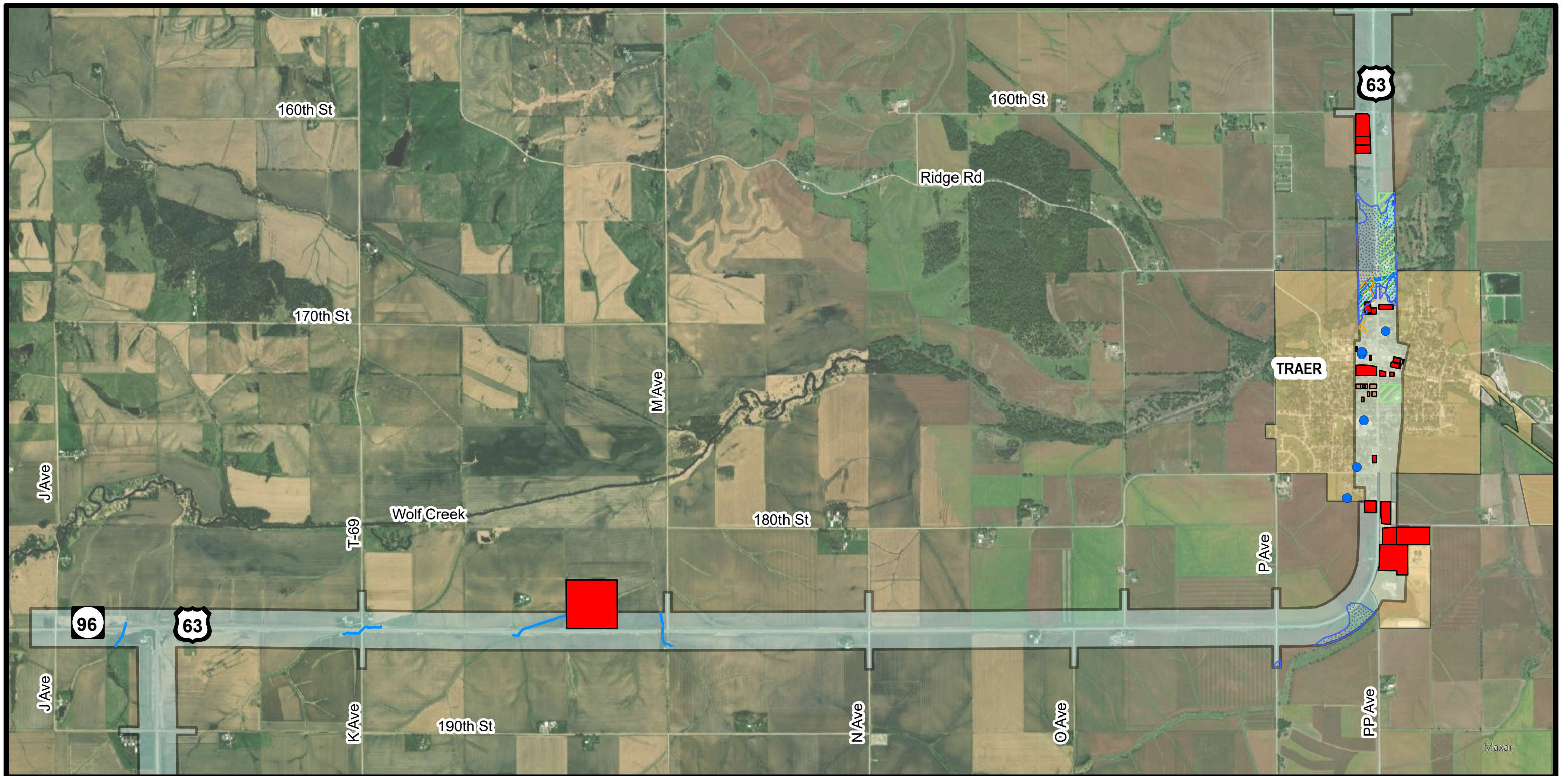


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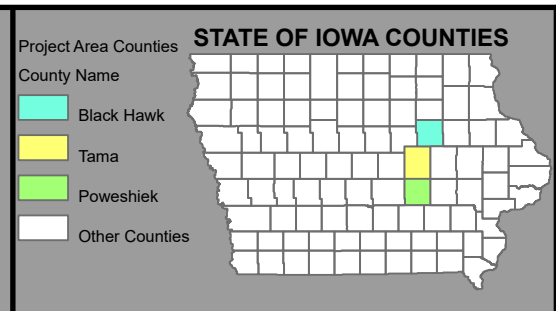
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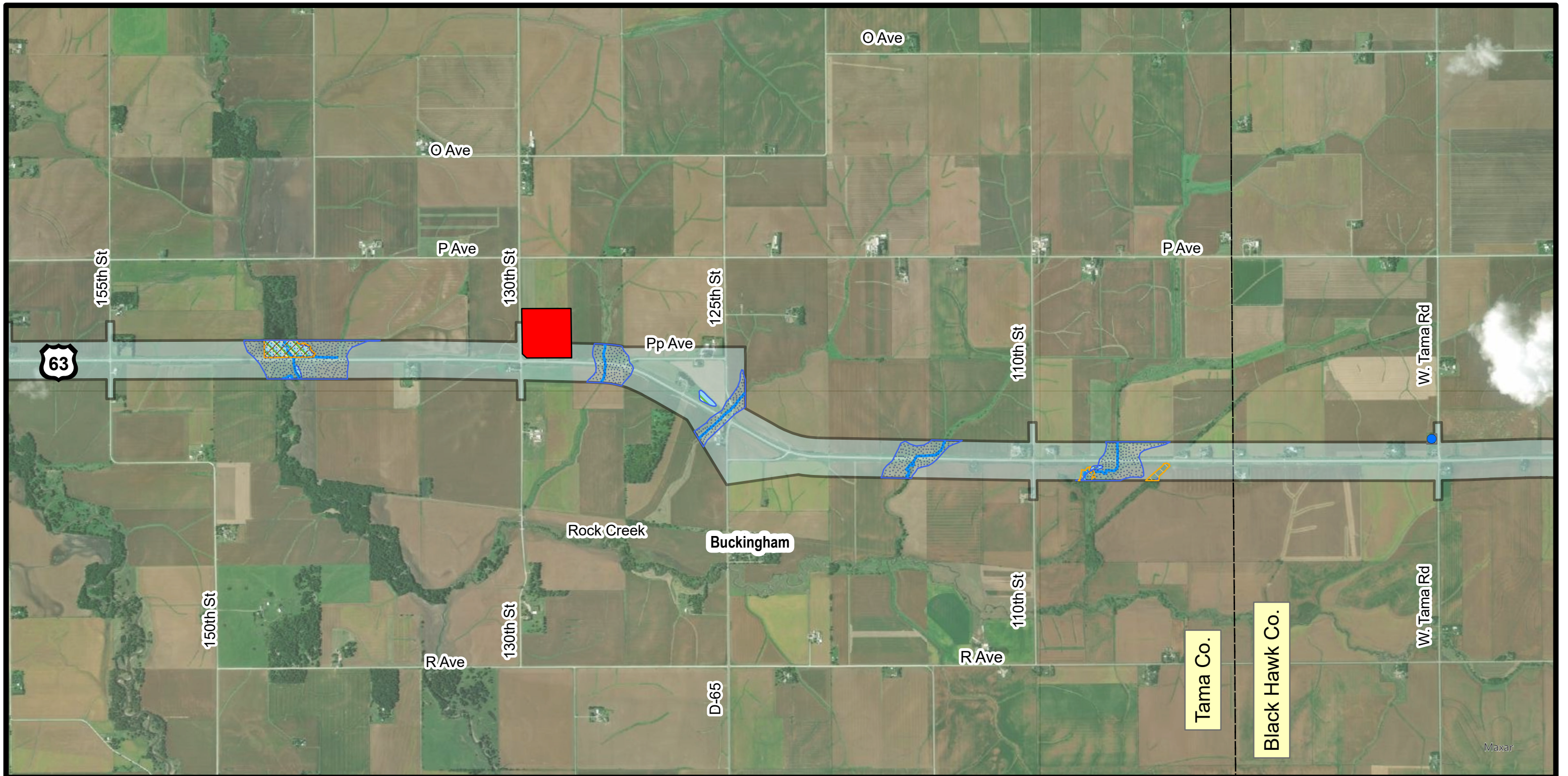
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Historic Sites	Recreational Areas
Regulated Materials	Cemetery
Woodlands Sites	Church
Potential Bat Habitats	Desktop Study Area
Paddling Route	Iowa Counties
Streams	City Limit Boundaries
Wetlands	Active Rail Lines
Floodplains	

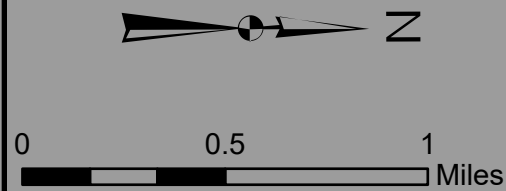


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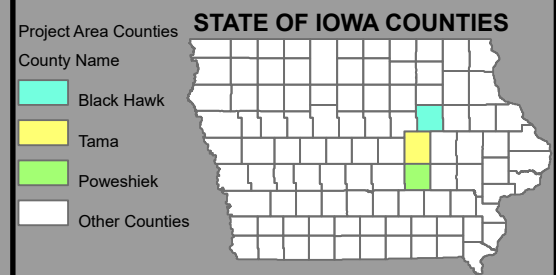
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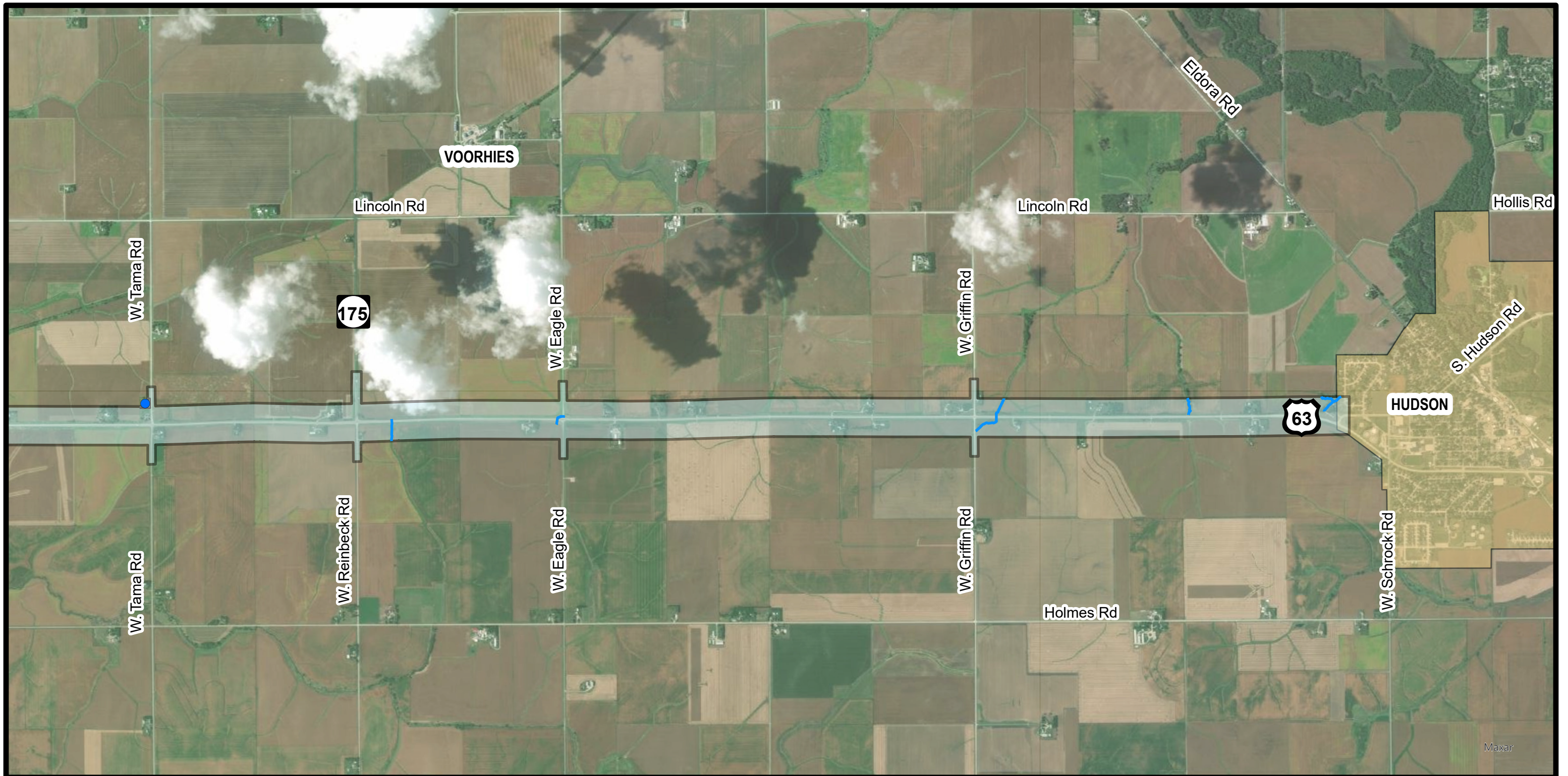
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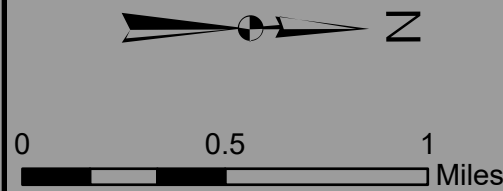
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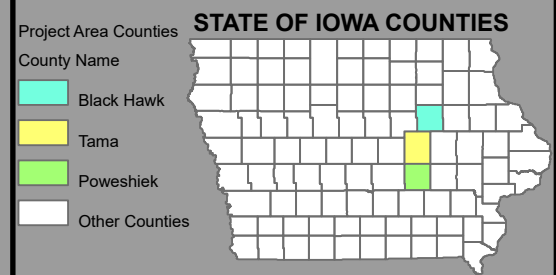
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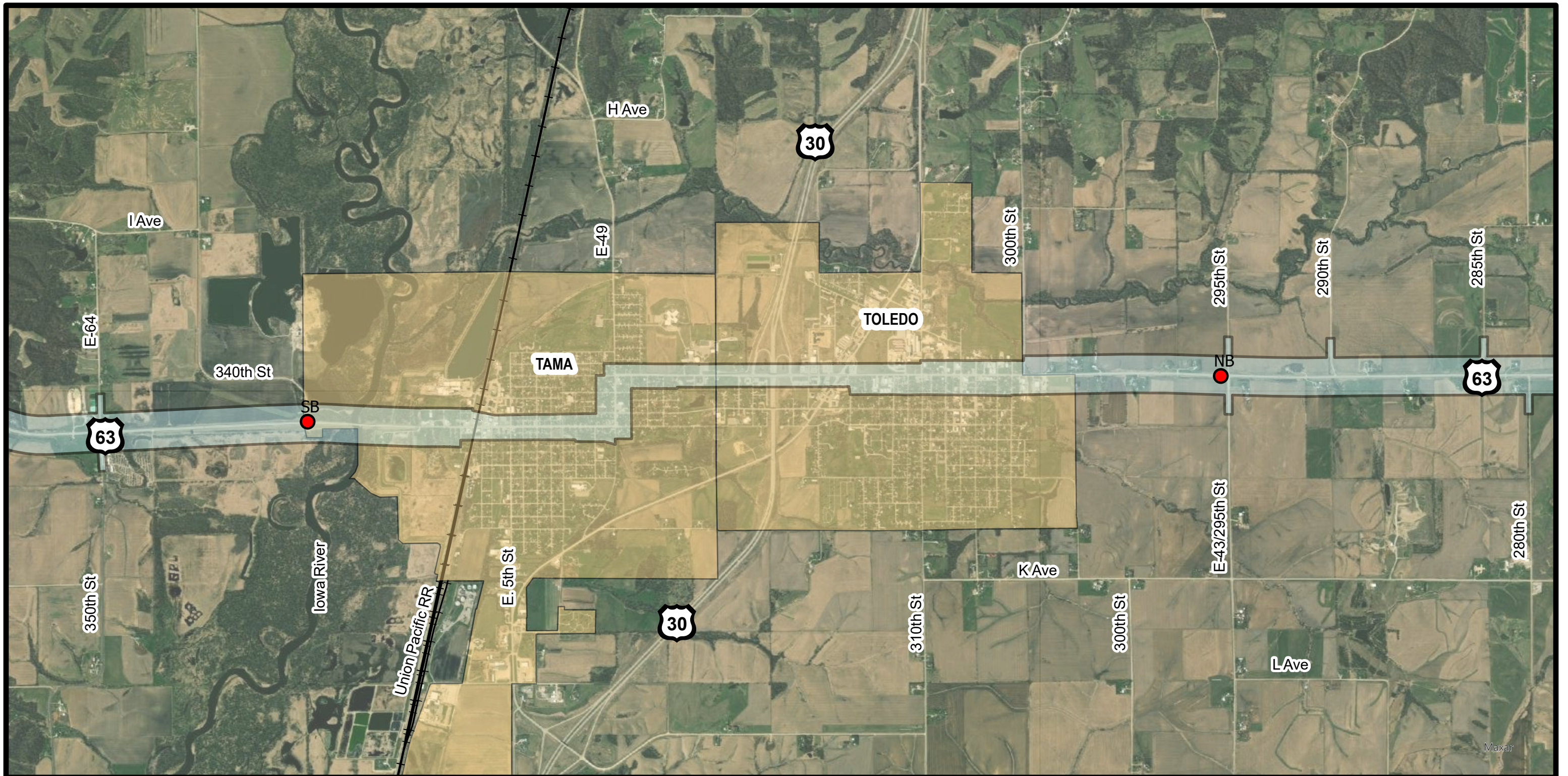


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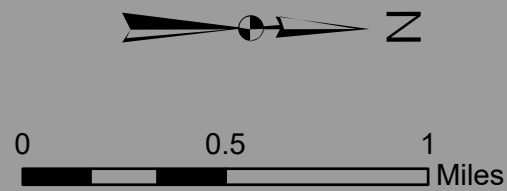


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 US 63 PEL Study - JCT. HWY 6 E. of Grinnell to S. of Hudson  
 Poweshiek\Tama\Black Hawk Counties Iowa

## Figure 4 – Existing Turn Lanes Analysis



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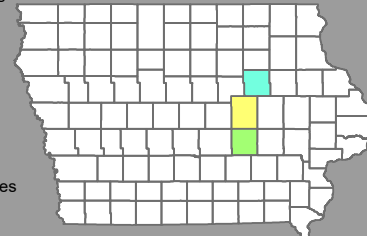
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- Desktop Study Area
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- City Limit Boundaries
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- Adequate Minor Right Turn Lane
- Adequate Left Turn Lane
- Upgrade to Major Right Turn Lane
- Upgrade Channelized Right Turn Lane

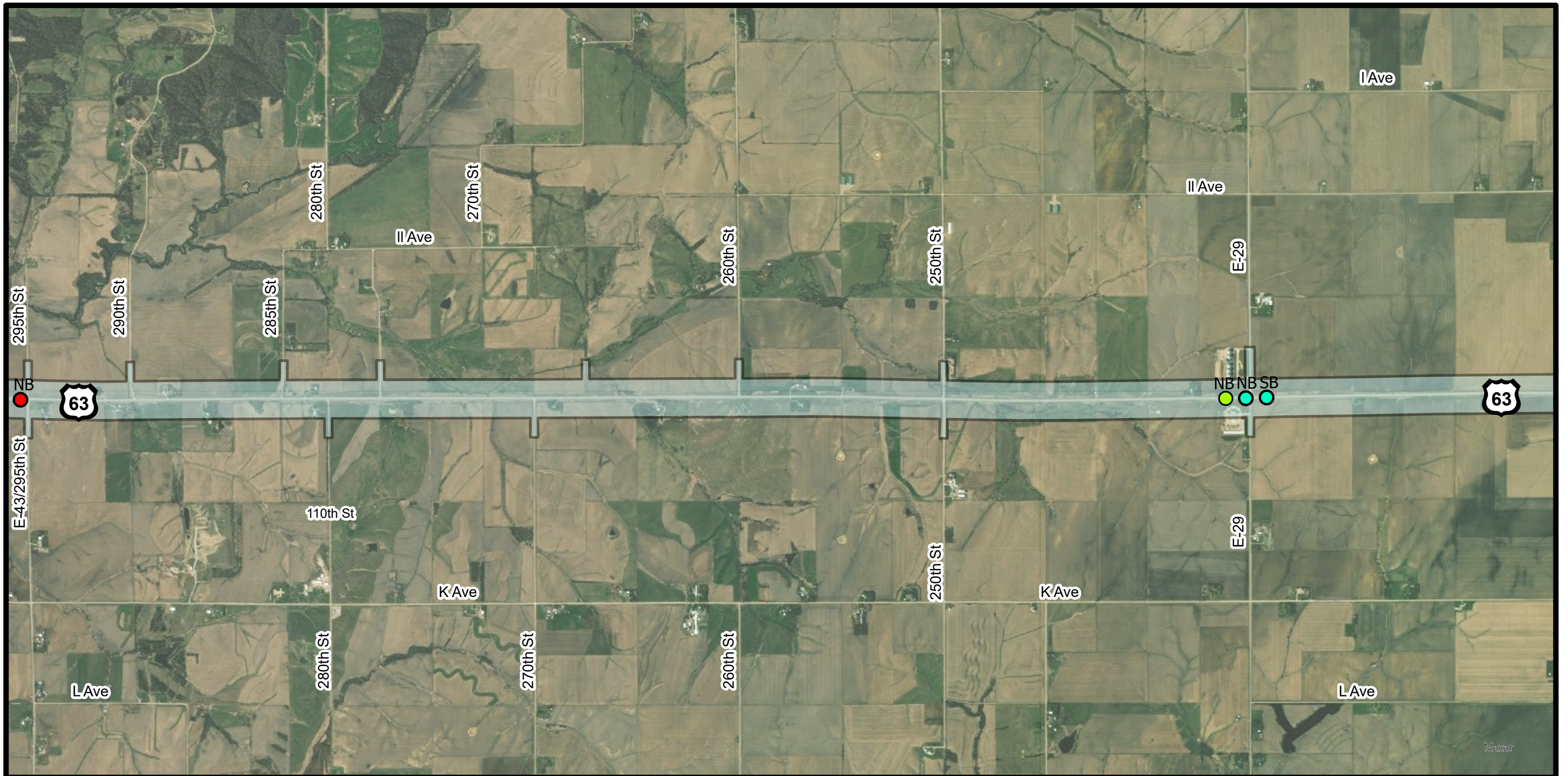
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- Tama
- Poweshiek
- Other Counties

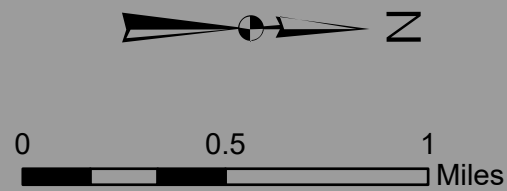
**STATE OF IOWA COUNTIES**



**FIGURE 4 - Existing Turn Lane Analysis**  
 NHSX-063-4(052)--3H-79  
 US 63 PEL Study - JCT. HWY 6 E. of Grinnell to S. of Hudson  
 Poweshiek\Tama\Black Hawk Counties Iowa



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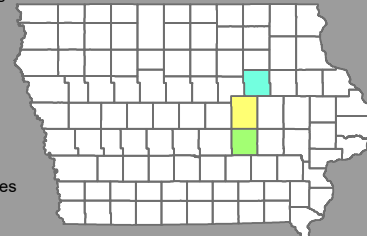
**Legend**

- Desktop Study Area
- Iowa Counties
- City Limit Boundaries
- Active Rail Lines
- Adequate Minor Right Turn Lane
- Adequate Left Turn Lane
- Upgrade to Major Right Turn Lane
- Upgrade Channelized Right Turn Lane

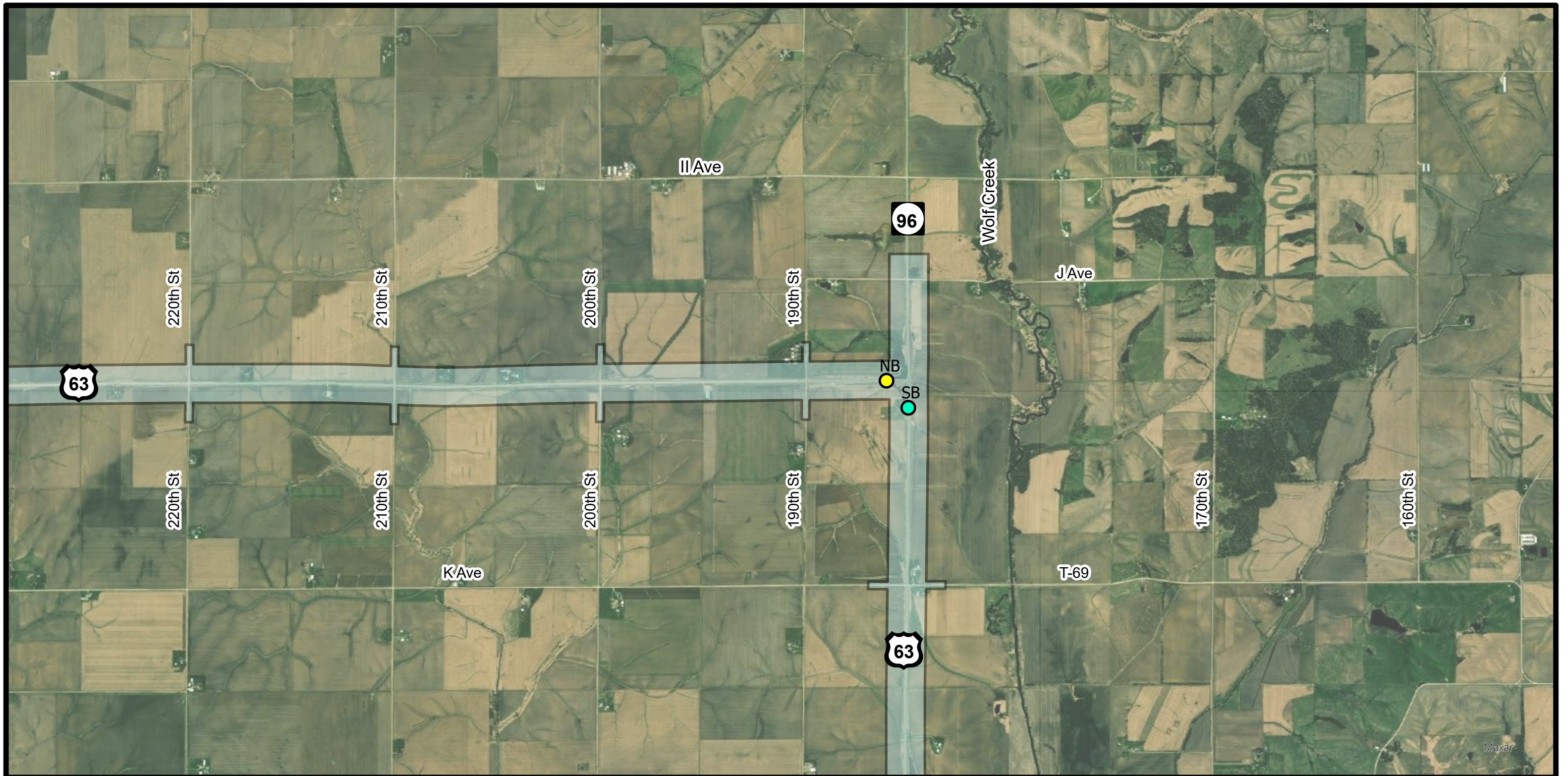
**Project Area Counties**

- Black Hawk
- Tama
- Poweshiek
- Other Counties

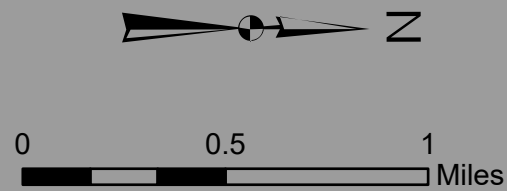
**STATE OF IOWA COUNTIES**



**FIGURE 4 - Existing Turn Lane Analysis**  
 NHSX-063-4(052)--3H-79  
 US 63 PEL Study - JCT. HWY 6 E. of Grinnell to S. of Hudson  
 Poweshiek\Tama\Black Hawk Counties Iowa



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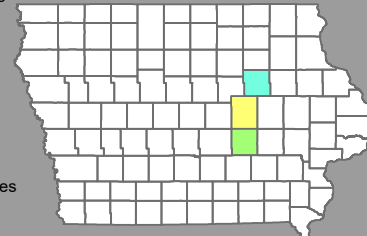
**Legend**

- Desktop Study Area
- Iowa Counties
- City Limit Boundaries
- Active Rail Lines
- Adequate Minor Right Turn Lane
- Adequate Left Turn Lane
- Upgrade to Major Right Turn Lane
- Upgrade Channelized Right Turn Lane

**Project Area Counties**

- Black Hawk
- Tama
- Poweshiek
- Other Counties

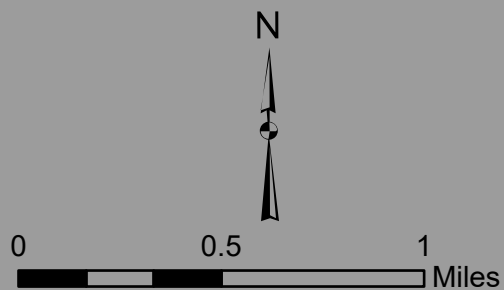
**STATE OF IOWA COUNTIES**



**FIGURE 4 - Existing Turn Lane Analysis**  
 NHSX-063-4(052)--3H-79  
 US 63 PEL Study - JCT. HWY 6 E. of Grinnell to S. of Hudson  
 Poweshiek\Tama\Black Hawk Counties Iowa



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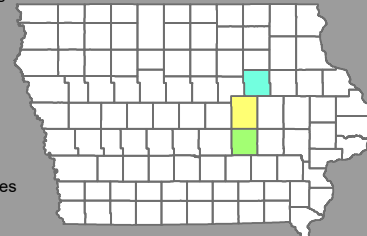
**Legend**

- Desktop Study Area
- Iowa Counties
- City Limit Boundaries
- Active Rail Lines
- Adequate Minor Right Turn Lane
- Adequate Left Turn Lane
- Upgrade to Major Right Turn Lane
- Upgrade Channelized Right Turn Lane

**Project Area Counties**

- Black Hawk
- Tama
- Poweshiek
- Other Counties

**STATE OF IOWA COUNTIES**

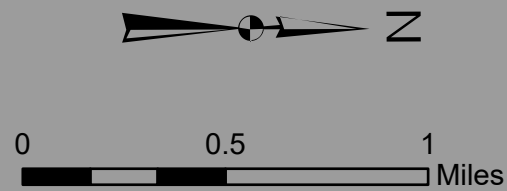


**FIGURE 4 - Existing Turn Lane Analysis**  
 NHSX-063-4(052)--3H-79  
 US 63 PEL Study - JCT. HWY 6 E. of Grinnell to S. of Hudson  
 Poweshiek\Tama\Black Hawk Counties Iowa





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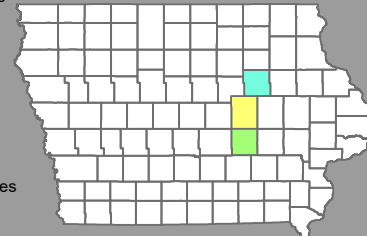
**Legend**

- Desktop Study Area
- Iowa Counties
- City Limit Boundaries
- Active Rail Lines
- Adequate Minor Right Turn Lane
- Adequate Left Turn Lane
- Upgrade to Major Right Turn Lane
- Upgrade Channelized Right Turn Lane

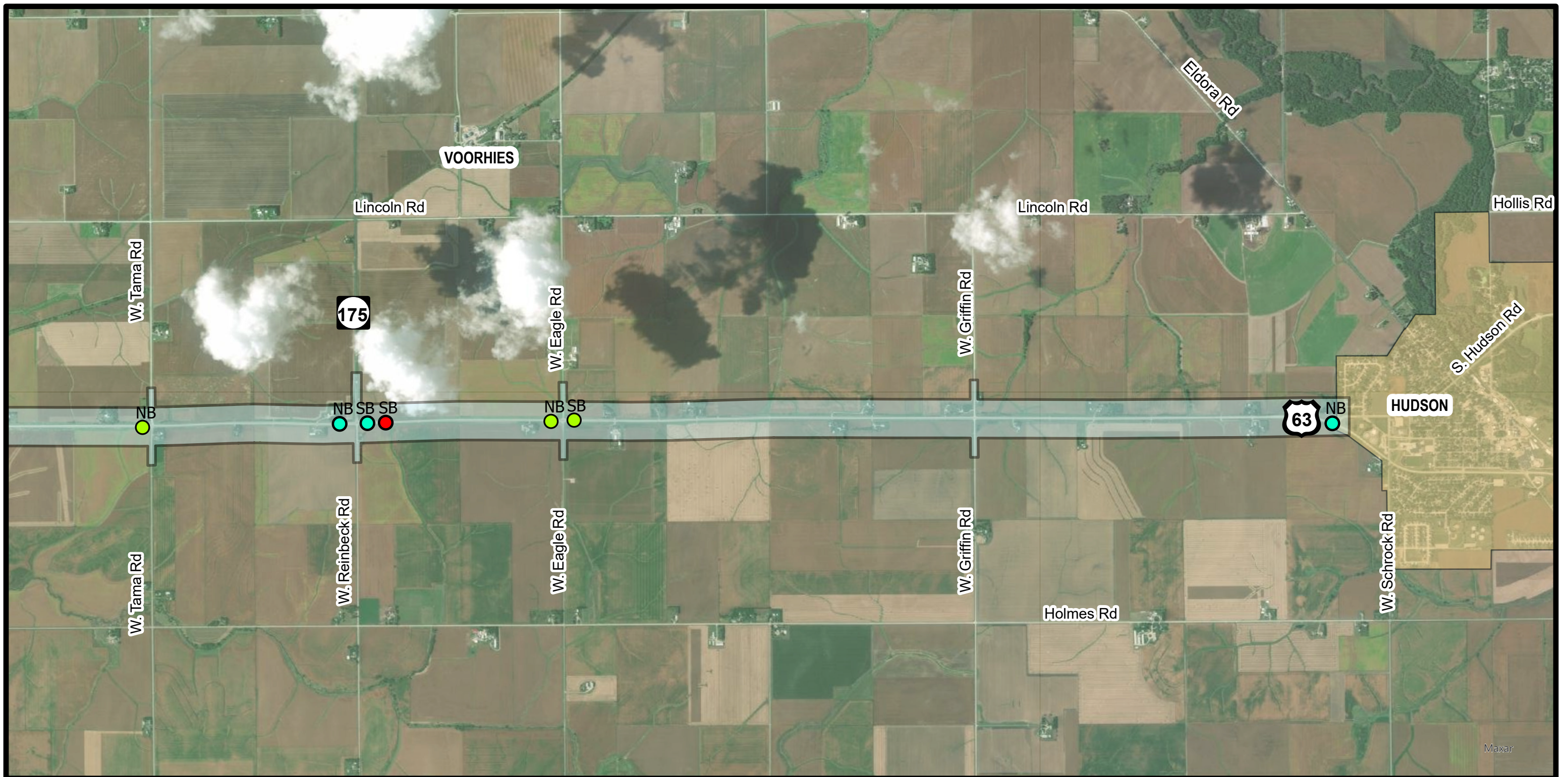
**Project Area Counties**

- Black Hawk
- Tama
- Poweshiek
- Other Counties

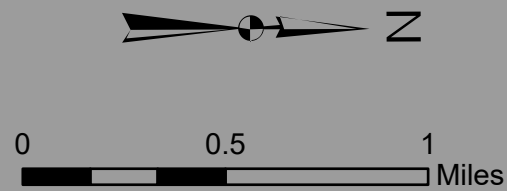
**STATE OF IOWA COUNTIES**



**FIGURE 4 - Existing Turn Lane Analysis**  
 NHSX-063-4(052)--3H-79  
 US 63 PEL Study - JCT. HWY 6 E. of Grinnell to S. of Hudson  
 Poweshiek\Tama\Black Hawk Counties Iowa



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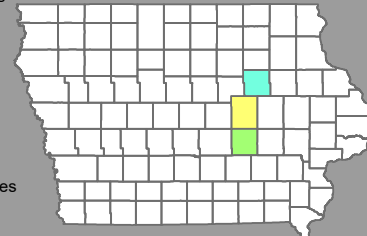
**Legend**

- Desktop Study Area
- Iowa Counties
- City Limit Boundaries
- Active Rail Lines
- Adequate Minor Right Turn Lane
- Adequate Left Turn Lane
- Upgrade to Major Right Turn Lane
- Upgrade Channelized Right Turn Lane

**Project Area Counties**

- Black Hawk
- Tama
- Poweshiek
- Other Counties

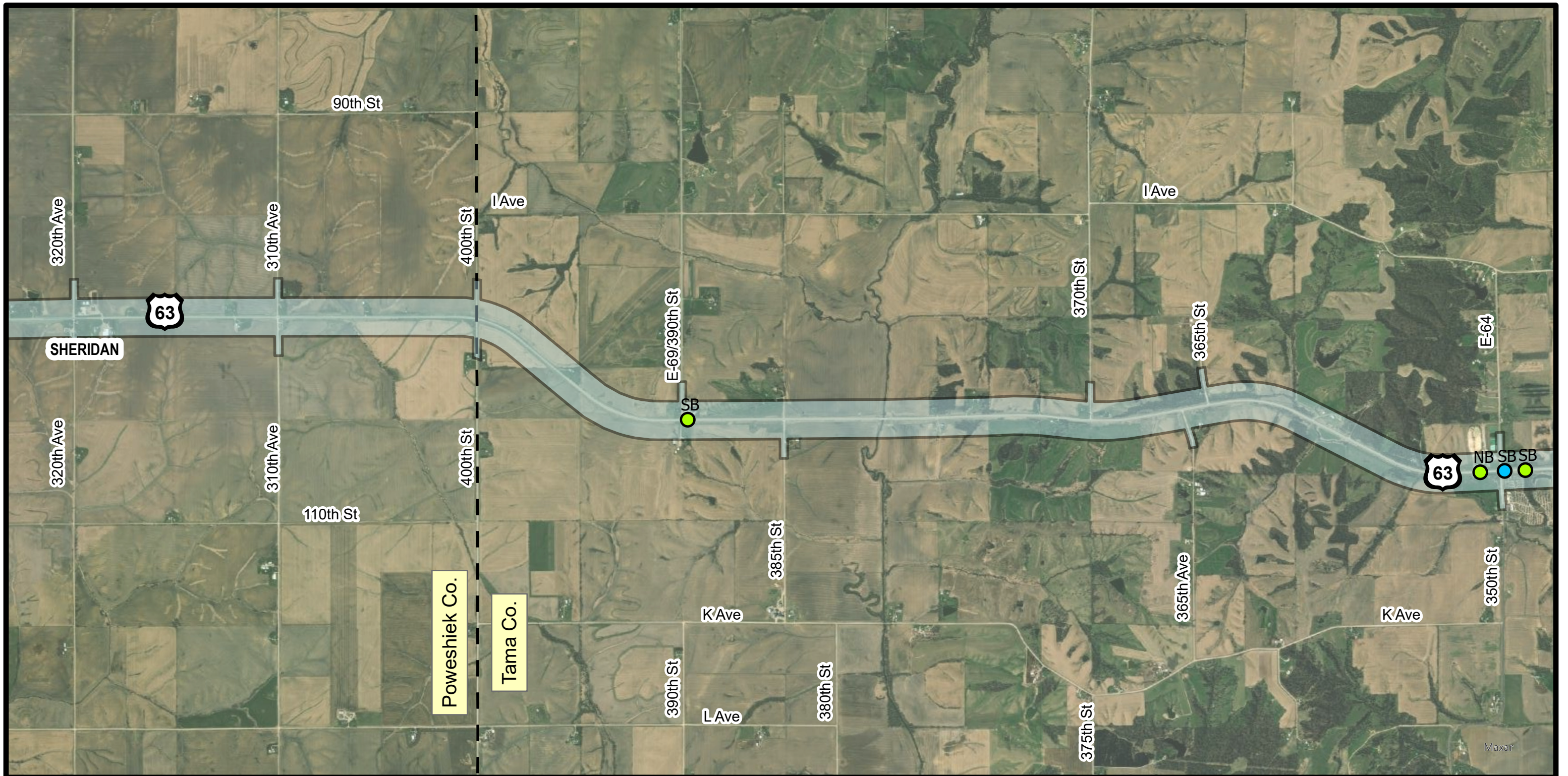
**STATE OF IOWA COUNTIES**



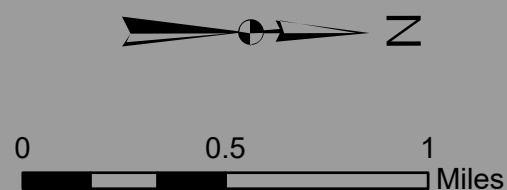
**FIGURE 4 - Existing Turn Lane Analysis**

NHSX-063-4(052)--3H-79  
 US 63 PEL Study - JCT. HWY 6 E. of Grinnell to S. of Hudson  
 Poweshiek\Tama\Black Hawk Counties Iowa

## Figure 5 – Proposed New Turn Lanes Analysis



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**Legend**

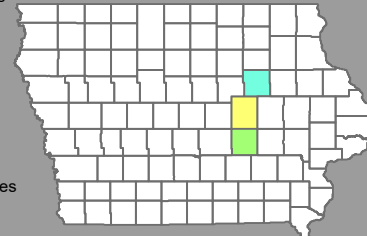
- Desktop Study Area
- Iowa Counties
- City Limit Boundaries
- Active Rail Lines
- Proposed Minor Right Turn Lane
- Proposed Major Right Turn Lane
- Proposed Left Turn Lane

**Project Area Counties**

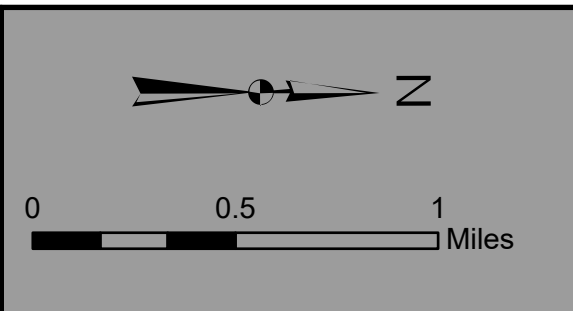
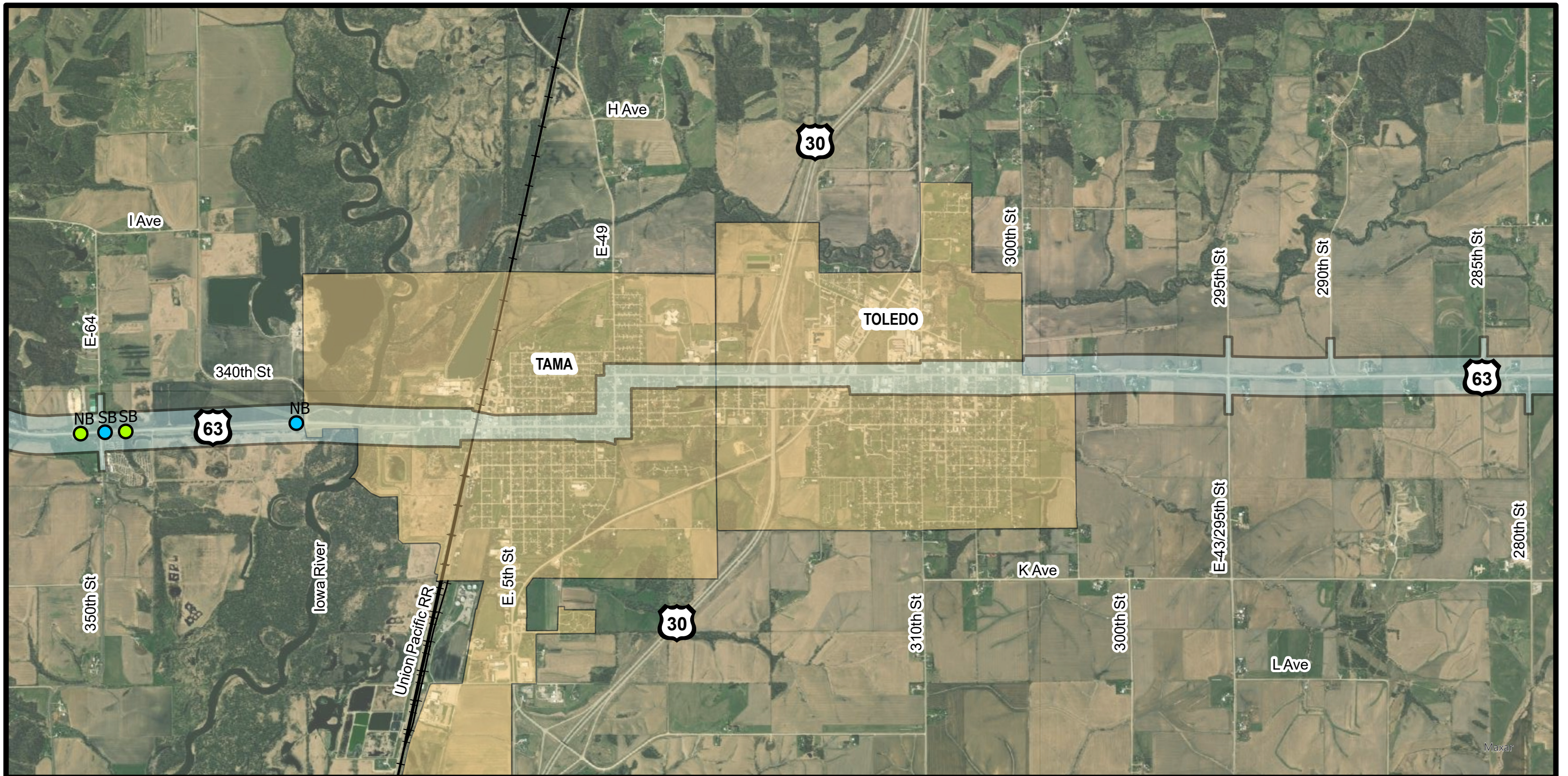
**County Name**

- Black Hawk
- Tama
- Poweshiek
- Other Counties

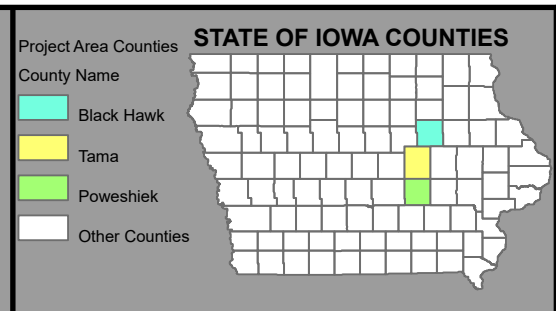
**STATE OF IOWA COUNTIES**



**FIGURE 5 - Proposed Turn Lane Analysis - Rural**  
 NHSX-063-4(052)--3H-79  
 US 63 PEL Study - JCT. HWY 6 E. of Grinnell to S. of Hudson  
 Poweshiek\Tama\Black Hawk Counties Iowa

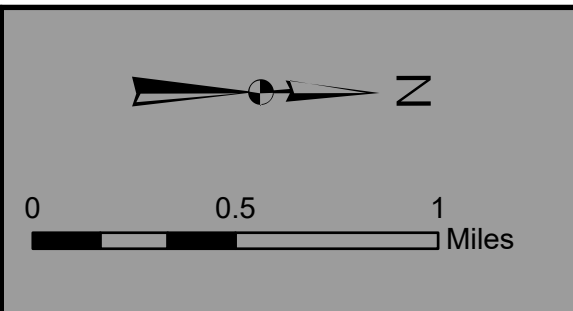
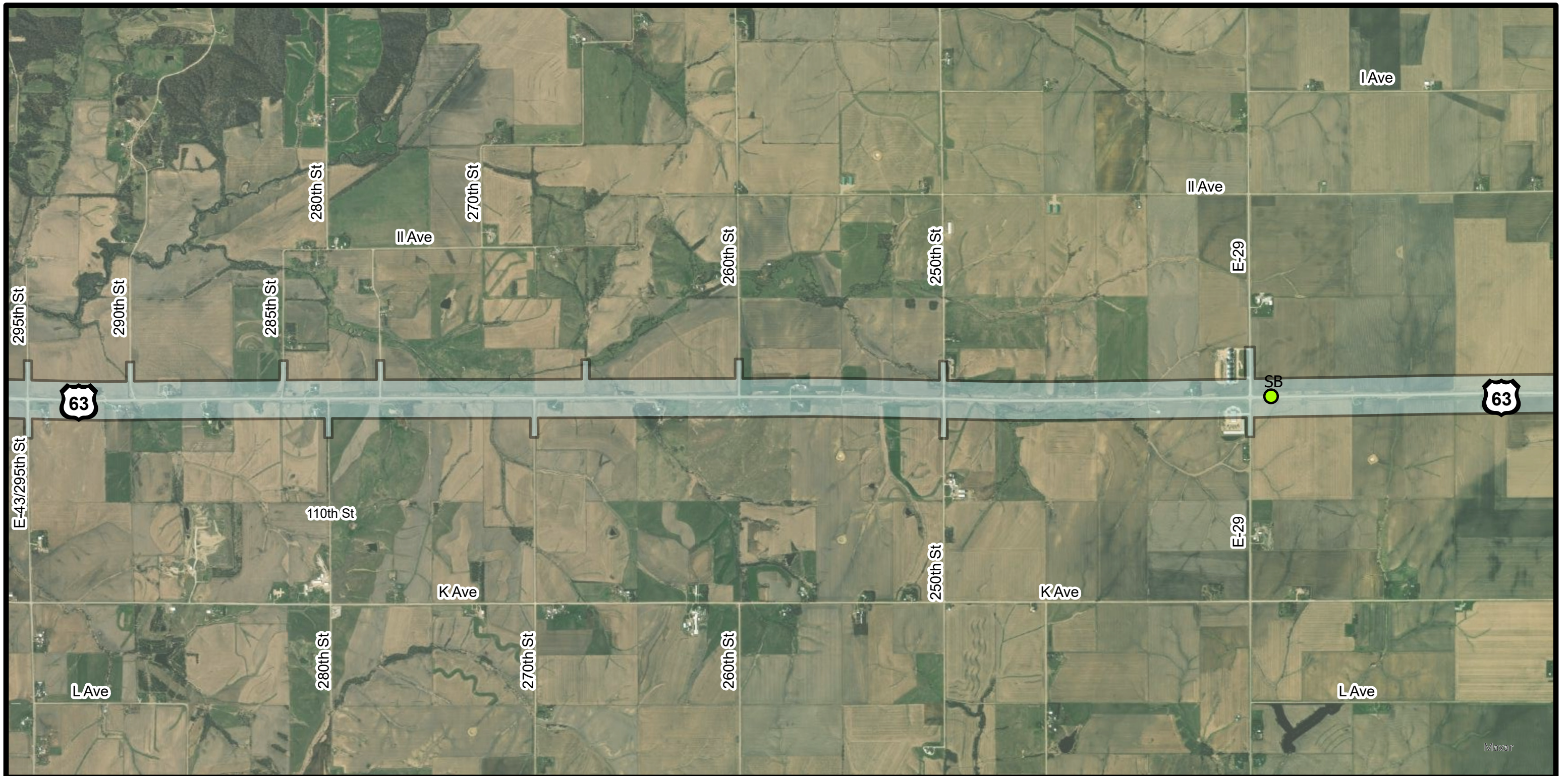


- Legend**
- Desktop Study Area
  - Iowa Counties
  - City Limit Boundaries
  - Active Rail Lines
  - Proposed Major Right Turn Lane
  - Proposed Minor Right Turn Lane
  - Proposed Left Turn Lane

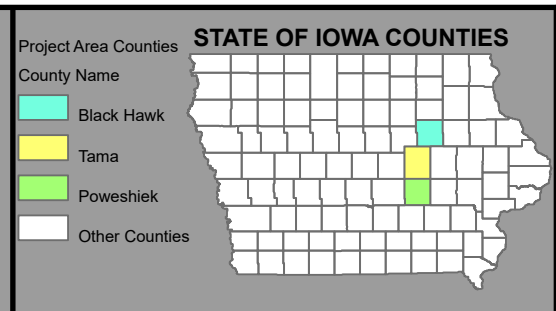


**FIGURE 5 - Proposed Turn Lane Analysis - Rural**  
 NHSX-063-4(052)--3H-79  
 US 63 PEL Study - JCT. HWY 6 E. of Grinnell to S. of Hudson  
 Poweshiek\Tama\Black Hawk Counties Iowa

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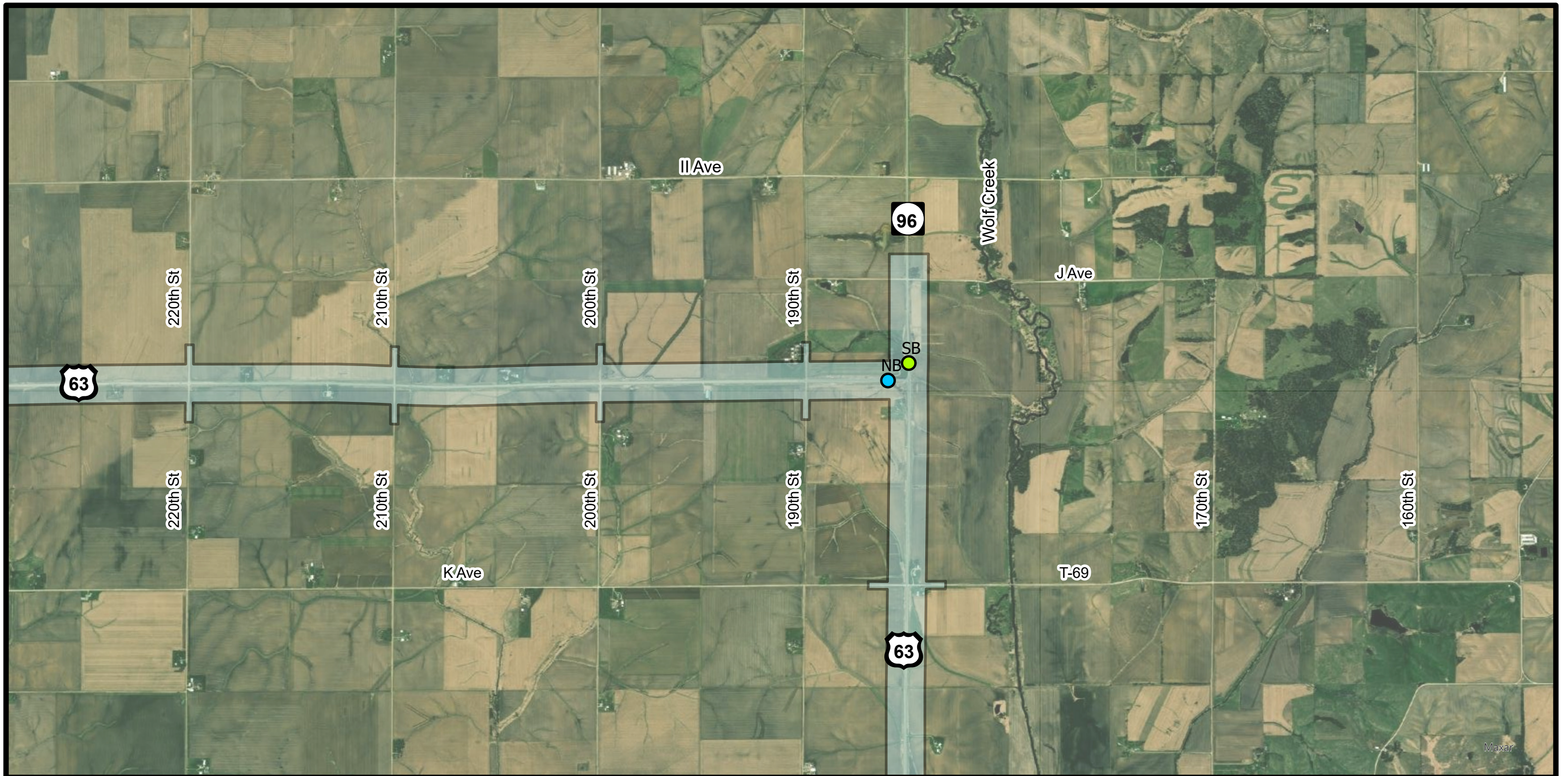


- Legend**
- Desktop Study Area
  - Iowa Counties
  - City Limit Boundaries
  - Active Rail Lines
  - Proposed Minor Right Turn Lane
  - Proposed Major Right Turn Lane
  - Proposed Left Turn Lane

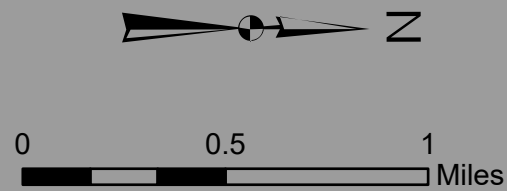


**FIGURE 5 - Proposed Turn Lane Analysis - Rural**  
 NHSX-063-4(052)--3H-79  
 US 63 PEL Study - JCT. HWY 6 E. of Grinnell to S. of Hudson  
 Poweshiek\Tama\Black Hawk Counties Iowa

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**Legend**

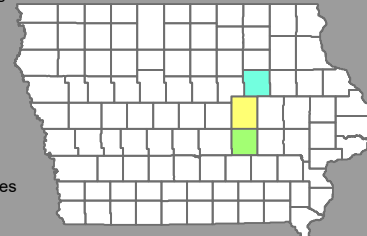
- Desktop Study Area
- Iowa Counties
- City Limit Boundaries
- Active Rail Lines
- Proposed Minor Right Turn Lane
- Proposed Major Right Turn Lane
- Proposed Left Turn Lane

**Project Area Counties**

**County Name**

- Black Hawk
- Tama
- Poweshiek
- Other Counties

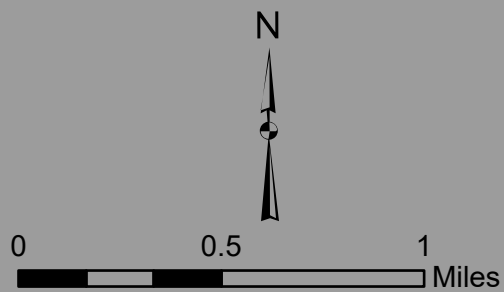
**STATE OF IOWA COUNTIES**



**FIGURE 5 - Proposed Turn Lane Analysis - Rural**  
 NHSX-063-4(052)--3H-79  
 US 63 PEL Study - JCT. HWY 6 E. of Grinnell to S. of Hudson  
 Poweshiek\Tama\Black Hawk Counties Iowa



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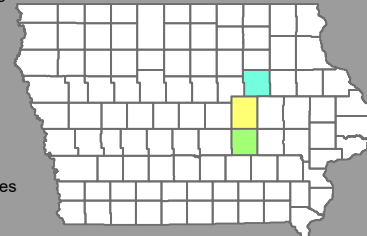
**Legend**

- Desktop Study Area
- Iowa Counties
- City Limit Boundaries
- Active Rail Lines
- Proposed Minor Right Turn Lane
- Proposed Major Right Turn Lane
- Proposed Left Turn Lane

**Project Area Counties**

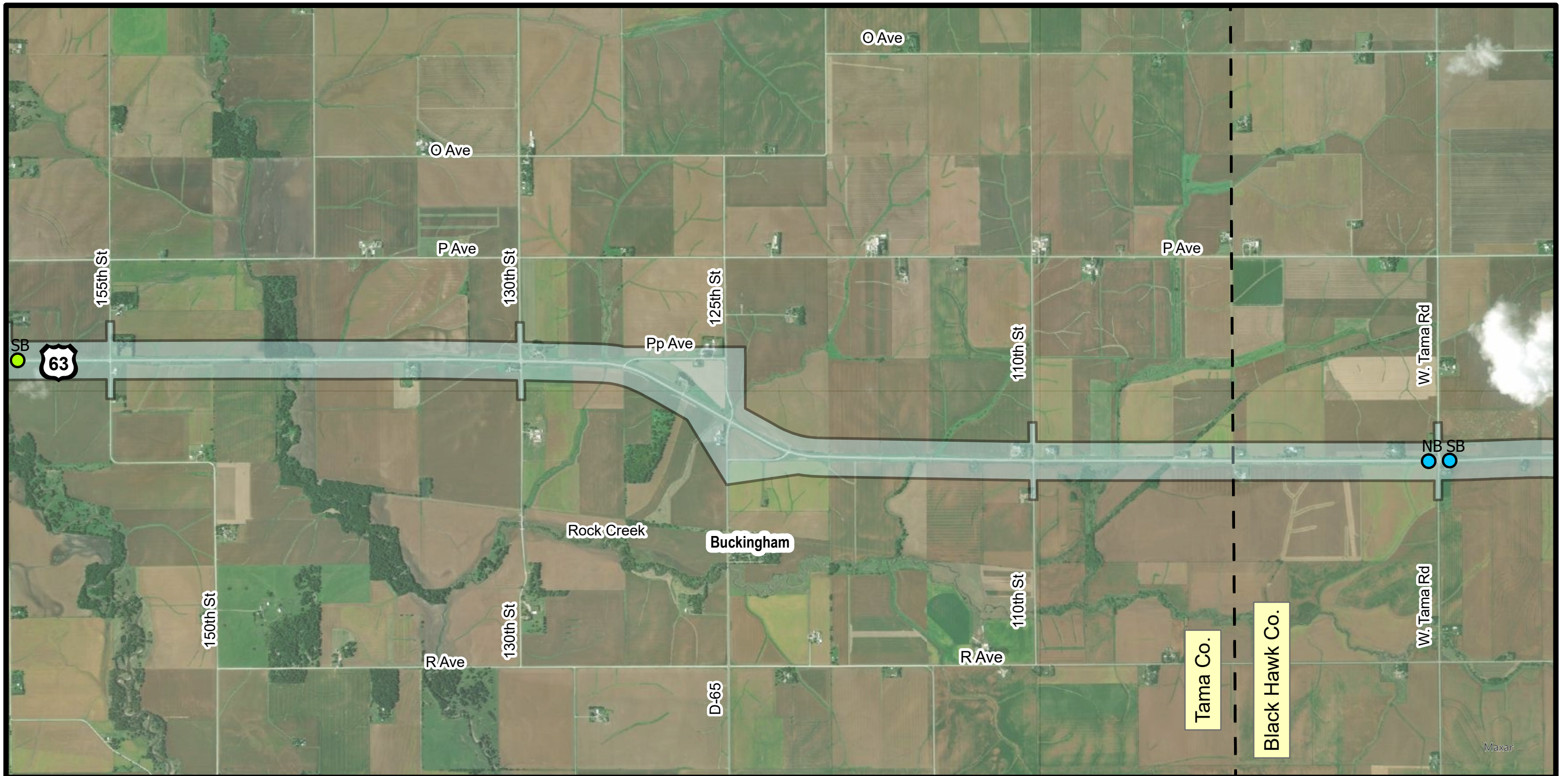
- Black Hawk
- Tama
- Poweshiek
- Other Counties

**STATE OF IOWA COUNTIES**

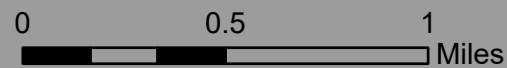


**FIGURE 5 - Proposed Turn Lane Analysis - Rural**  
 NHSX-063-4(052)--3H-79  
 US 63 PEL Study - JCT. HWY 6 E. of Grinnell to S. of Hudson  
 Poweshiek\Tama\Black Hawk Counties Iowa





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**Legend**

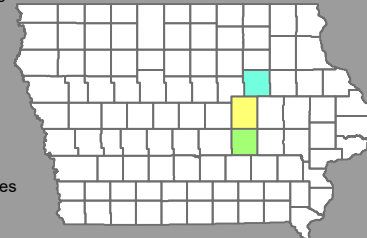
- Proposed Major Right Turn Lane
- Proposed Minor Right Turn Lane
- Proposed Left Turn Lane
- Desktop Study Area
- Iowa Counties
- City Limit Boundaries
- Active Rail Lines

**Project Area Counties**

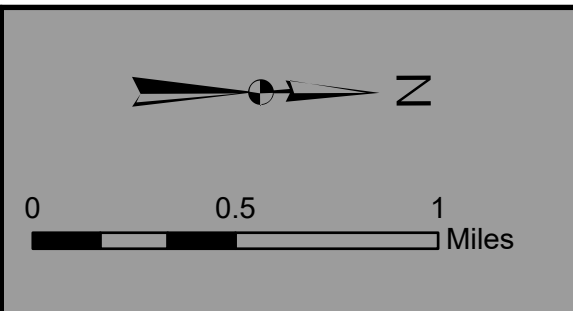
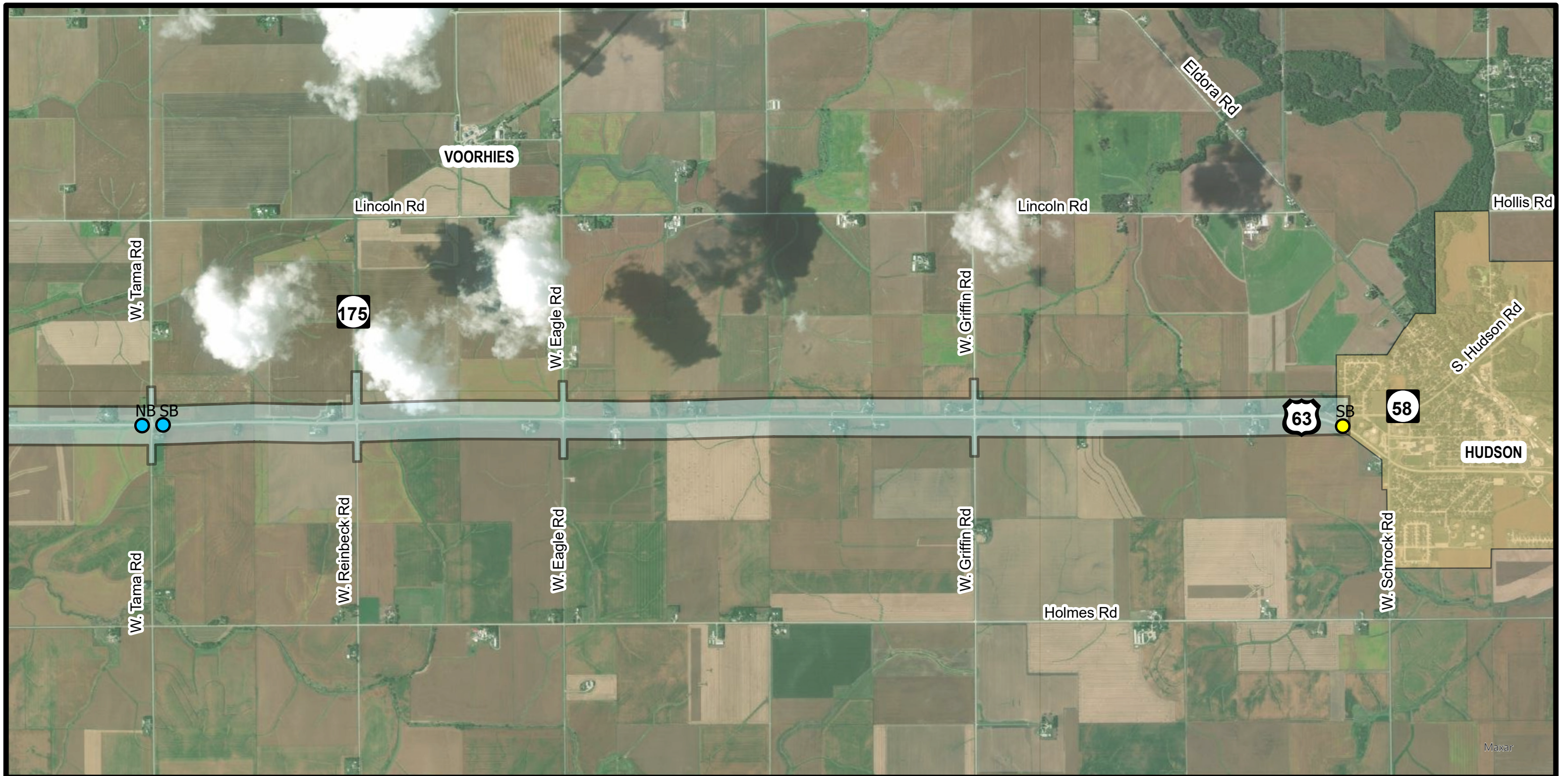
**County Name**

- Black Hawk
- Tama
- Poweshiek
- Other Counties

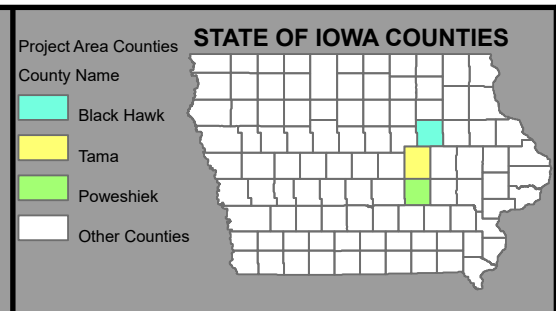
**STATE OF IOWA COUNTIES**



**FIGURE 5 - Proposed Turn Lane Analysis - Rural**  
 NHSX-063-4(052)--3H-79  
 US 63 PEL Study - JCT. HWY 6 E. of Grinnell to S. of Hudson  
 Poweshiek\Tama\Black Hawk Counties Iowa

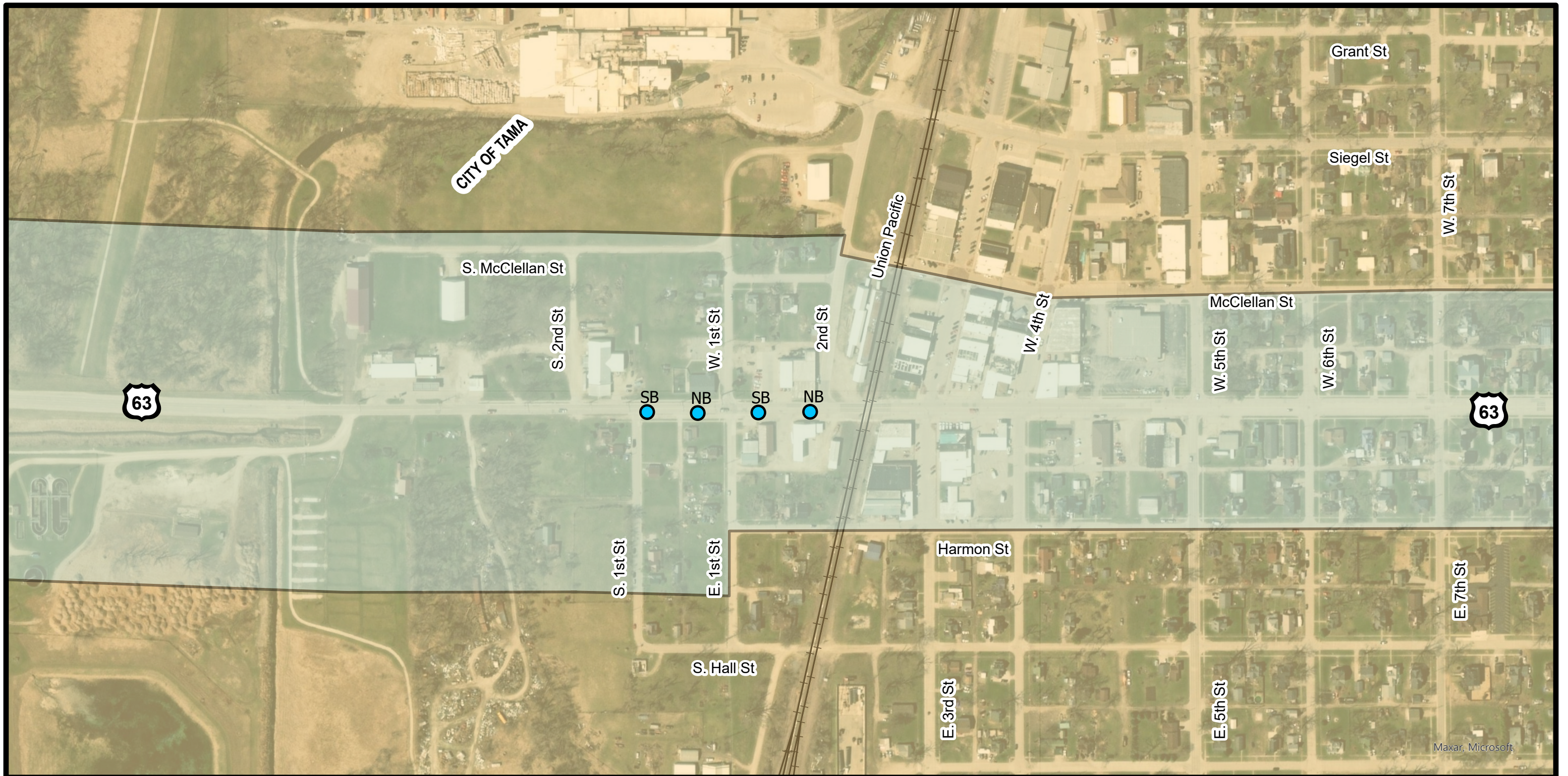


- Legend**
- Desktop Study Area
  - Iowa Counties
  - City Limit Boundaries
  - Active Rail Lines
  - Proposed Minor Right Turn Lane
  - Proposed Major Right Turn Lane
  - Proposed Left Turn Lane

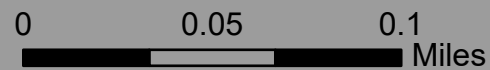


**FIGURE 5 - Proposed Turn Lane Analysis - Rural**  
 NHSX-063-4(052)--3H-79  
 US 63 PEL Study - JCT. HWY 6 E. of Grinnell to S. of Hudson  
 Poweshiek\Tama\Black Hawk Counties Iowa

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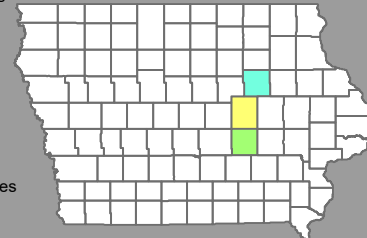
**Legend**

- Desktop Study Area
- Iowa Counties
- City Limit Boundaries
- Active Rail Lines
- Proposed Left Turn Lane

**Project Area Counties**

- Black Hawk
- Tama
- Poweshiek
- Other Counties

**STATE OF IOWA COUNTIES**



**FIGURE 5 - Proposed Turn Lane Analysis - Urban**  
 NHSX-063-4(052)--3H-79  
 US 63 PEL Study - JCT. HWY 6 E. of Grinnell to S. of Hudson  
 Poweshiek\Tama\Black Hawk Counties Iowa

# Figure 6 – Images of Start and End of Proposed Climbing/ Passing Lanes (North to South)

Start of Existing CL #1 SB #1 Looking South



End of Existing CL #1 SB #1 Looking North



Start of CL #2 SB #2 Looking South



End of CL #2 SB #2 Looking North



Start of CL #3 NB #1 Looking North



End of CL #3 NB #1 Looking South



Start of CL #4 SB #3 Looking South



End of CL #4 SB #3 Looking North



Start of CL #5 NB #2 Looking North



End of CL #5 NB #2 Looking South





Start of CL #6 SB #4 Looking South



End of CL #6 SB #4 Looking North



Start of CL #7 NB #3 Looking North



End of CL #7 NB #3 Looking South



Start of CL #8 SB #5 Looking South



End of CL #8 SB #5 Looking North



Start of CL #9 (NB 4) Looking North



End of CL #9 (NB 4) Looking South



Start of Existing CL #10 (NB 5) Looking North



End of Existing CL #10 (NB 5) Looking South



Start of PL #1 SB #6 Looking South



End of PL #1 SB #6 Looking North



Start of PL #2 NB #6 Looking North



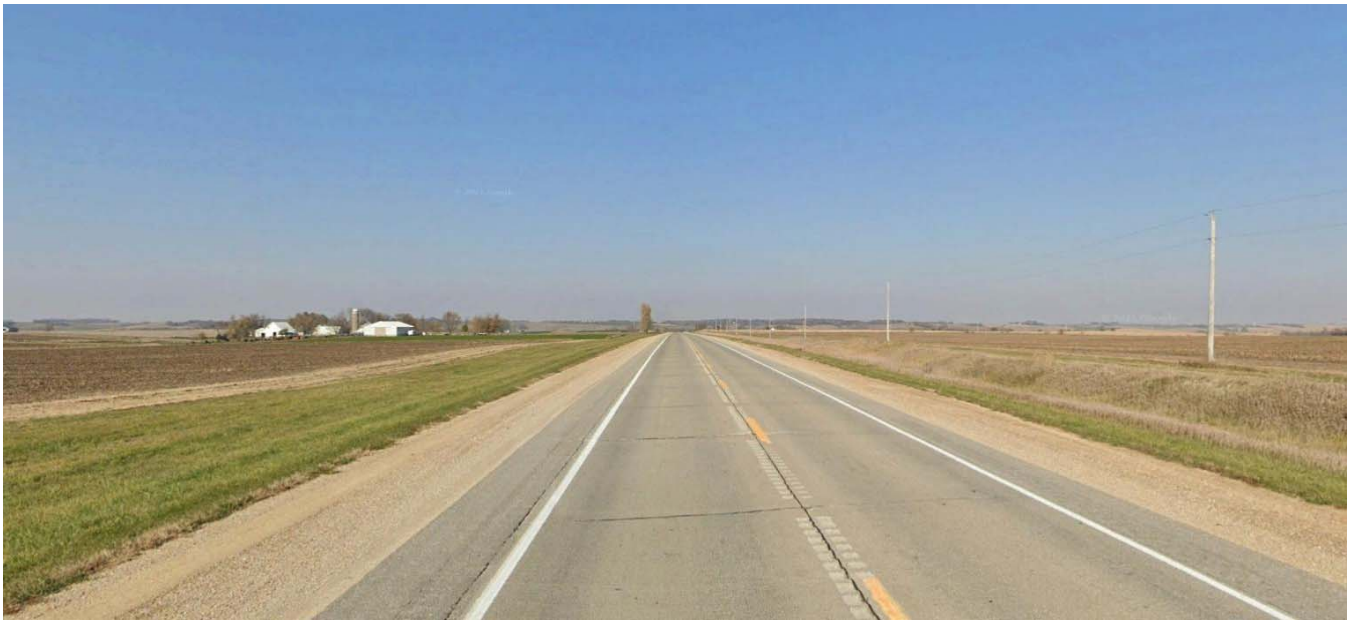
End of PL #2 NB #6 Looking South



Start of PL #3 SB #7 Looking South



End of PL #3 SB #7 Looking North

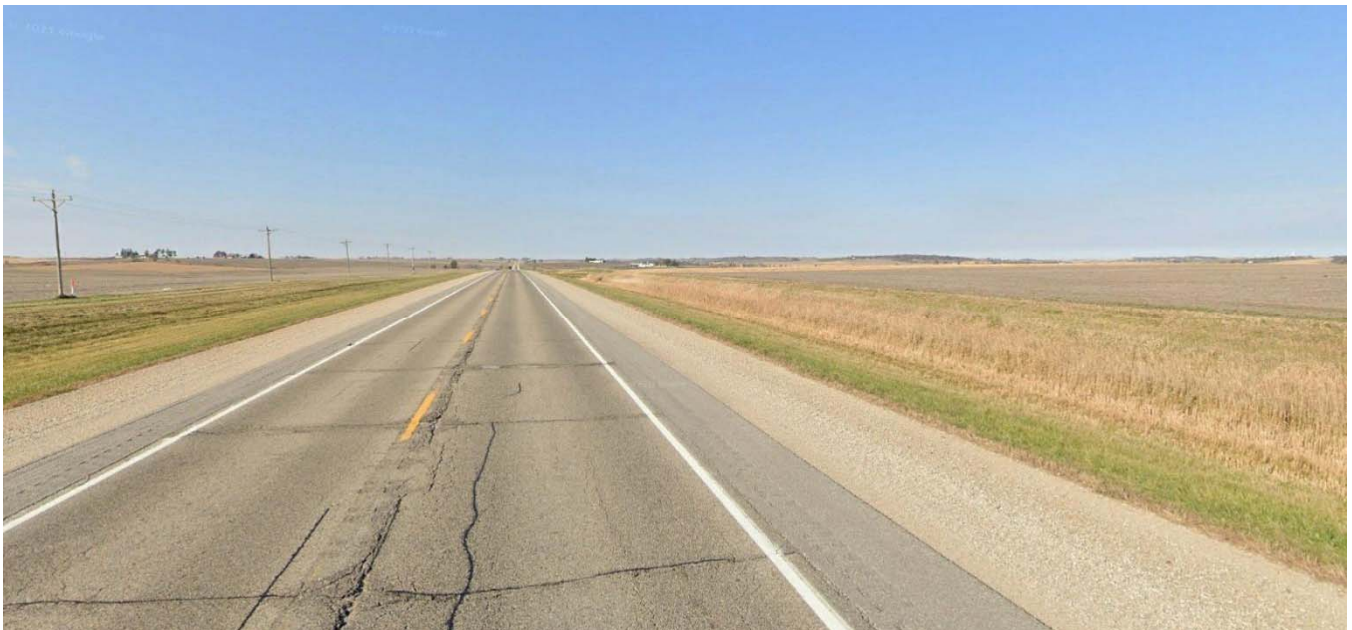




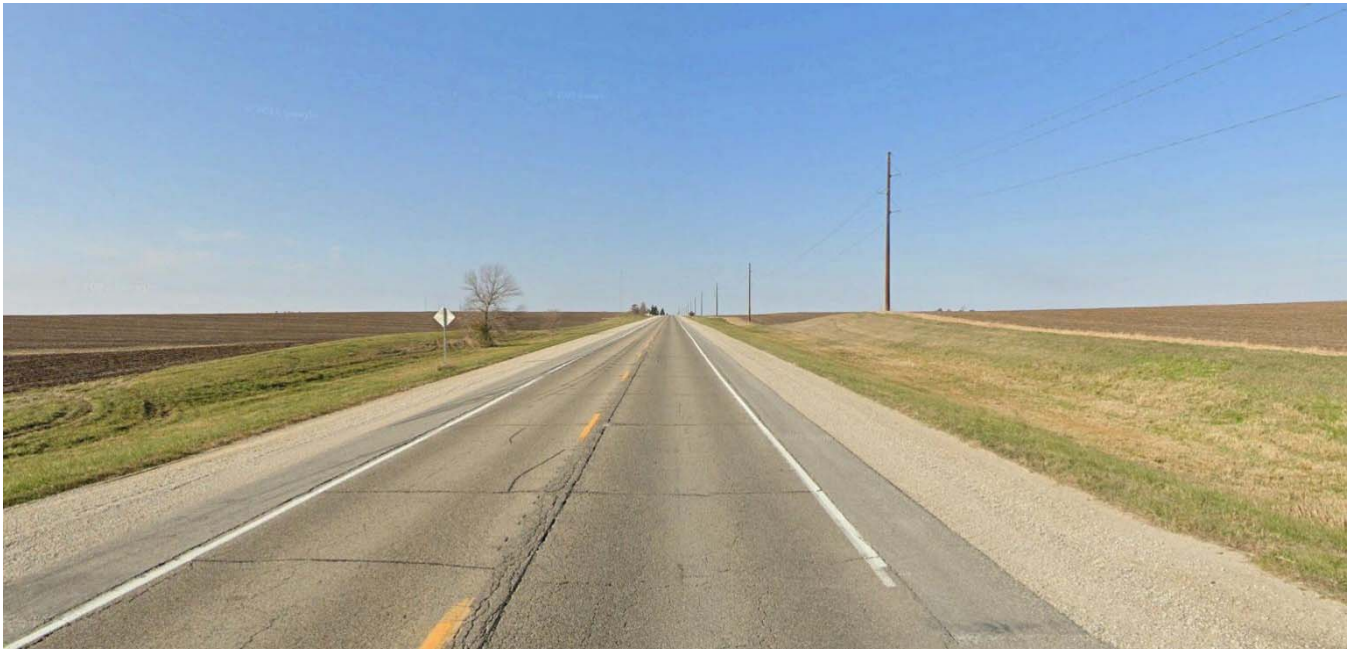
Start of PL #4 NB #7 Looking East/North



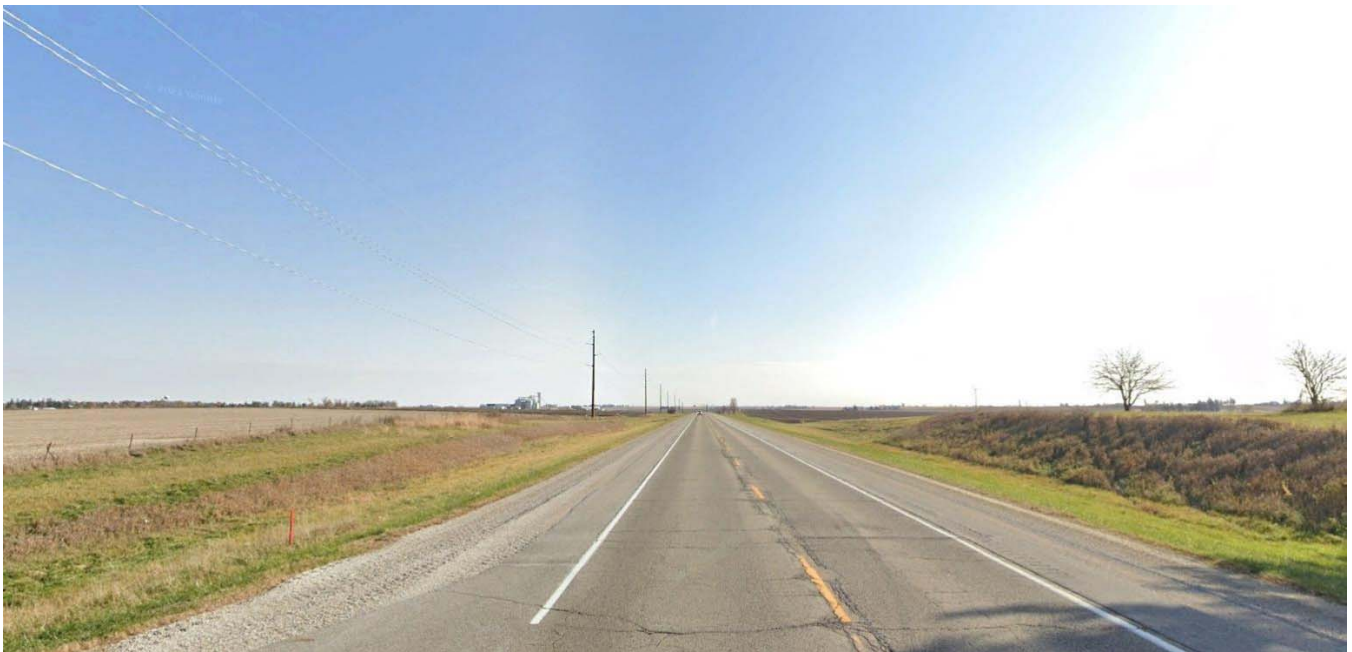
End of PL #4 NB #7 Looking West/South



Start of PL #5 SB #8 Looking West/South



End of PL #5 SB #8 Looking East/North



Start of CL #11 NB #8 Looking North



End of CL #11 NB #8 Looking South



Start of CL #12 SB #9 Looking South



Start of CL #12 SB #9 Looking North



Start of PL #6 NB #9 Looking North



End of PL #6 NB #9 Looking South



Start of PL #7 NB #10 Looking North



End of PL #7 NB #10 Looking South



Start of PL #8 SB #10 Looking South

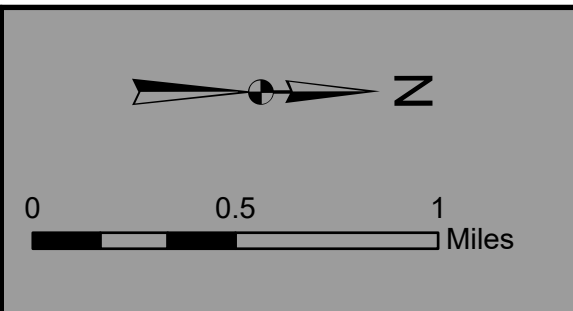


End of PL #8 SB #10 Looking North

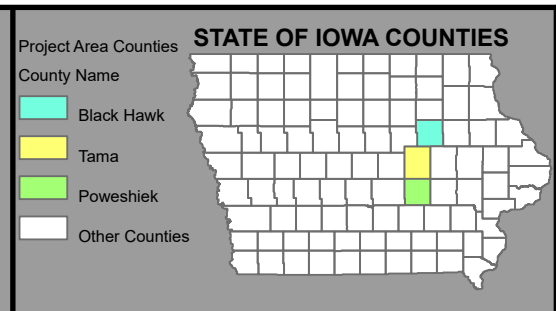


## Figure 7 – Proposed Climbing/Passing Lanes Locations





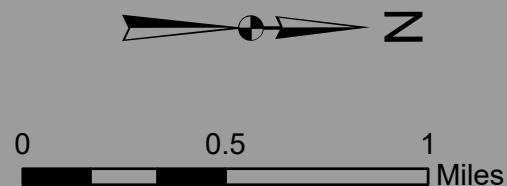
- Legend**
- Desktop Study Area
  - Iowa Counties
  - City Limit Boundaries
  - Active Rail Lines
  - Proposed Climbing/Passing Lanes
  - US 63 Mile Posts
  - US 63 Bridges



**FIGURE 7 - Proposed Climbing/ Passing Lanes**  
 NHSX-063-4(052)--3H-79  
 US 63 PEL Study - JCT. HWY 6 E. of Grinnell to S. of Hudson  
 Poweshiek\Tama\Black Hawk Counties Iowa



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Legend

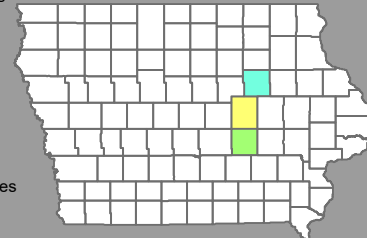
- Desktop Study Area
- Iowa Counties
- City Limit Boundaries
- Active Rail Lines
- Proposed Climbing/Passing Lanes
- US 63 Mile Posts
- US 63 Bridges

Project Area Counties

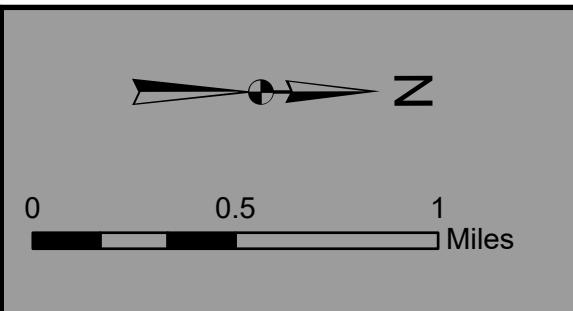
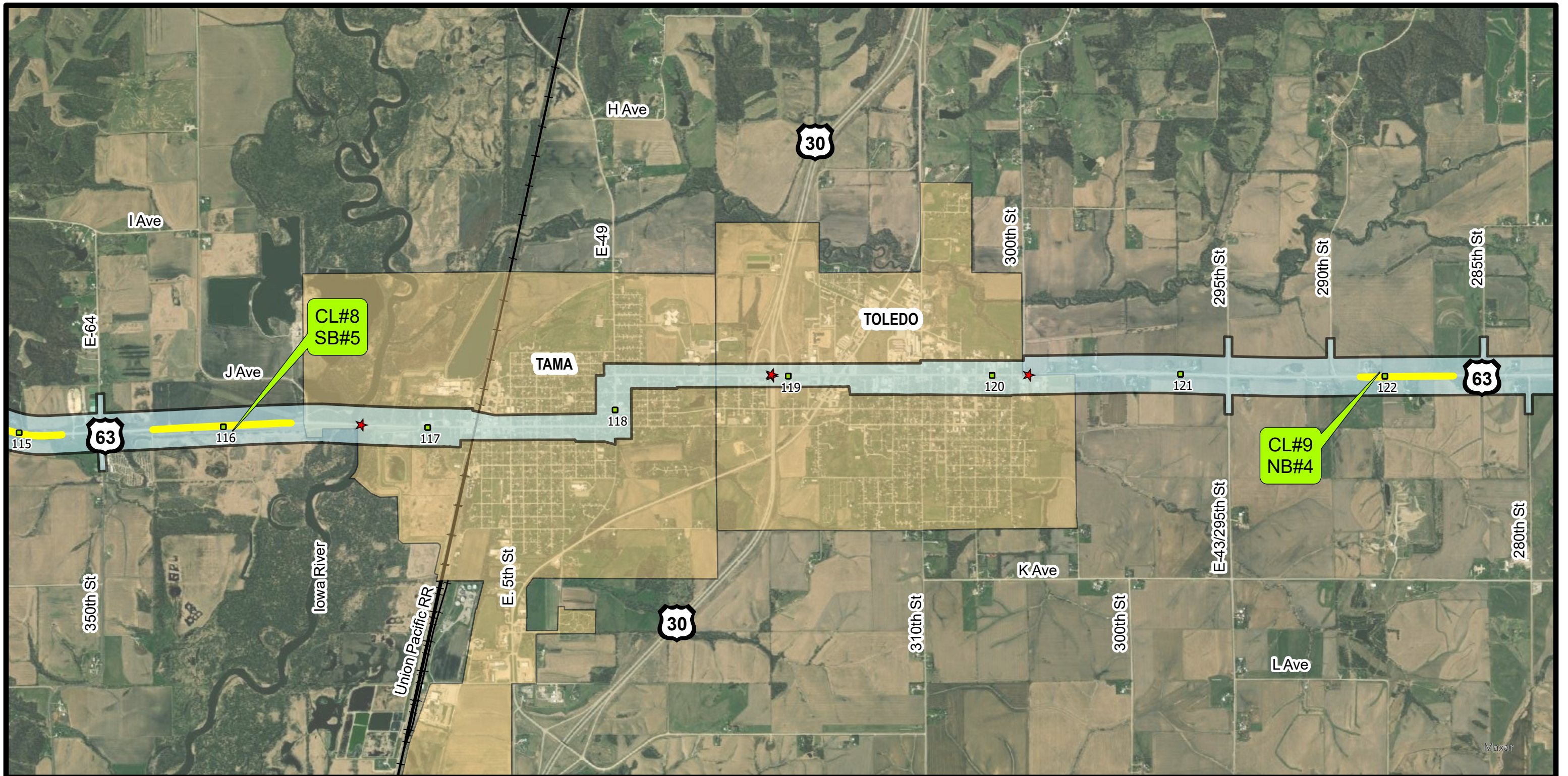
County Name

- Black Hawk
- Tama
- Poweshiek
- Other Counties

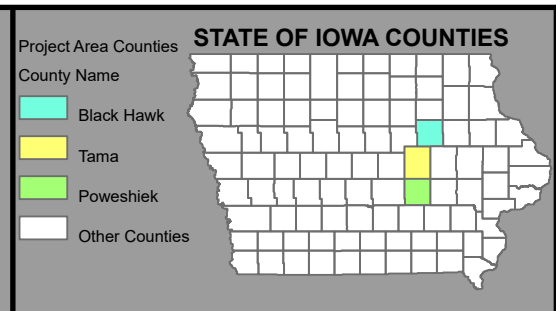
STATE OF IOWA COUNTIES



**FIGURE 7 - Proposed Climbing/  
Passing Lanes**  
 NHSX-063-4(052)--3H-79  
 US 63 PEL Study - JCT. HWY 6 E. of  
 Grinnell to S. of Hudson  
 Poweshiek\Tama\Black Hawk Counties  
 Iowa

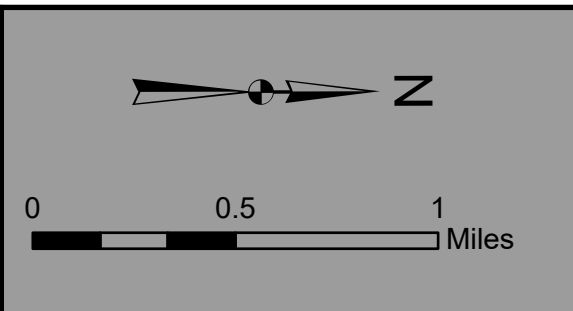


- Legend**
- Desktop Study Area
  - Iowa Counties
  - City Limit Boundaries
  - Active Rail Lines
  - Proposed Climbing/Passing Lanes
  - US 63 Mile Posts
  - US 63 Bridges

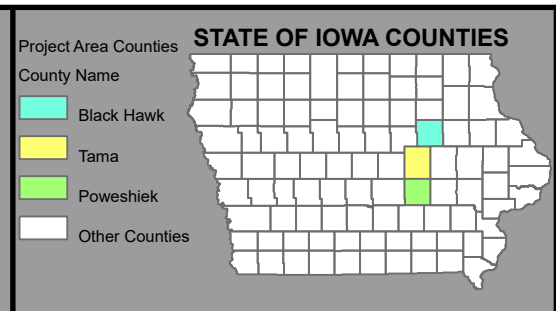


**FIGURE 7 - Proposed Climbing/  
Passing Lanes**  
 NHSX-063-4(052)--3H-79  
 US 63 PEL Study - JCT. HWY 6 E. of  
 Grinnell to S. of Hudson  
 Poweshiek\Tama\Black Hawk Counties  
 Iowa

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- Legend**
- Desktop Study Area
  - Iowa Counties
  - City Limit Boundaries
  - Active Rail Lines
  - Proposed Climbing/Passing Lanes
  - US 63 Mile Posts
  - US 63 Bridges

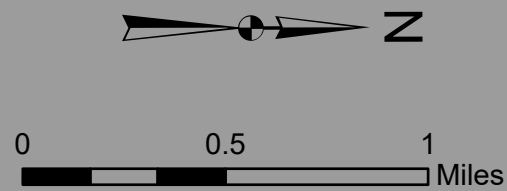


**FIGURE 7 - Proposed Climbing/  
Passing Lanes**  
 NHSX-063-4(052)--3H-79  
 US 63 PEL Study - JCT. HWY 6 E. of  
 Grinnell to S. of Hudson  
 Poweshiek\Tama\Black Hawk Counties  
 Iowa

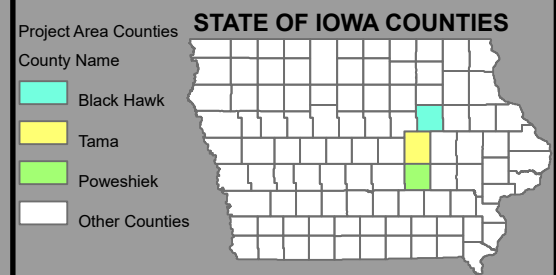
4/8



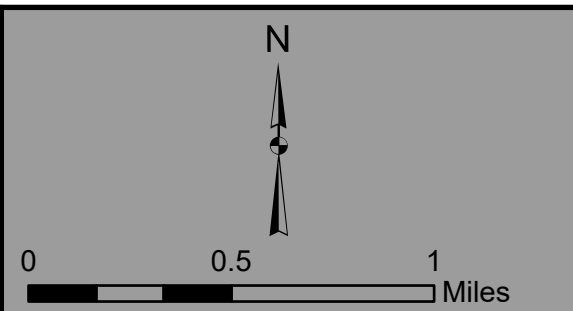
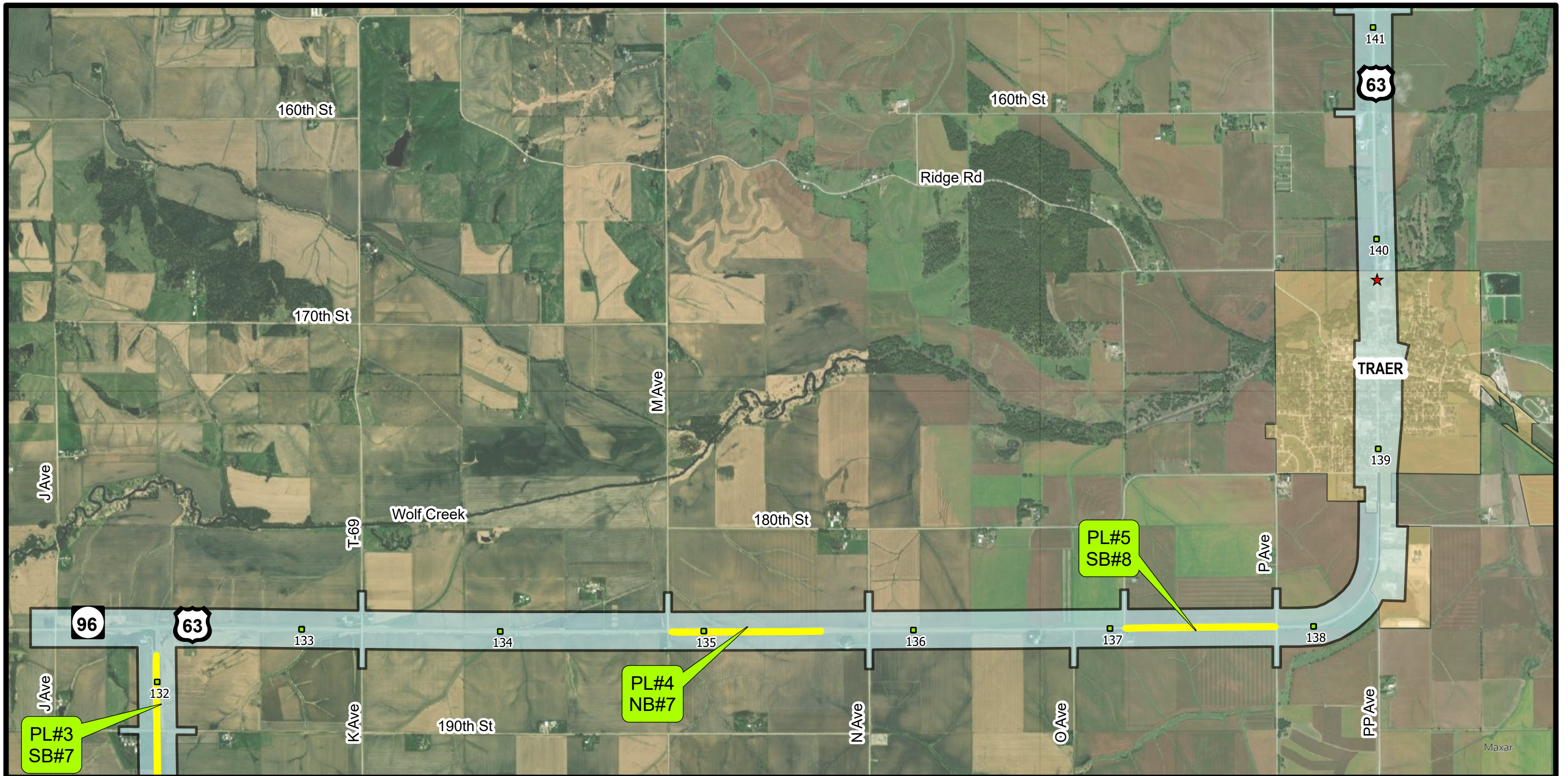
Created February 2022



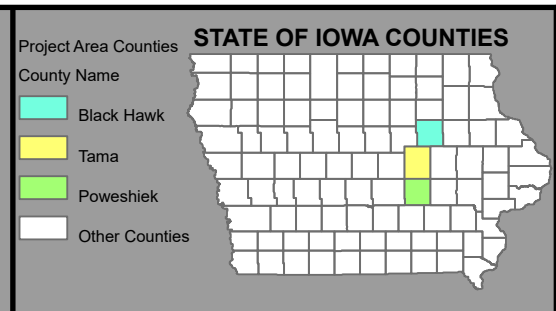
- Legend**
- Desktop Study Area
  - Iowa Counties
  - City Limit Boundaries
  - Active Rail Lines
  - Proposed Climbing/Passing Lanes
  - US 63 Mile Posts
  - US 63 Bridges



**FIGURE 7 - Proposed Climbing/  
Passing Lanes**  
 NHSX-063-4(052)--3H-79  
 US 63 PEL Study - JCT. HWY 6 E. of  
 Grinnell to S. of Hudson  
 Poweshiek\Tama\Black Hawk Counties  
 Iowa

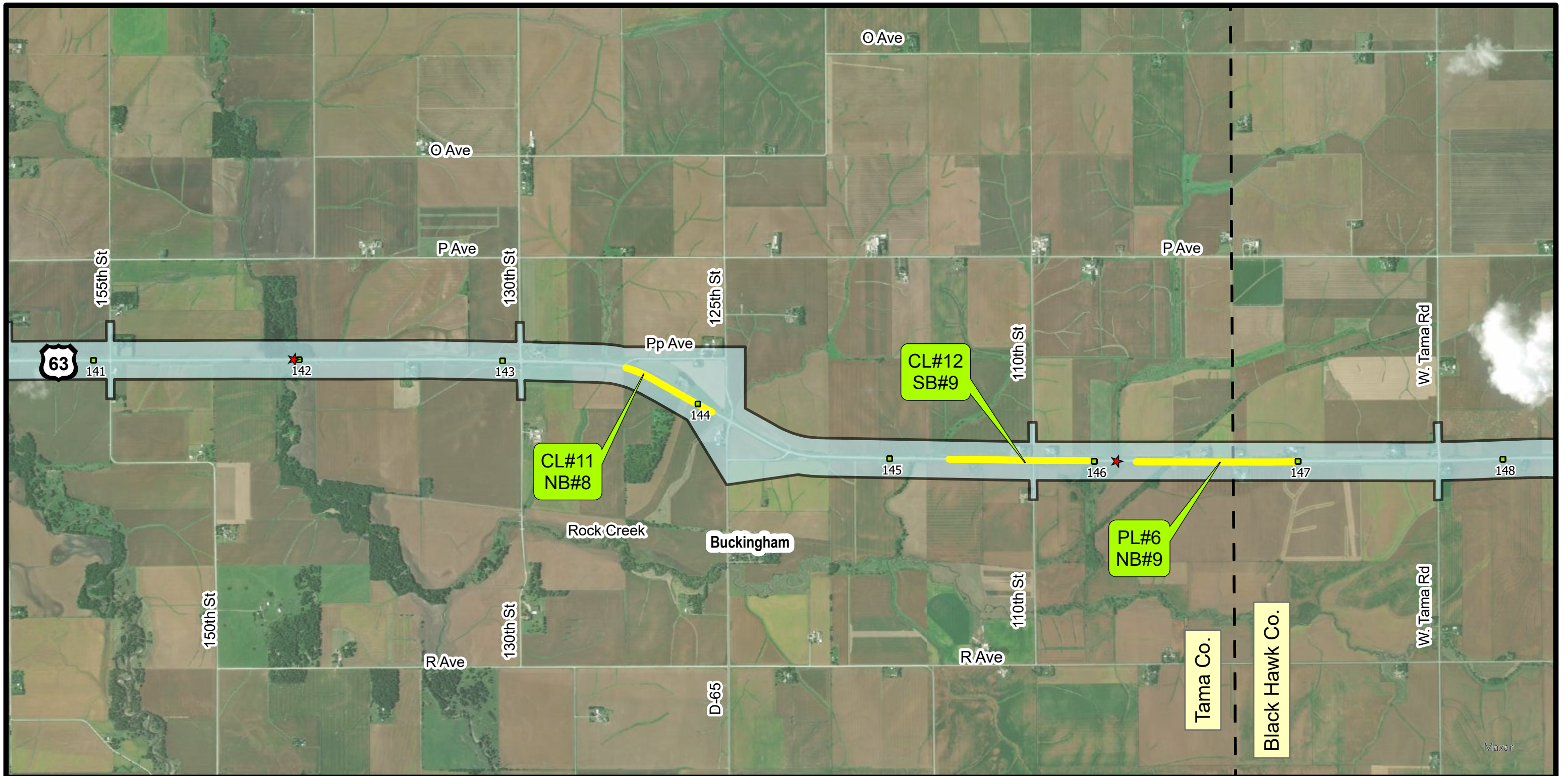


- Legend**
- Desktop Study Area
  - Iowa Counties
  - City Limit Boundaries
  - Active Rail Lines
  - Proposed Climbing/Passing Lanes
  - US 63 Mile Posts
  - ★ US 63 Bridges

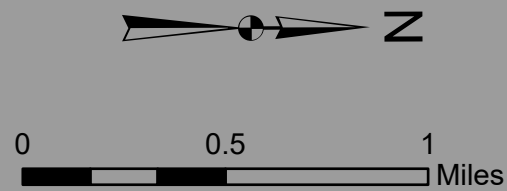


**FIGURE 7 - Proposed Climbing/  
Passing Lanes**  
 NHSX-063-4(052)--3H-79  
 US 63 PEL Study - JCT. HWY 6 E. of  
 Grinnell to S. of Hudson  
 Poweshiek\Tama\Black Hawk Counties  
 Iowa

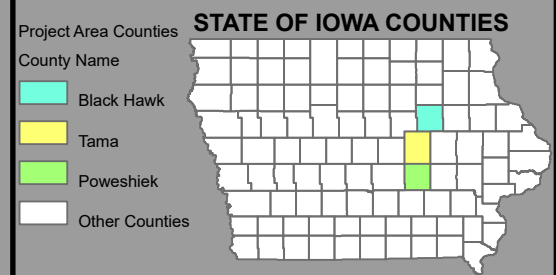
6/8



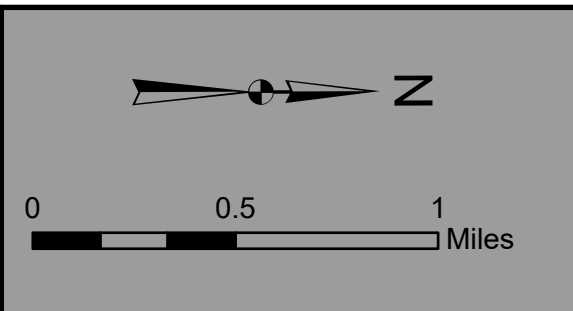
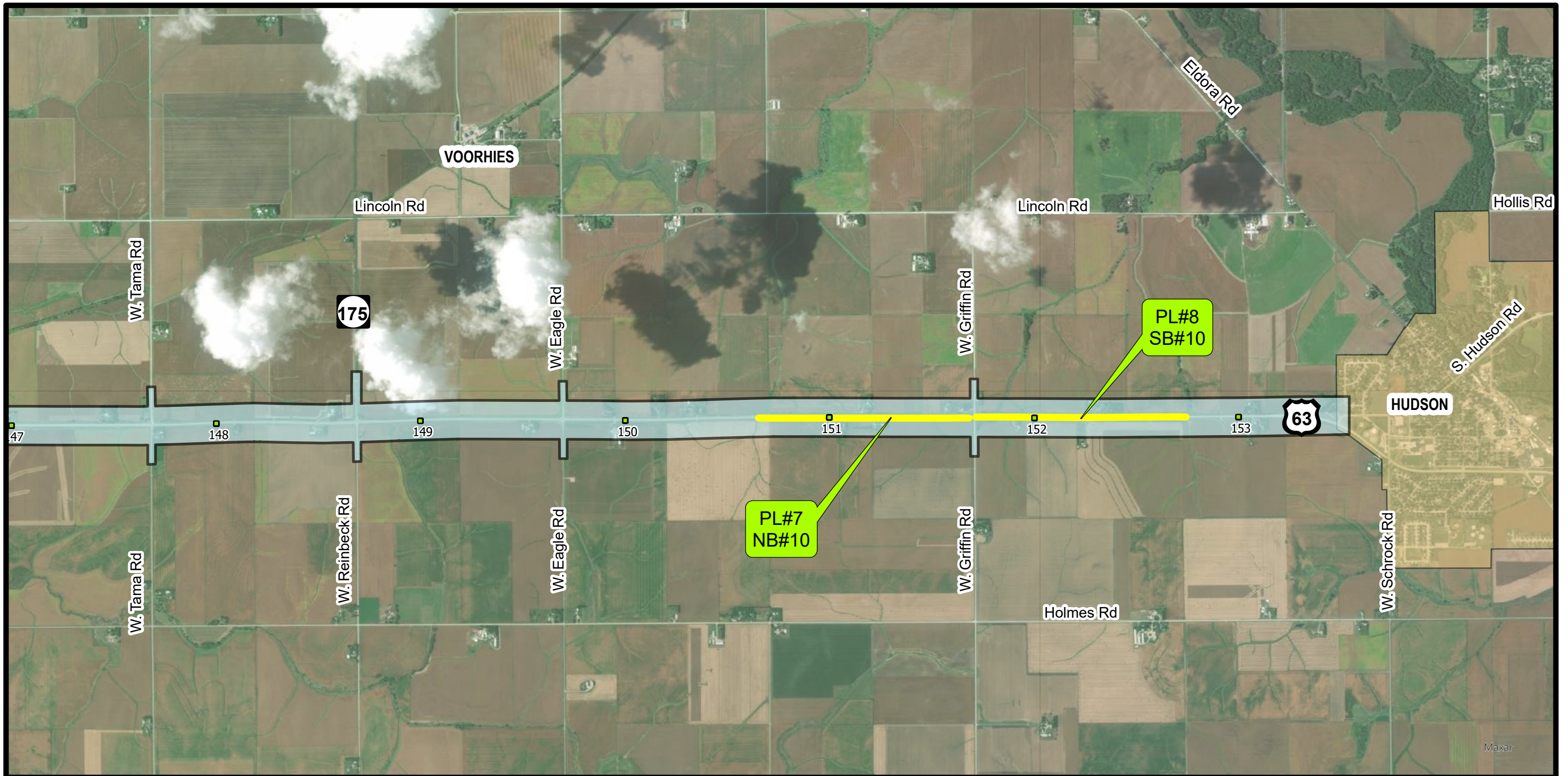
Created February 2022



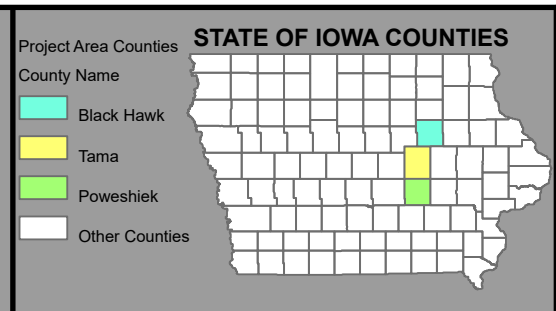
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