US 30 Cedar and Clinton Counties
PLANNING AND ENVIRONMENTAL LINKAGES (PEL) STUDY

Goals and Guiding Principles

Office of Location and Environment | March 2019

EXECUTIVE SUMMARY

INTRODUCTION AND PROJECT SETTING

The Iowa Department of Transportation (DOT) is preparing a transportation planning study for a portion of the US Highway 30 (US 30) corridor in Cedar and Clinton Counties in eastern Iowa following the Federal Highway Administration Planning and Environmental Linkages (PEL) process. The objective of the US 30 PEL Study is to gain an understanding of the corridor's existing conditions and infrastructure, determine the roadway cross-section needed to meet current and future traffic operations and mobility needs, and to develop and prioritize a range of potential improvement projects that could be considered for the corridor. The US 30 PEL Study will conclude with development of the US 30 Vision Document, a report that will summarize all the Study's findings and recommendations. The Vision Document will be the roadmap for future study and investment in the corridor. Identified, prioritized, and recommended improvement alternatives and projects included in the Vision Document will be developed to a level that will allow for a streamlined transition into future phases of project development, including environmental National Environmental Protection Agency studies, without delay or need for backward-looking study once the decision is made to fund and program an individual improvement project or projects.

The US 30 PEL Study corridor begins just east of Lisbon near the intersection with Charles Avenue and continues east to near the 260th Avenue intersection just west of the US 30/US 61 interchange at DeWitt. This section of US 30 is on the Iowa DOT's primary highway system and Commercial and Industrial Network. Within the Study corridor, US 30 passes through the towns of Mechanicsville, Stanwood, Clarence, Lowden, Wheatland, Calamus, and Grand Mound.

This existing section of US 30 is a two-lane rural highway that will eventually connect to the four-lane Mount Vernon/Lisbon bypass currently under construction at the time of this study. At the east end of the corridor, US 30 transitions to an existing four-lane roadway just west of DeWitt. The existing topography is generally flat through the central portion of the Study corridor with more frequent elevations changes in the eastern and western ends. The Study corridor currently serves between 2,050 and 4,350 vehicles per day (2014 Annual Average Daily Traffic Maps available from Iowa DOT). In the period of 2013–2017, a total of 205 crashes occurred within the Study corridor, 52 of which involved injuries, including one fatal crash. Of the 205 total crashes, roughly half were single-vehicle-related crashes and approximately 27 percent were animal-related crashes. Multi-vehicle crashes tended to involve a vehicle crossing over the roadway centerline or failure to yield the right-of-way at intersection locations.

The following notable features within the corridor will need to be considered as part of the US 30 PEL Study:

- Union Pacific (UP) Railroad Corridor: Railroad corridor consisting of two tracks that runs parallel and near US 30 throughout a significant portion the Study corridor. US 30 spans the railroad corridor at one location, just east of Wheatland, and no at-grade crossings with US 30 are present.

- Wapsipinicon River and Overflow Waterways: Three existing bridges cross this river system.

- Yankee Run Creek: Creek that runs parallel and adjacent to US 30 with a history of flooding that frequently impacts local roadways near US 30.

- Syracuse Wildlife Management Area and Wheatland Wildlife Area: sensitive natural and recreational areas that include mature forested wetlands and floodplains, threatened and endangered species habitats, and parks and other recreational use facilities; other sensitive features within the Study corridor include wetlands, cemeteries, churches, and public and private parks, golf courses, and other recreational land uses.

Reported demographics of the study area, based on US Census data, indicate that the population of Cedar County has remained steady over the last 30 years with some signs of growth in eastern Linn County spreading into western Cedar County. US Census data also suggests that the population of Clinton County has been on a steady decline over the last 30 years. Long-Range Transportation Plans prepared by Regional Planning Affiliations 8 and 10 suggest that populations in Cedar County are expected to grow by about 2 percent between 2010 and 2040, while the population change in Clinton County is projected to remain flat over the same period.

The Study corridor is primarily rural in nature with land use and existing industry largely surrounding agriculture. Those who commute out of the Study corridor are likely destined to employment centers in the more developed urban employment areas. Based on existing land use in the corridor and surrounding region, and input from local stakeholders, US 30 is a critical multi-modal transportation link for the transportation of agricultural commodities from farm to market via truck and rail, as well as conveyance of commuter traffic between rural areas and the urban employment centers.

STUDY GOALS

This US 30 PEL Study will accomplish the following three goals.

- **Goal #1: Identify the future roadway cross-section and develop a range of improvement alternatives.** This Study will use existing traffic data, forecast future traffic data, input from stakeholder groups, and other sources of information to identify the most appropriate roadway section to maintain and meet the current and future travel needs within the area and region. At the onset, this Study will consider the following roadway cross-sections: rural two-lane highway (similar to the current US 30 corridor), Super-2 highway (a two-lane rural highway with enhanced features, namely passing lanes, that will increase the operational performance and mobility with the corridor), and a four-lane divided expressway (two travel lanes each direction, separated by a median with consideration for at-grade or grade-separated intersections with local roadways). This Study will identify the roadway cross-section to be used with future project development for any identified improvement projects.

- **Goal #2: Recommendations for maintaining US 30 on current alignment or bypassing one or more of the local communities.** As part of evaluating the future travel needs of the Study corridor and considering potential improvements to the corridor, this Study will

evaluate whether there are benefits to bypassing some or all of the local communities along existing US 30 or whether any future improvements are best to remain on existing alignment and continue to pass through the existing communities. The Study will conclude with recommendations for each of the existing communities.

- **Goal #3: Recommend prioritization of potential corridor improvements.** The Study will consider possible improvement alternatives and projects for the Study corridor. Recommendations will be documented regarding the criticality and prioritization of potential improvement projects that can be used to help guide future project development. Improvement project prioritization will consider such things as infrastructure condition, independent utility, benefit-cost, maintenance of traffic, and construction staging and packaging. The Study will advance possible improvement projects to a level where the Study findings will benefit and directly feed into future project development, including environmental planning and preliminary engineering studies.

STUDY GUIDING PRINCIPLES

The methodology and processes used to complete this Study and to attain the goals noted above will follow these three guiding principles:

- **Guiding Principle #1: Good Stewardship.** Iowa DOT is responsible for maintaining a safe and efficient transportation system while also being good stewards of public tax payer dollars, the environment, and private property. Iowa DOT is committed to evaluating the needs of the US 30 corridor and developing potential improvement projects that balance transportation needs across the state, construction costs, and impacts to surrounding land, private property, and sensitive environmental areas.

- **Guiding Principle #2: Transparency.** Iowa DOT is committed to continuing to remain transparent during the execution of this planning Study. Throughout the project, there will be multiple opportunities for stakeholders and the general public to comment and provide input and feedback on the Study. All information shared at the public involvement meetings will be posted on the Iowa DOT Public Involvement website (http://www.news.iowadot.gov/pim/) and will be available for viewing and submitting comments/feedback 24 hours a day, 7 days a week. Iowa DOT is committed to seriously considering all comments and feedback submitted throughout the duration of the Study.

- **Guiding Principle #3: Design Criteria.** A baseline of core design parameters that considers desired future traffic, design speed, and operational performance is necessary for this Study. Throughout this Study, as more information about the existing corridor and future transportation needs is learned, and when transitioning into future phases of project development after this Study, a more detailed set of design criteria will be established, and a flexible approach to applying the criteria will be undertaken to create solutions that best fit the context and needs of the corridor as a whole, as well as at individual locations along the corridor.

The approaches and methodologies used to complete this Study will vary and evolve as the Study progresses. However, the principles and goals stated above will remain true throughout the Study and into future project development activities.

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ACRONYMS AND ABBREVIATIONS

AADT	Annual Average Daily Traffic
CIN	Commercial and Industrial Network
DOT	Department of Transportation
FHWA	Federal Highway Administration
I-29	Interstate 29
ICE	Infrastructure Condition Evaluation
iTRAM	Travel Analysis Model
LOS	Level of Service
LRTP	Long-Range Transportation Plan
NEPA	National Environmental Policy Act
PEL	Planning and Environmental Linkages
RPA	Regional Planning Affiliation
US 30	United States Highway 30
UP	Union Pacific

1 INTRODUCTION

The Iowa Department of Transportation (DOT) is preparing a transportation-planning study for a portion of the US Highway 30 (US 30) corridor in Cedar and Clinton counties in eastern Iowa. This planning study, referred hereafter as the Study, is following the Federal Highway Administration (FHWA) Planning and Environmental Linkages (PEL) model. 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 project implementation.

The objective of the Study is to gain an understanding of the corridor's existing conditions and infrastructure, identify the roadway cross-section necessary to meet current and future traffic operations and mobility needs, and to develop and prioritize a range of potential improvement project alternatives that could be considered for the corridor. The Study will conclude with development of the US 30 Vision Document, a report that will summarize the Study's findings and recommendations.

The Vision Document will provide the framework for managing future investments and improvement projects for this section of US 30 in Cedar and Clinton counties. The identified, prioritized, and recommended improvement alternatives and projects included in the Vision Document will be developed to a level that will allow the Study findings to serve as the foundation for future project development, including environmental National Environmental Policy Act (NEPA) studies, that will be able to commence without delay or need for backward looking study once the decision is made to fund and program an individual improvement project or projects.

This memorandum summarizes the project setting and area, outlines the goals (or desired outcomes) of the Study, and presents the guiding principles and committed approach to project development that will be followed.

2 PROJECT SETTING

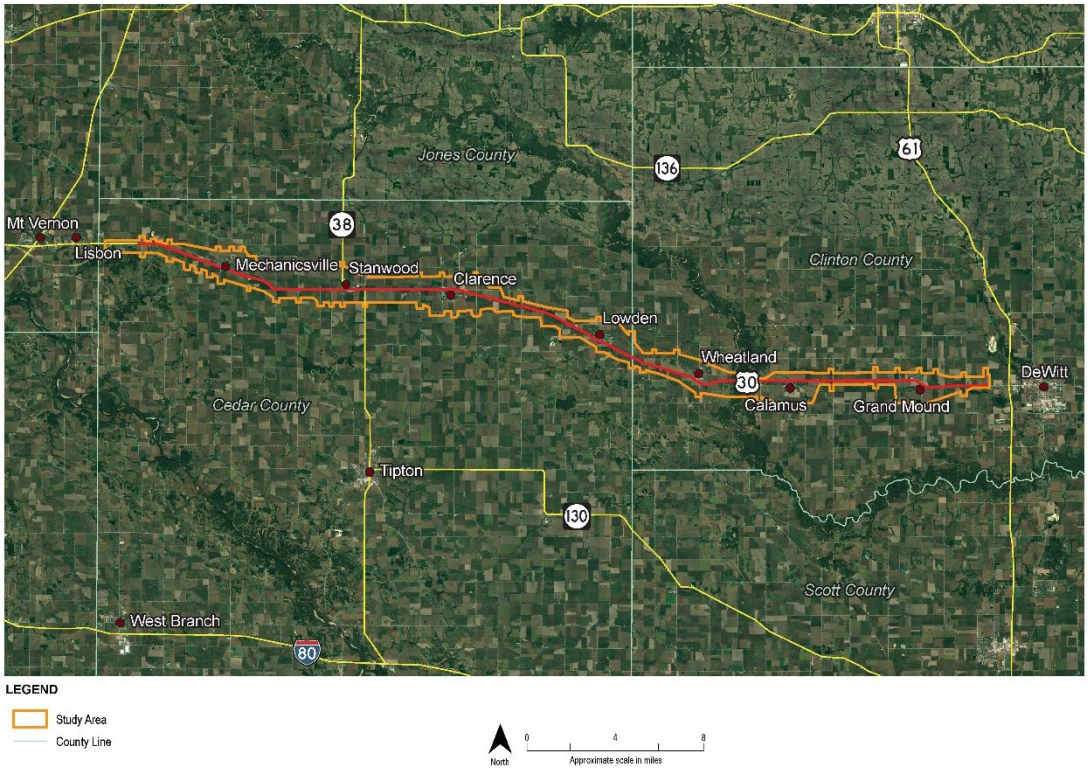
US 30 is a primary highway that spans the State of Iowa crossing the Missouri River at the Missouri Valley in western Iowa and the Mississippi River at Clinton in eastern Iowa. Across the state, US 30 connects with other major north-south interstate and primary highway corridors, including Interstate 29 (I-29), US 59, US 169, US 71, IA 60, I-35, US 65, US 63, I-380/US 218 (Avenue of the Saints), US 61, and US 67. Urbanized areas along US 30 include (from west to east) the cities of Denison, Carroll, Boone, Ames, Marshalltown, Tama, Cedar Rapids, Mount Vernon/Lisbon, DeWitt, and Clinton. US 30 is considered a primary highway in Iowa and is part

of the Commercial and Industrial Network (CIN).[1] Sections of US 30, including portions within the area of this Study, are designated as part of the Lincoln Highway Heritage Byway Corridor.

Figure 1 shows the US 30 PEL Study area. The corridor begins just east of Lisbon near the intersection with Charles Avenue and continues east to near the 260th Avenue intersection just west of the US 30/US 61 interchange at DeWitt. The US 30 PEL Study corridor is primarily rural in nature and passes through or near the corporate limits of seven small Iowa communities: Mechanicsville, Stanwood, Clarence, Lowden, Wheatland, Calamus, and Grand Mound.

Existing US 30 traffic volumes within the Study corridor currently range between 2,050 and 4,350 vehicles per day according to the Iowa DOT 2014 Annual Average Daily Traffic (AADT) maps.[2] Historical Iowa DOT average daily traffic maps suggest that these daily volumes have been nearly constant or declined since 1998 (see Figure 2).

Figure 1. US 30 PEL Study Area



[1] The Commercial and Industrial Network (CIN) is a subset of roadway networks from the State's Primary Road System that is intended to improve the flow of commerce and better connect Iowa with regional, national, and international markets with convenient, efficient, and safe travel.

[2] https://www.iowadot.gov/maps/

Figure 2. US 30 PEL Study Corridor Historic Daily Traffic Volumes

Source: Iowa DOT Traffic Volume Maps (https://www.iowadot.gov/maps/).

During the period of 2013-2017, there have been 205 crashes (52 of which involved injuries), that have occurred along US 30 in the Study corridor. The crashes have resulted in one fatality and eight major or incapacitating injuries. Over this period, crashes in the Study corridor are nearly evenly split between single-vehicle crashes and multi-vehicle crashes. A large percentage of the single-vehicle crashes is linked to collisions with animals (55 or 27 percent of the total crashes) during the 2013-2017 period. Multi-vehicle crashes tended to involve a vehicle crossing over the roadway centerline or failing to yield the right-of-way at intersection locations. A more detailed summary of the existing crash history and safety performance of the Study corridor can be found in the *US 30 PEL Study Existing Crash History and Safety Performance Report* (Jacobs, March 2019).

Existing US 30 within the Study area is a two-lane rural highway that will have connections to a four-lane divided roadway section on both ends of the corridor. At the western terminus, US 30 will transition to a four-lane divided roadway as it bypasses the cities of Mount Vernon and Lisbon; this bypass is under construction at the time of this study, with an anticipated completion date in 2019. West of Mount Vernon, US 30 remains a four-lane divided expressway through the Cedar Rapids metro area and will eventually be four lane to Ogden in central Iowa once a

section of US 30 under construction in Tama and Benton counties is completed (anticipated completion date of 2023). At the Study corridor's eastern terminus, US 30 transitions to a four-lane expressway just west of the junction with US 61 at DeWitt. To the east, US 30 maintains the four-lane roadway cross-section to Clinton before reducing back to a two-lane roadway at the crossing of the Mississippi River. East of the Mississippi River, US 30 remains a two-lane roadway into Illinois. Through recent studies, the Illinois DOT has indicated that, at the time of this Study, there are no plans to expand US 30 in Illinois to four lanes.

The Study corridor passes through generally flat terrain and includes a crossing of the Wapsipinicon River just east of Wheatland. The current river crossing is a series of three bridges that span the main channel and two backwater/tributary waterways. Adjacent to the Wapsipinicon River and overflow areas is the Syracuse Wildlife Management Area and the Wheatland Wildlife Area, which include mature forested wetlands and floodplain forest. Just to the east of this area is the Wapsi Oaks Country Club and Golf Course. Other potential environmental and cultural constraints within the corridor include wetlands, floodplain, threatened and endangered species habitats, cultural resources, public and private recreational facilities, churches, and cemeteries. The maps in Appendix A show known constraints identified from preliminary data searches. These constraints will be considered throughout this Study and are considered preliminary; a more comprehensive study of possible constraints will be included in future planning and engineering studies.

The Union Pacific (UP) railroad runs parallel to a large section of the Study corridor and, in some areas, is immediately adjacent to existing US 30. The short distance between US 30 and the railroad at-grade crossings with local sideroads provides little if any storage area for vehicle queues to form when the tracks are in use. Input from local stakeholder groups in the corridor and observations during an onsite field survey suggest that the heavily traveled UP railroad corridor can be problematic to the efficient flow of traffic along US 30 because of the close proximity of the at-grade railroad crossings and vehicle queues forming along the US 30 shoulders and travel way. The UP railroad generally parallels the north side of US 30 over the western half of the corridor. A grade-separated crossing with US 30 spanning over the railroad corridor is present just east of Wheatland. Following the grade-separated crossing, the UP railroad remains south of US 30 through the eastern portion of the Study corridor.

Yankee Run Creek, located just south of existing US 30, is another physical constraint that parallels the existing US 30 corridor in portions of the Study area. Feedback from the local jurisdictions suggests that Yankee Run Creek has a history of flooding. While no documented closures of US 30 due to high water were noted during stakeholder outreach, the local stakeholders have indicated that some local roadways are impacted by flood waters from time to time. Currently, there are a number of large box culverts and small bridge structures along the UP railroad and US 30 corridors allowing water to flow from the north side of US 30 south toward Yankee Run Creek.

The *Iowa in Motion 2045 State Transportation Plan* (Iowa DOT 2017) lists the US 30 corridor in Cedar and Clinton counties as a targeted corridor for mobility and safety improvement and is in the bottom 25 percent of primary highway corridors (the 25 percent of the primary system with the poorest existing infrastructure condition) based on Iowa Infrastructure Condition Evaluation (ICE) composite ratings. ICE is a tool developed to evaluate the state's Primary Highway

System using a composite rating calculated with different criteria that include pavement condition and roughness, structural ratings, congestion, and the mix of passenger cars and large trucks that use the corridor daily. The *Iowa in Motion 2045 State Transportation Plan* also notes that two existing US 30 bridges, the UP railroad and Calamus Creek crossings, are considered in the bottom 5 percent of bridges in the state based on their current conditions and could become possible candidates for replacement in the future. The existing bridge over the main channel of the Wapsipinicon River is programmed for replacement in 2023. The current Iowa DOT Long-Range Transportation Plan (LRTP) did not identify a need for capacity improvements to this section of US 30, although several maintenance and rehabilitation projects are planned for the corridor in the current Iowa DOT 5-year improvements program (see Table 1).

Table 1. Current Iowa DOT Programmed Improvement Projects in or in Close Proximity to the US 30 PEL Study Corridor

Location	Project Type	Program Year*
Wapsipinicon River 1.5 Miles East of Co. Rd Y4E	Bridge Replacement	2023
Co. Rd Y62 0.95 Mile West of US 61	Grade and Pave, ROW	2019
US 61 NB/SB Bridges at North Jct. US 30	Bridge Deck Overlays	2023
IA 38 Ditch 1.0 Miles North of US 30	Culvert Replacement, ROW	2019-2020

*Current Iowa DOT 5-Year Program (2019-2023)
ROW = right-of-way

Iowa has designated 18 Regional Planning Affiliations (RPAs) that provide for regional transportation planning outside of urbanized areas in the state. The US 30 PEL Study corridor is covered by two RPAs: RPA 8 and RPA 10. RPA 8, the East Central Intergovernmental Association, includes Clinton County, while RPA 10, the East Central Iowa Council of Governments, includes Cedar County.

LRTPs prepared by the RPAs and historical census data provide existing and forecast population, employment, and other social attributes, at the county level. Table 2 summarizes the population trends since 1980 in Cedar and Clinton counties. According to the 2010 Census, the population in Clinton County was just under 50,000 people, with the population maintaining a steadily declining trend since 1980. The RPA 8 LRTP suggests that this population trend will level off with the population of Clinton County remaining nearly constant through the year 2040. The 2010 Census data suggests that the population in Cedar County was approximately 18,500 people; since 1980, the population of Cedar County has remained constant. The RPA 10 LRTP notes that Cedar County saw population growth of just over 2 percent between 2004 and 2014, and the LRTP suggests that another 2 percent population growth is expected between 2010 and 2040. The growth in Cedar County is possibly due to the proximity of the larger growing urban areas in neighboring Johnson and Linn counties, particularly the Iowa City and Cedar Rapids metropolitan areas. The RPA 10 LRTP suggests that Johnson and Linn counties

are projected to grow by 42.5 and 23.5 percent, respectively, by 2040. Some residential development from eastern Linn County is already beginning to spread into Cedar County.

Table 2. Decennial US Census Bureau Population Statistics for Cedar and Clinton Counties

	Population	
Year	Cedar County	Clinton County
1980	18,635	57,122
1990	17,444	51,040
2000	18,187	50,149
2010	18,499	49,116
30-Year Change	-136	-8,006

Source: https://www.census.gov/prod/www/decennial.html

The maps in Appendix B show the current land use along the Study corridor. The US 30 PEL Study corridor is mainly rural and agricultural in nature with some residential, commercial, and industrial uses in the small communities along US 30. In the rural areas, existing industry is generally agriculture related with several co-ops and grain-storage and handling facilities along the corridor. These agricultural industries, as well as nearby quarries, generate heavy truck traffic on the local road network and US 30 within the Study area. In the small communities, a variety of businesses are present, including trucking companies, restaurants, gas stations, and other retail and service-related businesses.

Most major employers in the region are generally located in the more urban areas of Iowa City, Cedar Rapids, Quad Cities, Dubuque, and Clinton. The RPAs' LRTPs suggest that there are residents in Cedar and Clinton counties that commute to the larger urban centers and employment generators daily. While specific magnitudes and commuter routes are not provided, the LRTPs suggest that the commuter traffic is significant enough to garner consideration, at a countywide level, when evaluating the transportation systems infrastructure condition and ability to meet future needs.

Review of existing land use, current business functions (such as River Valley Co-op, ADM, Cargill, and others) in the Study corridor and surrounding region, and input from local stakeholders, it is clear that a multi-modal US 30 transportation corridor is important in Cedar and Clinton counties, particularly as it relates to the agricultural business and transport of commodities between the field and market. The corridor supports the agricultural trucking needs, commodity shipment, and transfer along the UP railroad corridor, and conveyance of commuter traffic out of the rural outlying areas to the larger urban employment areas. Overall, the communities and rural areas of the Study corridor do not have official future land use or development plans in place. The City of Grand Mound is currently performing resident surveys to gain an understanding of employment and commuter patterns of its residents, while the City of Clarence is actively engaged in main street programs and looking at ways to improve and grow its main-street business district. Through meetings with the individual stakeholders along

the corridor, these jurisdictions tend to see themselves as agricultural and bedroom communities. The larger communities at the ends of the Study corridor, Lisbon and DeWitt, both have more formal comprehensive land use plans. At the time of preparation of this memorandum, both communities are in the process of revising and updating their current plans.

3 PROJECT GOALS

The PEL model allows for the study of the corridor as a whole and the ability to make corridor-wide decisions that will shape the future investment and improvement projects within the corridor. The US 30 PEL Study will consist of a series of technical reports, including this memorandum, documenting various aspects of the Study. These technical reports will include the following:

- Project Goals and Guiding Principles
- Public Involvement Plan
- Existing Conditions and Traffic Operations
- Crash History and Safety
- Future Traffic and Corridor Sizing
- Range of Potential Improvement Projects

The Study will culminate with a US 30 Vision Document that provides a roadmap for the future studies and investments within the Study corridor. The goals and outcomes of the US 30 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:

- Right-size the highway system and apply cost-effective solutions to locations with existing and anticipated issues.
- Target investments to address capacity needs at locations with forecasted congestion issues.
- Target investments to address mobility and safety needs on critical two-lane routes.
- Target investments to address freight needs at locations with measured mobility issues.
- Target investments to address condition needs at locations with measured structural and service issues.
- Reduce the number of overall major crashes and the number of secondary crashes.
- Maximize the use of existing roadway capacity.

At the conclusion of this US 30 PEL Study, the US 30 Vision Document will address the following three main goals:

- Identify the future roadway cross-section and provide a range of improvement alternatives for further consideration and study during future project development that includes NEPA and preliminary design phases.
- Provide recommendations for maintaining US 30 on its current alignment or potentially bypassing one or more of the communities along the Study corridor.
- Provide recommendations for prioritization of possible improvements within the Study corridor.

3.1 GOAL 1 – IDENTIFY THE FUTURE ROADWAY CROSS-SECTION AND DEVELOP A RANGE OF IMPROVEMENT ALTERNATIVES

The US 30 PEL Study will determine which roadway cross-section is most appropriate to serve the transportation needs of the corridor and surrounding areas today and in the future. In addition to the roadway cross-section, this Study will also result in a range of potential improvement projects that can be considered in future phases of project development that would assure US 30 continues to meet the travel, mobility, and safety needs of the traveling public.

The US 30 PEL Study will include a detailed review of the existing Study corridor infrastructure condition and capacity, mobility, and safety performance; these reviews will be documented in a series of technical reports. Existing conditions analysis will use available as-built roadway and bridge plans, bridge inspection reports, Iowa DOT crash data, traffic counts and daily traffic maps, and field studies, as appropriate. The Iowa DOT statewide Travel Analysis Model (iTRAM), which employs consistent data inputs grounded in sound methodologies and aligned with current industry best practices and historical traffic count trends specific to the Study corridor, will be used to estimate future traffic volumes on US 30. Forecast traffic information will assume a future horizon year of 2045.

These existing condition information sources and future traffic forecasts will be used to identify locations within the corridor, if any, that may not meet the travel needs now or in the future and will help to formulate the approach to development a range of improvement alternatives by providing guidance on particular areas of need within the Study corridor.

At the onset of alternative development, all options are being considered, and no predetermined solutions or decisions have been made. Improvement alternatives will consider a range of roadway cross-sections (number of lanes, medians, shoulder widths, etc.), including both two-lane and four-lane facilities. These roadway cross-sections may include the following (see Figure 3 for a graphical representation of these roadway cross-sections):

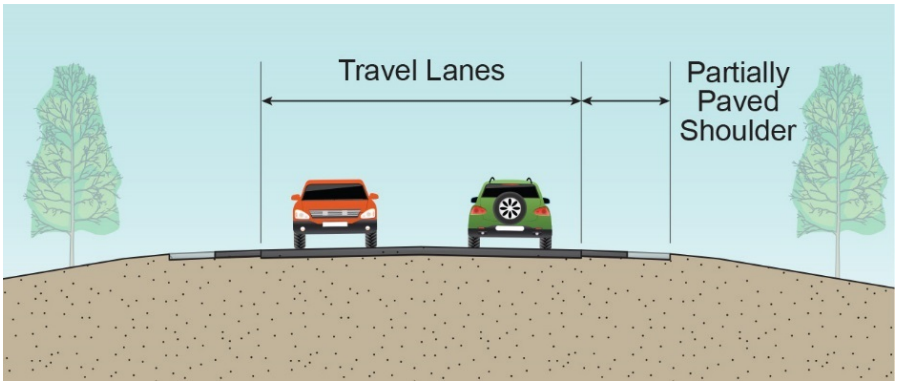
- Two-Lane Rural Highway—A roadway cross-section similar to the existing US 30 corridor with two travel lanes and composite, or partial-width, paved shoulders. Current Iowa DOT policy for a composite shoulder is to provide a minimum 2-foot paved shoulder adjacent to the travel lane with the remaining shoulder width consisting of a granular material.
- Super-2 Highway—Two-lane rural highway cross-section conducive to substantial improvements in traffic flow and safety performance by including, passing lanes, climbing lanes at locations of steep grades, turn lanes at intersections, acceleration lanes, and improved access control, minimizing the number of intersections along a corridor to the extent possible.[3] The largest benefit of the Super-2 concept is the addition of passing lanes at regular intervals, which increase the opportunities for faster-moving traffic to safely pass slower-moving vehicles without the need to cross the roadway centerline and enter the opposing lane of traffic. Figure 4 provides a graphical plan view representation of the Super-2 highway concept.

[3] The Super-2 highway concept is based on guidance for rural arterials suggested by the American Association of State Highway and Transportation Officials (AASHTO). At the time of this Study, Iowa DOT is in the process of developing and adding additional Super-2 guidance to its design policy and guidelines.

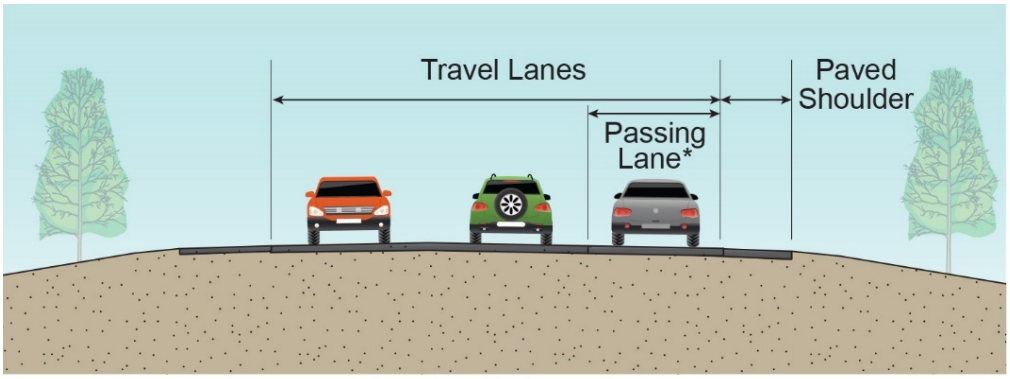
- Four-Lane Expressway—A roadway cross-section providing two basic travel lanes each direction, separated by a median section, partial or fully paved shoulders, and turn lanes. Depending on the level of access control desired, at-grade intersections, grade-separated interchanges, or a combination of the two may be present.

Figure 3. Possible US 30 Rural Typical Cross-Sections for Alternative Development Consideration

2-Lane Rural



Super-2 Lane Rural



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

4-Lane Rural

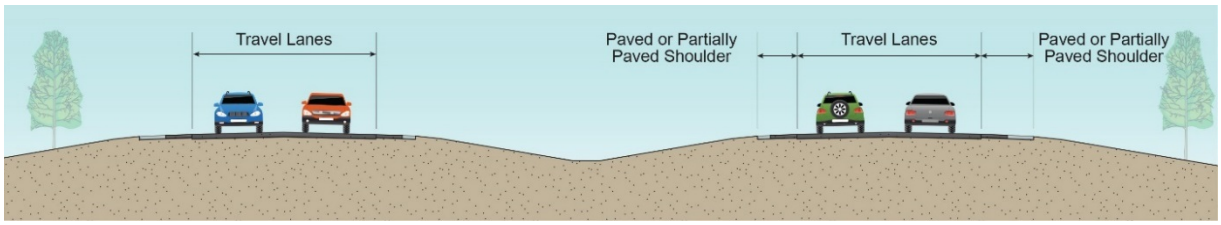
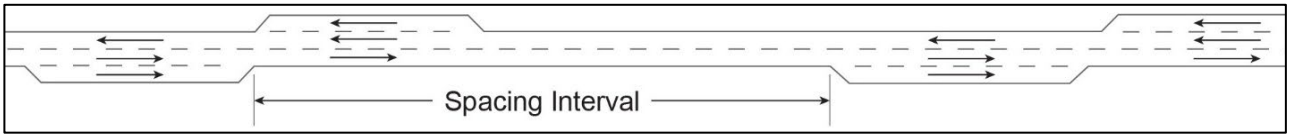


Figure 4. Schematic of a Section of Super-2 Highway.



In addition to the roadway cross-section, improvement alternatives will consider opportunities for both on-alignment (follow the existing US 30 roadway) and off-alignment (relocate US 30 travel lanes from their current location) alternatives—off-alignment alternatives will be discussed further with Goal 2. Alternatives will be developed around a set of flexible design criteria that can be adjusted to meet the context of the corridor or any individual portion of the corridor. With the flexible approach to design criteria, alternatives can be refined to provide the most necessary and sustainable range of solutions for the US 30 PEL Study corridor.

The range of developed alternatives will also include a high-level conceptual analysis of possible impacts to sensitive environmental areas, cultural sites, and private property. These high-level findings will help to shape a truncated study area (or areas) that can be carried into the next phase of project development, NEPA documentation. Performing these high-level impact comparisons as part of the US 30 PEL Study will allow for a more streamlined and efficient NEPA documentation process in that some alternative analysis is already complete and a more focused corridor(s) can be evaluated for environmental and cultural impacts within the framework of the NEPA process compared to a larger and more broad study boundary required following traditional NEPA study and project development.

3.2 GOAL 2 – RECOMMEND BYPASS OR NO-BYPASS OF LOCAL COMMUNITIES

Providing bypasses around one or more of the communities along US 30 would lessen the travel friction along the corridor created by the increased number of access points and reduced travel speeds in the municipal areas. While bypasses could provide transportation and mobility benefits along the corridor, negative tradeoffs need to be considered too, which could include increased right-of-way needs, higher construction costs, changes to emergency response routes and access, and effect to existing businesses in the area. The US 30 PEL Study will include an approach that uses a matrix of considerations to weigh the advantages and disadvantages of bypassing any one of the individual communities. This matrix may include considerations such as safety, economic impact, right-of-way impact, mobility benefits, railroad coordination, environmental and cultural constraints, and traffic flow and circulation.
The evaluation will also need to consider the location of a bypass; bypassing a given community to the north or south will influence the types and magnitudes of both the positive and negative impacts to the corridor and the municipalities. This analysis will need to consider each municipality individually, as well as the US 30 PEL Study corridor as a whole. As appropriate, prior research studies and reference materials will be consulted when considering the magnitude of possible affects resulting from constructing a bypass roadway.

The following are some of the questions and criteria that the bypass decision matrix will attempt to answer in guiding the development of recommendations associated with bypass roadways:

- What is the public's opinion regarding a bypass of the community?
- How will existing businesses be impacted by removing drive-by traffic?
- How will a bypass affect regional freight operations?
- Will bypassing a community have positive or negative effects on adjacent communities? Will the bypass limit opportunities for bypasses or other improvements in neighboring communities?
- How far from the town center/business district will a bypass need to be located?
- How does a bypass effect the local roadway connections and network (in the urban and rural areas of the corridor)?
- Will bypassing the community improve safety (i.e., reduce crashes, be more pedestrian friendly, etc.)?
- Will traffic circulation on existing roadways within the individual communities benefit from a bypass?
- Does a bypass require an additional railroad grade-separated crossing?
- Does a bypass improve traffic flow and safety while a train is present and at-grade crossings are closed?
- What environmental constraints/obstacles are likely with a bypass?
- How do right-of-way impacts differ between existing and bypass alignment alternatives; does one have more positive or negative impact than the other?

3.3 GOAL 3 – RECOMMEND PRIORITIZATION OF POTENTIAL CORRIDOR IMPROVEMENTS

Prioritization of potential improvements can be challenging; Iowa DOT has limited construction funds and a state transportation system that consists of approximately 8,900 road miles and 4,100 bridges[4] that must be maintained. Iowa DOT is responsible for investing Iowa tax-payer dollars wisely in a way that maintains a transportation system that meets travel demands and provides the most benefit for the cost. With that said, it will be challenging to make improvements to a 40-mile highway corridor funded as a single project. Rather, any improvement projects along US 30 may need to be phased in over time as conditions warrant. The US 30 PEL Study will identify which areas of the corridor are in most need of improvement

[4] 2014 numbers of Iowa DOT-owned roads and bridges per the Iowa DOT Website (https://iowadot.gov/about/roads).

by considering the various findings from the existing conditions analysis and forecast future travel demands. Using these comparisons, recommendations will be made on where early investment in the corridor can lead to the most benefit in the near term and how needs and benefits will change over time.

Project prioritization factors will need to be considered, including, but not limited to, the following:

- Asset Condition—Is the existing infrastructure condition such that any existing bridge, roadway pavement, or other major roadway feature needs replacement or major rehabilitation efforts?
- Independent Utility—Will a standalone project add value to the corridor without the need of construction of other adjacent improvement projects?
- Benefit-Cost Ratio—How do the benefits of an improvement compare to the cost of the improvement and how does the benefit-cost ratio compare between individual improvement projects?
- Maintenance of Traffic and Construction Staging—Can traffic be maintained safely and efficiently during construction of an improvement project and over the time between construction of adjacent improvement projects which depend on availability of construction funds.
- Construction Packaging—Reconstruction of the corridor could resemble putting together a puzzle, with each construction package representing a piece of the puzzle. How do the pieces come together to complete the overall future picture of the US 30 corridor?

As individual improvement projects are identified, a more refined study area for those specific projects can be developed for use in future environmental, NEPA, and preliminary engineering studies. Prioritizing the improvements and identifying individual project areas can allow for the individual projects to progress into the environmental and preliminary design studies without delay once the improvement projects are programmed and funding is identified.

The US 30 Vision Document will document the project prioritization and individual project study segments. This Vision Document will present the framework for effectively investing and developing the needed improvements to the US 30 corridor necessary to meet future transportation and mobility needs.

4 GUIDING PRINCIPLES

To achieve the goals stated above, throughout the US 30 PEL Study, the Iowa DOT Project Team will be led by the guiding principles described in the following subsections.

4.1 GOOD STEWARDSHIP

Iowa DOT is responsible for maintaining a safe and efficient transportation system. With this responsibility comes the expectation that public tax-payer dollars are managed and expended in an accountable and wise manner. With the limited funding available to the Iowa DOT, a balance must be met between maintaining the existing system in a safe and operable condition and funding projects that improve traffic operations and mobility.

Iowa DOT is also responsible for being a good steward to the environment and private property across the state. Every improvement project is going to have some level of impact to surrounding lands, residences, and business. During project development and planning, a balance must be struck between impacts and the desirable geometry and location of a roadway corridor.

Iowa DOT is committed to evaluating the needs of the US 30 corridor, comparing the needs against other transportation system needs across the state, and developing potential improvement projects with notable traffic flow and safety benefits that are worthy of investment. Other possible improvement project considerations include cost and the ability to minimize impacts to surrounding land, private property, and sensitive environmental areas.

4.2 TRANSPARENCY

Throughout the Study there will be multiple opportunities for stakeholders and the general public to comment and provide input and feedback. As part of the public outreach, there will be public information meetings scheduled at discrete milestone points throughout the project. At these meetings, Iowa DOT will present study findings and next steps and be available to discuss the project with the public face to face. Meeting materials will also be available online for those not able to attend in person. Iowa DOT is committed to listening and fully considering all ideas and feedback that the public provides. Iowa DOT treats all feedback and comments seriously and is committed to considering all thoughts put forth. All information shared at the public involvement meetings will be posted on the Iowa DOT Public Involvement website[5] and available for viewing, as well as submitting comments/feedback 24 hours a day, 7 days a week.

At the Study conclusion, Iowa DOT will make decisions regarding the corridor and what the next steps are for future studies and investment. These decisions will be grounded in the findings of the Study, the feedback provided by public and stakeholders, and in line with the stewardship responsibilities discussed above. Regardless of the decision(s) made, Iowa DOT will remain committed to communicating the decision(s) and any future studies and next steps with the public and all stakeholders.

4.3 DESIGN PRINCIPLES

To guide the evaluation of existing conditions and begin consideration of potential improvement strategies and alternatives, a baseline of design parameters is necessary. These core design parameters can be adjusted as the project takes shape and once a better understanding of the existing corridor and future needs and goals are reached. Table 3 outlines the core parameters that will be used at the onset of this project.

Table 3. Core Design Parameters

Design Year	2045
Minimum Posted Speed	Existing posted speed limits
Level of Service	B (rural), C (urban)

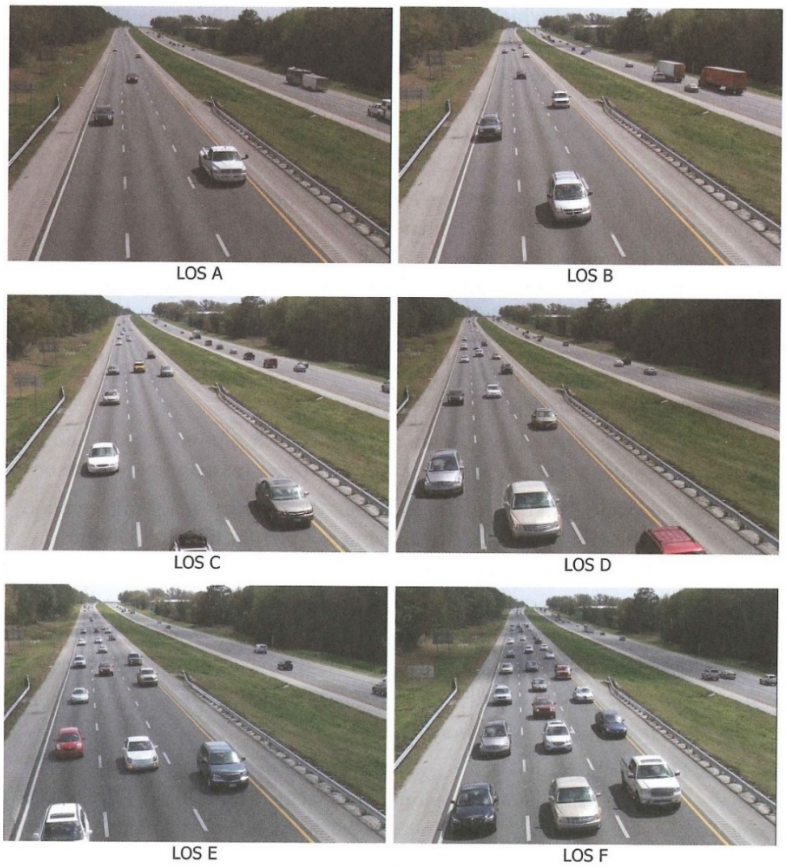
[5] http://www.news.iowadot.gov/pim/

The design year is the future horizon year used for design purposes; the infrastructure designs will accommodate the predicted traffic volumes and loads forecast for this given year. The minimum posted speed limit assumed for purposes of this project will be no less than the current posted speed limit through the various rural and municipal sections of the corridor today. Depending on the alternative, a higher posted speed limit may be considered for certain locations and alignments.

Level of Service (LOS) is a measure of traffic operations that focuses on the capacity of a given roadway segment or intersection. A designation of LOS A–F can be applied with the best operational performance being LOS A and the worst being LOS F. Figure 5 provides an example of what the various LOS levels can look like on a roadway.

During consideration of possible improvement projects and subsequent NEPA planning efforts, more detailed criteria will be established, and a flexible approach to applying the criteria will be undertaken to create solutions that best fit the context and needs of the corridor as a whole, as well as at individual locations along the corridor. While flexible, criteria used will be consistent with industry best practices and will be applied to create the most economical and sustainable solutions.

Figure 5. Level of Service Exhibit from the Highway Capacity Manual



Source: Transportation Research Board. 2010. *Highway Capacity Manual (HCM)*. Transportation Research Board of the National Academies. Washington, D.C.

5 SUMMARY

The previous sections summarized the project goals and principles that will guide the Iowa DOT Project Team throughout the US 30 PEL Study process. The outlined approaches and methodologies are subject to change as the project development process evolves; however, the principles and goals stated herein will remain true throughout the Study.

Public involvement and feedback is a critical factor in the successful completion of this Study. The feedback provided to Iowa DOT can help to guide the Study process and will prove helpful information to Iowa DOT when considering all factors and making decisions for the future of the corridor. Iowa DOT will communicate project findings, recommendations, and next steps throughout and at the completion of this Study. Final project decisions will be grounded in the responsibility and commitment of Iowa DOT to maintain a transportation system that meets the needs of the traveling public today and in the future while also judiciously expending available funds in a manner that meets the needs of all stakeholders across the state.

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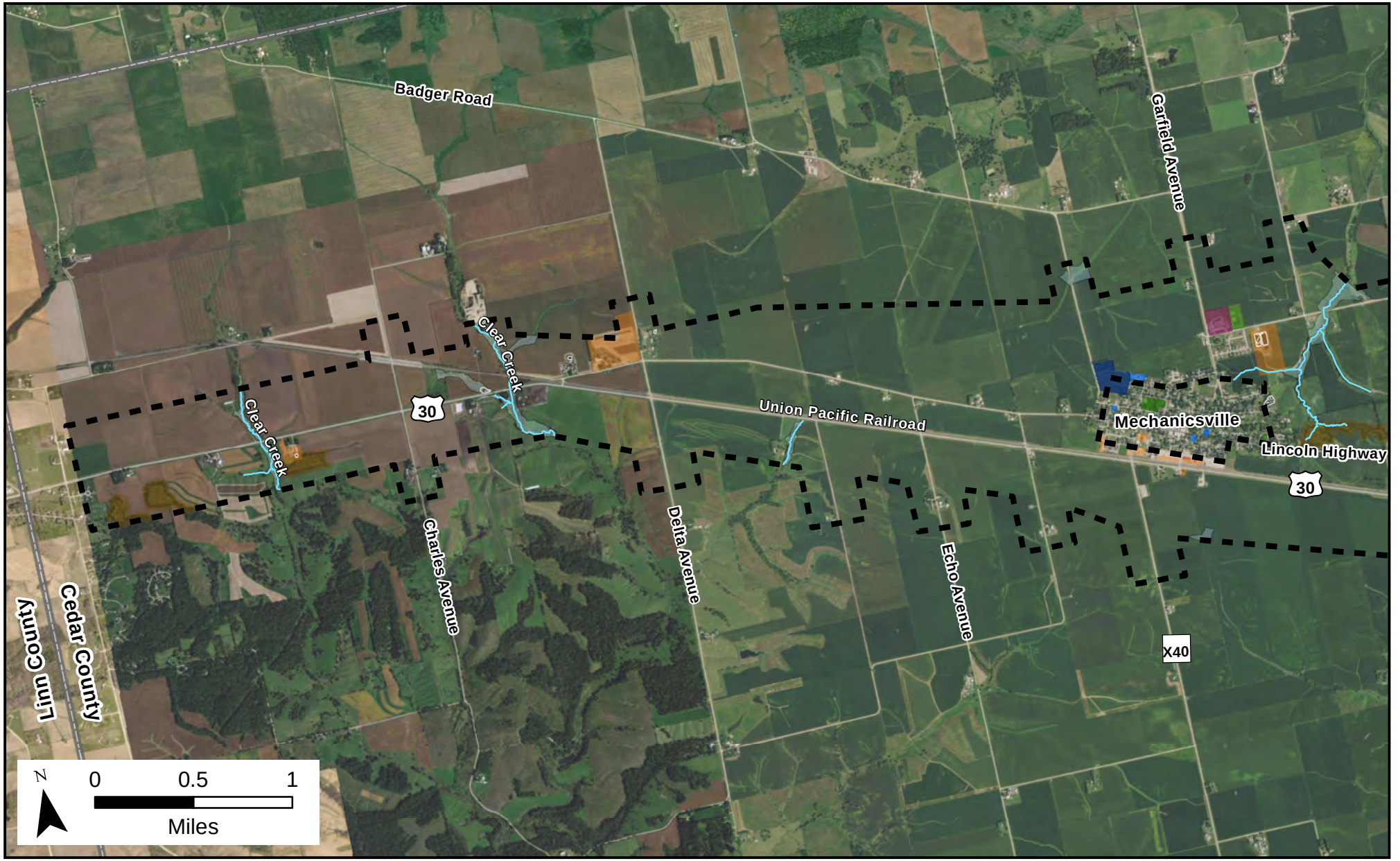
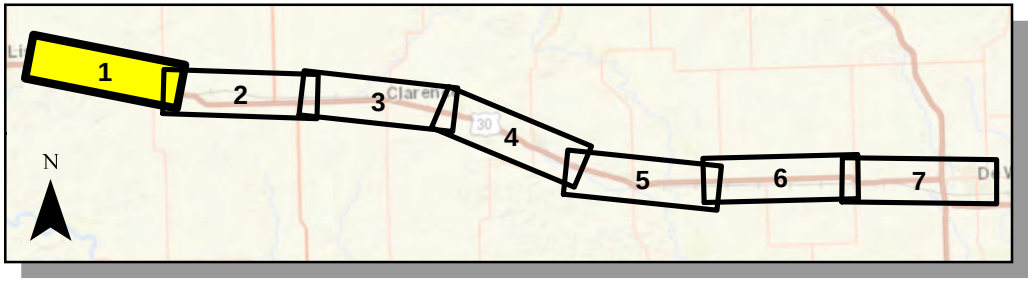
Appendix A
Preliminary Environmental and Community Constraints Maps





- Study Area
- Sovereign Lands
- Protected Rivers
- Waterways
- Wetlands
- Floodplains
- Recreational Areas
- Woodlands
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- Churches
- Schools
- Regulated Materials

ENVIRONMENTAL CONSTRAINTS

US 30 Preliminary and Environmental Linkages Study

Imagery Source: Esri ArcGIS Online World Imagery
Data Source: Iowa DOT

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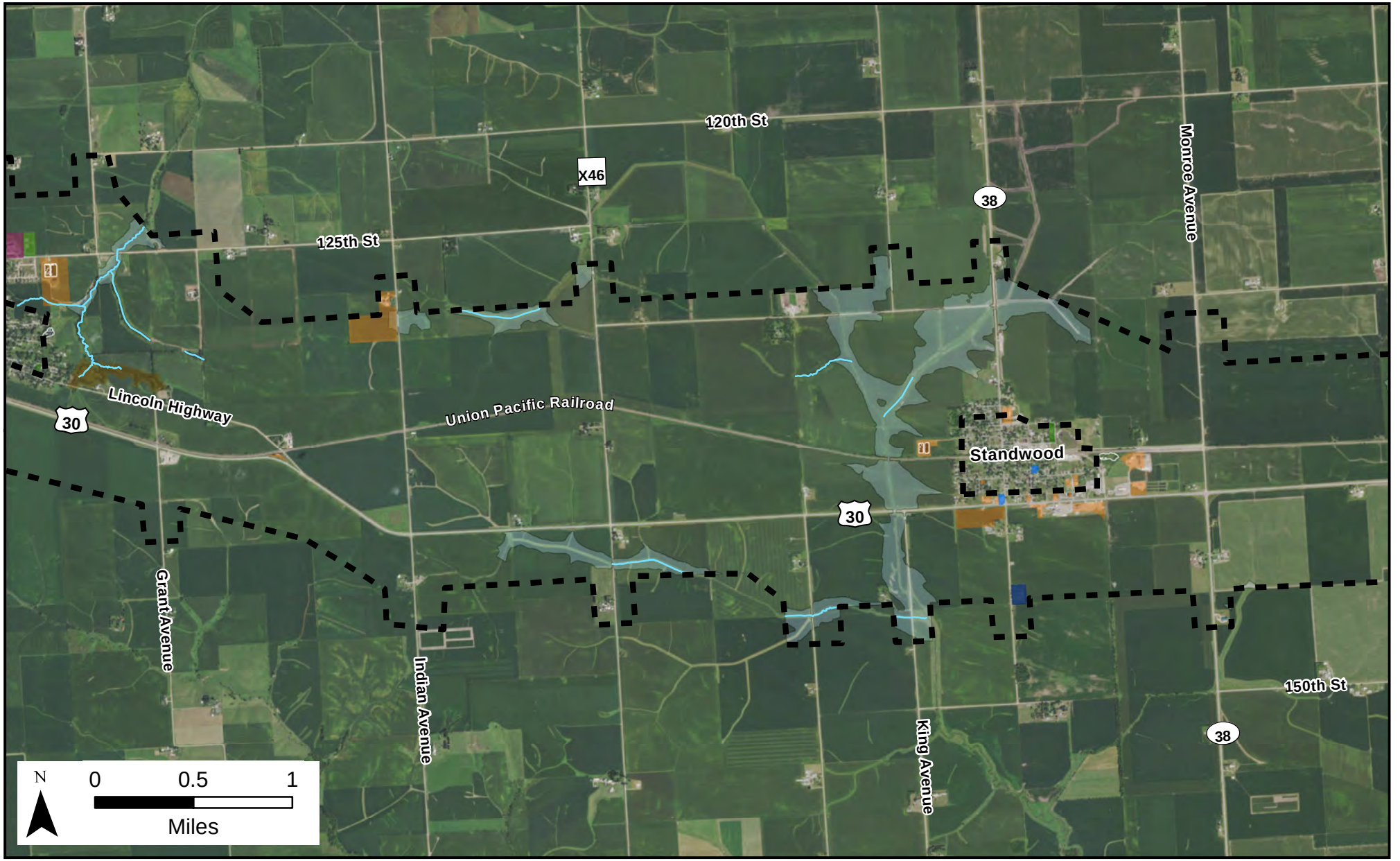

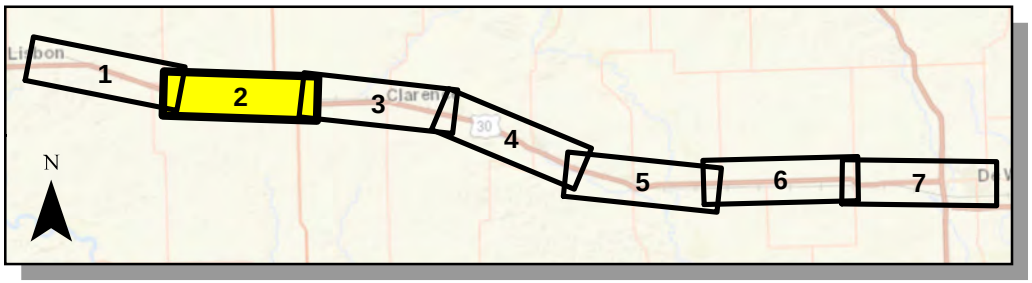

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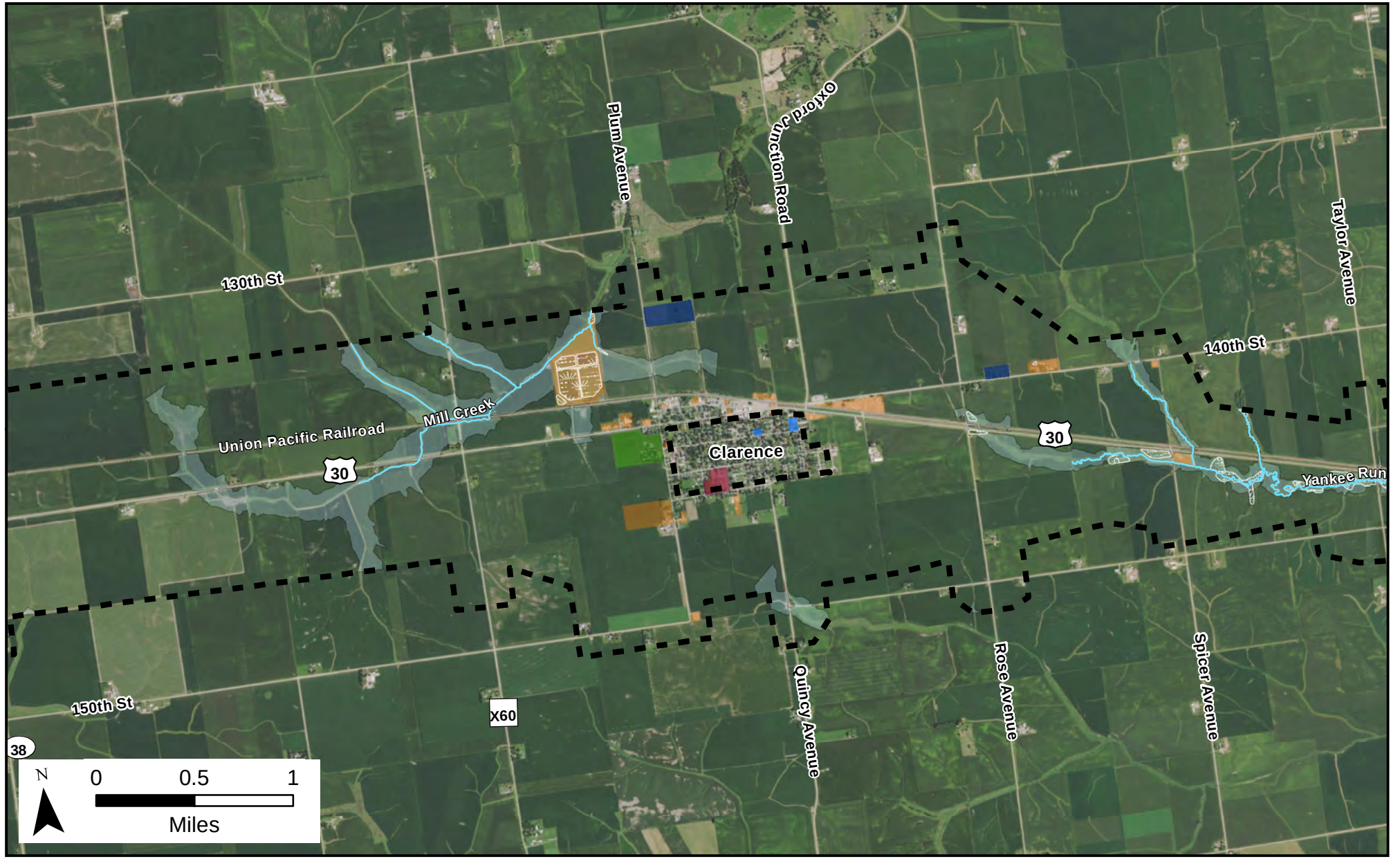

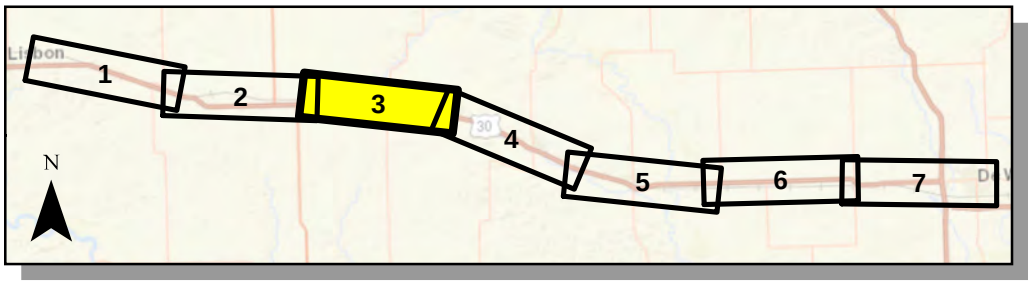

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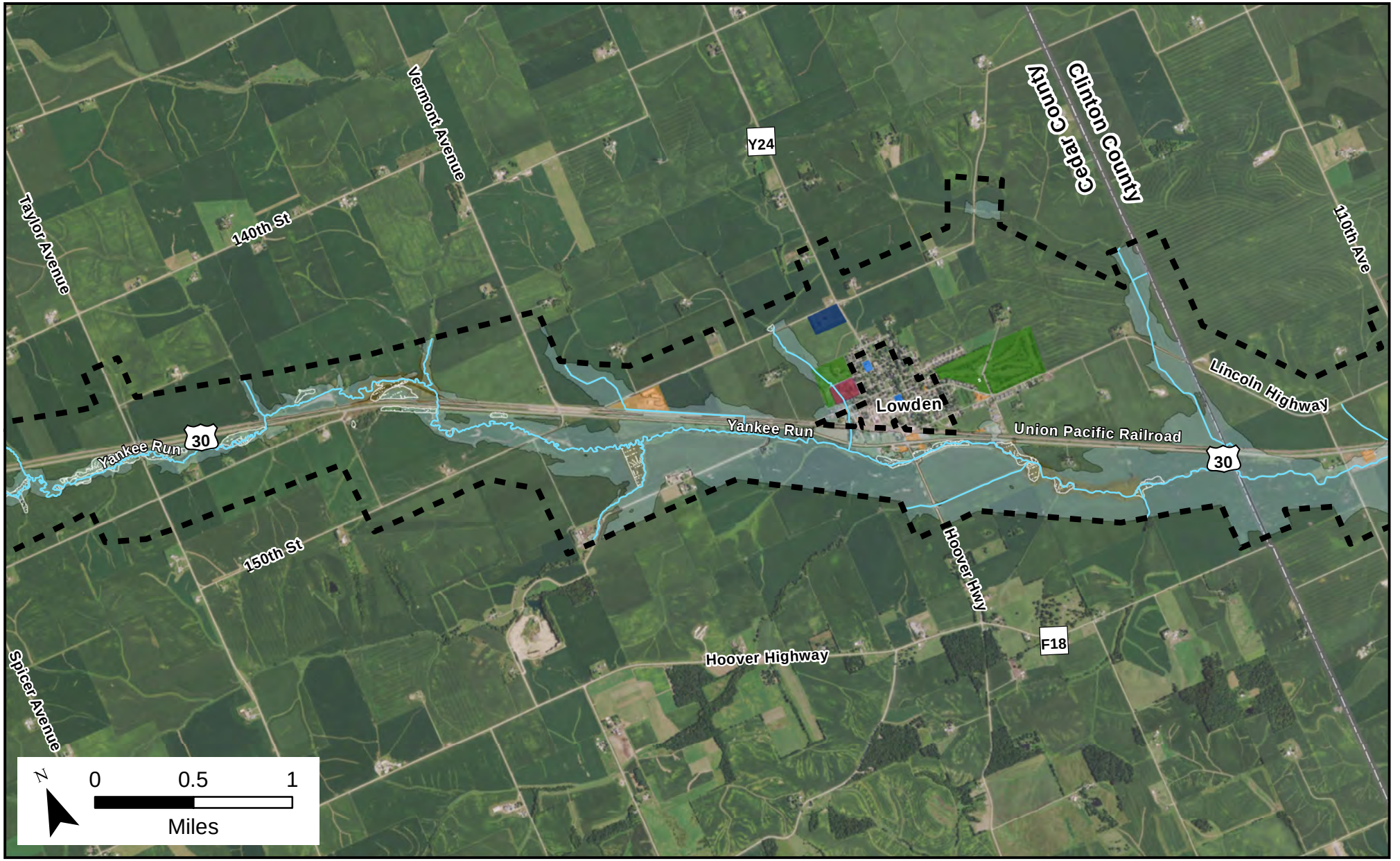

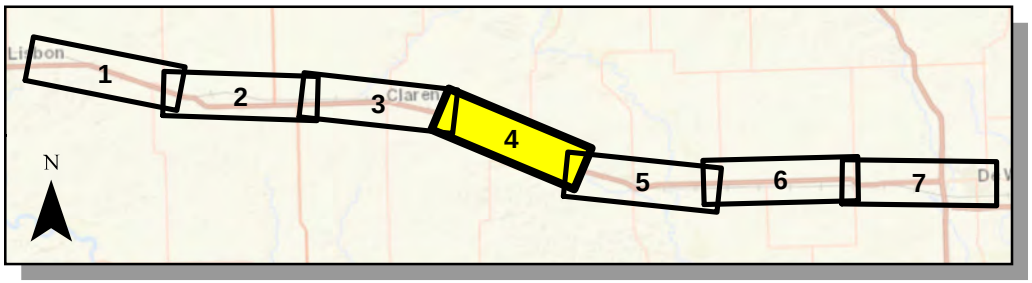

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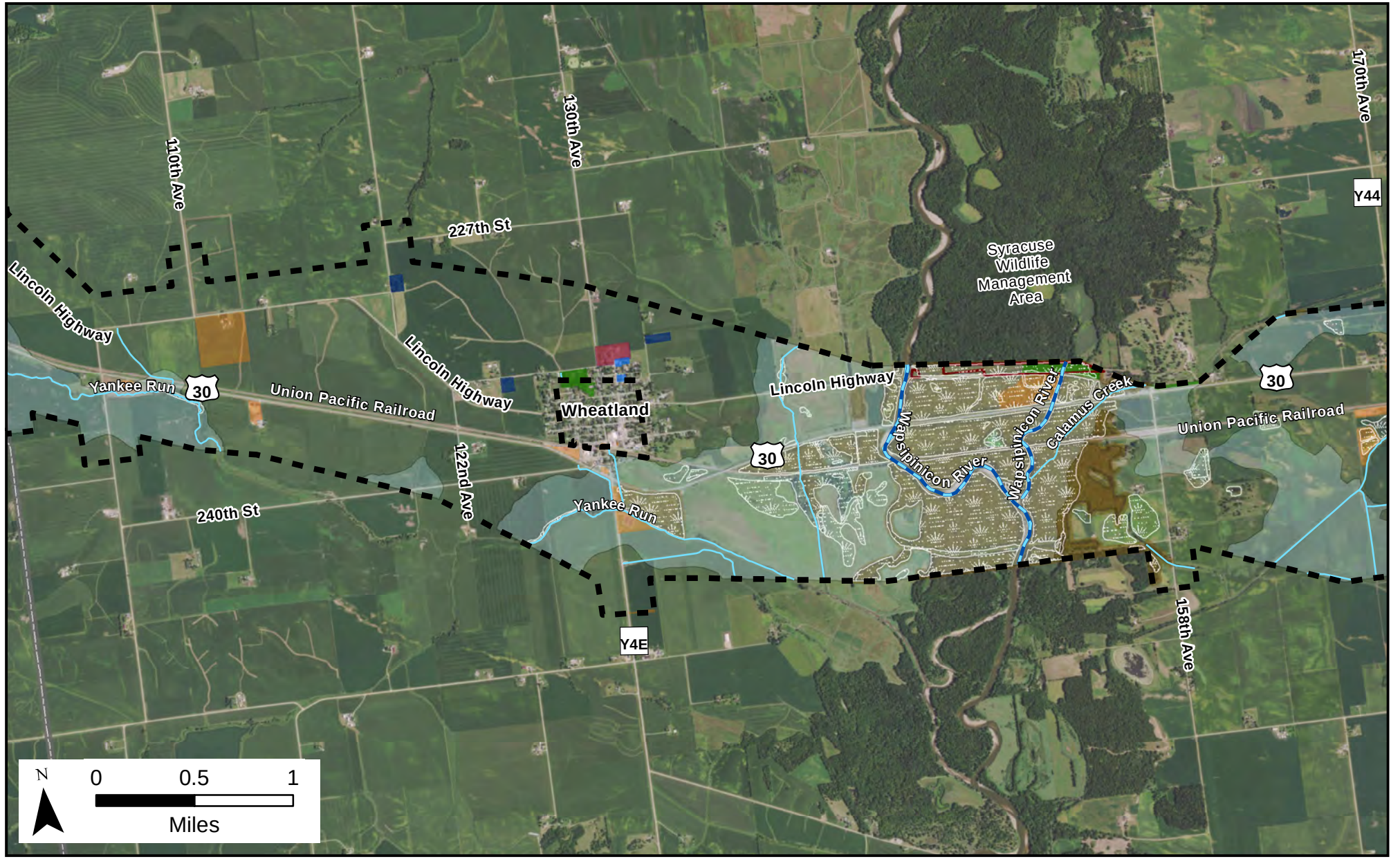

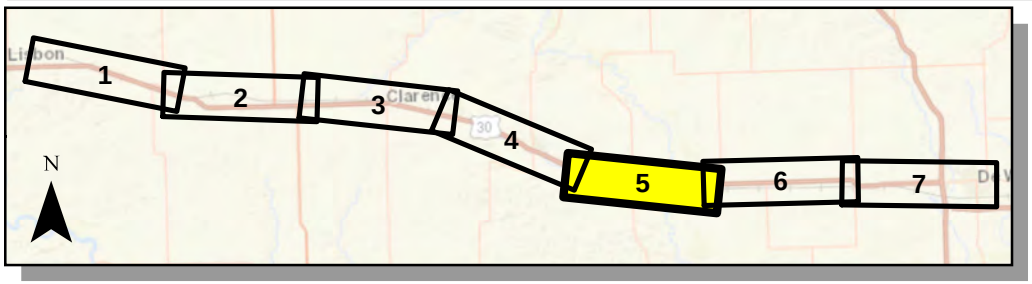

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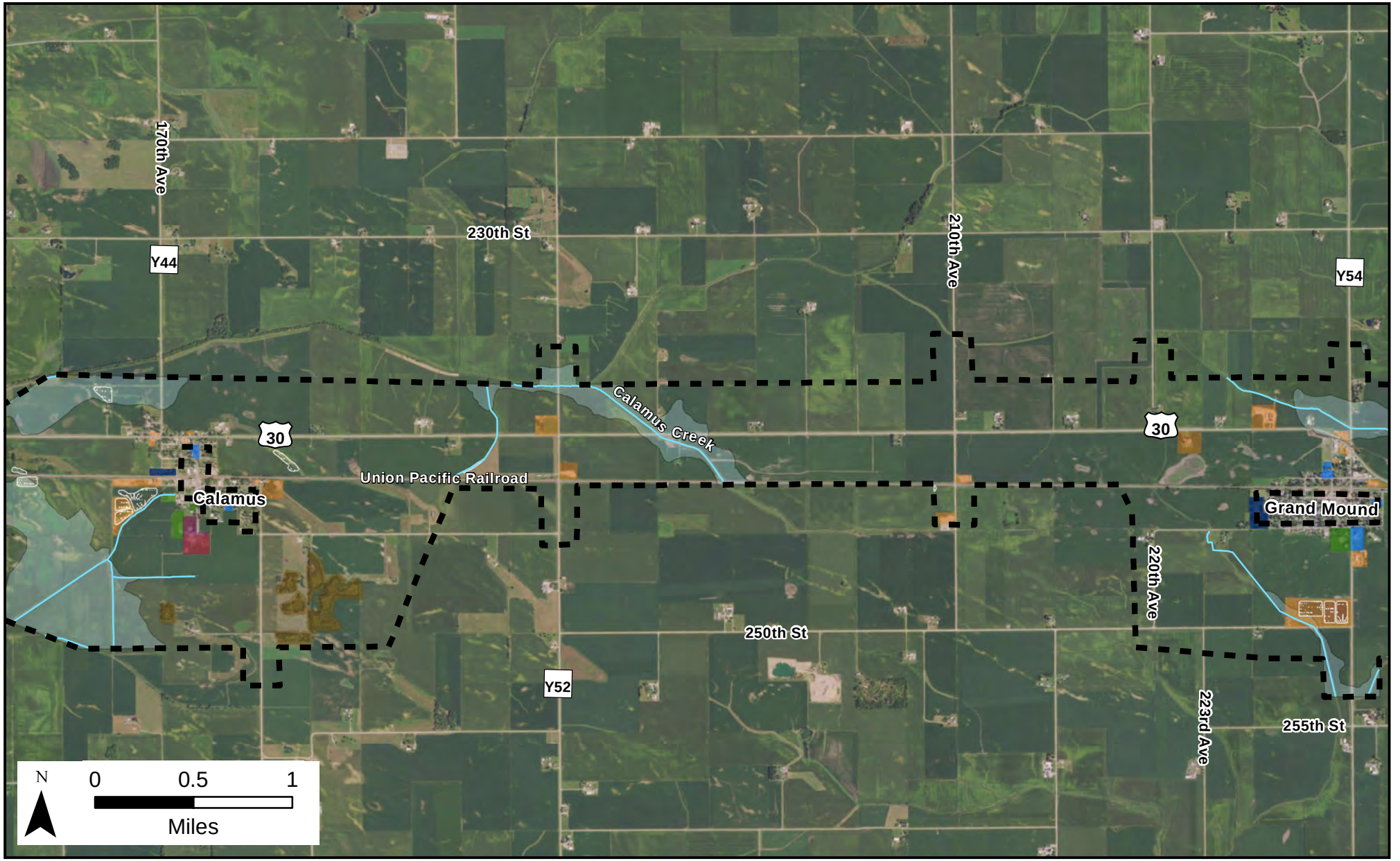

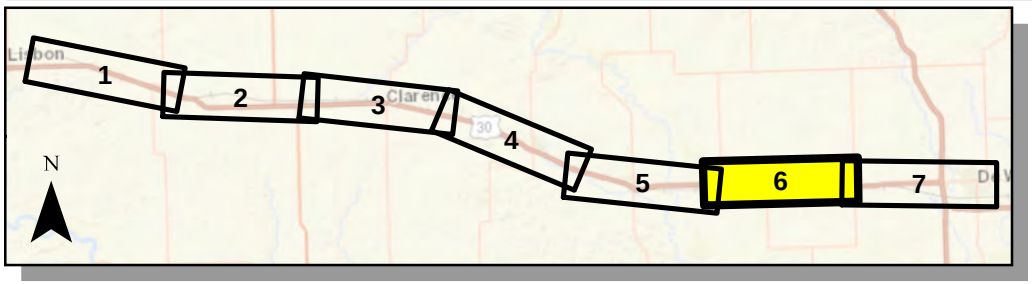

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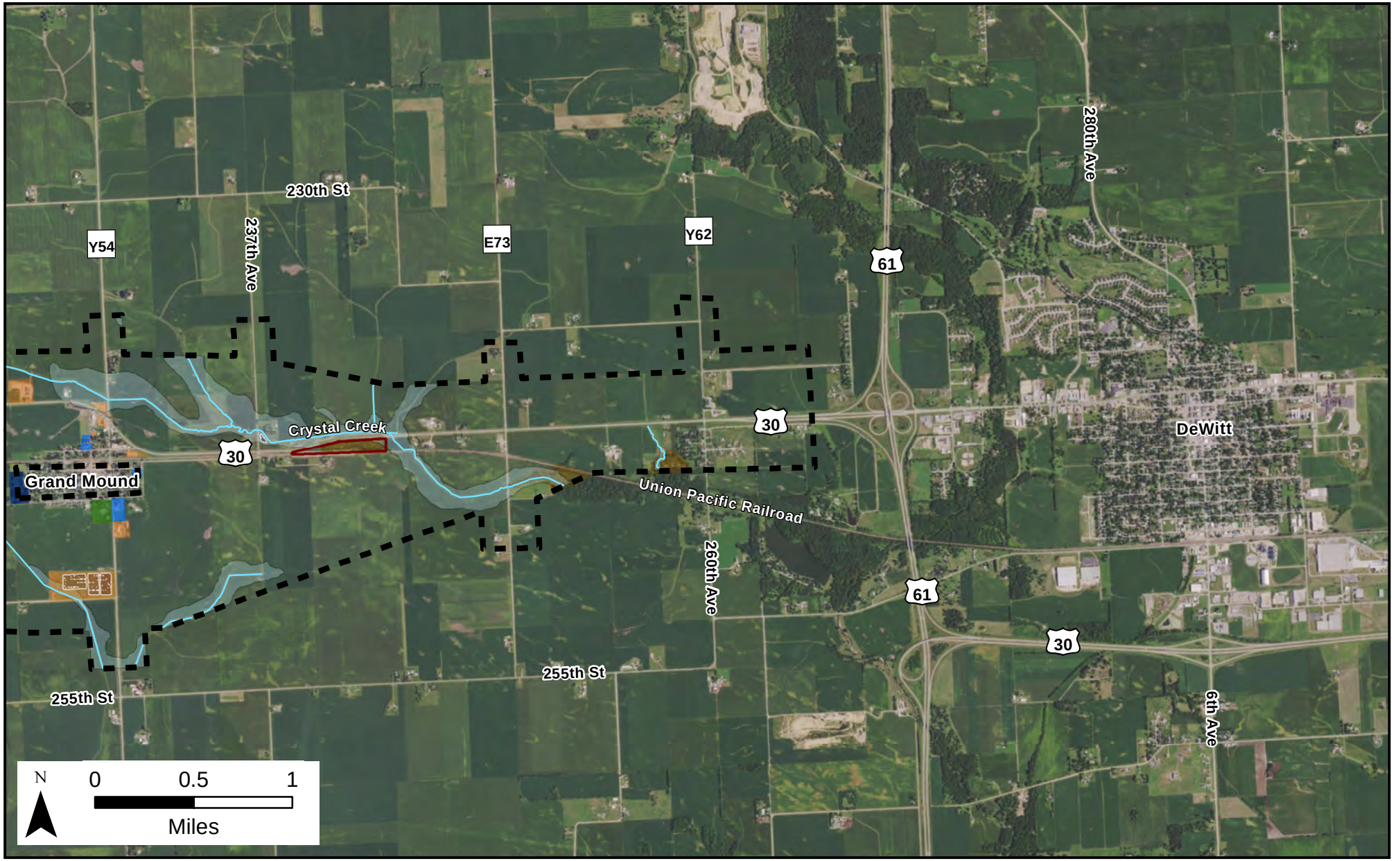

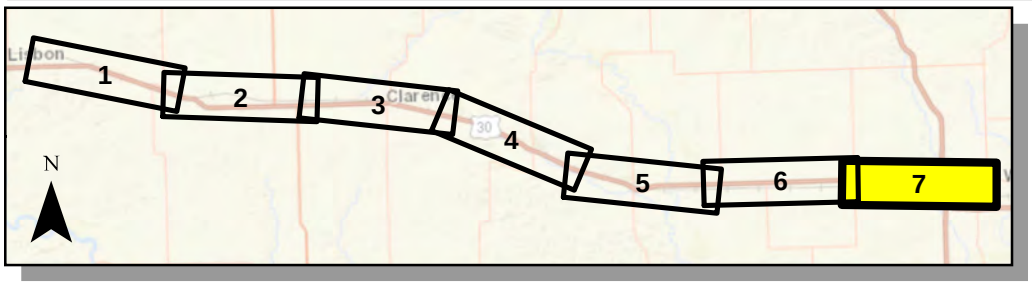

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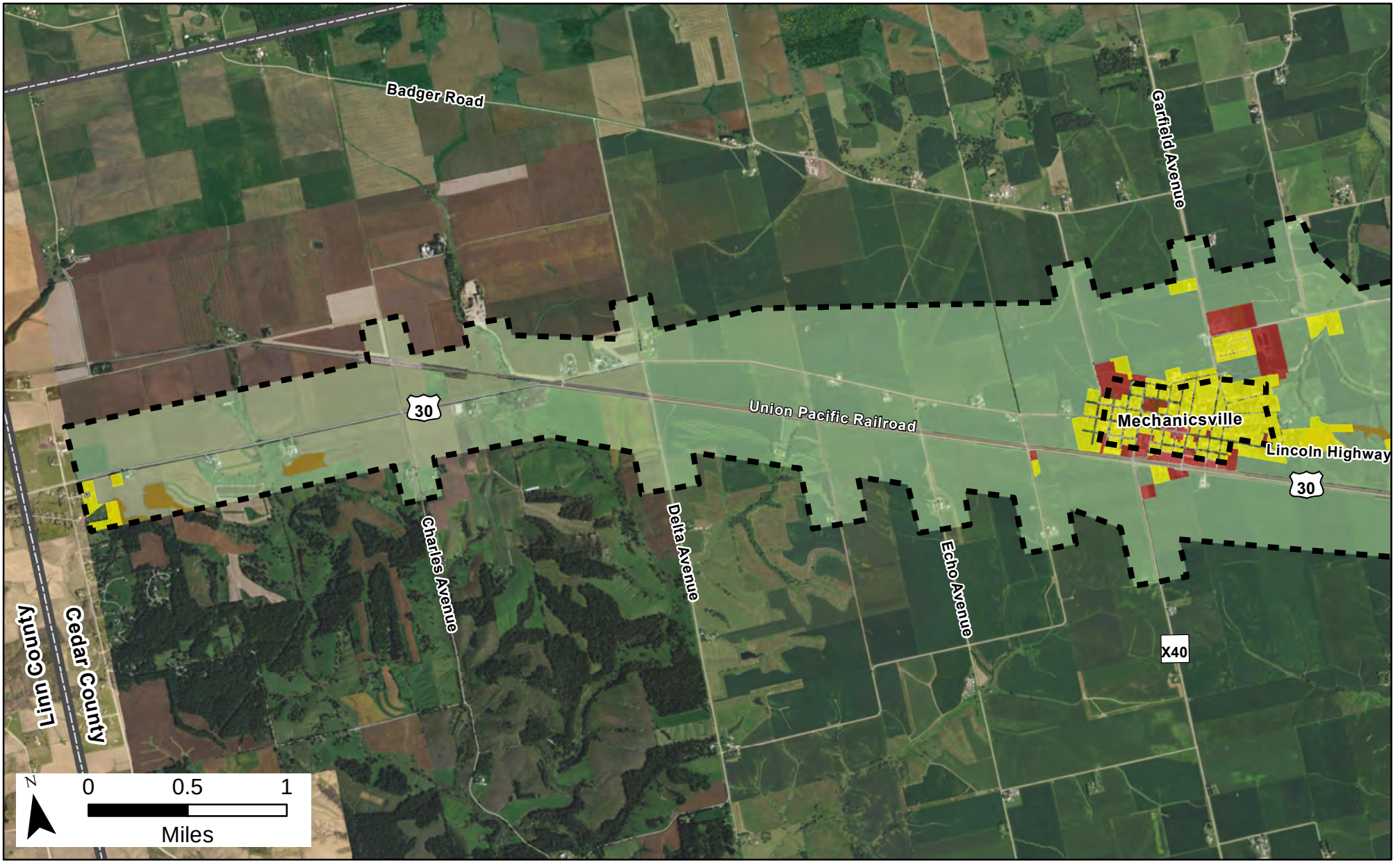
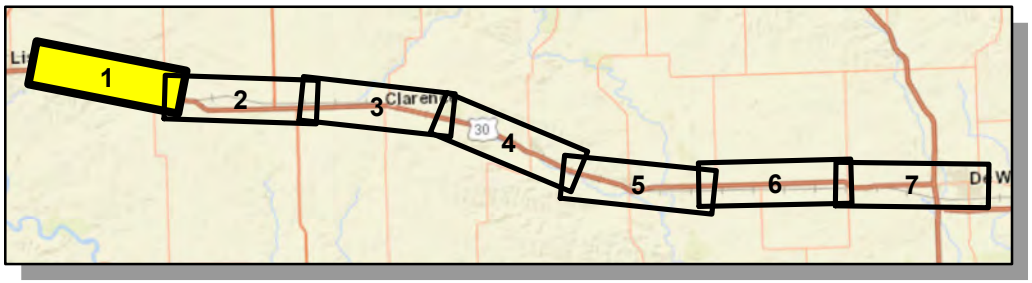
Appendix B
Existing Land Use





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EXISTING LAND USE

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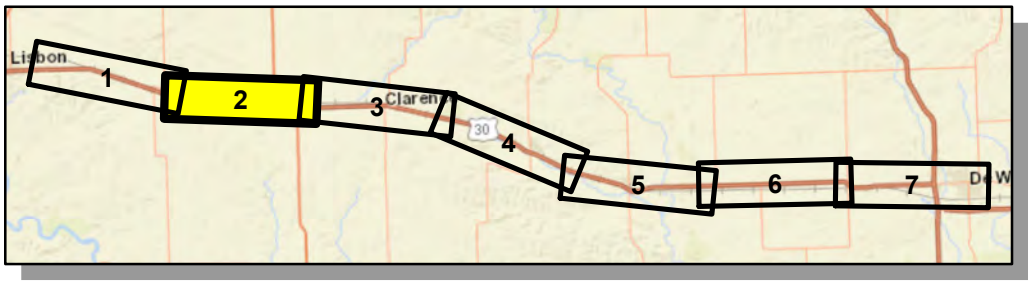

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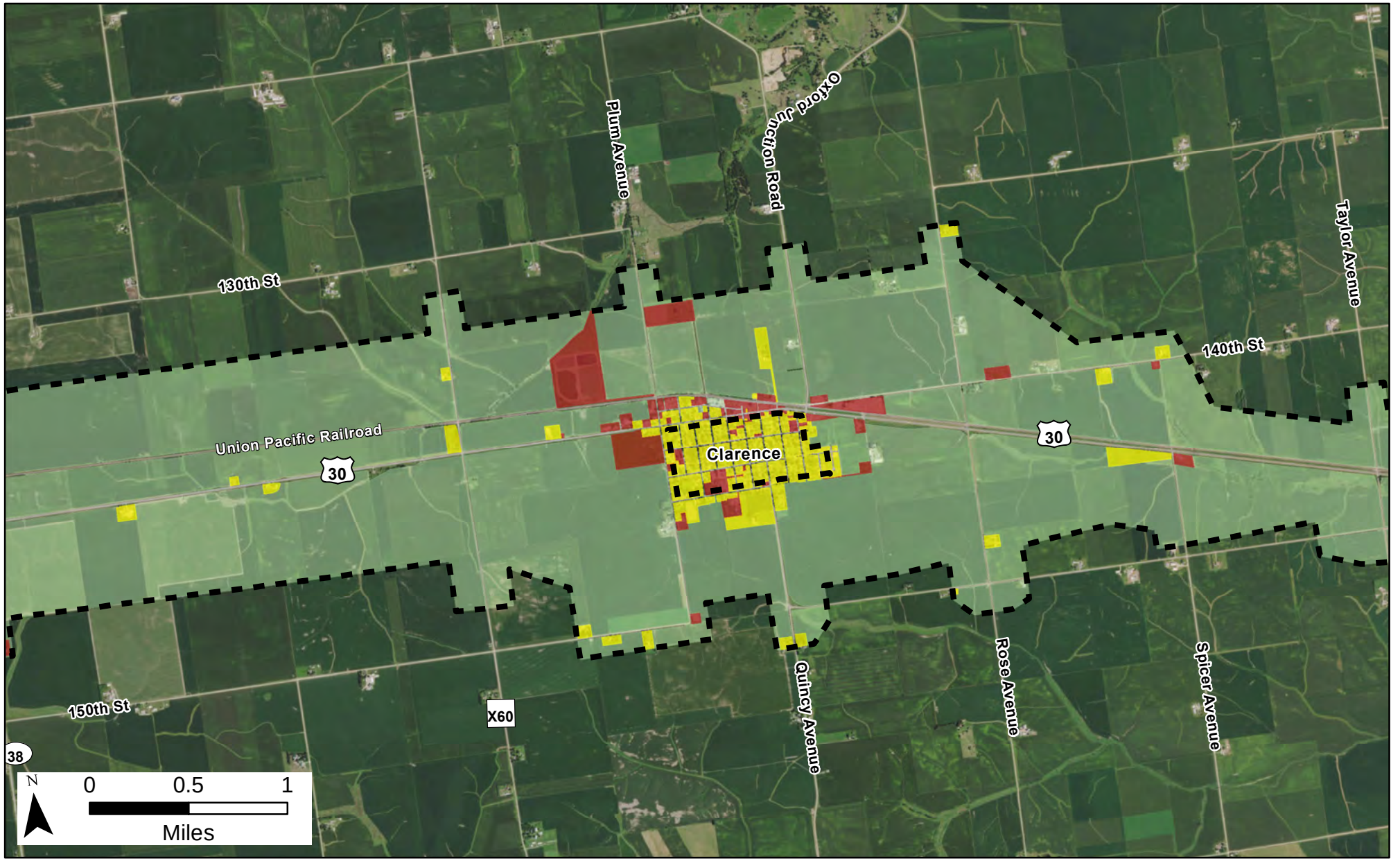

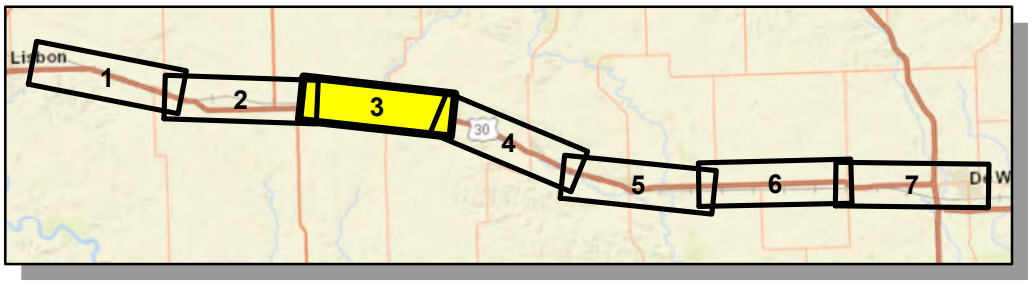

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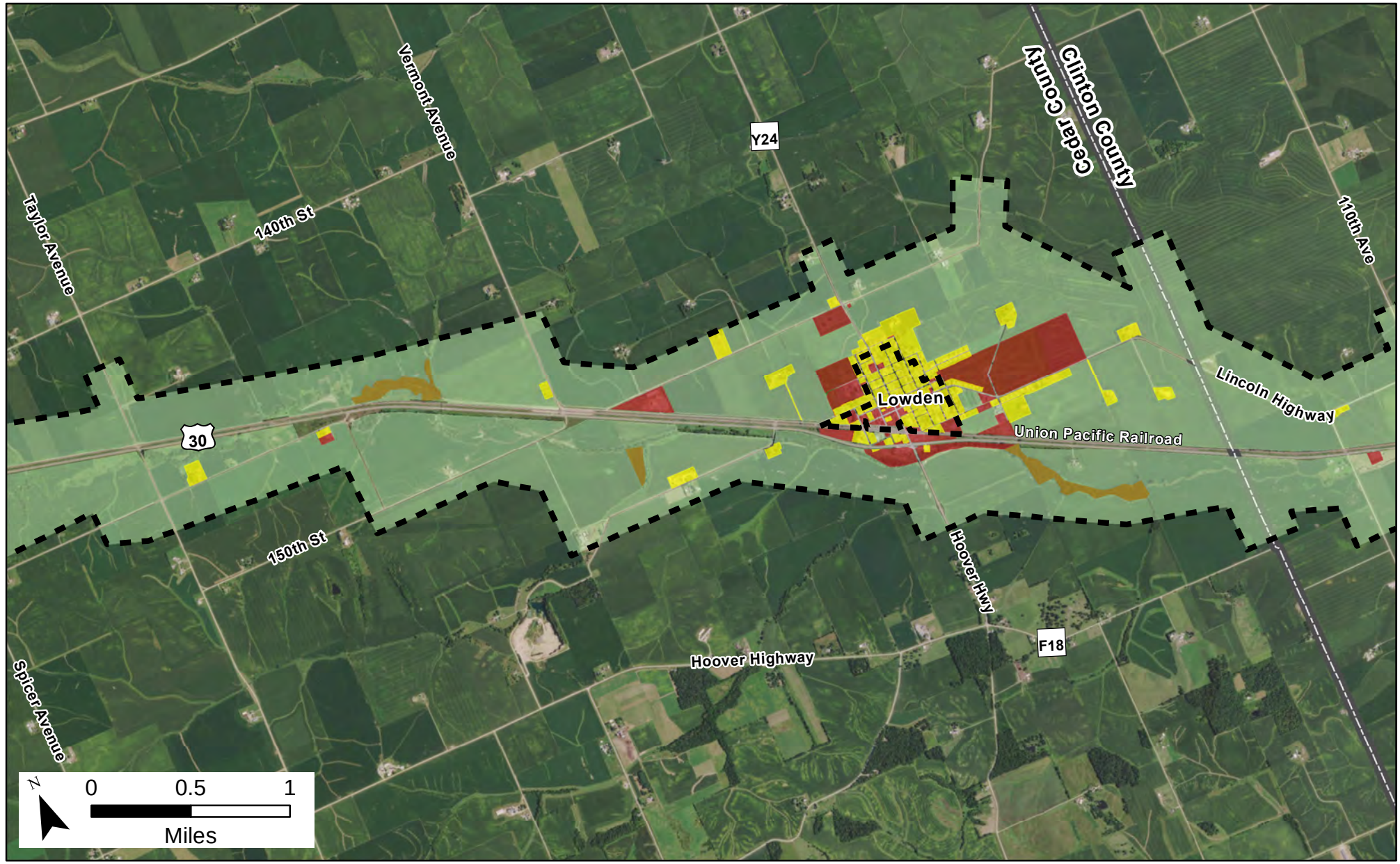

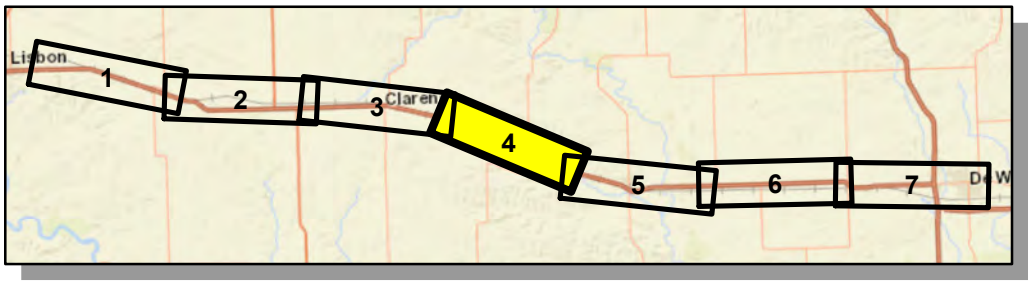

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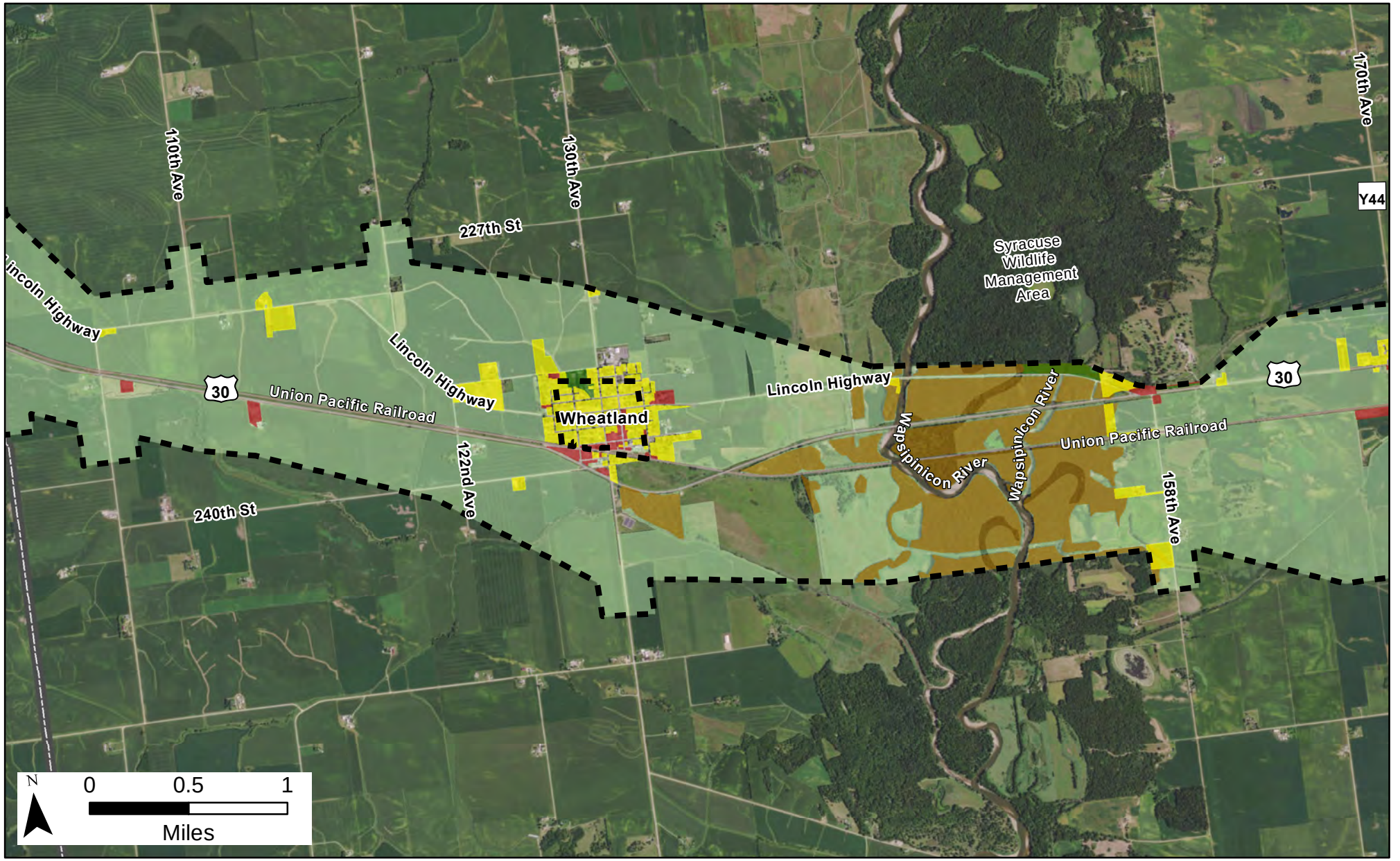

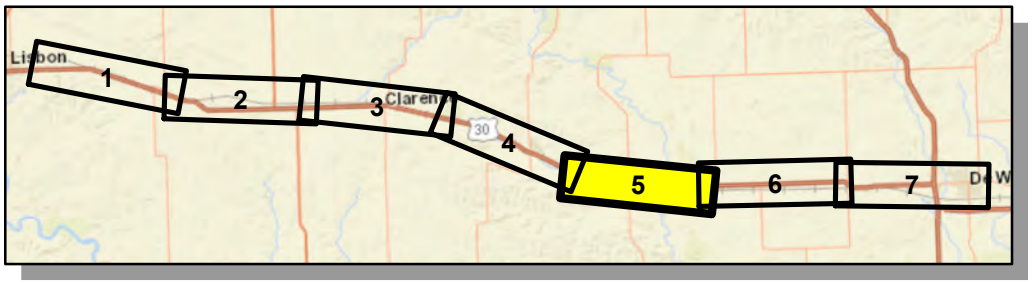

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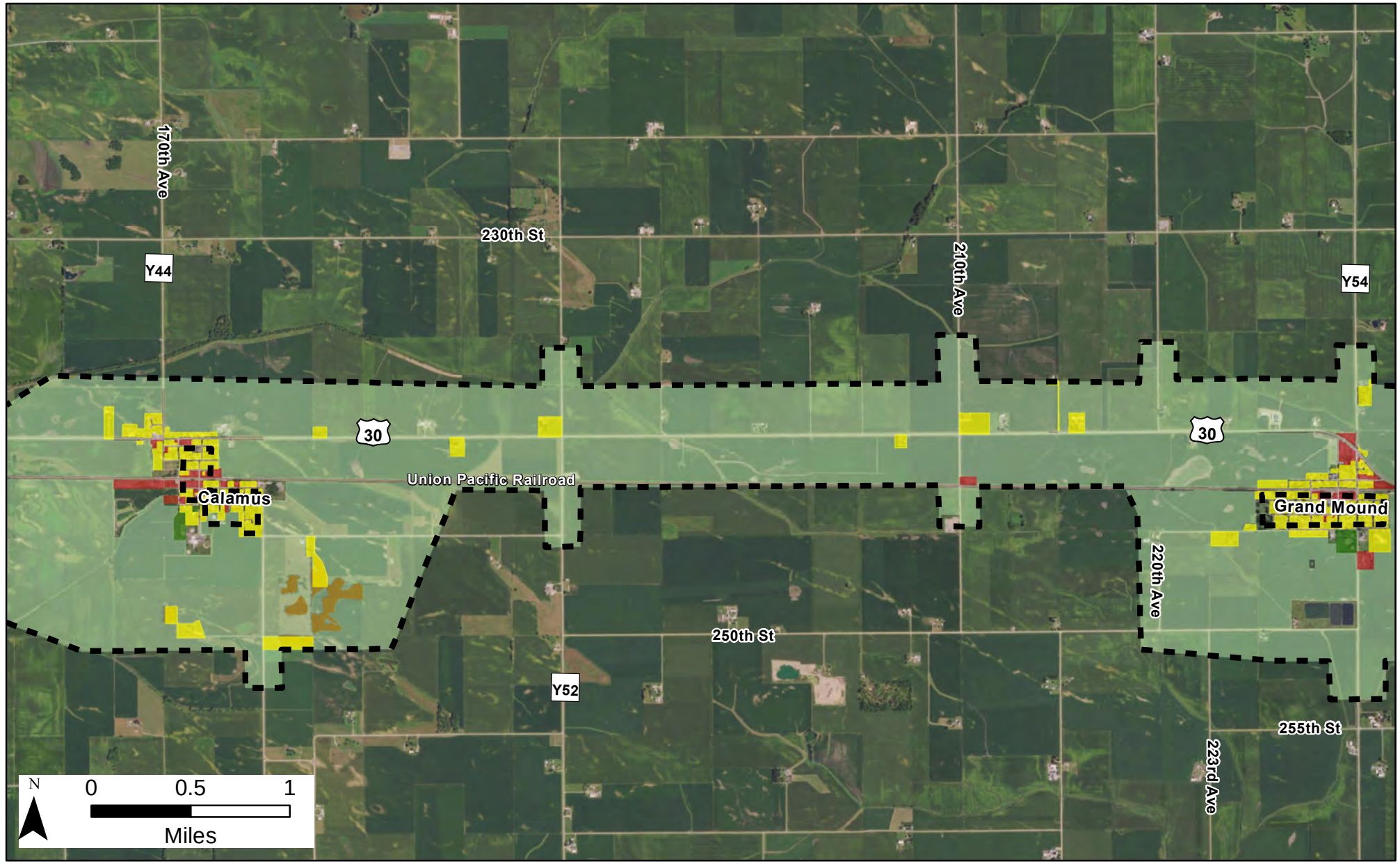

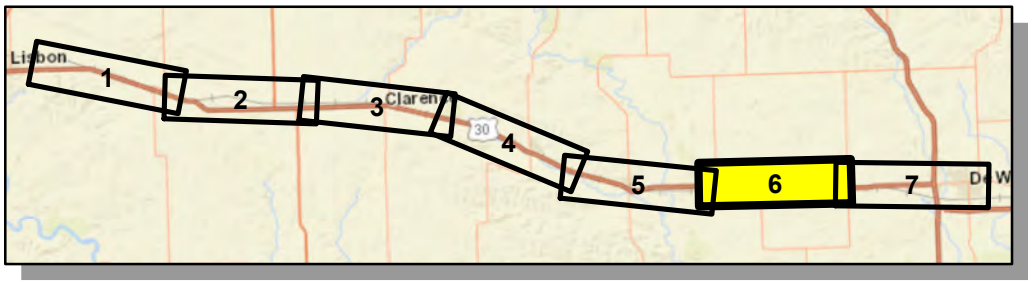

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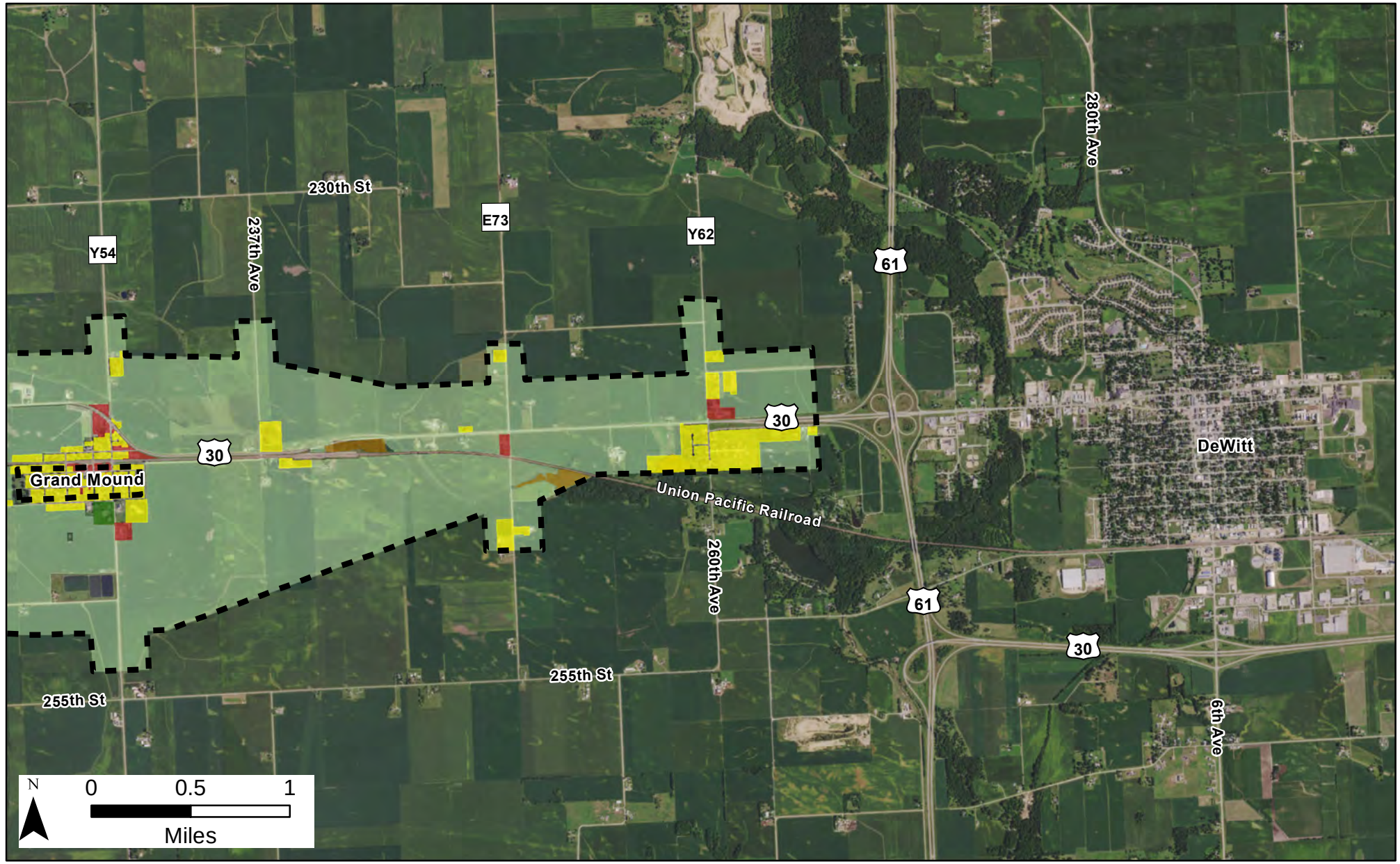

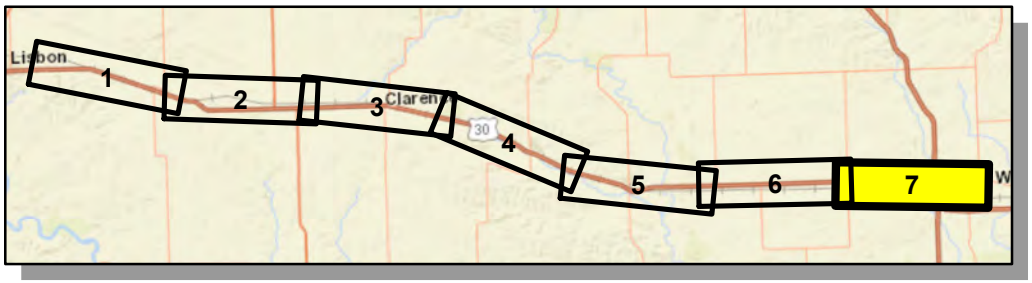

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