

NORTHEAST MORTON COUNTY

FUTURE LAND USE PLAN

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Northeast Morton County Future Land Use Plan

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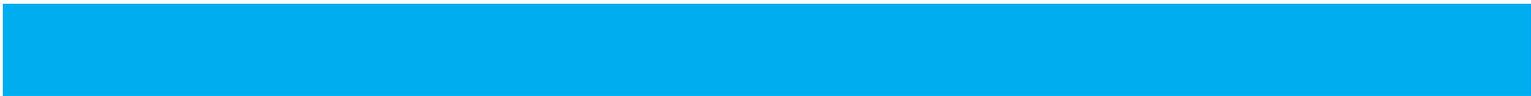




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Chapter 1: Future Land Use Plan

Introduction

Study Area

As illustrated in “Figure 1-1: Study Area”, the study area for the NE Morton County Future Land Use Plan comprises the entire portion of the Bismarck-Mandan MPO area within Morton County, less the City of Mandan and its 1-Mile extraterritorial boundary (ETA). Collectively, the study area encompasses just under 90,000 acres of land. Measuring from the farthest points, the study area spans 21 miles from north to south and 16 1/2 miles from east to west. The primary transportation routes within the study area are ND Highways 6, 25 and 1806 (north/southbound) and Interstate 94 (east/westbound).

Purpose

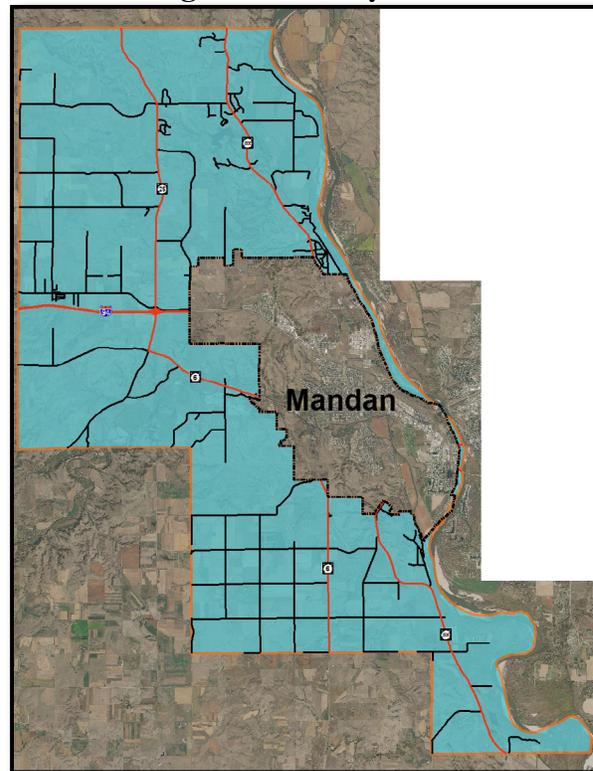
The purpose of the future land use plan is to serve as the basis for the county’s zoning decisions, which is required by the North Dakota Century Code (NDCC). In this way, the land use plan advances the county’s comprehensive plan, by providing a blueprint for implementing growth and land use goals and objectives to current citizens, property owners, prospective citizens, developers, and buyers. As previously noted, this plan specifically examines and designates future land uses within the identified study area of the county due to the growing pressures derived from the metropolitan area of Bismarck and Mandan..

Plan Horizon & Input

An effective future land use plan needs to be based on reasonable expectations of future populations, as there is a greater likelihood that services and facilities will be available at the time and in the place they are most needed. As addressed in Chapter 3, the 30-year (2045) population projection anticipates the study area can expect a population between roughly 2,900 and 3,400.

This future land use plan is specifically tailored to meet the needs of such population growth through consideration of residential and employment generating land use demand. Since

Figure 1-1: Study Area

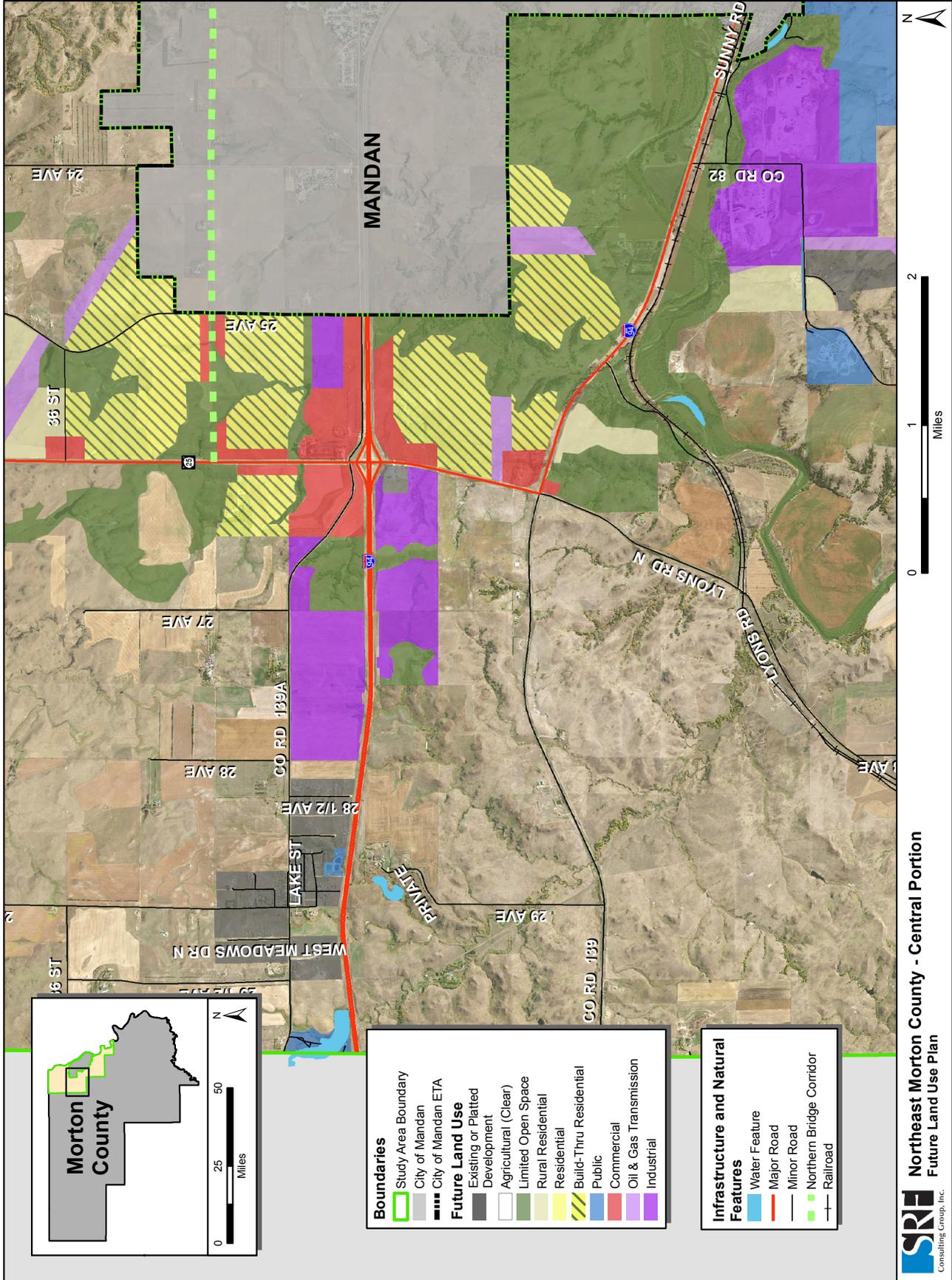


the county is not equipped to provide urban levels of infrastructure or services for future development, the plan guides growth near the City of Mandan to encourage such a transition to urban growth. Doing so relieves the county and its tax payers from major financial burdens associated with urban infrastructure needs, while producing growth which is efficient, orderly, and feasible.

The future land use plan is derived from feedback by the general public of Morton County. Based on the public input, preference was shown for locating new development near existing communities and infrastructure, protecting existing agricultural uses, and for the county to take a stronger stance in guiding growth. Figures 1-2 through 1-5 illustrate the final product of the Northeast Morton County Future land Use Plan. The remainder of this document describes into the intended interpretation, implementation, and development process of this plan.

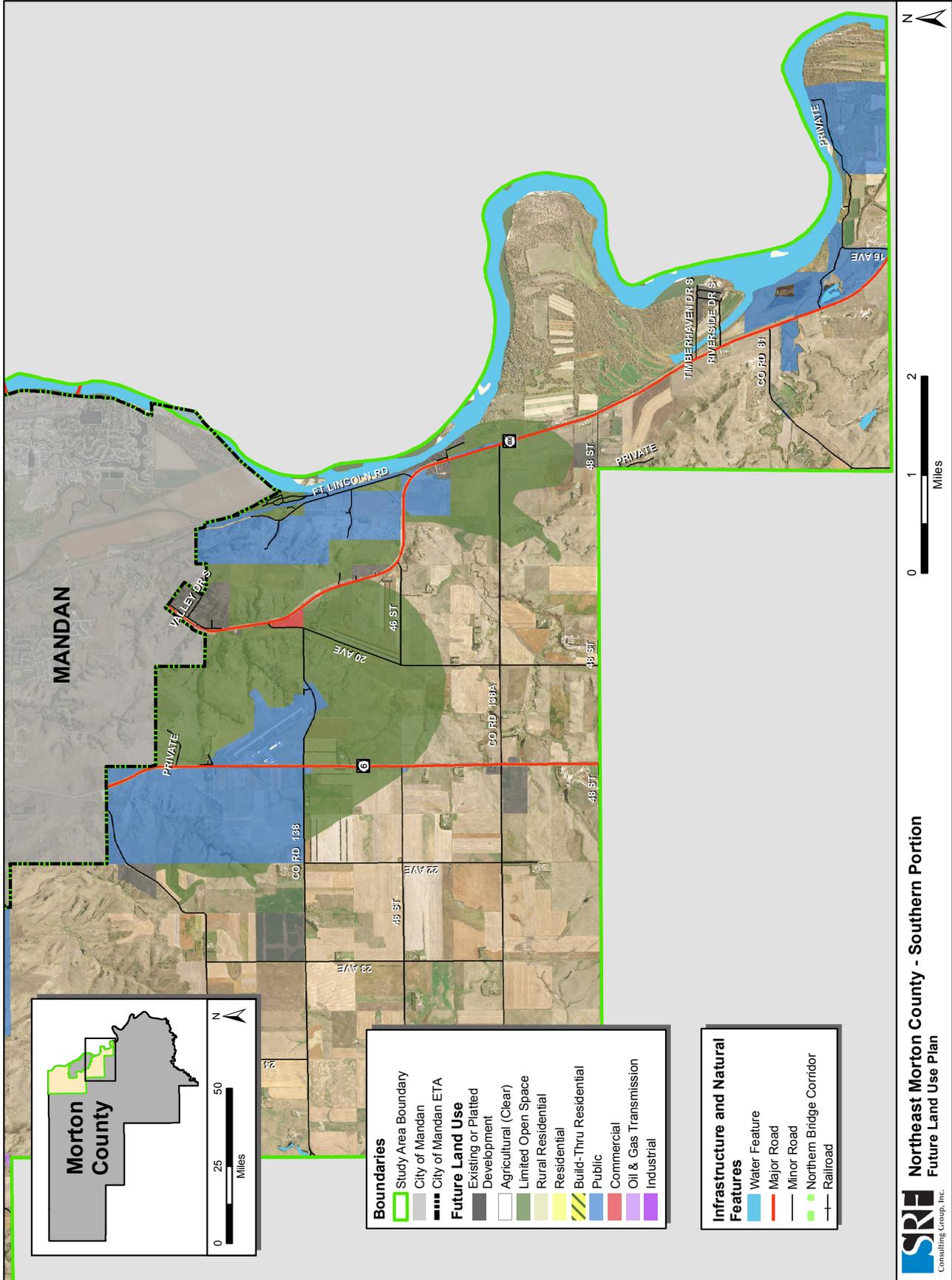
Chapter 1: Future Land Use Plan

Figure 1-4: NE Morton County Future Land Use Plan (Central Portion)



Introduction

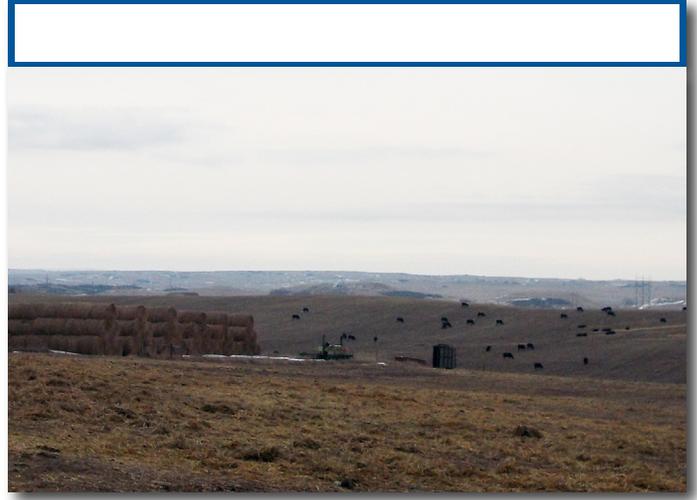
Figure 1-5: NE Morton County Future Land Use Plan (Southern Portion)



Designations

Agricultural (A)

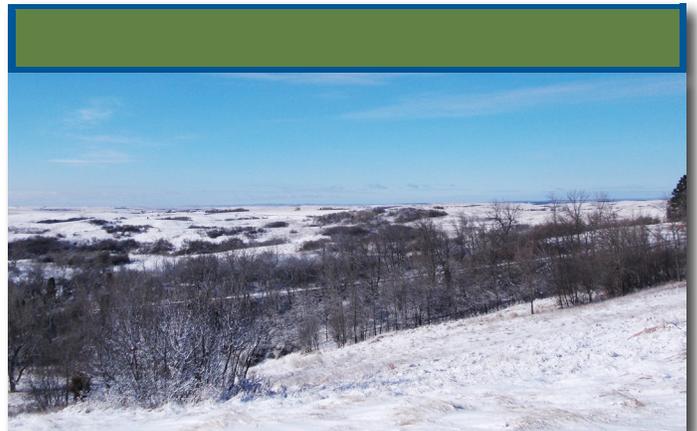
Agricultural is shown as **white/clear** on the future land use plan. This land use primarily consists of the raising of crops or livestock, as well as farm dwellings. In some cases, it consist of open space that is not being farmed.



Limited Open Space (LOS)

Limited open space is shown as **dark green** on the future land use plan. This designation is for areas deemed unsuitable or challenging for most development types due to topography, drainage needs, viewsheds, or other concerns. The designation is mainly found along corridors that follow natural features such as creeks, rivers, and steep topography.

This designation not only provides recognition for these natural features, but can also serve as a buffer between conflicting uses and maintains the rural character of the region as future developments emerge. Collectively, this designations allows for and encourages the continued use of land for agricultural purposes, while discouraging more intense uses that are typically attainable within the Agricultural District via a Special Use Permit.



Rural Residential (RR)



Rural residential is shown as **yellow-brown** on the future land use plan. Rural residential uses are typically found near the outward boundaries of the city and other rural areas throughout the study area. Sewer, fire flow, and other services may be limited or non-existent in these areas due to their location. Use of this designation is expected to be for larger lot residential development (5+ acres).

Residential (R)



Residential is shown as **yellow** on the future land plan. This designation accommodates more conventional single family detached residential development. Rural water and other services are more likely available. Use of this designation is expected to be for smaller lot residential development (1.5 to <5 acres) when compared to the rural residential designation.



Build-Thru Residential (BTR)

Build-thru residential is shown as **yellow with green stripes** on the future land use plan. The concept of this land use is to allow residential development of a rural nature on a portion of the developable acreage in areas that are not likely to be provided with urban services within the next five to ten years.

The intent of reserving a portion of the buildable acreage is to preserve the physical and economic feasibility of extending city water and sewer services into these areas at some point in the future, toward the end of the plan horizon (2045). The greater acreage reservation for densities typical of an urban growth area, the greater the cost of water and sanitary sewer mains and distribution systems that can be spread across a higher number of dwelling units. Homeowners in the initial development areas would have the option to set up their on-site systems in a manner that would facilitate eventual hook-ups to city services.

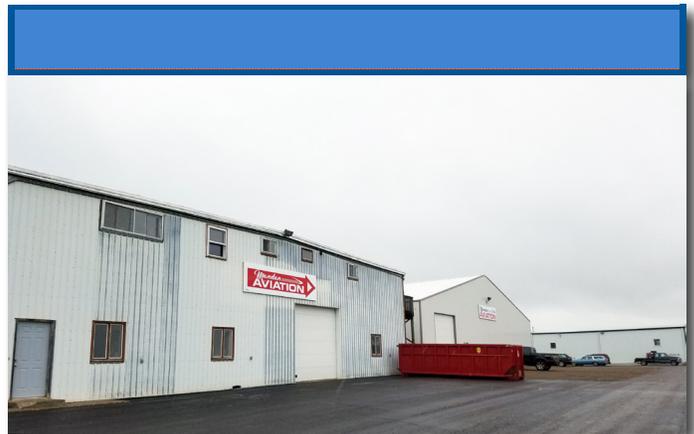


Example of Land Reserved for Urban Development

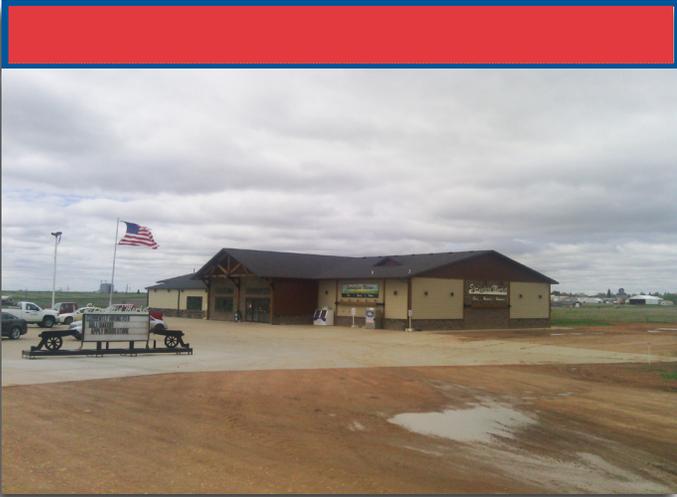
Example of Initial Rural Residential Development

Public (P)

Public designations are shown as **blue** on the future land use plan. Government and institutional-type uses are included in this designation, as well as open space and conservation areas under public ownership. Land uses considered public and institutional include government-owned wildlife and conservation areas, parkland, schools, religious institutions, colleges and universities, hospitals, government facilities, public facilities, and in some cases, major event facilities.



Commercial (C)



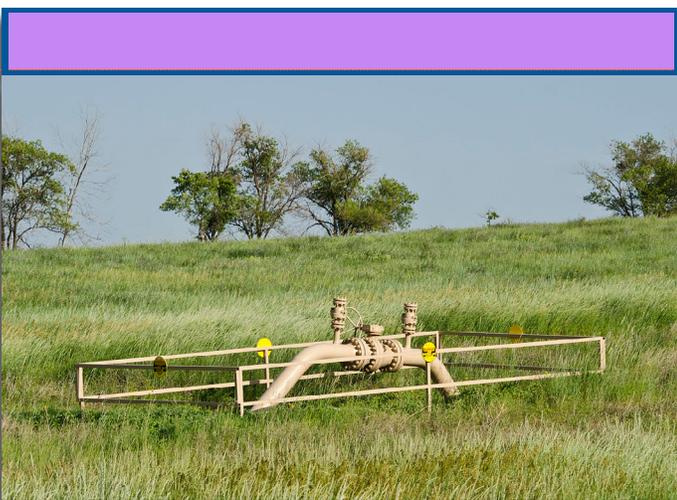
Commercial areas are shown as **red** on the future land use plan. This land use designation is intended for retail sales and services typically along major highways and junctions. It is not intended for sales, services, or other activities of an industrial nature.

Industrial (I)



Industrial is shown as **purple** on the future land use plan. This designation consists of wholesale sales, warehousing, distribution, storage, “shop condos”, and industrial service-related uses. Ideally, this designation should prohibit less intense uses such as retail sales and service, restaurants, and so forth that would be incompatible in an environment with industrial land uses.

Oil & Gas Transmission (OG)



Oil and gas transmission areas are shown as **light purple** on the future land use plan. This designation is for areas utilized for oil and gas transmission lines. These uses are commonly regulated by the State of North Dakota which requires a 500’ buffer from residential uses. As a result, this designation is shown where transmission lines are located adjacent to areas designated for future residential development.

Chapter 2: Future Land Use Plan Implementation

Approach

Responsibility

In order for the future land use plan to be useful and relevant, it must be implemented. As a result, it will be the responsibility of county staff and leaders to proceed with aligning and updating the county’s Comprehensive Plan and land use code to reflect the purpose and intent of the future land use plan once adopted. In carrying out this effort, the built environment of the county will, over the long term, be further realized as envisioned in the county’s planning efforts.

Flexibility

The future land use plan is intended to be a definitive yet dynamic map for both Morton County and the Bismarck-Mandan Metropolitan Organization. The full benefits of the plan can only be realized by adhering to it to the fullest extent possible. However, as changes occur and new issues within the county become apparent, the plan can be revised as necessary. By being both flexible and consistent as needed, the plan will remain current and effective in meeting the county’s decision-making needs.

Guide for Decision-Making

The county should consider both the future land use plan and comprehensive plan in such decisions as infrastructure planning, zoning ordinance amendments, and projects or programs to implement relating to the use of land within the study area. The development community should use the future land use plan as a guide prior to application submittal, to determine areas to develop, along with appropriate uses and densities to maximize the potential for favorable consideration by county decision makers.

Land Use & Zoning Application

Since the purpose of the future land use plan is to be a guide as land is zoned, subdivided, and developed, zoning decisions should be consistent with the intent of the plan. The following table (Table 2-1), identifies which existing or proposed zoning districts of Morton County’s land use code are consistent with the proposed future land use designations.

Table 2-1: Future Land Use Designations Relationship to Proposed Zoning

Land Use Designation	Compatible Zoning							
	A	R-5	R-1.5	RT	P	C	I	IL
Agricultural	✓							
Limited Open Space	✓							
Rural Residential	✓	✓	✓					
Residential	✓		✓					
Build-Thru Residential	✓	✓	✓	✓				
Public	✓				✓			
Commercial	✓					✓		
Oil & Gas Transmission	✓						✓	✓
Industrial	✓						✓	✓

Key: (A) – Agricultural District, (RR) – Rural Residential District, (R) – Residential District, (RT) – Residential Transition District, (P) – Public District, (C) – Commercial District, (I) – Industrial District, (IL) Limited Industrial District.

Chapter 2: Future Land Use Plan Implementation

Build-Out Concept #1

In order to help the public envision how the future land use plan might be implemented in regards to lot sizes and roadway networks, conceptual build-out scenarios were produced. The first scenario is located just north of Harmon Lake near ND Highway 1806 and County Road 140. This concept illustrates how residential development and a commercial node could extend to the north in addition to how a trail network may be included.



Note: Graphic is intended for envisioning purposes only. No design concepts have been accepted or approved by Morton County.

Chapter 3: Land Use Suitability Analysis

Introduction

What is a Land Use Suitability Analysis?

The Land Use Suitability Analysis was an assessment of existing and projected future conditions of the study area in order to help inform the development of the future land use plan. The topics considered in this analysis consist of the following:

- Existing Land Use
- Topography
- Flood Zones
- Agriculture
- Population
- Housing
- Employment
- Transportation
- Current Policies
- Oil & Gas Infrastructure
- Airport
- Access to Rural Water
- Natural Resources

Agricultural Land Use and Practices

It is important to note that “growth” and “future development” as referred to in this chapter does not refer to agricultural or agriculturally-related (farm homes, barns, grain silos, etc.) growth or development. The North Dakota Century Code (NDCC) includes strong language that protects the use of land for agricultural purposes. The ability of local governments to restrict agricultural practices is limited by the NDCC.



Caption: Example of agricultural use within study area.

Site Visits

While aerial photography can be an excellent resource, site visits are always the best way to truly verify land use in areas where the use is unclear, or where recent changes have been occurring. To address this concern, a comprehensive site visit along with supplementary site visits as necessary were performed. In addition, coordination with Morton County staff and residents was critical to verify observations, and to gain an understanding of areas that have been undergoing change.



Caption: Example of residential development in the study area.



Caption: Image of the North Dakota Veteran's Cemetery.



Caption: Image of Flying J truck-stop to help illustrate commercial use and zoning.

Existing Land Use

Introduction

As previously noted, there is currently just under 90,000 acres of land encompassing the study area. This chapter identifies the existing land uses and development conditions of the study area with a focus on different types of land uses and the built environment. As previously noted, the information in this chapter was developed from a visual assessment of the study area undertaken in January of 2016, followed by a review of recently released 2015 aerials. “Table 3-1: Existing Land Use Summary” below outlines the types of existing uses, the amount of acres for each use, and the use distribution for the study area. In addition to the table, a map of existing land uses within the study area is provided on Page 17.



Caption: Example of residential uses within the study area.

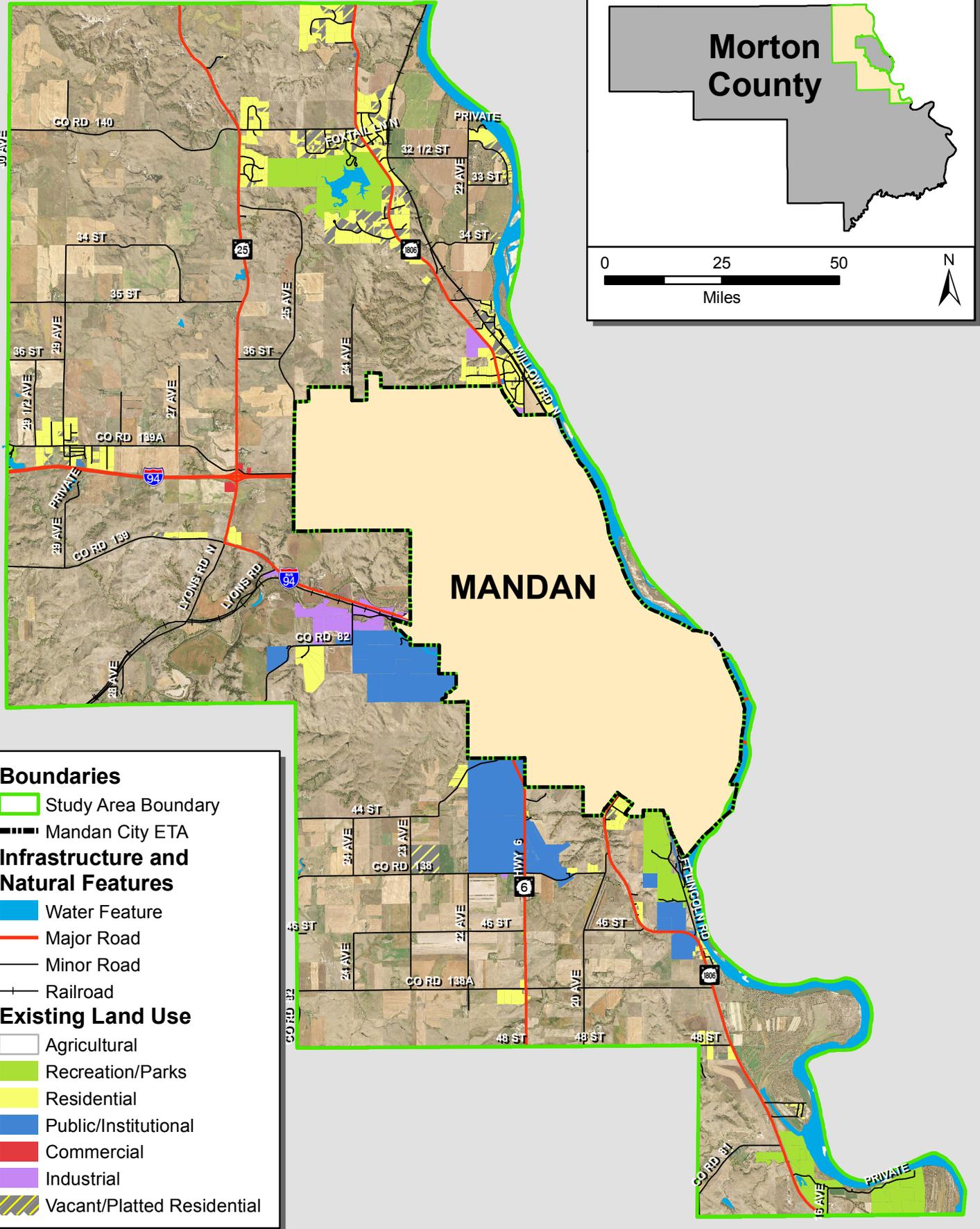
Table 3-1: Existing Land Use Summary

Symbology	Existing Use	Existing Acreage	Existing Distribution
	Recreation/Parks	2,465	23.5%
	Residential	3,129	29.8%
	Public/Institutional	3,266	31.2%
	Commercial	30	0.3%
	Industrial	522	5.0%
	Vacant/Platted Residential	1,067	10.2%

Note: Percentages excludes agricultural uses which encompasses 88 percent of the study area.



Caption: Example of recreational use at Harmon Lake. Photo taken during later site visit.



Projections

Introduction

All presented projections are for the target year of 2045 for the Morton County MPO Future Land Use Plan. In addition, the projections are representative of the identified study area. Note that governmental boundaries are assumed to remain static during the projection horizon (2045). This section provides an overview of projection results and a brief discussion on how the results may impact the study area. Methodologies for each projection are provided in the appendix.

Current Growth and Population Estimates

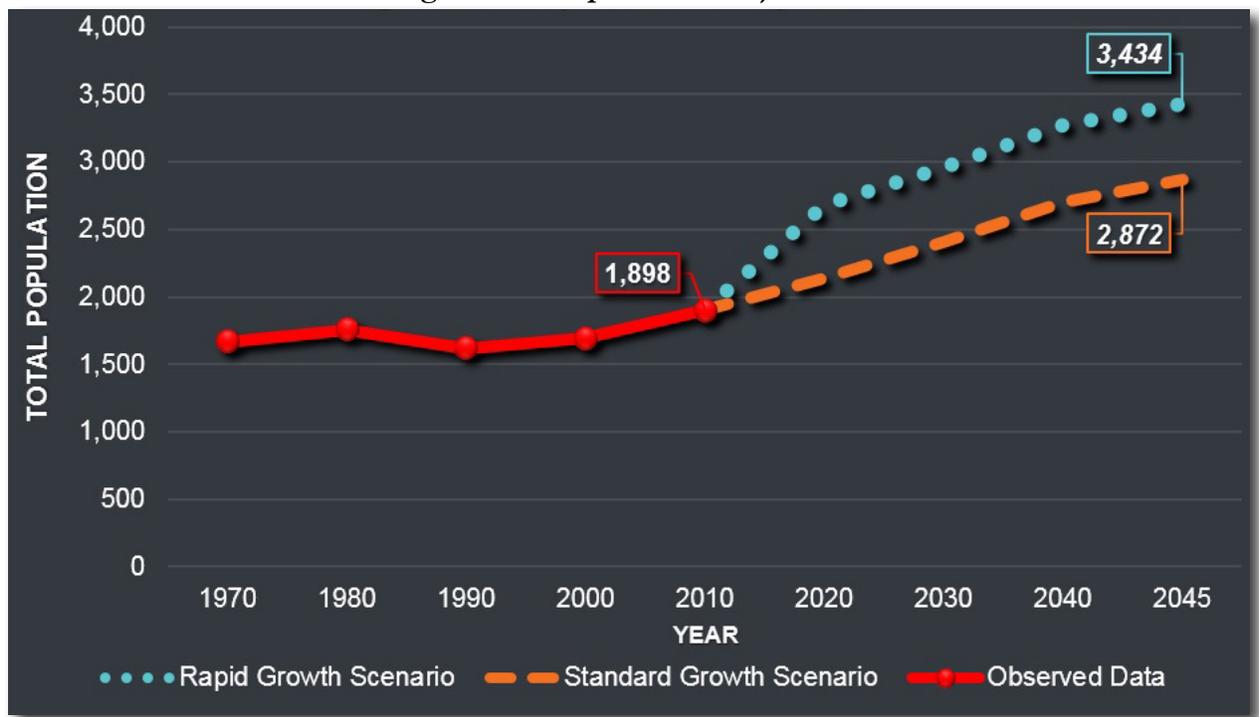
Between 1970 and 2010, the study area experienced only minor fluctuations of population changes ranging between a total population of 1,600 and 1,800. When estimating 2015 population, it was found that the total population for the study area has grown to approximately 2,153 or an increase of 13

percent since 2010. This suggests the study area has experienced an average annual growth rate of around 2.6 percent in the last five years. One attributing factor to the significant increase in population was the abundance of in-migration experienced throughout the state due to the growing presence of the energy industry. Recognizing the potential impact and unpredictability of the energy industry, two alternative projections are provided: a rapid “oil boom” growth scenario and a standard “continued steady growth rate” scenario. The standard scenario can be compared to the overall trend of growth experienced between 1970 and 2010.

2045 Population Projections

“Figure 3-2: Population Projections” below provides two population projections including a rapid growth scenario (Blue Dots) and a

Figure 3-2: Population Projections



standard growth scenario (orange dashes) for the study area. The rapid growth scenario anticipates a total population of the study area to be approximately 3,434 by 2045. This suggests that between now (2015) and the target year (2045), the study area will increase in population by around 60 percent with an average annual growth rate of two percent. Conversely, the standard growth scenario projects a total population of around 2,872 by 2045, an increase of about 34 percent or an average annual growth rate of just over one percent. Inclusively, this means the study area will likely experience an average annual growth rate between one and two percent with the exceptions of unforeseeable events such as natural disasters or business development cycles.



Caption: Example of residential uses within the study area.

2045 Housing Projections

“Table 3-2: Housing Projections” below outlines the estimated number of housing units for 2015, the number of units attainable derived from future land use plans/studies that include the study area, and the projected number of units for 2045. Comparable to the population projections, the housing projections examine solely the study area with the assumption that all jurisdictional boundaries remain static. The study area is estimated to encompass roughly 861 housing units as of 2015. When examining the Bismarck-Mandan MPO Regional Land Use Study implications for just the study area, the analysis found the plan can support up to (in total) 16,953 housing units (an equivalent population of about 34,300). Similarly, examination of the 2015 City of Mandan’s Land Use and Transportation Plan found the plan can support up to (in total) 14,407 housing units (an

equivalent population of about 34,000) in just the study area.

By applying both the standard and rapid growth population projections to the attainable quantities from both land use plans, a projected number of housing units can be determined. For the Bismarck-Mandan MPO Regional Land Use Study, only about 1,500 to 1,800 total housing units are needed for the projected population scenarios. If development were to occur as outlined in the City of Mandan Land Use and Transportation Plan, only about 1,300 to 1,500 total housing units are needed.

The difference in housing range between the two plans is a result of housing densities expected. More specifically, the Bismarck-Mandan MPO Regional Land Use Study focuses more on higher density housing in the study area compared to the City of Mandan’s plan; therefore, more housing units are needed to meet the projected populations since persons per households are typically lower for urban densities.

Table 3-2: Total Housing Projections

Observed	Bismarck-Mandan MPO Regional Land Use Study (2007)			City of Mandan Land Use and Transportation Plan (2015)		
	Attainable	2045 (Standard)	2045 (Rapid)	Attainable	2045 (Standard)	2045 (Rapid)
2015						
861	16,953	1,509	1,804	14,407	1,270	1,518

2045 Employment Projections

“Table 3-3: Employment Projections” below summarizes the total employment for 2015, the attainable employment based on the existing land use maps, and the projected employment for 2045. Comparable to the other projections, the employment projections examine solely the study area with the assumption that all jurisdictional boundaries remain static. The study area is estimated to encompass an employment quantity of roughly 1,507 as of 2015.

When examining the Bismarck-Mandan MPO Regional Land Use Study implications for just the study area, the analysis found the plan can support up to 14,299 jobs. Similarly, examination of the 2015 City of Mandan’s future land use plan found the plan can support up to 7,449 jobs in just the study area. The difference in attainable employment between the two plans is the result of the scope of the plans. More specifically, the Bismarck-Mandan MPO Regional Land Use Study expands further and provides more employment generating land use designations than the City of Mandan’s plan.

The study area is projected to have between 2,010 and 2,404 people employed by 2045. Unlike the projections for housing, the employment projection quantities are not directly impacted by the differences between the two plans. Where the difference between the plans does occur is whether the jobs are retail or non-retail oriented. As previously noted, the Bismarck-Mandan MPO Regional Land Use Study focuses more on non-retail jobs in the study area compared to the City of Mandan’s plan. Therefore, while the overall projection quantities of employment are recognized to be the same as a result of either plan, the type of workforce will differ.



Caption: Example of employment generating uses within the study area.

Table 3-3: Total Employment Projections

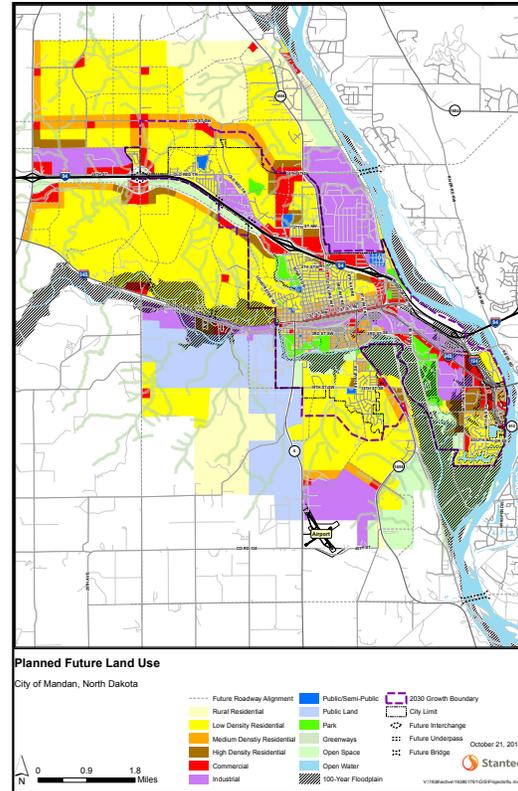
Observed	Bismarck-Mandan MPO	City of Mandan	Projections	
2015	Attainable	Attainable	2045 (Standard)	2045 (Rapid)
1,507	14,299	7,449	2,010	2,404

Important Considerations

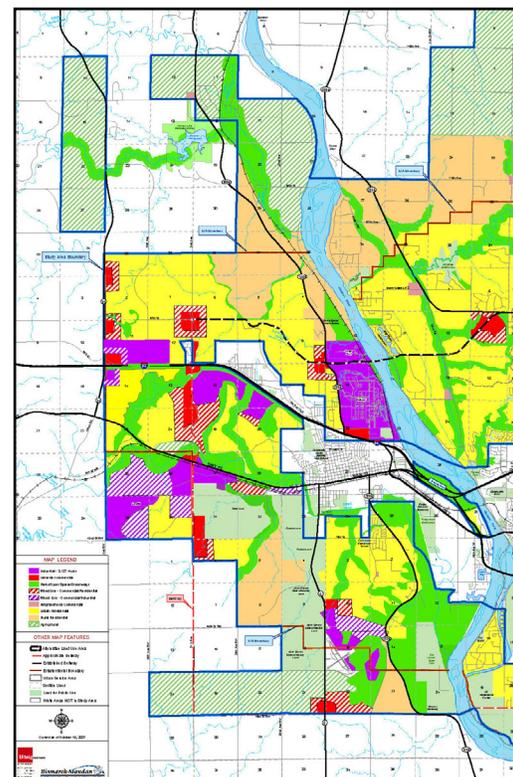
Throughout the projection horizon, the study area can expect continued fluctuations of growth. By 2045, the total population of the study area is expected to fall between 3,434 and 2,872. The growing population suggests that both Morton County and the City of Mandan should be proactive and communicative in anticipation of future development. Due to the historical positive relationship between the energy industry and population growth, close attention should also be placed on industry forecasts. As more observed data is subsequently released, the County and the MPO can begin to identify which of the two scenarios is most likely to occur and therefore plan, fund, and prepare accordingly.

While this population, housing, and employment projection analysis assumed that the study area boundary remained static through the plan horizon of 2045, growth of the City of Mandan will at some point in time change the boundary of the study area. As has been shown, the attainable amount of housing units and employment opportunities based on the MPO's Regional Land Use Study and the City of Mandan's Land Use and Transportation Plan is many times greater than the amount projected based on projected growth within the study area alone.

It is important to consider that both the MPO and City plans are based on expected urban growth associated with the long term expansion of the City of Mandan, not rural community growth as experienced in the study area. These projections are most helpful in the context of understanding continued rural growth at a low density relative to development in the City of Mandan. It should be assumed that most, if not all, future development at urban densities within the study area will occur as a result of the expansion of the City of Mandan.



Caption: 2015 City of Mandan's Future Land Use Plan.



Caption: 2007 MPO Regional Land Use Plan.

Growth Limitations

Analysis

The growth limitations component of this analysis examined the entire study area and identified twelve categories which may hinder growth. Growth in this context refers to the broad spectrum of development (excluding agricultural uses), meaning in the majority of cases each category is considered a limitation to future development rather than an opportunity. The presence of limitations does not mean development will never occur at a specific site, but simply that development is more likely to prioritize other areas so long as they are available and feasible.

An outline of all the identified growth limitations and their corresponding impact scores are provided in “Table 3-4: Growth Limitation Impact Scores.” “Table 3-5: Growth Limitations Summary” includes a summary for each limitation by the number of parcels, total acres, and acreage distribution that are impacted. A composite map of all the growth limitations is illustrated on Page 23. Finally, justifications for each limitation and other ancillary maps are provided in the appendix.

Table 3-4: Degree of Growth Limitations

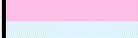
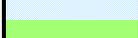
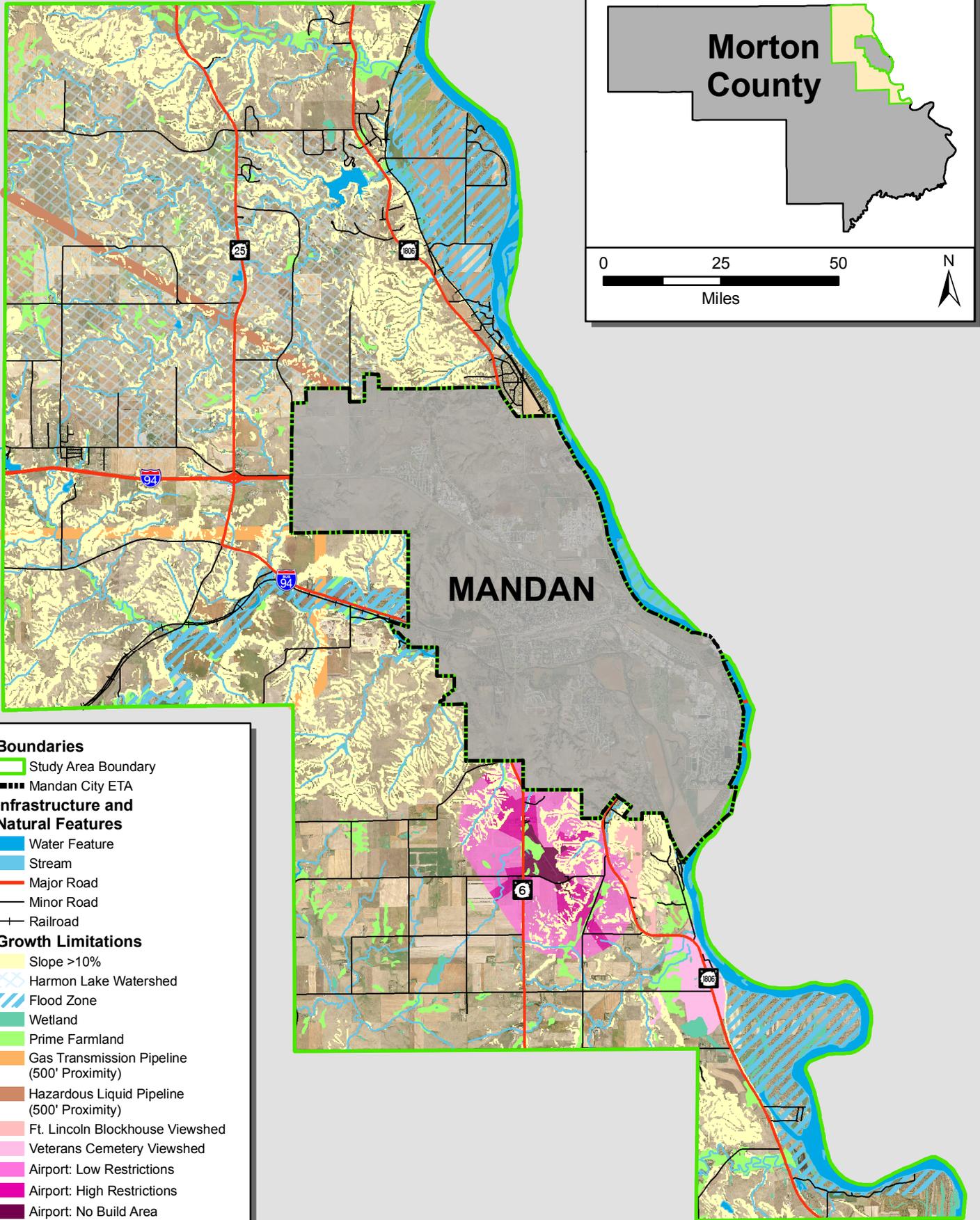
Symbology	Category	Degree of Limitation
	Airport No Build Area	 Greater Limitation to Growth ↑
	Airport High Restrictions	
	Hazardous Liquid Pipeline	
	Gas Transmission Pipeline	
	Slope >10%	
	Flood Zone	
	Wetland	
	Airport Low Restriction	
	Ft. Lincoln Viewshed	
	Veteran's Cemetery Viewshed	
	Harmon Lake Watershed	
	Prime Farmland	

Table 3-5: Growth Limitations Summary

Category	Number of Parcels	Total Acres	Study Area Acreage Distribution
Airport No Build Area	11	162	0.2%
Airport High Restrictions	30	1,958	2.1%
Hazardous Liquid Pipeline	12	717	0.8%
Gas Transmission Pipeline	10	100	0.1%
Slope >10%	962	65,880	73.3%
Flood Zone	334	11,724	13.1%
Wetland	45	1,624	1.8%
Airport Low Restriction	78	3,871	4.3%
Ft. Lincoln Viewshed	17	551	0.6%
Veteran's Cemetery Viewshed	50	1,631	1.8%
Harmon Lake Watershed	306	19,546	21.8%
Prime Farmland	78	2,203	2.5%



Boundaries

- █ Study Area Boundary
- Mandan City ETA

Infrastructure and Natural Features

- █ Water Feature
- █ Stream
- █ Major Road
- █ Minor Road
- + Railroad

Growth Limitations

- Slope >10%
- Harmon Lake Watershed
- Flood Zone
- Wetland
- Prime Farmland
- Gas Transmission Pipeline (500' Proximity)
- Hazardous Liquid Pipeline (500' Proximity)
- Ft. Lincoln Blockhouse Viewshed
- Veterans Cemetery Viewshed
- Airport: Low Restrictions
- Airport: High Restrictions
- Airport: No Build Area

Growth Pressure Areas

Analysis

The growth pressure area component of this analysis examined the entire study area and identified four categories which may facilitate growth. Growth in this context refers to the broad spectrum of development, meaning in the majority of cases each category is considered a growth pressure to future development rather than a limitation. The presence of growth pressures does not guarantee development will occur at a specific site, but simply that development is more likely to prioritize these areas so long as they are available and feasible.

An outline of all the identified growth limitations and their corresponding impact scores are provided in “Table 3-6: Degree of Growth Pressures”. “Table 3-7: Growth Pressure Summary” includes a summary for each growth pressure by the number of parcels, total acres, and acreage distribution that are impacted. A composite map of all the growth pressures areas is illustrated on Page . Finally, justifications for each pressure and other ancillary maps are provided in the appendix.

Table 3-6: Degree of Growth Pressures

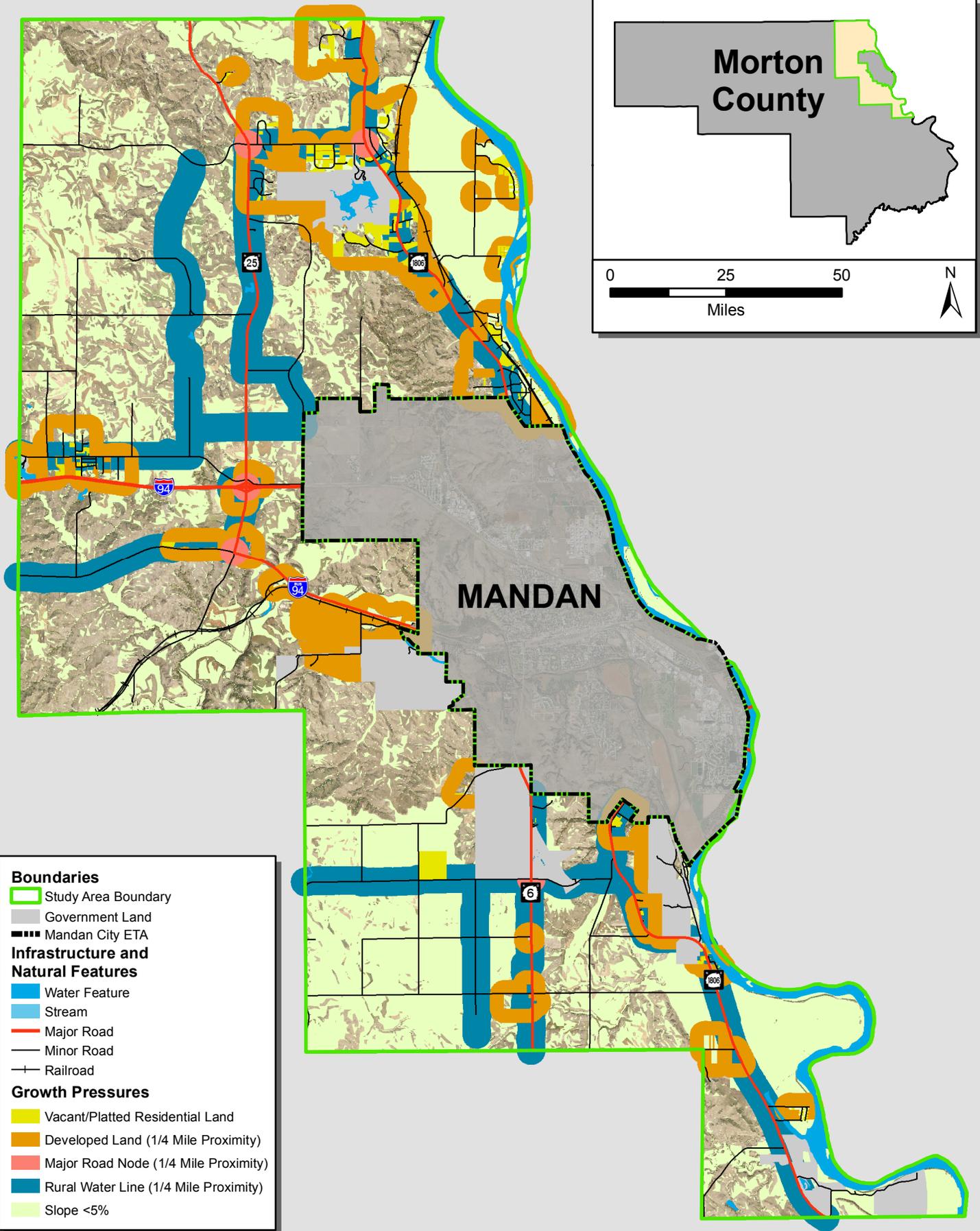
Symbology	Category	Degree of Opportunity
	Vacant/Platted Residential Land	Greater Growth Pressure
	Developed Land	
	Major Road Nodes	
	Rural Water Line	
	Slope <5%	



Caption: Major Road Opportunity, ND Highway 25.

Table 3-7: Growth Pressure Summary

Category	Number of Parcels	Total Acres	Study Area Acreage Distribution
Vacant/Platted Residential Land	300	1,146	1.3%
Developed Land	654	8,888	9.9%
Major Road Nodes	30	222	0.2%
Rural Water Line	580	12,518	13.9%
Slope <5%	1,529	77,563	86.3%



Assessment

Comprehensive Analysis

The land use suitability analysis examined the entire study area by applying a combination of twelve identified growth limitations and five growth pressures. Provided on Page 27 is a map which illustrates the final collective analysis for the study area. In addition, “Table 3-8: Land Use Suitability Analysis Summary” below outlines the findings from the analysis. As a note, the quantities outlined in this table do not include areas exempt from the analysis including government land and land that is already developed.

The study found that approximately 69 percent of the study area’s acreage had more growth limitations than pressures, less than one percent of the acreage scored neutrally, and around 31 percent had more growth pressures than limitations. This skew of results is the product of the identified pressures and limitations and the parcel characteristics (i.e. acreage) impacted by such categories. As noted throughout this document, just because an area has more limitations does not mean development will never occur, it simply means development is more likely to occur in other areas so long as they are available and feasible.

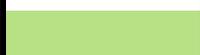
Interpretation

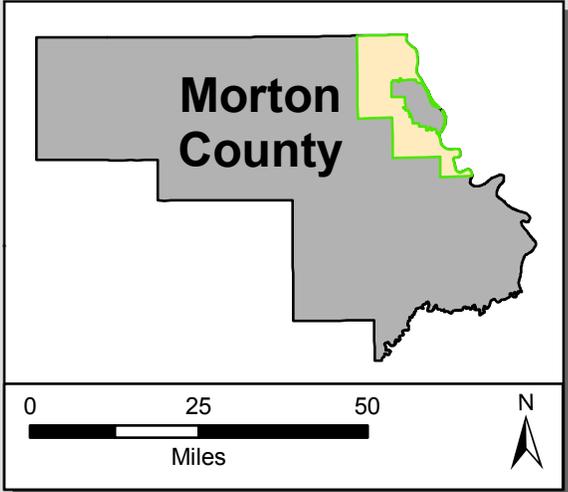
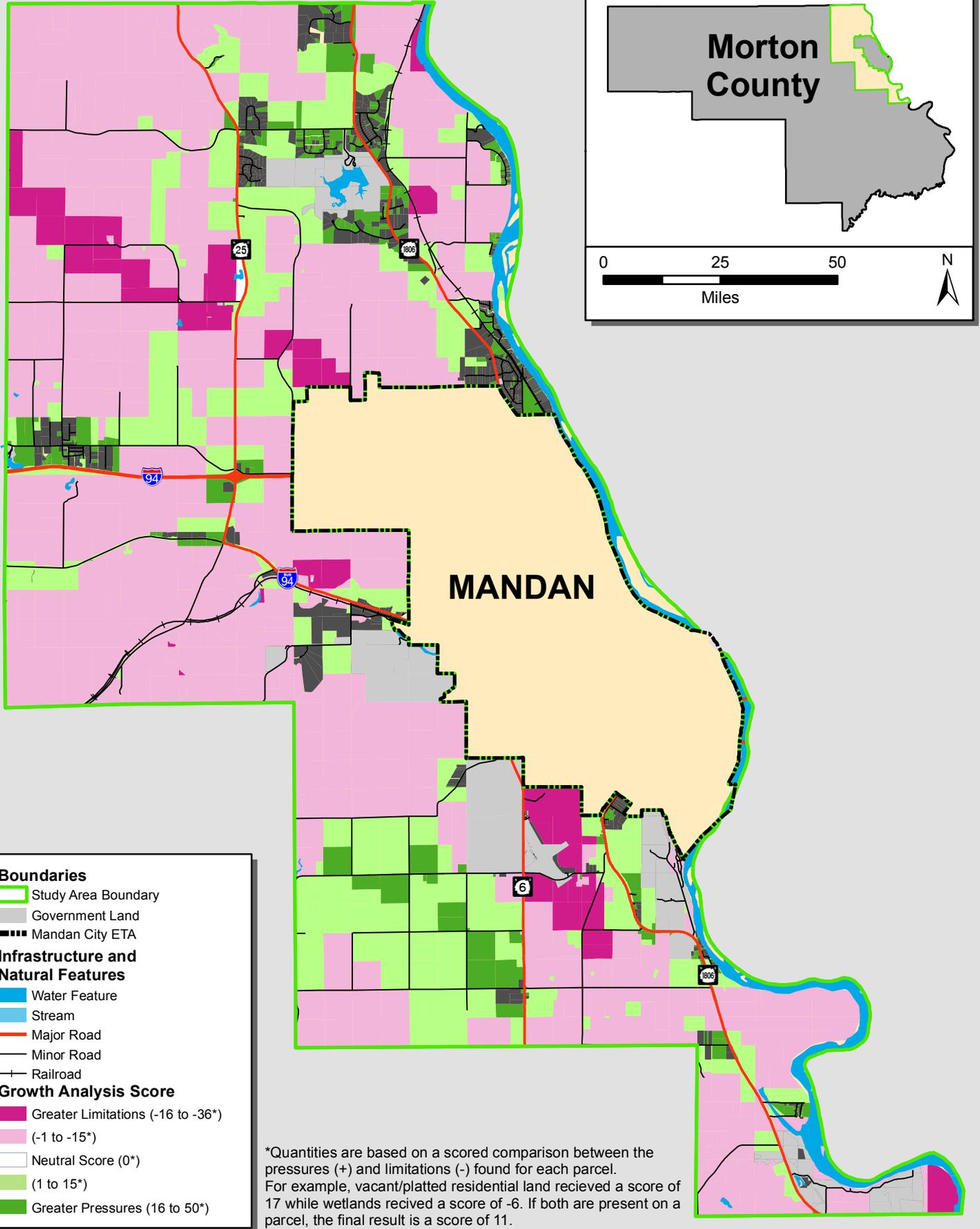
As presented in the introduction, the purpose of this land use suitability analysis is to assess existing and projected future conditions of the a study area in order to guide the development of a future land use plan. The analysis map on Page 27 does not necessarily exhibit where future growth **should occur**, but rather where growth is **most likely to occur**. A land use suitability analysis is merely intended to be an objective interpretation and explanatory documentation of growth conditions.

Application

Findings from the land use suitability analysis will inform decision-makers and the public where development is likely to occur in the absence of a clearly defined land use plan. With an understanding of where growth pressures and limitations can be found within the study area, designations of suitable growth areas and potential land uses can now be determined. The next stage of the plan development process is to obtain feedback from decision-makers, stakeholders, property owners, and the general public to determine if areas identified from the analysis are appropriate for future development.

Table 3-8: Land Use Suitability Analysis Summary

Symbology	Category	Number of Parcels	Total Acres	Study Area Acreage Distribution
	Greater Limitations	54	5,137	7.4%
	Neutral	479	43,347	61.9%
		5	98	0.1%
	Greater Opportunities	428	17,045	24.4%
		535	4,290	6.2%



Boundaries

- Study Area Boundary
- Government Land
- Mandan City ETA

Infrastructure and Natural Features

- Water Feature
- Stream
- Major Road
- Minor Road
- Railroad

Growth Analysis Score

- Greater Limitations (-16 to -36*)
- (-1 to -15*)
- Neutral Score (0*)
- (1 to 15*)
- Greater Pressures (16 to 50*)

*Quantities are based on a scored comparison between the pressures (+) and limitations (-) found for each parcel. For example, vacant/platted residential land received a score of 17 while wetlands received a score of -6. If both are present on a parcel, the final result is a score of 11.

Chapter 4: Plan Development Process

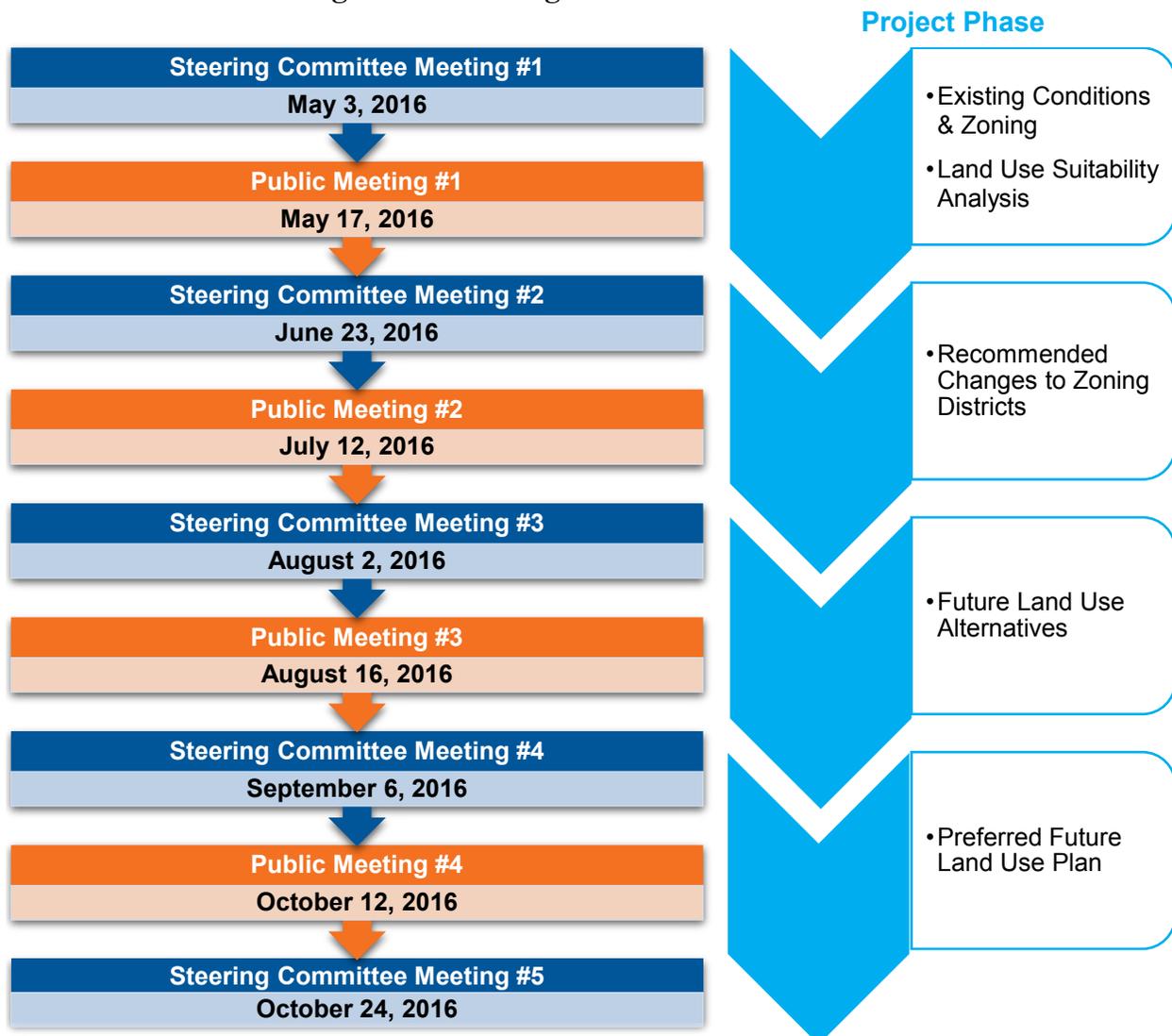
Introduction

Process

The future land use plan is the product of a ten month planning process that included four public meetings geared to Morton County residents, county staff, and county officials. In addition to the public meetings, a steering committee was established to provide feedback throughout the plan development process which included five meetings. Finally, to afford an opportunity for all residents of Morton County to contribute to the plan development

process, all maps, record of meetings, and presentations were disseminated online at <http://mortonfuturelanduse.com>. Included within this chapter are the record of meetings for all of the public meetings. Figure 4-1 “Meeting and Feedback Timeline” shows the timeline of all the meetings as they transpired during the plan development process.

Figure 4-1: Meeting and Feedback Timeline



Record of Meetings



Record of Meeting

SRF No. 9126

Location: Mandan Middle School Cafetorium
Project: Northeast Morton County Future Land Use Plan
Date: Tuesday, May 17th 2016 6:00 p.m. to 8:00 p.m.
Subject: Public Meeting #1

Purpose of Meeting:

The primary purpose of the meeting was to 1) introduce the project background, existing conditions, and land use suitability analysis, and 2) to gather feedback from residents of the study area on their visual preference regarding development and potential growth areas within the study area of the future land use plan.

Summary of Meeting

The first public meeting took place within the Mandan Middle School Cafetorium. Total attendance excluding SRF staff was around (40) attendees. SRF had three (3) planners in attendance including Scott Harmstead, Chris Clanahan and Cindy Gray. Natalie Pierce, Morton County Director of Planning and Zoning and Steve Saunders, Bismarck-Mandan MPO Director were also in attendance. The public meeting began with a presentation by Scott Harmstead. Scott introduced SRF team members, county staff and other county officials, Project Steering Committee members in attendance, and the MPO Director. The presentation covered the project background, existing land use and zoning of the study area, and introduced special focus areas about which input would be requested relative to the type of future land use desired in those areas. Scott then introduced the first public input exercise and provided instructions on how to participate.

The exercise included five posters each representing one special focus area including: 1) Airport and surrounding area, 2) Harmon Lake and surrounding area, 3) ND Highway 25/I-94 Interchange, 4) ND Highway 25 corridor north of I-94, and 5) Veteran's Cemetery/Fort Lincoln State Park and surrounding area. Each poster consisted of four rows representing four land use types: 1) Recreation, 2) Residential, 3) Commercial, and 4) Industrial. Included within each row were five images depicting distinct and gradually amplified intensity for each land use type. Participants placed one dot per row on the image that represented the intensity of use they believed appropriate for the area in the future. They also had the opportunity to place a dot in an area indicating that this particular land use is simply not desirable for this area under any circumstances. The significant findings from this exercise are attached.

After the initial exercise, Scott asked the attendees to be seated in order to cover the remainder of the presentation. The presentation covered the land use suitability analysis from projections to growth limitations and opportunities as completed by SRF. Scott concluded the presentation by discussing

other means by which the public can be informed about the project during the planning process and introduced the final public input opportunity. The final public input opportunity consisted of a base map of the study area and participants were asked to place a green dot on areas where growth/development should be **encouraged** and red dots where growth/development should be **discouraged**. Meeting attendees completed the exercise and informally conversed with each other, SRF staff, the County Planner and the MPO Director.

Meeting Adjourned.

Chapter 4: Plan Development Process

Special Focus Area	Type of Land Use	Determination of Top Two Results	
		Primary	Secondary
Airport	Recreation	Land Use Not Appropriate	
	Residential		Land Use Not Appropriate
	Commercial	Land Use Not Appropriate	
	Industrial	Land Use Not Appropriate	

Special Focus Area	Type of Land Use	Determination of Top Two Results	
		Primary	Secondary
Harmon Lake	Recreation		
	Residential		
	Commercial	Land Use Not Appropriate	
	Industrial	Land Use Not Appropriate	

Chapter 4: Plan Development Process

Special Focus Area	Type of Land Use	Determination of Top Two Results	
		Primary	Secondary
ND Hwy 25/I-94 Interchange	Recreation	Land Use Not Appropriate	
	Residential		
	Commercial		
	Industrial		

Special Focus Area	Type of Land Use	Determination of Top Two Results	
		Primary	Secondary
ND Highway 25	Recreation		
	Residential		
	Commercial		
	Industrial		

Chapter 4: Plan Development Process

Special Focus Area	Type of Land Use	Determination of Top Two Results	
		Primary	Secondary
Veterans Cemetery/Fort Lincoln State Park	Recreation		
	Residential	Land Use Not Appropriate	
	Commercial	Land Use Not Appropriate	
	Industrial	Land Use Not Appropriate	



Record of Meeting

SRF No. 9126

Location: Mandan Brave Center Gym
Project: Northeast Morton County Future Land Use Plan
Date: Tuesday, July 12th 2016 6:00 p.m. to 8:00 p.m.
Subject: Public Meeting #2

Purpose of Meeting:

The primary purpose of the meeting was to 1) present the findings from the first public meeting, 2) describe the recommended zoning district concepts, and 3) to gather feedback from residents of the study area on the proposed zoning district concepts and where they believe future residential growth within the study area might be appropriate in the future land use plan.

Summary of Meeting

Presentation

The second public meeting took place within the Mandan Braver Center Gym. Total attendance, excluding staff, was twenty-seven (27) attendees. SRF had three (3) planners in attendance including Scott Harmstead, Chris Clanahan and Cindy Gray. Natalie Pierce, Morton County Director of Planning and Zoning and Rachel Drewlow, Bismarck-Mandan MPO were also in attendance. The public meeting began with a presentation by Scott Harmstead. Scott introduced SRF team members, county staff, and MPO staff. Chris then provided a brief overview of the first public meeting with emphasis on the results of the two public input exercises—a visual preference survey and growth-focus-area dot map. Following this summary, Scott introduced the recommended zoning district concepts. He noted that index cards placed on the tables were available for attendees to write down any questions they had during the presentation which would ultimately be answered at the end of the meeting. Scott concluded the presentation, then introduced the first public input exercise and provided instructions on how to participate.

Exercises 1 Parts 1 & 2

Exercise 1-A consisted of a map covered with trace paper and a handout which described the exercise, provided example images, and offered additional considerations for attendees' reference. The map identified areas with relatively flat slope (<5%) and access to rural water lines. Participants were asked to draw in **green**, land in the study area they might recommend for development of residential lots that are **five (5) acres or greater** (Development 1). Similarly, participants were also asked to draw in **red**, land in the study are they might recommend for development of residential lots **less than five (5) acres** (Development 2). SRF and other staff were available to answer

questions if participants encountered difficulty completing the exercise. The purpose of the exercise was to gauge 1) where in the study area residents believe future residential development should be encouraged and 2) how residential density might impact their decisions. Summaries of the findings from this exercise are attached (Figures 1, 2, and Table 1).

Part 2 of Exercise 1 consisted of a single handout which posed questions about the proposed Clustered Residential (CR) district. The handout included diagram/images of how a clustered residential district might function. SRF and other staff were available to answer questions if participants encountered difficulty completing the exercise. The purpose of the exercise was to gauge 1) whether residents of the study area believe a Clustered Residential district was practical and 2) how the remaining open space might be maintained. A summary of the findings from this exercise are attached (Table 2).

Exercise 2

After completing the initial exercises, Scott introduced the final exercise which asked the attendees to draw on the trace paper from Exercise 1 Part 1; however, this time with a **black** marker and illustrating how they expect the **City of Mandan's boundary** will look in 2045. In addition to this task, participants were asked to write down three or fewer concerns Morton County may experience during the expansion of Mandan's urban boundary. As with all of the preceding exercises, SRF and other staff were available to answer any questions if participants were having difficulty. Summaries of the findings from this exercise are attached (Figures 3 and Table 3). After the meeting attendees completed the exercise, Scott and Cindy answered any questions submitted on the index cards and other questions presented to the group. Finally, they provided a brief overview of when the next public meeting was scheduled, what the meeting will be about, and thanked them for their attendance and participation.

Meeting Adjourned.

Chapter 4: Plan Development Process

Figure 1: Exercise 1 Part A Summary Results (Lots 5+ Acres)

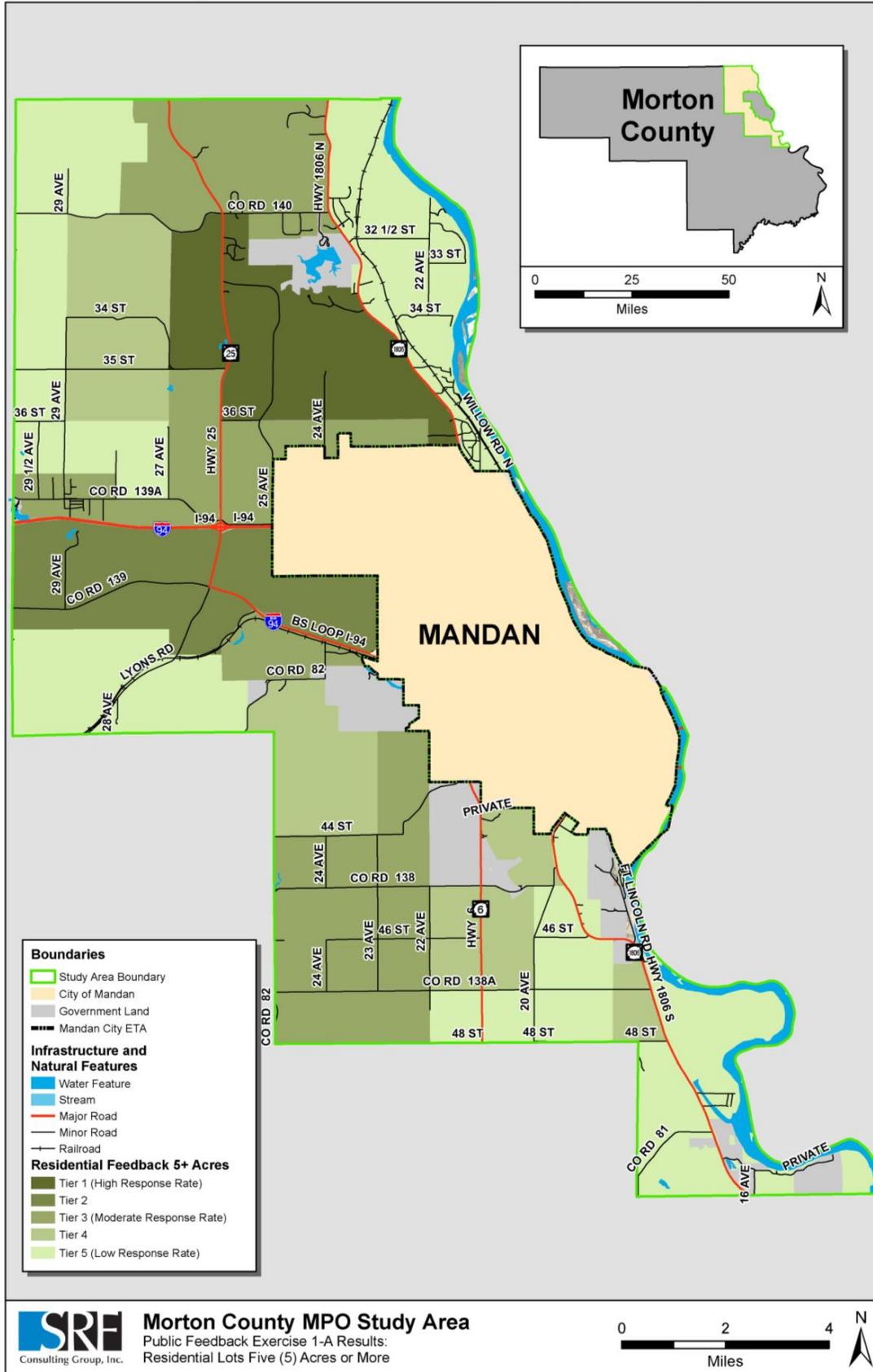
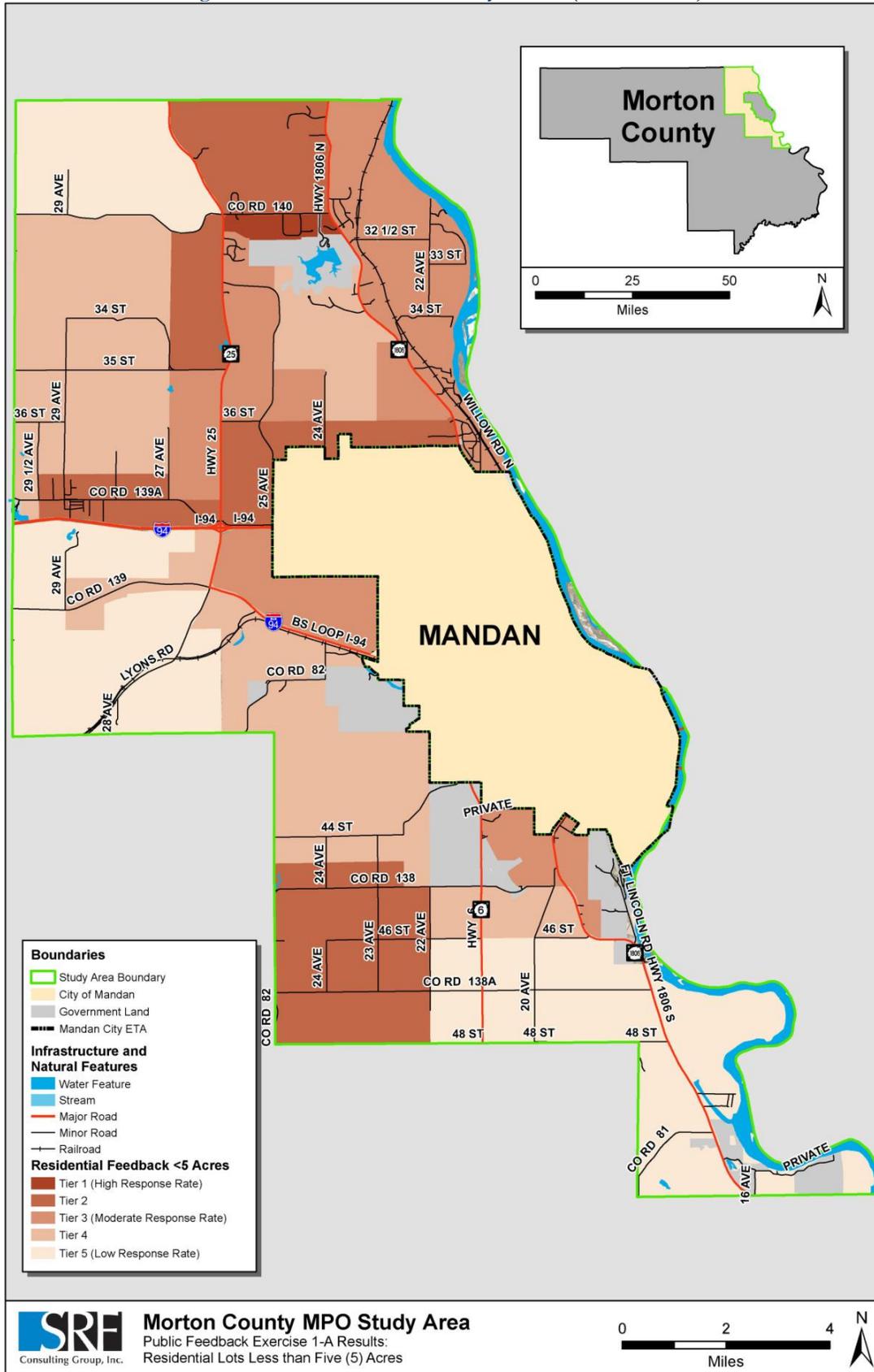


Figure 2: Exercise 1 Part A Summary Results (Lots <5 Acres)



Chapter 4: Plan Development Process

Table 1: Exercise 1 Part A Consideration Results

Considerations	Questions	Responses
Septic	<p>How should each development handle sanitary sewer?</p> <ul style="list-style-type: none"> Individual septic systems? A housing co-op where residents share ongoing expenses for the maintenance of a shared septic system (which would allow for lots to be even smaller than 1.5 acres)? 	<ul style="list-style-type: none"> Individual septic. Individual septic systems should not be for high density and only for 5+ acres. Housing co-op might be appropriate for cluster development. County needs to consider extending sewer system for high density developments. Housing co-op with shared septic system. Individual septic systems.
Water	<p>How should residents in each development get water?</p> <ul style="list-style-type: none"> Individual wells? Missouri West rural water service? 	<ul style="list-style-type: none"> Historically, subdivisions in the county do not sell well without rural water access. Both. Missouri West rural water service. Wells are problematic in this area. Missouri West rural water service. Missouri West rural water service. Individual wells.
Roads	<p>How close to a major highway should each development be?</p> <ul style="list-style-type: none"> Over the long-term, residents would need to share the expense of road maintenance for any private roads that serve the development. 	<ul style="list-style-type: none"> County Commission desires larger subdivision to be as close to major state highways or main county roads as possible to lessen road costs. Close to major highways.
Domestic Farm Animals	<p>Should domestic farm animals (horses, cows, goats, chickens, etc.) be allowed?</p> <ul style="list-style-type: none"> In Development 1? In Development 2? Neither? 	<ul style="list-style-type: none"> Agriculture is protected by North Dakota Constitution! Only in development 1. Horses on 4+ acres. Other animals, 40+ acres also must be three (3) miles from other development. Only on larger lots.
Other	<p>Please identify any other comments you have regarding recommendations for locating future residential development.</p>	<ul style="list-style-type: none"> No light industrial within three (3) miles of a development.

Table 2: Exercise 1 Part B Clustered Residential District Survey Results
 Figure 3: Exercise 2 Summary Results (2045 Perceived Mandan Growth)

Questions	Responses
<p>1. Is cluster development a good idea for some parts of the study area?</p> <ul style="list-style-type: none"> • If yes, what should the open space in the cluster development be used for? <i>(choose all that apply)</i> <ul style="list-style-type: none"> <input type="checkbox"/> Agriculture <input type="checkbox"/> Public recreation/park/trail <input type="checkbox"/> Watershed protection <input type="checkbox"/> Future city development <input type="checkbox"/> Other <input type="checkbox"/> A combination of different users • If no, why not? 	<ul style="list-style-type: none"> • 72% In Favor <ul style="list-style-type: none"> <input type="checkbox"/> Agriculture 77% <input type="checkbox"/> Public recreation/park/trail 77% <input type="checkbox"/> Watershed protection 62% <input type="checkbox"/> Future city development 0% <input type="checkbox"/> Other 8% <ul style="list-style-type: none"> • Co-op Garden area/Community Garden <input type="checkbox"/> A combination of different users 77% • 17% Indifferent • 11% Not in Favor <ul style="list-style-type: none"> <input type="checkbox"/> Too much wasted land <input type="checkbox"/> Leave as agriculture. Up to land owners to sell or keep the land.
<p>2. Who should be responsible for maintaining the open space in the cluster development? <i>(choose all that apply)</i></p> <ul style="list-style-type: none"> • The residents of the development, in common • The County • The Water Resource District (if close to Harmon Lake) • Other 	<ul style="list-style-type: none"> • 71% - The residents of the development, in common • 41% - The Water Resource District • 35% - Other (Farmer or Landowner) • 18% - The County
<p>3. Please identify any other comments you have regarding the concept of a clustered residential district.</p>	<ul style="list-style-type: none"> • Residents living next to agricultural area are unaware of what is involved (e.g. dust, noise from pump when irrigating, etc.) with farming. Possible complaints, full disclosure would be needed and/or sign off on “agriculture impact” to residential living. • Problems could be associated with agricultural use next to clustered development – dust, chemicals, noise, grazing smells. • Where is commercial or industrial going to go? People in these subdivision will need jobs. • I like the clustered residential idea. Management of the open space could be a combination of responsibilities. Establish “vision” statements for the cluster and open space to assure appropriate management of open space and appropriate level of development adjacent to open space. • Need to consider clustering of clusters. Developers colluding to increase density simply by sitting next to another cluster.

Chapter 4: Plan Development Process

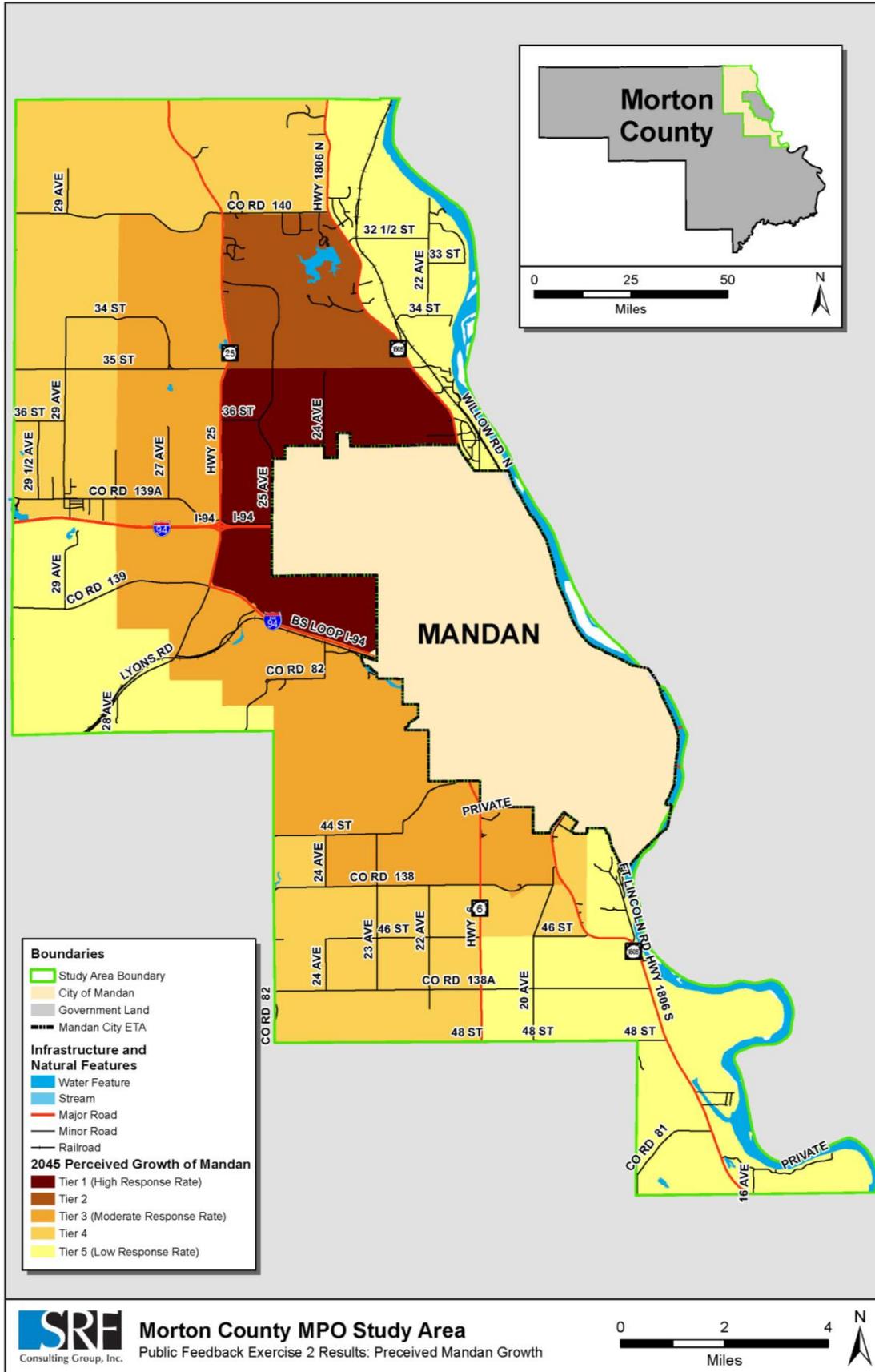


Table 3: Exercise 2 Consideration Responses

Questions	Responses
<p>In your view, what are three (or fewer) concerns for Morton County in adapting to and being prepared for the expansion of Mandan’s urban area (i.e. road suitability, sewer, water, etc.)?</p>	<ul style="list-style-type: none"> • Politics/ETA footprint of Mandan • Sewer service/Typography around I-94 Interchange/Cable TV-Internet • Infrastructure/Typography/Lack of Interchange/Roads to Support Growth • Sewer/Water/Traffic • Safety/Open Space • Sewer/Water/Terrain • Water Supply/Retention of Greenspace/Historic Character • Roads/Cost of Infrastructure/Transition for Residences from County to City • Resources/Traffic/People • Will projected growth support stable tax basis? • Sewer/Water/Maintaining Reasonable Taxes • Jobs/Businesses/Schools

- Location:** Mandan Brave Center Gym
- Project:** Northeast Morton County Future Land Use Plan
- Date:** Tuesday, August 16th 2016 6:00 p.m. to 8:00 p.m.
- Subject:** Public Meeting #3

Purpose of Meeting:

The primary purpose of the meeting was to 1) present the findings from the previous public meeting, 2) describe the future land use categories, 3) introduce the future land use alternatives, and 4) to gather feedback from residents of the study area on the alternatives in order to ultimately develop a preferred future land use alternative.

Summary of Meeting

Presentation

The third public meeting took place within the Mandan Braver Center Gym. Total attendance, excluding staff, was thirty-five (35) attendees. SRF had three (3) planners in attendance including Scott Harmstead, Chris Clanahan and Cindy Gray. Natalie Pierce, Morton County Director of Planning and Zoning and Steve Saunders, Bismarck-Mandan MPO Director were also in attendance. The public meeting began with a presentation by Scott Harmstead. Scott introduced SRF team members, county staff, and MPO staff. He then provided a brief overview of the previous public meeting with emphasis on the results regarding future residential growth and Mandan's 2045 boundary. Following this summary, Scott introduced and explained the future land use categories and alternatives. He concluded the presentation by introducing the public input exercise and provided instructions on how to participate.

Public Input Exercise

The public input exercise consisted of a large poster with all three future land use alternative maps. Participants were at separate tables, in groups of about six people, and asked to place post-it notes on areas of a map where the group reached a consensus regarding their comment. The group then wrote on the post-it notes their comments indicating the changes they want to see. In order to make clearer distinctions between what the comments were focused on, three different post-it note colors were used. **Yellow** post-it notes were used for comments on **residential** designations, **pink** post-it notes for **employment generating** (i.e. commercial & industrial) designations, and **blue** post-it notes for the **other** (i.e. agricultural, public, limited open space) designations. The groups then appointed a presenter to discuss their feedback with everyone. In addition to the group comment opportunity, an

11x17 comment sheet was provided to all participants so they could provide individual feedback. A summary of the most common group and individual comments is outlined below.

Harmon Lake

- Protect the Harmon Lake watershed
- Designations between Harmon Lake and Mandan and along ND Highway 25 is unfavorable
- The industrial designation in Alternative #2 near Harmon Lake should be removed
- Residential designations and density north of Harmon Lake should be reduced

I-94/ND-25 Interchange

- Alternative #1 and #3 has too much industrial at the interchange and along ND Highway 25 (extending too far north and south of the interchange)
- Alternative #1 has too many conflicting land uses at the I-94/ND-25 interchange
- Build-thru residential designation near Mandan and the I-94/ND-25 interchange in Alternative #2 is highly favorable
- Industrial and Commercial mix at the I-94/ND-25 interchange Alternative #2 is preferred over Alternative #1

Airport, Veteran's Cemetery, & State Park

- Industrial designations around the airport is unfavorable
- Land use designations in all alternatives near the veteran's cemetery and state park is favorable

Overall

- Alternative #3's standard growth scenario is preferred over the rapid growth scenarios (Alts. 1 & 2); however, preparing for rapid growth is more advantageous in the long run
- Collectively, Alternative #2 consisted of the most favorable comments

After completing the exercise, Scott concluded the meeting by mentioning how the public's feedback will be utilized to generate a preferred future land use alternative, which will be presented at the October 12th public meeting at Mandan Middle School. Afterwards, attendees informally conversed with each other, SRF staff, the County Planner, and the MPO Director.

Meeting Adjourned.



SRF No. 9126

Location: Mandan Middle School Cafetorium
Project: Northeast Morton County Future Land Use Plan
Date: Wednesday, October 12th 2016 6:00 p.m. to 8:00 p.m.
Subject: Public Meeting #4

Purpose of Meeting:

The primary purpose of the meeting was to 1) describe the future land use designations, 2) present the findings from the previous public meeting, 3) introduce the preferred future land use plan, 4) and to gather feedback from residents of the study area on the preferred plan in order to make final adjustments.

Summary of Meeting

Presentation

The final public meeting took place within Mandan Middle School's Cafetorium. Total attendance, excluding staff, was twenty-five (25) attendees. SRF had three (3) planners in attendance including Scott Harmstead, Chris Clanahan and Cindy Gray. Natalie Pierce, Morton County Director of Planning and Zoning and Steve Saunders, Bismarck-Mandan MPO Director were also in attendance. The public meeting began with a presentation by Scott Harmstead. Scott introduced the SRF team members, county staff, and MPO staff. He then explained the future land use designations and provided a brief comparison between the comments from the last public meeting and the changes that were made for the preferred land use plan. Following these summaries, he concluded the presentation by introducing the public input exercise to allow for any final comment on the preferred plan.

Public Feedback Exercise

The public feedback exercise consisted of three posters each displaying a portion of the preferred future land plan (north, central, and south). Each poster was placed at separate tables with supporting future development scenario graphics on easels where appropriate. Participants were asked to place post-it notes on areas of a map where they had a particular comment. **Each comment outlined below was provided by one person, except as noted.**

North: Harmon Lake

- More commercial land use designations along ND Highway 25 is preferred
- Industrial designation near Square Butte Road along ND Highway 1806 is unfavorable

- Wetland north of Harmon Lake and south of County Road 140 should be limited open space—it is currently identified for residential.

Central: I-94/ND-25 Interchange

- The northern bridge corridor should accommodate pedestrians within the alignment
- Recommend that build-thru residential south of I-94 be replaced with rural residential
- There needs to be a greater buffer between the Heart River and industrial uses east of Mandan near Business Route 94.

Southern: Airport, Veteran's Cemetery, & State Park

- Multiple concerns in the study area about the stacking of used car tires on properties
- Confusion about the purpose and intent of the limited open space designation*
- Clarification is needed that limited open space allows and encourages agricultural uses in addition to open space/conservation of natural resources.*

*Group of four people provided these comments.

Meeting Adjourned.

Appendix:



Projection Methodologies

Population Sources

In order to provide reasonable population projections for a study area which does not follow conventional statistical boundaries (is not part of an easily defined census area), an extensive mixed-method approach using various sources was developed. The primary sources for observed data include the following:

- U.S. Census Bureau American Community Surveys
- 2015 Morton County GIS tax parcel data
- 2015 Morton County aerial photography
- Morton County Comprehensive Plan 2015 – 2030 Context Document
- City of Mandan’s 2015 Land Use and Transportation Plan
- MPO’s 2015-2040 Long Range Transportation Plan.

Housing and Employment Sources

In order to provide reasonable housing and employment projections for a study area which does not follow conventional statistical boundaries (is not part of an easily defined census area), an extensive mixed-method approach using various sources was developed. The primary sources for observed data include the following:

- 2015 Morton County GIS tax parcel data
- 2015 Morton County aerial photography
- 2007 Bismarck-Mandan MPO Regional Future Land Use Plan
- City of Mandan’s 2015 Land Use and Transportation Plan

Population Methodology

“Figure A-1: Population Projections Methodology” outlines the overall methodology applied to develop the population projections for the study area. The methodology consisted of three phases including: 1) analysis of GIS imagery and relation to housing estimates, 2) application of preceding projections and exclusion of inapplicable jurisdictions, and 3) combination of phases and computation of findings. All major assumptions applied within this methodology can be found in “Table A-1: Population Projection Assumptions”.

Housing and Employment Methodology

“Figure A-2: Housing and Employment Projections Methodology” outlines the overall methodology applied to develop the employment and housing projections for the study area. The methodology consisted of three phases including: 1) determining attainable quantities for preceding plans, 2) projecting housing and employment for a standard growth scenario, and 3) projecting housing and employment for a rapid growth scenario. All major assumptions applied within this methodology can be found in “Table A-2: Housing and Employment Projection Assumptions”.

Methodology Glossary

Term	Definition
Emp/KSF	Employee(s) per 1,000 square feet.
FAR	Floor Area Ratio. The total square feet of a building divided by the total square feet of the lot the building is located on.
Gross Area Reduction	Percentage of land developed that is attributed to infrastructure, right of way, and open space.
Occupancy Rate	The reverse is the vacancy rate. The current vacancy rate in the County is closer to 8% or an occupancy rate of 0.92 and the vacancy rate for Mandan is closer to 5% or an occupancy rate of 0.95. A vacancy rate that is commonly considered “healthy” nationwide for a local economy is 8% or an occupancy rate of 0.92.
Population to Employment Ratio	In other words, the assumption that 70% of the population is employed. This is the existing percentage of the population employed in both Morton County and the City of Mandan, and is the assumption for the projection target year of 2045.
U/Acre	Dwelling units per acre.

Figure A-1: Population Projections Methodology

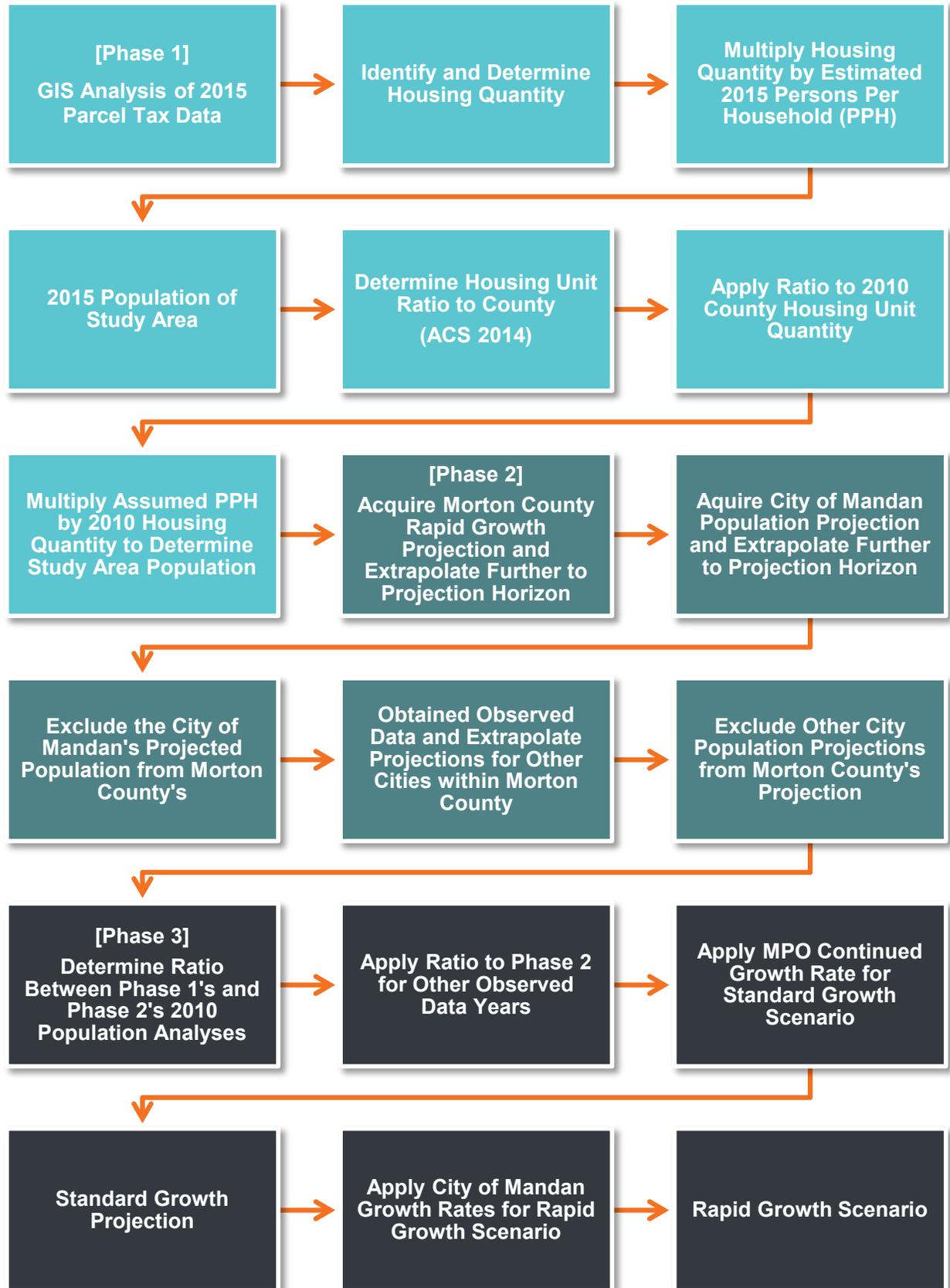


Table A-1: Population Projection Assumptions

Phases Impacted	Assumption
1 & 3	<ul style="list-style-type: none"> 2015 Parcel Tax GIS data is assumed to be an accurate representation of property value and resulting extent of development.
1 & 3	<ul style="list-style-type: none"> Any parcel zoned for residential purposes (Rural Residential or Recreational were the prominent zoning districts identified in the study area), has a building value of over \$10,000, and was consistent with an aerial review was assumed to be considered as a housing unit.
1 & 3	<ul style="list-style-type: none"> 2015 Aerials are assumed to illustrate an accurate representation of what is currently built within the study area.
1 & 3	<ul style="list-style-type: none"> The ratio between housing units in the study area compared to the overall county (incorporated and unincorporated) was assumed for 2010 by using 2014 ACS estimates. (6.73%)
2 & 3	<ul style="list-style-type: none"> Third party projections (from other plans/reports) are assumed to reflect accurate future quantities and follow rational and reasonable approaches.
2 & 3	<ul style="list-style-type: none"> Morton County's "Short-Term Trend" projection (from the County Comprehensive Plan Context Document) was the assumed projection for the county since it corresponds more harmoniously with the City of Mandan's projection.
2 & 3	<ul style="list-style-type: none"> Exclusion of major jurisdictional areas which are inapplicable to the study area will provide more accurate ratio representations. (Mandan, Hebron, Glen Ullin, Almont, Flasher, New Salem)
2 & 3	<ul style="list-style-type: none"> Projections were extrapolated in 10-year increments starting from 2010, therefore to determine the quantiles of 2045 for all produced projections and scenarios the average between 2040 and 2050 was applied.
2 & 3	<ul style="list-style-type: none"> The ratio between the estimated 2010 population (Phase 1) and the quantity remaining from the exclusion analysis (Phase 2) is assumed to have remained constant between 1970 and 2010.
2 & 3	<ul style="list-style-type: none"> The City of Mandan's projected growth rate is assumed to be an accurate representation of the study area under rapid growth conditions.
2 & 3	<ul style="list-style-type: none"> The MPO's steady growth rate is assumed to be an accurate representation of the study area under standard growth conditions.
1, 2, & 3	<ul style="list-style-type: none"> The assumed persons per household throughout was 2.5.
1, 2, & 3	<ul style="list-style-type: none"> Observed data from the U.S. Census includes estimates which are justifiably assumed to be accurate.
1, 2, & 3	<ul style="list-style-type: none"> Unforeseeable events such as natural disasters or business development cycles not mentioned within this memo are not included which may influence the future observed outcome.
1, 2, & 3	<ul style="list-style-type: none"> All third party and produced projections are assumed to decrease in accuracy and expand in range the further out in time a projection extends.

Figure A-2: Housing and Employment Projections Methodology

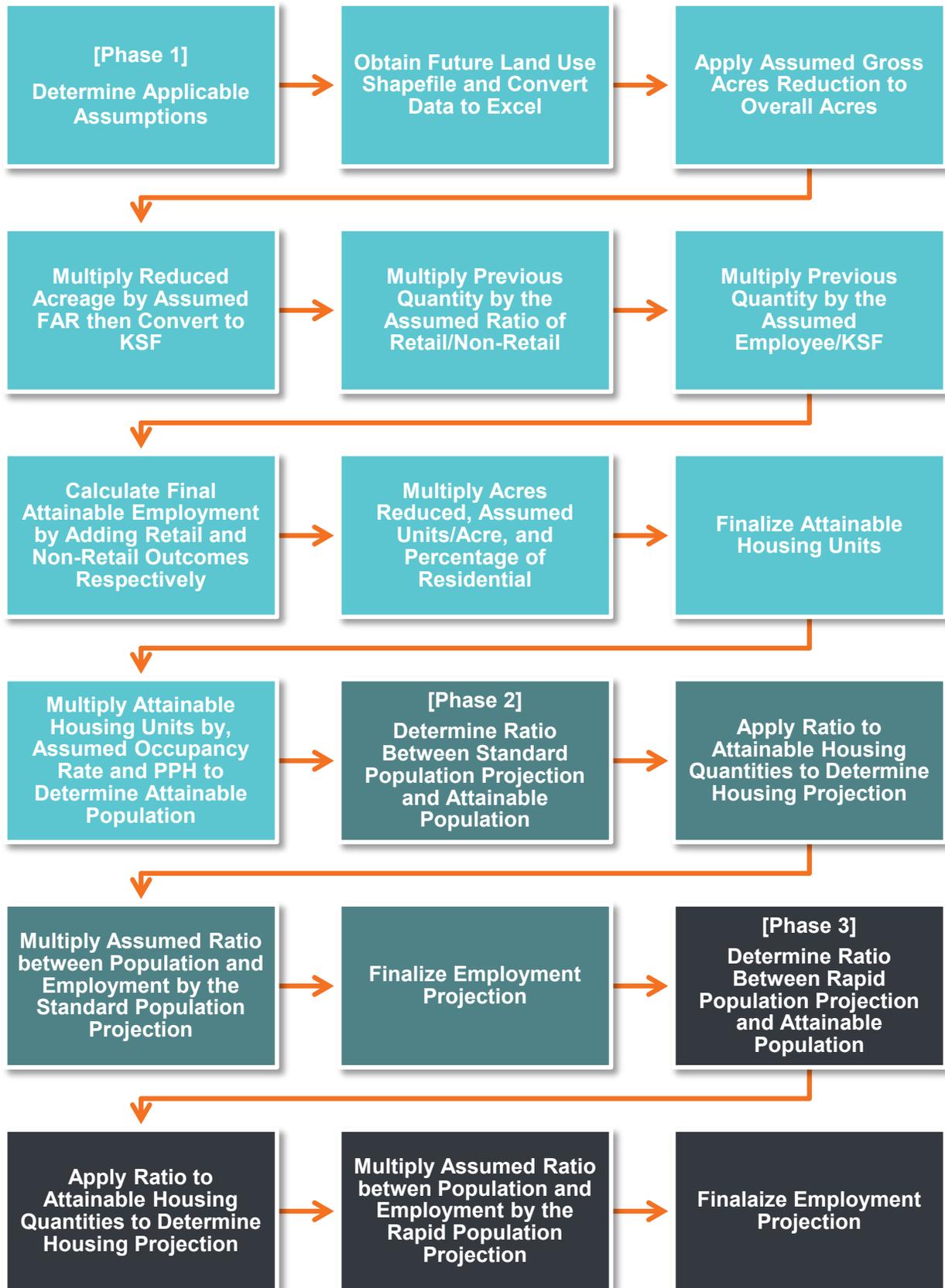


Table A-2: Housing and Employment Projection Assumptions

City of Mandan's Land Use and Transportation Plan 2015										
Land Use	FAR	Retail Percent	Non-Retail Percent	Residential Percent	E/KSF Retail	E/KSF Non-Retail	U/Acre	Gross Area Reduction	Occupancy Rate	PPH
Agricultural	0	0	0	0	0	0	0	0	0	0
Commercial	0.15	70	30	0	1.6	0.8	0	0.3	0	0
Industrial	0.05	0	100	0	0	0.8	0	0.2	0	0
Greenway corridor	0	0	0	0	0	0	0	0	0	0
Park	0	0	0	0	0	0	0	0	0	0
Rural Residential	0	0	0	100	0	0	0.7	0.15	0.92	2.5
Low Density Residential	0	0	0	100	0	0	3	0.2	0.92	2.5
Medium Density Residential	0	0	0	0	0	0	6	0.3	0.92	2
High Density Residential	0	0	0	100	0	0	15	0.4	0.92	1.9
Public Land	0.05	0	100	0	0	1	0	0	0	0

Bismarck-Mandan MPO's Plan 2007										
Land Use	FAR	Retail Percent	Non-Retail Percent	Residential Percent	E/KSF Retail	E/KSF Non-Retail	U/Acre	Gross Area Reduction	Occupancy Rate	PPH
Agriculture/Urban Reserve	0	0	0	0	0	0	0	0	0	0
Parks/Open Space	0	0	0	0	0	0	0	0	0	0
Rural Residential	0	0	0	100	0	0	0.7	0.15	0.92	2.5
Urban Residential	0	0	0	100	0	0	4	0.25	0.92	2
Neighborhood Commercial	0.15	80	20	0	1.6	0.8	0	0.35	0	0
Mixed-Use Commercial/Residential	0.15	40	10	50	1.6	0.8	4	0.2	0.92	2
General Commercial	0.15	70	30	0	1.6	0.8	0	0.3	0	0
Mixed-Use Commercial/Industrial	0.1	50	50	0	1.6	0.8	0	0.25	0	0
Industrial	0.05	0	100	0	0	0.8	0	0.2	0	0

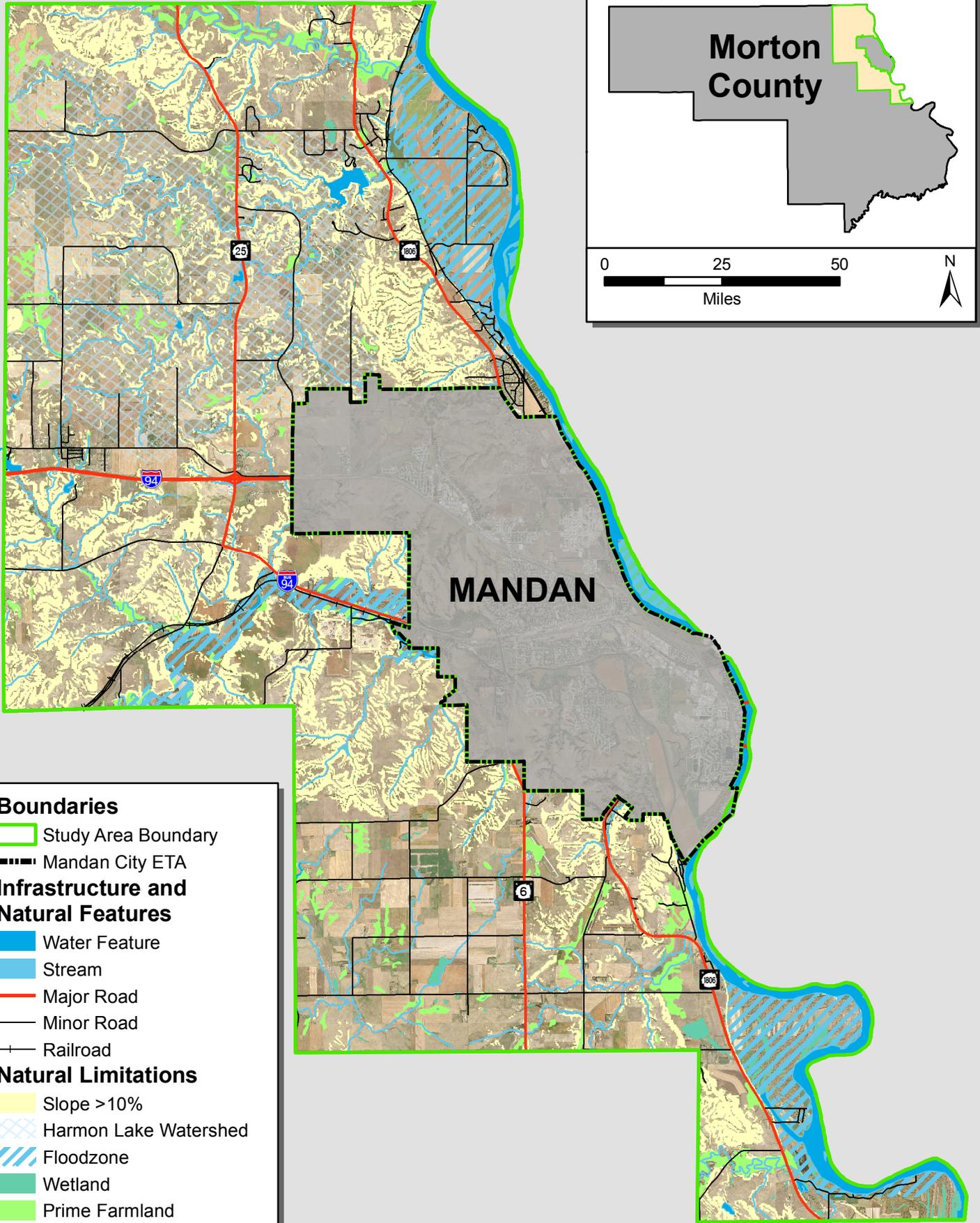
Growth Limitations Background

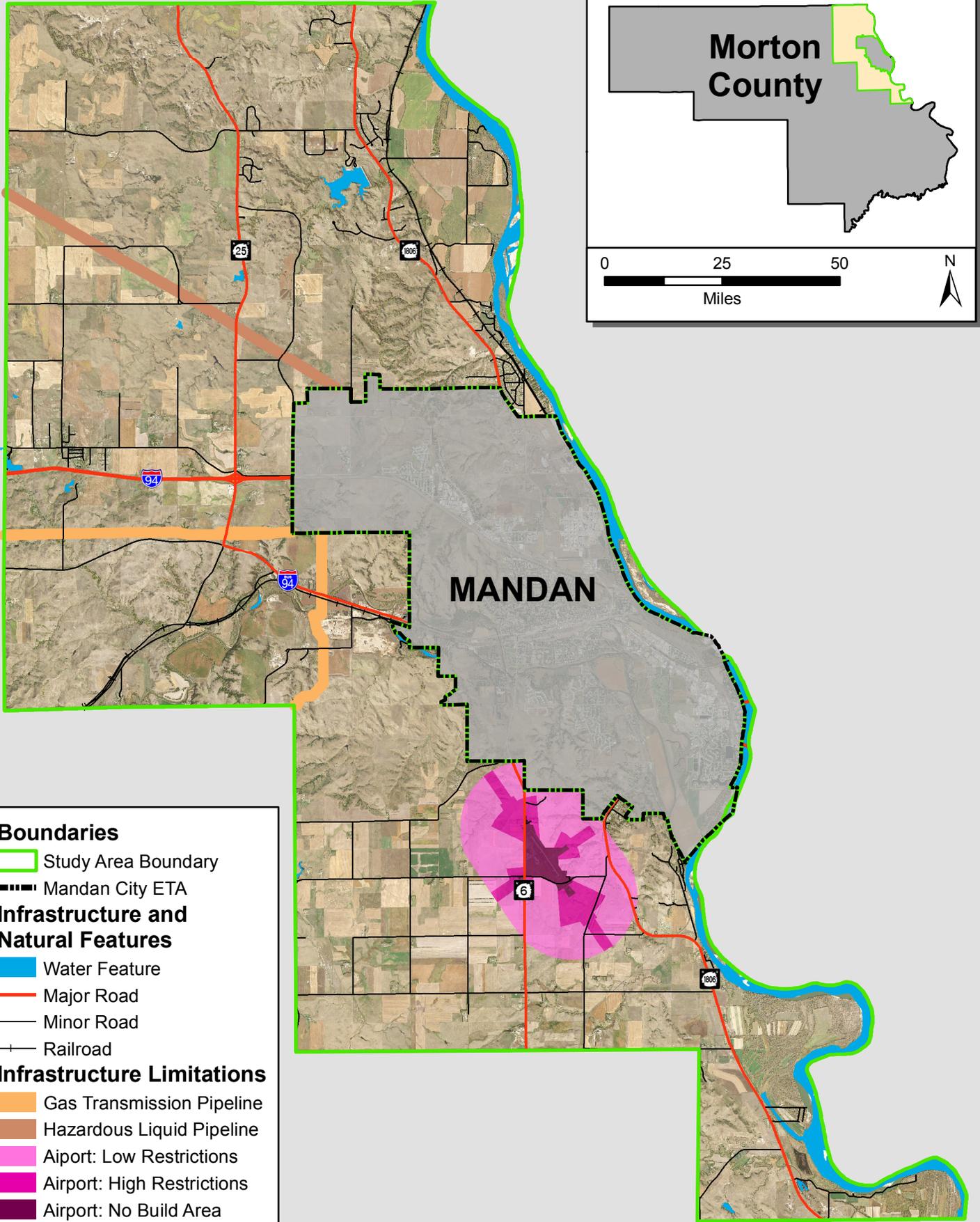
Growth Limitation Justifications

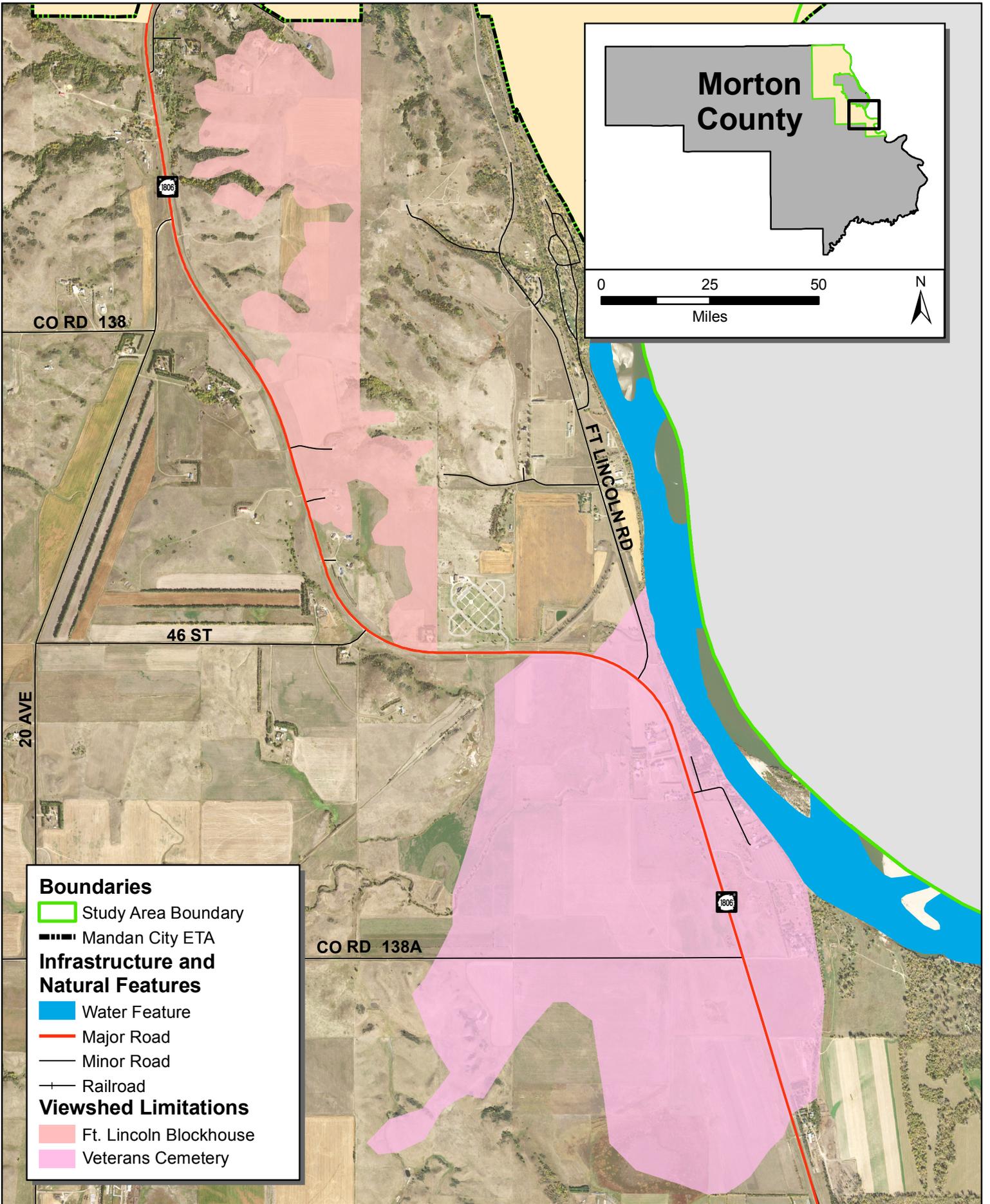
Category	Justification
Airport No Build Area	Parcels which include this category are considered limited due to the airport's presence and to reflect the airport's runway protection zone. The airport's plan prohibits all new structures and residential land uses for safety reasons and to maintain the integrity of the airport.
Airport High Restrictions	Parcels which include this category are considered limited due to the airport's presence and to reflect the airport's inner and outer approach/departure zones. The airport's plan prohibits or recommends avoidance of residential, commercial, and public gathering land uses for safety reasons and to maintain the integrity of the airport.
Hazardous Liquid Pipeline	Parcels which include this category are considered limited due to their close proximity to hazardous liquid pipelines. A 500 foot additional area of impact is incorporated since most development types are likely to avoid these lines for safety reasons and to maintain the integrity of the pipeline.
Gas Transmission Pipeline	Parcels which include this category are considered limited due to their close proximity to gas transmission lines. A 500 foot additional area of impact is incorporated since most development types are likely to avoid these transmission lines for safety reasons and to maintain the integrity of the pipeline.
Slope >20%	Parcels which include this category are considered limited since this topography is more difficult to develop. No additional area of impact is incorporated since the development growth limitation is primarily limited to respective sites.
Flood Zone	Parcels which include this category are considered limited since this topography can also be difficult to develop due to practical and regulatory reasons (most recent FEMA designated flood zones).
Wetland	Parcels which include this category are considered limited since this topography can also be difficult to develop due to practical and regulatory reasons.
Airport Low Restriction	Parcels which include this category are considered limited due to the airport's presence and to reflect the airport's traffic pattern zone. The airport's plan recommends avoidance of public gathering land uses for safety reasons and to maintain the integrity of the airport.
Ft. Lincoln Blockhouse Viewshed	Parcels which include this category are considered limited due to their close proximity to Fort Lincoln State Park and the aesthetic impact development might have on the area if it were to occur.
Veteran's Cemetery Viewshed	Parcels which include this category are considered limited due to their close proximity to the North Dakota Veteran's Cemetery and the aesthetic impact development might have on the area if it were to occur.
Watershed	Parcels which include this category are considered limited since development of this topography has the potential to impact the Harmon Lake/Otter Creek watershed. Area stakeholders overwhelmingly noted the sensitivity of the Harmon Lake watershed due to the desire to protect the recreational use and regional notoriety of Harmon Lake.
Prime Farmland	Parcels which include this category are considered limited due to the presence of prime farmland, a highly valued resource of the study area.

Ancillary Maps

All identified limitations are mapped on Pages 57 to 59 and separated by comparable categories for easier references. The composite growth limitation map is found in Chapter 3 on Page 23.







Morton County

0 25 50
Miles

N

Boundaries

Study Area Boundary

Mandan City ETA

Infrastructure and Natural Features

Water Feature

Major Road

Minor Road

Railroad

Viewshed Limitations

Ft. Lincoln Blockhouse

Veterans Cemetery



Morton County MPO Study Area
Viewshed Growth Limitations

0 0.25 0.5
Miles



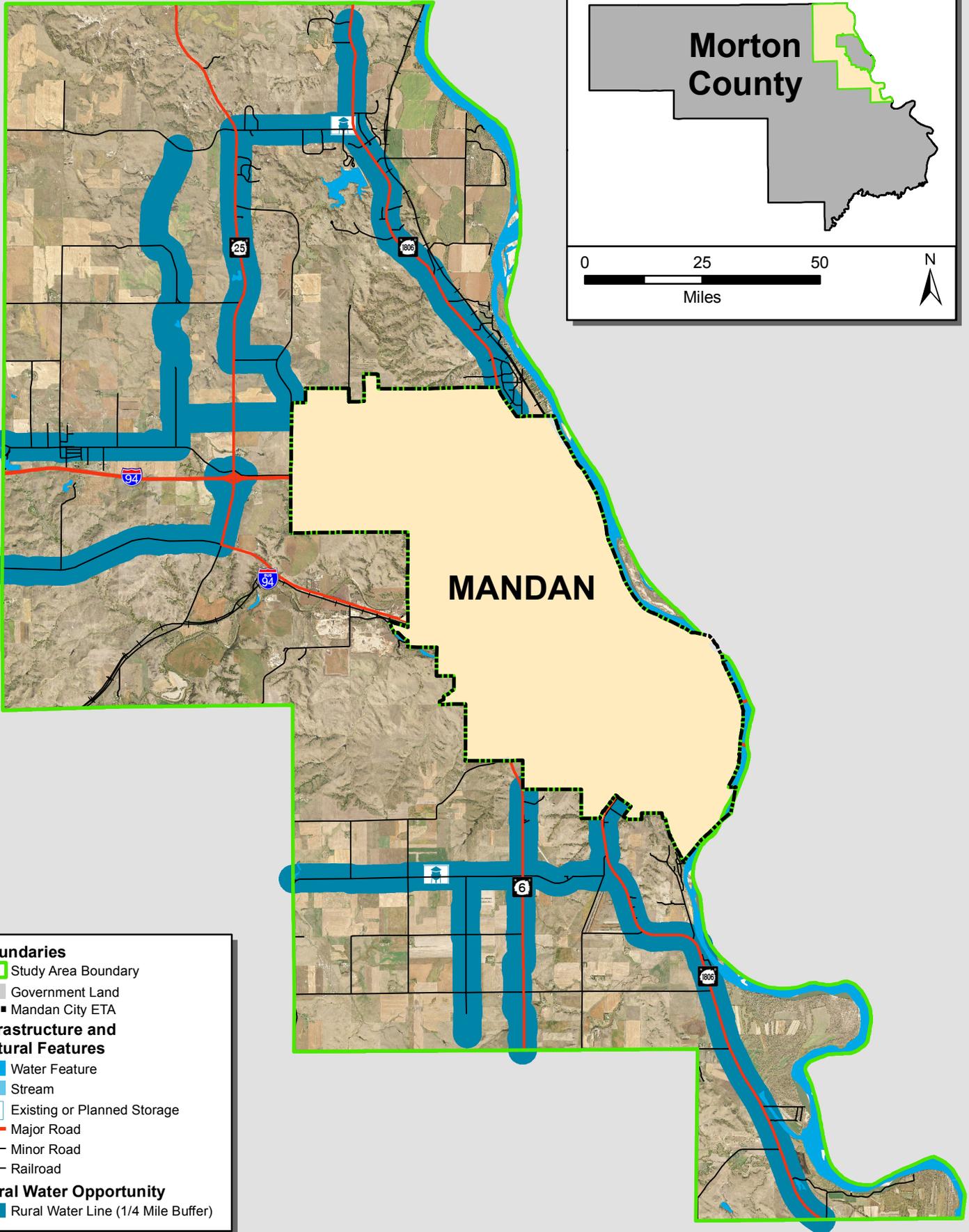
Growth Pressure Background

Growth Pressure Justifications

Category	Justification
Vacant/Platted Residential Land	Parcels which include this category are considered as having an opportunity since such sites are typically development ready and are in close proximity to already developed land.
Developed Land	Parcels which include this category are considered as having an opportunity due to their close proximity to developed land. Such parcels are more likely to experience development expansion than areas which are not developed during the horizon of the plan. A ¼ mile additional area of impact is incorporated since development is more promising due to cost efficiency.
Major Road Nodes	Parcels which include this category are considered as having an opportunity due to their close proximity to major transportation route nodes/junctions. A ¼ mile additional area of impact is incorporated since development is favorable because developers recognize the added location advantage of locating at major road intersections.
Rural Water Line	Parcels which include this category are considered as having an opportunity due to their close proximity to rural water lines. A ¼ mile additional area of impact is incorporated since development is promising along/near water lines and where development can easily and cost effectively connect.

Ancillary Maps

In order to clearly illustrate the major rural water infrastructure currently found within the study area, an ancillary map is provided on Page 61 (note that only the water infrastructure is shown that has the capability to support larger scale residential and/or commercial development, rather than typical agricultural development (such as a single dwelling unit). Another ancillary map is provided on Page 62, which highlights the current vacancy of platted lots by acreage across the study area. This map is advantageous since it provides insight into where in the study area developers are pursuing to build and where future growth is likely to occur. The composite growth pressure map is found in Chapter 3 on Page 25.



Boundaries

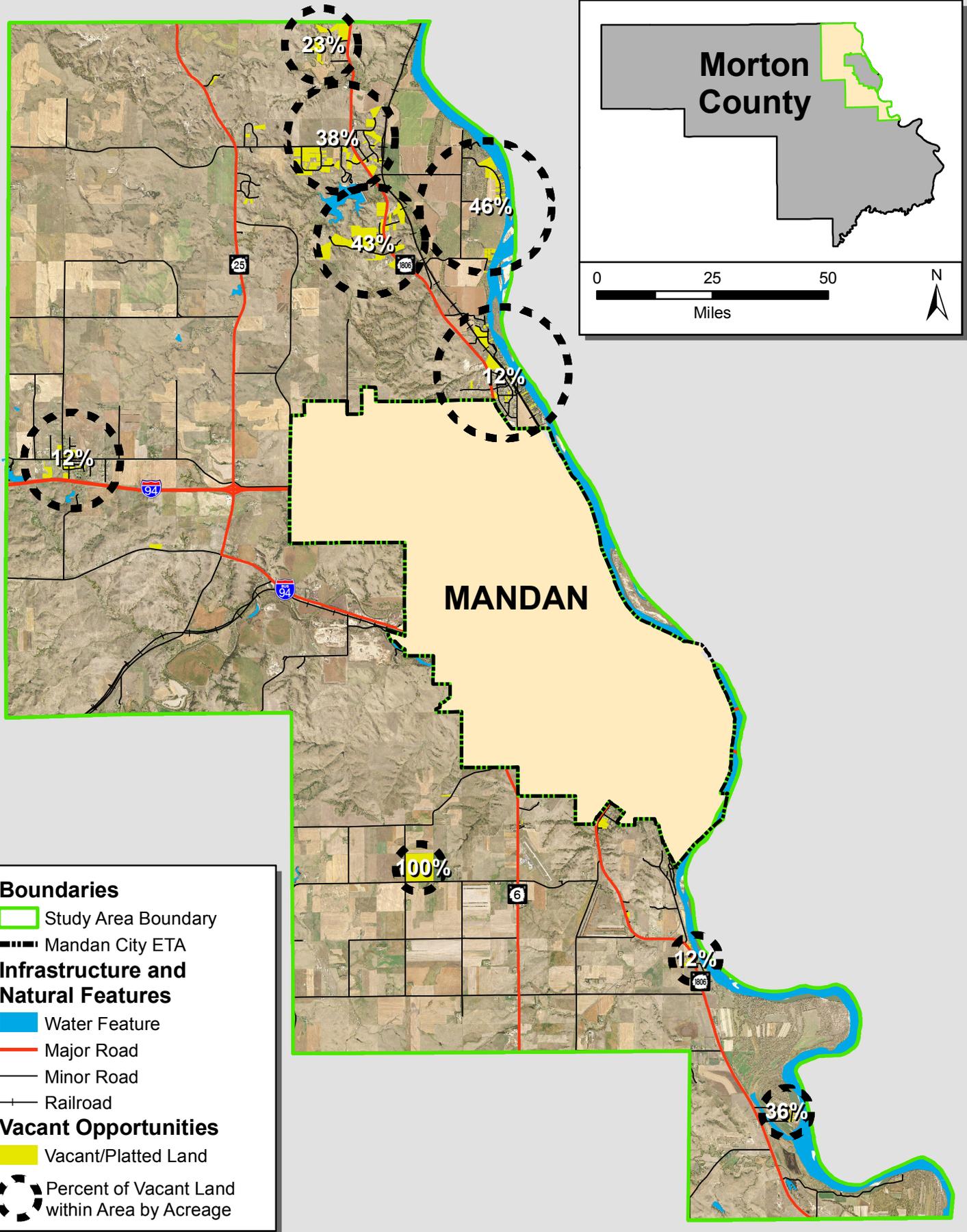
- Study Area Boundary
- Government Land
- Mandan City ETA

Infrastructure and Natural Features

- Water Feature
- Stream
- Existing or Planned Storage
- Major Road
- Minor Road
- Railroad

Rural Water Opportunity

- Rural Water Line (1/4 Mile Buffer)



Land Use Suitability Analysis Methodology

Methodology

“Figure A-3: Land Use Suitability Analysis Methodology” below outlines the overall methodology applied to develop pressures and limitations for growth in the study area. The methodology consisted of three phases including: 1) defining what growth pressures and limitations are present within study area, 2) entering positive scores (beneficial factors influencing potential growth) or negative scores (negative factors discouraging potential growth) of affected parcels, and 3) finalizing the results and map.

Figure A-3: Land Use Suitability Analysis Methodology

