SEPTEMBER 2025

Direction 2050

CITY OF Dickinson North Dakota

DRAFT

Comprehensive Plan & Transportation Master Plan

NORTH Dakota | Transportation
Be Legendary.

KLJ

Apex Engineering Group

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APPENDIX C. INFRASTRUCTURE MASTER PLAN

INDEX OF TERMS

AADT – Annual Average Daily Traffic 125

AASHTO – American Association of State Highway and Transportation Officials 159

ACS – American Community Survey 4

ADU – Accessory Dwelling Unit 95

ADUs – Accessory Dwelling Units 186

AMI – Area Median Income 95

ASTM – American Society for Testing and Materials 30

BFE – Base Flood Elevation 95, 104

BNSF – Burlington Northern Santa Fe 1

BSPRA – Big Sky Passenger Rail Authority ES-21, 174

CIP – Capital Improvement Plan 71, 140

CLG – Certified Local Governments 121

CMF – crash modification factor 148

DCS – North Dakota Division of Community Services 71

DTR – Designated Truck Routes 37

ELU – Existing Land Use 63

ETZ – Extraterritorial Zone , 2, ES-1

FEMA – Federal Emergency Management Agency 104

FHWA – Federal Highway Administration 26

FLUM – Future Land Use Map ES-6, 71, 76

FYA – flashing yellow arrow 148

gpm – gallons per minute 21

HCAADT – Heavy Commercial Annual Average Daily Traffic 37, 153

HCM – Highway Capacity Manual 168

HGL – hydraulic grade level 19

HUD – Housing and Urban Development 102

I-94 – Interstate 94 1

Ibid – "in the same place", refers to citation source previously referenced 115

IRI – International Roughness Index 30

ITE – Institute of Transportation Engineer 172

ITS – Intelligent Transportation Systems 38

LF – linear feet 35

LOS – Level of Service 28, 27, 168, ES-21

LPI – Leading Pedestrian Interval 148

MB – Municipal Boundary , ES-1

MDST – MDS Technologies, Inc. 30

MGD – million gallons per day 19

MRH – Memorial Regional Health 112

MSA – Metropolitan Statistical Areas 115

NBI – National Bridge Inventory 33

NBL – north-bound lane 149

NDDOT – North Dakota Department of Transportation 1

NFHL – National Flood Hazard Layer 96, 104

O/D – Origin/Destination ES-13, 134

PCI – Pavement Condition Index 31

PHF – peak hour factor 172

psi – pounds per square inch 19

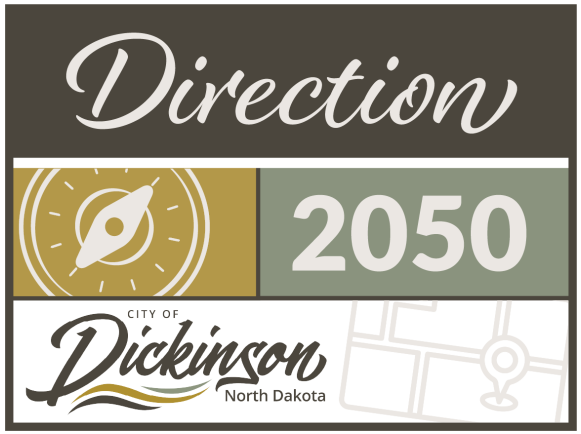
PUD – Planned Unit Development 77

RIRO – Right-in-Right-out 166

RIRO – Right In-Right Out 146

ROW – right-of-way 155

RRFBs – Rectangular Rapid Flashing Beacons 174
RZ – Renaissance Zone 72
SCHA – Stark County Housing Authority 96, 102
SPUI – single point urban interchange 149
STIP – Statewide Transportation Improvement Program 140
s/veh – seconds per vehicle 130
SWA – Southwest Water Authority 19
TAZ – Transportation Analysis Zone ES-14, 125
TDM – Travel Demand Model 125
TIF District – Tax Increment Financing District 72
TIS – Traffic Impact Study 170
TMP – transportation master plan 23
TRB – Transportation Research Board 169
TWLTL – two-way left-turn lane 148
UAB – Urban Area Boundary 3
USA – Urban Service Area 3
VASH – Veterans Affairs Supportive Housing 102
V/C – volume/capacity 136
V/C – volume-to-capacity 137
VHT – vehicle hours traveled ES-13, 135
VMT – vehicle miles traveled ES-13, 135
WBL – west-bound lane 148

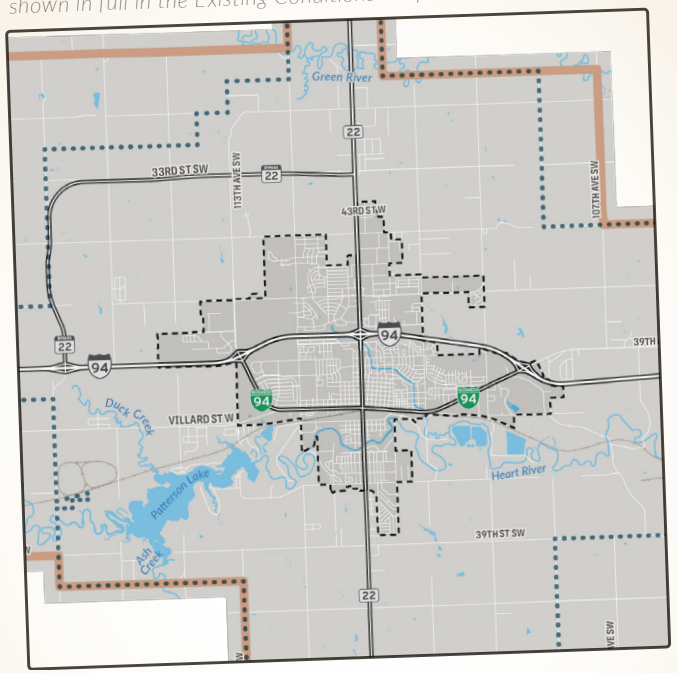


Prepared for the City of Dickinson and the North Dakota Department of Transportation by KLJ and Apex Engineering Group

EXECUTIVE SUMMARY

The Direction 2050 project team reviewed existing conditions which provides the baseline foundation for data review and subsequent analyses to support short- and long-term planning efforts. This analysis, along with public and stakeholder engagement, revealed several area-wide issues and needs facing the Direction 2050 study area.

shown in full in the Existing Conditions chapter



Snapshot of the Study Area

Further analysis of growth and pinpointing future land use and housing provided a unified view of community development and allowed for transportation and traffic forecasting, project identification and prioritization, and the development of transportation guidelines.

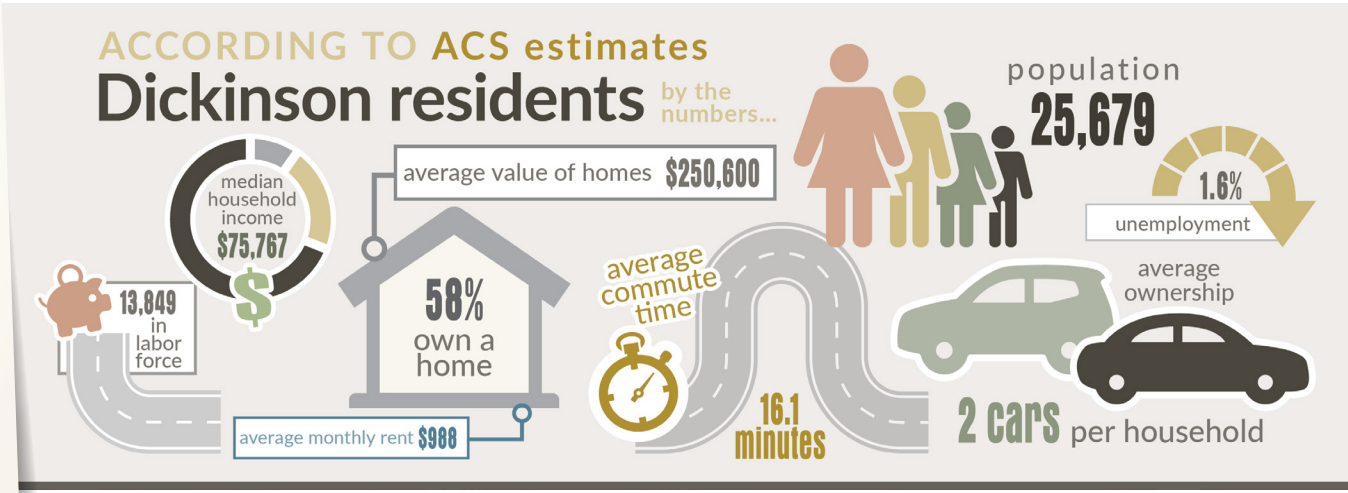
These steps are highlighted in the following sections and details are found in the subsequent **Direction 2050** chapters.

EXISTING CONDITIONS

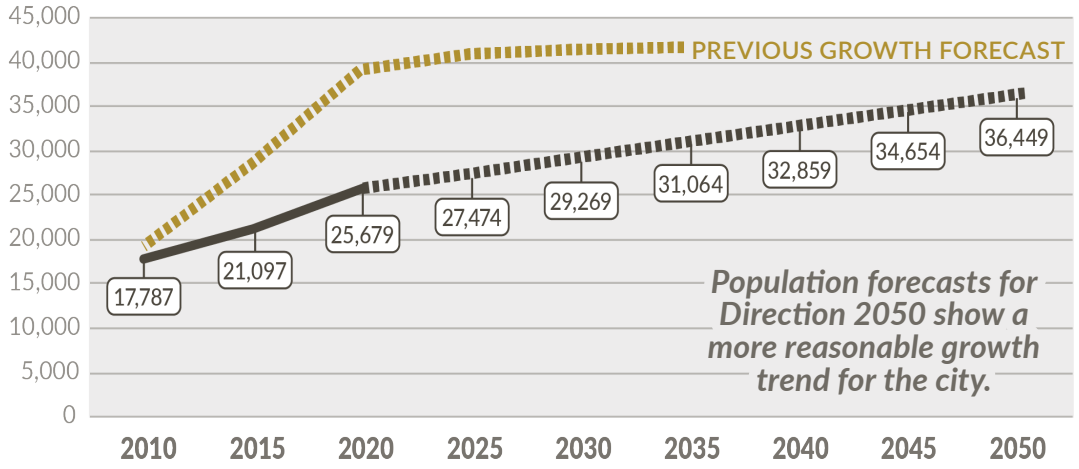
A 126-square mile Study Area for Direction 2050 was developed to allow for future growth by including the Municipal Boundary (MB) and Extraterritorial Zone (ETZ), which was expanded to 4 miles from the MB and allows the city to plan for growth within its extraterritorial jurisdiction.

Key areas of analysis and results included:

- **Parcel development**
  - The project team inventoried all parcels in the study area and analyzed existing land use and zoning to identify areas for potential growth inside and outside of the city
- **Demographics**
  - Rapid growth during Bakken energy boom of 2010s, but has since evened out
  - Major changes in employment statistics can be correlated to the most significant economic factors of the last 20 years



Dickinson Population Projection Comparison



- Just over 92% of resident workers 16 years and over drove to work, of which over 82% drove alone
- Community survey responses indicated 3.2% of residents walked or cycled to work
- Average travel time to work was reported to be 16.1 minutes
- 3.6% of workers aged 16 and over indicated they did not have a vehicle

Existing housing profile as of 2020

- 10,544 occupied housing units in Dickinson
- 58% home ownership rate
- Average home value of $250,600
- Average monthly rent of $988

Key community facilities

- 1,763 acres of parks including a network of pedestrian trails and paths
- Dickinson Public Schools, which operates nine schools and is the city's largest employer
- Public institutions such as City Hall, fire stations, police department, and library
- Community attractions such as Prairie Hills Mall, Ukrainian Cultural Institute, Theodore Roosevelt Center, and Dickinson Museum Center

Existing municipal infrastructure system

Pavement conditions

- 157.8 centerline miles of paved roads
- 71.3% of City roads are in good to excellent condition
- 10.3% of City roads are in poor or very poor condition

Multi-modal transportation systems

- 19.4 miles of pedestrian and bicycle trails
- On-demand transit service
- Transloading facility for freight trains at Patterson Rail Terminal
- Existing traffic and crash data

Only 19% of respondents to the Community Survey ranked the availability of safe bicycle/pedestrian facilities as excellent or good, while 45% of respondents ranked the facilities as poor or bad. These results indicated residents want safe and enhanced trail or bicycle/pedestrian facilities. The overall goal of the Master Trails Plan is to expand the existing trail system. Specific objectives include eliminating gaps in the existing trail system with new connecting trails, providing an interconnected trail system that provides access to parks and extends the trail system to all areas of the city, and locating city trails within the rights-of way.

The most recent available safety and crash data was collected for the five (5) year period from 2019 to 2023. There were a total of three (3) fatalities, 20 severe/incapacitating injuries, 55 possible injuries, 95 non-

incapacitating injuries, and 645 property damage only crashes being the majority of vehicular crash incidents.

Top 10 High Frequency Crash Locations:
Table E-1 provides the locations for the top 10 highest frequency crash intersections.

Table E-1. Top 10 High Frequency Crash Locations

INTERSECTION		TOTAL CRASHES
ND 22	15TH ST W	34
ND 22	9TH ST W	31
ND 22	Villard	31
ND 22	21ST ST W	29
ND 22	MUSEUM DR W	23
ND 22	8TH ST SE	20
ND 22	2ND ST W	18
ND 22	94 Ramps	17
EMPIRE RD	STATE AVE	15
ND 22	40TH ST W	14
ND 22	3RD ST W	14
Villard	STATE AVE	12

ENGAGEMENT SUMMARY

Public engagement provided valuable insight during the planning process. There was a good mix of participation from the public with just under half of the respondents having children in the home and just over half of the respondents being in adult-only households.

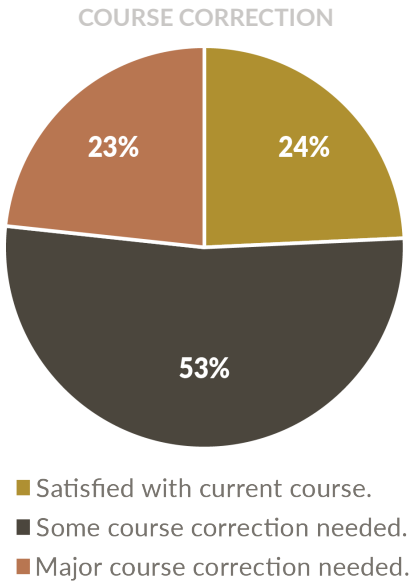
In-person Meetings

- Stakeholder roundtable discussion
- PMT/City Staff roundtable discussion
- Public input meetings

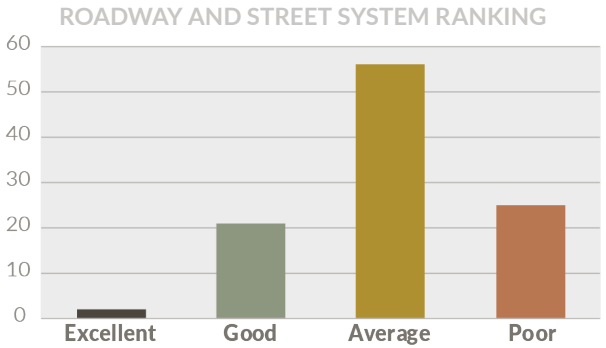
Virtual Engagment

- 1,528 website views
- 328 contributions from the public
- 190 comments on an interactive map

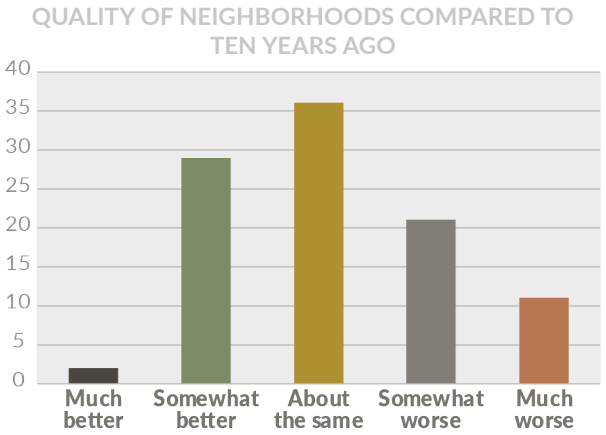
Of the respondents, over three-quarters agreed that course correction was needed within the city, including one-quarter who characterized a need for "major" course correction.



Dickinson residents were about as likely to rate the roadway system as "poor" as they were "good" or "excellent," and expressed the desire for improved maintenance of existing roadways, congestion management, and bicycle and pedestrian facilities.



While many survey respondents agreed Dickinson's quality of life had improved in the past ten years, many expressed that it had gotten worse as well. Residents expressed a desire for increased housing supply, enhanced shopping and service opportunities, and improved utilities.



AREA-WIDE ISSUES & NEEDS

An initial list of issues and needs provided a framework of focus areas to be evaluated with the development of Direction 2050.

- Regional transportation issues/corridor analysis
- Traffic safety/operations analysis
- Trails and bike/pedestrian systems
- Neighborhoods
- Transportation system management and preservation
- Standards and policy development

A series of regionally focused transportation issues were developed as needing further evaluation as part of Direction 2050.

- Stark County Eastern Bypass
- Southeast Bypass
- Southwest Bypass

Additionally, the following areas were pinpointed for corridor level analysis:

- North South Mobility
- State Avenue
- 10th Avenue
- ND 22
- Downtown core
- West and East Villard (specifically through downtown core)

Priority areas were also identified for neighborhood connectivity issues such as implementing revised typical section standards, trail connectivity, more specific needs analysis adjacent to school areas, and neighborhood cohesiveness.

GROWTH & DEVELOPMENT ANALYSIS

Population growth is a significant factor for comprehensive planning as Dickinson's population has historically been most influenced by the baby boom, and two oil and gas booms. The most recent oil and gas boom resulted in a 44% population growth from 2010 to 2020.

Without another economic event to trigger a major change in employment, the future growth is likely to be more consistent, which allows for measured maintenance of existing infrastructure and facilities.

Several scenarios ranging from 1.1% to 1.8% average annual population growth were forecasted using different assumptions about timing and level of net migration. An overall average annual growth rate of 1.4% was determined to be appropriate for Dickinson, which would mean the population will have grown to 36,449 by 2050.

Development Stoplight Criteria

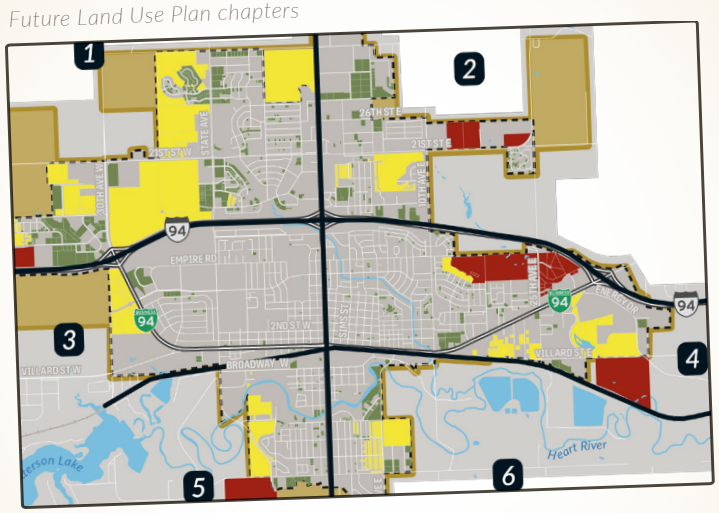
Land designated as vacant in the Existing Land Use Map has differing levels of capacity for immediate development. Apex Engineering staff reviewed all the vacant parcels and assigned the parcels into one of three categories:

Green if the property is ready to develop with minimal improvements.

Yellow if the property requires minor improvements such as short utility extensions.

Red if the property requires major improvements such as major roadway expansions or new utility mains.

shown in full in the Growth & Development Analysis and Future Land Use Plan chapters



Snapshot of Vacant Land Availability

Of the more than 2,200 acres of vacant land in the city, about a quarter is ready to develop, half requires minor improvements, and a quarter requires major improvements.

FUTURE LAND USE PLAN

The following strategies fulfill the Land Use Vision statement:

> Utilize available space in the community that promotes increasingly vibrant communities to live, work, learn, and visit.

This vision is supplemented by the overall goal to **effectively manage the location, timing and fiscal impacts of future development.**

Dickinson's Direction 2050 updates previous Land Use efforts by promoting modest and measurable development in a number of key locations within Dickinson. Direction 2050 directs future growth and development to areas inside the Urban Service Area, to utilize existing and planned municipal infrastructure. This approach allows Dickinson to establish a state of good repair for its vast system of municipal infrastructure.

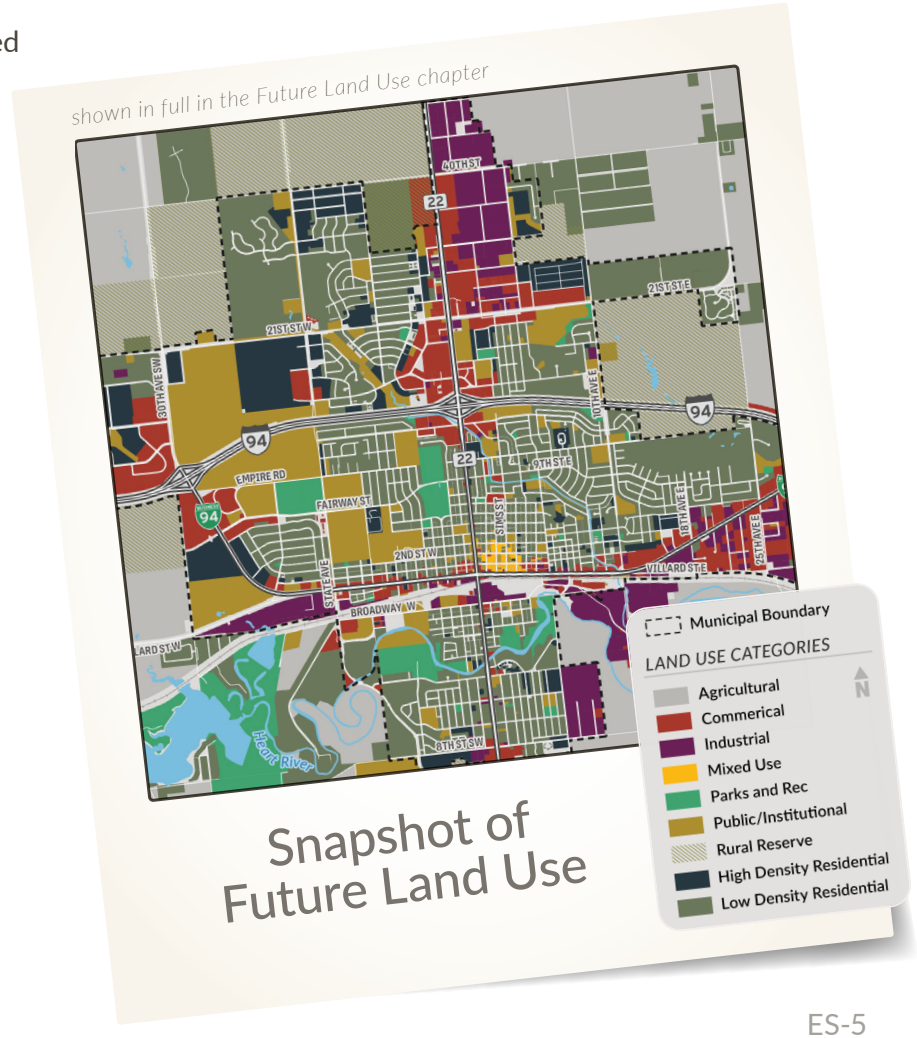
After presenting and obtaining feedback from the Community Stakeholder Group and community leaders via multiple channels, an approach was identified for future land use development in Dickinson which will balance higher-density infill development in central neighborhoods with lower-density outward development on the edges of the city.

Land Use Categories

The land use categories utilized for the Future Land Use Map include six of the land use categories from the prior Comprehensive Plan, but divides residential land use into two categories and adds one additional category. These nine resulting categories are:

- Low-Density Residential
- High-Density Residential
- Commercial
- Mixed Use
- Industrial
- Public/Institutional
- Parks and Recreation
- Agricultural
- Rural Reserve

The Future Land Use Plan focuses on fulfilling the cumulative land demand by 2050 of 2,609 acres—additional to the footprint of Dickinson today (**Table E-2**). The **Future Land Use Map** section in the Future Land Use Plan chapter also discusses how the City can meet the interim additional land demand on a five-year basis.



Snapshot of Future Land Use

Table E-2. Forecast Acreage Needs for Future Community Expansion

YEAR	HOUSEHOLDS	RES ACRES	EMPLOYEES	EMP ACRES	TOTAL ACRES	NEW ACRES
2025	11,544	3,649	14,885	2,293	5,942	388
2030	12,298	3,887	15,858	2,443	6,330	388
2035	13,506	4,269	16,830	2,593	6,861	532
2040	14,604	4,616	17,803	2,743	7,358	497
2045	15,402	4,868	18,776	2,893	7,761	403
2050	16,200	5,120	19,748	3,042	8,162	401
TOTAL						2,609

Overall, because there is surplus land available within Dickinson, the Future Land Use Plan can deliver the needed acreage without pushing development into the Extraterritorial Zone. Some areas of the Extraterritorial Zone may be considered as opportunity sites for Dickinson's long-term growth beyond 2050; otherwise, they should remain primarily the agricultural uses existing today.

Dickinson is on track to have the available land to house all of its desired Future Land Uses and the mix therein by 2050. Specific considerations for Dickinson's downtown and its Extraterritorial Zone point new development toward other areas, chiefly taking advantage of vacant sites within the City limit or directly adjacent and easily serviceable by existing city services.

Recommendations: Using the Future Land Use Map

LU1.1 Select Scenario B as the City's preferred vision for future land use across Dickinson and the study area boundary.

The Future Land Use Map (FLUM) will serve as a reliable reference point for City staff and the Planning & Zoning Commission (and, to a more limited extent, the City Commission) in determining high-level land use policy. The detailed land use category definitions in the Future Land Use Plan chapter and the table in Appendix B indicate how the FLUM can be used. The parcel-level granularity of the FLUM allows Dickinson to consult the map during a variety of processes. The remaining elements of Dickinson Direction 2050, including the traffic forecasting and other elements of the Transportation Plan, utilize the same assumptions of land use mix and development intensity by location reflected in the map to facilitate its use.

LU1.2 Continue to consult the Future Land Use Map during preliminary and final platting processes, and with administrative reviews of other plan types as development applications and property owner inquiries are received over time.

LU1.3 Continue to consult the Future Land Use Map during long-term planning efforts including Capital Improvement Plan and annual budgeting processes, to align future public investments with the areas most likely to harness future development.

LU1.4 Consider vacant and not-yet developed parts of Dickinson in relation to their designation(s) on the Future Land Use Map.

LU1.5 Periodically evaluate changes in existing conditions and consider potential future land use map changes as warranted.

LU1.6 Periodically consult with Park District staff on future park siting and other innovative approaches to meet outdoor recreational space needs.

Land Use Goals:

- **Increase the availability** of locations for neighborhood-serving retail commercial development.
- **Improve community appearance** along major roadways, including I-94, that are gateways to the community.
- **Highlight downtown** Dickinson as a vibrant center of the community.
- Enhance downtown Dickinson's quality of place through **promoting its role as the primary center** for regionally serving professional business services, civic services, and entertainment.

Downtown

As a singular asset within Dickinson, the project team developed a series of recommendations particular to Downtown and its unique zoning designations. Community members expressed hope for a revitalized downtown with additional support for businesses and improved community amenities.

RECOMMENDATIONS

LU2.1

Reconfigure the Downtown Overlay District to better deliver the types of mixed-use developments that make efficient use of the dense environment and to cement downtown Dickinson's role as the civic and entertainment center of the region.

- Promote existing programs and establish new incentives for property owners to improve their buildings, return vacant properties to use, or sell to an owner more likely to do so.
- Establish incentives within the Downtown Overlay zoning guidelines to promote dense, mixed-use development.
- Promote developments that are designed in a style and manner that is suitable for a downtown setting and which enhance vibrancy and walkability.

LU2.2

Continue to implement the City's Renaissance Zone (RZ) Plan, with focus on promoting benefits of the RZ for the longest-vacant properties or parcels.

- Continue to market and promote the benefits of the Renaissance Zone program.
- Continue to provide technical assistance to potential Renaissance Zone applicants, thereby facilitating the application process.
- Utilize the Renaissance Zone program in conjunction with existing incentives to maximize investment into downtown.

LU2.3

In conjunction with Stark Development Corporation, promote the establishment of the downtown Dickinson marketing campaign and/or similar efforts with a primary focus on supporting downtown redevelopment.

- Expand support for businesses and nonprofits seeking to promote and maintain a comfortable, welcoming environment in downtown Dickinson, including through marketing and event programming.
- Improve communications with downtown business owners about the availability of resources for business development and storefront rehabilitation, such as Stark Development Corporation's Facade Improvement Program and Bank of North Dakota's interest buy-down programs.

LU2.4

Establish new financial incentives for downtown redevelopment.

- Survey business owners and building owners to find out their needs.
- Establish a Revolving Loan Fund for downtown commercial businesses, with eligible uses to include façade improvements and other exterior cosmetic changes to storefronts.
- Establish a tax increment financing (TIF) district within downtown Dickinson to promote redevelopment of vacant and blighted properties, improve housing and retail options, and facilitate the development process.

LU2.5

Promote the establishment of a business incubator program in downtown Dickinson for use by local artisans, entrepreneurs, and remote workers.

- Vacant storefronts and/or industrial properties can provide inexpensive space for local residents to grow their businesses.
- Complete inventories of vacant storefronts and existing businesses by type in the downtown and West Villard areas to support this opportunity.
- Partner with Dickinson State University to provide additional opportunities for technical assistance, community learning, and practical education for DSU students outside of the classroom.

LU2.6

Re-examine the predominantly General Commercial (GC) and Downtown Commercial (DC) zoning in and around the downtown and West Villard areas for applicability to existing and desired land uses. While the GC zone protects existing residences, the selective application of one or more residential zone designations may better preserve residential blocks in and around downtown Dickinson.

- Complete a detailed study of residential properties in the downtown and West Villard areas to determine if each property's long-term future land use is more appropriately residential or commercial.
- Consider adopting a downtown fringe zoning district adjacent to the existing DC zoned properties.

LU2.7

Deepen involvement in the North Dakota Main Street Initiative.

- Continue to promote Dickinson Legacy Square as a hub for activity, encouraging residents and visitors to experience downtown through events, concert series, and art/cultural offerings.
- Encourage niching and specialization that will allow downtown businesses to thrive in the competitive retail and services environment.

Neighborhood Infill

Moreover, the project team made recommendations related to targeted areas of development, such as the entrances to the city, the West Villard Overlay District, and a new Rural Reserve designation which includes areas that may be candidates for annexation in the future.

RECOMMENDATIONS

LU3.1

Consider under limited circumstances applications to vacate limited rights-of-way to facilitate redevelopment that proposes different land uses and/or of adjacent vacant parcels separated only by right-of-way.

LU3.2

Establish a consistent rezoning process for non-downtown neighborhoods that will promote infill where existing development demand has not yielded results.

LU3.3

Identify one or a handful of strategic blocks with vacant parcels to implement the rezoning action in LU 3.2 to promote infill as a pilot project. This may be folded into Housing Recommendation **HS2.2** in the ***Future Housing*** chapter, if solely residential, or as a separate effort if commercial or a mix of uses are desired.

Consider also utilizing parcels near the gateways to Dickinson to promote visible redevelopment, and encourage the addition of tree buffers and other screening to increase the visual appeal of private properties in these areas.

LU3.4

Consider opportunities to enhance the gateways to Dickinson by supporting visual screening or upgrades to buildings to increase their visual appeal.

LU3.5

City staff should consider creating Highway Commercial, Business/ Office, and High Tech Industrial/ Industrial Park zoning districts to more effectively support the future land use plan and meet the city's development opportunities.

LU3.6

City staff should review the Limited Commercial zoning district and potentially recommend changes to enhance its function in the city's zoning code.

Ultimate Land Use Recommendations

The ultimate goal of consistent strategy to consider land use changes in the ETZ will be achieved through the following recommendations.

LU4.1	Continue to conduct thorough fiscal impact analysis for areas proposed or considered for annexation
LU4.2	Amend the Urban Service Area by eliminating two areas that are not anticipated to be developed to urban standards (see **Figure 5-7 on page 92**). Continue to incentivize new development to remain inside of the municipal boundary where feasible, and within the Urban Service Area otherwise, reserving area outside for open space, agriculture, and preserved for future expansion beyond 2050.
LU4.3	Establish a rural reserve overlay district for all land designated in the rural reserve land use category. This district should allow existing uses as permitted uses and require that all future development be rezoned to an appropriate zoning district, be constructed to urban standards, and be a part of an orderly annexation agreement.
LU4.4	Maintain the rural agricultural and open space character within the Extraterritorial Zone by continuing agricultural designations for all land not actively in another land use. Non-agricultural or recreational land uses considered appropriate within the ETZ should be designated as special uses, with requisite conditions for development established by the City.
LU4.5	Continue to notify Stark County of proposed developments within the ETZ.

FUTURE HOUSING

The Future Housing chapter provides detailed analyses and recommendations on how to tackle housing challenges. Stark County and statewide projections were incorporated to compare regional trends with those in Dickinson and the City's growth projections are supplemented with information to explain *how and where* expected growth could be accommodated.

An analysis of housing stock and population growth in Dickinson indicated that the city will have a deficit of almost 1,000 homes just in the next five years. By 2050, Dickinson will face an anticipated deficit of 1,065 overall rental units. This deficit is expected to have a more profound impact on low- and moderate-income renter households in Dickinson.

To maintain existing housing and promote new housing, Direction 2050 outlines a number of recommendations such as encouraging new unit types like modular homes and townhomes, supporting the rehabilitation of vacant and abandoned homes, and exploring new partnerships with developers, lenders, and nonprofits.

Maintain and Improve Existing Housing

This section details how Dickinson can meet the following identified Housing Goals:

- Preserve neighborhood character and establish a sense of place.
- Provide residents a safe, well-connected, and vibrant place to raise a family.

Meeting the Housing Vision means that Dickinson's housing stock will meet growing demand by 2050 while positioning the City for a successful future. The following recommendations indicate how the City can promote a local housing ecosystem that meets both the vision and the underlying goals. Certain recommendations showcase how Dickinson can utilize its housing to meet generative goals.

RECOMMENDATIONS

HS1.1 Explore the development of a flood protection plan for the lowest-lying areas near the Heart River to ensure residents and the City understand the potential risks, and have plans in place for how to react and recover in the event of future flooding.

HS1.2 Preserve open spaces within the floodway along the Heart River and in other hazard-prone areas, and discourage development in areas where it is not appropriate that could cause property damage, injury, or loss of life.

HS1.3 Adapt the zoning code to relax setback and roof height requirements for residential zones near the Heart River and in otherwise flood-prone parts of Dickinson. These adaptations will promote the placement of critical building system components above the base flood elevation.

HS1.4 Provide guidance on building codes—through development code updates if required—to promote "dry" or "wet" floodproofing of new structures, to include location of critical building system components above BFE and/or waterproof enclosures for electrical equipment. This may be applied only to flood-prone areas, or citywide.

HS1.5 Promote improved accessibility of homes in Dickinson as renovations occur, in tandem with a homeowner rehabilitation program and/or partnerships with financial institutions that are active lenders in the residential market.

HS1.6 Encourage or require neighborhood-oriented design attributes on new and renovated residences, such as front doors which face the primary street and other design features which fit the neighborhood's physical character.

Promote New Housing and New Development Types

This section details how Dickinson can meet the following identified Housing Goals:

- Create additional and improved affordable housing opportunities for residents.
- Support the exploration of new approaches to meeting current and anticipated housing demand including workforce housing, empty nesters, and aging in place.
- Provide appropriate housing choices and locations for temporary and transient workers.

RECOMMENDATIONS

Recommendations for promoting new housing and development types are as follows:

HS2.1 Support the rehabilitation of existing vacant or abandoned homes by the development community in two steps: first, identification and acquisition of properties suitable for redevelopment that can be conveyed later to another private owner at a low cost; second, securing partnerships with private or non-profit developers to rehabilitate vacant and abandoned housing at scale.

HS2.2 Identify specific vacant parcels to promote infill housing development through a publicly available list or map, especially on visible corner lots and parcels near downtown.

HS2.3 Identify specific vacant parcels as pilot sites for new multifamily housing opportunities, especially those that are already owned by the City.

HS2.4 Evaluate potential barriers in details of the Development Code to building modular or industrialized homes, ADUs, and "tiny homes". The City should ensure that proposed modular homes fit with the existing character of Dickinson.

Financing and Affordability. In addition to the promotion of modular homes as noted in the section above, the City may be able to assume a role in promoting for-sale and rental homes that are within reach for the majority of Dickinson households; these may take the form of advisory building recommendations, or of partnerships with the private sector and other units of government. These recommendations may also have limited applicability to renovations or rehabilitations of existing homes.

HS2.5 Promote the use of resilient building materials for new homes, to cut down on long-term maintenance and replacement costs to homeowners over the long term. Because these are not regulated in Dickinson's current Development Code, recommended materials are advisory and can be promoted for their potential cost savings and longevity.

HS2.6	Continue to support the Dickinson Revitalization Program in partnership with Gate City Bank. Where practicable, focus the program on referring first-time Dickinson homebuyers to subsidized lending products offered by the Bank to increase the City's homeownership rate.
HS2.7	Explore a partnership with interested developers and owners of vacant property on workforce housing-specific lending products designed solely to support new multifamily developments.
HS2.8	Identify potential housing development(s) for target AMI groups that will require significant gap financing to pencil, and encourage would-be developers to apply to utilize a portion of the State of North Dakota's Section 108 loan authority from HUD or another subsidized line of credit or subsidy source to fill the gap.

COMMUNITY DEVELOPMENT

The Community Development chapter examines Dickinson goals that are not strictly transportation, infrastructure, housing, or land use solutions, especially those that are not addressed elsewhere in the Plan. The assessments in this chapter utilized tools including the Trust for Public Land's ParkScore® and the AARP's Livability Index, as well as conversations with stakeholders from around Dickinson to form a cultural asset inventory. Recommendations were tailored to solve the challenges and gaps related to community development that were identified during the Plan development process.

The Plan includes recommendations surrounding all aspects of community development which will enhance quality of life, aesthetic qualities, and civic pride within the city.

Parks and Recreation

This section details how Dickinson can meet the Recreational and Cultural Amenities Vision statement:

> Collaborate with the Park District to maintain and expand access to City parks, trails, and recreational and cultural facilities.

This section also tackles these specific goals:

- Provide high quality parks and diverse recreational facilities to meet the needs of existing and future residents.
- Create a connected network of trails, accessible sidewalks, and other pedestrian and bicycle facilities to link parks, neighborhoods, and activity centers.
- Support the development and maintenance of athletic venues, destination parks, and Patterson Lake in an effort to be a premier tourist destination in western North Dakota.

ParkScore® indicates that 43% of Dickinson residents live within a ten-minute walk of a park or other open space. Most of these residents live south of I-94 or east of ND-22. Residents in other areas of the City may still be able to reliably reach parks in their everyday lives, for example if they are able to

conveniently drive to one. Still, fulfilling the Recreational and Cultural Amenities vision statement would mean improving access to recreation opportunities and to park facilities themselves wherever feasible.

The two populations to target for improvements are, in priority order, the remaining 57% of existing households, and newly developed residences and neighborhoods that come online by 2050.

RECOMMENDATIONS

CD1.1 Utilize the Future Land Use Map and collaborate with the Park District to identify appropriate vacant land for permanent parks in under-served areas.

CD1.2 In partnership with the Park District, evaluate a location of two acres or less to pilot a temporary pop-up park in a currently underserved portion of Dickinson. The pop-up park could be installed in a variety of locations: within excess right-of-way that is adjacent to a street in a grassy area, or on unused surplus land on a publicly owned lot. The pilot site can be open only during warm-weather months, and minimally decorated with local art, shade, natural features in lieu of formal benches or playground equipment, and other low-cost elements that provide a safe facility and visually activate the space.

CD1.3 Advertise any new pilot park(s) created to the surrounding neighborhoods and measure visitation and usage for at least six months. If demand justifies it, consider funding and operational options to turn one or more pop-ups into a permanent mini-park.

Natural, Historic, and Cultural Resources

This section details how Dickinson can meet the following identified **Recreation and Cultural Amenities goals:**

- Maintain a high quality of life by preserving existing historical and cultural resources in the city and encouraging public art.
- Encourage the availability of leisure services to all community demographics.

Natural Resources goals:

- Designate, preserve, and protect natural resource corridors for open space and recreational uses.
- Prevent waste and hazardous materials from entering the ecosystem.
- Minimize the environmental impacts associated with energy-related extraction activities.

RECOMMENDATIONS

CD2.1 Promote low- and no-cost learning opportunities to engage with Dickinson's history. Specific opportunities include the placement of historic site markers throughout the City and especially in Downtown Dickinson, as well as at the Dickinson Museum Center. Recommend to the HPC discounting or waiving user fees to visit the Museum Center or other City-owned historic sites for subcategories of residents, including seniors, children under 18, and veterans.

CD2.2 Consider strategic opportunities to redevelop vacant properties in downtown Dickinson to support new civic, retail, and light commercial uses in context with the clusters of historic properties located there. Take into account historical, cultural, and natural character when performing development reviews in the area, and prioritize developments which preserve or augment this character.

CD2.3 Consider implications that may result in reduced protection of natural features. Continue to coordinate with Stark County for any future industrial land uses in the County's designated Priority Growth Areas that neighbor the Dickinson Extraterritorial Jurisdiction, with an eye toward encouraging continued protection of the City's environment and natural features.

CD2.4 Encourage and support the private sector to support the protection of natural features in Dickinson as future development applications are considered.

City Services

The City Services Vision strives to:

> Meet the current and future needs of Dickinson's residents, businesses, and other organizations.

To achieve the vision, this section details how Dickinson will meet these identified City Services goals:

- Assure city public safety services protect life, safety and general welfare of all city residents and businesses.
- Enhance the quality of place by properly maintaining all public facilities.
- Promote intra-governmental and inter-governmental coordination to increase the cost effectiveness of providing city services.

This subchapter also covers a Housing goal:

- Support the exploration of new approaches to meet current and anticipated housing demand, including workforce housing, empty nesters, and aging in place.

RECOMMENDATIONS

CD3.1 Start a pilot initiative to promote residential curb appeal improvements such as contests for yard, landscape, or garden improvements, offering public recognition for one winning residence each quarter. Even with no monetary incentive offered, these contests can incentivize homeowners to improve their properties' exterior appearance and condition. These benefits then remain in place for the whole block or neighborhood to enjoy.

CD3.2 In addition to carrying out Housing recommendations HS2.7 and HS2.8, consult the North Dakota Statewide Housing Needs Assessment for an understanding of the area's unmet housing needs for seniors and subsets of the area workforce. While promoting workforce and temporary housing options, consider how city services may be tailored to their needs where practicable.

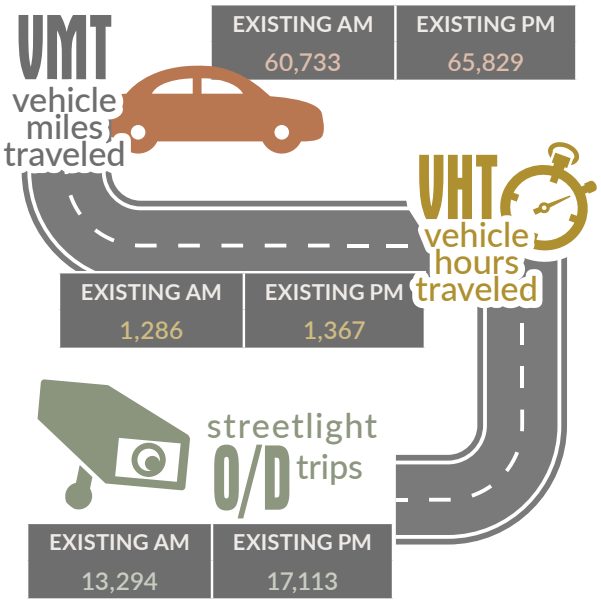
CD3.3 Continue to coordinate with the Dickinson Schools, the Park District, and Dickinson State University to maintain their parks, athletic venues, and other public facilities in the City to a high standard, including snow removal and year-round activities and programming for parks and recreation.

TRANSPORTATION & TRAFFIC FORECASTING

Direction 2050 developed a forecast for transportation projects and traffic through the year 2050, focusing on intersections which are forecasted to have a significant level of traffic congestion.

With more residents and jobs within city limits, traffic will naturally increase, and even corridors and intersections that currently have little congestion may present operational issues for the city's road network in the future.

PEAK TRAFFIC VOLUMES



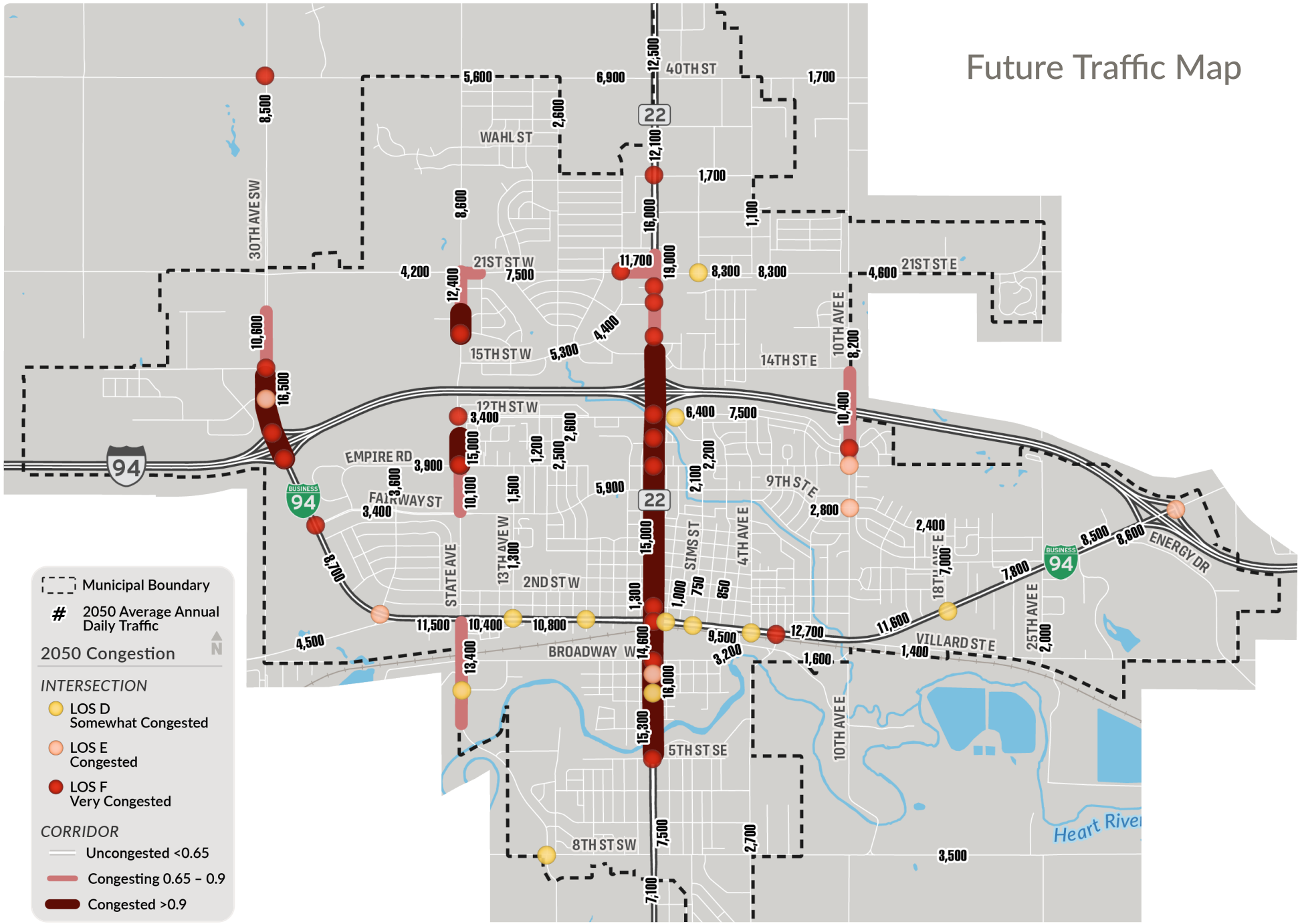
However, this new traffic will not be evenly distributed across the city. Importantly, different land uses tend to generate varying numbers of trips and at different times of day. Therefore, the city's Future Land Use map was analyzed at the Transportation Analysis Zone (TAZ) level to determine where within Dickinson this new traffic is likely to occur. The heaviest development is projected to occur in the northern and western portions of the city, and these new developments will serve as new origins and destinations (O/D) for trips that will contribute to traffic in Dickinson. Accordingly, while certain intersections and corridors are expected to become congested throughout the city, traffic is expected to worsen the most in northern and western Dickinson.

The traffic forecast accounts for transportation projects that have been already planned through 2028 at the local, state, and/or federal level. Many of these projects are expected to reduce traffic congestion and improve safety based on 2025 levels.

Table E-3. Intersections with Congested LOS in 2050

INTERSECTION NAME	AM EXISTING LOS	AM FORECAST LOS	PM EXISTING LOS	PM FORECAST LOS
19th St W & Highway 22	C	D	F	F
18th St W & Highway 22	C	E	F	F
16th St W & Highway 22	D	F	F	F
11th St W & Highway 22	E	F	F	F
10th St W & Highway 22	E	F	F	F
12th St W & State Ave	F	F	F	F
15th St W & State Ave	E	F	F	F
30th Ave E & 15th St E	C	F	B	F
I-94 N Ramps & I-94 Business Loop	C	F	D	F
I-94 S Ramps & I-94 Business Loop	C	F	C	F
I-94 Business Loop & Fairway St	C	F	C	F
I-94 Business Loop & 6th Ave E	D	F	E	F
29th St W & Highway 22	C	E	C	F
1st St W & Highway 22	D	D	E	F
Highway 22 & Frontage Rds	B	B	E	F
Empire Rd & State Ave	B	C	D	F
40th St W & 30th Ave W	B	F	B	F
30th Ave W & West Ridge Dr	B	C	C	E
I-94 Business Loop & I-94 (East Side)	B	C	C	E
Broadway & Highway 22	B	D	B	F
5th St S & Highway 22	C	D	D	E
9th St E & 10th Ave E	C	C	D	E
10th St E & 10th Ave E	C	C	C	E
12th St E & 10th Ave E	C	E	D	F
21st St W & 6th Ave W	C	E	C	F

Future Traffic Map



PROJECT IDENTIFICATION & PRIORITIZATION

A project prioritization analysis was performed, based on transportation needs related to safety, traffic, and future growth. Improvements to the transportation system were identified which could either be incorporated into currently planned projects, or planned as entirely new projects. These improvements were then grouped into corridor segments or spot improvements. The prioritization of these projects was further developed based on the key north-south and east-west corridors identified during the existing conditions analysis, as well as public input related to safety, efficiency, and connectivity.

Safety-Related Variables

All vehicular crashes recorded in Stark County were inventoried between 2019 and 2023 and then disaggregated by several factors:

- Severe Crashes
- Bike/Ped Crashes
- Non-Severe Crashes
- Top Ten Crash Intersections

Operations-Related Variables

These variables serve to identify corridors and intersections that are forecasted to have a greater-than-desired level of traffic congestion by 2050, according to the results of the traffic modeling.

- Intersection Level of Service (LOS)
- Corridor Volume/Capacity Ratio (V/C)

Infrastructure-Related Variables

Finally, variables were examined related to the state of existing transportation facilities within the county.

- Pavement Needs
- Trail Gaps

Project Concept Refinement and Prioritization

Based on the needs assessment, future transportation projects were identified. A key consideration in this regard is the transportation projects that are already being planned throughout the city.

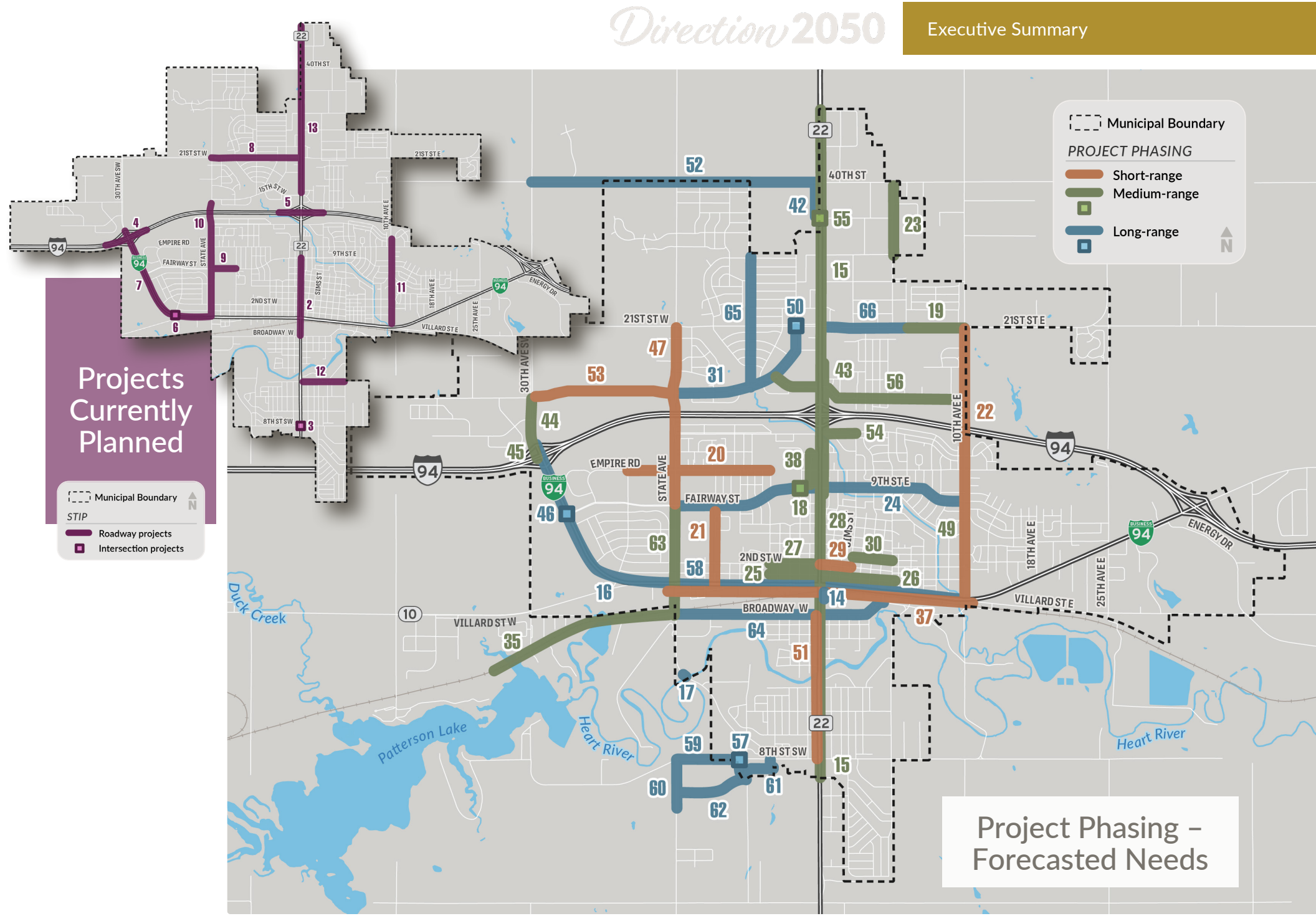

Projects Currently Planned
Municipal Boundary
STIP
Roadway projects
Intersection projects
Municipal Boundary
PROJECT PHASING
Short-range
Medium-range
Long-range
Project Phasing – Forecasted Needs
40TH ST
21ST ST W
21ST ST E
15TH ST W
9TH ST E
2ND ST W
BROADWAY W
VILLARD ST W
VILLARD ST E
8TH ST SW
EMPIRE RD
FAIRWAY ST
STATE AVE
30TH AVE SW
30TH AVE S
10TH AVE E
18TH AVE E
25TH AVE E
ENERGY DR
Duck Creek
Patterson Lake
Heart River

Table E-4. All Planned Projects and Prioritization

MTP PROJECT IDENTIFICATION #	PRIORITIZATION	CORRIDOR	TERMINUS 1	TERMINUS 2	DESCRIPTION	COST
PLANNED PROJECTS						
1	Planned	Highway 22	45th St W	21st St W	Chip Seal (follows overlay)	$1,000,000
2	Planned	Highway 22	Broadway	9th St SW	Signals	$2,000,000
3	Planned	Highway 22	8th St S		Roundabout	
4	Planned	I-94	Exit 59 - 30th		Lighting	
5	Planned	I-94	Exit 61 - Highway 22		Lighting	
6	Planned	I-94B	23rd St / CR 10		Roundabout/Intersection	$13,600,000
7	Planned	I-94B	I-94	State Ave	Reconstruction	
8	Planned	21st W	State Ave	Highway 22	Mill and Overlay	$3,200,000
9	Planned	Fairway	State Ave	13th Ave W	Mill and Overlay	$1,100,000
10	Planned	State Ave	15th St	Villard	Microsurfacing	$500,000
11	Planned	10th Ave E	Museum	Villard	Mill and Overlay	$3,000,000
12	Planned	5th St SE	Highway 22	6th Ave SE	Reconstruction	$2,000,000
13	Planned	Highway 22	North City Limits	15th St W	Microsurfacing / Chip and Fog Seal	$1,000,000
CIP PROJECTS						
14	Short Range	Highway 22	BNSF Underpass		Structural Repairs, Widening South Approach	$14,600,000
15	Medium Range	Highway 22	City Limits		Street Lights	$4,150,000
16	Long Range	I-94B	I-94	State Ave	Mirco Surfacing	$1,150,000
17	Long Range	State Ave	Bridge over Heart River		Deck Repairs	$1,100,000
18	Medium Range	9th St	5th Ave W		Intersection Improvements	$1,750,000
19	Medium Range	21st E	5th Ave E	10th Ave E	Reconstruction	$9,600,000
20	Short Range	Empire Road	23rd Ave W	7th Ave W	Mill and Overlay	$4,200,000
21	Short Range	13th Ave W	Fairway St	Villard	Mill and Overlay	$1,650,000
22	Short Range	10th Ave E	21st St E	Museum	Reconstruction	$7,250,000
23	Medium Range	4th Ave E	40th St E	29th St E	Reconstruction	$13,750,000
24	Long Range	9th St E	Highway 22	10th Ave E	Mill and Overlay	$6,050,000
25	Medium Range	1st St W	8th Ave W	Highway 22	Mill and Overlay	$1,350,000

MTP PROJECT IDENTIFICATION #	PRIORITIZATION	CORRIDOR	TERMINUS 1	TERMINUS 2	DESCRIPTION	COST
26	Medium Range	1st St E	Sims	4th Ave E	Mill and Overlay	$300,000
27	Medium Range	2nd St W	Highway 22	8th Ave W	Reconstruction	$9,400,000
28	Medium Range	1st St W	Highway 22	Sims	Reconstruction	$1,400,000
29	Short Range	2nd St W	Highway 22	Sims	Reconstruction	$5,950,000
30	Medium Range	2nd St E	Sims St	4th Ave E	Reconstruction	$8,550,000
31	Long Range	15th St W / 6th Ave W	State Ave	21st St W	Reconstruction	$9,750,000
32	Medium Range	Downtown St Lighting			Lighting Updates	$4,150,000
33	Short Range	Annual Road Maintenance	City Wide		Operations and Maintenance	$11,250,000
34	Short Range	Annual Sidewalk Program	City Wide		Operations and Maintenance	$100,000
35	Medium Range	Crooked Crane Trail			New Trail	$500,000
36	Short Range	Entrance Signs/Wayfinding	City Wide		Signage	$600,000
37	Short Range	Villard St	State Ave	10th Ave E	Mill and Overlay and Pedestrian Bumpouts	$11,700,000
38	Medium Range	Highway 22 Frontage Rd	12th St W	10th St W	Mill and Overlay	$1,000,000
			NEW PROJECTS			
39	Medium Range	Signal Upgrades	City Wide		Signals	
40	Long Range	Southwest Truck Route			Corridor Preservation	$0
41	Long Range	Southeast Truck Route			Corridor Preservation	$0
42	Long Range	West Side Trail (Highway 22)	40th St W	29th St W	Trail Extension	$1,050,000
43	Medium Range	Highway 22	23rd St W	9th St W	Access and Safety Improvements	$1,400,000
44	Medium Range	30th Ave W	15th St W	I-94 Interchange	Access and intersection improvements	$850,000
45	Medium Range	I-94B	I-94 Interchange		Interchange Expansion	$5,700,000
46	Long Range	I-94B	Fairway St		Future Signal or Roundabout	$1,150,000
47	Short Range	State Ave	21st St W	Fairway St	Signal/Safety/Access	$2,050,000
48	Long Range	Fairway St	State Ave	Highway 22	Road Narrowing / Bike Lanes	$50,000
49	Medium Range	10th Ave E	Museum	Villard	Multimodal and Mini RABs	$1,400,000
50	Long Range	21st St W	6th Ave W		AWS or Future Roundabout	$3,900,000
51	Short Range	Highway 22	Broadway	8th St S	Pedestrian Improvements	$350,000

MTP PROJECT IDENTIFICATION #	PRIORITIZATION	CORRIDOR	TERMINUS 1	TERMINUS 2	DESCRIPTION	COST
52	Long Range	40th St W	113th Ave SW/ 30th Ave W	Highway 22	Safety study, Roundabout at 113th	$8,800,000
53	Short Range	15th St	30th Ave	State Ave	Construct 2-lane collector	$11,700,000
54	Medium Range	W Museum Dr	Highway 22	Sims St	3-Lane and Ped Safety	$50,000
55	Long Range	Highway 22	29th St W		Signalization	$800,000
56	Medium Range	15th St W / 14th St E/W	6th Ave W	10th Ave E	Restriping/bike lanes/ lane narrowing	$200,000
57	Long Range	8th St S	State Ave		Roundabout	$3,900,000
58	Long Range	Villard St	State Ave	10th Ave E	Reconstruction as 3-lane Arterial	$15,650,000
59	Long Range	8th St SW	20th Ave SW	State Ave	Roadway Urbanization with Utilities	$7,600,000
60	Long Range	20th Ave SW	8th St SW	Dickinson South Cemetery	Roadway Urbanization with Utilities	$8,750,000
61	Long Range	State Ave	8th St SW	Drainage-way	New Roadway with Utilities	$3,900,000
62	Long Range	Unnamed	State Ave	20th Ave SW	East/West Roadway	$7,000,000
63	Medium Range	State Ave	Fairway St	2nd St SW	Restriping/bike lanes/ lane narrowing	$50,000
64	Long Range	Broadway / 4th Ave SE	State Ave	Villard	Restriping/bike lanes/lane narrowing	$200,000
65	Long Range	10th Ave W	29th St W	15th St W	Shared Use Path	$1,900,000
66	Short Range	21st St	Highway 22	5th Ave E	Mill & Overlay	$1,400,000

Table E-5. Project Phasing and Total Costs

RANGE	STIP PLANNED	CIP	NEW PROJECT	TOTAL	COST (ADJUSTED FOR INFLATION)
Planned	13			13	$27,400,000
Short		8	3	11	$53,850,000
Medium		13	8	21	$72,800,000
Long		4	17	21	$94,400,000

TRANSPORTATION GUIDELINES

Standards and policy recommendations were developed to guide future growth through 2050 and beyond for the City of Dickinson. A consistency review of existing transportation standards and policies and related planning studies and documentation was completed during the existing conditions analysis phase of the Direction 2050 plan and served as a basis for the guideline and policy recommendations.

The project team issued specific recommendations related to the following transportation-related policy areas:

Corridor Preservation and Right-of-Way

By preserving future roadway alignments early on in the planning process, the City of Dickinson can prevent incompatible development that could hinder future roadway expansion.

Future Bypasses and Truck Routes

It is recommended that future bypasses (truck routes) for the southwest and southeast quadrants of the study area be further studied following the completion of Direction 2050. Preservation for a future potential bypass in this location would serve to compliment recent investments in the ND 22 Bypass and the Stark County Eastern Bypass.

The long-term potential completion of these three additional bypasses would create a bypass and alternative/truck route loop around the City of Dickinson, helping to both alleviate congestion in town and provide access to potential future development via dedicated arterial/collector routes following these section line road alignments.

Roadway Cross Section Standards

Roadway Cross Sections (or typical sections) are necessary to establish the appropriate requirements for new roadways.

The cross sections recommended for Dickinson are defined in **four categories** by street functional classification:

1. Principal (major) arterial
2. Minor arterial
3. Collector
4. Local

Access Management

Effective access management encompasses regulating entry and exit points on roadways, including the spacing of intersections and placement of driveways.

A primary goal of these access guidelines is to ensure that Dickinson's roadways contribute to a transportation system that minimizes safety hazards while optimizing overall efficiency.

Level of Service Standards

Level of Service (LOS) standards are a valuable tool for transportation professionals to evaluate and manage traffic operations. By assessing and improving LOS, cities and transportation agencies can enhance traffic flow, reduce congestion, and improve the overall quality of transportation networks while ensuring safety for all road users.

Specific recommendations are made for LOS Standards for roadways, signalized and unsignalized intersections, and bicycles and pedestrians.

Passenger Rail

The city should work with the Big Sky Passenger Rail Authority (BSPRA) to promote the establishment of this line with a station in Dickinson.

Given the region's growing population, the City in conjunction with Dickinson Public Transit should consider establishing one or more fixed transit routes serving key facilities and employers within the city.

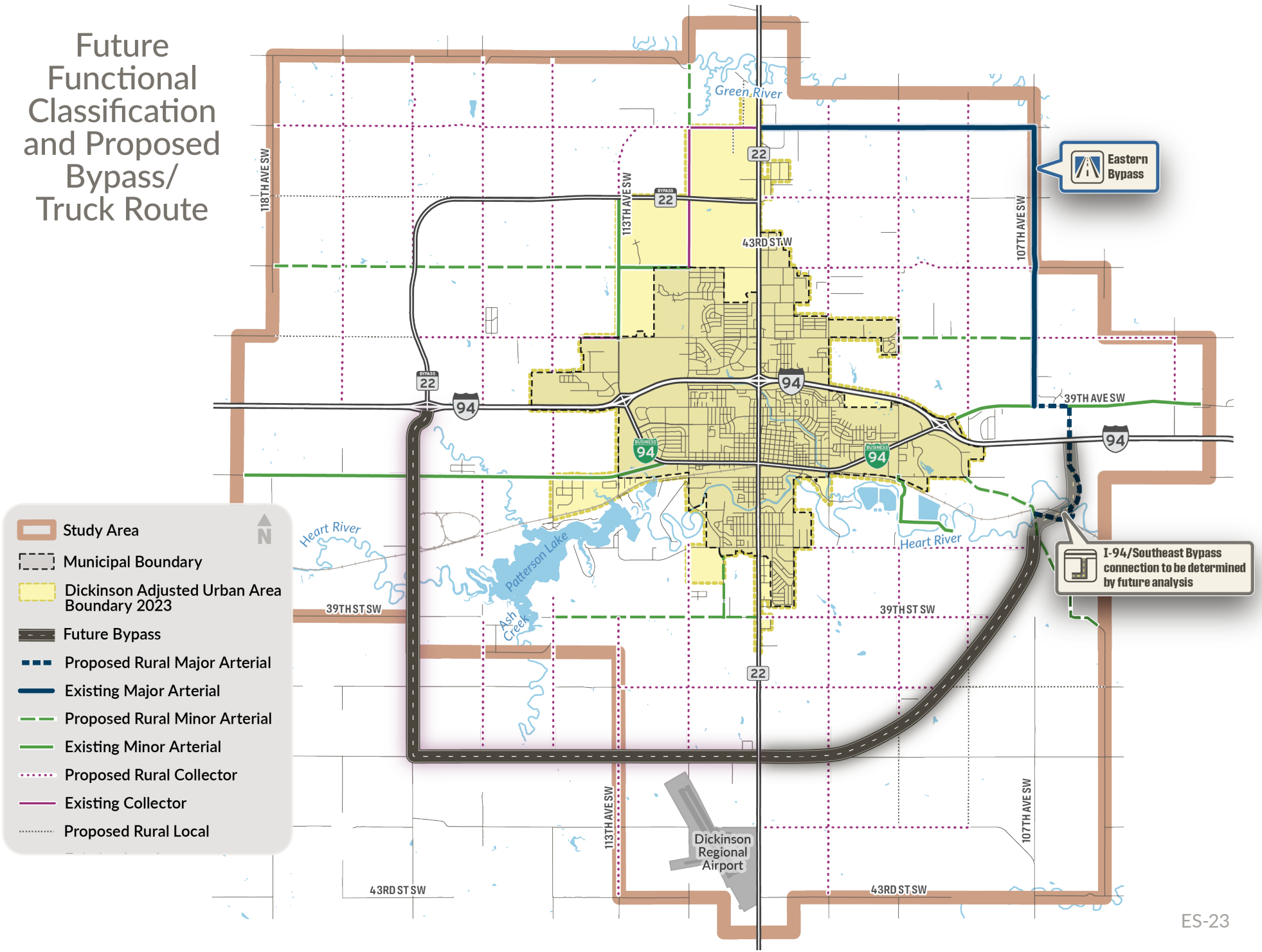
Transportation Recommendations

- The proposed Functional Classification Map provides general alignment of future roads. Significant deviations from the road alignment shown on the **Future Functional Classification and Proposed Bypass/Truck Route Map** shall require

a Comprehensive Plan amendment approved by the City Commission.

- Traffic impact studies shall be required for any proposed development estimated to generate more than 100 directional trips during the peak hour of the traffic generator or peak hour on the adjacent streets or more than 750 trips in an average day.
- The land development applicant shall be responsible for providing improvements to the transportation system that are generated by the proposed development.
- All land development applications shall comply with access management standards contained in the Transportation Plan.
- Streets in new development shall be aligned to connect to existing or planned streets beyond a development.
- A minimum of two accesses shall be provided for residential subdivisions unless otherwise allowed by Fire Department requirements or standards.
- When a proposed land development abuts vacant or undeveloped land with the same future land use classification, through streets shall be constructed to the abutting property line.
- When a proposed land development fronts an existing or planned street where a trail is planned in accordance with the Master Trail Plan, subject to the Dickinson Park Board's recommendation, the applicant shall dedicate sufficient right-of-way to accommodate construction of the trail.
- When practicable, proposed developments shall construct off-site sidewalk extensions when the termination of an existing sidewalk is within 700 feet of the project boundary, provided there is sufficient right-of-way along the adjacent properties and the adjacent proposed are developed with an urban use.
- All new roads shall be designed consistent with the roadway cross sections contained in the Transportation Plan.
- All new streets shall require sidewalks designed with a grass boulevard separating the curb or edge of pavement and the sidewalk.
- All non-residential development and multifamily residential development shall provide adequate bicycle parking and access to encourage bicycle travel.
- Integrate the character and identity of streetscape into the City's Street Manual standards.

Future Functional Classification and Proposed Bypass/ Truck Route



EXISTING CONDITIONS

DATA AND DOCUMENT COLLECTION

Direction 2050's planning process began with a comprehensive data gathering period. The project team collected all pertinent project background data and planning documents from the City, County, State, and other relevant agencies, such as the US Census. This included, but was not limited to, GIS data, plans, and maps, as well as relevant planning and policy documents such as the existing Comprehensive and Transportation Master Plan, ordinance updates, building and development documentation, previous projects completed, and current city, county, and state identified projects and existing recommendations.

The project team worked with the City of Dickinson, Stark County, and the North Dakota Department of Transportation (NDDOT) to define the study area for **Direction 2050**. As part of establishing a foundation for which to conduct analysis, Direction 2050 is developed from available relevant demographic and economic data sources for the purpose of developing current population demographic estimates. Baseline tables and maps were developed, which include population and demographic statistics and trendlines, parcel and housing data visualizations, and utility infrastructure and transportation systems inventories. This inventory of the existing comprehensive planning and transportation system attributes provides the foundation for data review and subsequent analyses to support Direction 2050 short- and long-term planning efforts.

BACKGROUND

Originally known as Pleasant Valley Siding, Dickinson changed its name in 1881 after Wells Stoughton Dickinson, a land agent and politician from Malone, New York (www.webfamilytree.com). Dickinson is located in Stark County, North Dakota in the southwest region of the state and encompasses approximately 13 square miles.

The City of Dickinson is served by one major Federal jurisdiction transportation route and two State jurisdictional highways:

- Interstate 94 (I-94) runs east-west.
- ND Highway 22 (3rd Avenue W/South Main Street) runs north-south through Stark County.
- Business Loop 94 (Villard Street) runs east-west approximately 5.2 miles from I-94 Exit 59 to I-94 Exit 64.

Dickinson is also bisected by the Burlington Northern Santa Fe (BNSF) Railroad, which runs south of and parallel to I-94. The Heart River, a major water feature within the city, flows through Dickinson from the Badlands in the west, joining the Missouri River to the east. Dickinson is the largest city in Stark County and is home to the largest airport within the county, Dickinson Theodore Roosevelt Regional Airport.

Study Area

The approximately 126-square mile study area includes the Municipal Boundary (MB), Extraterritorial Zone (ETZ), and allows the city to plan for growth within its extraterritorial jurisdiction.

Extraterritorial Zone

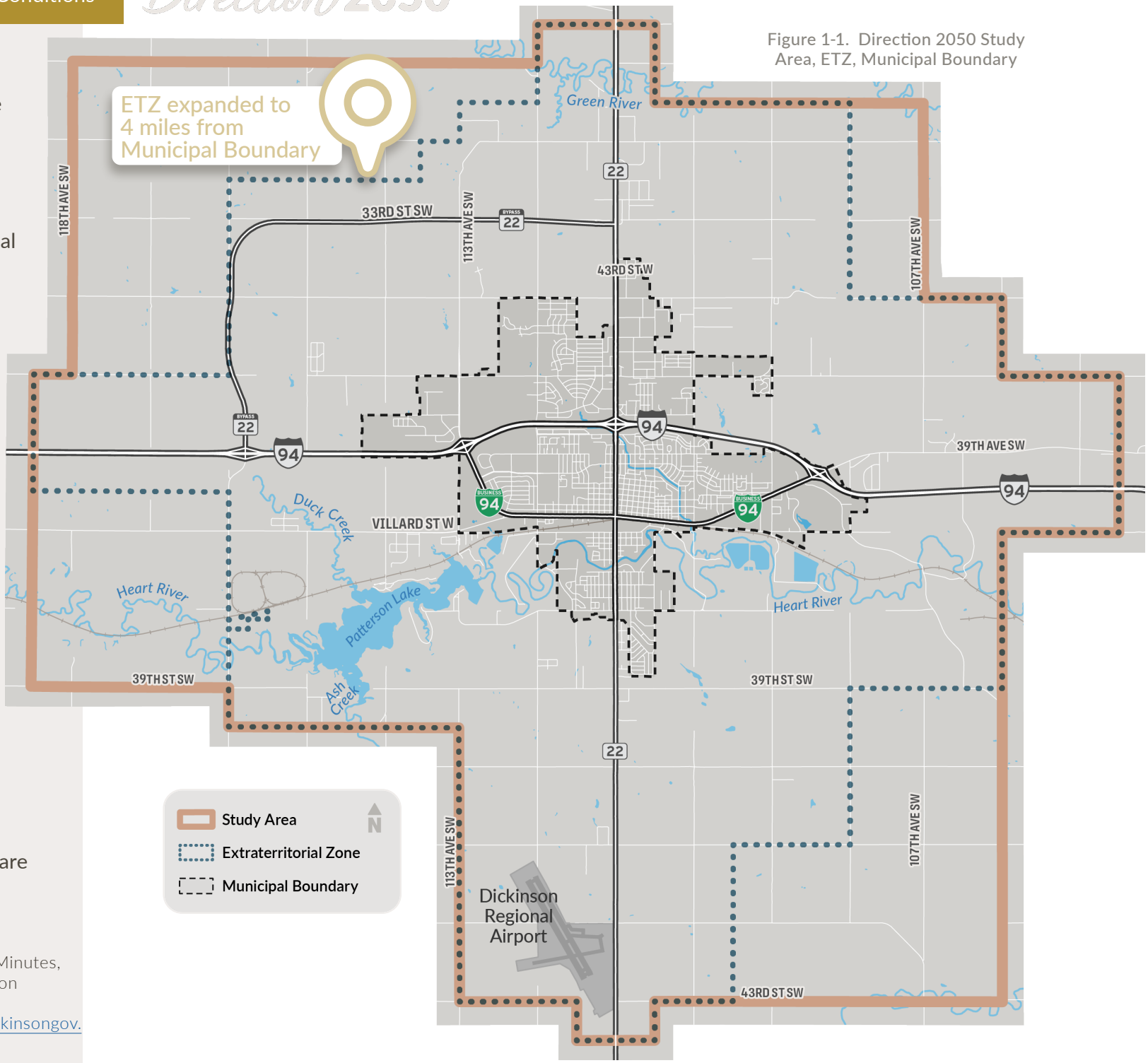
Dickinson expanded its ETZ jurisdiction in April 2022 from a negotiated boundary of up to two (2) miles to a negotiated boundary of up to four (4) miles, with a longer distance to the south to also include the airport.[1] The ETZ is currently approximately 94 square miles The ETZ occupies an area roughly 80 square miles outside of the MB.

Municipal Boundary

Dickinson's current MB encompasses approximately 13 square miles.

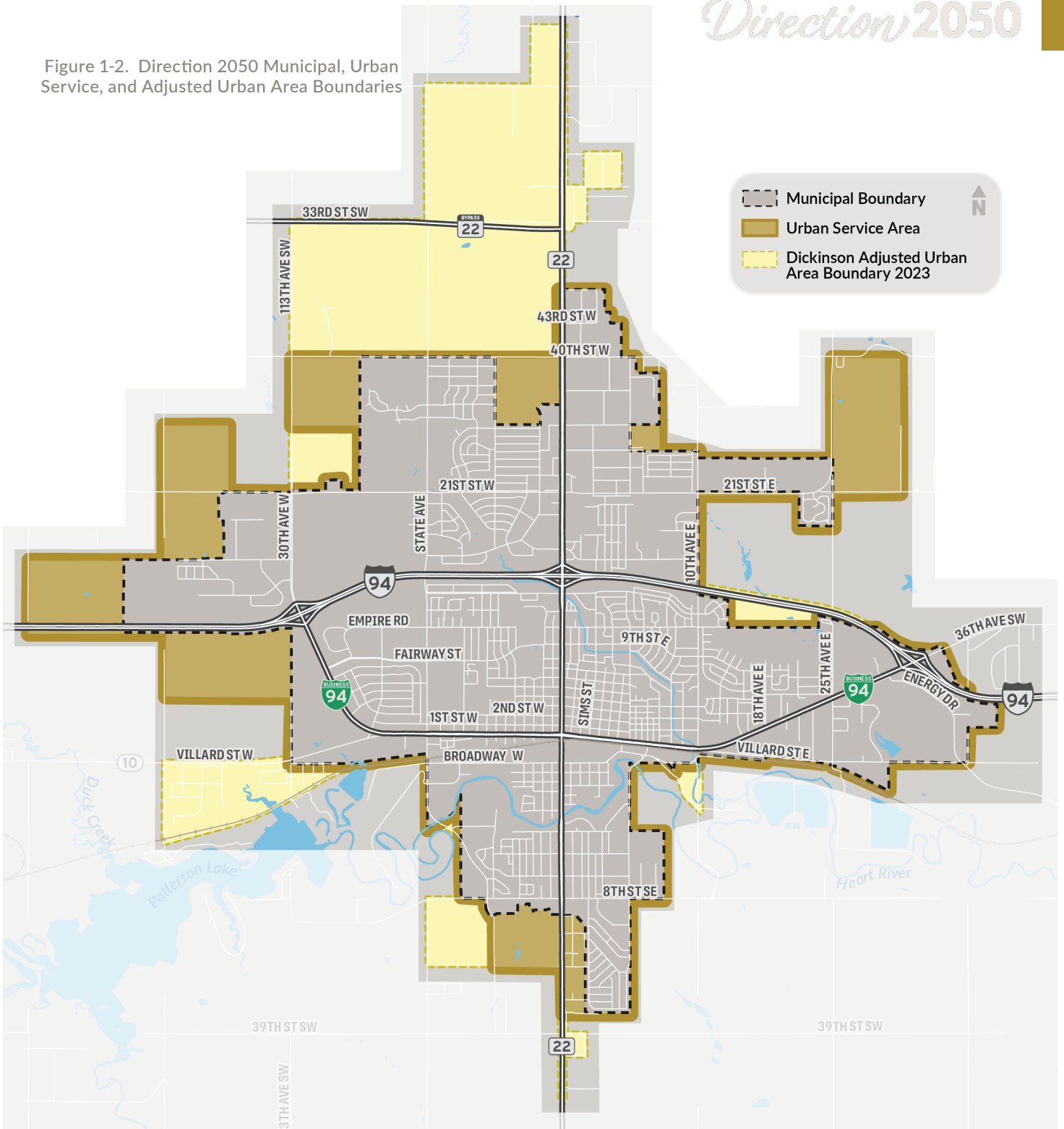
The Study Area, ETZ, and MB are shown in **Figure 1-1**.

Figure 1-1. Direction 2050 Study Area, ETZ, Municipal Boundary



1 "Planning and Zoning Meeting Minutes, April 20, 2022." City of Dickinson Planning & Zoning Commission. Accessed from https://www.dickinsongov.com/media/12531

Figure 1-2. Direction 2050 Municipal, Urban Service, and Adjusted Urban Area Boundaries



Adjusted Urban Area Boundary 2023

Dickinson's adjusted Urban Area Boundary (UAB) 2023 is a total of approximately 18.7 square miles. The UAB differs from the MB in that it encompasses the urbanized areas and urban road Functional Classifications beyond the MB.

Urban Service Area

Since the current comprehensive plan adoption in 2013, the Urban Service Area (USA) has been expanded by two city ordinances. Ordinance 1554 (2014) added 282.58 acres with Ordinance 1622 (2016) adding 5.67 acres for a total of 288.25 acres. The approximate size of the USA is currently 16 square miles. Precise area comparisons in milage are:

1. Municipal Boundary: 13.3 square miles
2. Urban Service Area: 15.9 square miles
3. Urban Area Boundary: 18.7 square miles
4. ETZ: 93.7 square miles
5. Study Area: 125.9 square miles

The UAB and USA are shown in **Figure 1-2**.

DEMOGRAPHICS

Demographic information for Dickinson is sourced from a combination of the 2020 Decennial Census data (the most recent complete census data set) and additional demographic estimates provided by the 2023 American Community Survey (ACS).[1] The 2020 Census population for Dickinson was 25,679. This reveals a significant growth trend from the previous 2010 Census (17,787 population). Dickinson's population grew at a rate of 3.74% total or 0.37% per year from 2010–2020. After a decrease in population between 2020 and 2021, the population of Dickinson has continued to increase slightly through 2023, albeit at a slower rate than 2010–2020, even after the oil boom in the western part of the state has slowed.

1 Dickinson, city, North Dakota Profile

The following subsections provide demographic details for Dickinson's population; residents' age, race, gender, education level and primary spoken language; household composition; and economics, as pertaining to income levels and labor force.

Major changes in employment statistics can be correlated to the most significant economic factors of the last 20 years:

- 2008–2009 housing market crash
- 2009–2014 Bakken oil and gas boom
- 2020–2021 COVID-19 pandemic
- 2022–present Federal Reserve prime interest rate raises

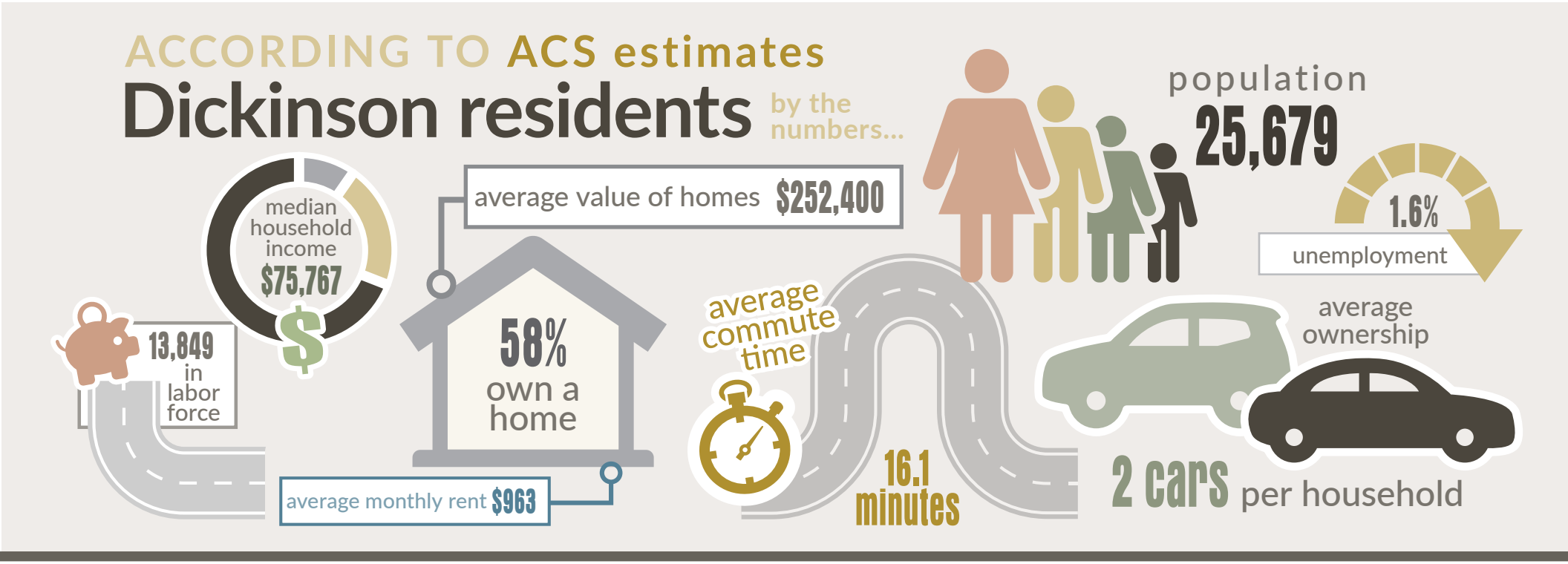
Population and Household Characteristics

2020 Decennial Census Results:

TOTAL POPULATION	25,679
POPULATION IN HOUSEHOLDS	25,017
POPULATION IN GROUP QUARTERS	662
HOUSEHOLDS	10,544
PERSONS PER HOUSEHOLD	2.37

Recent Population Estimates (ACS):

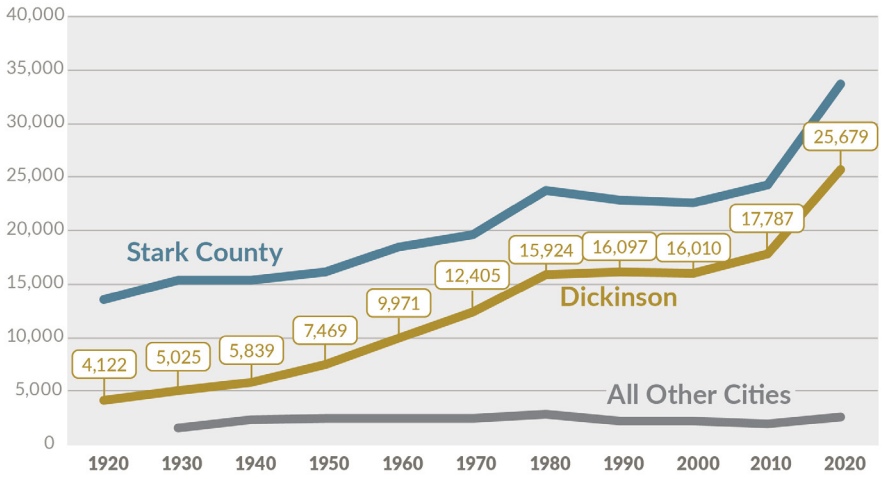
2021	24,851
2022	25,116
2023	25,130



Historical Population Change 1920 – 2020

As shown in **Figure 1-3**, Dickinson's population has grown modestly over most of the last 100 years. The major exception was from 2010 to 2020 when it grew by 44%.

Figure 1-3. Historical Population Trends, 1920–2020



Age, Race, and Gender Composition in 2020

Figure 1-4. Male and Female Population Comparison by Age Group for year 2020

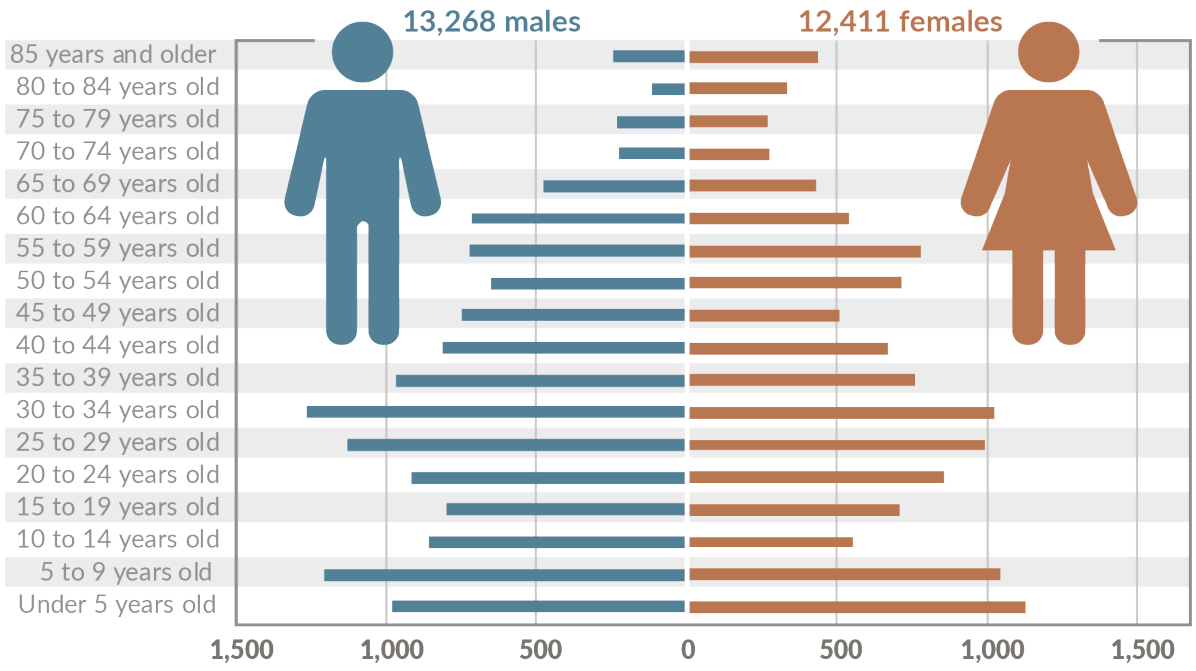
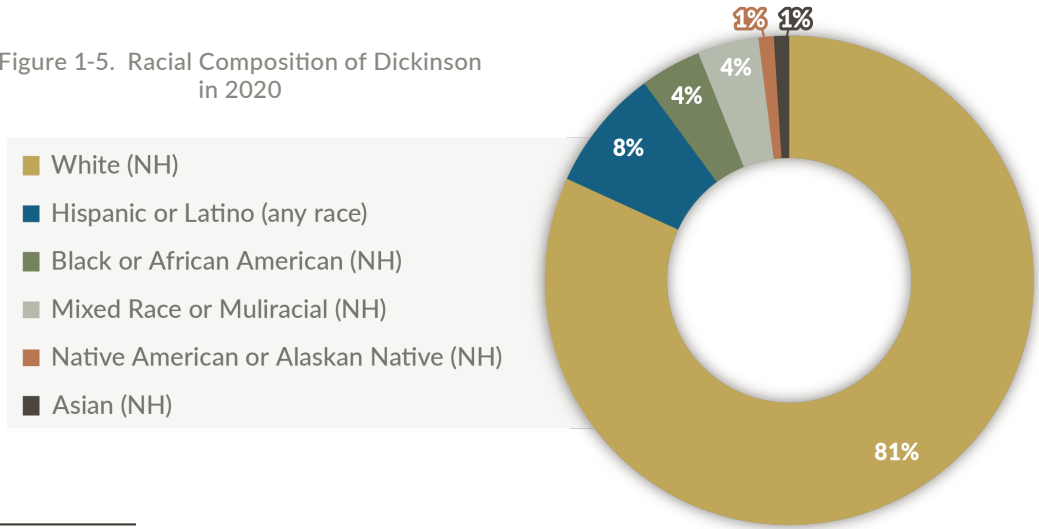


Figure 1-5. Racial Composition of Dickinson in 2020



Educational Attainment

According to the American Community Survey (ACS)[1] for the years 2018 through 2022, the percentage of Dickinson adults age 25 or older have attained:

High school graduate or higher	91.2%
Bachelor's degree or higher	25.5%

Household Composition

Table 1-1. Household by Type in 2020

TOTAL HOUSEHOLDS	10,544
MARRIED COUPLE HOUSEHOLD	*4,610*
With own children under 18	2,114
No own children under 18	2,496
COHABITATING COUPLE HOUSEHOLD	*939*
With own children under 18	336
No own children under 18	603
MALE HOUSEHOLDER, NO SPOUSE OR PARTNER PRESENT	*2,603*
Living alone	1,931
65 years and over	294
With own children under 18	230
With relatives, no own children under 18	233
No relatives present	209
FEMALE HOUSEHOLDER, NO SPOUSE OR PARTNER PRESENT	*2,392*
Living alone	1,548
65 years and over	638
With own children under 18	467
With relatives, no own children under 18	290
No relatives present	87

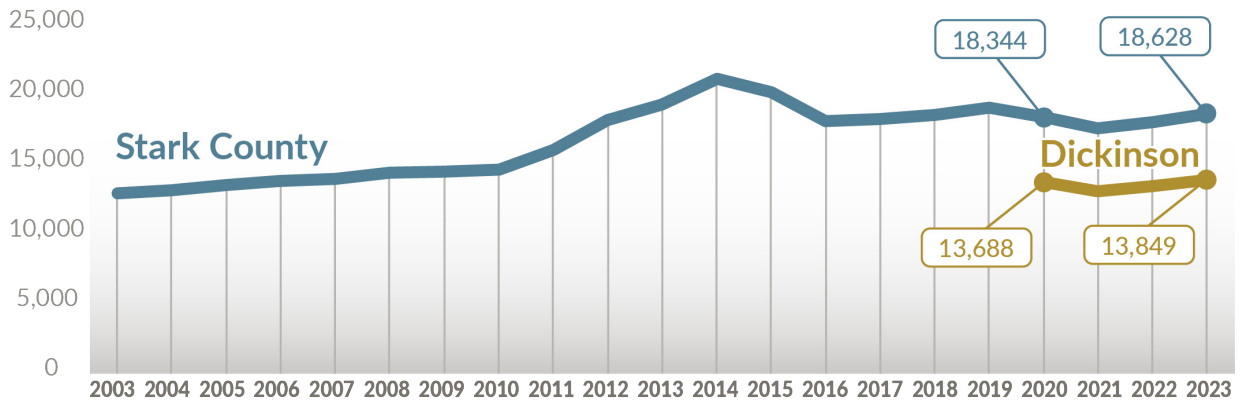
1 https://www.census.gov/quickfacts/fact/table/dickinsoncitynorthdakota,starkcountynorthdakota,ND/PST045222

Economic Characteristics

Table 1-2. Household Income Profile in 2022

HOUSEHOLD INCOME 2022 ACS	HOUSEHOLD ESTIMATE	FAMILIES ESTIMATE	MARRIED-COUPLE FAMILIES ESTIMATE	NONFAMILY HOUSEHOLD ESTIMATE
Less than $10,000	6.3%	1.5%	1.2%	12.8%
$10,000 to $14,999	3.2%	1.2%	0.7%	6.5%
$15,000 to $24,999	8.1%	3.8%	3.5%	14.0%
$25,000 to $34,999	4.3%	3.1%	1.8%	6.5%
$35,000 to $49,999	8.7%	5.9%	3.6%	14.3%
$50,000 to $74,999	18.7%	17.4%	14.6%	20.8%
$75,000 to $99,999	14.5%	15.8%	15.7%	13.4%
$100,000 to $149,999	20.5%	27.8%	31.5%	7.8%
$150,000 to $199,999	8.3%	12.3%	14.3%	2.1%
$200,000 or more	7.5%	11.2%	13.0%	1.8%
Number of Households	10,247	5,911	4,664	4,336
Median Income	$75,767	$103,794	$117,000	$46,222
Mean Income	$94,179	$121,032	N/A	$53,881

Figure 1-6. Labor Force in Stark County and Dickinson

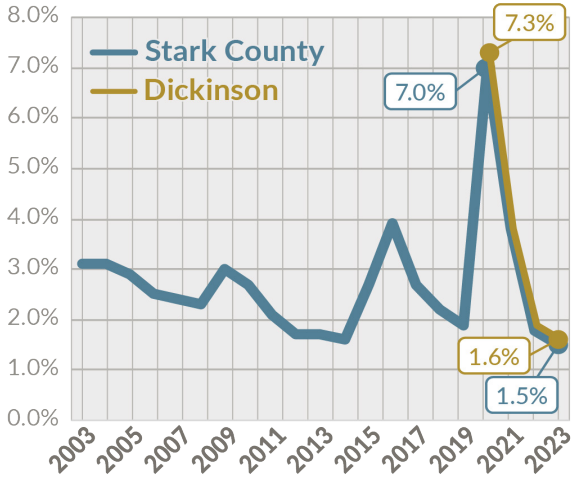


Labor Force Trends

Labor force is defined as an estimate of all persons in the civilian noninstitutional population ages 16 and older classified as either employed or unemployed but actively seeking work.

The historical labor force and unemployment rates for Stark County and Dickinson are illustrated in **Figure 1-6** and **Figure 1-7.** For both data sets, the trend in Stark County is shown from 2003 through 2023; the trend for Dickinson was only available beginning in 2020. Unemployment has consistently hovered below 4% in Stark County. After a brief spike in 2020 coinciding with the COVID-19 pandemic, in 2023, unemployment in the city and county reached its lowest level of the last 20 years, at under 2%.

Figure 1-7. Unemployment Rate in Stark County and Dickinson



Persons in Poverty

Table 1-3. Poverty Status by Age and Gender in 2022

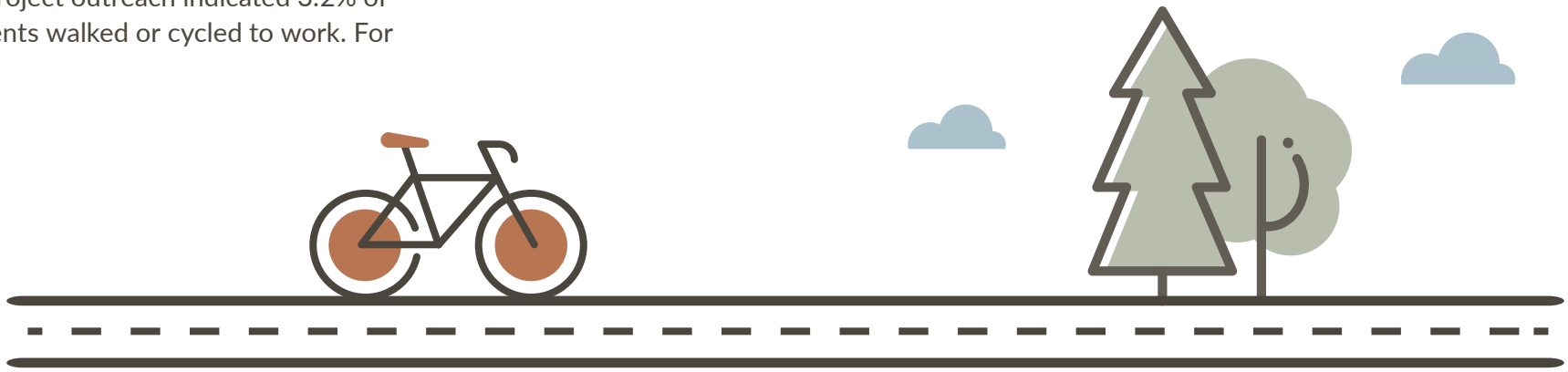
POPULATION SEGMENT	TOTAL ESTIMATED POPULATION	ESTIMATED POVERTY LEVEL	BELOW POVERTY LEVEL % ESTIMATE
Under 18 years old	6,427	396	6.2%
18 to 64 years old	15,050	1,801	12.0%
65 years old and older	2,781	393	14.1%
Entire Population	24,258	2,590	10.7%
Males	12,601	1,324	10.5%
Females	11,657	1,266	10.9%

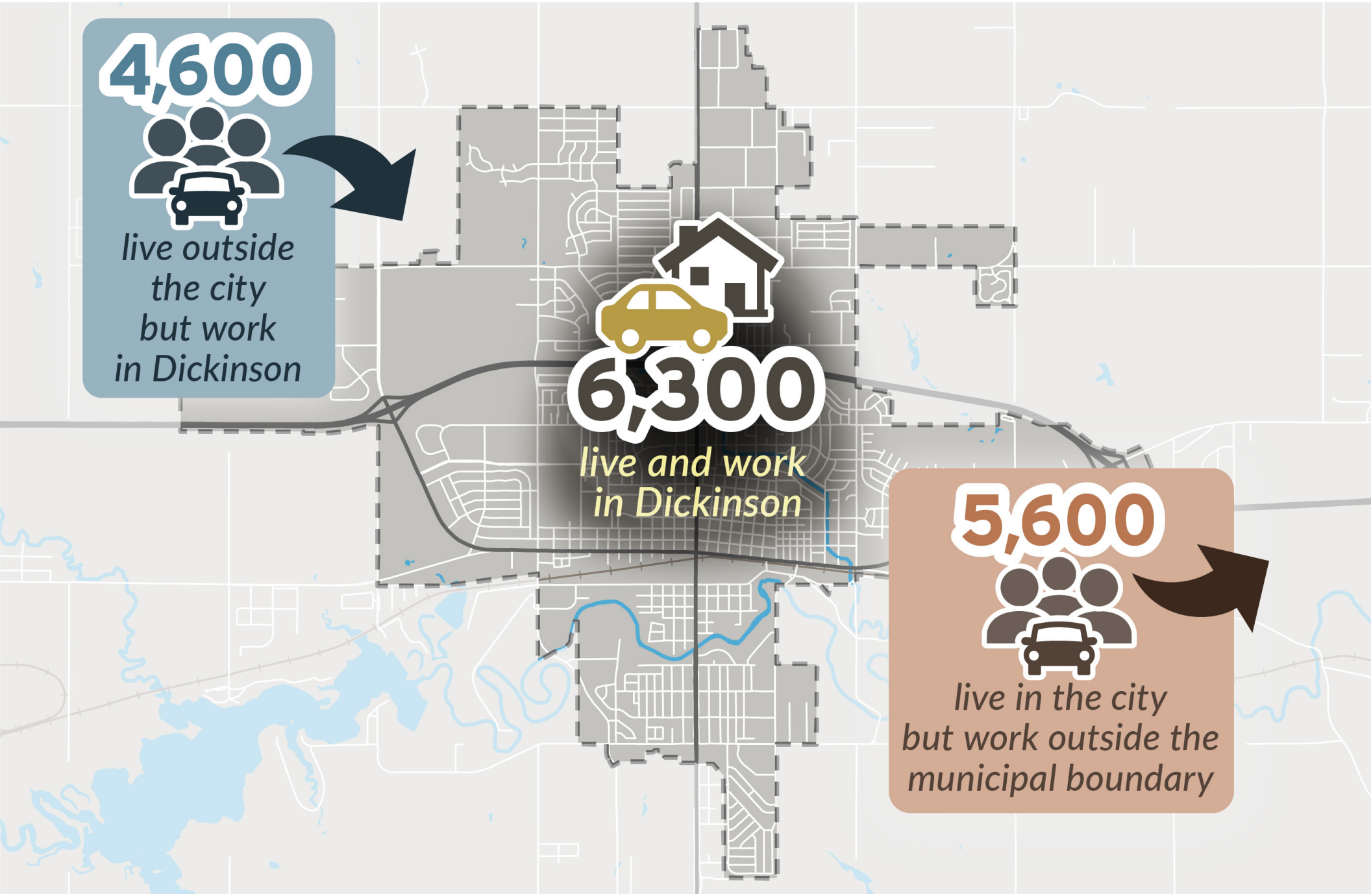
Work-Commute-Live Profile

According to the 2022 American Community Survey (ACS) estimates, just over 92% of resident workers 16 years and over drove to work, of which over 82% drove alone. Although the ACS recorded 1.4% of workers walk to work and that no residents bike to work, community survey responses during this project outreach indicated 3.2% of residents walked or cycled to work. For those having no commute, 4.1% of residents reported working from home. The average (mean) travel time to work was reported to be 16.1 minutes. Of the 12,566 workers 16 years and over, 3.6% indicated they did not have a vehicle. **Table 1-4** provides insight on travel time to work for workers aged 16 years and older.

Table 1-4. Travel Time to Work

TRAVEL TIME	% OF POPULATION
Less than 10 minutes	37.2%
10 to 14 minutes	28.9%
15 to 19 minutes	13.3%
20 to 24 minutes	6.0%
25 to 29 minutes	1.0%
30 to 34 minutes	5.3%
35 to 44 minutes	0.9%
45 to 59 minutes	2.3%
60 or more minutes	5.1%
Total 2022 Labor Force	12,685
Mean travel time to work (minutes)	16.1%




4,600
live outside the city but work in Dickinson
6,300
live and work in Dickinson
5,600
live in the city but work outside the municipal boundary

PARCEL DEVELOPMENT STATUS

Parcel Inventory

The Direction 2050 team worked with the City of Dickinson and Stark County to create a parcel database to document the development status of each parcel. This allowed for the creation of existing land use, housing, and urban service area/ utilities maps. The parcel inventory will help facilitate analysis of growth and development patterns, future needs, and project identification for both the comprehensive and transportation system plans.

Existing Land Use

The Dickinson existing land use map is based on current available parcel data and for the purposes of this report, land use categories have been simplified to the following:

- Commercial
- Parks, Recreation, Open Space
- Public/Institutional
- Vacant
- Industrial
- Agricultural
- Low–Medium Density Residential
- High Density Residential

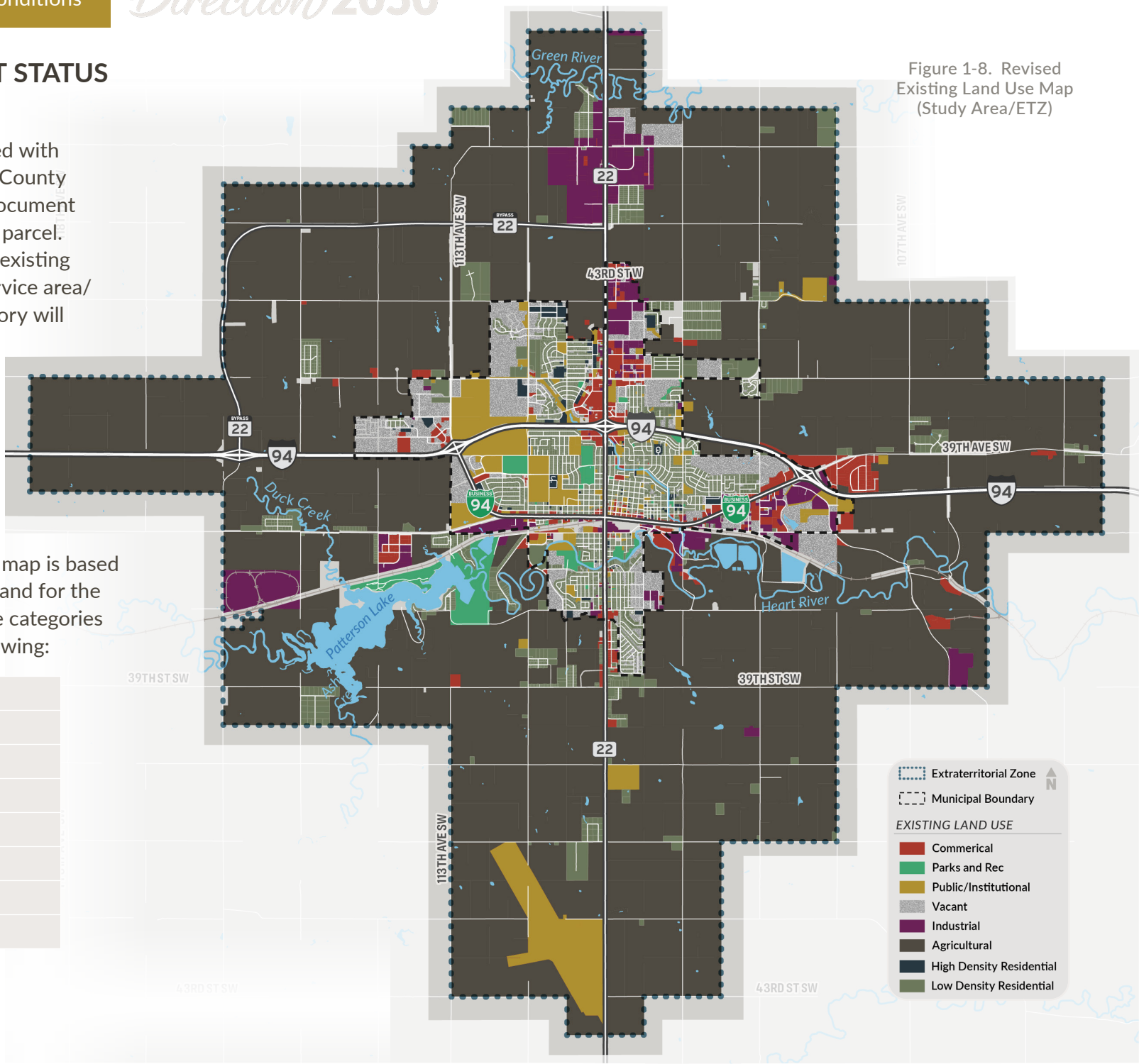
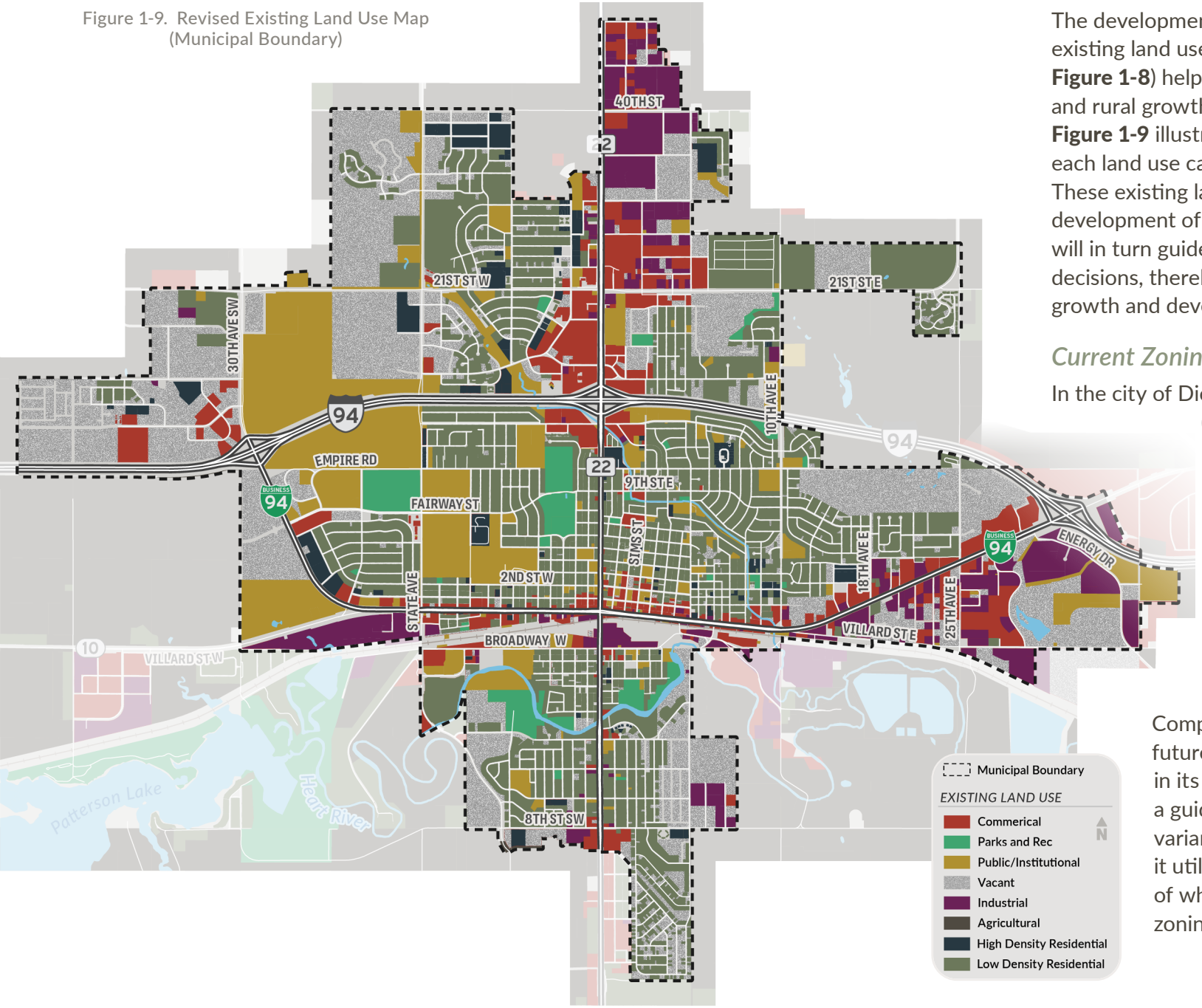


Figure 1-8. Revised Existing Land Use Map (Study Area/ETZ)

Figure 1-9. Revised Existing Land Use Map (Municipal Boundary)



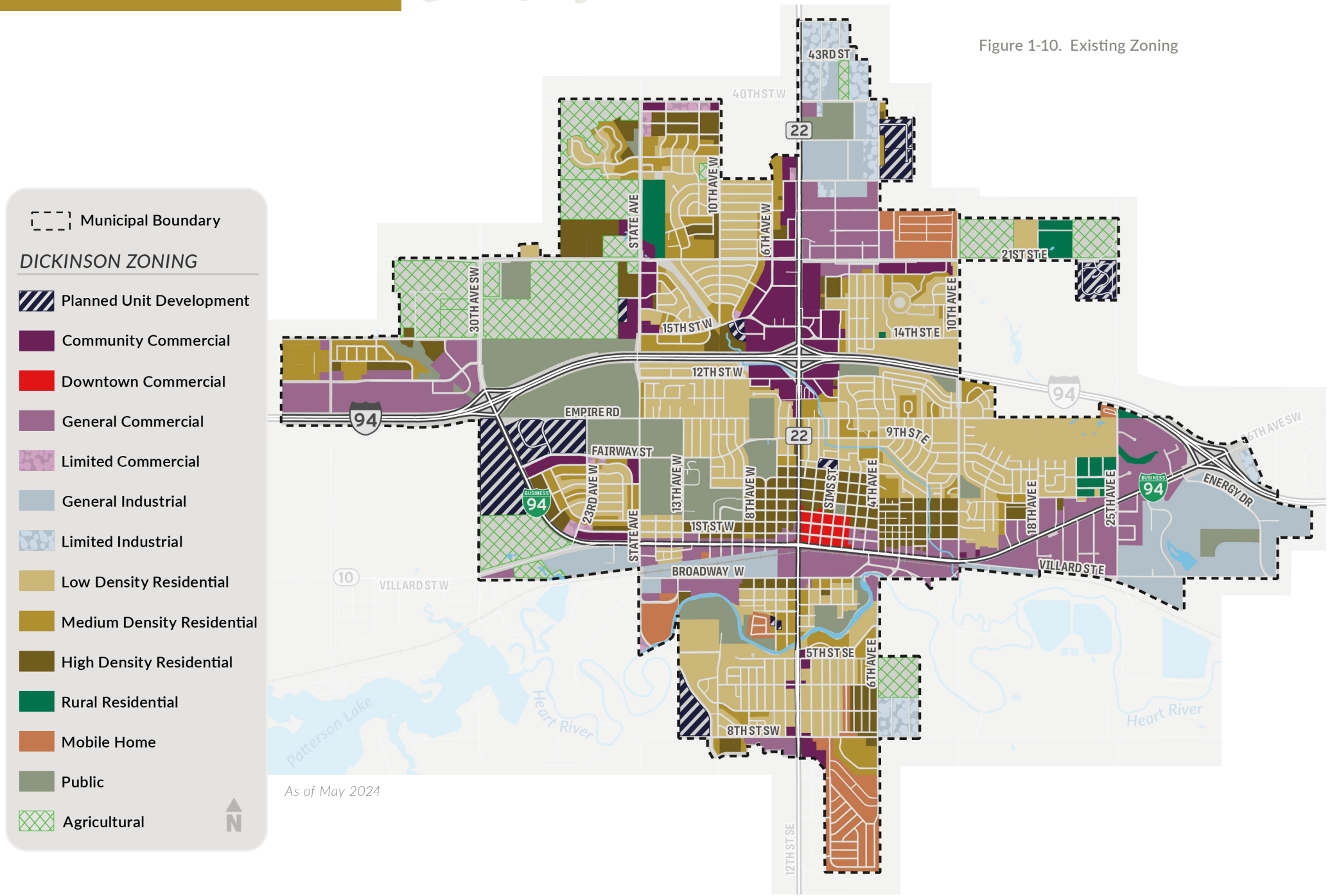
The development of a revised and simplified existing land use plan map (shown in **Figure 1-8**) helps identify areas of municipal and rural growth within the study area. **Figure 1-9** illustrates the proportion of each land use category within city limits. These existing land use maps will guide the development of a future land use map, which will in turn guide future zoning designation decisions, thereby encouraging orderly growth and development.

Current Zoning

In the city of Dickinson, there are five (5) residential, four (4) commercial, two (2) industrial, planned unit development, public, and agricultural zoning districts within the Municipal Boundary. Dickinson's existing zoning map is presented in **Figure 1-10 on page 12**.

Compared to the zoning map, the future land use plan map is broader in its prescriptions, serving as a guidepost for rezoning and variance requests. Accordingly, it utilizes fewer categories, each of which may include a range of zoning designations.

Figure 1-10. Existing Zoning



EXISTING HOUSING PROFILE

Our team examined the tax database and additional city sources to create a GIS data-based existing Housing Profile. Consultation with City staff helped the project team document housing characteristics and residential development patterns and factors. Housing areas and number of units were mapped according to census figures and tax parcels, as shown in **Figure 1-11** and **Figure 1-12**, respectively.

Housing Values

According to ACS statistics for 2023, there were 10,270 occupied housing units in Dickinson, with 58% of Dickinson residents as homeowners. The average home value is $252,400. For rental properties, monthly rent had an average of $963.

Figure 1-11. Housing Inventory by 2020 Census Blocks

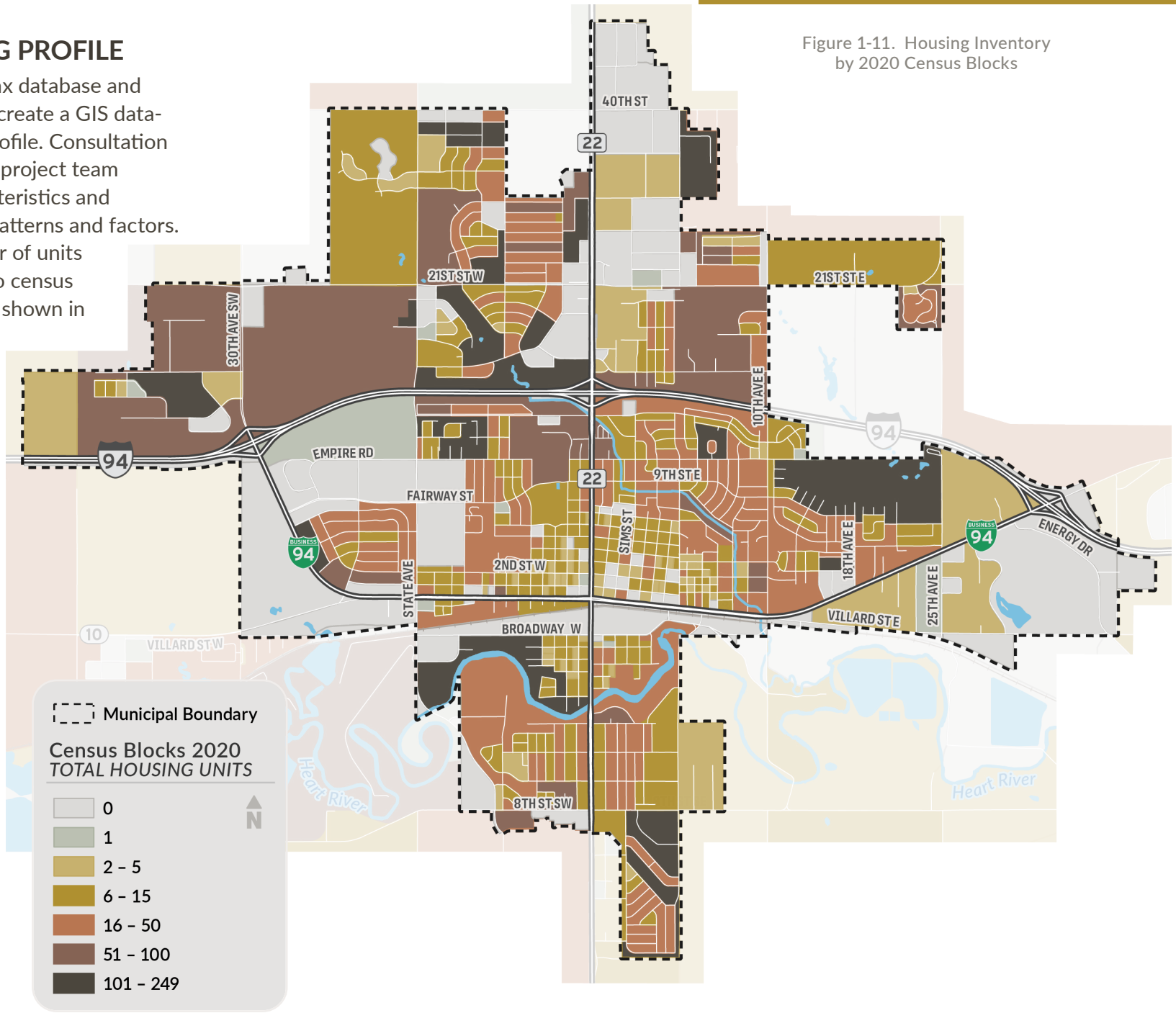
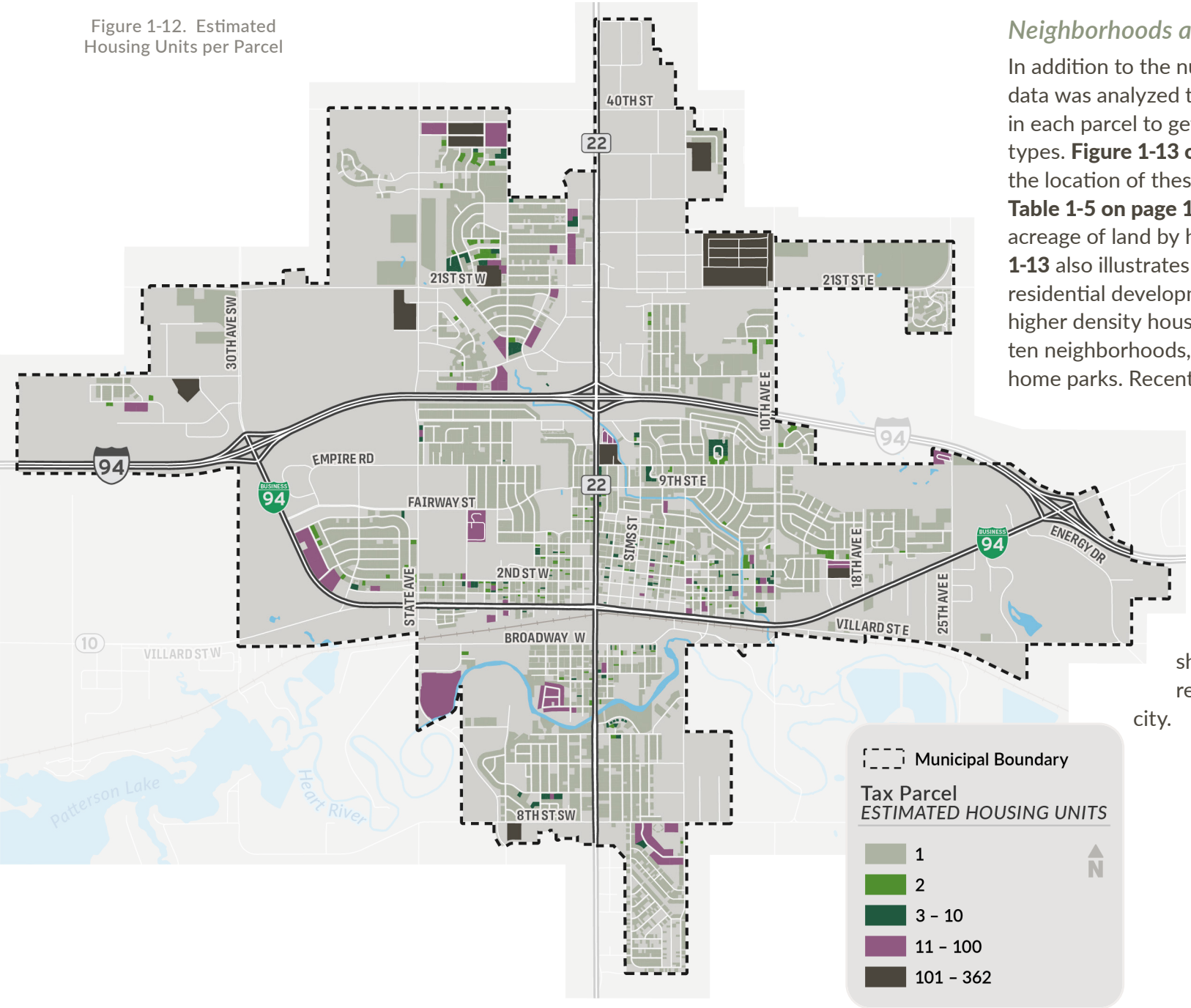


Figure 1-12. Estimated Housing Units per Parcel



Neighborhoods and Growth Patterns

In addition to the number of housing units, data was analyzed to show the housing types in each parcel to get a sense of neighborhood types. **Figure 1-13 on page 15** illustrates the location of these housing types and **Table 1-5 on page 15** summarizes the acreage of land by housing type. **Figure 1-13** also illustrates the overall pattern of residential development in Dickinson. The higher density housing is found primarily in ten neighborhoods, including four mobile home parks. Recent development activity has also resulted in some pockets of moderate density housing due primarily to townhome development. **Figure 1-14 on page 16** illustrates the distribution of housing structures by age, showing the pattern of residential growth in the city.

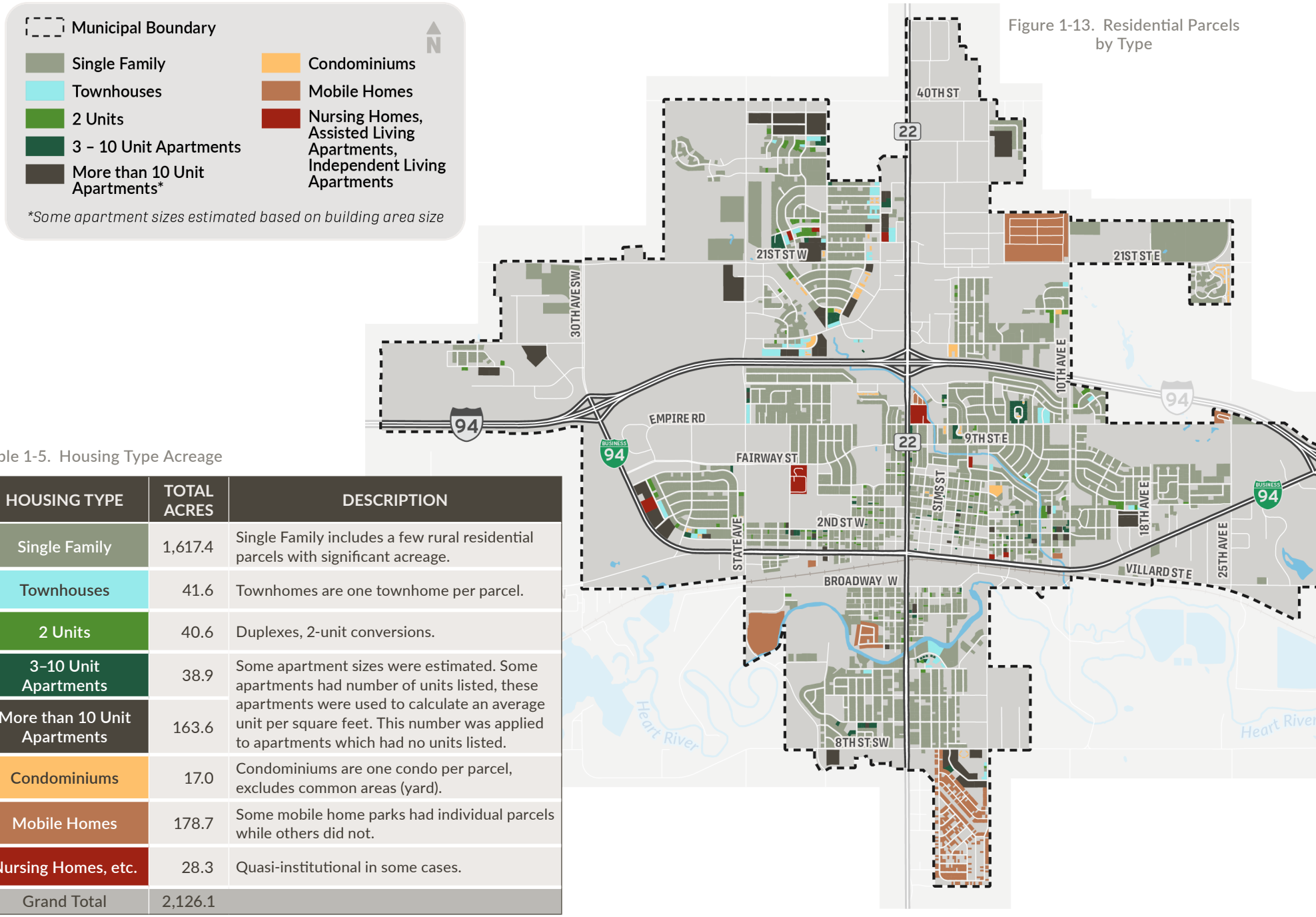
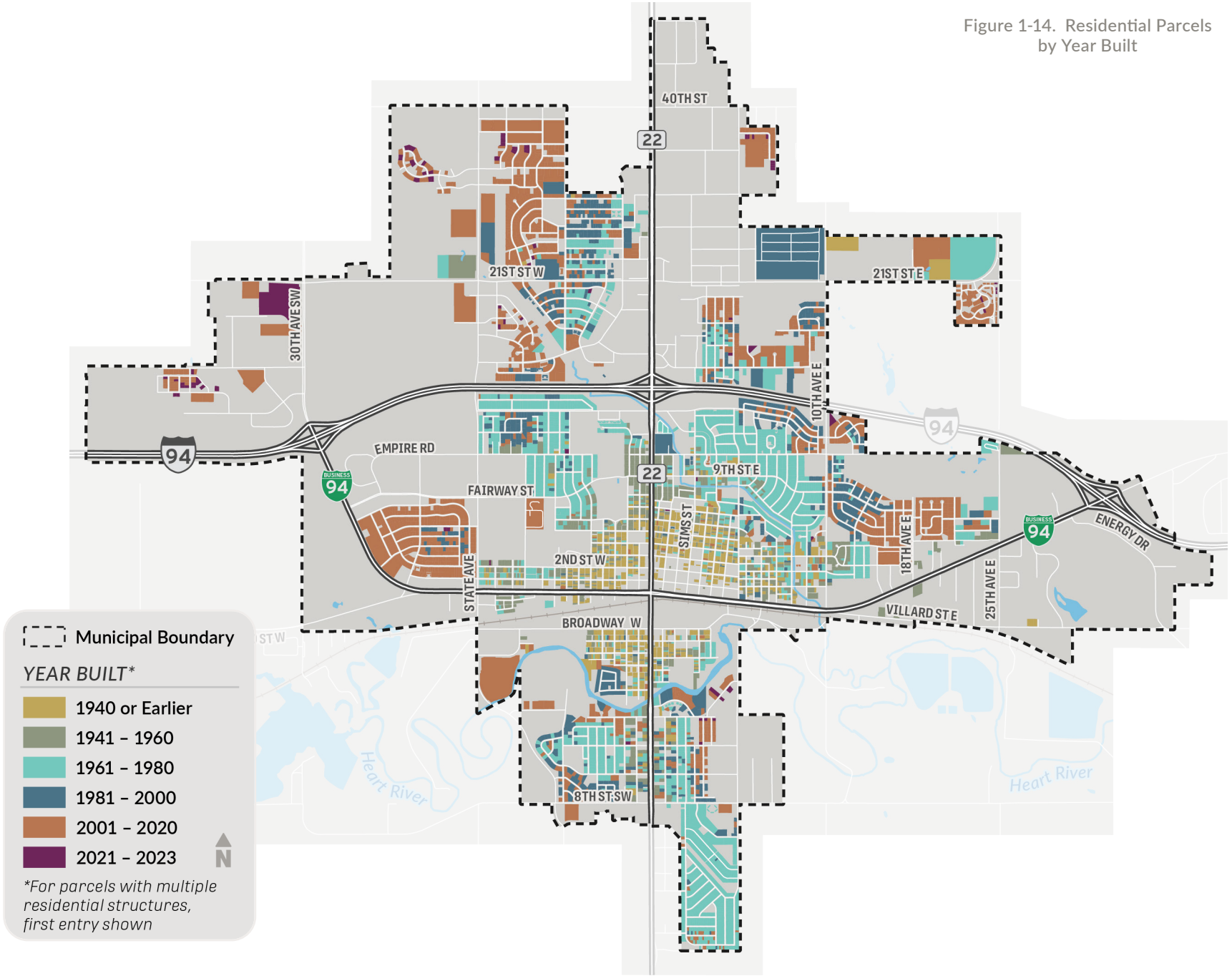


Figure 1-13. Residential Parcels by Type

Table 1-5. Housing Type Acreage

HOUSING TYPE	TOTAL ACRES	DESCRIPTION
Single Family	1,617.4	Single Family includes a few rural residential parcels with significant acreage.
Townhouses	41.6	Townhomes are one townhome per parcel.
2 Units	40.6	Duplexes, 2-unit conversions.
3–10 Unit Apartments	38.9	Some apartment sizes were estimated. Some apartments had number of units listed, these apartments were used to calculate an average unit per square feet. This number was applied to apartments which had no units listed.
More than 10 Unit Apartments	163.6	
Condominiums	17.0	Condominiums are one condo per parcel, excludes common areas (yard).
Mobile Homes	178.7	Some mobile home parks had individual parcels while others did not.
Nursing Homes, etc.	28.3	Quasi-institutional in some cases.
Grand Total	2,126.1	

Figure 1-14. Residential Parcels by Year Built



KEY COMMUNITY FACILITIES

Parks

The Dickinson Park District currently owns and operates 1,763 acres of parks, recreation, and open space. There are a total of 31 developed community parks, nine designated future park areas, and a network of pedestrian trails and paths (approximately 19.4 total miles). There are over 20 parks available to residents and the public.

Popular amenities of the park district include **Crooked Crane Trail** and **Patterson Lake Recreation Area.**

Schools

Dickinson Public Schools consist of six (6) Elementary, one (1) Middle, and two (2) High Schools. In addition, to these schools, Dickinson Public Schools provides virtual learning opportunities via the Roughrider K-8 and 9–12 Academies.

One of two High Schools is an alternative public school—Southwest Community High School, which offers a GED program for students ages 16–21 who have withdrawn from the traditional high school. Two private school systems exist: Hope Christian Academy (grades Preschool–12), and Trinity (grades K–12).

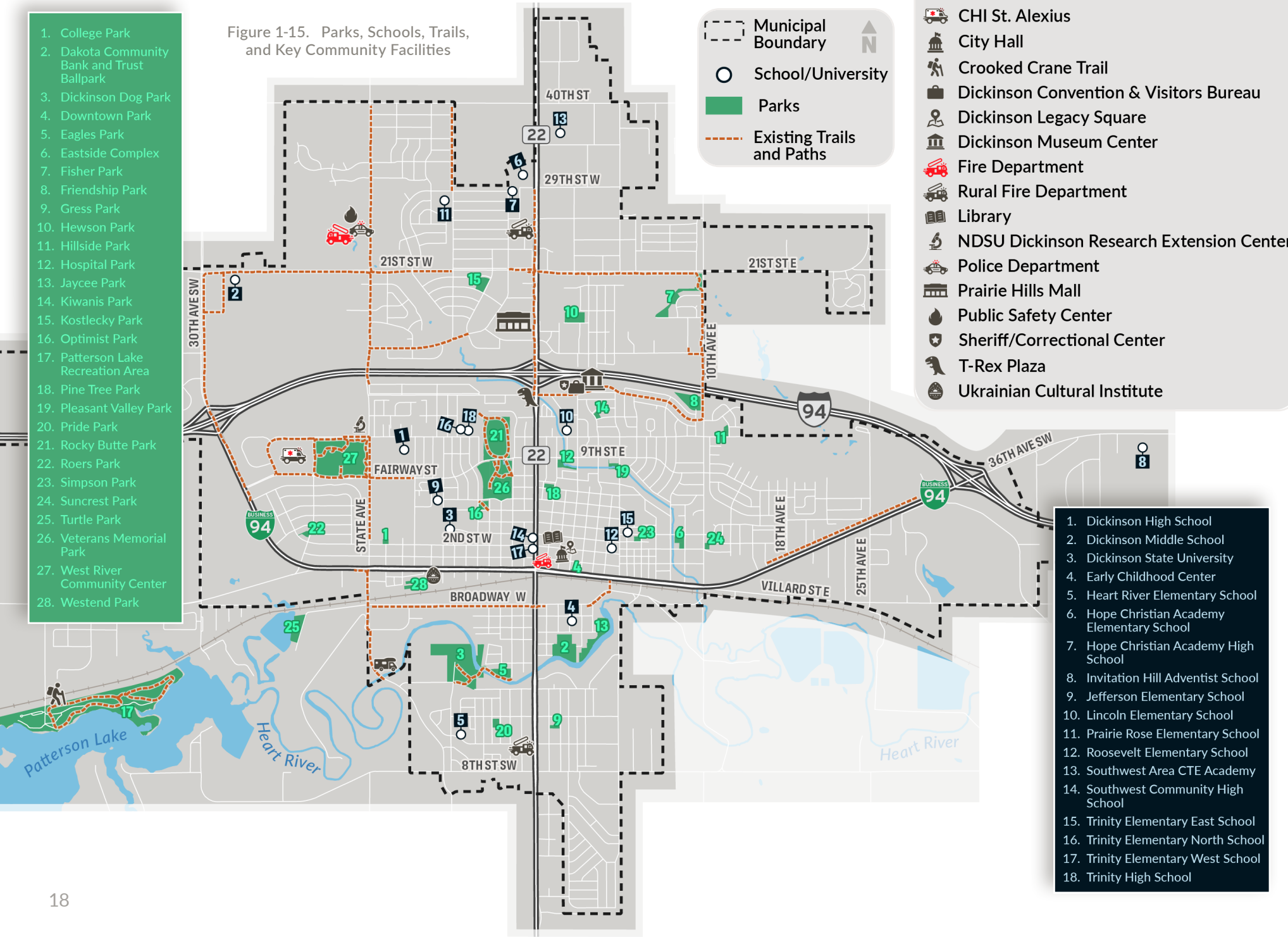
Dickinson public schools is the largest employer in the city of Dickinson with almost 700 staff members providing services to 4,100 students. DPS also oversees the Adult Learning Center, Athletic Booster Club, DPS Foundation, Early Childhood Center, Regional After School Program (RASP), SW Career & Technical Education Academy, and the West Dakota Parent and Family Resource Center.

Public & Community Facilities

Notable institutions and public facilities within the study area include the Dickinson State University, CHI St. Alexius Health Dickinson, City Hall, Fire Stations (City and County), Public Safety Center and Police Department, Public Library, Legacy Square, Dickinson Museum Center/Badlands Dinosaur Museum, NDSU Dickinson Research Extension Center, and the Dickinson Convention and Visitors Bureau. Other notable community attractions include the Stark County Veterans Memorial, Ukrainian Cultural Institute, Theodore Roosevelt Center at Dickinson State University, Prairie Hills Mall, and T-Rex Plaza (NDDOT).

Figure 1-15 shows the location of existing and future parklands and open spaces, schools, trails, and other key facilities.

Figure 1-15. Parks, Schools, Trails, and Key Community Facilities



1. College Park
2. Dakota Community Bank and Trust Ballpark
3. Dickinson Dog Park
4. Downtown Park
5. Eagles Park
6. Eastside Complex
7. Fisher Park
8. Friendship Park
9. Gress Park
10. Hewson Park
11. Hillside Park
12. Hospital Park
13. Jaycee Park
14. Kiwanis Park
15. Kostlecky Park
16. Optimist Park
17. Patterson Lake Recreation Area
18. Pine Tree Park
19. Pleasant Valley Park
20. Pride Park
21. Rocky Butte Park
22. Roers Park
23. Simpson Park
24. Suncrest Park
25. Turtle Park
26. Veterans Memorial Park
27. West River Community Center
28. Westend Park

- Camp on the Heart
- CHI St. Alexius
- City Hall
- Crooked Crane Trail
- Dickinson Convention & Visitors Bureau
- Dickinson Legacy Square
- Dickinson Museum Center
- Fire Department
- Rural Fire Department
- Library
- NDSU Dickinson Research Extension Center
- Police Department
- Prairie Hills Mall
- Public Safety Center
- Sheriff/Correctional Center
- T-Rex Plaza
- Ukrainian Cultural Institute

1. Dickinson High School
2. Dickinson Middle School
3. Dickinson State University
4. Early Childhood Center
5. Heart River Elementary School
6. Hope Christian Academy Elementary School
7. Hope Christian Academy High School
8. Invitation Hill Adventist School
9. Jefferson Elementary School
10. Lincoln Elementary School
11. Prairie Rose Elementary School
12. Roosevelt Elementary School
13. Southwest Area CTE Academy
14. Southwest Community High School
15. Trinity Elementary East School
16. Trinity Elementary North School
17. Trinity Elementary West School
18. Trinity High School

EXISTING MUNICIPAL INFRASTRUCTURE SYSTEM

Urban Service Area

Since the last comprehensive plan adoption in 2013, the USA has been expanded by two city Ordinances. Ordinance 1554 (2014) added 282.58 acres and Ordinance 1622 (2016) added 5.67 acres, for a total of 288.25 acres. The approximate size of the USA is currently 15.9 square miles. The USA, in relationship to the Municipal Boundary, is previously shown in **Figure 1-2 on page 3**.

Water and Sewer Infrastructure

KLJ/Apex inventoried the existing water and sewer infrastructure to determine existing demands based on average day, peak month, and peak day usage as well as assess the remaining planning level capacities. Existing water infrastructure is depicted in **Figure 1-16**.

WATER TREATMENT PLANT

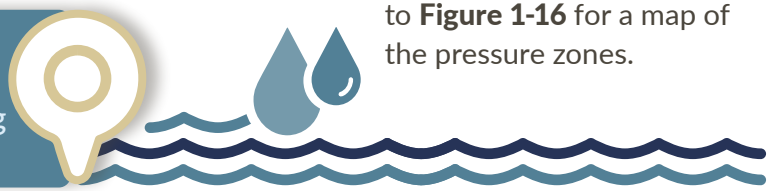
Water is not treated directly by the City of Dickinson but rather the City purchases finished water from Southwest Water Authority (SWA) operating under direction of the North Dakota State Water Commission. SWA operates a 12 million gallons per day (MGD) water treatment plant located in southwest Dickinson and a 6 MGD supplemental water treatment plant located adjacent to the larger plant, which serves SWA customers. These treatment plants use Ozone for a primary disinfection, quicklime for hardness, and aluminum flocculant for coagulation. The water is stabilized, and fluoride is added for tooth decay resistance. Filtration then removes suspended particles. Finally, chloramines are used as a secondary disinfectant to protect the drinking water during distribution to customers.

The City of Dickinson contract allocation from SWA provides up to six million gallons per day (6 MGD) per the 2014 Dickinson Water Utility Master Plan.

WATER DISTRIBUTION SYSTEM

The Dickinson water distribution system consists of all indirect pumping systems. In indirect systems, pumping stations lift water to reservoirs or elevated tanks to make use of gravity to distribute the water. The distribution network consists of 156 miles of water distribution and transmission main ranging in size from 4" to 30", the majority of which is 6" and 8" diameter pipe. The Dickinson water distribution system delivers an average of 2.2 million gallons of drinking water per day to the 25,000 residences across 4 different pressure zones. Please refer to **Figure 1-16** for a map of the pressure zones.

The water distribution system delivers an average of **2.2 MILLION GALLONS** of drinking water per day to residents

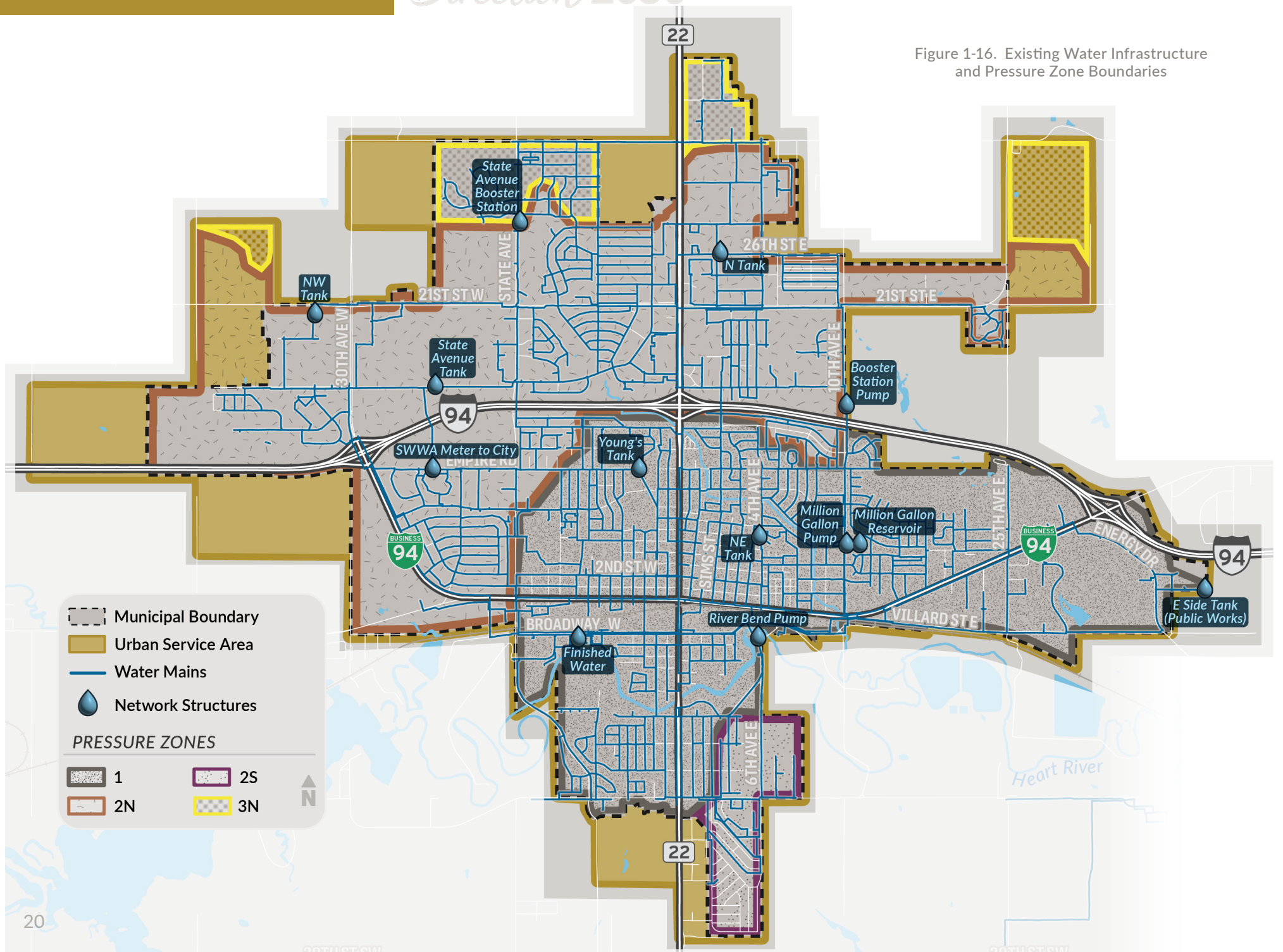


Pressure Zones. The City of Dickinson operates 4 pressure zones; 1, 2N, 2S, and 3N, which vary the hydraulic grade of the service area in order to provide adequate pressure and flow to customers. These pressure zone boundaries were developed to provide between 35 and 90 pounds per square inch (psi) to customers based on the ground elevations within the zones. The varying topography throughout the service area require the variation of tower elevations and pumping facilities to raise the hydraulic grade between pressure zones. Pressure zones 1 and 2N operate off of elevated storage fed from pumping facilities in the pressure zone to fill the tanks. The overflow weir of the elevated tanks in pressure zones 1 and 2N maintain the hydraulic grade level (HGL). Pressure zones 2S and 3N operate as closed pressure zones without storage and are maintained with pressure set points at the booster pump station facilities serving them. The HGL of these pressure zones is maintained by those pressure setpoints. The HGL of each pressure zone can be seen in **Table 1-6**.

Table 1-6. Pressure Zone HGL Elevations

PRESSURE ZONE	HGL
1	2,575 feet
2N	2,653 feet
2S	2,625 feet
3N	2,710 feet

Figure 1-16. Existing Water Infrastructure and Pressure Zone Boundaries



Storage Facilities. The City of Dickinson currently has 7 storage facilities located throughout the distribution system. The total storage across all storage facilities is 4.863 million gallons (MG). This does not include the 6 MG raw water storage at the SWA water treatment plant. Storage within the water distribution system is used to provide consistent service to customers while providing storage for emergencies, fires, and supplementing pumping during peak flow demand.

Pumping Facilities. Multiple pumping stations are situated throughout the distribution system. These pumping facilities serve the 4 pressure zones in the Dickinson water distribution system. Location of the pumping facilities can also be found in previously-shown **Figure 1-16 on page 20**.

Existing Service. The goal of the City's water distribution is to deliver safe and reliable water to its customers. Acceptable pressure in a water distribution system is typically between 40 and 80 psi, where lower pressures may not deliver adequate service to properly use plumbing fixtures and higher pressures may cause plumbing fixtures to leak. The water distribution system generally meets the acceptable pressure criteria, with the major exception being near the State Avenue Tank which is located on a hill and does not serve any customers in this area.

Fire protection is also an important service provided by the water distribution system. The City's goal is to provide 1,500 gallons per minute (gpm) of fire flow to R1 zoning, 2,500 gpm to R2 zoning, 3,500 gpm to R3 zoning, and 3,500 gpm to industrial and commercial zoning. These goals are taken into consideration when planning for watermain replacement and extending service to new customers in order to properly size water mains to achieve these goals.

SANITARY SEWER COLLECTION SYSTEM

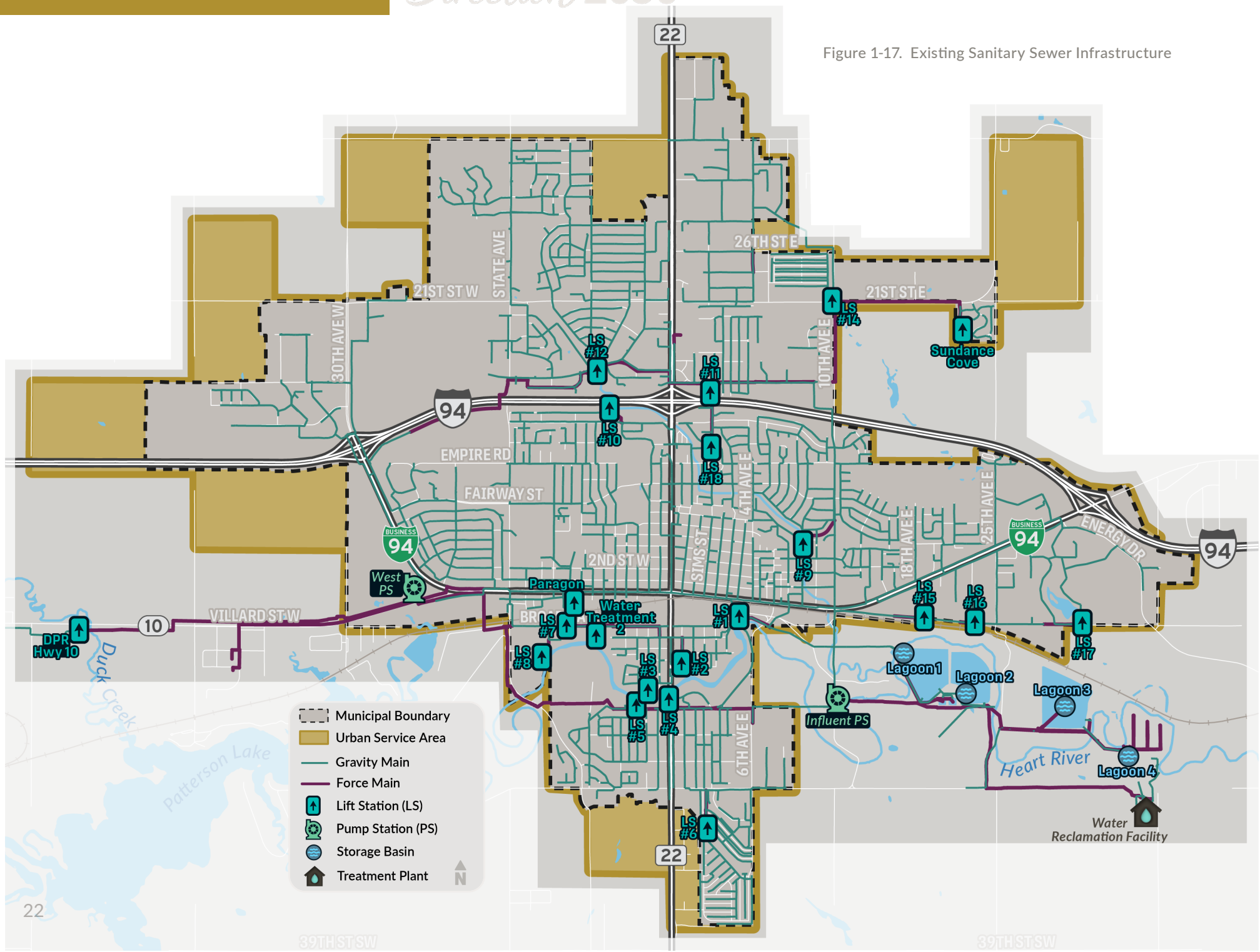
The City of Dickinson's sanitary sewer collection system consists of 22 sewershed basins. Wastewater within each basin flows by gravity to a single collection point. In 19 of the basins, the wastewater is pumped from the collection point via a wastewater lift station out of the basin. Wastewater in three of the basins flows by gravity out of the basin to a trunk sewer.

Collection system components are defined as follows:

- Basin/Sewershed. A service area where all wastewater flows are transported by gravity to a single location.
- Lateral. A pipeline that transports wastewater by gravity from an individual property to a main.
- Mains/Collectors. Pipelines that collect wastewater and transport it by gravity within a basin. Most public-sector sewer pipelines are described as mains or alternatively collectors.
- Force Main. A force main is a pipeline that conveys pressurized wastewater from a pump station.
- Lift Station / Pump Station. A lift station is a pumping facility where the predominant work being done is to lift the wastewater from a source and discharge it by gravity to a nearby location. A pump station is pumping facility where the work being done includes lifting the water and pumping it under pressure through a force main to a remote location. For purposes of this report, all wastewater pumping facilities will be referred to as lift stations.
- Trunk Sewers. This is a term often used for large sewer pipelines that convey flow across basin boundaries or collect flow from several individual basins.
- Interceptor. An interceptor is a gravity sewer that is installed to intercept wastewater flows in one or more established collection basin and transport that wastewater along a new route.

Existing sanitary sewer infrastructure is shown in **Figure 1-17.**

Figure 1-17. Existing Sanitary Sewer Infrastructure



EXISTING TRANSPORTATION SYSTEM

A transportation master plan (TMP) is a long-range plan for transportation and mobility. The existing conditions report is a key first step in the planning process. It provides a snapshot in time of the existing system and assists in identifying network issues and gaps, facilitating the path to project identification and prioritization, and implementable short- and long-term solutions.

Transportation System GIS Database

The project team compiled a GIS database of the existing transportation network (all modes) and developed transportation system profile summaries of the existing transportation network and related features which include:

- Jurisdiction and Functional Classification of Study Area Urban and Rural Roadways
- Traffic Data
  - Volumes (intersections and road segments)
  - Level of Service (LOS)
  - Crash Statistics: Five Year Analysis; Top 10 High Frequency Crash locations
- Pavement Conditions
- Bridge Conditions
- Multi-Modal Systems
  - Freight (Truck, Rail, Transload), and Air
  - Pedestrian/Bicycle
  - Transit

Existing Road Jurisdiction and Functional Classification

JURISDICTION

Within the Dickinson study area, there are a several categories of highway and road systems that fall under various jurisdictions. The North Dakota Department of Transportation (NDDOT) is responsible for maintaining the Interstate and State Highway systems, which move people and freight efficiently across the region, state, and country. County and Township roadways distribute traffic to home, work, and businesses (collectors), and provide rural roads to private land, farms, and rural residencies. Within Stark County, a system of streets composes the traditional grid systems typically found across the Midwest. Dependent on jurisdiction, roadways draw from different funding sources for maintenance and improvements. The Dickinson roadway system is shown by jurisdiction at the Study Area level of detail in **Figure 1-18 on page 24** and at the Municipal level in **Figure 1-19 on page 25**.

Figure 1-18. Existing Road Jurisdiction (Study Area)

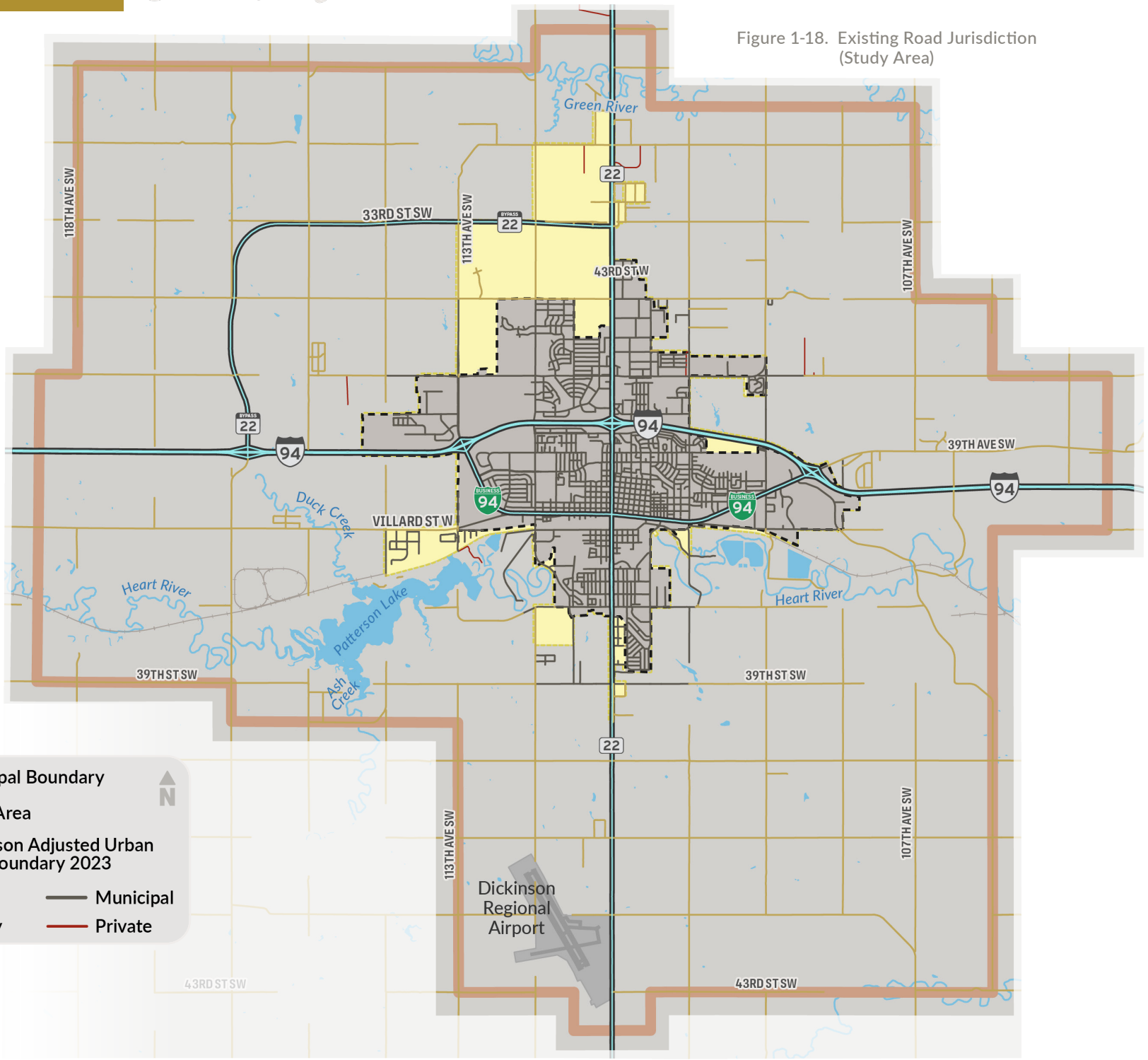
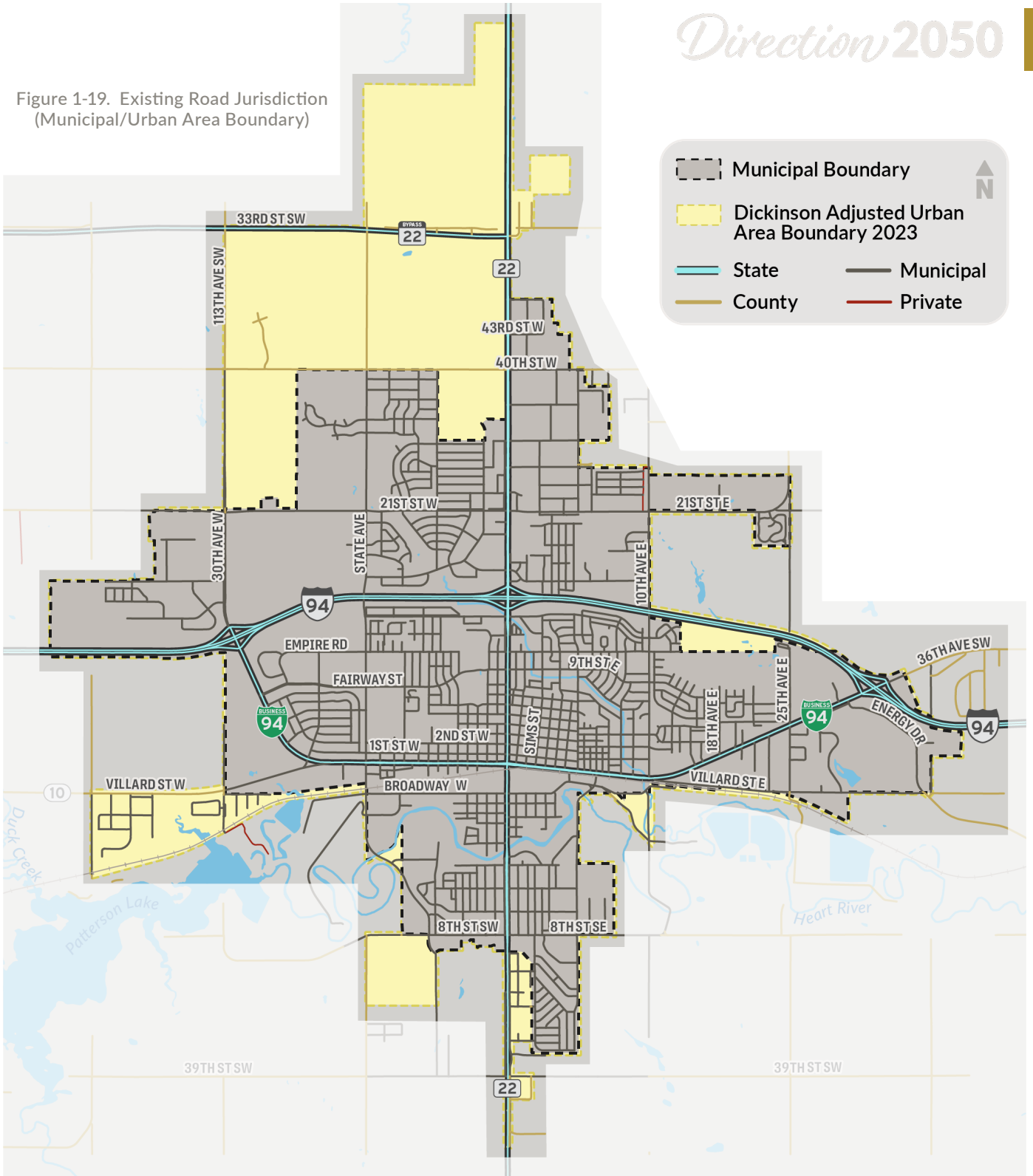


Figure 1-19. Existing Road Jurisdiction (Municipal/Urban Area Boundary)

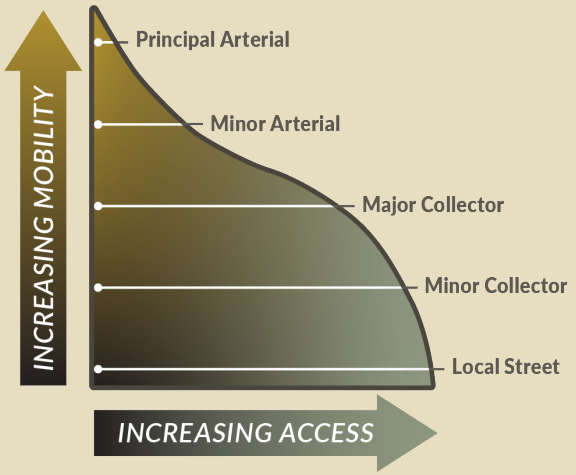


Functional Classification

The operation of Dickinson's transportation network is supported by the functional classification of its roadway system (shown in maps on **page 26 and page 27)**. The functional classification defines the role each road segment is intended to provide in serving traffic flow throughout the study area and also by what funding sources are available to a roadway based on its functional classification. Having a well-defined functional classification system provides for both efficient operation of traffic and short- and long-term system maintenance and project funding sources.

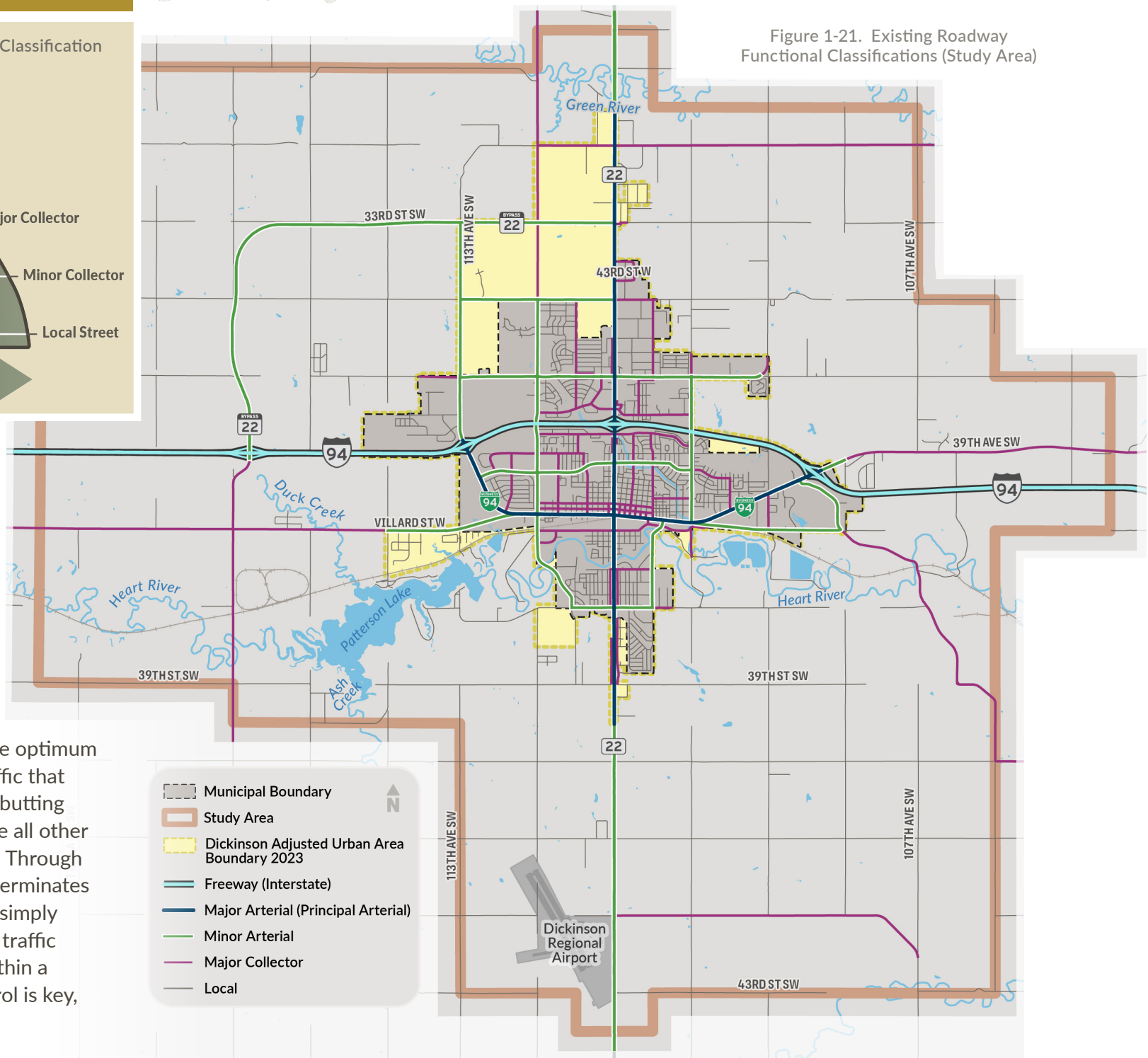
Dickinson's recently approved 2023 UAB sets the urban geographic boundary, which is tied to FHWA functional classification guidelines and subsequently, federal aid funding. Therefore, any potential corridor expansion or project development evolving from Direction 2050 planning efforts should consider the opportunity to incorporate the project into the next revision of the UAB, as well as updating the USB, and any pending or identified County or State projects to ensure maximization of potential federal funding for roads that could be functionally classified as urban.

Figure 1-20. FHWA Functional Classification



The Federal Highway Administration (FHWA) organizes roadways into a hierarchy of five general Functional Classifications as shown in **Figure 1-20**. Most streets and highways have one of two predominant functions: either they provide the motorist with access to abutting land, or they promote optimum mobility through an area. Traffic that primarily provides access to abutting land is considered 'local', while all other traffic is considered 'through'. Through traffic neither originates nor terminates within a designated area, but simply traverses it. Conversely, local traffic has origins or destinations within a designated area. Access control is key,

Figure 1-21. Existing Roadway Functional Classifications (Study Area)



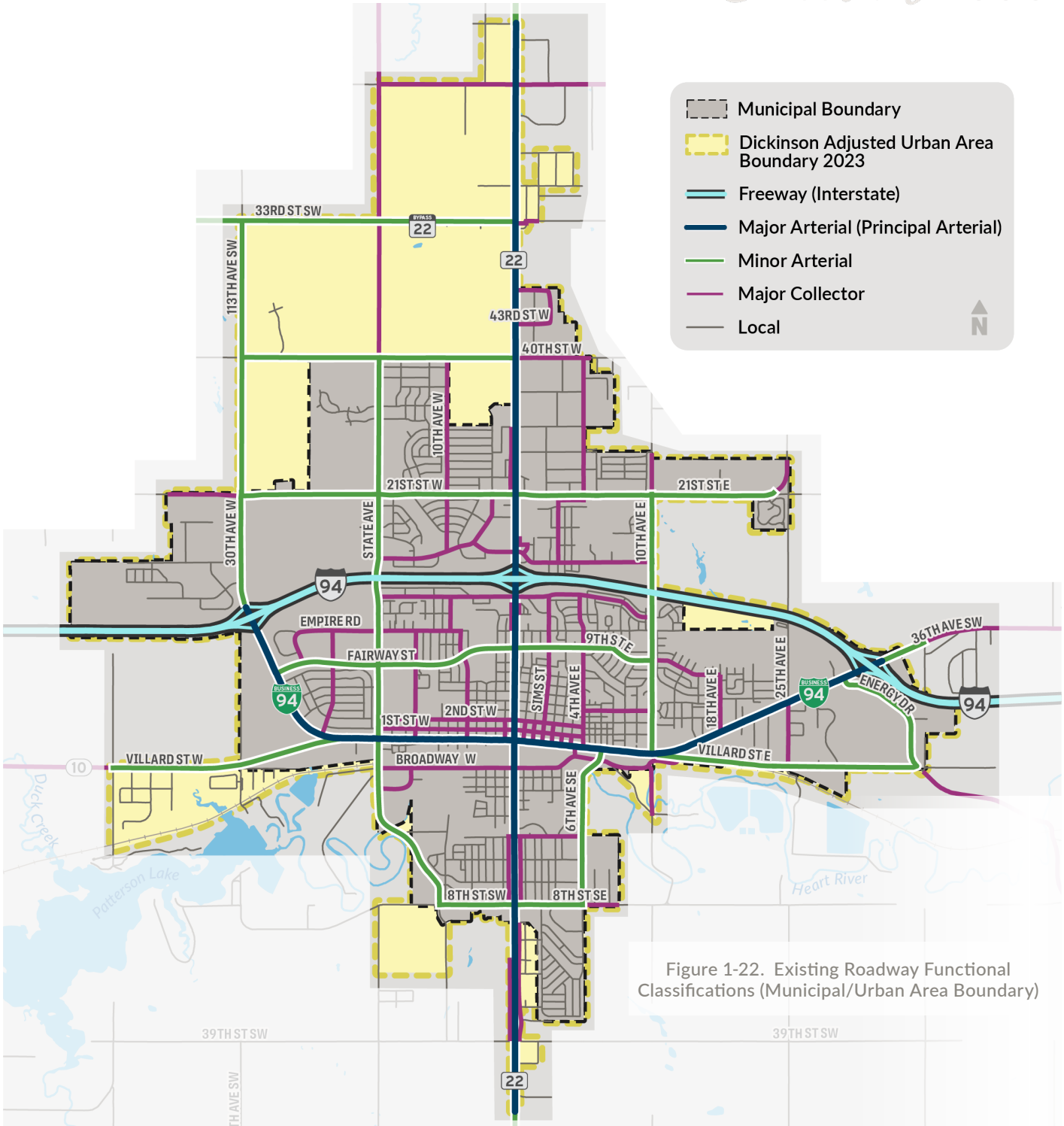


Figure 1-22. Existing Roadway Functional Classifications (Municipal/Urban Area Boundary)

as roadways with full or partial control of access are typically classified as major or minor arterials. With growth, delineating road facilities early in the land use planning process is essential in defining a preliminary system of arterials and subsequently, developing effective access management plans.

Each of the FHWA functional classifications are defined in the following subsections. For the purposes of this plan, rural functional classifications are roads outside the UAB, whereas urban functional classifications are within the USA as well as inside the municipal boundary.

PRINCIPAL (MAJOR) ARTERIALS

Principal Arterials provide for regional and interstate transportation of people and goods. This is done by designing facilities to accommodate high speeds and long, uninterrupted trips. In urbanized areas, principal arterials constitute high-volume corridors with a large portion of regional trips.

The FHWA specifies three subcategories within the Principal Arterial classification:

Interstates are the highest classification of Arterials, designed for high-speed and long-distance travel. I-94 is Dickinson's

only interstate, running east-west through the city and North Dakota.

Other Freeways & Expressways, while not included in the Interstate system, operate similarly to Interstate roadways. Roads in this classification generally have directional travel lanes that are separated by a physical barrier, with access points limited to on- and off-ramp locations or a limited number of at-grade intersections.

Other Principal (Major) Arterials serve major metropolitan areas and can also provide mobility through rural areas. Unlike their access-controlled counterparts, Other Principal Arterials occasionally directly serve abutting land uses.

MINOR ARTERIALS

The FHWA continues to use functional classification in determining eligibility for funding under the Federal-aid program. At present, roads functionally classified as a 'rural major' or 'urban minor' collector or higher are eligible for Federal assistance—these are referred to as ***Federal-aid Highways***. Minor Arterial routes within the street system provide connections and support the Principal Arterial system. Trips using these facilities are generally shorter and spread out over a smaller geographic area. Minor Arterials allow more access than their Principal Arterial counterparts. Minor arterials can be further classified into rural and urban minor arterials.

Urban Minor Arterials interconnect with the principal arterials to provide trips of moderate length with less travel mobility than principal arterials. The spacings of urban minor arterials are generally not more than one mile in fully developed areas.

Rural Minor Arterials form a rural network having the following characteristics:

- Link cities, towns, and other traffic generators like major resort areas that attract travel over long distances and form an integrated network to interstates and freeways. Rural minor arterials primary function is to provide access to adjacent land and to provide travel over relatively short distances as compared to collectors or other roads higher in the hierarchy.
- Spaced at intervals to allow a reasonable distance for all developed areas within an arterial highway.
- Provide for relatively high overall travel speeds, with minimal interference to through movements.

COLLECTORS

Collectors gather traffic from Local Roads and funnel to the Arterial network. This may include high density developed areas where high-volume roads function as collectors, providing access between local streets and arterials, or providing a high degree of direct access to abutting property. Within the context of the Dickinson study area, Collector roads are broken down into two categories: Urban Collectors and Rural Collectors.

Urban Collectors serve both land access and traffic circulations in residential and commercial/industrial areas. They distribute and channelize trips between Local Roads and Arterials, usually over greater than three-quarters of a mile. Typical operating characteristics of can include lower speeds and/or fewer signalized intersections depending on urban density and Level of Service (LOS) requirements.

Rural Collectors provide connectivity to key rural commercial/industrial, recreational, and agricultural locations, which are not otherwise served by minor or major rural arterial roadways, as well as make connections to existing urban collectors or urban minor arterials in transition to municipal/urban area boundary functionally classed roads. They are spaced at intervals, consistent with population density. Rural Collector facilities provide service to the remaining smaller communities and link local traffic generators with their rural hinterland.

OTHER LOCAL ROADS AND STREETS

Local roads and streets provide direct access to residential, commercial, and

industrial properties, have slower speeds, can include traffic calming measures, and are not intended for long distance travel. Local streets typically account for the largest mileage in the public road network and can be classified by rural or urban.

Rural Local Roads provide access to adjacent land and service to travel over relatively short distances.

Urban Local Streets comprise all roadway facilities that are not on any of the higher systems. They offer the lowest mobility but provide direct access to abutting land and the higher order functional classification systems.

FUNCTIONAL CLASSIFICATION WITHIN THE CITY OF DICKINSON STUDY AREA

The City of Dickinson is served by one federal/state jurisdiction Interstate (I-94) and two state jurisdictional Principal (Major) Arterials:

- I-94 runs east-west through the state of ND, bisecting the City of Dickinson
- ND Highway 22 (3rd Avenue W/South Main Street) runs north-south through Stark County, bisecting Dickinson.
- Business Loop 94 (Villard Street) runs east-west approximately 5.2 miles from I-94 Exit 59 to I-94 Exit 64.

Across jurisdictions, there are approximately 372.6 miles of roadway within the Dickinson Study Area.

The current functional classification system for Dickinson was analyzed following the 2020 census to determine how closely the percentages of roadways for each classification falls within the percentages recommended by the FHWA. A summary of the system was earlier discussed in the Existing Conditions element of the plan. Some urban system roads needed to be reclassified to suit future growth within the UAB and better align with FHWA recommended system percentage guidelines. These changes were made concurrently to this planning process. Dickinson functional classification percentages approximate the federal recommendations. **Table 1-7** reflects the comparisons.

Table 1-7. Functional Classification

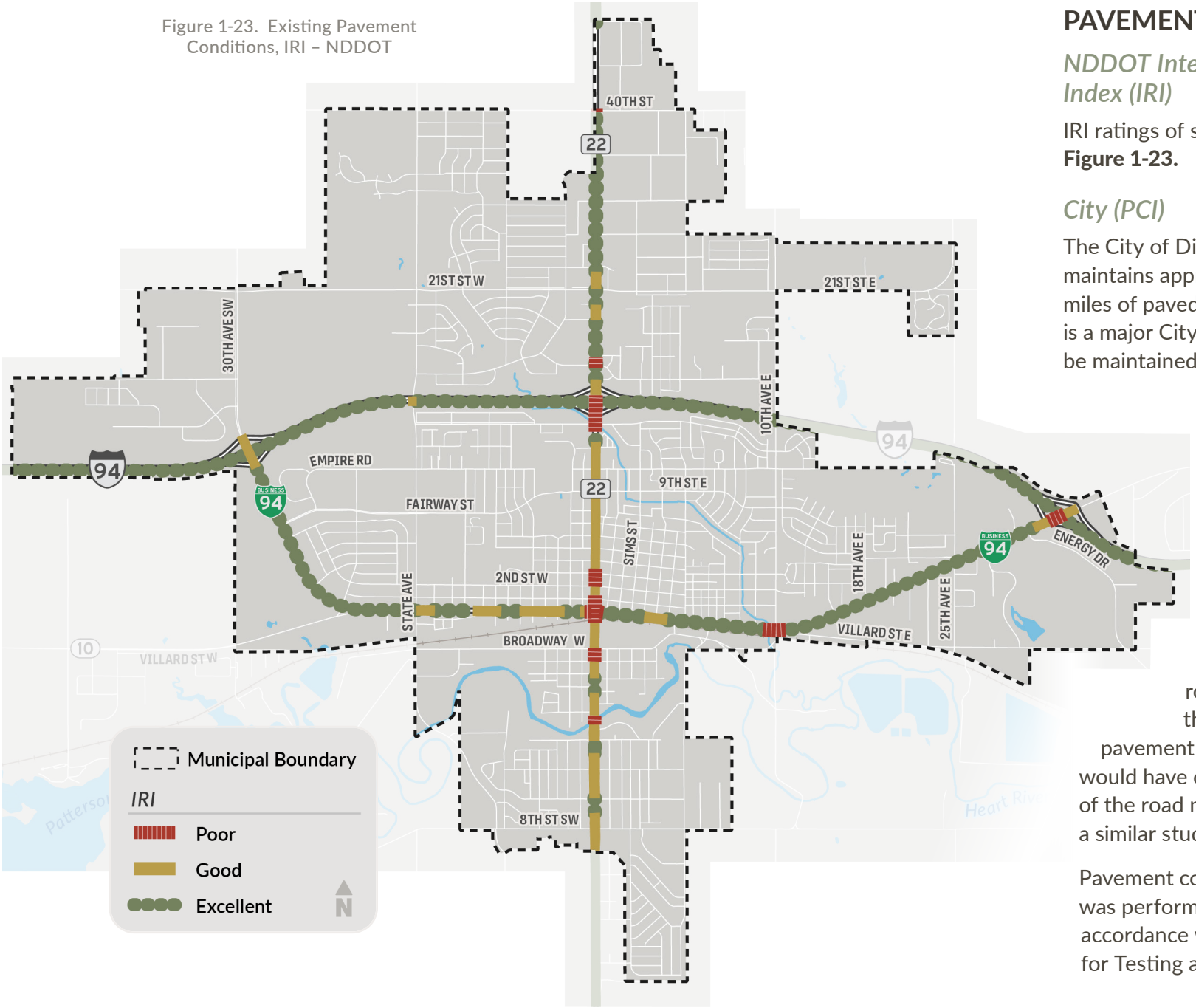
FHWA FUNCTIONAL CLASSIFICATION	CURRENT SYSTEM %	FHWA RECOMMENDATION %
Interstate	3.36%	1% to 3%
Principal (Major) Arterial	6.86%	4% to 9%
Minor Arterial	13.82%	7% to 14%
Collector	17.40%	6% to 32%
Local Streets	58.56%	62% to 74%

STARK COUNTY FUNCTIONAL CLASSIFICATION SYSTEM

Within Stark County's jurisdiction, NDDOT classifies US Highway 85, ND Highway 22, and ND Highway 8 as rural minor arterials. Stark County also classifies Highway 10 as a minor arterial, since it functions more similar to state/federal highways as compared to other County maintained roads. The remaining County roads are classified as rural minor arterials (i.e., ND 22 Bypass), rural collectors or rural local roadways. Many of the county rural collector roads provide direct access to property with local county roads serving short, local trips.

When growth and development necessitate change (e.g., an expansion of the UAB), the City of Dickinson should work with Stark County (and/or Dunn County) as needed on functional classification changes to ensure congruity of functional classifications between the two jurisdictions. Changes to the urban or rural functional class list must be submitted to and coordinated through NDDOT. All changes to the functional class of any road must be approved by FHWA.

Figure 1-23. Existing Pavement Conditions, IRI – NDDOT



PAVEMENT CONDITIONS

NDDOT International Roughness Index (IRI)

IRI ratings of state roads are shown in **Figure 1-23.**

City (PCI)

The City of Dickinson owns and maintains approximately 157.8 centerline miles of paved roads. This road network is a major City asset that needs to be maintained to preserve the City's massive investment in this infrastructure and provide a desirable level of service to the traveling public.

In August 2023, the City commissioned MDS Technologies, Inc. (MDST) to evaluate the condition of the City's road network and estimate the effect that various pavement rehabilitation budgets would have on the long-term condition of the road network. MDST performed a similar study for the City in 2020.

Pavement condition evaluation was performed on all City roads in accordance with the American Society for Testing and Materials (ASTM)

method described in ASTM Standard D6433. This method results in a numeric Pavement Condition Index (PCI) score for each road segment that varies from 100 (no distress) to zero (very heavily distressed).

At the time of testing in September 2023, the average PCI for the City's road network was 78.9. This figure was 76.7 in 2020, so the PCI of the road network has increased by 2.2 points since the previous evaluation was performed.

Various potential budget streams were analyzed to determine their impact on the condition of the road network over the upcoming ten years. This analysis shows that a budget of $7.55 million per year is needed to maintain the City's road network in its current condition.

Pavements continually degrade over time. The City should continue to re-evaluate the condition of its road network on a three-year cycle to update the snapshot of the condition of the road network, identify roads that are deteriorating at an accelerated rate, and reassess the budget needed to achieve the City's goals.

It is important to note that the PCI score of each segment represents its condition at the time that the condition data was collected (September 2023). Also, since the road segments vary in size, simple arithmetic averages do not accurately represent the overall road conditions. The summary data presented in this report is weighted by segment area to address this issue.

The condition of the City's roads is summarized in **Figure 1-24 on page 32**. This figure includes a chart that details the percentage of the City's roads that fall into various PCI ranges or categories.

2.4% of the City's roads have a PCI score of 40 or less. A PCI score of 40 or less indicates that a road segment falls into the Very Poor, Serious, or Failed category. Pavements in the high end of this range (PCI above 25) may be candidates for mill, base repair, and overlay. Reconstruction or Full Depth Reclamation may be an appropriate strategy for pavements at the low end of this range (PCI of 25 or less) since these pavements are experiencing significant structural deficiencies.

7.9% of the City's roads had a PCI score in the 41 to 55 range. Pavements with PCI scores in this range are considered to be in Poor condition. These pavements are typically candidates for some form of major rehabilitation such as mill and overlay. Base repair may or may not be necessary in these cases.

18.4% is in Fair condition with PCI score in the range of 56 to 70. Roads in this condition may be candidates for major rehabilitation if a functional or structural deficiency exists, or they may be candidates for a preventative maintenance treatment that temporarily halts or slows deterioration. These pavements are at a critical point in their service lives. The cost to administer an effective maintenance/rehabilitation strategy to these pavements is still relatively low. However, if continued deterioration is allowed, the cost to properly rehabilitate these pavements can be expected to increase significantly.

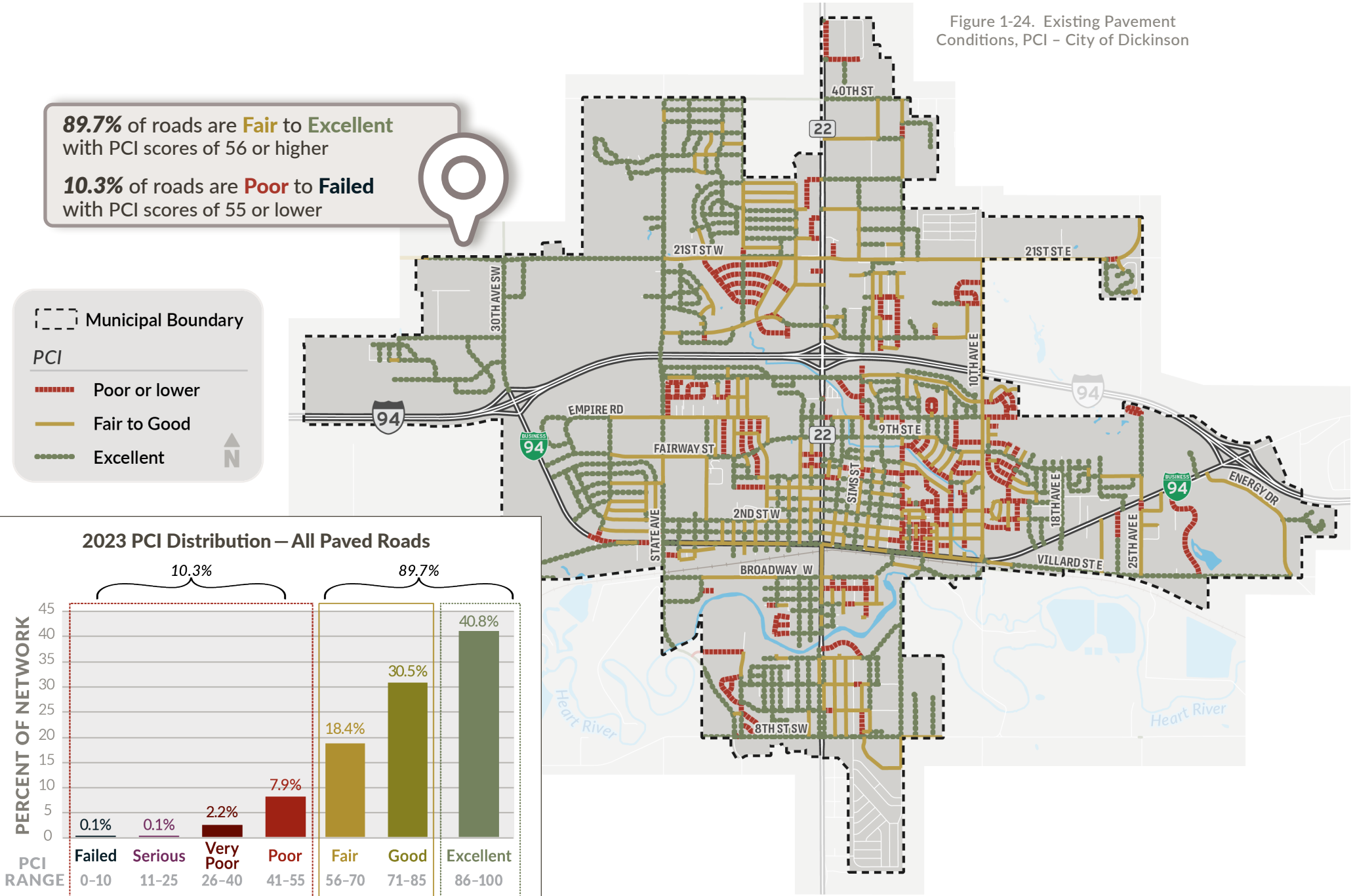
71.3% of the City's roads have a PCI score above 70 and are in Good to Excellent condition. Pavements that fall into these categories generally do not require rehabilitation. However, pavements in the low end of this range may be candidates for preventative maintenance such as chip seal or other form of surface treatment.

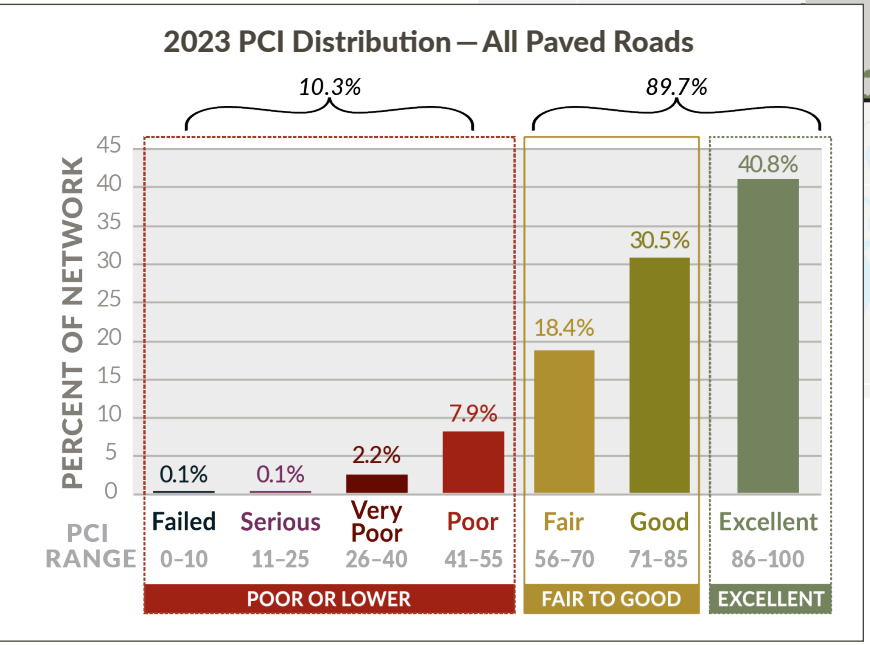
Overall, the City's road network had an average PCI score of 78.9 as of September 2023.

Figure 1-24. Existing Pavement Conditions, PCI – City of Dickinson

89.7% of roads are **Fair** to **Excellent** with PCI scores of 56 or higher

10.3% of roads are **Poor** to **Failed** with PCI scores of 55 or lower





$2.8 million NDDOT I-94 West Dickinson Bridge and shared-use path project

©NDDOT, 2022

Bridges/Structures

BRIDGE INVENTORY

According to the National Bridge Inventory (NBI) and Stark County Bridge databases, there are a total of 38 bridge or culvert structures within the study area; 25 of those structures are within the municipal boundary. Refer to **Table 1-8** for a breakdown of bridges by type, jurisdiction, and condition. Within the Study Area/Municipal Boundary, city of Dickinson jurisdiction, there are two bridges in good condition, five in fair condition, and zero bridges in poor condition.

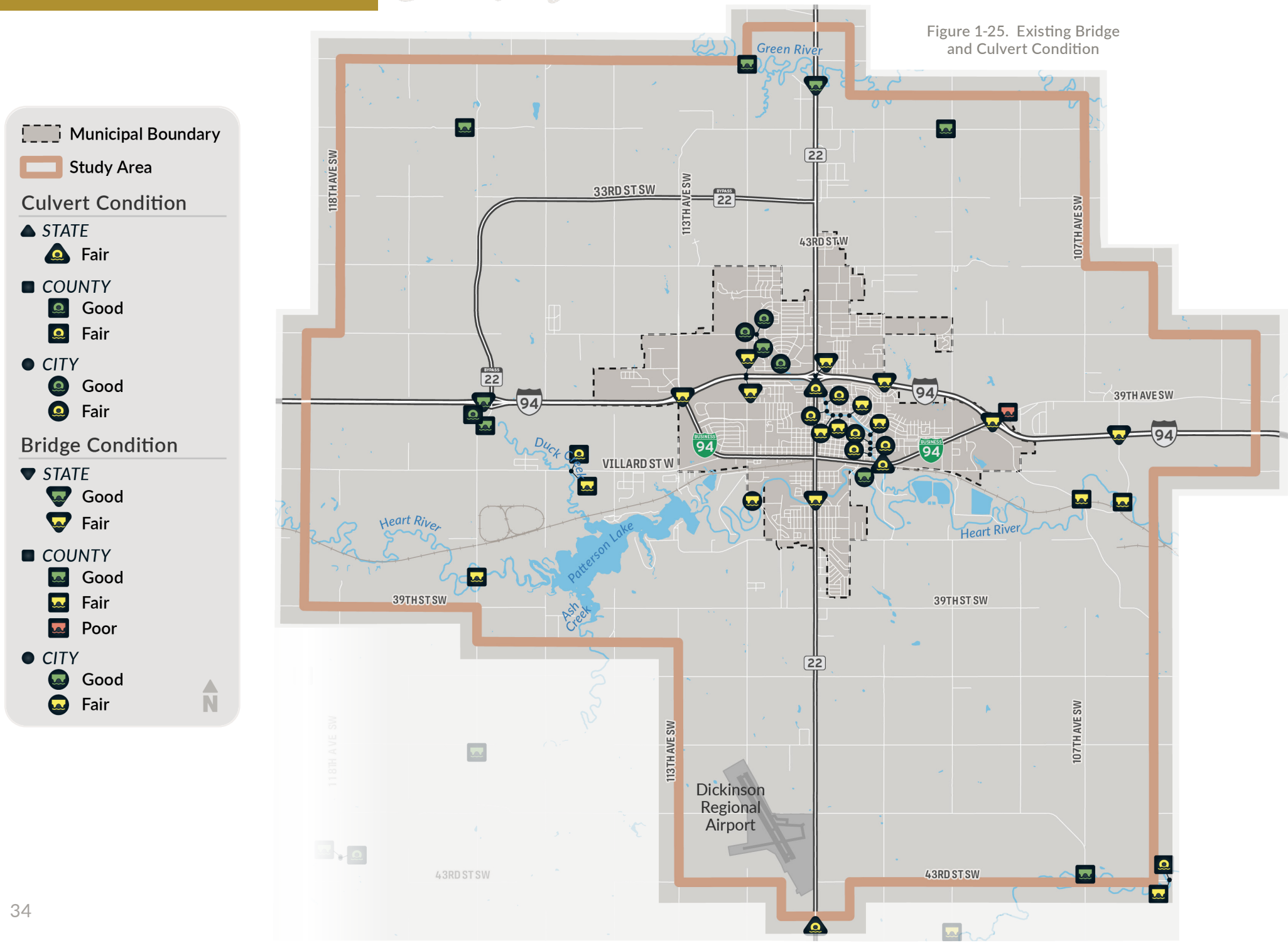
BRIDGE CONDITION RATINGS

The FHWA rates the condition of bridge superstructures, substructures, decks, and culverts on a scale of 0 to 9. The overall condition of the bridge or culvert is determined based on the lowest of these ratings. A rating of 4 or below is considered poor, 5 or 6 is considered fair, and 7 or above is considered good. Existing bridge and culvert conditions are shown in **Figure 1-25 on page 34**.

Table 1-8. Study Area Bridge and Culvert Structure Inventory

JURISDICTION	BRIDGE			CULVERT			TOTAL
	POOR	FAIR	GOOD	POOR	FAIR	GOOD	
NDDOT	–	7	2	–	2	–	11
Stark County	1	3	5	–	2	1	12
City of Dickinson	–	5	2	–	5	3	15
TOTAL	*1*	*15*	*9*	*–*	*9*	*4*	*38*

Figure 1-25. Existing Bridge and Culvert Condition



MULTI-MODAL TRANSPORTATION SYSTEMS

Pedestrian & Bicycle Systems

The Dickinson Parks District maintains an approximate total of 19.4 miles (102,287.5 linear feet [LF]) of existing pedestrian & bicycle trails and pathways system facilities (**Figure 1-26 on page 36**).

The shared-use paths and pedestrian sidewalks in Dickinson accommodate individuals who bicycle or walk. Results of Community Survey 1 indicate 3.2% of residents walked or cycled to work, which is consistent with the US-wide census travel-to-work data. Most walking and cycling that occurs in Dickinson is for recreational purposes. One of the questions in Community Survey 1 asked to rate their satisfaction with different aspects of Dickinson's transportation system. One aspect included the availability of safe bicycle/pedestrian facilities. Only 19% of respondents ranked the availability of safe bicycle/pedestrian facilities as excellent or good, while 45% of respondents ranked the facilities as poor or bad. Based on community survey results, it appears residents want safe and enhanced trail or bicycle/pedestrian facilities. The overall goal of the Master Trails Plan is to expand the existing trail system. Specific objectives include:

- Eliminate gaps in the existing trail system by providing new connecting trails
- Provide an interconnected trail system for access to parks and other city amenities
- Extend the trail system to all areas of the city
- Construct trails along existing or expanded city street rights-of-way

Existing Trail System

The existing transportation system in the city for pedestrians and bicyclists is a combination of shared-use paths or trails, sidewalks, striped bike lanes and use of roads by bicyclists. The District Park Board and the City have been successful in developing sections of shared-use trails frequently used by residents. The District Board's goal is to expand the existing trail system and specifically provide a greater level of interconnections in the trail network.

The Master Trail Plan

Prior to 2012, KLJ worked with the Dickinson District Park Board and its staff in developing the Master Trail Plan. An existing trails plan was reviewed and enhanced to the meet above cited objectives for the Master Trail Plan. The draft Master Trail Plan was presented to the District Park Board at its Annual Workshop Meeting during which comments were received. On October 8, 2012, the District Park Board adopted the Master Trail Plan. The Master Trail Plan consists of a master trail system map, a map and phasing schedule for the development of trails, and a design standard for trails and policies to facilitate implementation of the Master Trail Plan.

Dickinson Public Transit

To improve the quality of transportation service for special needs individuals within the city of Dickinson, a City of Dickinson Transportation Board was formed. As a result of this board's efforts, transportation for this specialized group was consolidated under the umbrella of Elder Care in September 1991.

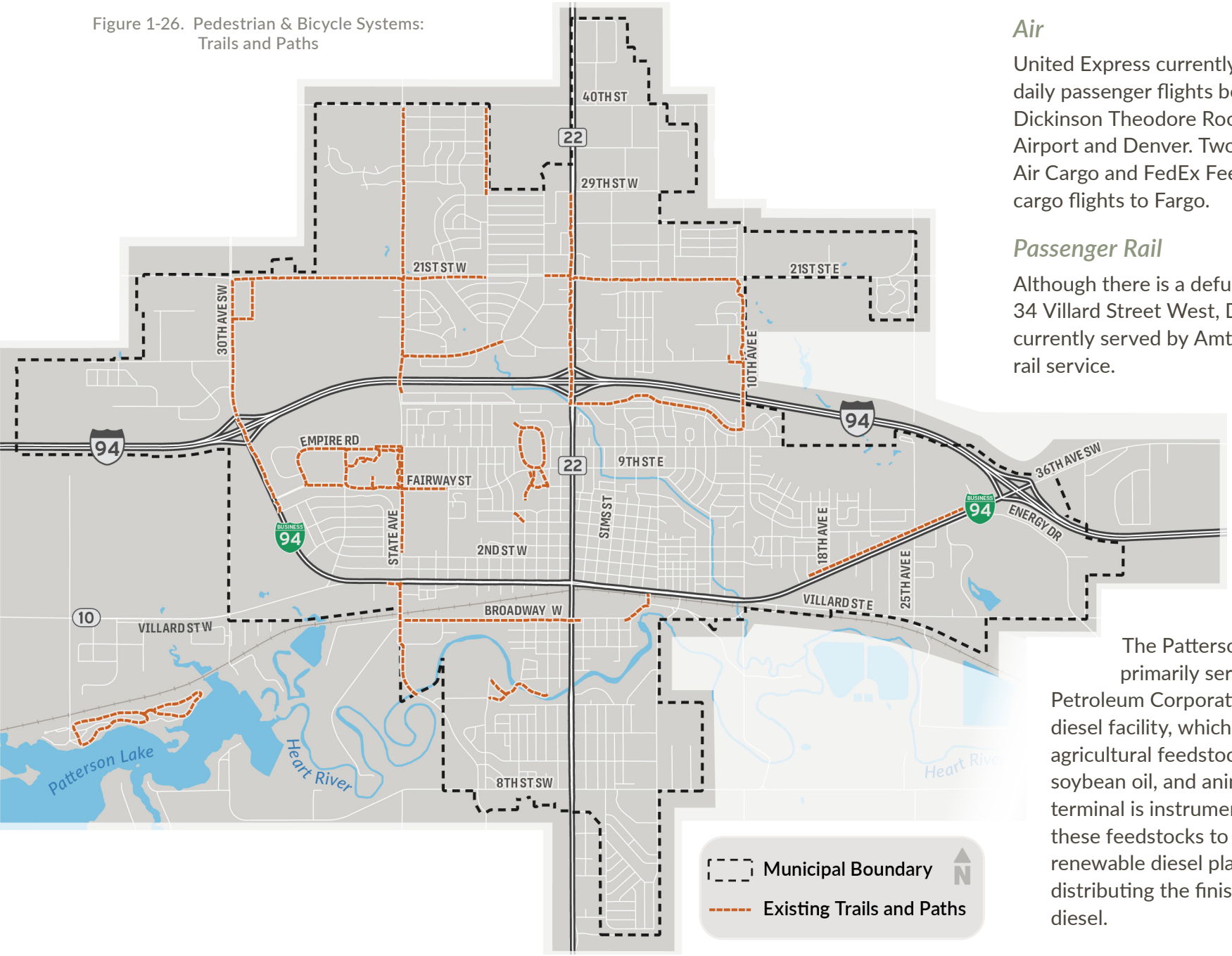
ON DEMAND

As a part of these consolidation efforts, what was known as the special needs rides would be provided during daytime hours by means of the Elder Care buses and by the local taxi service during evenings and weekend hours. As of May 2017, Elder Care operates with 10 vehicles (four buses and six vans). Transit services are offered to the Dickinson community, with trips to Bismarck weekly and trips to surrounding towns pending driver and vehicle availability.

FIXED ROUTE

The City of Dickinson currently does not operate a fixed route public transit system.

Figure 1-26. Pedestrian & Bicycle Systems: Trails and Paths



Air

United Express currently offers twice-daily passenger flights between Dickinson Theodore Roosevelt Regional Airport and Denver. Two airlines—Encore Air Cargo and FedEx Feeder—operate cargo flights to Fargo.

Passenger Rail

Although there is a defunct station at 34 Villard Street West, Dickinson is not currently served by Amtrak passenger rail service.

Freight

RAIL

- Burlington Northern Santa Fe (BNSF)

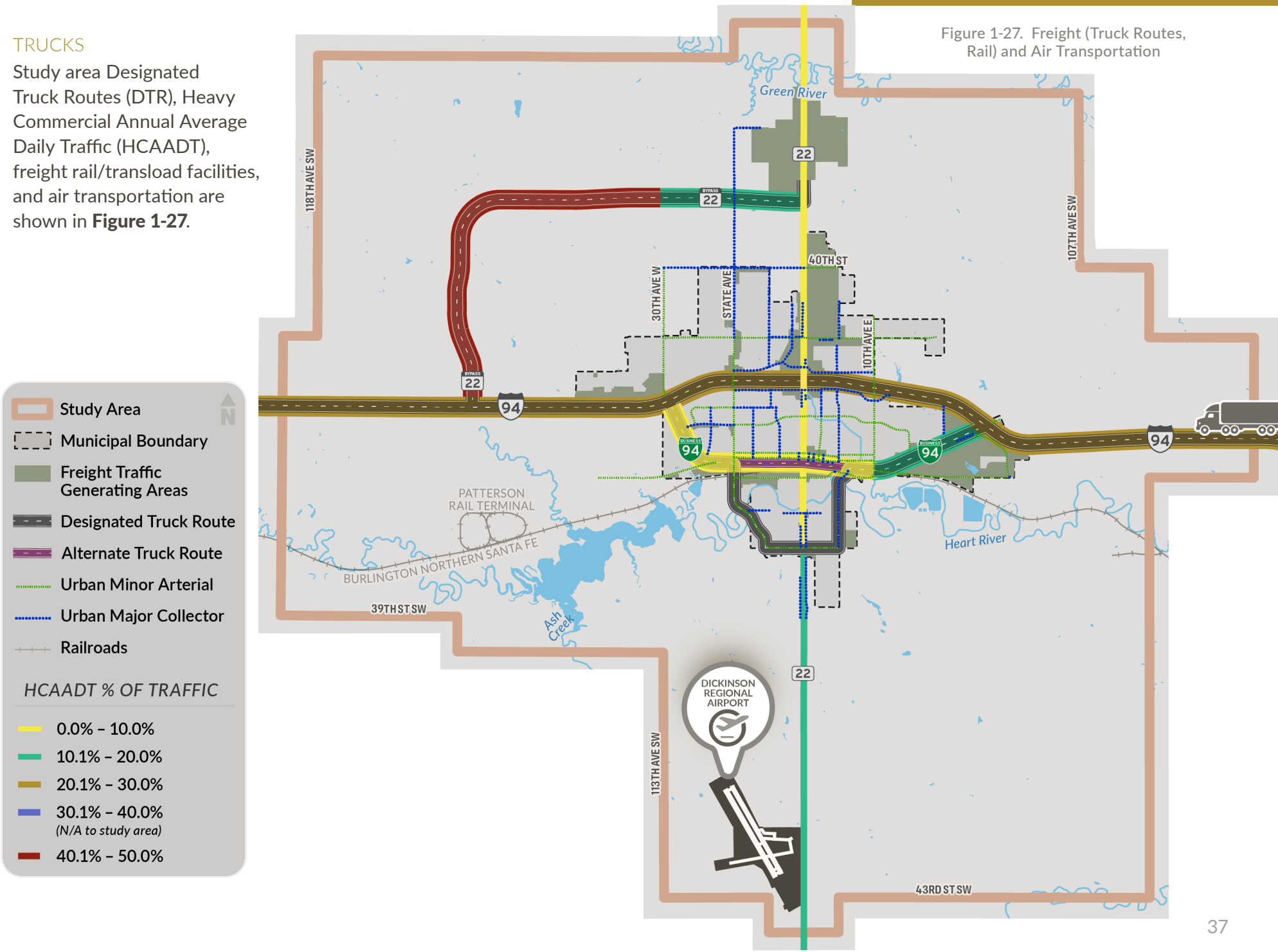
TRANSLOAD

The Patterson Rail Terminal primarily serves Marathon Petroleum Corporation's renewable diesel facility, which sources agricultural feedstocks like corn and soybean oil, and animal fats. The terminal is instrumental in bringing these feedstocks to the Dickinson renewable diesel plant and distributing the finished renewable diesel.

TRUCKS

Study area Designated Truck Routes (DTR), Heavy Commercial Annual Average Daily Traffic (HCAADT), freight rail/transload facilities, and air transportation are shown in **Figure 1-27**.

Figure 1-27. Freight (Truck Routes, Rail) and Air Transportation



Existing Traffic Operations

The most recent available safety and crash data was collected for the five (5) year period from 2019 to 2023.

CRASH DENSITY

An analysis of crash density (**Figure 1-28**) reveals that, as much to be expected, a higher frequency of crashes occurs along Hwy 22, with outliers at Empire Rd, Villard/94 Business, and State Avenue within the urban service area at principle/major and minor (urban) arterial intersections.

CRASH SEVERITY

Within the study area in the time period analyzed, there were 2,118 total crashes. There were a total of seven (7) fatalities, 36 severe/incapacitating injuries, 101 possible injuries, 190 non-incapacitating injuries, and 1,784 property damage only crashes being the majority of vehicular crash incidents. **Figure 1-29 on page 40** and **Figure 1-30 on page 41** provide details for crash severity.

Top 10 High Frequency Crash Locations. **Table 1-9** provides details for the top 10 highest frequency crash intersections and their respective crash severity, ranging from property damage only to fatalities (of which there were none recorded at the top 10 crash intersections). **Figure 1-31 on page 42** shows the locations of the top 10 crash locations.

Pedestrian/Bicycle Crashes. Utilizing the same crash data set (2019 to 2023), there were a total of 21 pedestrian or bicycle related crashes. Of these total crashes, four (4) resulted in serious injury, and two (2) fatalities. **Figure 1-32 on page 43** provides details on crash type and location.

Intelligent Transportation Systems (ITS)

ITS can cover a wide range of devices, from semi-actuated signals, vehicle detection cameras, or road signs that update weather conditions or updates for congestion management.

The City has installed an ITS warning sign on Hwy 22/Villard Ave, which detects water over the roadway, triggering flashing LED lights in real-time to alert drivers.

Table 1-9. Top 10 High Frequency Crash Locations

INTERSECTION		TOTAL CRASHES	PROPERTY DAMAGE ONLY	NON-INCAPACITATING INJURY	POSSIBLE INJURY	INCAPACITATING INJURY	FATAL	RANK (TOTAL)
ND 22	15TH ST W	34	2	0	0	0	0	**1**
ND 22	9TH ST W	31	1	0	0	0	0	**2**
ND 22	Villard	31	2	0	0	0	0	**2**
ND 22	21ST ST W	29	1	0	0	0	0	**3**
ND 22	MUSEUM DR W	23	1	0	0	0	0	**4**
ND 22	8TH ST SE	20	2	1	0	0	0	**5**
ND 22	2ND ST W	18	0	3	1	0	0	**6**
ND 22	94 Ramps	17	9	1	0	0	0	**7**
EMPIRE RD	STATE AVE	15	3	0	1	0	0	**8**
ND 22	40TH ST W	14	1	0	0	0	0	**9**
ND 22	3RD ST W	14	1	1	0	0	0	**9**
Villard	STATE AVE	12	0	0	0	1	0	**10**

Figure 1-28. Crash Density (Municipal)

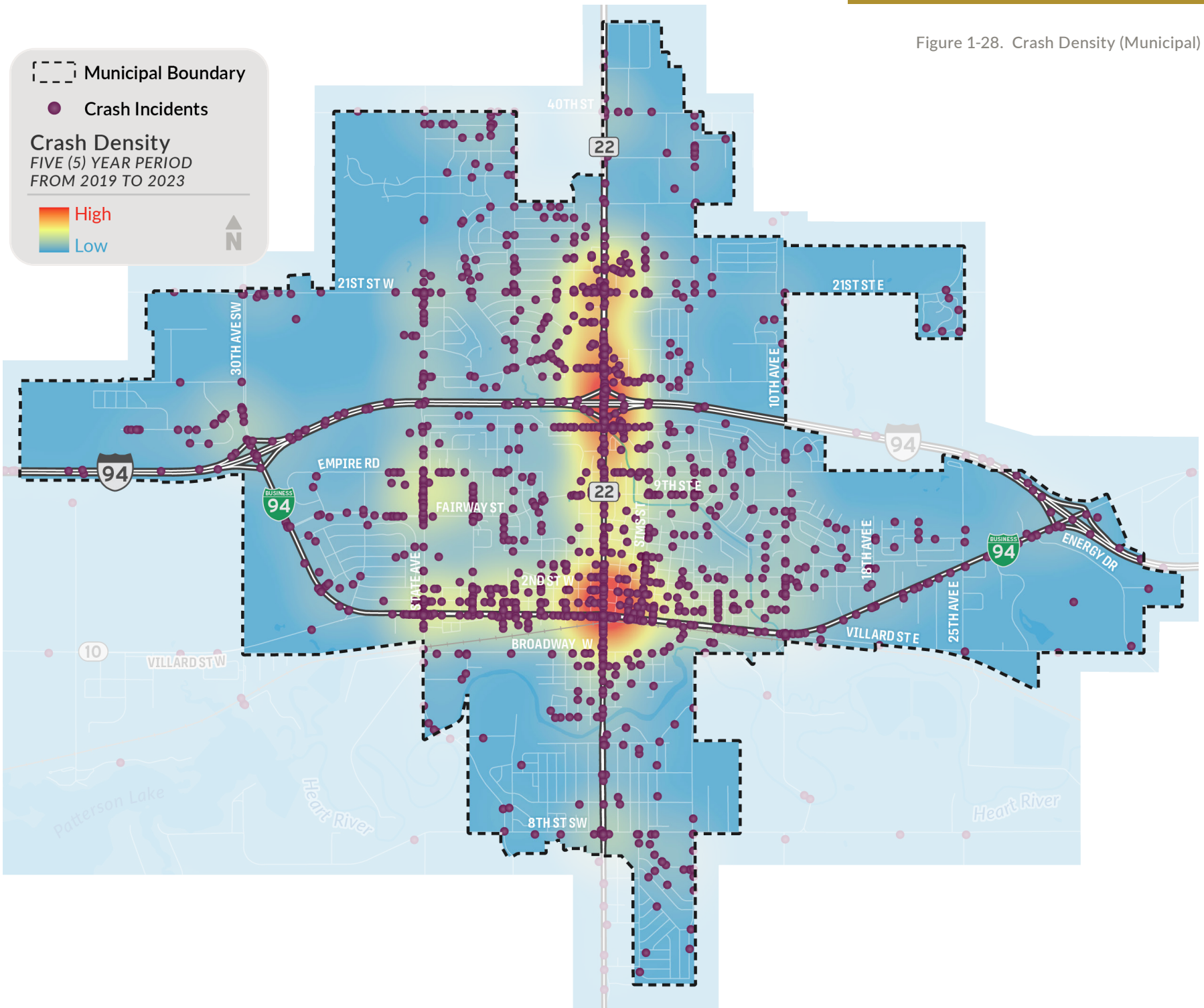


Figure 1-29. Crash Severity (Study Area)

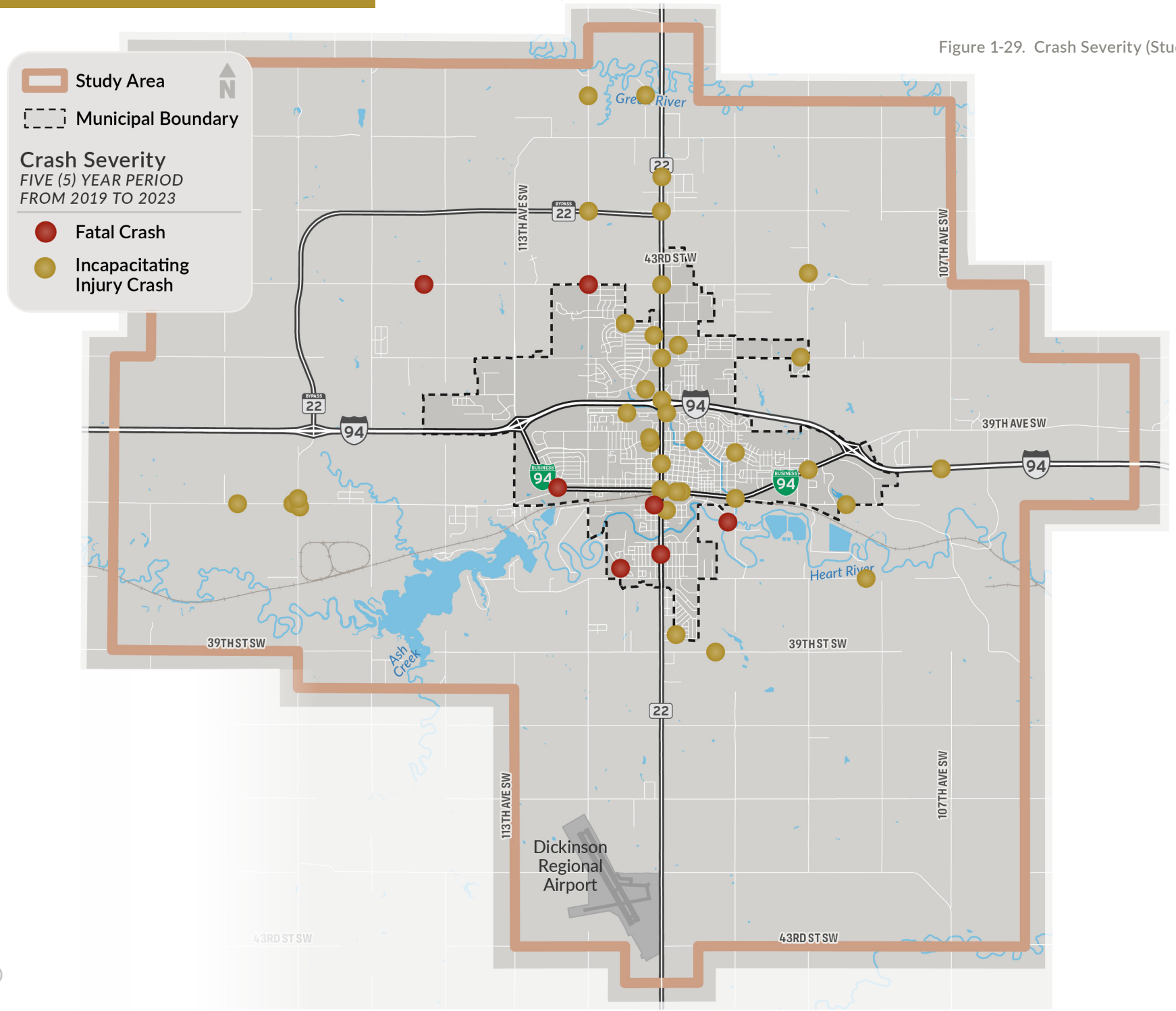
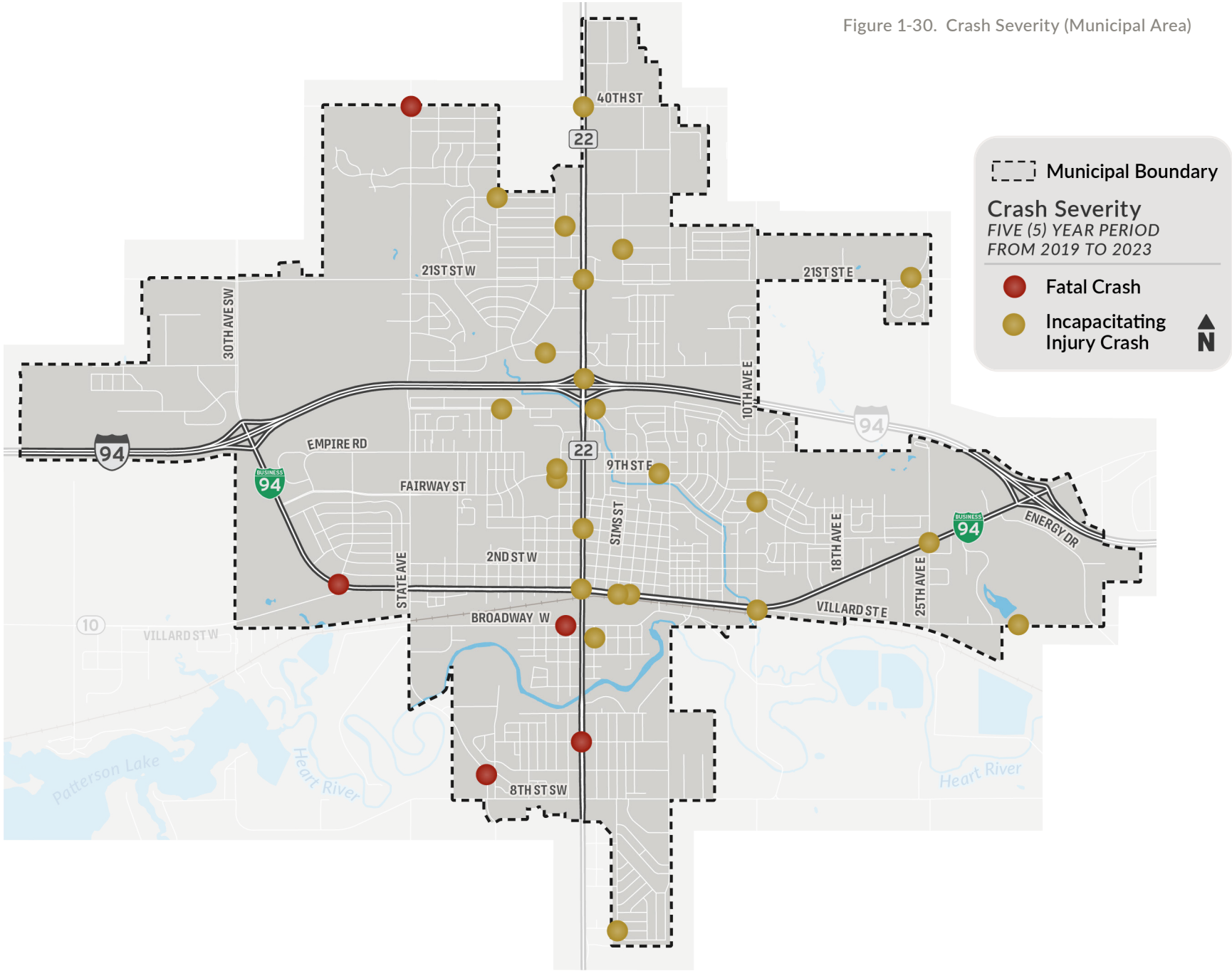


Figure 1-30. Crash Severity (Municipal Area)



STREET 1	STREET 2	TOTAL CRASHES	RANK
ND 22	15th St W	34	1
ND 22	Villard	31	2
ND 22	9th St W	31	2
ND 22	21st St W	29	3
ND 22	Museum Dr W	23	4
ND 22	8th St SE	20	5
ND 22	2nd St W	18	6
ND 22	94 Ramps	17	7
Empire Rd	State Ave	15	8
ND 22	3rd St W	14	9
ND 22	40th St W	14	9
Villard	State Ave	12	10

Figure 1-31. Top 10 Crash Intersections

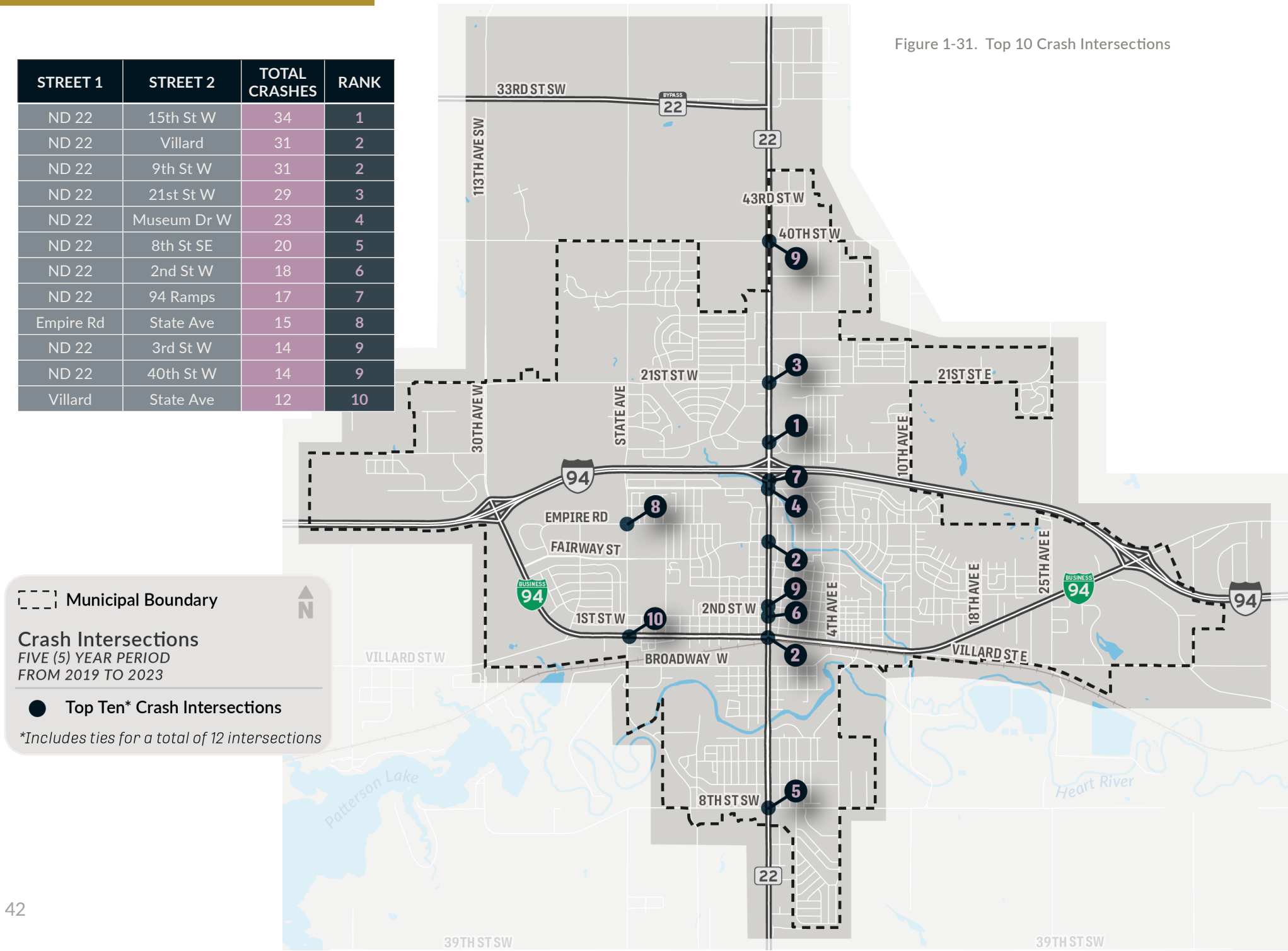
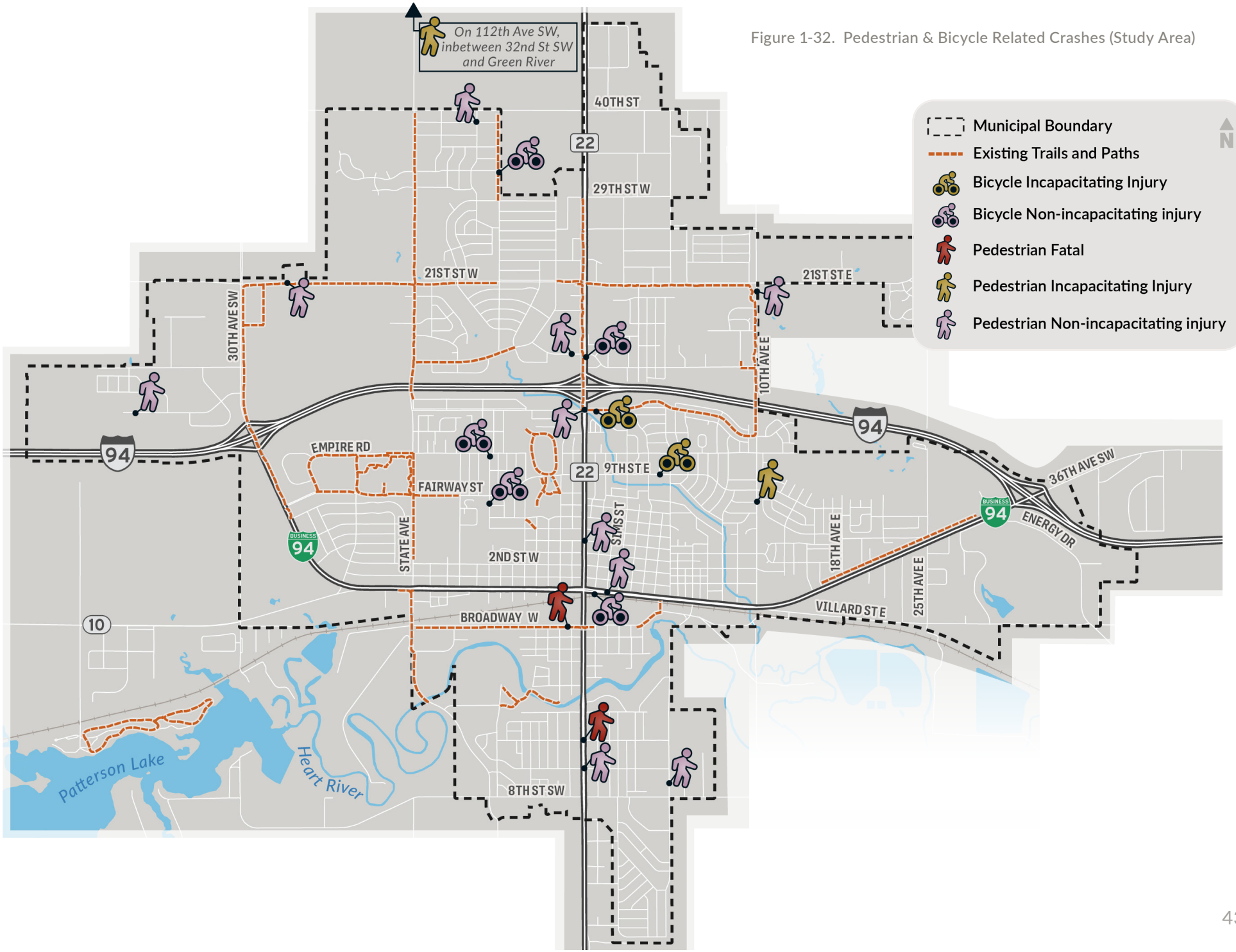


Figure 1-32. Pedestrian & Bicycle Related Crashes (Study Area)



ENGAGEMENT SUMMARY

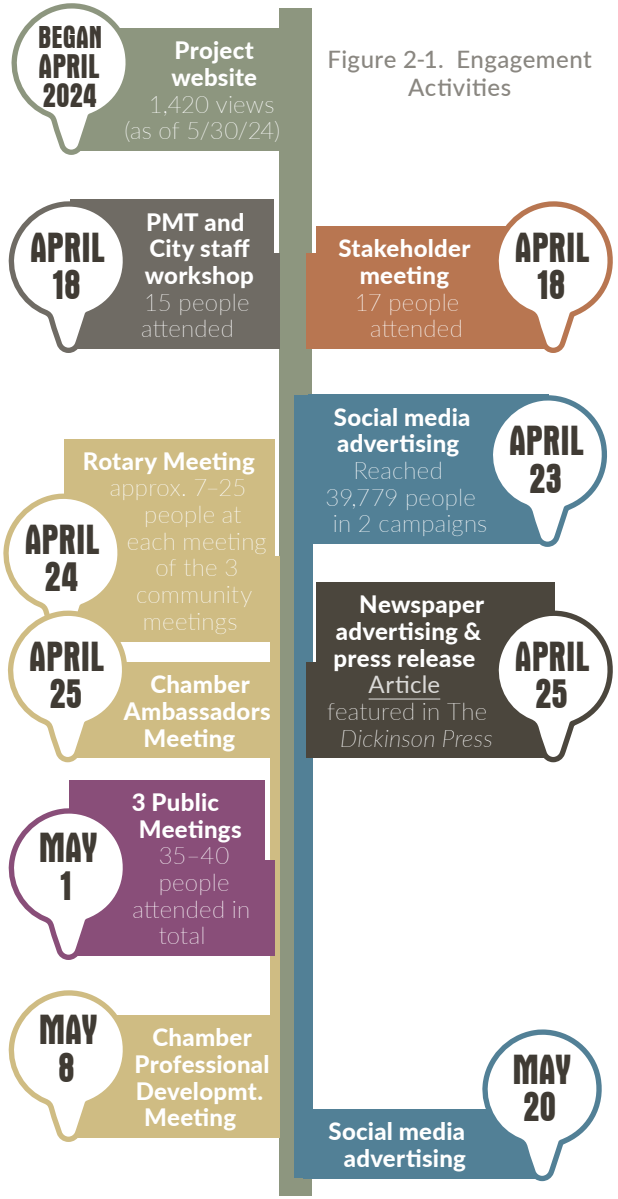


Figure 2-1. Engagement Activities

PHASE 1 ENGAGEMENT ACTIVITIES

The City of Dickinson kicked off planning efforts for the Direction 2050 plan in February 2024. A stakeholder and public engagement plan was developed identifying Community Stakeholders and engagement tactics to be utilized.

This summary includes feedback collected during Phase 1 of engagement which took place from approximately April 1 – May 20, 2024.

Figure 2-1 details the media outreach and meetings for the Phase 1 engagement process.

Stakeholder Outreach

A Community Stakeholder Group was identified to serve as a resource during the plan development. A stakeholder meeting was held in April 2024 to gain feedback and insights from key stakeholder groups on issues and challenges they face.

COMMUNITY STAKEHOLDER GROUP MEMBERS:

- City of Dickinson
- NDDOT
- Stark County
- Dickinson School District
- Park District
- Public Works
- Stark Development Corporation
- Dickinson Public Transit
- Theodore Roosevelt Regional Airport
- Dickinson State University
- Dickinson Convention and Visitors Bureau
- Emergency responders
- Dickinson Builders Association
- Vision West ND

Stakeholder Vision and Goals Survey: What did we learn?

- Updates should reflect **needs of today** rather than needs from 10 years ago during "boom" days. This includes goals identified in land use, housing, and transportation.
- Diversification of work force and **economic development** is needed. This will help to attract families and young professionals.
- Build a strategic approach to growth with considerations for **affordability** (housing), **walkability/multi-modal** (transportation), and **development** (infrastructure).

A short presentation was delivered at the meeting with time spent considering updates to the vision and goals of the current Comprehensive Plan to reflect needs of today.

Project Management Team and City Staff Workshop

City staff along with the project management team were invited to attend a workshop in April 2024 aimed at gathering insights from this core team. A short presentation was delivered with a majority of the time aimed at roundabout table discussions. Members present included:

- Bob Furhrman, Museum Director
- John Odermann, City Commissioner
- Joel Walters, Marketing & Events
- Dustin Dassinger, City Administrator
- Jeremy Presnell, Fire Chief
- Josh Skluzacek, City Engineer
- Matt Hanson, Deputy Police Chief
- Joe Cianni, Police Chief
- Wayne Zacher, NDDOT
- Rob Rayhorn, NDDOT
- Steve Josephson, Stark County
- Aaron Praus, Public Works Director

Stakeholder Roundtable Discussion: What did we hear?

- Schools continue to see steady growth and with that the need to **expand facilities** for youth activities.
- Infrastructure needs exist on the south side of the city. Considerations for a **south bypass** for trucking/cargo to provide connectivity from south side of city to the north side.
- Development continues, but at a slower rate than 10 years ago. Consider incentives or plans to **promote housing and business development** in areas previously platted.

PMT/City Staff Roundtable Discussion: What did we hear?

- Traffic safety issues were discussed including **traffic flow** at intersections and schools, along with general morning/afternoon **congestion.** It was noted that many issues discussed are already being addressed in other projects.
- Limited **rail crossings** opportunities can create problems for traffic and emergency response.
- Need and desire for **multi-modal connectivity** throughout city.
- Downtown development, revitalization, incentives for developers. Creating a defined and attractive ***downtown.***

Public Input Meetings

Three in-person meeting opportunities were provided to the public on May 1, 2024.

- 10 am – 12 pm
- 2 – 4 pm
- 5 – 7 pm

The format included a short presentation with table-top discussions.

Public Input Meetings: What did we hear?

- Discussions surround **traffic safety,** particularly near schools for pedestrians crossing the street.
- Trail, **bike/ped connectivity** issues.
- Need for efficient **north/south route.**
- Create more ***neighborhoods*** with various housing looks.
- Find ways to create the **sense of community** throughout Dickinson.
- Additional **overpass/underpass** considerations at railroad crossings.
- General discussions around **pavement conditions, intersections, traffic signals, traffic flow.**

BRAND IDENTITY AND OUTREACH

The plan was branded Direction 2050 and utilized colors and themes from the City of Dickinson's brand standards. Outreach material was developed with the Direction 2050 branding and included information distributed via the project website, flyers, social media, and the newspaper. **Figure 2-2** through **Figure 2-5 on page 49** show examples of these outreach materials.

Figure 2-2. Project website

Figure 2-3. Project flyer

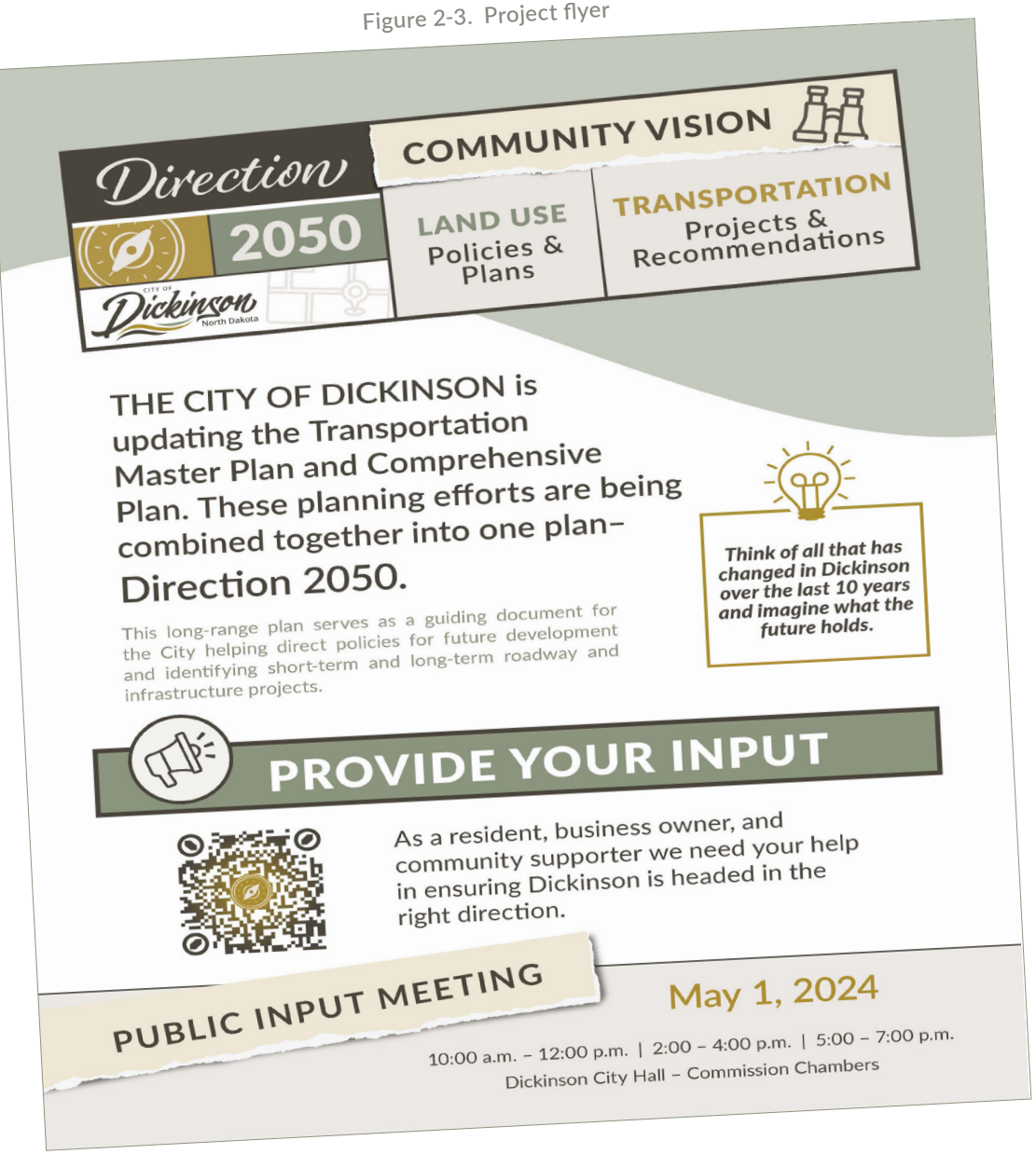
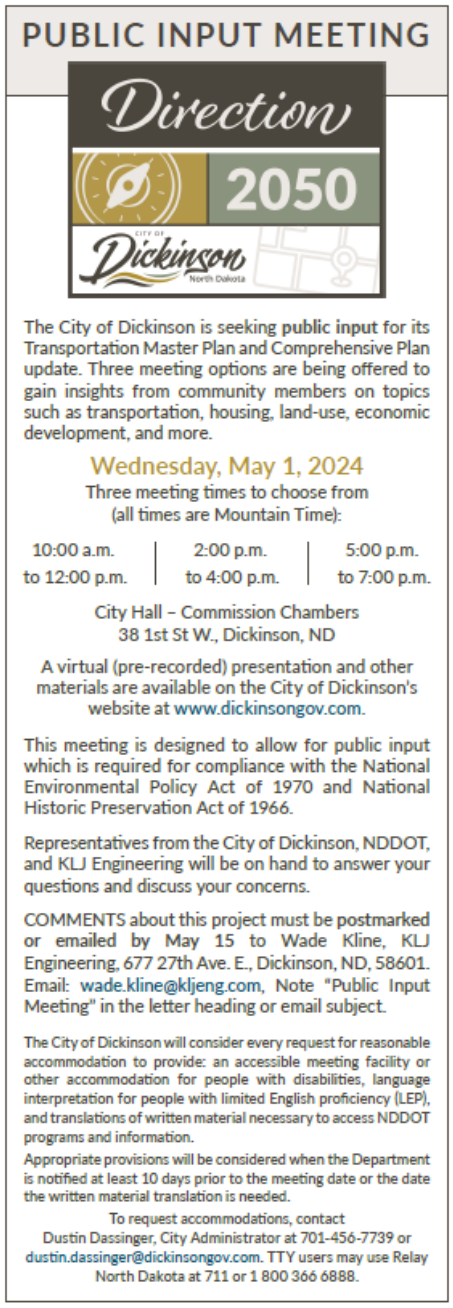


Figure 2-4. Social media ads

Figure 2-5. Newspaper ad



PUBLIC INPUT MEETING

Direction 2050

City of Dickinson North Dakota

The City of Dickinson is seeking **public input** for its Transportation Master Plan and Comprehensive Plan update. Three meeting options are being offered to gain insights from community members on topics such as transportation, housing, land-use, economic development, and more.

Wednesday, May 1, 2024

Three meeting times to choose from
(all times are Mountain Time):

10:00 a.m. to 12:00 p.m.	2:00 p.m. to 4:00 p.m.	5:00 p.m. to 7:00 p.m.

City Hall – Commission Chambers
38 1st St W., Dickinson, ND

A virtual (pre-recorded) presentation and other materials are available on the City of Dickinson's website at www.dickinsongov.com.

This meeting is designed to allow for public input which is required for compliance with the National Environmental Policy Act of 1970 and National Historic Preservation Act of 1966.

Representatives from the City of Dickinson, NDDOT, and KLJ Engineering will be on hand to answer your questions and discuss your concerns.

COMMENTS about this project must be postmarked or emailed by May 15 to Wade Kline, KLJ Engineering, 677 27th Ave. E., Dickinson, ND, 58601. Email: wade.kline@kljeng.com, Note "Public Input Meeting" in the letter heading or email subject.

The City of Dickinson will consider every request for reasonable accommodation to provide: an accessible meeting facility or other accommodation for people with disabilities, language interpretation for people with limited English proficiency (LEP), and translations of written material necessary to access NDDOT programs and information.

Appropriate provisions will be considered when the Department is notified at least 10 days prior to the meeting date or the date the written material translation is needed.

To request accommodations, contact
Dustin Dassinger, City Administrator at 701-456-7739 or dustin.dassinger@dickinsongov.com. TTY users may use Relay North Dakota at 711 or 1 800 366 6888.

Project Website

A project website was developed on the social pinpoint platform and served as a dashboard of information and provided several opportunities for the public to get involved in the project including survey, interactive mapping, vision board, and video.

Figure 2-2 displays exerpts from the project website hosted at https://inputcentral.com/Direction2050.

Site analytics of website interactions as of May 24, 2024 highlighted:

- 1,528 website views
- 328 total contributions
  - 189 contributions on interactive map
  - 105 surveys completed
  - 25 vision board ideas shared
  - 62 views of the video
  - 32 study area map downloads

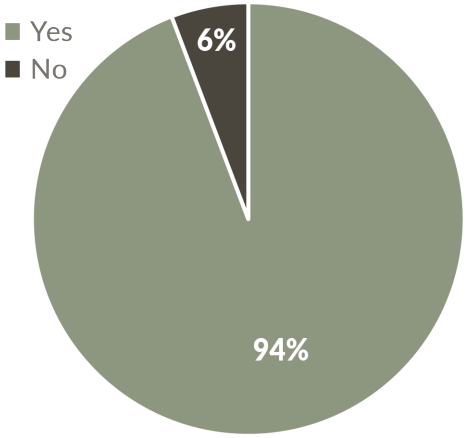
Website traffic was generated from several primary sources:

- Facebook resulted in 332 visitors
- Direct links from QR code resulted in 257 visitors
- *The Dickinson Press* online resulted in 145 visitors

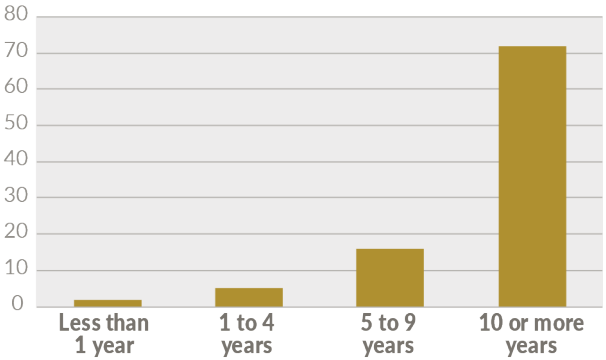
SURVEY RESULTS

The 105 surveys received were compiled and the results for each question are charted as follows.

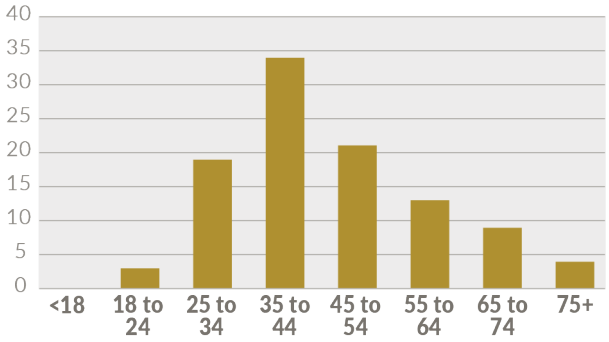
1. Do you live in Dickinson?



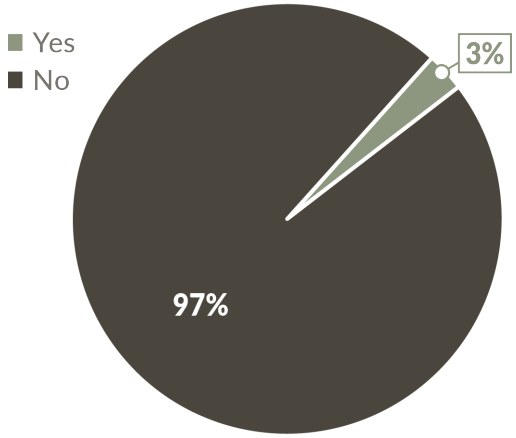
2. How long have you lived in Dickinson?



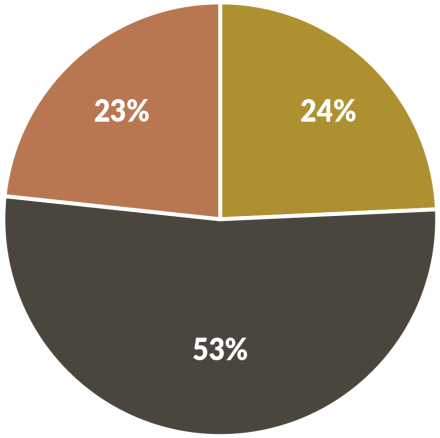
3. What is your age?



5. Are you a student at Dickinson State University?

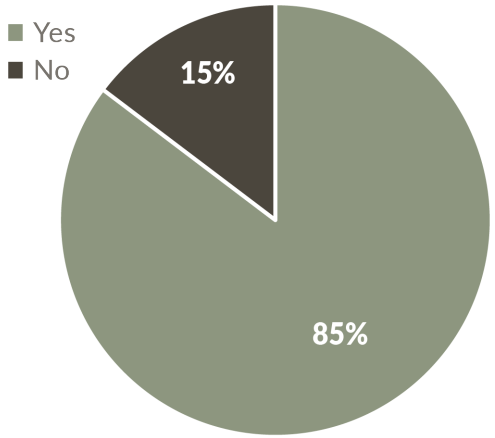


7. When you consider the growth the city has experienced in the last 5–10 years, how would you characterize it?

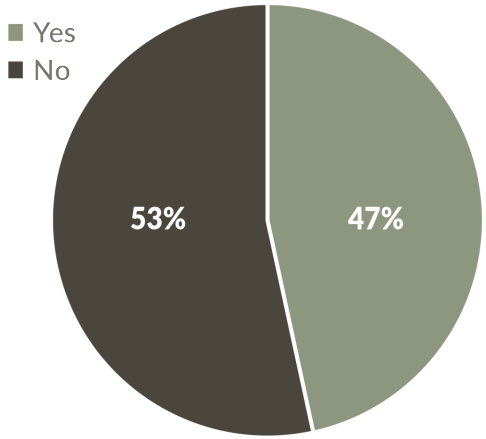


- Satisfied with current course.
- Some course correction needed.
- Major course correction needed.

4. Do you work in Dickinson?



6. Do you have school-age children in your household under the age of 18?



Why do you think course correction is needed?

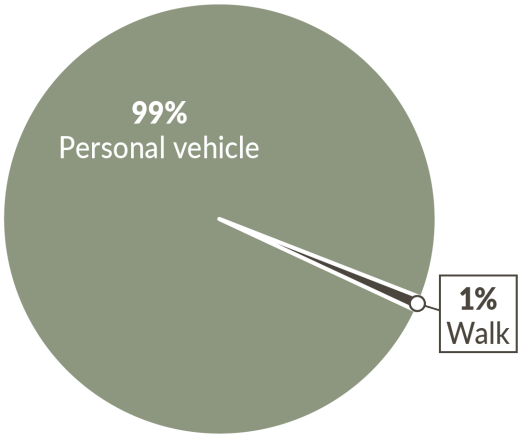
Examples of responses are included here; please reference **Appendix A** for all comments collected.

- Showcase "vibrancy" of town to retain younger families to the area. More lifestyle stores, activities. Absolutely IMPROVE the roads!
- Too much high density housing.
- I think there needs to be more public trails to unify the city a little better. There are developments that are

annexed into the city but essentially have no access besides driving. There should be walking/bike paths connecting the city.

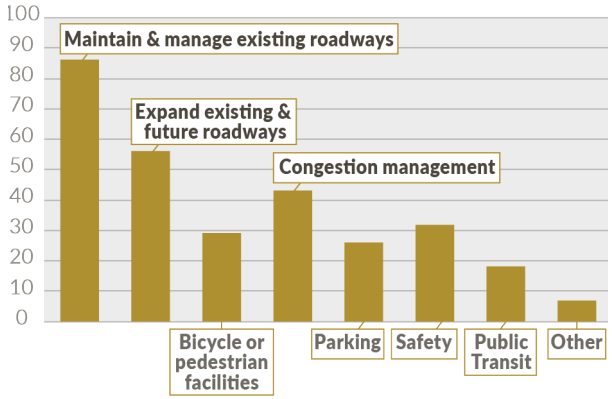
- It's slow growth, but it's great to see progression in moderation. More focus on downtown businesses, revitalizing downtown & the buildings. Make Villard great again.
- Imbalance of development in a number of areas, not limited to, but including, affordable housing, commercial, and recreational opportunities.
- More planned use of existing green spaces and provision for future green spaces
- The education buildings are outdated and need major overhauls to attract and retain population. There is also a lack of extra curricular activities for seniors, a senior center is badly needed.
- There has been a lot of growth meaning new education buildings are needed. There has been very few updates
- Walkability especially on the Southside or near the golf course to Patterson lake recreation area. Incentives for small business development expanded. Supports for women and new American entrepreneurs. Comprehensive program to help new Americans settle

8. What is your primary mode of transportation?

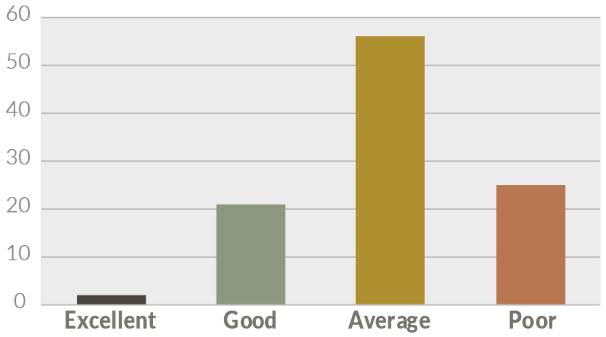


(0% Public Transportation; 0% Bike)

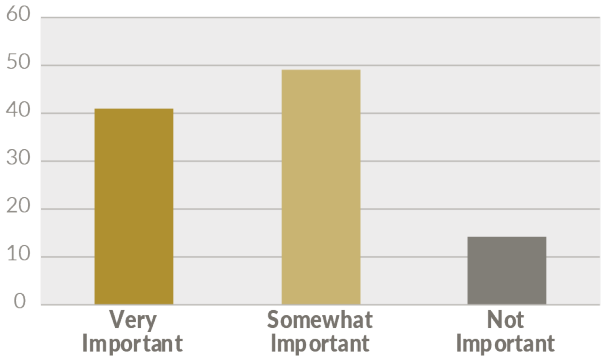
9. Select the top three priorities for transportation investments in the Dickinson area



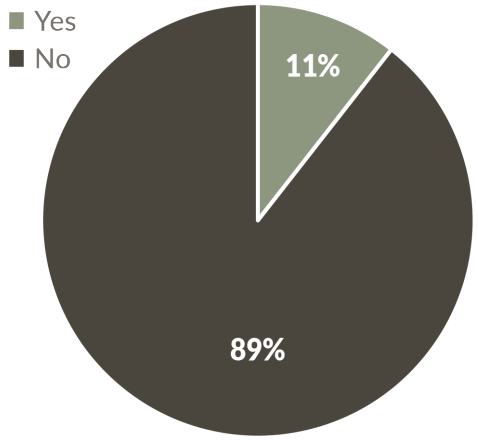
10. Overall, how would you rate the roadway and street system in Dickinson?



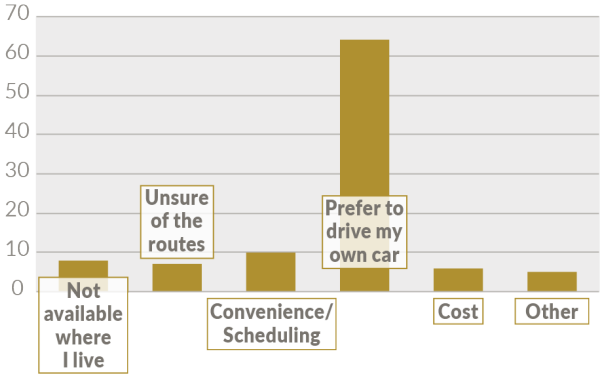
11. How important is it that Dickinson has access to public transit?



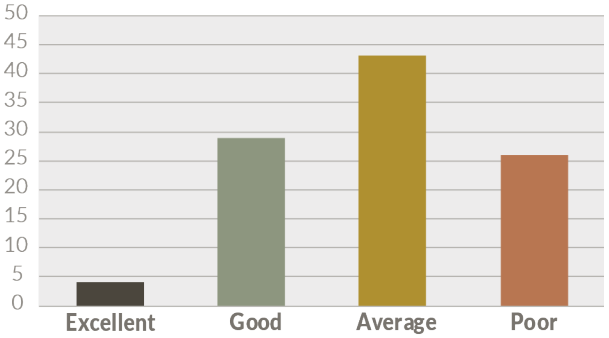
12. Has anyone in your household utilized the Transit system in the last year?



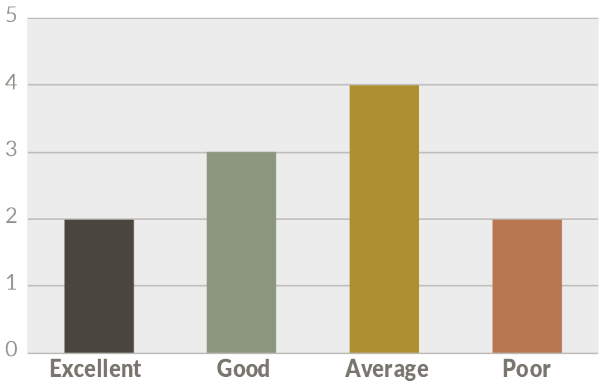
14. What are your barriers to using public transit?



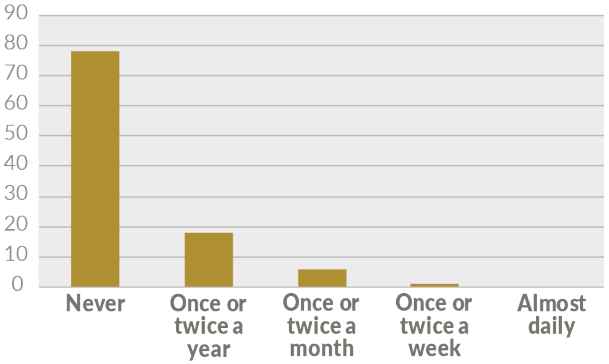
16. Overall, how would you rate the pedestrian/bicycle system in Dickinson?



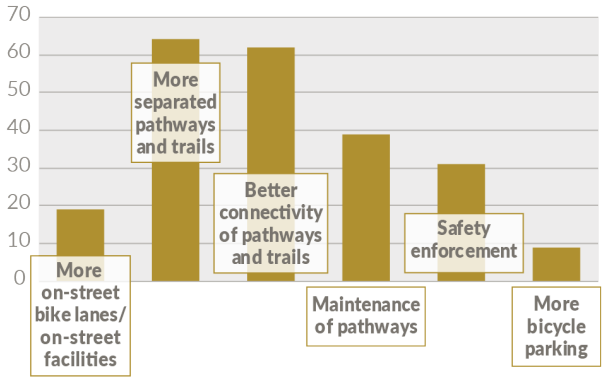
13. How would you rate the transit system?



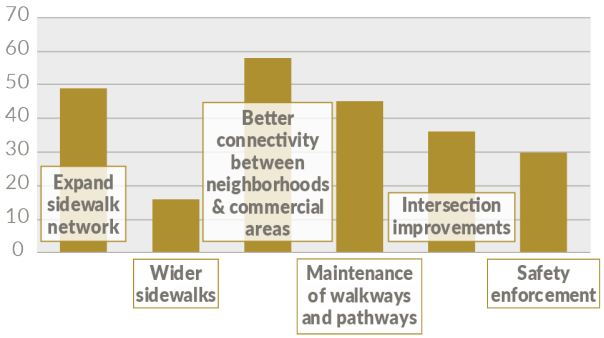
15. How often do you use rideshare apps (Uber, Lyft) to get around Dickinson?



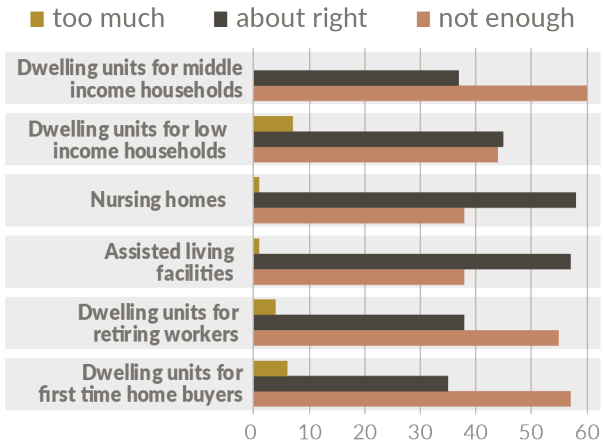
17. What could improve your biking experience in Dickinson?



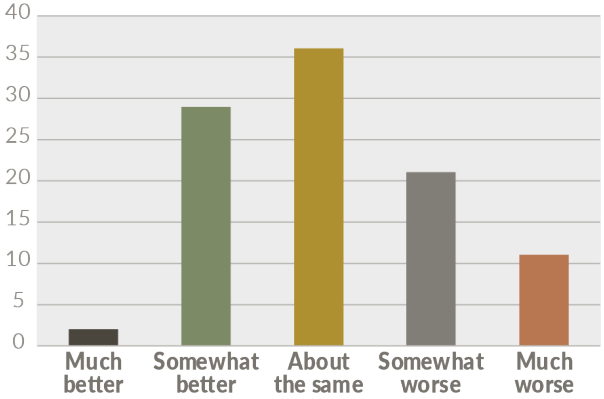
18. What could improve your walking experience in Dickinson?



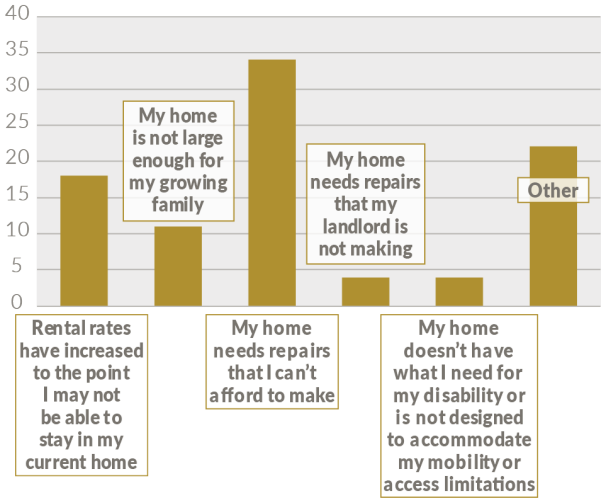
19. Please rate the sufficiency of housing supply in Dickinson



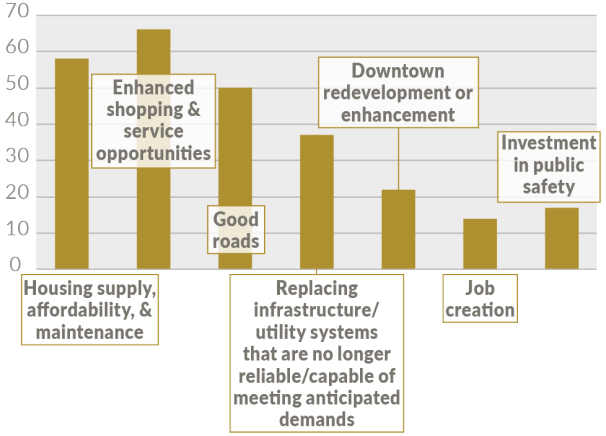
20. How do you think the quality of Dickinson residential neighborhoods today compares to ten years ago?



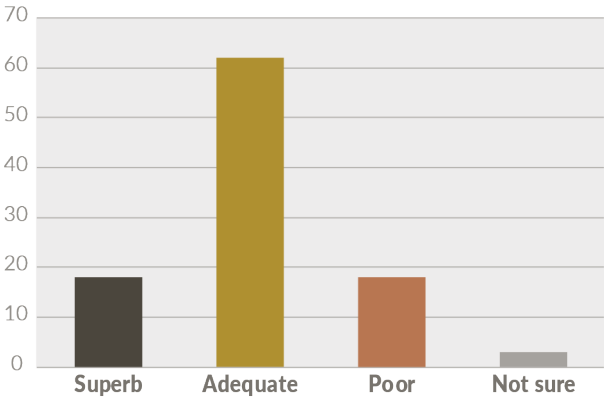
21. Do you have a concerns or challenges with your housing situation?



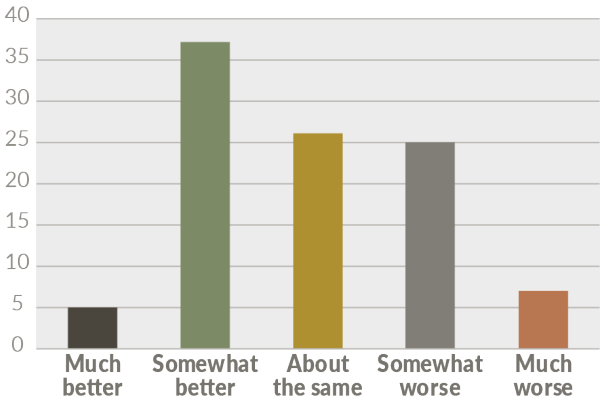
22. What issues do you think need to be prioritized and received special attention during this planning process?



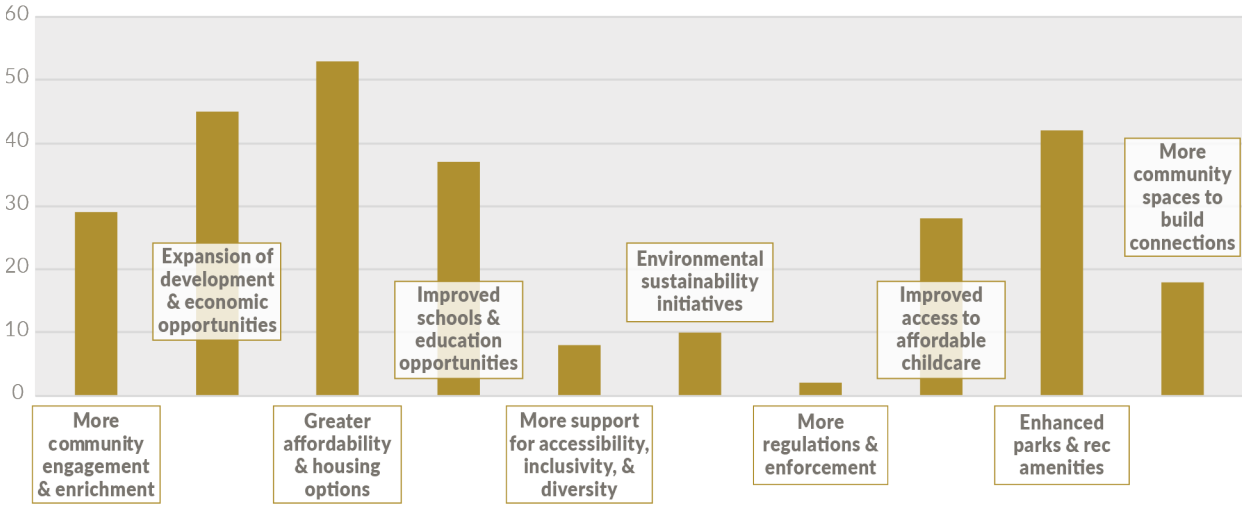
23. How would you rate the overall quality of community services (schools, library, recreational facilities, etc.)



24. How does the quality of life in the City of Dickinson today compare to ten years ago, or since you moved to the community?



25. What do you think would make the greatest impact on the quality of life in Dickinson?



INTERACTIVE MAPPING

Respondants submitted 190 comments on the Interactive Map. Comments collected included potential issues to be addressed or general observations. These comments were tabulated by category and the resulting percentages for each category are illustrated in the accompanying chart and geo-located in **Figure 2-6 on page 55**.

The interactive map categories are:

- Economy/Opportunity
- Housing
- Land Use & Growth
- Multi-modal
- Parks & Trails
- Recreation & Tourism
- Vehicle

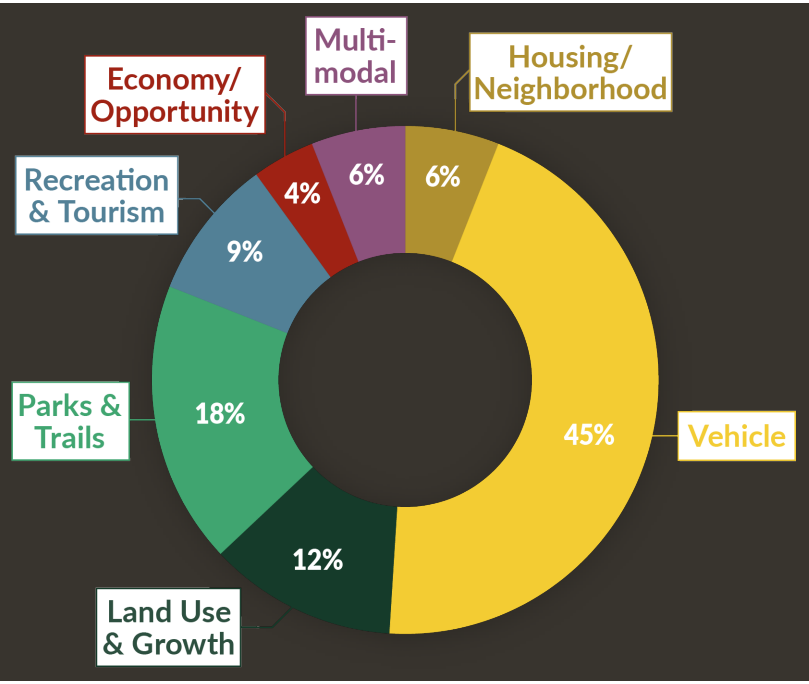
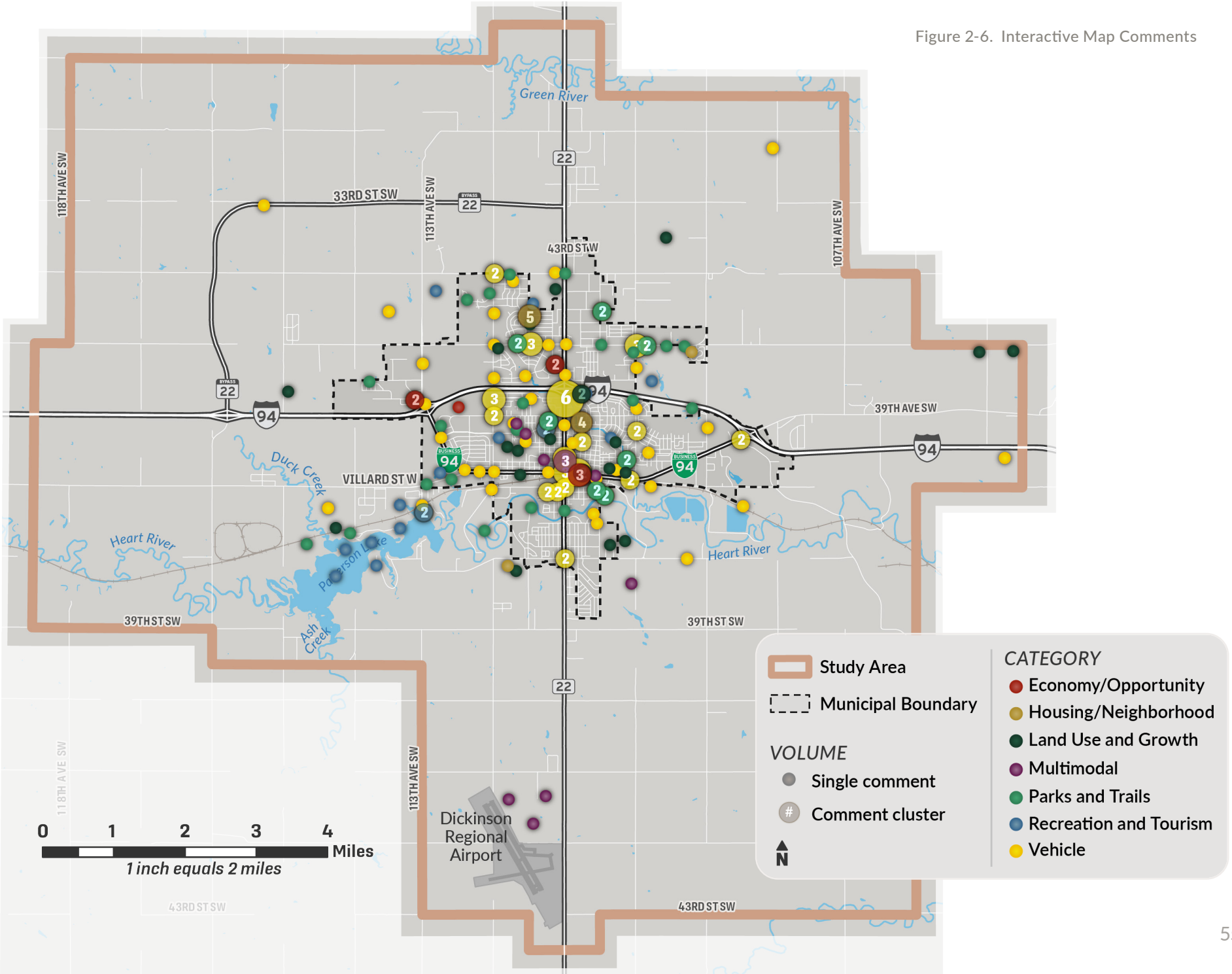


Figure 2-6. Interactive Map Comments



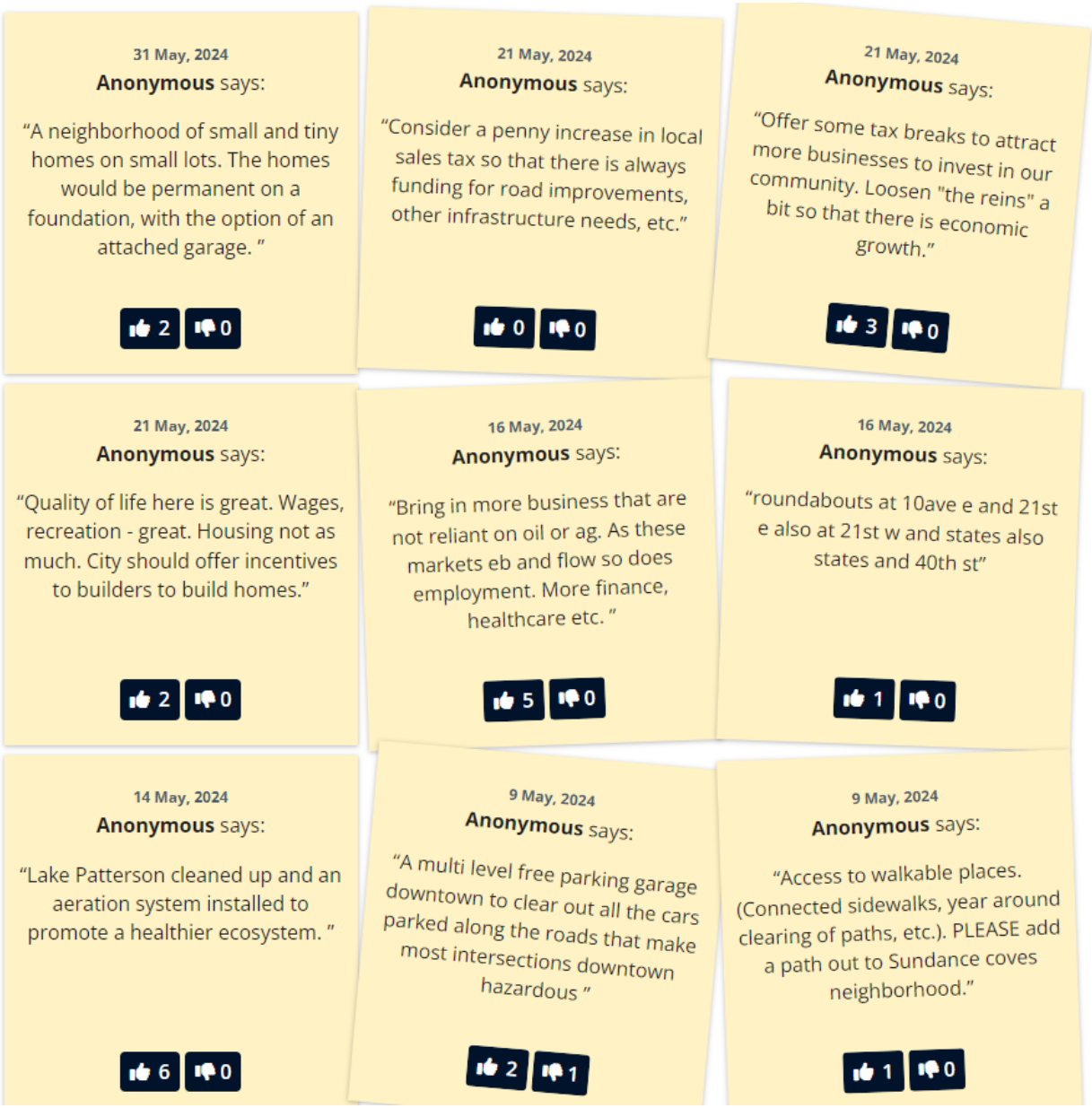
VISION BOARD

The website Vision Board received responses from 25 people who submitted ideas on ways to make Dickinson the best place to live, work, and play.

Key themes and ideas included:

- Encourage development of careers, retail, and business opportunities throughout the community
- Provide recreational and entertainment options for youth and adults
- Enhance walkability from neighborhoods to business areas
- Revitalize downtown businesses and consider parking options
- Incentivize home builders to enhance housing options
- Investments in infrastructure improvements

All comments collected on the Vision Board can be found beginning on **page 183** in **Appendix A**.



AREA-WIDE ISSUES & NEEDS

The existing conditions analysis coupled with public and stakeholder engagement reveal several area-wide issues and needs facing the Direction 2050 study area. This initial list of issues and needs provide a framework of focus areas to be evaluated with the development of Direction 2050.

- Regional transportation issues/corridor analysis
- Traffic safety/operations analysis
- Trails and bike/pedestrian systems
- Neighborhoods
- Transportation system management and preservation
- Standards and policy development

Several conditions were considered when pinpointing the preliminary set of transportation issues, such as crash history, especially locations with fatal or serious injuries, as well as crashes involving bike riders and pedestrians (as illustrated in the crash incident maps beginning on **page 39 through page 43**). Pavement condition and existing and projected level of service (LOS), as detailed in ***Existing Conditions***, were factored into the development of the preliminary development of issues and needs. Issues were initially broken down based on a series of both regional and corridor levels.

Further analysis will assist in the eventual development of planning level project concepts and support the identification of specific project level recommendations.

REGIONAL TRANSPORTATION ISSUES

A series of regionally focused transportation issues were developed as needing further evaluation as part of Direction 2050.

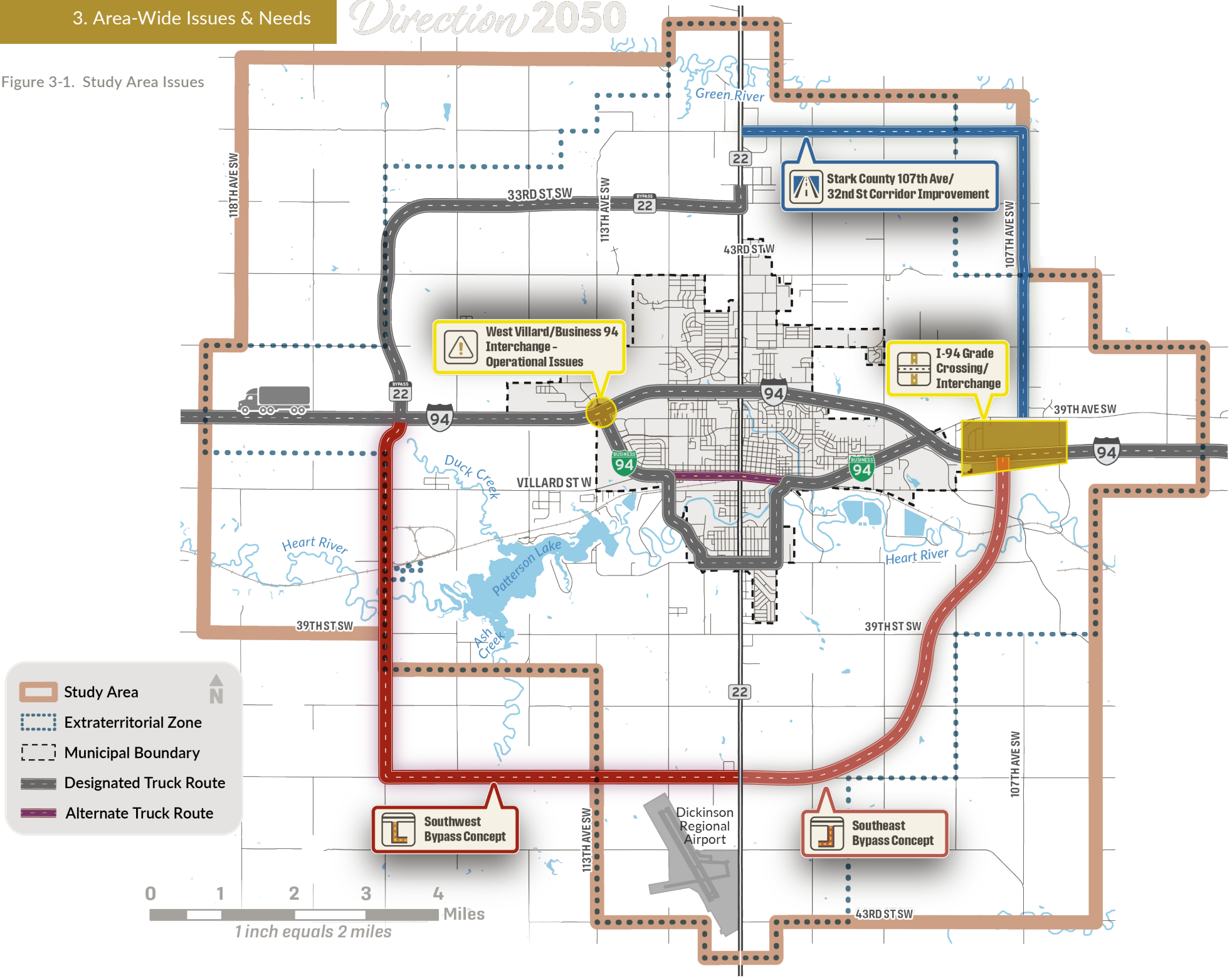
- 107th/Stark County Corridor
- Southeast Bypass
- Southwest Bypass

These specific areas are illustrated in **Figure 3-1. Study Area Issues.**

Bypass Needs

A Southeast/Southwest bypass connecting Dickinson Regional Airport to I-94 could increase safety and alleviate traffic congestion along portions of the existing truck bypass on the southend of the study area. This could ultimately create a complete connection with the existing northwest ND 22 bypass, and coordination with pending roadway investments planned by Stark County. The southeast segment of a potential future bypass will need to consider pending improvements by Stark County along 107th

Figure 3-1. Study Area Issues



Avenue/32nd Street as well as a future potential grade crossing of I-94.

Several potential concepts should be considered and evaluated to support more detailed analysis beyond the Direction 2050 planning process. Very preliminary concepts are illustrated in **Figure 3-1**.

CORRIDOR ISSUES

Additionally, the following areas were pinpointed for corridor level analysis:

- North South Mobility
- State Avenue
- 10th Avenue
- ND 22
- Downtown core
- West and East Villard (specifically through downtown core)

These corridor issues areas (shown in **Figure 3-2**) should be evaluated at a more detailed level of analysis and provide the basis for developing project specific recommendations for Direction 2050.

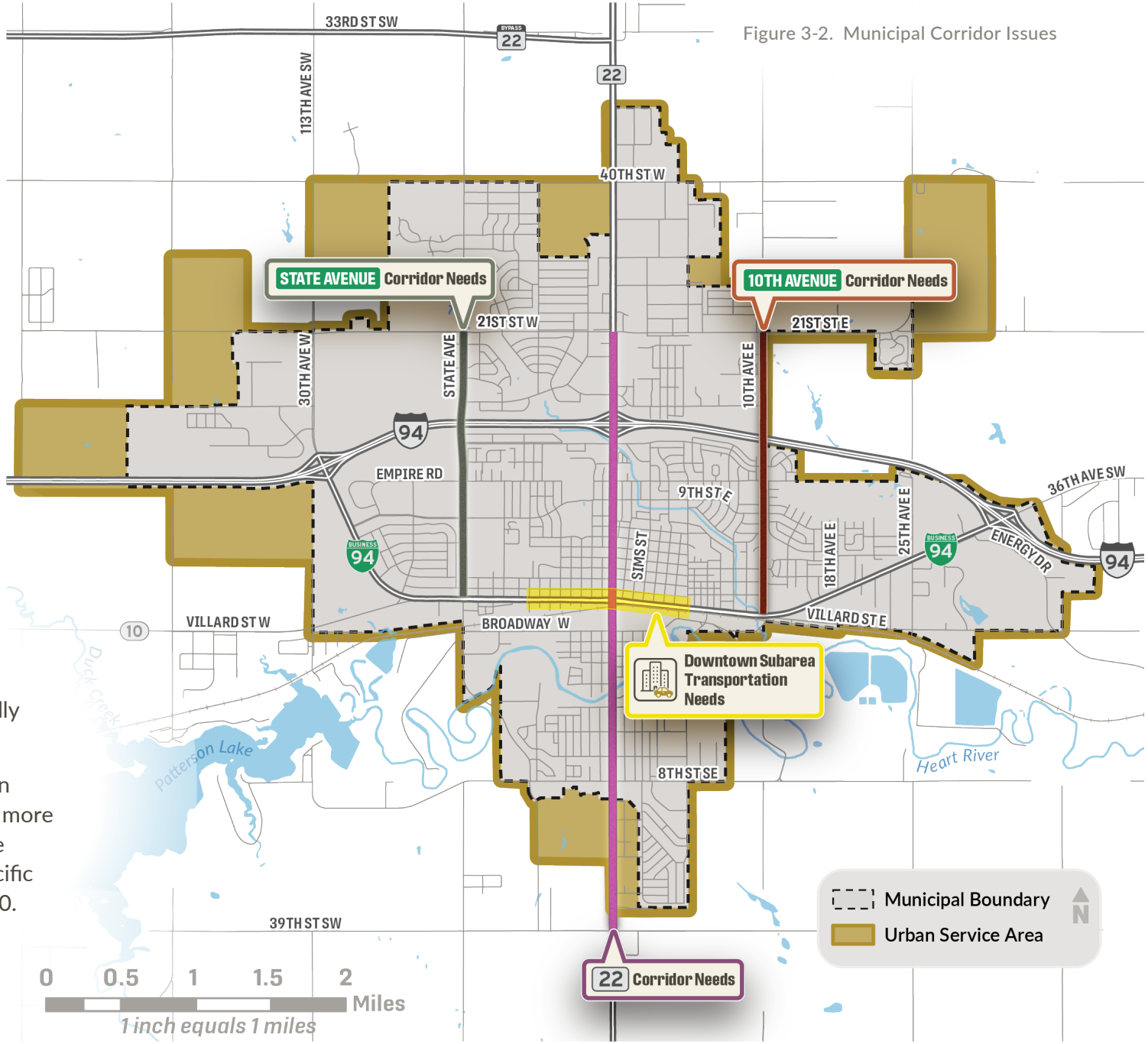
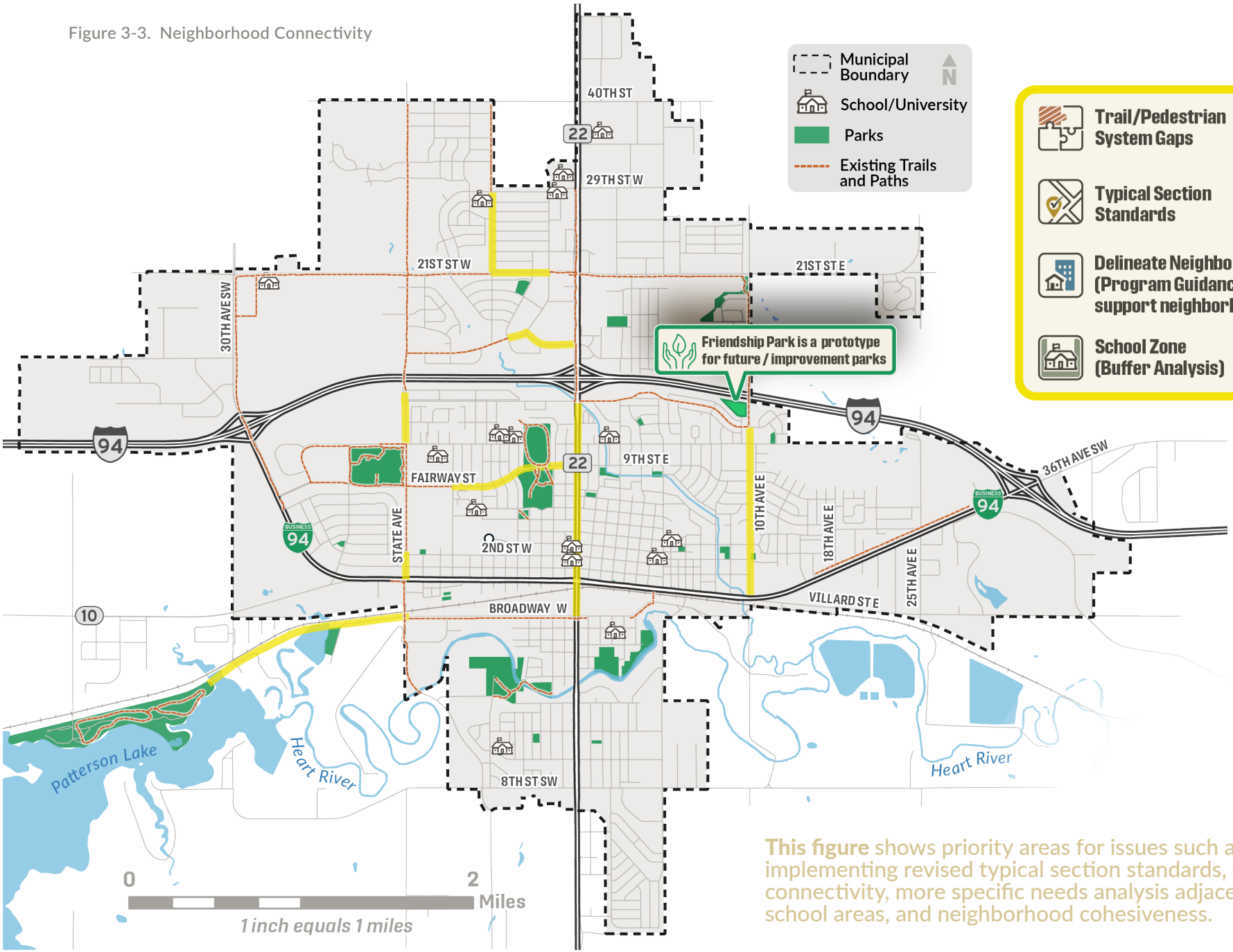


Figure 3-2. Municipal Corridor Issues

Figure 3-3. Neighborhood Connectivity



This figure shows priority areas for issues such as implementing revised typical section standards, trail connectivity, more specific needs analysis adjacent to school areas, and neighborhood cohesiveness.

GROWTH & DEVELOPMENT ANALYSIS

Growth indicators for Dickinson were evaluated to develop an understanding of past growth patterns and potential future growth. This included analyzing population, building permit, and school enrollment data.

Dickinson's population growth has been most influenced by the baby boom, and two oil and gas booms. The most recent oil and gas boom resulted in a 44% population growth from 2010 to 2020. Over the last four decades Dickinson's average annual growth has ranged from -0.1% to 4.4%.

POPULATION TRENDS

Figure 4-1 illustrates the current population projection for Dickinson through 2050, compared to the population projection from 2013.

Depending on the census period, Dickinson's average annual growth has ranged from -0.1% to 4.4%. Population change is driven by births, deaths, and migration.

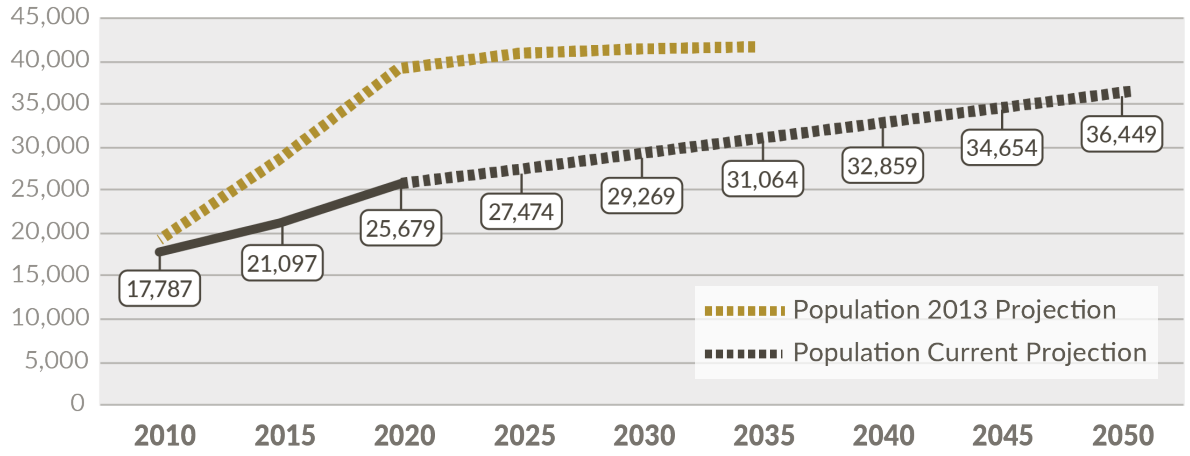
For Stark County, 72% of the population increase between 2010 and 2020 was due to net migration. **Without another economic event to trigger a major change in employment, the future growth of the County, and of Dickinson is likely to be much slower.** In the near term (through 2030), assuming 85% of Stark County births apply to Dickinson's population, the net natural increase for Dickinson is estimated to represent a 0.7% annual population growth. Any additional population growth will have to result from net migration. If net migration were to represent half the near-term population growth, Dickinson would be growing at an average annual rate of 1.4%. If the near-term population growth were to approximate the average annual growth from 2000 to 2010, it would be 1.1%. An alternative perspective is provided by the recent Stark County Comprehensive Plan population projection which put the average annual population growth at 1.8%.

Long term population growth for Dickinson, without a significant economic trigger, is likely

Table 4-1. Dickinson Decennial Population Change 1930–2020

YEAR	POPULATION	GROWTH/ DECADE	AVERAGE ANNUAL GROWTH
1930	5,025		
1940	5,839	16.2%	1.6%
1950	7,469	27.9%	2.8%
1960	9,971	33.5%	3.3%
1970	12,405	24.4%	2.4%
1980	15,924	28.4%	2.8%
1990	16,097	1.1%	0.1%
2000	16,010	-0.5%	-0.1%
2010	17,787	11.1%	1.1%
2020	25,679	44.4%	4.4%

Figure 4-1. Dickinson Population Projection Comparison



to range from 0.7% to 1.4% due to the influx of replacement workers and their families as the current labor force ages.

POPULATION

Population changes result from births, deaths, and net migration. Records are unavailable for births, deaths, and migration for Dickinson, but Stark County statistics can be used as a proxy to understand approximate growth due to natural increase. Population changes not resulting from natural increase can only come from net migration.

Stark County's population change from 2010 through 2019 was 2,436 from *natural increase* and 7,011 from *net migration*. Assuming Dickinson's population change resulted from the same proportion as Stark County's population change, Dickinson's net natural increase was 1,949 people over the decade. Assuming this pattern continues through 2030, Dickinson can expect to grow another 1,949 people from natural increase over that time period.

Several scenarios ranging from 1.1% to 1.8% average annual population growth were developed using different assumptions about timing and level of net migration. Based on the Project Management Team's selection of an overall average annual growth rate of 1.4% Dickinson will have grown to 29,269 by 2030.

Table 4-2. Stark County Resident Births and Deaths, 2010–2019

YEAR	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Births	301	339	398	484	543	546	549	493	526	550
Deaths	217	236	197	237	234	240	218	234	236	244
Net change	**84**	**103**	**201**	**247**	**309**	**306**	**331**	**259**	**290**	**306**

This will require a net migration of 1,640 people over the decade. If this growth pattern continues, by 2050, Dickinson will have a population of 36,449.

HOUSEHOLDS

The population projection based on 1.4% average annual growth was used as a base for developing household projections from 2020 through 2050 using a factor of 2.38 persons per household through 2030 and gradually changing to a factor of 2.25 persons per household by 2040. Dickinson averaged 2.38 persons per household in the 2020 decennial census, but this number is expected to drop as the baby boomer population ages and the influx of families contributing to the increased school enrollment of the last decade start to see their children graduate and leave home.

Table 4-3. Dickinson Growth Projections 2020–2050

YEAR	POPULATION
2020	25,679
2025	27,474
2030	29,269
2035	31,064
2040	32,859
2045	34,654
2050	36,449

Table 4-4. Dickinson Household Projections 2020–2050

YEAR	HOUSEHOLDS
2020	10,789
2025	11,544
2030	12,298
2035	13,506
2040	14,604
2045	15,402
2050	16,200

Table 4-5. Dickinson Employment Projections 2020–2050

YEAR	EMPLOYMENT
2020	13,913
2025	14,885
2030	15,858
2035	16,830
2040	17,803
2045	18,776
2050	19,748

EMPLOYMENT

Employment statistics for Dickinson are not readily available, but the North Dakota Job Service does collect employment statistics at a county level. We can derive employment statistics for Dickinson based on Stark County information. The latest available employment statistics for Stark County are from 2022. Stark County employment in 2022 was 17,772. The Census Population Estimate for Stark County in 2022 was 32,803. The ratio of employment to population for Stark County is 0.5418:1.0000. Assuming this ratio does not change significantly over time and that the same ratio holds for Dickinson, we can project future year employment as illustrated in **Table 4-5**.

EXISTING LAND USE (ELU) MAP

In order to develop an understanding of potential future growth for the comprehensive and transportation plans, an existing land use map was developed, based on tax parcel data, aerial photography review and key stakeholder input. The draft map was reviewed by city planning staff and revised based on their comments. Total acres are shown in **Table 4-6**, utilizing the category definitions from the ***Existing Conditions*** chapter.

Table 4-6. Dickinson Existing Land Use Acreage by Category

AGRICULTURAL	–
VACANT	1821.09
RESIDENTIAL LOW DENSITY	2,011.45
RESIDENTIAL HIGH DENSITY	213.25
PARKS/REC	198.65
PUBLIC/INSTITUTIONAL	1146.96
COMMERCIAL	568.56
INDUSTRIAL	558.73
TOTAL	**6,518.71**

Figure 4-2. Existing Land Use Map (ETZ)

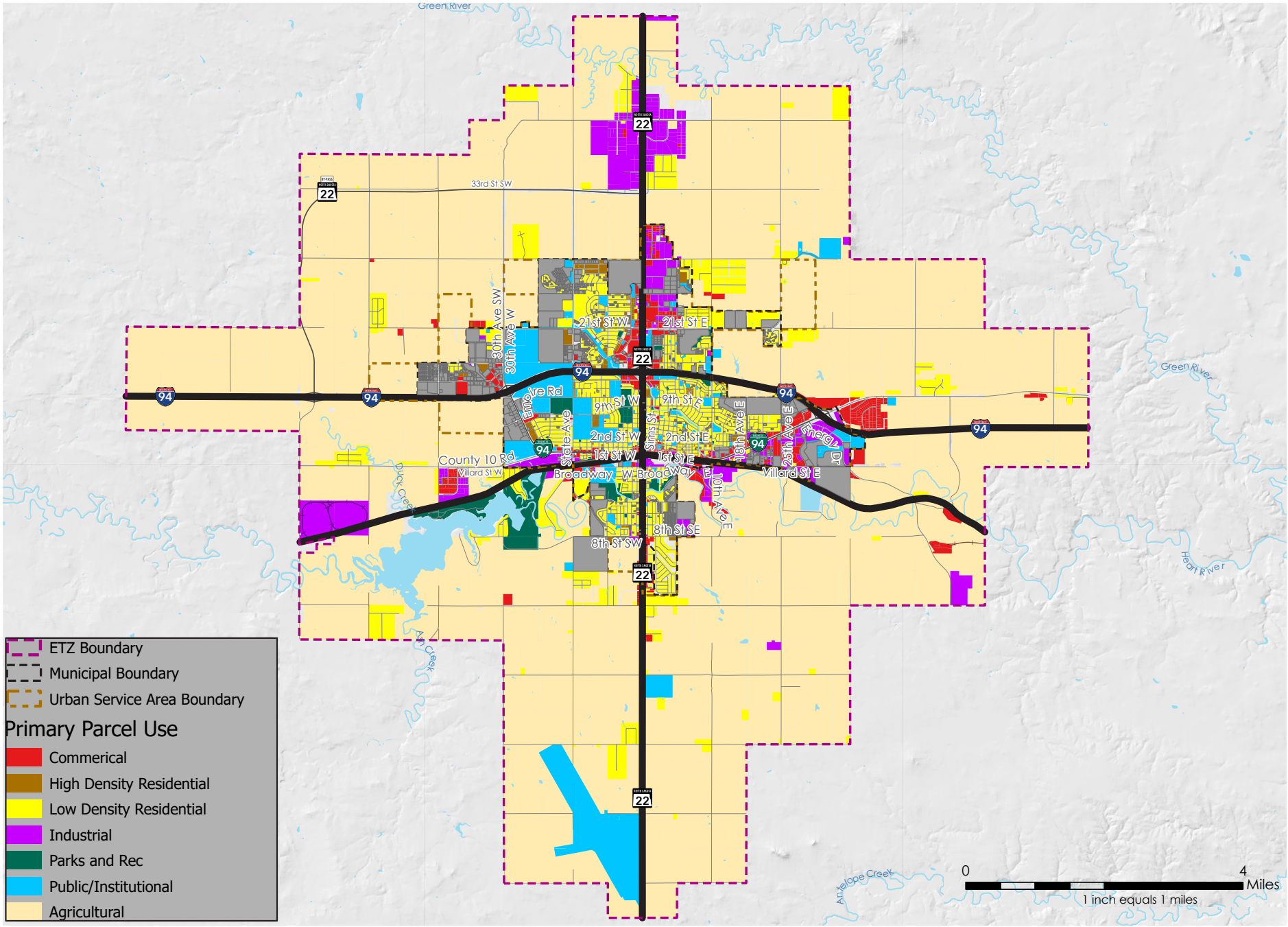
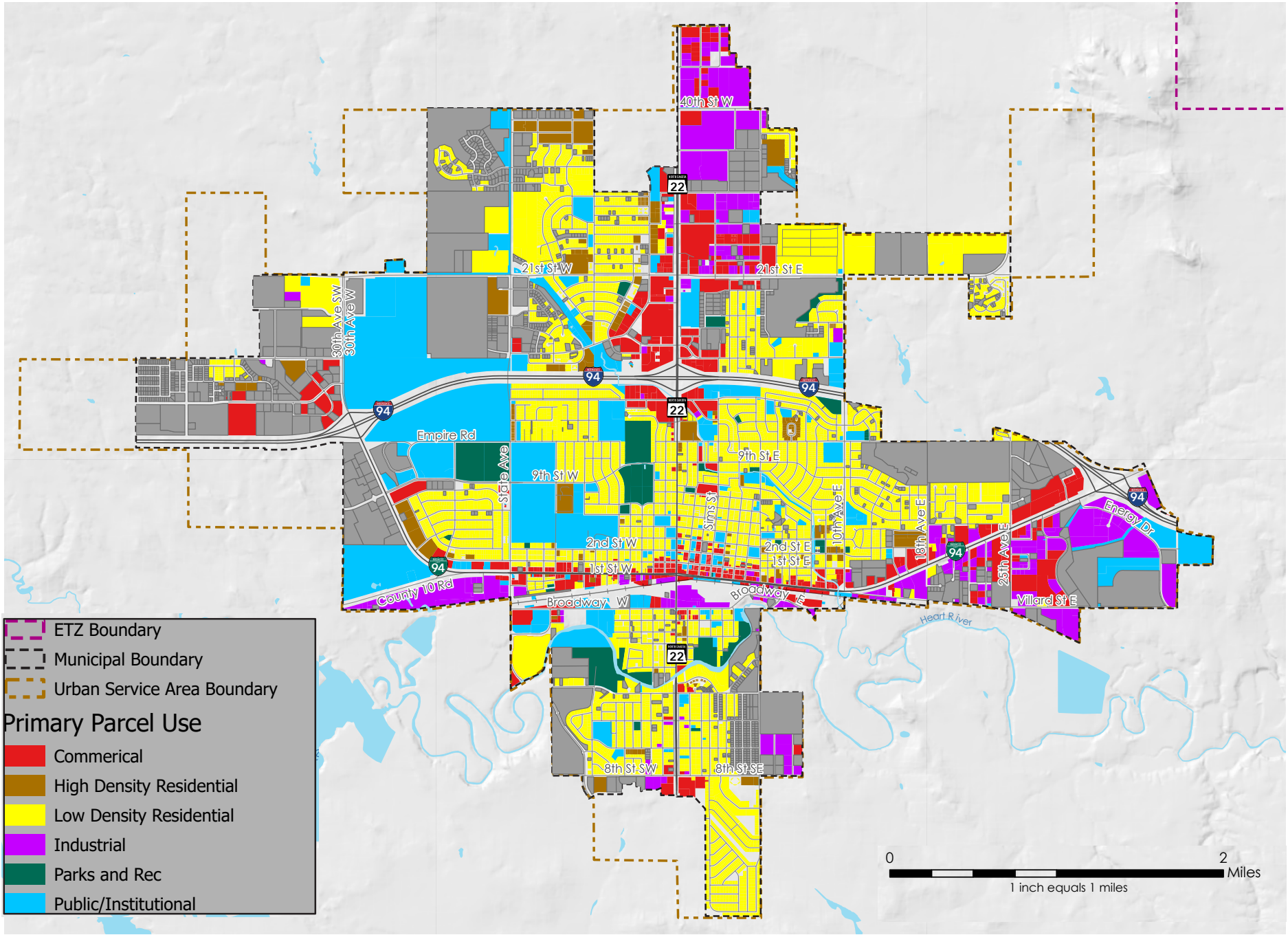


Figure 4-3. Existing Land Use Map (Municipality)



HOUSEHOLD AND EMPLOYMENT DEVELOPMENT DEMAND

Ratios of households per acre and employees per acre were developed based on current estimated households and employment and current land used for housing and employment. The average households per acre was calculated to be 3.164. The average employees per acre was calculated to be 6.491. Using the projections for households and employment noted above, the estimated demand for residential and employment acres was projected to be as illustrated in the **Table 4-7**.

Table 4-7. Estimated Development Acres Needed, 2025–2050

YEAR	HOUSEHOLDS	RES ACRES	EMPLOYEES	EMP ACRES	TOTAL ACRES	NEW ACRES
2025	11,544	3,649	14,885	2,293	5,942	388
2030	12,298	3,887	15,858	2,443	6,330	388
2035	13,506	4,269	16,830	2,593	6,861	532
2040	14,604	4,616	17,803	2,743	7,358	497
2045	15,402	4,868	18,776	2,893	7,761	403
2050	16,200	5,120	19,748	3,042	8,162	401
TOTAL						2,609

DEVELOPMENT STOPLIGHT CRITERIA

Land designated as vacant in the Existing Land Use Map has differing levels of capacity for immediate development. Apex Engineering staff reviewed all the vacant parcels and assigned the parcels into one of three categories:

Green: In general, the property is shovel ready with minor improvements potentially required such as:

- Service lines for water and sewer
- Roadways are constructed

Yellow: Relatively minor improvements required with the following conditions:

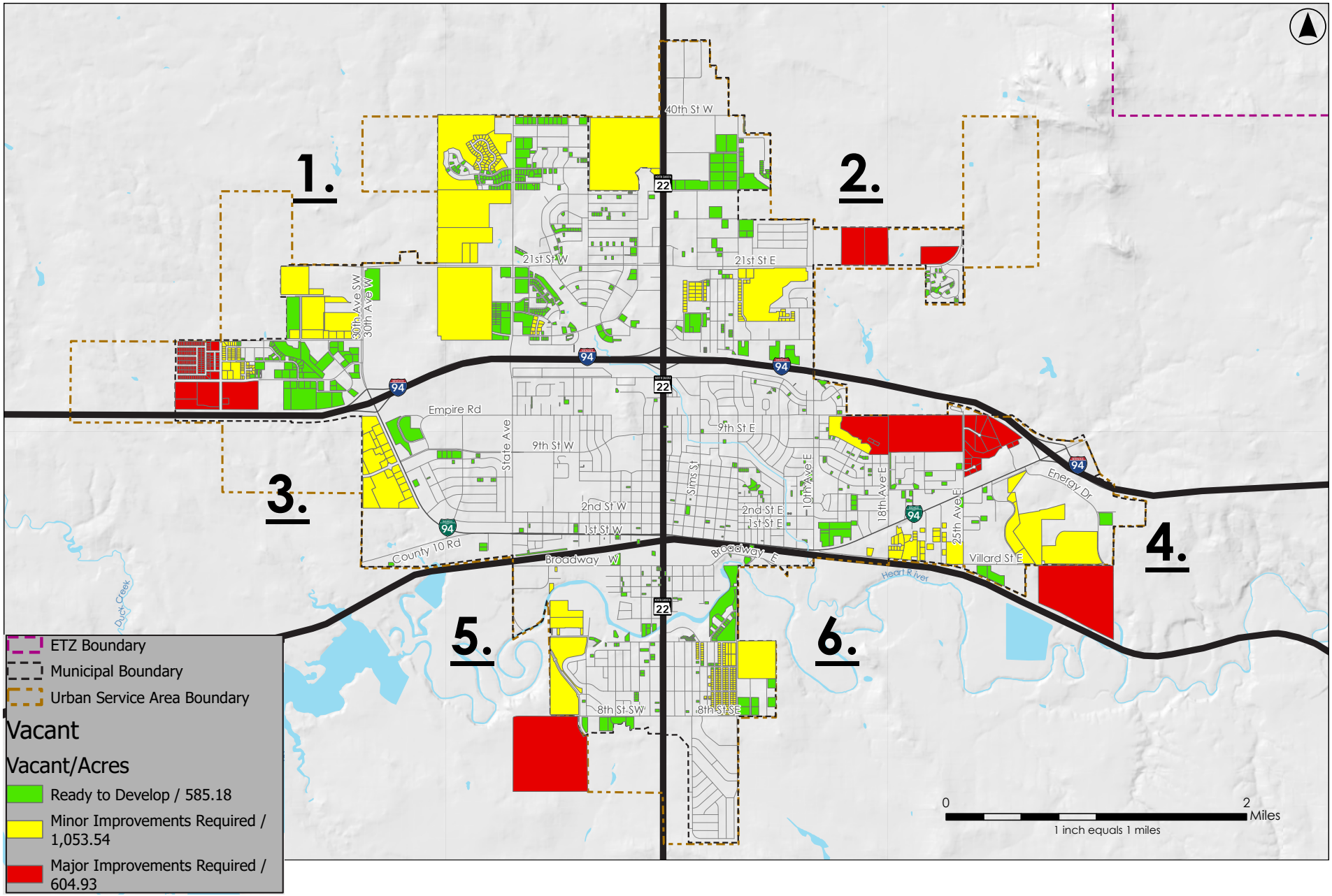
- Less than ¼ mile from existing infrastructure
- Minor collector roadway improvements
- Water distribution and sewer collection system improvements
- No major adjacent infrastructure requires upgrades/improvements

Red: Relatively major improvements required with the following conditions:

- More than ¼ mile from existing infrastructure
- Major collector roadway improvements
- Arterial roads roadway improvements
- Trunk sewers/trunk line water distribution mains required
- Major components/major upgrades to existing facilities required (lift stations/ upsized or existing sewers/booster stations/water towers/upsized existing water lines)

Please note that additional constraints such as permitting or other physical site conditions may affect the development category (groundwater, grading, etc.). Since the purpose of this map is to identify relative readiness of land for development without consideration for market conditions, no consideration was given for platting and zoning status, or landowner development desires.

Figure 4-4. Vacant Land Availability



The vacant land available for development by sector in **Figure 4-4** is summarized in **Table 4-8**. The total acreage available for development within or immediately adjacent to current city limits is 2,243 acres. This is slightly less than the 2,609 total estimated development acres needed by 2050.

Table 4-9, based on discussion with the PMT, shows anticipated growth in each of the sectors identified in terms of percentage (%) of total growth in residential and in commercial/industrial (i.e., Employment) land use categories. The overall pattern of growth assumes most growth happening in Sectors 1 and 2 in the short term, gradual growth throughout the time period for Sectors 5 and 6, moderate growth in Sector 3 in the middle of the time period, and most growth in Sector 4 later in the time period.

Table 4-8. Vacant Land Availability (in acres) by Sector

SECTOR	AVAILABLE NOW		MINOR INVESTMENT		MAJOR INVESTMENT		TOTAL
	ACRES	%	ACRES	%	ACRES	%	
Sector 1	273.31	47%	560.59	53%	96.85	16%	**930.75**
Sector 2	130.60	22%	85.22	8%	66.02	11%	**281.84**
Sector 3	35.26	6%	87.22	8%	–	–	**122.48**
Sector 4	64.56	11%	165.12	16%	288.37	48%	**518.05**
Sector 5	29.44	5%	76.34	7%	153.67	25%	**259.45**
Sector 6	51.45	9%	78.82	8%	–	–	**130.27**
Total	584.62	100%	1,053.31	100%	604.91	100%	2,242.75

Table 4-9. Anticipated Sector Growth

YEAR	LAND USE	SECTOR 1		SECTOR 2		SECTOR 3		SECTOR 4		SECTOR 5		SECTOR 6	
		ACRES	%	ACRES	%	ACRES	%	ACRES	%	ACRES	%	ACRES	%
2025	Residential	150.3	63%	47.7	20%	4.8	2%	11.9	5%	11.9	5%	11.9	5%
	Employment	74.9	50%	44.9	30%	15.0	10%	15.0	10%	0.0	0%	0.0	0%
2030	Residential	143.0	60%	47.7	20%	11.9	5%	11.9	5%	11.9	5%	11.9	5%
	Employment	67.5	45%	30.0	20%	15.0	10%	15.0	10%	15.0	10%	7.5	5%
2035	Residential	286.3	75%	57.3	15%	9.5	3%	9.5	3%	9.5	3%	9.5	3%
	Employment	67.4	45%	15.0	10%	29.9	20%	29.9	20%	7.5	5%	0.0	0%
2040	Residential	173.5	50%	34.7	10%	0.0	0%	69.4	20%	34.7	10%	34.7	10%
	Employment	64.5	43%	15.0	10%	30.0	20%	30.0	20%	3.0	2%	7.5	5%
2045	Residential	151.3	60%	0.0	0%	0.0	0%	50.4	20%	25.2	10%	12.6	5%
	Employment	0.0	0%	0.0	0%	3.0	2%	74.9	50%	7.5	5%	7.5	5%
2050	Residential	0.0	0%	0.0	0%	0.0	0%	100.9	40%	126.1	50%	12.6	5%
	Employment	0.0	0%	0.0	0%	3.7	3%	104.8	70%	7.5	5%	15.0	10%

EXTRATERRITORIAL LAND USE MANAGEMENT

Vacant land within the existing municipal boundary can accommodate nearly all the projected land use needs through the year 2050. There is no guarantee that all that vacant land will be developed. Therefore, it is essential that the City of Dickinson protect the land outside the existing municipal boundary for future growth. Extraterritorial authority allows Dickinson to regulate land use for this purpose. However, there has been a significant amount of rural residential development occurring within the extraterritorial zone in recent years. It is appropriate and reasonable for the city to define an area like the current urban service area within which new development is not allowed unless developed to urban standards and unless annexed into the City. Protecting this urban growth area is a key component of developing the future land use map.

FUTURE LAND USE PLAN

ABBREVIATIONS AND TERMS

ADU – Accessory Dwelling Unit. A subordinate, permanent independent dwelling which has its own cooking, sleeping, and sanitation facilities and which is:

- Within or attached to a single-family residential building; or
- Within a detached accessory structure associated with a single-family dwelling that is smaller than the primary structure, on a permanent foundation, and is not a recreational vehicle; or
- An apartment either attached to or within an existing commercial structure for use on a temporary basis by an employee of the specific business.

The ADU may be serviced through the same utility meters or connections as the principal dwelling unit.

CIP – Capital Improvement Plan. Dickinson's program of infrastructure projects, with projected year(s) of construction and needed budget allocations for each project. The City Commission reviews and approves the CIP annually in association with review of the City's annual budget.

DCS – North Dakota Division of Community Services. This state agency approves designations of Renaissance Zones, among other services.

ETZ – Extraterritorial Zone. The area outside of Dickinson's city limit where the City has established zoning and subdivision regulatory authority in accordance with North Dakota Century Code provisions. The Extraterritorial Zone has been adopted and recorded via map.

FLUM – Future Land Use Map. This is the primary tool for indicating the land uses by parcel or section for the entire study area, and is used for understanding and communicating the expected land use evolution to property owners, development applicants, and the public.

North Dakota Main Street Initiative – The Main Street Initiative is operated by the North Dakota Department of Commerce with a purpose to promote revitalization of cities' downtowns and main streets through infrastructure upgrades and repurposing of existing buildings. This effort is separate from the national Main Street America program, although both have similar focus areas.

About this chapter

- **Preceding Plan Components:** The population, employment, and household growth projections developed in ***Growth & Development Analysis*** chapter, including the **Vacant Land Availability *map* (page 67)** are foundational to the assumptions in this chapter. Finally, the parcel development status and analysis in the ***Existing Conditions*** chapter illustrate the existing land use and zoning context of Dickinson, allowing this chapter to build future conditions and recommended changes in land use context on that foundational analysis.
- **Dependencies of this Section:** The ***Future Housing*** chapter refines and expands on the residential types that Dickinson expects in the future, on the parts of Dickinson that are slated to become new residential areas and for existing residences. The ***Transportation Development Guidelines*** chapter uses the proposed mix and intensity of future land uses proposed in this chapter as the basis for traffic forecasting and identification of network gaps or needs to resolve congestion. Each of those chapters utilize the same future land use categories, the relative intensity of jobs and/or residents that the **Future Land Use Map** introduced in this chapter. Together, all of these elements detail how Dickinson will implement its vision for growth.

Revolving Loan Fund – A publicly operated financing pool used to fund individual projects, where the repayment of principal and interest/fees earned facilitate the funding of additional future projects.

RZ – Renaissance Zone. An established area of a City designated by a local government and approved by the City and North Dakota Department of Commerce. Qualifying property improvements within an RZ may be granted state and local tax abatements for up to five years, subject to approval by the City.[1]

Shovel-Ready Development – Sites that could be developed with minimal or no delay upon completion of development review and permitting steps, due to the presence of existing access, utility connections, and the lack of obstacles such as steep terrain.

TIF District – Tax Increment Financing District. A regulatory tool to where marginal collection of tax proceeds funds infrastructure projects within the boundary of the district. Local governments in North Dakota are enabled to establish TIF districts.

USA – Urban Service Area. The area that the City of Dickinson serves or will serve. The area was expanded by city ordinance in 2014 and 2016, and now covers approximately 16 square miles.

INTRODUCTION

The analyses that comprise this chapter assume a modest growth rate over the next 25 years that keeps Dickinson the community of choice for long-time residents, while accommodating strategic addition of homes, businesses, and infrastructure that Dickinson will need to remain a vibrant, functional, and healthy community. The following strategies fulfill the Land Use Vision statement:

> Utilize available space in the community that promotes increasingly vibrant communities to live, work, learn, and visit.

This vision is supplemented by the overall goal to **effectively manage the location, timing and fiscal impacts of future development.** This chapter provides guidance to ensure the growth and development vision and goals of the City of Dickinson expressed here are met over time. Additional land use-specific goals are included in the various sections of this chapter as well.

The thoughtful separation of land uses and robust enforcement of the development code are critical to maintaining Dickinson's high quality of life and healthy economy. Dickinson Direction 2050 expands on these efforts by promoting new development in a limited number of key locations within Dickinson, utilizing a Future Land Use Map and Preferred Growth Scenario; most proposed new development would occur on vacant sites, and would be spread across multiple areas of the City. These tools operate within the general parameters of low-density residential development in proximity to the City's existing built footprint. They also promote commercial development along key corridors and intersections; industrial development in areas appropriate for more intensive uses; and job centers that drive the local economy.

PLACES AND USES

Snapshot of Today

The existing land use of Dickinson is reflected in the ***Existing Conditions*** chapter's **Figure 1-8 on page 10**. This figure indicates current conditions of Dickinson, in concert with the **Existing Zoning** figure on **page 12**.

The future land use plans for Dickinson were expressed in the Comprehensive Plan adopted in 2013, known as *Dickinson 2035*, with more recent (non-map) updates completed on an as-needed basis, most recently in 2021.[2]

The adopted Future Land Use Map from 2013 has been the centerpiece of Dickinson's land use policies since that plan's adoption and is reflected in **Figure 5-1**.

Selective updates to the Future Land Use Map have been approved by ordinance since adoption of the last Comprehensive Plan. Each update has been minor and has impacted small percentages of the City's area, together covering less than 400 acres.

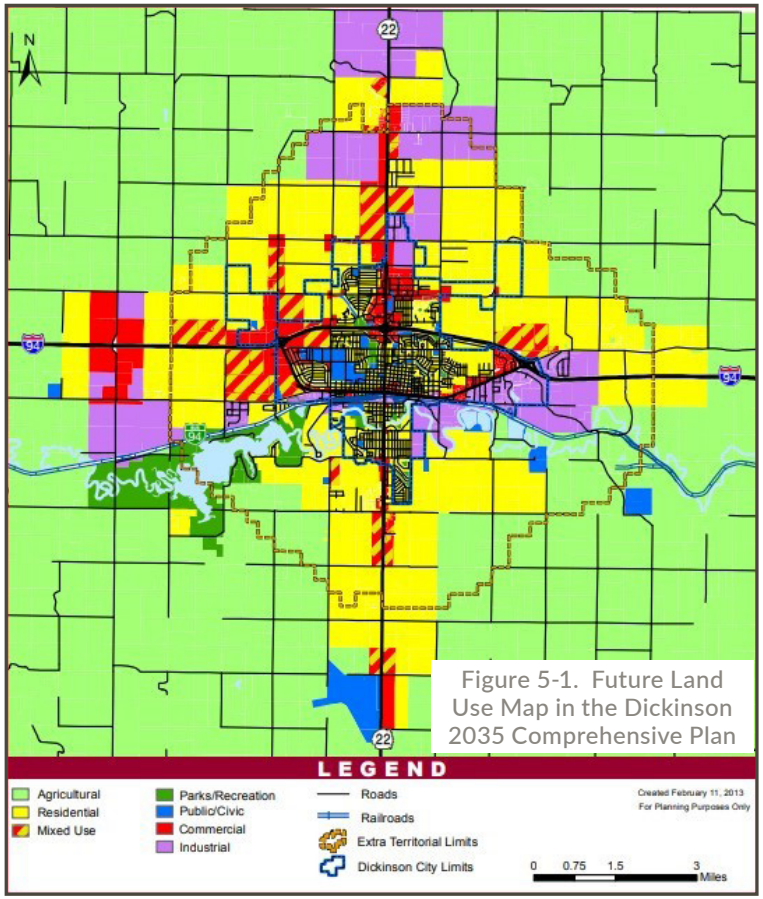


Figure 5-1. Future Land Use Map in the Dickinson 2035 Comprehensive Plan

The future land use categories of the previous plan have been retained except that the residential category has been split into low density and high density residential. Therefore, property owners and other public audiences have a straightforward experience in understanding the new future land use plan. However, the location and extent of the future land use categories have, in some cases, been modified to address new projections for growth. The next sections indicate the projected demand that is driving this assumption—expanding on the population forecasts from the ***Growth & Development Analysis*** chapter—and explores how to guide this growth in a proactive and sensitive manner. Ultimately, this will allow Dickinson to achieve the Land Use Vision while keeping today's neighborhoods intact, aligning the existing land use fabric with the new.

Future Needs

CUMULATIVE LAND DEMAND

The growth forecasts for Dickinson in the ***Growth & Development Analysis*** chapter detail how much land the City will need to accommodate the anticipated 2050 population. Total acreage and the specific acreage subsets for residential and commercial needs will house projected community growth by 2050. These are detailed in **Table 5-1**; the Future Land Use Plan focuses on fulfilling the cumulative land demand by 2050 of 2,609 acres—additional to the footprint of Dickinson today. The **Future Land Use Map** section also discusses how the City can meet the interim additional land demand on a five-year basis.

Overall, because there is surplus land available within Dickinson, the Future Land Use Plan can deliver the needed acreage without pushing development into the Extraterritorial Zone. Some areas of the Extraterritorial Zone may be considered as opportunity sites for Dickinson's long-term growth beyond 2050; otherwise, they should remain primarily the agricultural uses existing today. **The Preferred Scenario on page 80** explains the opportunity presented by limiting urban-style development in the ETZ and details the available vacant land.

Next, specific areas of concern will be addressed by Dickinson Future 2050. Some are perennial, while other concerns have arisen since adoption of the last Comprehensive Plan. New areas of focus include downtown, the prioritized areas for growth beyond the edge of the city, and established neighborhoods between the center and the edge of the City.

Table 5-1. Forecast Acreage Needs for Future Community Expansion

YEAR	HOUSEHOLDS	RES ACRES	EMPLOYEES	EMP ACRES	TOTAL ACRES	NEW ACRES
2025	11,544	3,649	14,885	2,293	5,942	388
2030	12,298	3,887	15,858	2,443	6,330	388
2035	13,506	4,269	16,830	2,593	6,861	532
2040	14,604	4,616	17,803	2,743	7,358	497
2045	15,402	4,868	18,776	2,893	7,761	402
2050	16,200	5,120	19,748	3,042	8,162	402
TOTAL						2,609

GROWTH MANAGEMENT IN DICKINSON'S EXTRATERRITORIAL ZONE

It is important to keep Dickinson's growth well-managed and to preserve agriculture and open space beyond the City's developed footprint. The value of these areas includes prime farmland soils, wetlands that drain the Heart River watershed, and active vertical oil wells.[3] Inasmuch as new urban-style residential and commercial uses can largely be accommodated inside the current municipal boundary, these valuable uses can remain intact without threat of encroaching urban development.

Extraterritorial Zone on page 89 discusses the Extraterritorial Zone's management for the next 25 years.

ALIGNMENT WITH STARK COUNTY 2040 COMPREHENSIVE PLAN

The Stark County 2040 Comprehensive Plan identified nine priority growth areas that are expected to harness the bulk of future growth in unincorporated parts of the county. Four of these priority growth areas surround Dickinson: two to the west, one to the east, and one to the south, abutting the Extraterritorial Zone of Dickinson.[4] Alignment of Dickinson Future 2050 priorities with these Opportunity Growth Areas is discussed in the **Extraterritorial Zone** section on **page 89**.

This chapter accounts for their proximity by ensuring that land within the City's ETZ retains continuing agricultural designations for all land not actively in another land use; any non-agricultural or recreational uses in the ETZ will require conditional use permitting.

Finally, Stark County 2040 uses similar future land use categories as this plan; the major differences are the use of Open Space and Recreational categories, which are generally not applicable in Dickinson.

DOWNTOWN CONSIDERATIONS

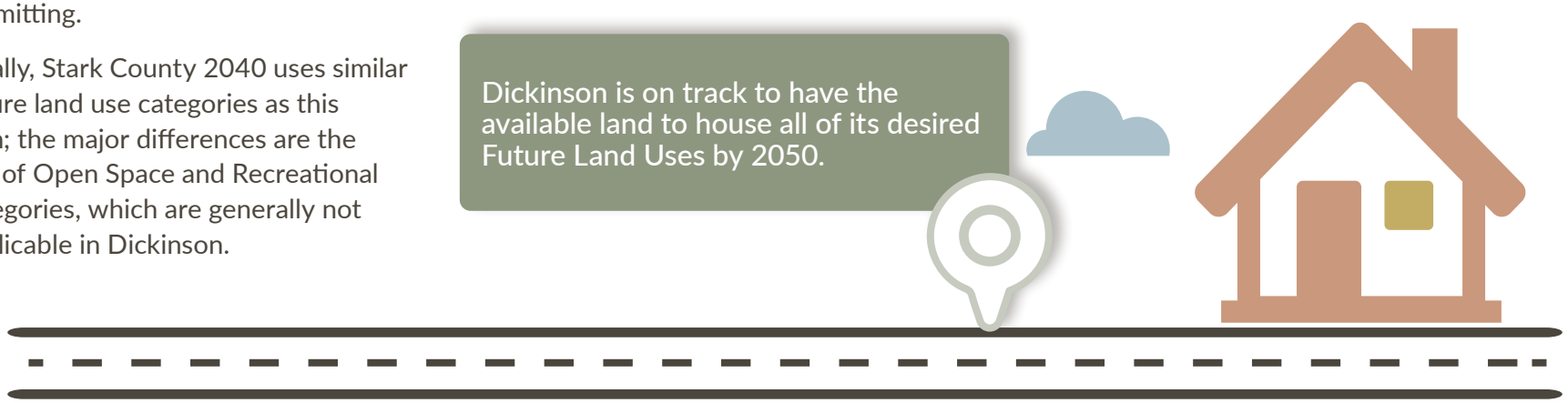
Downtown represents an intersection of multiple goals: placemaking and curb appeal are important to the visual attractiveness Dickinson wants to portray; business opportunities fulfill local commercial demand, provide employment, and harness entrepreneurship; and the regionally serving civic, entertainment, and retail options of downtown cement the City's role as a choice destination in western North Dakota. However, the potentially higher cost and greater complexity of operating a business downtown, including a desire for convenient parking amid space constraints, may threaten these goals. Downtown businesses must overcome these limitations and remain open to contribute to these goals.

THE BOTTOM LINE

Dickinson is on track to have the available land to house all of its desired Future Land Uses and the mix therein by 2050. Specific considerations for Dickinson's downtown and its Extraterritorial Zone point new development toward other areas, chiefly taking advantage of vacant sites within the City limit or directly adjacent and easily serviceable by existing city services. This chapter details the policy changes and interventions that will move the City toward the long-term goal of matching available land with future needs, as well as implications for demographics, housing, and public services.

The remainder of this chapter provides recommendations for consistent and reproducible growth management policies that will guide the future land use need. Recommendations are not categorized by time of implementation, indicating when City action could begin. The City leadership and staff may determine in the future whether an implementation workplan is appropriate. At that point, these recommendations could be sorted into phases, e.g., immediate-term (less than one year after adoption), medium-term (1–3 years), or long-term (more than three years).

Dickinson is on track to have the available land to house all of its desired Future Land Uses by 2050.



FUTURE LAND USE MAP

This section details how Dickinson can meet the following identified Land Use goals:

- Effectively manage the location, timing, and fiscal impacts of future development.
- Promote and require high quality development in the city.

The Future Land Use Map (FLUM) indicates the intended land uses throughout the study area, considering existing development, land uses expected to require additional space, available public services, and the City's future plans to extend road and utility networks to service new areas. All recommendations in the Dickinson Direction 2050 plan will utilize the FLUM as the foundation to guide development decisions and policies at a high level.

Land Use Categories

The land use categories utilized for the Future Land Use Map include six of the land use categories from the current Comprehensive Plan, but divides residential land use into two categories, and adds one additional category. Those categories—and their relationships to Dickinson's zoning districts where relevant—are:

Low-Density Residential: Primarily residential use with two or fewer units per parcel. This generally corresponds to the Low-Density Residential (R-1) zoning district in use by Dickinson, with selected additional undeveloped sites.

High-Density Residential: Primarily residential use with three or more units per parcel which has often served as a transitionary zoning district between residential and commercial uses. This generally corresponds to the Medium-Density Residential (R-2), High-Density Residential (R-3), and Mobile Home Residential (MH) zoning districts in use by Dickinson, and designated significant portions of undeveloped sites to meet current and expected housing demand.

Commercial: Sites that primarily support retail, service, civic and office uses, and related trades; the addition of parking, loading zones, and outdoor uses are ancillary to this primary use. Parcels in this category may include limited service uses, but not to the extent of parcels in the Industrial category.

Mixed Use: Any combination of more than one of the above uses combined on a single parcel or site. Parcels in this category provide for a mix of uses to promote infill and/or redevelopment, and additionally, may promote the construction of a greater variety of residences at smaller sizes and lower price points. A Planned Unit Development (PUD) may be utilized to establish new Mixed Use areas. This category does not allow Industrial or Agricultural uses.

Industrial: Parcels with a primary purpose ranging from light to heavy industrial uses, including motor pools, storage yards, manufacturing, processing, and similar uses. This category includes buffering and other requirements to minimize adverse impacts on surrounding land uses.

Public/Institutional: This category includes multiple types of public uses, including but not limited to government offices, public works facilities, agricultural research, schools and other indoor public facilities (except Parks and Recreation uses), and land held for drainage or stormwater retention. These parcels may be owned by any of the following: the City of Dickinson, Stark County, Dickinson State University, or another general purpose or special purpose government.

Parks and Recreation: This category includes areas that are designated for public recreation, open space, conservation, natural resources, or habitat preservation. These parcels may be subject to restrictive conservation easements to preclude incompatible development and may include both outdoor areas and supporting indoor recreational facilities.

Agricultural: This category designates agricultural and related uses such as crops, dairies, grazing, and ancillary supporting facilities. Single-family residences that are located on farm properties and occupied full-time are designated in the Low-Density Residential category rather than as Agricultural.

Rural Reserve: The Future Land Use Map uses a rural reserve land use category to designate land which shall be protected from any counterproductive land uses and reserved for future annexation. These parcels are primarily vacant or open space today and are not expected to develop by 2050. However, their strategic locations deem them strong candidates to capture Dickinson's long-term development beyond 2050, and are reserved for that purpose on the Future Land Use Map.

The Land Use and Zoning District Compatibility Matrix provided in **Table 5-2** is a tool to use when considering if proposed zoning district changes are consistent with the Direction 2050 Future Land Use Map categories. Other factors which could be considered include compatibility with surrounding land uses and capacity to be served by community services and infrastructure.

Compatible indicates the proposed zoning district is considered compatible with the future land use category, except in unusual circumstances. Planning best practices should still be utilized to create high quality development within the proposed zoning district. *Incompatible* indicates the proposed zoning district is considered incompatible with the future land use category. The proposed zoning district change is not recommended without documenting and demonstrating that all significant incompatibilities are mitigated.

Table 5-2. Zoning District Compatibility with Future Land Use Categories

FUTURE LAND USE CATEGORY	ZONING DISTRICT												
	AG	RR	R-1	R-2	R-3	MH	LC	CC	DC	GC	LI	GI	P
Agricultural													
Commercial													
High Density													
Low Density													
Industrial													
Mixed Use													
Parks and Rec													
Public													

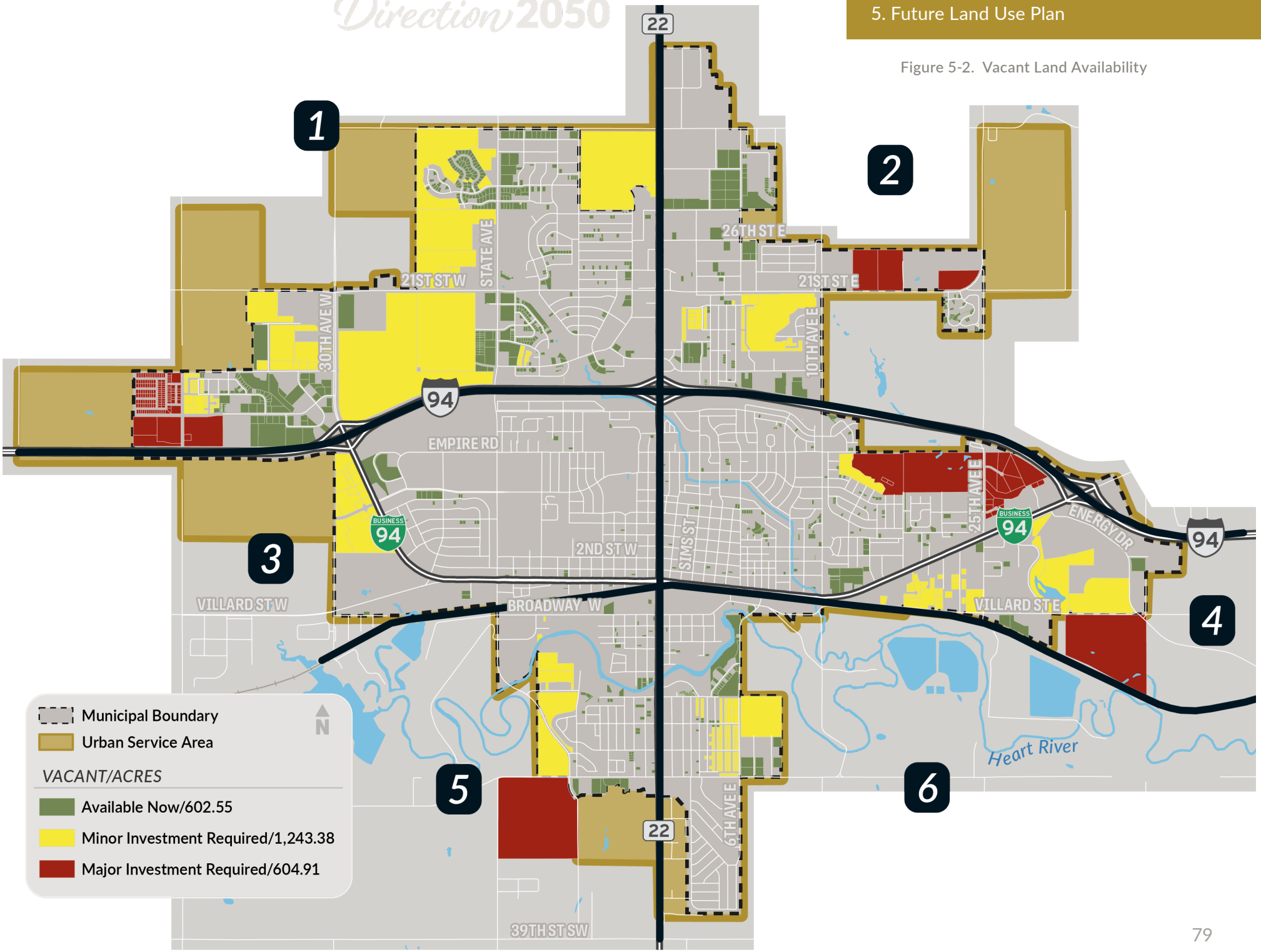
Green = Compatible *Red = Incompatible*

Future Growth Scenarios

INTRODUCTION

Dickinson's long-term growth will be best managed by a tailored approach, that accounts for the existing land uses and zoning districts, the aspirations for future land use types, and the need for strategic separation of land uses. The **Vacant Land Availability** is foundational to the assumptions in this Chapter and is reproduced in **Figure 5-2**. The City is divided into six sectors to facilitate analyses, divided by Highway 22, Interstate 94, and the railroad tracks. The map illustrates the areas initially identified as available for future development with colors representing minimal (green), moderate (yellow), and major (red) infrastructure investment needed to accommodate development. While all of the vacant areas that are colored in that map are relevant to this long-term growth picture, only those within the current City limit are considered in this section.

Figure 5-2. Vacant Land Availability



ALTERNATIVE GROWTH CONCEPTS

Out of many possible future growth scenarios, three were used to consider preferred approaches to meeting forecasted residential and commercial growth land use needs by 2050. The three scenarios ranged in intensity from more gradual to more aggressive additions. Detailed maps and data about the three scenarios are located in ***Appendix B***, including the methodology used to develop and consider their implications for Dickinson's future. All three scenarios aim to remain within the City limits and discourage development in the Extraterritorial Zone in order to minimize infrastructure extension and costs and especially to prevent the need to take on new capital maintenance costs.

Alternative Scenario A on page 188, **Alternative Scenario B on page 189**, and **Alternative Scenario C on page 190** in ***Appendix B*** provide visual snapshots of varying treatments of currently vacant land, indicating different possibilities for the concentration of new commercial and residential development, as well as strategic reclassification of land uses on a limited number of existing parcels. The text accompanying each scenario map describes the policies and strategies that Dickinson can pursue to encourage each respective scenario.

The Preferred Scenario

After presenting and obtaining feedback from the Community Stakeholder Group and community leaders via multiple channels, the Project Management Team identified Scenario B as the preferred approach to future land use development in Dickinson. Additional review and refinement in collaboration with key city staff resulted in the recommended future land use map.

RECOMMENDATION

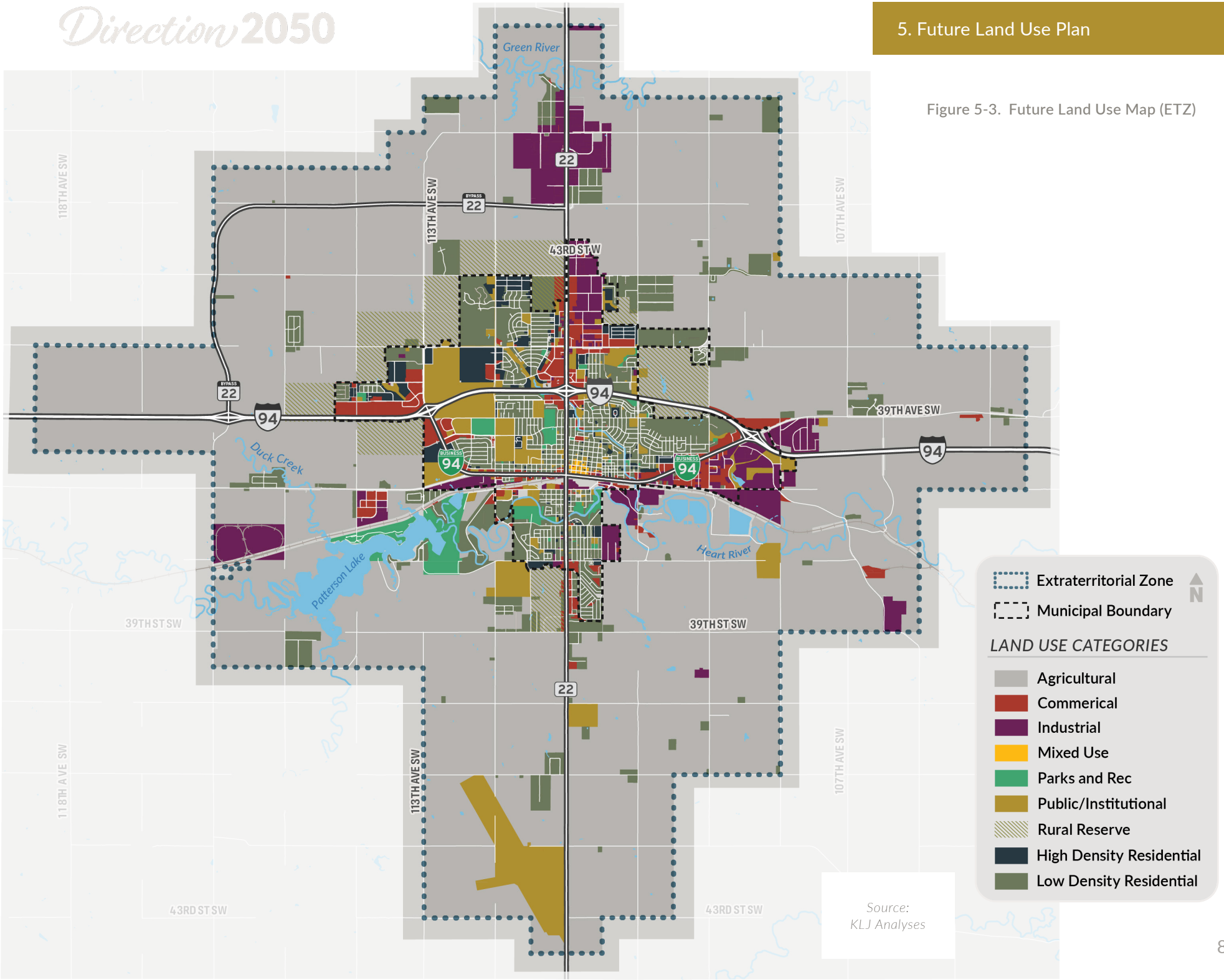
LU1.1

Select Scenario B as the City's preferred vision for future land use across Dickinson and the study area boundary.

The refined Future Land Use Map is displayed in **Figure 5-3** and **Figure 5-4**. While comprehensive planning is a high-level study practice, this version contains future land use designations at the parcel level.

A conservative, strategic expansion of City services and utilities to farther-flung sites only when the City has available capital outlays in its annual budget would best position Dickinson to capture the majority of that growth on infill sites.

Figure 5-3. Future Land Use Map (ETZ)



Source:
KLJ Analyses

Source:
KLJ Analyses

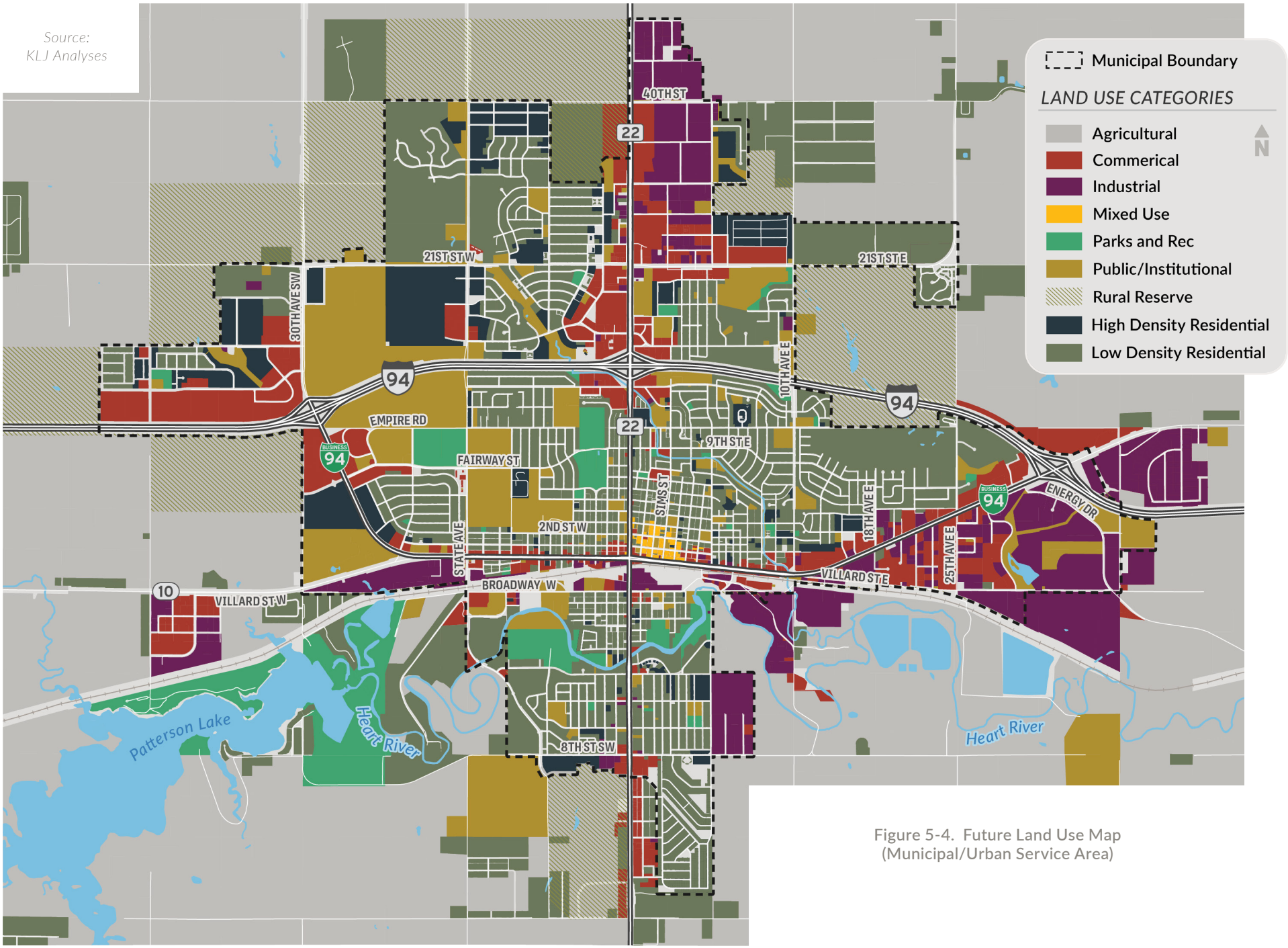


Figure 5-4. Future Land Use Map
(Municipal/Urban Service Area)

Figure 5-5. Location of the Southwest Dickinson parcel

AREAS OF CONCERN

Most of a quarter section just southwest of the Dickinson municipal boundary has been the subject of much potential development interest, including the City's interest in master planning the area. The parcel comprises approximately 154 acres located on Dickinson's southwestern edge.[5] See **Figure 5-5** for the exact location of this parcel.

This parcel is included in the adjusted Urban Service Area as of 2023; see **Figure 1-2 on page 3** in ***Existing Conditions*** for the Urban Service Area extent. Most of the site is agricultural crop land, with the Dickinson Fire Department's training facility on the northwestern corner,[6] and a former landfill site not in use at the southeastern corner.

The entire parcel's zoning designation is **Agricultural (AG)**.

A May 2024 planning and engineering report detailed the feasibility of promoting development and annexing the parcel into the City's municipal boundary.[7] By contrast, Direction 2050 recommends classifying the parcel as a **Public/Institutional** land use in any future land use scenario, for three reasons:

1. Annexation into the City and development would be contingent on extension of domestic water and sanitary sewer. Currently, an eight-inch water main extends along the northern edge of the site following 8th Street SW; there is no sanitary sewer serving the site. The site topography features a maximum of 55 feet in vertical elevation gain from east to west.[8] Given the location of the existing City mains to the north and east of this location, a possible need for force mains would increase the cost of servicing this parcel compared to a comparable parcel with flatter terrain.
2. Development would also require access improvements to the Dickinson road network. The 2035 Comprehensive Plan called for reclassifying the existing State Avenue to a principal arterial, while proposing to reclassify the 8th Street SW and 20th Avenue SW to collectors and to construct a new collector roadway along the site's southern boundary.[9] However, these potential improvements are not currently forecasted in the City's Capital Improvement Plan.
3. Finally, the South Dickinson Cemetery, located across 20th Avenue SW from the site, has indicated a long-term need to expand their facility. To achieve this goal, expansion of the cemetery would cross 20th Avenue to cover about 13% of this parcel, totaling approximately 20 acres in the southwestern portion. The first phase of the South Dickinson Cemetery was constructed in 2023, with future phases platted to extend to the east.
4. Underground utilities in the right-of-way and roadways must be added to allow

development in this area of the City to begin. Preliminary evaluations indicate that up to $20 million in infrastructure investment is needed, comprised of $14 million in roadway and $5.6 million in water and sanitary sewer, including water booster stations. The ***Transportation Development Guidelines*** chapter provides further details and a project list.

The Direction 2050 team has classified this parcel as red on the Vacant Land Availability Map (**Figure 5-2 on page 79**), indicating significant barriers to development. The proposed annexation and master plan with residential, mixed-use, and commercial development is unlikely to be a cost-effective move for the City, given the high cost to provide needed infrastructure and services.

Further, the Future Land Use Alternative Scenarios each classify this parcel as **Public/ Institutional.** This category matches the existing Fire Department facility and the South Dickinson Cemetery existing and future expansion phases and reserves the remainder of the parcel for potential park or open space uses. The City may elect to reconsider annexation and commercial or residential land use designations for this parcel in the future, assuming that further street network upgrades and/or domestic water and sanitary sewer extensions occur to improve feasibility and cost effectiveness.

Finally, two vacant parcels on 6th Street SE between 5th and 6th Avenues have been newly designated as Public/Institutional. These parcels are not currently owned by the City, but they are strategically located to support the neighborhood with a small park or school, should growth by 2050 require additional public facilities in this part of Dickinson.

What We Heard from Stakeholders

The Planning Team shared the alternative scenarios to the Community Stakeholder Group, and subsequently the Future Land Use Map itself. Dickinson Parks responded with several areas of interest for future park expansion; their dual criteria for identification were parts of the City with limited or no existing parks and recreation facilities, and land with appropriate characteristics to meet the speciific uses intended for the site.

The three alternative development scenarios were reviewed in a desktop analysis, to fulfill the Land Use vision and respond to common themes in stakeholder meetings and public input. The planning team provided detailed statistics and maps displaying how each scenario would play out, and considered which scenario, or elements within each, correspond most closely to their vision for Dickinson's long-term growth. The resulting preferred scenario primarily resembles Scenario B, with conceptual components of Scenario C, as the City's finite budget means that development sites will become available in "short spurts" rather than in large masses.

Recommendations: Using the Future Land Use Map

The FLUM will serve as a reliable reference point for City staff and the Planning & Zoning Commission (and, to a more limited extent, the City Commission) in determining high-level land use policy. The land use category definitions on **page 76** and the table in ***Appendix B*** indicate how the FLUM can be used. The parcel-level granularity of the FLUM allows Dickinson to consult the map during a variety of processes. The remaining elements of Dickinson Direction 2050, including the traffic forecasting and other elements of the Transportation Plan, utilize the same assumptions of land use mix and development intensity by location reflected in the map to facilitate its use.

The Dickinson Park District provides a wide array of parks, facilities, and programs to serve the Dickinson community. As the city continues to grow it is important to continually collaborate with the Park District to support coordinated new development including the dedication of park space for new residential developments. This may include identifying preferred locations for new park sites and identifying more innovative approaches to meeting outdoor recreational space needs.

LU1.2	Continue to consult the Future Land Use Map during preliminary and final platting processes, and with administrative reviews of other plan types as development applications and property owner inquiries are received over time.
LU1.3	Continue to consult the Future Land Use Map during long-term planning efforts including Capital Improvement Plan and annual budgeting processes, to align future public investments with the areas most likely to harness future development.
LU1.4	Consider vacant and not-yet developed parts of Dickinson in relation to their designation(s) on the Future Land Use Map.
LU1.5	Periodically evaluate changes in existing conditions and consider potential future land use map changes as warranted.
LU1.6	Periodically consult with Park District staff on future park siting and other innovative approaches to meet outdoor recreational space needs.

It is critical to view the existing areas not currently developed as their designated land use(s) as a resource rather than a liability. While there are some drawbacks to long-term vacancy, the flexibility is a worthwhile advantage, reserving land for possible development by 2050. The potential challenges of neighborhood instability and threats to property values would need to be managed by ensuring vacant spaces are kept in good condition, as addressed in the ***Future Housing*** chapter.

The next section focuses on three parts of Dickinson that are due specific treatments to fulfill the Land Use Vision: Downtown, Neighborhood Infill, and the Extraterritorial Zone.

TARGETED LOCATIONS

This section details how Dickinson can meet the following identified Land Use goals:

- Increase the availability of locations for neighborhood-serving retail commercial development.
- Improve community appearance along major roadways, including I-94, that are gateways to the community.
- Highlight downtown Dickinson as a vibrant center of the community.
- Enhance downtown Dickinson's quality of place through promoting its role as the primary center for regionally serving professional business services, civic services, and entertainment.

The specific neighborhood context of each area in Dickinson drives the customized recommendations offered here. Neighborhood context is determined by aspects of an area's physical form. Building height and setback, street and block patterns, and the density of structures create different neighborhood contexts, being denser and more built-up in downtown and having less build-up and more natural space north of 4th Street East and south of the Heart River.

Downtown

EXISTING CONDITIONS AND OBSERVATIONS

This section focuses on downtown Dickinson, and speaks in significant detail about the strategies needed here that may not be relevant in other parts of the City. This chapter threads the needle on positioning downtown for success.

In the interest of furthering downtown revitalization, the City of Dickinson established a Renaissance Zone program in 2004, enabled by the State of North Dakota in 1999 under the Renaissance Zone Act (N.D.C.C 40-63). Renaissance Zones typically consist of limited areas within downtown or other parts of a city where investments are eligible for certain tax credits and exemptions that are unavailable in other parts of the city, in the interest of encouraging downtown revitalization and meeting long-term municipal development goals. There are multiple incentives available for redevelopment for residential, commercial, and historic property types.

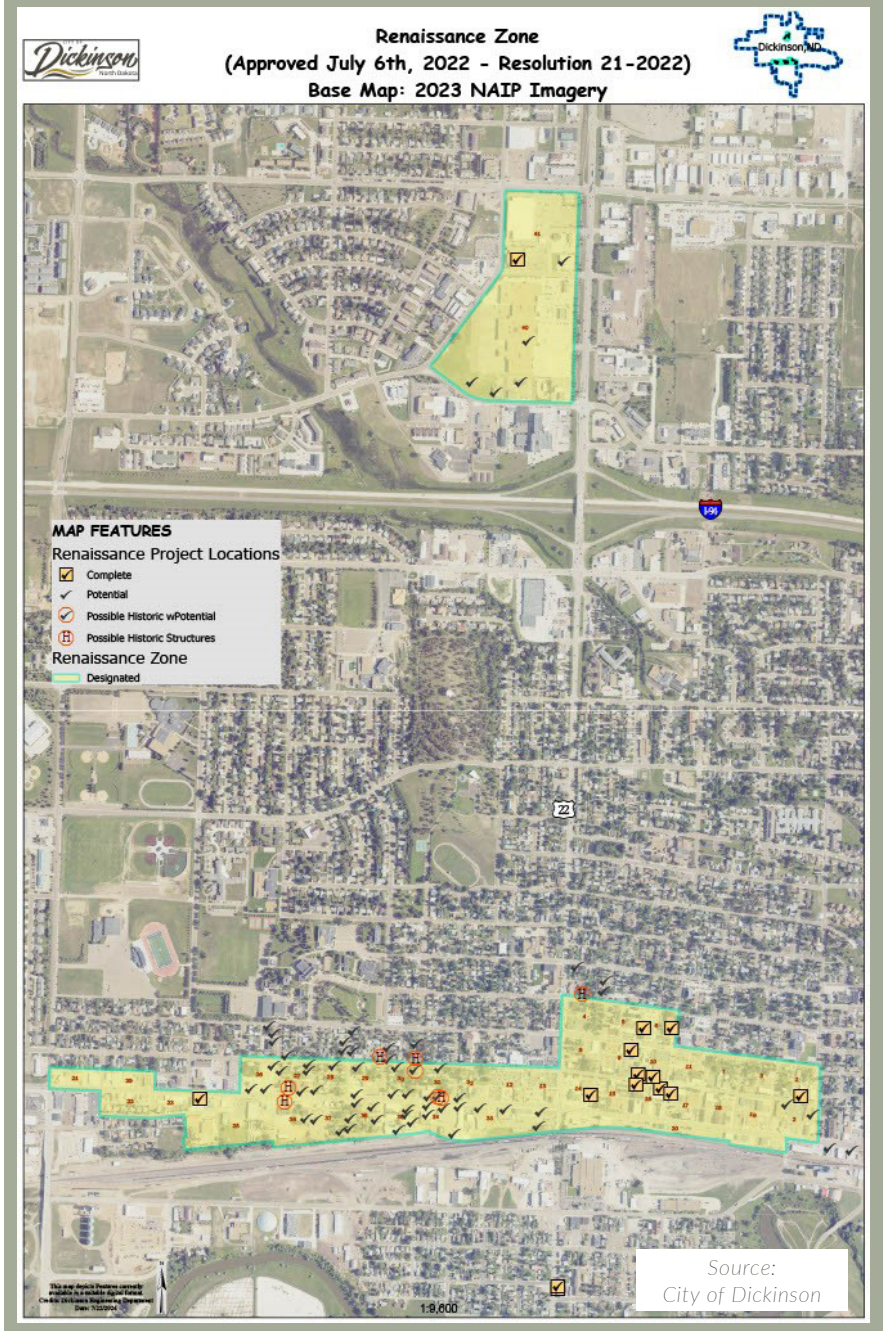
The City of Dickinson's Renaissance Zone was approved by the North Dakota Division of Community Services in 2004, amended in

2012, and was originally scheduled to sunset after 15 years, in 2018. However, the Renaissance Zone program was eligible to be extended in five-year increments, which Dickinson pursued in 2019. After a change to the North Dakota statute increasing the allowable size of Renaissance Zones, the zone was amended in 2022 to its current boundaries, which in addition to a 39-block portion of downtown Dickinson, now also includes a two-block commercial area around Prairie Hills Mall, as detailed in **Figure 5-6**. In 2024, Dickinson approved an additional extension to the Renaissance Zone, which the state statute now allows to occur in increments of ten years.

Since 2013, the City has staff dedicated to the Renaissance Zone program, publicizes the program through twice yearly mail outs, and uses pre-application meetings to promote the program.

The Renaissance Zone program's goals have not historically been met in Dickinson. According to the inventory completed in 2024, it currently includes 367 properties.

Figure 5-6. Current Renaissance Zone Boundaries



Since the program's inception, twenty-five projects have been approved— eighteen as of the program's renewal application in 2019, and seven since 2020— averaging about one project approved per year. To date there have been thirteen completed projects since the Renaissance Zone program was established.

The City of Dickinson's zoning code contains two special designations pertaining to the downtown. A Downtown Overlay District allows existing single-family detached structures to be converted into a variety of non-residential uses while allowing the existing stock of single-family homes to be retained as conforming uses. Second, most of downtown Dickinson is zoned as Downtown Commercial, which allows for limited mixed uses.

Through involvement in the Main Street ND Initiative, Dickinson has had some successes in downtown revitalization. In 2024, a Main Street effort in downtown Dickinson, the Dickinson Legacy Square, received a Main Street Excellence Award for its contributions to downtown civic life.

The City has established a marketing and events coordinator position for the purpose of downtown promotion, as well as overall marketing and event management. This approach fits well with the newly developed Legacy Square.

Enhancing the downtown area can be achieved by continuing to support the Renaissance Zone program and selectively completing additional small studies to define opportunities for strategic actions and partnerships. City staff identified the following potential studies:

- an inventory of existing businesses by use type
- a vacant storefront inventory
- a limited parking study focused on current parking issues
- identifying Downtown or General Commercial zoned areas that should be residentially zoned
- survey of business owners and building owners regarding their needs
- survey of city residents that regarding their vision for downtown
- publishing and distributing a list of existing programs that support building improvements
- identifying strategic improvements the City could complete

Downtown enhancement can best be achieved through partnerships involving a number of existing public entities.

COMMUNITY FEEDBACK

Comments collected during the public engagement process for this Plan included feedback about downtown Dickinson. City residents hope to see a revitalized downtown with additional support for downtown businesses; about one-fifth of survey responses listed downtown redevelopment and enhancement as a top priority for the comprehensive planning process. In addition, the overall vibrancy of the city was listed as a goal— with downtown Dickinson being the core of these potential efforts.

Moreover, residents expressed a desire for improved community amenities, particularly recreational activities for seniors, families with children, and people with disabilities. Residents also expressed a wish for a greater diversity of dining and retail options—particularly in competition with big box stores. Many of these amenities would be sensibly located downtown. Given the fact that downtown is an ecosystem of many small business owners, any change in this direction will likely occur incrementally and gradually—but there are interventions the City can make in the meantime to facilitate this process.

RECOMMENDATIONS

LU2.1

Reconfigure the Downtown Overlay District to better deliver the types of mixed-use developments that make efficient use of the dense environment and to cement downtown Dickinson's role as the civic and entertainment center of the region.

- Promote existing programs and establish new incentives for property owners to improve their buildings, return vacant properties to use, or sell to an owner more likely to do so.
- Establish incentives within the Downtown Overlay zoning guidelines to promote dense, mixed-use development.
- Promote developments that are designed in a style and manner that is suitable for a downtown setting and which enhance vibrancy and walkability.

LU2.2

Continue to implement the City's Renaissance Zone (RZ) Plan, with focus on promoting benefits of the RZ for the longest-vacant properties or parcels.

- Continue to market and promote the benefits of the Renaissance Zone program.
- Continue to provide technical assistance to potential Renaissance Zone applicants, thereby facilitating the application process.
- Utilize the Renaissance Zone program in conjunction with existing incentives to maximize investment into downtown.

LU2.3

In conjunction with Stark Development Corporation, promote the establishment of the downtown Dickinson marketing campaign and/or similar efforts with a primary focus on supporting downtown redevelopment.

- Expand support for businesses and nonprofits seeking to promote and maintain a comfortable, welcoming environment in downtown Dickinson, including through marketing and event programming.
- Improve communications with downtown business owners about the availability of resources for business development and storefront rehabilitation, such as Stark Development Corporation's Facade Improvement Program and Bank of North Dakota's interest buy-down programs.

LU2.4

Establish new financial incentives for downtown redevelopment.

- Survey business owners and building owners to find out their needs.
- Establish a Revolving Loan Fund for downtown commercial businesses, with eligible uses to include façade improvements and other exterior cosmetic changes to storefronts.
- Establish a tax increment financing (TIF) district within downtown Dickinson to promote redevelopment of vacant and blighted properties, improve housing and retail options, and facilitate the development process.

LU2.5

Promote the establishment of a business incubator program in downtown Dickinson for use by local artisans, entrepreneurs, and remote workers.

- Vacant storefronts and/or industrial properties can provide inexpensive space for local residents to grow their businesses.
- Complete inventories of vacant storefronts and existing businesses by type in the downtown and West Villard areas to support this opportunity.
- Partner with Dickinson State University to provide additional opportunities for technical assistance, community learning, and practical education for DSU students outside of the classroom.

LU2.6

Re-examine the predominantly General Commercial (GC) and Downtown Commercial (DC) zoning in and around the downtown and West Villard areas for applicability to existing and desired land uses. While the GC zone protects existing residences, the selective application of one or more residential zone designations may better preserve residential blocks in and around downtown Dickinson.

- Complete a detailed study of residential properties in the downtown and West Villard areas to determine if each property's long-term future land use is more appropriately residential or commercial.
- Consider adopting a downtown fringe zoning district adjacent to the existing DC zoned properties.

LU2.7

Deepen involvement in the North Dakota Main Street Initiative.

- Continue to promote Dickinson Legacy Square as a hub for activity, encouraging residents and visitors to experience downtown through events, concert series, and art/cultural offerings.
- Encourage niching and specialization that will allow downtown businesses to thrive in the competitive retail and services environment.

Neighborhood Infill

EXISTING CONDITIONS AND OBSERVATIONS

Most of Dickinson's existing areas outside of downtown represent a **suburban** or **urban edge** type of built form. Areas classified as suburban primarily include single-family homes, commercial strips and centers set back from the street, interspersed with occasional public uses such as parks and schools. Alleys are not common, and local streets tend to be curvilinear. Urban edge areas contain a mix of small multi-unit residences, single-family homes, and commercial areas, still set back from the street. Block patterns are more regular, with local streets being laid out in regular grids; some blocks are served by rear alleys.

Increasing the intensity[10] of infill yields greater efficiency of public services—residents or workers will utilize the streets, walkways, and utilities that were previously idle—and the new source of tax revenue will contribute to paying for City operations. Infill

parcels already have utility and road access, significantly reducing upfront costs to the City to serve new development. In addition, the "whole neighborhood"/"whole block" concept becomes possible when vacant or underutilized parcels see new life.

Finally, the entrances to Dickinson form physical "gateways" into the City and provide the visual impression of the community, especially along I-94 from the east and west and ND-22 from the north and south. The overall appearance and land use mix at these gateways is an opportunity to promote the vision that Dickinson wants to impart—an increasingly vibrant place to live, work, play, and visit—to people entering the City. The following recommendations facilitate these goals.

RECOMMENDATIONS

LU3.1 Consider under limited circumstances applications to vacate limited rights-of-way to facilitate redevelopment that proposes different land uses and/or of adjacent vacant parcels separated only by right-of-way.

LU3.2 Establish a consistent rezoning process for non-downtown neighborhoods that will promote infill where existing development demand has not yielded results.

LU3.3 Identify one or a handful of strategic blocks with vacant parcels to implement the rezoning action in LU 3.2 to promote infill as a pilot project. This may be folded into Housing Recommendation **HS2.2** in the ***Future Housing*** chapter, if solely residential, or as a separate effort if commercial or a mix of uses are desired.

Consider also utilizing parcels near the gateways to Dickinson to promote visible redevelopment, and encourage the addition of tree buffers and other screening to increase the visual appeal of private properties in these areas.

LU3.4 Consider opportunities to enhance the gateways to Dickinson by supporting visual screening or upgrades to buildings to increase their visual appeal.

LU3.5 City staff should consider creating Highway Commercial, Business/Office, and High Tech Industrial/Industrial Park zoning districts to more effectively support the future land use plan and meet the city's development opportunities.

LU3.6 City staff should review the Limited Commercial zoning district and potentially recommend changes to enhance its function in the city's zoning code.

Extraterritorial Zone

EXISTING CONDITIONS AND OBSERVATIONS

The City of Dickinson currently has sufficient undeveloped land within the existing city limits to meet its future land use and development needs through the 2050 timescale of this Plan; see **Figure 5-2 on page 79** for the locations and concentrations of available parcels, and **Figure 5-4. Future Land Use Map (Municipal/Urban Service Area) on page 82** for the proposed uses to dedicate for that land. With most of this land at the edges of Dickinson's footprint, a reasonable assumption is that these areas will capture most new development in the next 25 years. It is financially prudent to encourage development to take place inside municipal boundaries first, where existing infrastructure is already in place.

WEST DICKINSON AREA

In 2015 the City of Dickinson adopted the *West Dickinson Choices–West Dickinson Area Plan* to address projected growth and development pressure on the west end of Dickinson. As noted previously, the planning projections developed for Direction 2050 determined that the future land use demand for the West Dickinson area does not justify the extensive growth planned to be accommodated by the West Dickinson Plan. Most areas originally included in the West Dickinson area are now shown as future

agricultural uses or rural reserve. Retaining a future land use of agriculture for the West Dickinson area provides the City more control over potential future land use in this area, especially for uses around the ND 22/I-94 Interchange.

RURAL RESERVE

Annexation of additional land and extension of municipal infrastructure beyond the existing city limits may eventually occur. It is essential to reserve areas where future annexation makes sense to be preserved for eventual urban development while allowing existing rural agricultural uses to continue. The Future Land Use Map identifies these key areas to be reserved for future annexation as rural reserve. It is counterproductive to allow development of uses that would conflict with urban development in areas with this future annexation potential. The City of Dickinson can utilize the Future Land Use Map, the Urban Service Area, and its Extraterritorial Zoning authority to support these objectives.

URBAN SERVICE AREA

The Urban Service Area was established with the prior Comprehensive Plan and includes lands that were planned for long range growth at the time of the 2013 Comprehensive Plan. The City has modified this area twice since 2013. It does not consistently reflect areas capable of being served efficiently with urban services. In some cases, major infrastructure investment such as water towers or lift stations would be needed to support urban development.

This Urban Service Area should be revised over time to reflect areas which are capable of being served efficiently with urban services that already exist or only require minor investment. Development may be allowed in these minor investment areas when the developer petitions for annexation and pays the full cost of infrastructure extension, and plans to address the needed traffic and infrastructure impacts to the City's satisfaction. In contrast, sites requiring major investment should only be allowed to develop when the City has identified them as appropriate and cost-effective for annexation and development. At such time, these sites may be encouraged to develop by City participation in future infrastructure expansion.

MAINTAINING RURAL CHARACTER

Any vacant land outside the rural reserve area but inside the city's extraterritorial zone should be zoned agricultural and other land uses considered appropriate within the ETZ should be designated as special uses, with requisite conditions for development established by the city.

Future development within the ETZ should be focused on small scale uses that support the continued rural agricultural character of the area. Larger scale uses that are not consistent with the City's future land use plan should be encouraged to locate in Stark County-designated Priority Growth Areas in a manner that is consistent with the County's planning and zoning policies. Rural residential development tends to complicate future urban growth through potentially increased infrastructure costs, conflicts about annexation, and inefficient land use patterns. Each proposed development within the ETZ should be carefully evaluated to ensure it does not conflict with existing City land uses, existing adjacent land uses, and long term potential urban development.

CASE STUDIES FROM OTHER COMMUNITIES

The *Bismarck Together 2045* Comprehensive Plan was adopted in December 2022, containing Shape and Grow chapters that are most relevant for understanding the City's growth management strategy.

The Shape chapter addresses land uses including those outside city limits. Goal S5 is to "Protect the rural character of existing and planned rural residential areas in Bismarck's Extraterritorial Area." Policies established to support this goal aimed at limiting rural residential development while maintaining rural residents' ability to keep accessory uses consistent with rural living on appropriately scaled lots. An important feature of the Bismarck Future Land Use Map was the designation of "Urban Reserve"

areas intended for urban development but not projected to be annexed by the 20 year time horizon of the comprehensive plan. The Urban Reserve area's limited interim rural development was proposed to be allowable when specific conditions are met. One key condition was that such development could only occur when the development included at least 8.5 contiguous acres, because that scale is "known to be susceptible to redevelopment under standard market forces."

Additional details pertaining to the Shape and Grow chapters are found in ***Appendix B.***

The *Fargo Growth Plan 2024* was adopted by the City of Fargo in August 2024. Due to the Diversion Project soon to be in place, vacant land protected from flooding will become a scarcer commodity than it is today. The City of Fargo has responded by encouraging increases in overall density in the City, seeking a goal of approximately one third of its future growth to occur via redevelopment and two thirds by expansion into undeveloped land.

One of four models defining patterns of growth for the City is a "growth grid" concept that breaks down urban fringe and land in agricultural or other rural uses into a checkerboard of 16 mile square grids that form four "super grids". The intent of these growth grids is to promote growth one grid at a time, and to not allow development in a new super grid until the growth in the previously developing super grid has reached 75% of build out. This approach helps to limit premature installation of roads and water infrastructure, thus minimizing maintenance costs until development can contribute significantly to its own upkeep.

Additional details pertaining to Fargo's strategy to support a denser, more efficient development form that encourages more walkable communities can be found in ***Appendix B.***

TYING IT ALL TOGETHER

The recommended approaches for Dickinson to follow on this topic take the learnings of peer communities and are modified to apply to the local context. They also build on the East, West, and South site subarea plans as relevant. Finally, the Vacant Land Availability Map informs locations or sectors of Dickinson where strategic action is most appropriate.

The ultimate goal of consistent strategy to consider land use changes in the ETZ will be achieved through the following recommendations.

RECOMMENDATIONS

LU4.1 Continue to conduct thorough fiscal impact analysis for areas proposed or considered for annexation

LU4.2 Amend the Urban Service Area by eliminating two areas that are not anticipated to be developed to urban standards (see **Figure 5-7**). Continue to incentivize new development to remain inside of the municipal boundary where feasible, and within the Urban Service Area otherwise, reserving area outside for open space, agriculture, and preserved for future expansion beyond 2050.

LU4.3 Establish a rural reserve overlay district for all land designated in the rural reserve land use category. This district should allow existing uses as permitted uses and require that all future development be rezoned to an appropriate zoning district, be constructed to urban standards, and be a part of an orderly annexation agreement.

LU4.4 Maintain the rural agricultural and open space character within the Extraterritorial Zone by continuing agricultural designations for all land not actively in another land use. Non-agricultural or recreational land uses considered appropriate within the ETZ should be designated as special uses, with requisite conditions for development established by the City.

LU4.5 Continue to notify Stark County of proposed developments within the ETZ.

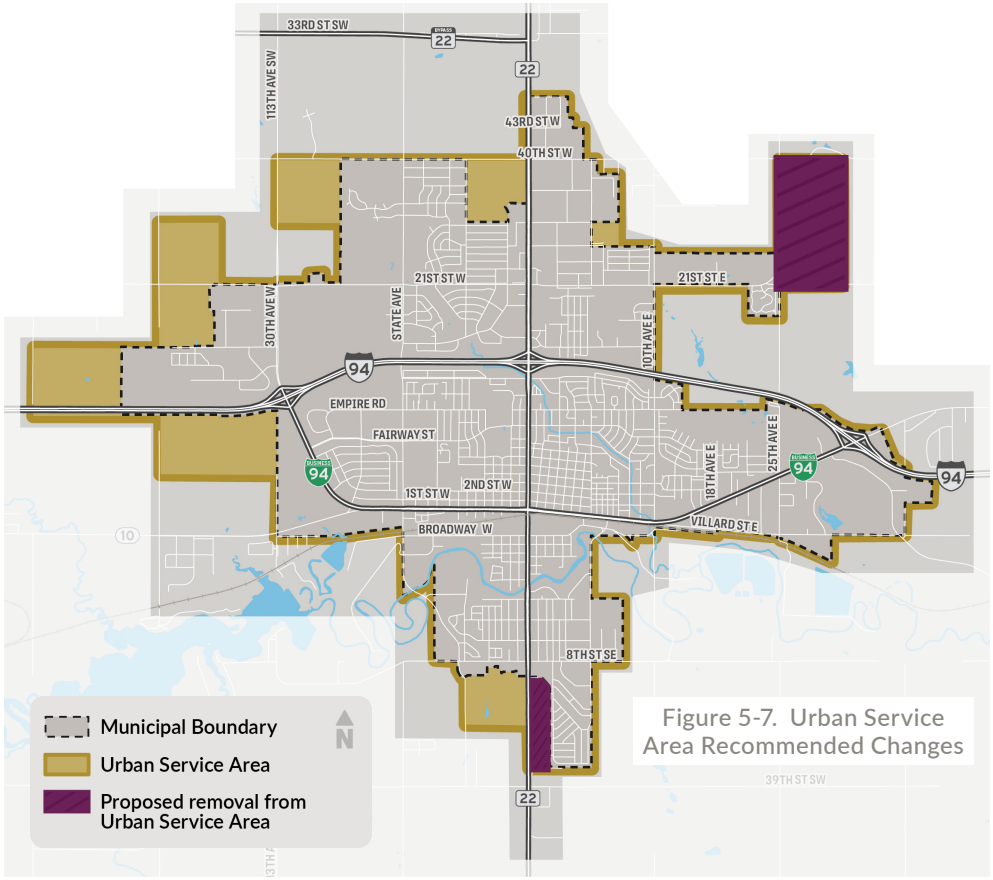


Figure 5-7. Urban Service Area Recommended Changes

Endnotes

1 "Renaissance Zone Program." North Dakota Department of Commerce. Accessed December 3, 2024 from https://commerce.nd.gov/community-services/community-development/renaissance-zone-program

2 *Dickinson 2035: Roadmap to the Future*. City of Dickinson, March 2013. The 2021 update covered Chapters 6, 8, 9, 11, and 12.

3 *West Dickinson Choices: Addendum Number 1 – West Dickinson Area Plan*. March 2, 2015. City of Dickinson, pages 4–5, 10–13.

4 *Stark County 2040 Comprehensive Plan*. Stark County, North Dakota, July 2024, pages 14–15. Accessed December 4, 2024 from https://www.starkcountynd.gov/index.asp?SEC=E9EBBD76-7F8A-4A5C-812A-137E3BBE5888

5 The legal description of the site is the NW ¼ Sec. 16, T139N, R96W of the Fifth Principal Meridian, less a 2.11-acre tract on the northeastern edge. The 2.11-acre lot that is not included in the master plan study, or in the recommendations for this paragraph, is known as Lot 1, Block 1 of "Southpark Third Addition" and forms a "notch" in the northeastern corner of this quarter section, fronting on both 8th Street SW and State Avenue. Stark County Recorder, Document Number 3129157.

6 The training facility is still used by the Fire Department occasionally, but may be replaced in the future.

7 *Preliminary Planning & Engineering Report: South Dickinson Area Plan*. May 6, 2024. Highlands Engineering & Surveying PLLC, pages 1–4, 10, 13.

8 Ibid., pages 6–7.

9 *Dickinson 2035: Roadmap to the Future*.

10 Intensity may be measured by increases to the floor-area ratio of a parcel, i.e. the amount of square footage of each floor or structure divided by the total area of the lot. This may be achieved through either horizontal or vertical expansion of structures on a lot.

FUTURE HOUSING

ABBREVIATIONS AND TERMS

ADU – Accessory Dwelling Unit. A subordinate, permanent independent dwelling which has its own cooking, sleeping, and sanitation facilities and which is:

- Within or attached to a single-family residential building; or
- Within a detached accessory structure associated with a single-family dwelling that is smaller than the primary structure, on a permanent foundation, and is not a recreational vehicle; or
- An apartment either attached to or within an existing commercial structure for use on a temporary basis by an employee of the specific business.

The ADU may be serviced through the same utility meters or connections as the principal dwelling unit.

AMI – Area Median Income. This figure is calculated annually by the federal government to establish the basis for housing subsidies.

BFE – Base Flood Elevation. This measurement is the elevation of surface water resulting from a flood that has a 1% chance of equaling or exceeding that level in any given year, as determined by the Federal Emergency Management Agency.

Choice Renter – A household with sufficient income to qualify for a market-rate home loan and purchase a home without subsidy, that is choosing to continue to rent their home.

Greenfield – New development on previously undeveloped land, whether inside the City limit or beyond. This type usually requires the extension of utility and street networks to provide access and service.

Infill – New development that occurs on vacant or under-utilized parcels in developed blocks or neighborhoods, and usually does not require new streets or utilities. This contrasts with Greenfield Development.

Manufactured Home – A type of prefabricated home which is built in a factory and transported to the site. Also commonly known as mobile homes.

Middle Housing – A housing typology consisting of a range of housing options of 2–9 units per parcel. Types of middle housing may include duplexes, small apartment buildings, cottage court developments, and townhomes. The physical form of middle housing units would match the height and form of existing Dickinson homes and neighborhoods.[1]

About this chapter

- **Preceding Plan Components:** The most critical preceding components of Dickinson Direction 2050 are the vision statements and goals from the ***Vision, Goals, and Objectives*** chapter; each portion of this chapter moves the City toward fulfilling the articulated vision for Dickinson's housing market, while recommendations provide a roadmap to meet the goals. The population, employment, and household growth projections developed in the ***Growth & Development Analysis*** chapter, including the **Vacant Land Availability Map (page 67)** are also utilized. The **Future Land Use Map** developed in the ***Future Land Use Plan*** chapter (**page 82**) refines and expands on the residential types that Dickinson expects in the future.
- **Dependencies of this Section:** The ***Future Land Use Plan*** chapter has been informed by the findings of this section.

Middle Neighborhoods – Areas of a community that have been established for at least 15 years, are comprised of mostly detached single-family homes, and are neither overtly growing nor declining.[2] While these neighborhoods are not directly related to middle housing, they may contain limited numbers of that housing typology.

Modular Home – A type of prefabricated home consisting of repeated sections called modules which can fit together in a variety of configurations. These modules are typically built in a factory then assembled onsite.

NFHL – National Flood Hazard Layer. A publicly available tool developed by the Federal Emergency Management Agency to assess the relative risk of flood hazards in every portion of the United States.

Opportunity Sites – Areas that can be targeted for larger homebuilders and/or rental developments to add 10 or more units at a time, for innovative financing techniques, or zoning incentives that seed unit types not frequently seen in Dickinson today.

SCHA – Stark County Housing Authority. SCHA administers federally funded vouchers for low-income households in the region.

Unit Types – Different forms of housing, which can range from single-family detached houses and townhomes to ADUs, duplexes, and apartment buildings.

INTRODUCTION

Housing is among the most important components of the community, impacting the everyday lives of Dickinson residents by providing stability and a place to base their lives and grow their families. As such, this dedicated Housing Chapter provides detailed analyses and recommendations on how to tackle housing challenges and bolster the community's existing housing, along with implementation of the Future Land Use Map and the other portions of Dickinson Direction 2050.

This chapter consists of three sections:

1. **The Housing Ecosystem**
2. **Maintaining and Improving Existing Housing Stock**
3. **Promoting New Housing and New Development Types**

Each is designed to fulfill the Housing Vision statement:

> Provide safe, attainable, and diverse housing designed to promote physical activity and full access to community resources.

THE HOUSING ECOSYSTEM

A mix of owner- and renter-occupied homes, as well as a mix of unit types to support households at multiple life stages and circumstances and with varied preferences, can be a key to a successful community. Without this variety, some City households may have to make do with a home that's too large or too small for their household size, double-up with another family, or move out of Dickinson entirely.

While market conditions typically drive housing development in communities, the public sector can support the development of appropriate housing types. Generative community development is a public sector approach that promotes greater quality-of-life and improves the community, as evidenced by cross-cutting measurements such as public health, household earning potential, and low turnover of residents.[3] This chapter uses a generative community development lens to indicate how Dickinson can meet these goals.

Development History

Dickinson's existing buildings include residences in the AG, LC, MH, RR, R-1, R-2, and R-3 zone districts. All structural improvements are subject to the North Dakota State Building Code, which Dickinson has adopted per the requirement of N.D.C.C. §54-21.3-03 as amended. See the ***Future Land Use Plan*** chapter for more detailed discussion of Dickinson's development code and recommendations beyond housing.

The ***Dickinson 2035: Roadmap to the Future*** plan, the current adopted Comprehensive Plan, was written before the City's significant increases in both housing starts and population of the mid-2010s.[4] This plan did identify many of the housing issues and concerns facing Dickinson today, including:

- rapid increases in housing prices;
- the gap between housing costs and household incomes; and
- the mismatch between available housing supply and the demand for housing for small households and temporary workers.

Vision West ND has assembled a housing resource guide for local governments, including multiple state, federal, and privately funded programs that can contribute positively to Dickinson's housing market. The 2025 priority areas that Vision West ND has published include "promote housing needs as more than 'affordable/low income'" and "educate communities about benefits of modular housing" as promising starting points.

The ***North Dakota Statewide Housing Needs Assessment*** indicated a 25% growth from 2010 to 2020 in the number of homes in the Region VIII/Roosevelt-Custer Planning Council territory, which includes Dickinson and Stark County.[5] The same document projects the growth trend to slow significantly, with limited numbers of new homes or even a slight drop in the overall housing supply by 2025. Vacancy is somewhat elevated for the historical trend, with 11.8% of all Region VIII homes unoccupied in 2020 and an uptick to 12.6% in 2022.[6]

Stark County and statewide projections are included here to compare regional trends with those in Dickinson, and provide the baseline for further analysis. Along with the ***Future Land Use Plan*** chapter where the Future Land Use Map is provided, the City's growth projections are supplemented with information to explain *how and where* expected growth could be accommodated. This supplemental information is the basis for the **Future Land Use Map,** as seen in **Figure 6-1 on page 98**.

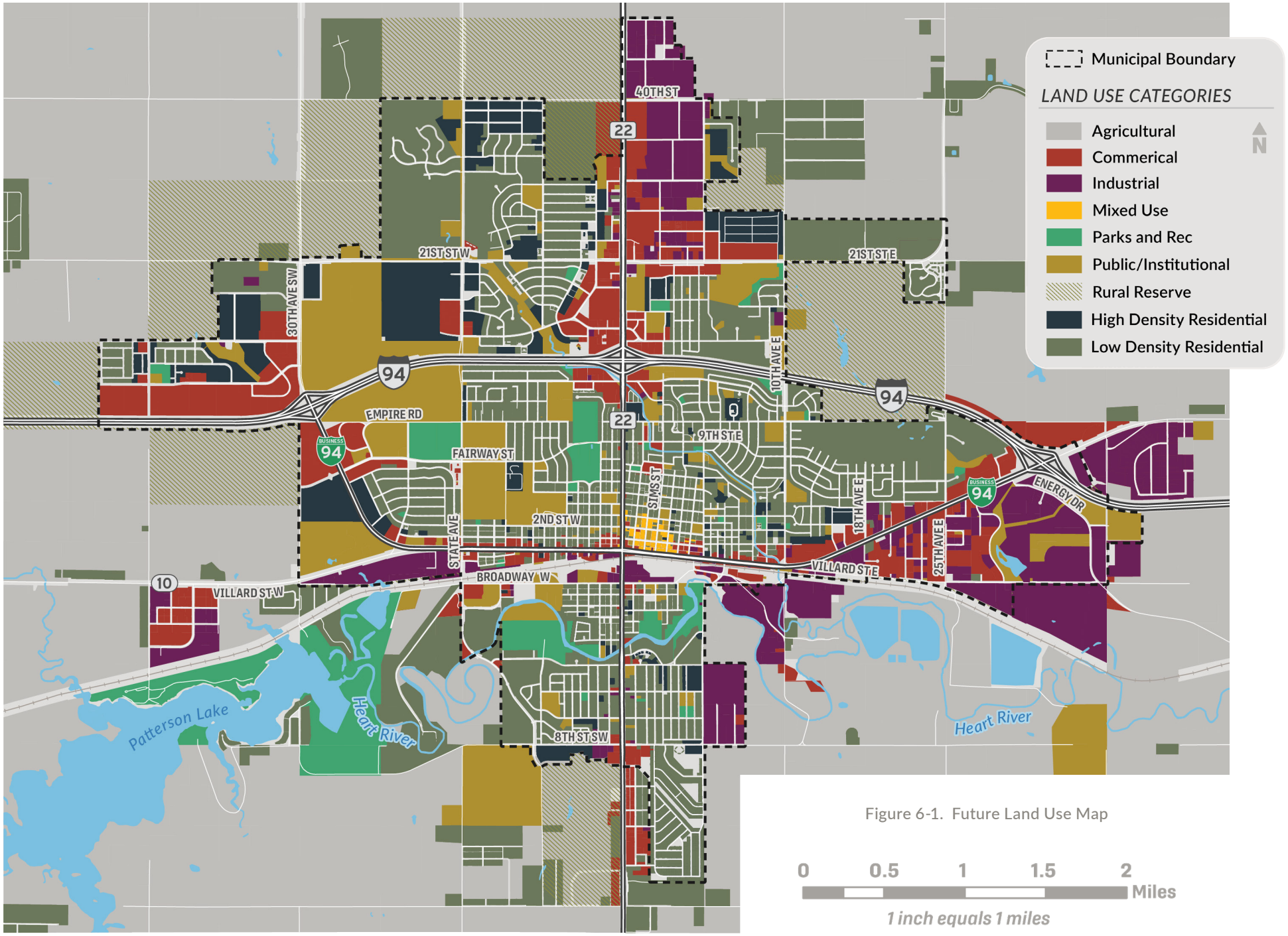


Figure 6-1. Future Land Use Map

Snapshot of Today

Dickinson can identify parts of the City that meet the *middle neighborhoods* definition on **page 95** to understand how their residents can be supported and encouraged to remain for the long term. Many of the established areas in central Dickinson can be described as middle neighborhoods, primarily south of I-94 between 13th Avenue West and 10th Avenue East. Reliable measurements of growth can include multiple trends but are most commonly evident in home sales, school enrollments, and sales tax revenues/small business activity. A *steady-state area* would be indicative of a middle neighborhood that includes a balance of home sale activity with relatively long-tenured residents over at least a decade.

Areas of the City that are "middle or better" would need less intervention, while areas that lag behind these indicators are due greater attention through implementation of Recommendations **HS 2.2** through **HS 2.8** at the end of this chapter.

CURRENT HOUSING INVENTORY

Dickinson's housing stock today consists primarily of detached single-family homes, with several communities of apartments, townhomes, and manufactured homes interspersed. The average density of the City is 3.16 households per acre. In 2022, there were 10,247 households in the City of Dickinson, up from 8,930 in 2017.[7] In 2022, there were a total of 11,725 housing units in the City: 10,247 were occupied and 1,478 were vacant. The 2022 vacancy rate of 12.6% was a decrease from the 15% housing vacancy rate recorded in 2017.[8] Dickinson's 2022 housing vacancy rate of 12.6% was lower than both Stark County's or the State of North Dakota's (both 14.1%).[9] In 2022 Dickinson's housing unit stock was split as follows:

- 42% renter occupied
- 58% owner occupied

By contrast, only 33.5% of all housing units in Stark County, and 36.7% of all units in North Dakota, are renter-occupied. Between 2017 and 2022, the number of multifamily housing units grew from less than 3,000 to over 4,000 total units, an increase of 37.7% over five years. Between 2017 and 2022, the supply of single-family homes grew at just over 3%, and the supply of mobile homes and other units decreased by more than one-quarter. By 2022, nearly 35% of the housing units in Dickinson were multifamily units whereas the statewide percentage of

multifamily units was approximately 28%.[10] These changes are reflected in **Table 6-1**.

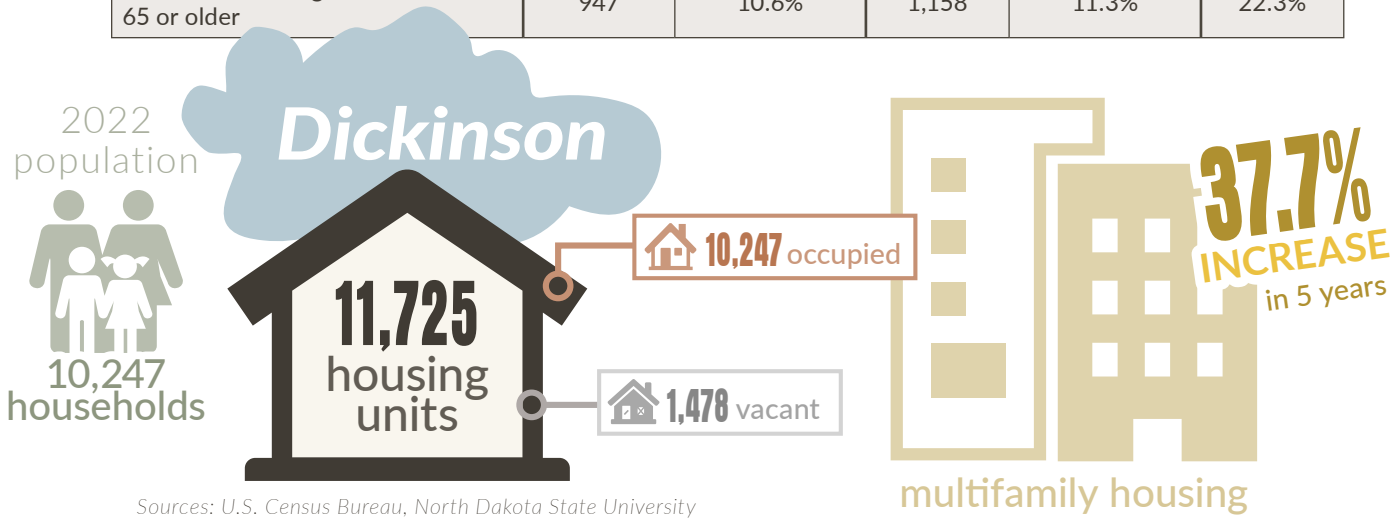
Additional comparisons of Dickinson's households and residences with Stark County and with North Dakota are provided in **Table 6-2**.

City of Dickinson permitting records from 2012 through 2023 demonstrate new construction and renovation activity. A substantial majority (69.5%) of permits for multifamily projects were issued between 2012 and 2015. Multifamily housing construction has tapered off since 2022; the trend over time is displayed in **Table 6-3**. At the same time, unattainable housing can result in overcrowding of homes—when multiple households occupy a unit intended for one—or in homelessness.

Fifteen people in Dickinson were reported as experiencing homelessness as of January 2023; this increased to 16 in May 2024. A total of 59 people in Dickinson received assistance to combat homelessness in the year ending May 2024, including rapid re-housing, coordinated entry, and supportive services.[11] As the local Continuum of Care has only included those that have made contact during point-in-time counts, the number of unhoused persons in the community may actually be higher.[12]

Table 6-1. Five-year Trends in Dickinson Household Demographics

METRIC (DICKINSON)	2017		2022		% CHANGE
	NUMBER	PERCENTAGE	NUMBER	PERCENTAGE	
Households	8,930		10,247		14.7%
Housing units	10,504		11,725		11.6%
Occupied housing units	8,930	85.0%	10,247	87.4%	14.7%
Vacant housing units	1,574	15.0%	1,478	12.6%	-6.1%
Owner-occupied housing units	5,322	59.6%	6,801	58.0%	27.8%
Renter-occupied housing units	3,608	40.4%	4,925	42.0%	36.5%
Average household size	2.41		2.38		-1.2%
1-unit structures	7,059	67.2%	7,293	62.2%	3.3%
2-or-more-unit structures	2,962	28.2%	4,080	34.8%	37.7%
Mobile homes and all other types of units	483	4.6%	352	3.0%	-27.2%
Households with one or more people under 18 years	2,581	28.9%	3,177	31.0%	23.1%
Households with one or more people 60 years and over	2,456	27.5%	2,900	28.3%	18.1%
Householder living alone	3,009	33.7%	3,535	34.5%	17.5%
Householder living alone–65 or older	947	10.6%	1,158	11.3%	22.3%



Sources: U.S. Census Bureau, North Dakota State University

Table 6-2. Household Characteristics for Dickinson Compared to Countywide and Statewide Households

METRIC (2022 ACS 5-YEAR)	DICKINSON		STARK COUNTY		NORTH DAKOTA	
	#	%	#	%	#	%
Households	10,247		13,200		320,038	
Housing units	11,725		15,366		372,376	
Occupied housing units	10,247	87.4%	13,200	85.9%	320,038	85.9%
Vacant housing units	1,478	12.6%	2,166	14.1%	52,338	14.1%
Owner-occupied housing units	6,801	58.0%	9,880	64.3%	235,342	63.2%
Renter-occupied housing units	4,925	42.0%	5,486	35.7%	137,034	36.8%
Average household size	2.38		2.44		2.34	
1-unit structures	7,293	62.2%	10,295	67.0%	243,906	65.5%
2-or-more unit structures	4,080	34.8%	4,226	27.5%	106,127	28.5%
Mobile homes and all other types of units	352	3.0%	845	5.5%	22,343	6.0%
Households with one or more people under 18 years	3,177	31.0%	4,237	32.1%	88,971	27.8%
Households with one or more people 60 years and over	2,900	28.3%	4,132	31.3%	114,574	35.8%
Householder living alone	3,535	34.5%	4,092	31.0%	106,253	33.2%
Householder living alone–65 or older	1,158	11.3%	1,386	10.5%	37,764	11.8%

Table 6-3. New Dickinson Residential Units Permitted by Year

YEAR	DUPLEX	OTHER MULTI-FAMILY	MULTI-FAMILY TOTAL	MOBILE HOME	SINGLE-FAMILY DETACHED	SINGLE-FAMILY ATTACHED	SINGLE-FAMILY TOTAL	TOTAL PERMITS
2012	8	25	33	0	156	75	231	264
2013	8	19	27	0	132	96	228	255
2014	23	87	110	0	134	32	166	276
2015	16	5	21	0	59	5	64	85
2016	0	2	2	0	18	2	20	22
2017	0	0	0	0	50	7	57	57
2018	0	0	0	0	43	11	54	54
2019	0	0	0	12	56	6	74	74
2020	0	0	0	8	45	0	53	53
2021	0	0	0	5	41	8	54	54
2022	0	1	1	0	30	2	32	33
2023	6	1	7	0	30	1	31	38
Total	**140**	**61**	**201**	**25**	**794**	**245**	**1,064**	**1,265**

Source: City of Dickinson building permit data

The Multiple Listing Service indicates that a high share of home sales in Dickinson have occurred at the lower end of the cost spectrum (i.e., home prices at or below $250,000 before closing costs) and are townhomes or other small unit types.[13] The principal advantages of these homes are shorter construction and preparation times before they enter the market, as well as reduced construction costs. Smaller housing types such as these can help buyers just starting out find homes within their budgets in Dickinson.

Other housing products which are similar in scale and cost are modular homes and manufactured homes, which are pre-assembled before installation in permanent locations. Encouraging the addition of modular homes may provide another solution for adding to Dickinson's housing supply as these unit types are already permitted within residential zone districts. Utilizing a set of appropriate designs and structure orientations recommended by the Manufactured Housing Institute will match the physical character of existing homes,

when modular or manufactured homes are installed on single-family lots.[14] These are units that:

- meet setback requirements;
- are at least 24 feet in width;
- are at least 36 feet in length;
- are installed on a permanent engineered foundation; and
- use brick, wood, or cosmetically equivalent exterior siding.

While mobile home parks would not fulfill the recommended setbacks, the other recommendations here continue to apply.

INCOME AND AFFORDABILITY

As of October 2024, the median value of owner-occupied homes in Dickinson is $297,155, representing a 0.6% increase from the prior month and a 5.3% year-over-year increase.[15] The City's median is well above Stark County's median housing value of $235,400.[16] The federally defined Area Median Income for North Dakota is $73,959. These figures are used for all analyses in this chapter.[17]

Dickinson's rental market consists primarily of market-rate units. There are subsidized units that are voucher-supported or federally subsidized through HUD Section 8 or USDA Section 202, programs that connect low-income households to stable housing. The Stark County Housing Authority (SCHA) administers housing vouchers for Stark County, with approximately 254 of these vouchers used for rentals inside city limits. As of July 2024, the agency administered 315 vouchers, equal to 66.3% of the units currently under the Annual Contributions Contract with Housing and Urban Development (HUD). In addition, the agency administered 31 Mainstream Vouchers (3% more than the 30 effective awards) and 12 Veterans Affairs Supportive Housing (VASH) vouchers (60% of the 20 effective awards). In total, 9.67% of the vouchers issued by Stark County were for Special Purpose Vouchers. In addition to the 31 leased Mainstream Voucher units, there are an additional four Project-Based Voucher units under the Housing Assistance Plan that remain unleased, giving the PBV program a utilization rate of 88.6%.

Federally subsidized apartment rentals exist throughout Dickinson. A total of 215 apartments are either project-based Section 8 or USDA Section 202 properties, with long-term affordability subsidies and restrictions to 60% of Area Median Income for renters.[18] These are a crucial part of the affordable housing stock of Dickinson, and are discussed further in the next section.

RESIDENTIAL BUILDING ACREAGE

Today's housing in Dickinson covers 2,126.1 acres within the City. **Table 6-4** details the acreage by residential type, the proportion of overall housing for each, and the proportion of overall City area for each. This is a typical arrangement for North Dakota communities. By 2050, the population and household forecasts indicate Dickinson may see a smaller portion of space utilized for single-family homes and mobile homes, as affordability concerns and changing household sizes may dampen demand for these home types. Greater portions of the City may be allocated for the apartment, townhome, two-unit/duplexes, and similar types as those better fit household needs.

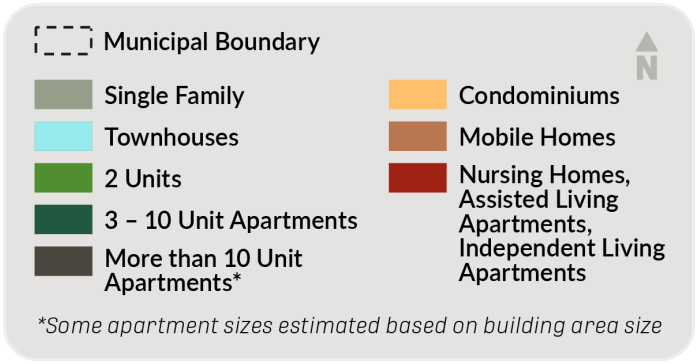


Figure 6-2. Current Residences by Type in Dickinson

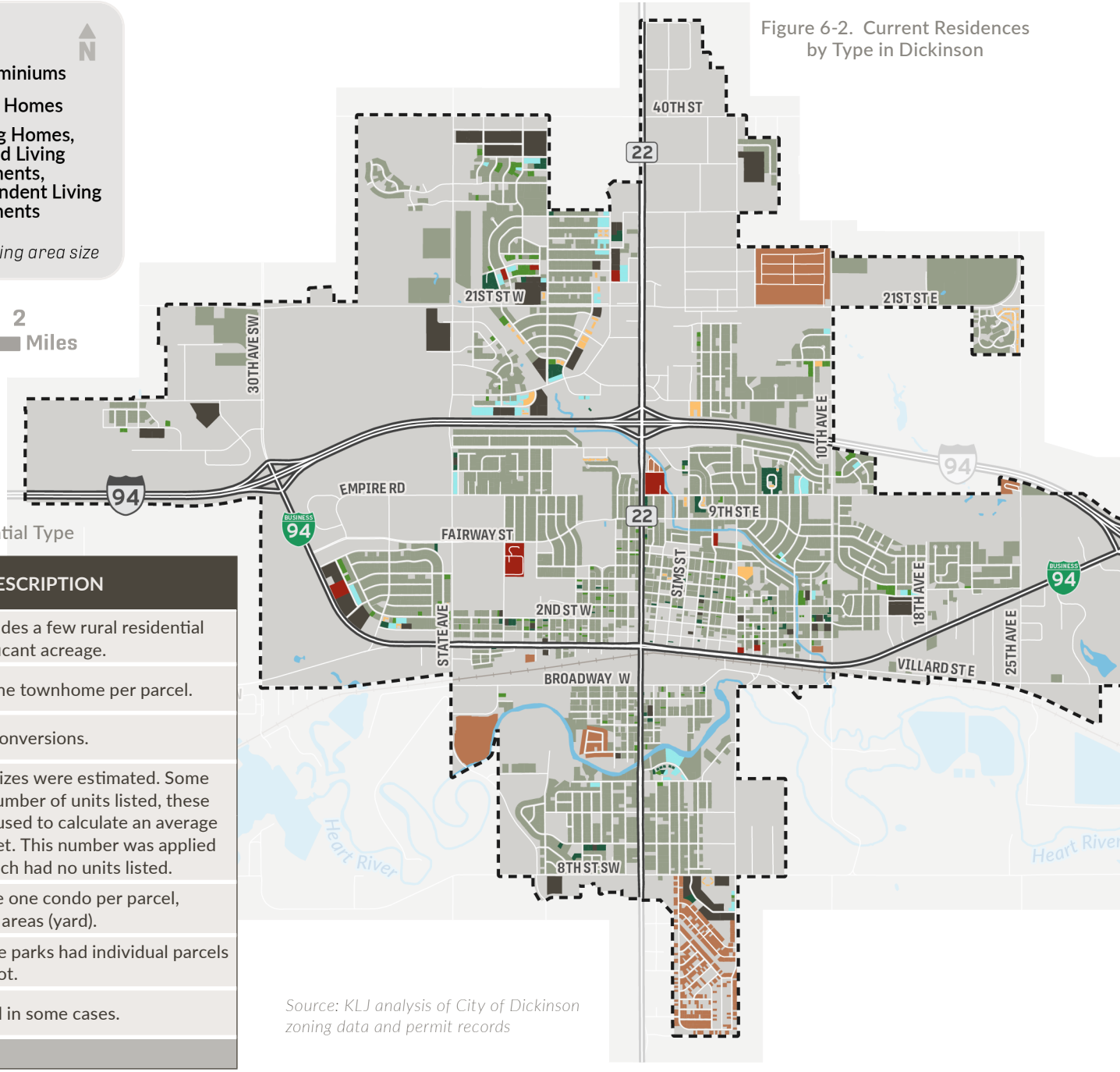


Table 6-4. Proportion of Dickinson Land by Residential Type

HOUSING TYPE	TOTAL ACRES	DESCRIPTION
Single Family	1,617.4	Single Family includes a few rural residential parcels with significant acreage.
Townhouses	41.6	Townhomes are one townhome per parcel.
2 Units	40.6	Duplexes, 2-unit conversions.
3–10 Unit Apartments	38.9	Some apartment sizes were estimated. Some apartments had number of units listed, these apartments were used to calculate an average unit per square feet. This number was applied to apartments which had no units listed.
More than 10 Unit Apartments	163.6	
Condominiums	17.0	Condominiums are one condo per parcel, excludes common areas (yard).
Mobile Homes	178.7	Some mobile home parks had individual parcels while others did not.
Nursing Homes, etc.	28.3	Quasi-institutional in some cases.
Grand Total	2,126.1	

Source: KLJ analysis of City of Dickinson zoning data and permit records

Hazards and Threats

Flood risk for the city of Dickinson was assessed using the Federal Emergency Management Agency's (FEMA) National Flood Hazard Layer (NFHL). This dataset, shown in **Figure 6-3,** denotes areas that are at an estimated 1% or 0.2% annual risk of flooding (i.e., prone to a 100-year or a 500-year flood event, respectively).[19] It also shows areas that are designated as regulatory floodways, meaning land that is not appropriate for development of any kind because it is reserved to discharge the flooded areas of a river or stream and as such, development of any kind should not be permitted. The vast majority of land area, including vacant land, within Dickinson does not fall within any of these three categories and is not deemed to be at risk of even a 500-year flood event; however, it will be necessary to take into account the potential flood risk when making specific development recommendations near the Heart River and its tributaries.

To prevent a flood-prone location from diminishing the value of land or hindering needed development, recommendations are included here to mitigate and adapt. This may include promoting home construction or renovation that places HVAC units, water heaters, electric sockets, and other critical system components above the FEMA Base Flood Elevation (BFE),[20] regardless of location within a flood-prone area. This would minimize damage and the associated insurance premium implications from any flooding events.

Projected Need and Analyses

An annual projected population growth rate of 1.4% is used in this Plan, including net migration and natural growth, to estimate the total households in Dickinson at five-year intervals through 2050. See the ***Existing Conditions*** and ***Growth & Development Analysis*** chapters for further details. The Dickinson 2035 plan included a similar analysis, projecting total housing demand of 18,943 units by that year. The interim annual forecasts for housing demand to date were higher than what Dickinson experienced. For example, permanent housing demand for 2024 was projected to be 18,313, and Dickinson only had 10,247 in that year.

To better understand projected housing need, this section provides updates to forecasting housing demand, delineated into owner and renter categories. A combination of for-sale and for-rent homes—as well as a mix of unit types to support households at multiple life stages, income levels, and circumstances—can provide the City with a diverse housing market and position Dickinson to fulfill the Housing Vision.

The homeownership rate in Dickinson is projected to grow slightly from the current 58% figure, reaching 61% by 2050 as additional for-sale stock becomes available (due to new construction and household turnover), with moderating sale prices and interest rates following. Further assumptions for future homeowners/buyers include a maximum debt-to-income ratio of 35%, and mortgage interest rates of no higher than 5.75% will be available. Employment projections for Stark County are used here, reflecting the regional nature of the employment market.

A capture rate of 0.5418 is used for these analyses, based on the existing proportion of workers-to-population in the area. This ratio allows us to forecast that additional workers are expected to live in Dickinson, with the average household size remaining at the current 2.38 persons through 2030, then gradually decreasing to 2.25 by 2040 and remaining at that level for the subsequent decade. The average number of workers per household is thus assumed to remain consistent with the existing ratio.

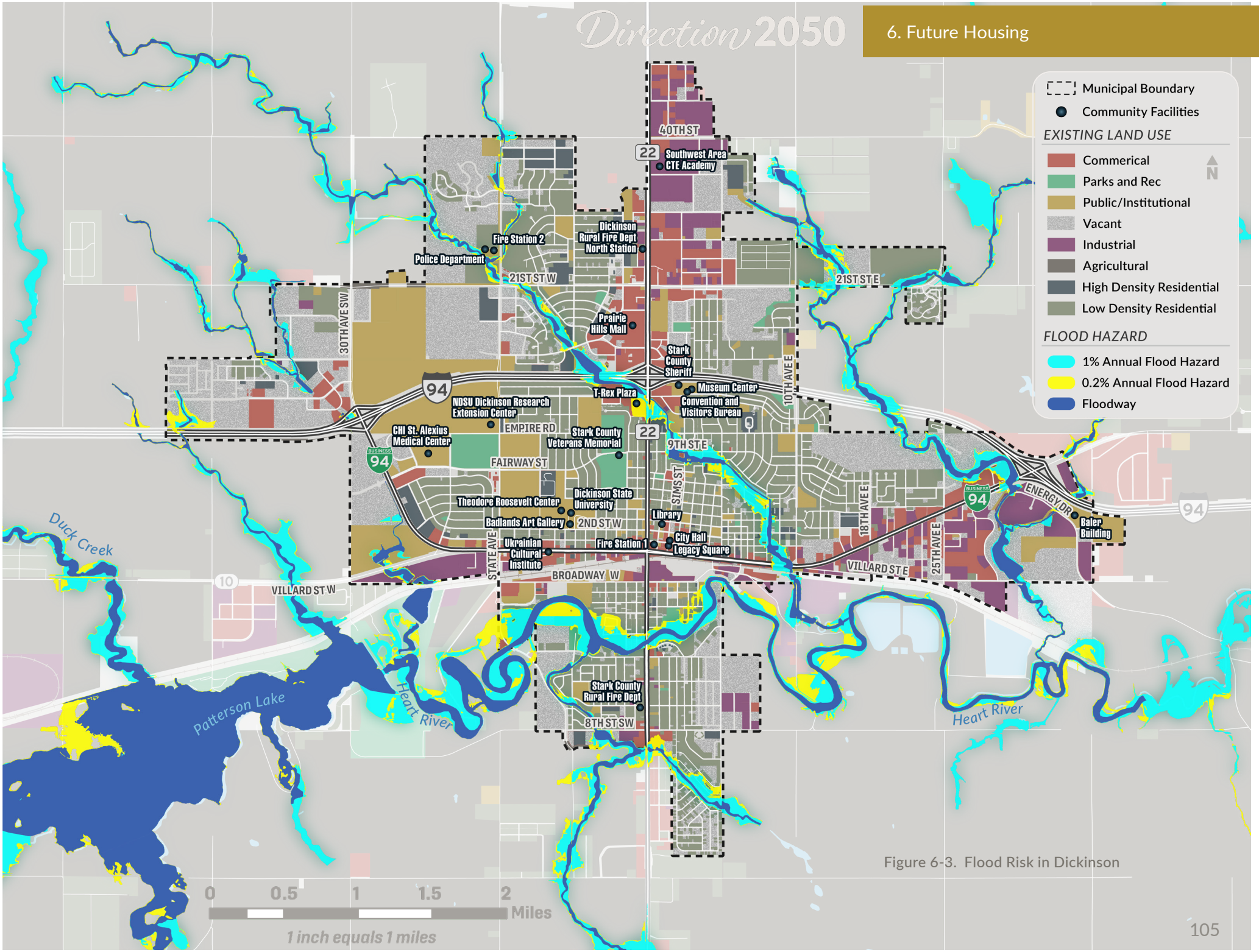


Figure 6-3. Flood Risk in Dickinson

FUTURE OWNERSHIP DEMAND

This analysis projects future potential ownership needs for the next 25 years. Future household growth is incorporated based on current household statistics, conversations with stakeholders, and forecasts by the North Dakota Department of Commerce.[21] This data is shown in **Table 6-5** and **Table 6-6**.

Future ownership demand rests on the annual growth projections for Dickinson, as discussed above. The anticipated split of owner-occupied and renter-occupied units in Dickinson is currently 58% to 42%, respectively. This projection assumes the homeownership rate will grow modestly, reaching 59% by 2030 and 61% by 2050 based on exogenous factors discussed above. The number of second homes in Dickinson is considered to be negligible and is not included. While higher-income household sets would find more home options on the market than needed in both scenarios, these homes would be out of the price range of lower-income households.

FUTURE RENTAL DEMAND

The accompanying analysis in **Table 6-7** provides a snapshot of the needs of renter households in 2050. Because renters tend toward the lower end of the income spectrum, this analysis has greater implications for households that are at risk of being priced out of the community. These

Table 6-5. Dickinson's Projected Homeowner Demand by Income, 2030

MARKET SEGMENT BY INCOME	<60%	61–80%	81–100%	101–120%	121–150%	151%+	TOTAL
Estimated Total City Households							12,298
Future Owner Households	739	1,463	863	768	1,288	2,195	7,316
Projected Market-Provided Units							7,194
Total For-Sale Supply	524	643	575	812	1,475	2,740	6,769
Maximum Affordable Sale Price	$186,507	$248,607	$310,811	$373,014	$466,268	$579,600	
							TOTAL GAP
Estimated Gap or Surplus	-215	-820	-288	44	187	545	**-547**

Sources: KLJ analysis of North Dakota Department of Commerce, U.S. Census Bureau figures

Table 6-6. Dickinson's Projected Homeowner Demand by Income, 2050

MARKET SEGMENT BY INCOME	<60%	61–80%	81–100%	101–120%	121–150%	151%+	TOTAL
Estimated Total City Households							16,200
Future Owner Households	998	1,976	1,166	1,038	1,739	2,965	9,882
Existing Deed-Restricted Units	0	0	0	0	0	0	0
Projected Market-Provided Units							8,813
Total For-Sale Supply	656	804	719	1,015	1,841	3,427	8,461
Maximum Affordable Sale Price	$218,258	$290,930	$363,723	$436,516	$545,646	$678,272	
							TOTAL GAP
Estimated Gap or Surplus	-342	-1,172	-447	-23	102	462	**-1,421**

Sources: KLJ analysis of North Dakota Department of Commerce, U.S. Census Bureau figures

Table 6-7. Dickinson's Projected Rental Demand by Income, 2030

MARKET SEGMENT BY AREA MEDIAN INCOME	<60%	61–80%	81–100%	101–120%	121–150%	151%+	TOTAL
Estimated Total City Households							12,298
Future Rental Households	989	1,195	965	747	617	467	4,981
Existing Deed-Restricted Units	215	0	0	0	0	0	215
HUD Section 8 Vouchers	254	0	0	0	0	0	254
Projected Market-Provided Units	207	553	742	817	1,018	736	4,073
Total Rental Supply	676	553	742	817	1,018	736	4,542
		MIDDLE-INCOME DIP					*TOTAL GAP*
Estimated Gap or Surplus	-313	-642	-223	70	401	269	-439

Sources: KLJ analysis of HUD Exchange, U.S. Census Bureau figures

Table 6-8. Dickinson's Projected Rental Demand by Income, 2050

MARKET SEGMENT BY AREA MEDIAN INCOME	<60%	61–80%	81–100%	101–120%	121–150%	151%+	TOTAL
Estimated Total City Households							16,200
Future Rental Households	1,255	1,516	1,225	948	782	593	6,318
Existing Deed-Restricted Units	272	0	0	0	0	0	272
HUD Section 8 Vouchers	362	0	0	0	0	0	362
Projected Market-Provided Units	239	715	832	1,030	1,315	918	5,049
Total Rental Supply	873	715	832	1,030	1,315	918	5,683
		MIDDLE-INCOME DIP					*TOTAL GAP*
Estimated Gap or Surplus	-382	-801	-393	82	533	325	-635

Sources: KLJ analysis of HUD Exchange, U.S. Census Bureau figures

may include critical parts of the workforce, including retail and restaurant workers, public school teachers, and other public-serving roles.

Deed-restricted apartment units and Section 8 vouchers in Dickinson that are administered by federal agencies today are assumed to remain in place.[22] For the purposes of these analyses, a one-time increase of 12.5% in the number of Section 8 vouchers by 2050 are assumed, as well as a flat number of subsidized USDA units. That said, losses of these resources would put further pressure on Dickinson's unsubsidized rental market.

Renters are placed into household income categories in **Table 6-7** and **Table 6-8**, based upon AMI. The inclusion of deed-restricted units and federal rental subsidies provide a limited supply for households at or below 60% AMI. While the actual numbers of renters may be discounted if relief is projected in the home price and mortgage interest rate picture, this analysis assumes that only the two rightmost columns count as choice renters.

THE BOTTOM LINE

Based upon these projections and assuming that population growth and housing starts continue to follow their present trends, it does not appear Dickinson will meet the projected overall housing demand. In five years, the forecasted deficit of 990 homes

in the City includes 439 rentals and 547 for-sale homes. By 2050, Dickinson will face an anticipated deficit of 2,056 overall units. This deficit is expected to have a more profound impact on low- and moderate-income renter households in Dickinson. The implications for that shortage for land use, public services, and demographics are discussed in this section.

The next two sections contain recommendations which, if adopted, could serve to improve the City's housing stock and increase the amount of available housing for all income groups.

MAINTAIN AND IMPROVE EXISTING HOUSING

This section details how Dickinson can meet the following identified Housing Goals:

- Preserve neighborhood character and establish a sense of place.
- Provide residents a safe, well-connected, and vibrant place to raise a family.

The Situation

Many of Dickinson's existing residential areas could be described as middle neighborhoods. These neighborhoods require limited intervention from the City to remain stable, and are impacted to a lesser degree by Dickinson Direction 2050. That said, the strategic redevelopment of certain sites and the placement of new home types within middle neighborhoods would be part of a neighborhood stability strategy.

The acreage by housing type in Dickinson represents a valuable resource: the existing housing stock of the City. More than structures for living, existing homes are the critical launch points for a stable and prosperous life for current members of the community. Local housing policies that actively address existing residences will position Dickinson for success, given the predominance of residential neighborhoods shown in **Figure 6-2 on page 103**. Keeping the City's housing stock in good condition also supports a growing population, as new housing alone cannot shoulder the anticipated growth resulting from net migration, new births, and household formations.

The construction date of existing homes varies. **Table 6-9** details when residences around Dickinson were built; the largest proportion were between 1960 and 1979, and 42% of all existing homes in subdivisions date from before 1980.

The average year of construction for both Dickinson and the whole of Stark County are somewhat newer than the average for North Dakota, as evidenced by **Table 6-10 on page 109**. Still, the majority of local residences—54.6%—were built before 1990, and will need repairs and maintenance to remain in good condition both for their current occupants and so that they can be sold or rented to additional households in the future.

Between now and 2050, turnover of many existing homes is anticipated. This section details the needed steps to keep this sector of Dickinson's residential market healthy and robust.

What We Heard from Community and Stakeholders

The community's stated housing goals are to maintain the stability of Dickinson's residential neighborhoods and the separation of conflicting land uses from residential areas. These are reflected in the Housing vision statement and will be carried out in the Housing goals. To meet these goals and ensure an adequate housing stock, the City's approach must include a means to support renovating and improving older homes, helping to ensure that homeowners can remain there as they age, and that lower-cost options will be available on the market. The City's existing development regulations are not a barrier to achieving this goal. However, minor updates to regulations concerning flood hazard, accessibility, and design are recommended to promote infill residential development.

Table 6-9. Subdivisions in Dickinson by Decade of Construction

SUBDIVISION BREAKS	COUNT	%
Pre-1900 & Other	17	0.03
1900–1919	22	0.04
1920–1959	66	0.12
1960–1979	129	0.23
1980–1999	98	0.18
2000–2009	51	0.09
2010–2019	116	0.21
2020–Present	39	0.07
Unplatted	18	0.03
Total	**556**	**100**

Table 6-10. Year of Construction for All Residences

YEAR CONSTRUCTED	DICKINSON	STARK COUNTY	NORTH DAKOTA
2020 or later	0.9%	0.9%	0.6%
2010–2019	31.6%	28.6%	17.6%
2000–2009	7.6%	8.9%	11.8%
1990–1999	5.2%	5.3%	9.8%
1980–1989	15.2%	14.7%	10.6%
1970–1979	15.6%	16.1%	16.9%
1960–1969	8.3%	7.1%	8.2%
1950–1959	5.7%	6.6%	8.5%
1940–1949	2.1%	3.1%	3.9%
1939 or earlier	7.7%	8.8%	12.1%

Meeting the Housing Vision means that Dickinson's housing stock will meet growing demand by 2050 while positioning the City for a successful future. The following recommendations indicate how the City can promote a local housing ecosystem that meets both the vision and the underlying goals. Certain recommendations showcase how Dickinson can utilize its housing to meet generative goals.

Recommendations

HS1.1 Explore the development of a flood protection plan for the lowest-lying areas near the Heart River to ensure residents and the City understand the potential risks, and have plans in place for how to react and recover in the event of future flooding.

HS1.2 Preserve open spaces within the floodway along the Heart River and in other hazard-prone areas, and discourage development in areas where it is not appropriate that could cause property damage, injury, or loss of life.

HS1.3 Adapt the zoning code to relax setback and roof height requirements for residential zones near the Heart River and in otherwise flood-prone parts of Dickinson. These adaptations will promote the placement of critical building system components above the base flood elevation.

HS1.4 Provide guidance on building codes—through development code updates if required—to promote "dry" or "wet" floodproofing of new structures, to include location of critical building system components above BFE and/or waterproof enclosures for electrical equipment. This may be applied only to flood-prone areas, or citywide.

HS1.5 Promote improved accessibility of homes in Dickinson as renovations occur, in tandem with a homeowner rehabilitation program and/or partnerships with financial institutions that are active lenders in the residential market.

HS1.6 Encourage or require neighborhood-oriented design attributes on new and renovated residences, such as front doors which face the primary street and other design features which fit the neighborhood's physical character.

PROMOTE NEW HOUSING AND NEW DEVELOPMENT TYPES

This section details how Dickinson can meet the following identified Housing Goals:

- Create additional and improved affordable housing opportunities for residents.
- Support the exploration of new approaches to meeting current and anticipated housing demand including workforce housing, empty nesters, and aging in place.
- Provide appropriate housing choices and locations for temporary and transient workers.

The Situation

Any successful community will require new housing units to harness a growing population and to provide attractive, updated homes as people move through multiple life stages. While Dickinson has seen multiple housing starts in the last decade, as detailed previously, more will be needed to meet the City's overall demand, and more housing types should be added to serve the diverse household types and sizes of our community. The barriers to additional housing include high costs, inability to secure financing, unfamiliar housing types that builders are reluctant to tackle, and limited understanding of the current housing market.

Dickinson has 2,453 acres of vacant parcels within the City boundary. Vacant homes are the most acute issue and can result in the following:

- foregone tax revenue;
- attraction of squatting;
- vandalism; and
- other problems that can destabilize a neighborhood and negatively impact nearby property values.

At the same time, there is significant unmet housing demand in Dickinson, as indicated previously. While these may appear to be unrelated challenges, an opportunity exists to solve them together. Promoting the addition of needed housing supply in vacant spaces is addressed in more detail in this section.

What We Heard from Community and Stakeholders

Attainable housing eludes many current and potential new Dickinson residents. As renters and new heads of household attempt to establish themselves in Dickinson, the upward trend of rents has outpaced growth in household incomes for each of the last five years, and does not permit long-term saving toward the goal of homeownership. For existing residents, the cost of upkeep for older homes is growing alongside a nationwide spike in home insurance premiums. These hazards threaten the ability to achieve the Housing Vision.

To disrupt this cycle, a set of locally tailored strategies are needed. These may include promotion of unit types that are traditionally less expensive to build, exploration of subsidies for construction or construction techniques that are not currently in use, encouraging programs that support rehabilitation and modification of older homes, promoting the existing Renaissance Zone program, and partnerships with the finance and homebuilding industries to ensure their lines of business fit the changing direction of the Dickinson housing market.

Finally, the community wants to ensure that curb appeal is emphasized in newly developing homes. Any new unit types must generally match the physical character and appearance of existing homes in order to fit with the existing urban fabric. For example, new homes should roughly match the size and massing of neighboring properties. Homes with front-facing garages also may not be appropriate on blocks where most homes either have garages set back from the street, are detached, alley-accessed, or are not present.

The following subsection begins with case studies of other communities with successful housing interventions, then follows the recommended form of the **Future Land Use Map**. This subsection does not generally have granular recommendations at the level of a single parcel or block. The neighborhood- or area-level of specificity is used to move forward, with rare exceptions such as **HS2.3 on page 114**.

Case Studies

South Bend, IN: BUILD SOUTH BEND: PRE-APPROVED BUILDING PLAN SETS

Keys to Success: understanding of local housing need; process redesign

The City of South Bend, Indiana recognized an acute need to increase the supply of affordable homes in the community to meet burgeoning local demand for moderately priced homes. South Bend is a city of 103,000 people located in northern Indiana, within commuting distance of the Chicago area and home to the University of Notre Dame. South Bend has traditionally experienced similar housing market constraints as Dickinson despite being a larger community.

To quicken the pace of new housing development and better fulfill housing types in demand, the combined City-County government has developed and offers a catalog of ready-made residential building plan sets. The catalog includes seven types of homes that can be scaled to different sizes, and is offered free of charge. Launched in August 2022, the catalog's seven home types are accessory dwelling unit (known locally as a carriage house), two-, three-, and four-bedroom single-family homes, side-by-side duplex, stacked duplex, and a six-unit apartment building (known locally as a sixplex). The plans are optimized for typical lot configurations and construction techniques, and note the local zoning districts in which each can be built. The City's intent in providing this catalog is to lower the costs of design and planning and deliver new infill homes in established neighborhoods, giving an opening for smaller and local homebuilders to competitively work in South Bend. The catalog saves staff time during plan review as all plan sets already comply with the local zoning code and other regulations, potentially reducing the turnaround time for applicants.

Craig, CO: PUBLIC-PRIVATE PARTNERSHIP FOR MULTIFAMILY HOUSING

Keys to Success: multi-party partnership between local government, public housing authority, and private hospital; infill site with redevelopment potential

Craig, Colorado is a city of 9,060 and the seat of Moffat County in the northwest corner of the state. With heavy tourism from the region's ski areas, national monuments, and other protected lands, high housing costs have outpaced many residents' budgets. At the same time, Craig has multiple assets, including a robust local economy, convenient location at the crossroads of two regional highways, and many longtime "backbone" institutions. Memorial Regional Health (MRH) is one such entity, operator of the county's only inpatient hospital and one of the largest local employers, as well as a frequent partner in community development efforts.

MRH recently vacated their prior hospital site in Craig as their new local hospital was constructed and opened. To jumpstart needed housing development, MRH donated the site and funded $1.4 million in abatement and demolition costs; the City then sought grants from the State of Colorado and the U.S. Environmental Protection Agency to provide critical project financing, with a low-interest loan from the Yampa Valley Community Foundation filling an additional gap. The resulting developments are the 8th Street Townhomes, a 20-unit development on a convenient infill site, within one block of the local elementary and middle schools and three blocks from downtown Craig. These for-sale townhomes are owned by the Craig Housing Authority and are offered to households earning up to 140% of area median income. To reflect MRH's role in the project and to assist in the need for a stable health care workforce, up to five MRH employees were also offered first right of refusal to purchase.

Fort Worth, TX: NEW CITY DIVISION TO SEED INFILL DEVELOPMENT

Keys to Success: streamlined process; technical assistance/capacity building for local developers

The City of Fort Worth is one of the two core cities of the quickly growing Dallas-Fort Worth Metroplex, and has enjoyed robust growth in the population and local economy. Despite these headwinds, the City found that existing efforts to promote infill development in established neighborhoods were falling short. Federal programs to subsidize and provide gap financing for development, including HUD's Neighborhood Stabilization Program (NSP) and multiple commercial support programs, have been underutilized in the last 15 years. During the same time period, greenfield areas at the edges of the metro area saw significant amounts of development activity. One critical barrier was the difficulty that business owners and cottage developers faced in working through the City's complex development review process, including the multiple types of infrastructure required to receive final approved plats. Fort Worth saw the need to update and simplify their processes to spur infill development in Fort Worth's established neighborhoods.

These efforts came to fruition in April 2024 with the launch of the Small-Scale Infrastructure Program (SSIP). Four staff members are assigned to the SSIP, providing technical assistance for applicants to meet utility, sidewalk, street furniture, lighting, and other City requirements. The program assisted approximately 45 small-scale developers in its first three months with incorporating infrastructure needs into their final plats and site plans.

Boise, ID: MODERNIZED CODE PRODUCED IN COLLABORATION WITH COMMUNITY

Keys to Success: streamlined process; phased approach; continuous community buy-in

The City of Boise's development code had not been updated in many years and required significant changes and additions to meet the types of development in demand. While the City recognized these challenges, local leaders also had noticed multiple other local governments attempt zoning code updates that did not move forward or were overturned by referendum, as community members rose up in opposition to the changes they wrought. To ensure a successful overhaul that would remain in place, the City convened a 20-resident Citywide Advisory Committee to guide the types of changes that would effectively tap pent-up demand for new projects. The flexibility of planning staff and ongoing community dialogue were cited as key factors in a successful product.

The zoning code rewrite was built on five goals , written without technical jargon and used in local marketing to foster community support:

- Create a Variety of Housing Options for Boiseans
- Create a Predictable and Sustainable Development Pattern
- Support a Healthy Community and Environment
- Create a Safe and Healthy City
- Create Economic Opportunities

The final zoning code draft was completed in June 2023 and the City Council adopted the new code in December 2023.

Recommendations

UNIT TYPES

A high share of home sales in Dickinson have occurred at the lower end of the cost spectrum (i.e., home prices below $250,000 before closing costs) and are townhomes or other small unit types.[23] The principal advantages of these homes are shorter construction and preparation times before they enter the market, as well as greatly reduced construction costs. Smaller housing types such as these can help first-time buyers find homes within their budgets in Dickinson.

Other housing products which are similar in scale and cost are modular homes. Encouraging the addition of modular homes may provide another solution for adding to Dickinson's housing supply. A limited set of appropriate designs and structure orientations may be utilized. The City may regulate this through the use of an overlay district on MH-zoned properties, or through citywide regulations that are addressed during development review. The City may also encourage the use of resilient building materials in housing construction, including reinforced concrete, preservative-treated wood, and exterior finishes that are designed to withstand extreme weather and wind-borne debris.

Recommendations for promoting new housing and development types are as follows:

HS2.1 Support the rehabilitation of existing vacant or abandoned homes by the development community in two steps: first, identification and acquisition of properties suitable for redevelopment that can be conveyed later to another private owner at a low cost; second, securing partnerships with private or non-profit developers to rehabilitate vacant and abandoned housing at scale.

HS2.2 Identify specific vacant parcels to promote infill housing development through a publicly available list or map, especially on visible corner lots and parcels near downtown.

HS2.3 Identify specific vacant parcels as pilot sites for new multifamily housing opportunities, especially those that are already owned by the City.

HS2.4 Evaluate potential barriers in details of the Development Code to building modular or industrialized homes, ADUs, and "tiny homes". The City should ensure that proposed modular homes fit with the existing character of Dickinson.

FINANCING AND AFFORDABILITY

In addition to the promotion of modular homes as noted in the section above, the City may be able to assume a role in promoting for-sale and rental homes that are within reach for the majority of Dickinson households; these may take the form of advisory building recommendations, or of partnerships with the private sector and other units of government. These recommendations may also have limited applicability to renovations or rehabilitations of existing homes.

HS2.5 Promote the use of resilient building materials for new homes, to cut down on long-term maintenance and replacement costs to homeowners over the long term. Because building materials are not regulated in Dickinson's current Building Code, recommended materials are advisory and can be promoted for their potential cost savings and longevity.

HS2.6 Continue to support the Dickinson Revitalization Program in partnership with Gate City Bank. Where practicable, focus the program on referring first-time Dickinson homebuyers to subsidized lending products offered by the Bank to increase the City's homeownership rate.

HS2.7 Explore a partnership with interested developers and owners of vacant property on workforce housing-specific lending products designed solely to support new multifamily developments.

HS2.8 Identify potential housing development(s) for target AMI groups that will require significant gap financing to pencil, and encourage would-be developers to apply to utilize a portion of the State of North Dakota's Section 108 loan authority from HUD or another subsidized line of credit or subsidy source to fill the gap.

Endnotes

1 This definition is adapted from the Land Development Code of Louisville, Kentucky. Accessed December 1, 2024 from https://louisvilleky.gov/government/office-planning/middle-housing

2 Nedland, Marcia. Webinar: "Middle Neighborhoods 101." Published by the National Community Stabilization Trust, November 9, 2021. Accessed September 27, 2024 from ncst.org/wp-content/uploads/what_is_a_middle_neighborhood.pptx.pdf

3 The generativity concept is here applied to community development writ large, with specific implications for housing markets. "A New Blueprint for Financing Community Development." David Fukuzawa, Nancy O. Andrews, and Rebecca Steinitz. Stanford Social Innovation Review, Winter 2025. Accessed November 26, 2024 from https://ssir.org/articles/entry/community-development-finance-philanthropy#

4 Dickinson 2035: *Roadmap to the Future*. City of Dickinson, March 2013. Pages 209–222.

5 Hodur, Nancy, *et. al.* 2022 *North Dakota Statewide Housing Needs Assessment*. Center for Social Research and the Department of Agribusiness and Applied Economics, North Dakota State University. October 2022. Pages 60–62.

6 *Ibid*., page 145 and B25001, *Housing Units*. 2018-22 Five-Year Estimates, American Community Survey. U.S. Department of Commerce, Bureau of the Census. While there is a more recent Statewide Housing Needs Assessment—published in 2024—that update does not contain updated vacancy figures.

7 *DP04, Owner/Renter (Householder) Characteristics*. 2018-22 Five-Year Estimates, American Community Survey. U.S. Department of Commerce, Bureau of the Census. Accessed from https://data.census.gov/table/ACSDP5Y2017.DP04?q=Owner/Renter%20(Householder)%20Characteristics&g=040XX00US38_050XX00US38089_160XX00US3819620&moe=false

8 Ibid.

9 Ibid.

10 *B25001, Housing Units*. 2018-22 Five-Year Estimates, American Community Survey. U.S. Department of Commerce, Bureau of the Census.

11 North Dakota Homeless Management Information System (NDHMIS). Data through May 31, 2024. Accessed September 26, 2024 from https://icalliances.org/north-dakota-data-and-reports

12 January 25, 2023 Point-in-Time Count. Stark County Continuum of Care. Accessed September 26, 2024 from https://www.hudexchange.info/resource/3031/pit-and-hic-data-since-2007/

13 Zillow Home Value Index.

14 "The Manufactured Housing Institute's Urban Design Booklet." Pages 4, 8–10. Manufactured Housing Institute, September 2016.]

15 "Dickinson, ND Housing Market," Zillow Home Value Index. Accessed December 2, 2024 from https://www.zillow.com/home-values/4366/dickinson-nd/

16 *Stark County 2040 Comprehensive Plan*. Stark County, North Dakota, July 2024. Appendix A-County Profile, page 6. Accessed December 4, 2024 from https://www.starkcountynd.gov/index.asp?SEC=E9EBBD76-7F8A-4A5C-812A-137E3BBE5888

17 Area Median Incomes (AMI) are calculated for states and all Metropolitan Statistical Areas (MSA) for each federal Fiscal Year, which runs from October through September. "Dataset/Income Limits." Office of Policy Development and Research, U.S. Department of Housing and Urban Development. Accessed September 27, 2024 from https://www.huduser.gov/portal/datasets/il.html

18 "USDA Rural Housing Assets." Office of Policy Development and Research, U.S. Department of Housing and Urban Development. Accessed September 26, 2024 from https://hudgis-hud.opendata.arcgis.com/datasets/HUD::usda-rural-housing-assets/explore?location=46.886330%2C-102.840761%2C12.09

19 "National Flood Hazard Layer (NFHL) Viewer." Federal Emergency Management Agency, U.S. Department of Homeland Security. Accessed December 9, 2024 from https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd

20 "Chapter 2, Strategy 09: Floodproof Your Home." *Keep Safe: A Guide for Resilient Housing Design*. Enterprise Community Partners, Inc. While this guide was originally developed for coastal and island communities, selected recommendations that are appropriate for Dickinson have been referenced. Accessed December 2, 2024 from https://keepsafeguide.enterprisecommunity.org/en/floodproof-your-home

21 "Goals Summary Information." *2020–2024 North Dakota Statewide Consolidated Plan*, pages 165–167. Prepared for HUD by the North Dakota Department of Commerce.

22 While the future extent of federal rental subsidies is unknown, the perennial bipartisan support by successive Congresses of the HUD and USDA programs that fund and operate them indicate their probable durability.

23 Zillow Home Value Index. This threshold is expressed in 2024 dollars.

COMMUNITY DEVELOPMENT

ABBREVIATIONS AND TERMS

AARP – The American Association of Retired Persons, a national advocacy and research organization working on behalf of people aged 50 and up. The AARP publishes a Livability Index measuring communities' and neighborhoods' friendliness to seniors on seven amenity and service topics.[1]

CLG – Certified Local Government. A designation from the National Park Service and the North Dakota State Historical Society that opens up Dickinson and other municipalities' eligibility for historic preservation funding programs.

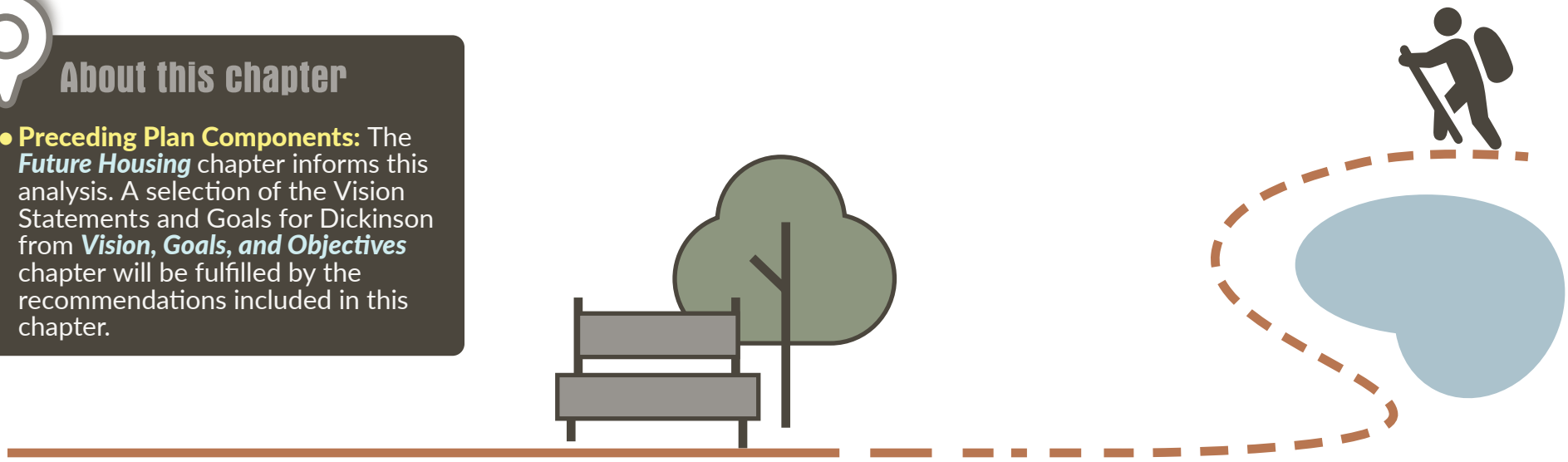
Cultural Asset Inventory – A scan of a community's intangible assets that provide value to residents.[2] Cultural asset inventories may include significant historical events and places, amenities, social structures and groups, and modes of civic interaction that a community is known for both internally and from the outside.

Generative Community Development – A public sector approach to promote greater quality of life and improve the community through cross-cutting measurements such as public health, household earning potential, and low turnover of residents.[3]

ParkScore® – A measurement developed by the nonprofit Trust for Public Land to indicate the relative ease or difficulty of access to parks and other outdoor recreational spaces. The ParkScore® measurement can be given for a specific address or a whole community, and is partially modeled after WalkScore, a ranking that indicates the relative ease of getting around on foot for any address in the U.S. and Canada.

About this chapter

- **Preceding Plan Components:** The ***Future Housing*** chapter informs this analysis. A selection of the Vision Statements and Goals for Dickinson from ***Vision, Goals, and Objectives*** chapter will be fulfilled by the recommendations included in this chapter.



INTRODUCTION

About Community Development

Shared characteristics among a group of people may define a community, and the City of Dickinson contains multiple distinct characteristics.[4] Well-defined communities provide multiple benefits, including social connection, a sense of belonging, and the desire to provide mutual aid to other members. Communities are also interdependent, collaborative groups that frequently gain and lose members.

The City of Dickinson is itself a community, and is at the same time comprised of many smaller, niche communities. Utilizing a sense of community can improve Dickinson in numerous ways, as feeling part of one's community reinforces each person's desire to make their home a great place to live, work, and play.

Improvements or changes to resident service offerings may be needed to improve Dickinson's desirability and sense of community during the next 25 years of growth and change.

To that end, this chapter contains three sections: Parks and Recreation; Natural, Historic, and Cultural Resources; and City Services. Together, these sections comprise the quality of life and other tangible improvements that will support that objective and Dickinson 2050's overall vision. This chapter introduces any such elements that were not addressed elsewhere in the Plan.

Approach

To promote and advance goals in Dickinson that are not strictly transportation, infrastructure, housing, or land use solutions, a generative community development lens is used in this chapter. The assessments in this chapter utilized tools including the Trust for Public Land's ParkScore® and the AARP's Livability Index, as well as conversations with stakeholders from around Dickinson to form a cultural asset inventory. Recommendations are tailored to solve the challenges and gaps related to community development that were identified during the Plan development process.

PARKS AND RECREATION

About This Section

This section details how Dickinson can meet the Recreational and Cultural Amenities Vision statement:

> Collaborate with the Park District to maintain and expand access to City parks, trails, and recreational and cultural facilities.

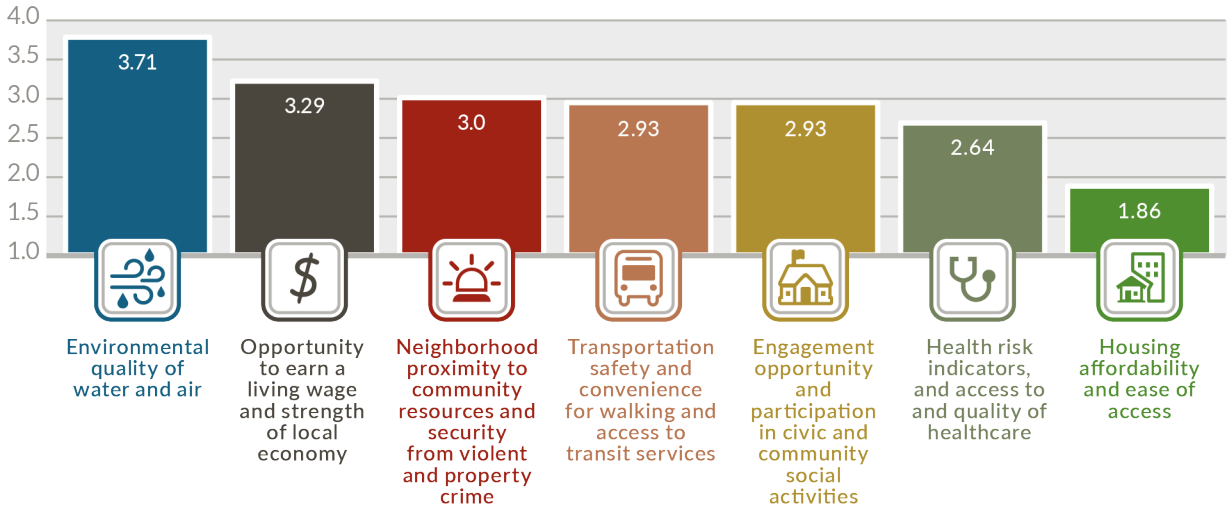
This section also tackles these specific goals:

- Provide high quality parks and diverse recreational facilities to meet the needs of existing and future residents.
- Create a connected network of trails, accessible sidewalks, and other pedestrian and bicycle facilities to link parks, neighborhoods, and activity centers.
- Support the development and maintenance of athletic venues, destination parks, and Patterson Lake in an effort to be a premier tourist destination in western North Dakota.

The cultural asset inventory identified particular needs of Dickinson. These needs can be fulfilled with linked quality-of-life improvements based on the AARP Livability Index, stakeholders' self-scoring of AARP livability categories, and the ParkScore measurement. To best understand community member needs, stakeholders were asked to rank, on a **1 to 4 scale**, their opinions of Dickinson's offerings in seven areas. From highest to lowest average quality scores, the areas are charted in **Figure 7-1.**

The cultural identity of Dickinson is well-formed as a long-established city. Internal resident perspectives of Dickinson's identity and strengths developed over time, and are imbued in the informal social interactions and the formal operation of the City's households, businesses, schools, and government. To conduct the cultural asset inventory for Dickinson, the Direction 2050 team spoke first to established contacts at the City, NDDOT, and related stakeholders (e.g., Parks Board, School District) in the Community Stakeholder Group. The group was surveyed about specific topics for the Plan, and was asked to recommend other members of the Dickinson community who, in their opinion, would provide usable information about local culture. Dickinson's "brand" continues

Figure 7-1. Stakeholders' AARP Livability Rankings



to evolve as the City grows. Keeping the community's cultural identity visible and usable as an asset is an important step in fulfilling the Dickinson 2050 vision.

At the same time, Dickinson must heed external perspectives about this City to maintain success. The common association of Dickinson with the oil and gas industry, the legacy of Teddy Roosevelt, and as the only major urban area in southwestern North Dakota are among the common outside impressions of the community to utilize. The following section details recommendations for building upon these external perspectives to achieve community development goals.

Analyses and Recommendations

ANALYSES

Quality of life can correlate positively with safe, convenient access to natural spaces. Parks, playgrounds, trails, lakes, and other outdoor spaces designed for recreation are crucial to fulfilling this need in cities. To measure progress on this goal, the Trust for Public Land operates a tool known as ParkScore, measuring the median distance of each household in a community to a park or other outdoor open space.[5]

ParkScore® indicates that 43% of Dickinson residents live within a ten-minute walk of a park or other open space.[6] Most of these residents live south of I-94 or east of ND-22. Residents in other areas of the City may still be able to reliably reach parks in their everyday lives if they are able to conveniently drive to one. Still, fulfilling the Recreational and Cultural Amenities vision statement would mean improving access to recreation opportunities and to park facilities themselves wherever feasible.

The two populations to target for improvements are, in priority order, the remaining 57% of existing households, and newly developed residences and neighborhoods that come online by 2050.

RECOMMENDATIONS

The recommendations in this section will support the community spirit and promote enhanced quality-of-life over time; however, these may advance gradually over the 25-year timescale of this Plan rather than occurring in the short term.

New residential subdivisions are required to dedicate 7% of the land area to be developed toward suitable parks or recreation areas, or provide a cash-in-lieu payment to the Park District. Still, the Park District may be challenged to fund capital costs as well as ongoing operations of new facilities that are not covered by this dedication or cash-in-lieu requirement. Acquiring land and creating a permanent park is expensive, and the needed staff time and cost of ongoing maintenance would require feasibility planning before moving forward. With this in mind, low-cost and no-cost solutions present the best options for Dickinson, and these recommendations are tailored to provide that, supplementing the cash-in-lieu or land dedications the Park District receives for new residential subdivisions. Additionally, it would be valuable to embed recreational facilities in other community infrastructure projects.

CD1.1	Utilize the Future Land Use Map and collaborate with the Park District to identify appropriate vacant land for permanent parks in under-served areas.
CD1.2	In partnership with the Park District, evaluate a location of two acres or less to pilot a temporary pop-up park in a currently underserved portion of Dickinson. The pop-up park could be installed in a variety of locations: within excess right-of-way that is adjacent to a street in a grassy area, or on unused surplus land on a publicly owned lot. The pilot site can be open only during warm-weather months, and minimally decorated with local art, shade, natural features in lieu of formal benches or playground equipment, and other low-cost elements that provide a safe facility and visually activate the space.
CD1.3	Advertise any new pilot park(s) created to the surrounding neighborhoods and measure visitation and usage for at least six months. If demand justifies it, consider funding and operational options to turn one or more pop-ups into a permanent mini-park.

NATURAL, HISTORIC, AND CULTURAL RESOURCES

About This Section

This section details how Dickinson can meet the following identified Recreation and Cultural Amenities goals:

- Maintain a high quality of life by preserving existing historical and cultural resources in the city and encouraging public art.
- Encourage the availability of leisure services to all community demographics.

Natural Resources goals:

- Designate, preserve, and protect natural resource corridors for open space and recreational uses.
- Prevent waste and hazardous materials from entering the ecosystem.
- Minimize the environmental impacts associated with energy-related extraction activities.

RECREATIONAL, NATURAL, AND CULTURAL AMENITIES

Natural areas in and around Dickinson are among the area's most popular attractions, as stakeholders and community members expressed positive feelings about them during the Plan development. Patterson Lake Recreational Area, the Heart River and riverfront areas like Eagles Park, and other open spaces for outdoor activities should be protected and retained. Future industrial land use designations should be used sparingly, following the Future Land Use Map's identification of limited sites, to minimize the potential for waste or hazardous materials to damage these natural assets.

Aside from the passive recreation in natural and unimproved places, in this plan Dickinson can promote the addition and maintenance of other recreational opportunities. The City's role may be to partner with other government entities that own/operate these amenities, and to optimize the transportation, utility, and land use networks that support visitors and potential future parks or open space plans or initiatives.

HISTORICAL FEATURES

Dickinson is one of seven Certified Local Governments (CLG) in the state, as designated by the North Dakota State Historical Society. This designation, earned in 2003, means Dickinson has a volunteer body created by the City Commission and a designated staff point of contact to protect and preserve historic properties.[7] The City should consider designating privately owned historic properties when new development, redevelopment, or a change of use is proposed on their parcels or adjacent parcels. Preservation of publicly owned designated historic properties may require further attention from the City.

Recommendations

The following recommendations are meant to encourage the preservation, promotion, and utilization of Dickinson's natural, historic, and cultural resources. This type of preservation is essential for nurturing the City's aesthetic qualities, maintaining a high quality of life, and fostering civic pride.

CD2.1 Promote low- and no-cost learning opportunities to engage with Dickinson's history. Specific opportunities include placement of additional historic site markers throughout the City and especially in Downtown Dickinson and at the Dickinson Museum Center. Recommend to the HPC discounting or waiving user fees to visit the Museum Center or other City-owned historic sites for subcategories of residents, including seniors, children under 18, and veterans.

CD2.2 Consider strategic opportunities to redevelop vacant properties in downtown Dickinson to support new civic, retail, and light commercial uses in context with the clusters of historic properties located there. Take into account historical, cultural, and natural character when performing development reviews in the area, and prioritize developments which preserve or augment this character.

CD2.3

Consider implications that may result in reduced protection of natural features. Continue to coordinate with Stark County for any future industrial land uses in the County's designated Priority Growth Areas that neighbor the Dickinson Extraterritorial Jurisdiction, with an eye toward encouraging continued protection of the City's environment and natural features.

CD2.4

Encourage and support the private sector to support the protection of natural features in Dickinson as future development applications are considered.

CITY SERVICES

About This Section

The City Services Vision strives to:

> Meet the current and future needs of Dickinson's residents, businesses, and other organizations.

To achieve the vision, this section details how Dickinson will meet these identified City Services goals:

- Assure city public safety services protect life, safety and general welfare of all city residents and businesses.
- Enhance the quality of place by properly maintaining all public facilities.
- Promote intra-governmental and inter-governmental coordination to increase the cost effectiveness of providing city services.

This subchapter also covers a Housing goal:

- Support the exploration of new approaches to meet current and anticipated housing demand, including workforce housing, empty nesters, and aging in place.

The dual objectives for Dickinson are to create what will be financially sustainable as well as to support overall well-being, the foundation of generative community development. How will the City know that success has been achieved? Generative goals often measure success through increased promotion of the healthiest possible human and social landscape of Dickinson. These may be qualitatively measured through satisfaction surveys of residents, increased usage of public facilities, or lower turnover of residents over time.

Recommendations

The final set of recommendations in this chapter are intended to be revenue-neutral options. The intention behind these recommendations is to support the generative model of community development by contributing to quality-of-life improvements and aligning with other Direction 2050 recommendations for land use, housing, transportation, and infrastructure.

CD3.1

Start a pilot initiative to promote residential curb appeal improvements such as contests for yard, landscape, or garden improvements, offering public recognition for one winning residence each quarter. Even with no monetary incentive offered, these contests can incentivize homeowners to improve their properties' exterior appearance and condition. These benefits then remain in place for the whole block or neighborhood to enjoy.

CD3.2

In addition to carrying out Housing recommendations **HS2.7** and **HS2.8**, consult the North Dakota Statewide Housing Needs Assessment for an understanding of the area's unmet housing needs for seniors and subsets of the area workforce. While promoting workforce and temporary housing options, consider how city services may be tailored to their needs where practicable.

CD3.3

Continue to coordinate with the Dickinson Schools, the Park District, and Dickinson State University to maintain their parks, athletic venues, and other public facilities in the City to a high standard, including snow removal and year-round activities and programming for parks and recreation.

Photos in this chapter illustrate examples of some of the recreational locations in the city of Dickinson. On this page, from left to right: Friendship Park © Dickinson Parks & Recreation; Stark County Veterans Pavilion © City of Dickinson; Dickinson Research Extension Center © City of Dickinson. Previously shown on **page 118**: Badlands Dinosaur Museum © City of Dickinson

Endnotes

1 "AARP Livability Index." American Association of Retired Persons. Accessed January 28, 2025 from https://livabilityindex.aarp.org/

2 This approach is not intended to be a universal perspective at the City or its inhabitants; rather, this represents the viewpoints and opinions of the people that interacted with the Direction 2050 team.

3 Generative community development consists of programs and/or investments that "generate a level or degree of change in which the initial investment has the potential to change people's views of what is possible," according to "A New Blueprint for Financing Community Development." David Fukuzawa, Nancy O. Andrews, and Rebecca Steinitz. Stanford Social Innovation Review, Winter 2025. Accessed November 26, 2024 from https://ssir.org/articles/entry/community-development-finance-philanthropy#

4 Common characteristics include common residence in a neighborhood or city, membership in a house of worship, social group, or volunteer organization; attending the same school; working for the same employer; or, most commonly, a combination thereof. These definitions were adapted from "National Resilience Guidance: A Collaborative Approach to Building Resilience." Federal Emergency Management Agency, U.S. Department of Homeland Security, August 2024. Page 5. Accessed October 21, 2024 from https://www.fema.gov/sites/default/files/documents/fema_national-resilience-guidance_august2024.pdf

5 "TPL ParkServe Dickinson, ND – City Level Report." Trust for Public Land. Accessed October 21, 2024, from https://parkserve.tpl.org/mapping/index.html

6 Ibid. Dickinson's specific park-access heatmap can be viewed here: https://parkserve.tpl.org/mapping/index.html#/?CityID=3819620

7 "City of Dickinson Certified Local Government." North Dakota State Historical Society. Accessed October 24, 2024 from https://www.history.nd.gov/hp/clg/dickinson.html

TRANSPORTATION & TRAFFIC FORECASTING

This chapter summarizes efforts to identify future transportation projects which will improve safety, traffic congestion, and quality of life in Dickinson for all road users. It is meant as an overview of the methodology through which these projects were identified, the preliminary results of this analysis, and a prioritization of these projects based on assessed needs and committed project schedules.

TRANSPORTATION DEMAND MODEL

A transportation demand model was used to assess existing traffic conditions and project them through the year 2050. Data on current traffic patterns, Annual Average Daily Traffic (AADT), corridor- and intersection-level Level of Service (LOS) was collected and analyzed throughout the study area. This model accounts for not only observed traffic along Dickinson's road network, but also committed transportation projects and projected population, employment, and land use at the Transportation Analysis Zone (TAZ) level.

Model Development

The Travel Demand Model (TDM) information has been gathered from a variety of sources. The project team used the PTV VIstro software for existing and projected modeling. The first step of model calibration was using Open Street Maps to create a skeleton of a model. PTV Vistro is a macroscopic model but is also detailed enough to provide intersection level of service. The local roads were removed, leaving only intersections that were classified as Interstate, Arterials or Collectors. All roads that had less than 1,000 ADT were removed as well. All speed limits, lane configuration, intersection controls, and signal timing were added to the model. An intersection numbering system was developed for later use, helping to navigate the intersections. TAZ data with Origin-Destination from Census Block Groups was used to create the future conditions model, along with Trip Generation based on land use codes with Vistro.

StreetLight InSight was used to gather data sets. A total of 590 zones with Origin-Destination allowed turning movement counts to be created for the 180 intersections in the model. Highway 22, I-94, and Highway 10 zones allowed the validation of StreetLight to North Dakota AADTs. The 2022 Connected Vehicle Data correlated to existing counts much better than the 2021

Location-Based Services Option. The 2022 data pulled AADT volume as an average for the whole year to identify the demand that the roads in Dickinson experienced. Once the 2022 volume sets were compiled, the AM Peak was found to be 7:00 AM, with the PM Peak being 4:00 PM.

EXISTING TRAFFIC CONDITIONS

Transportation Analysis Zones (TAZ)

TAZ's (as shown in **Figure 8-1 on page 126** through **Figure 8-4 on page 127**) were developed based on the functional classes of the roadways in Dickinson (as shown in ***Existing Conditions*** **Figure 1-22 on page 27**). As long as the roads were classified as a collector or arterial with over 1,000 ADT, that became a border to help split up the region.

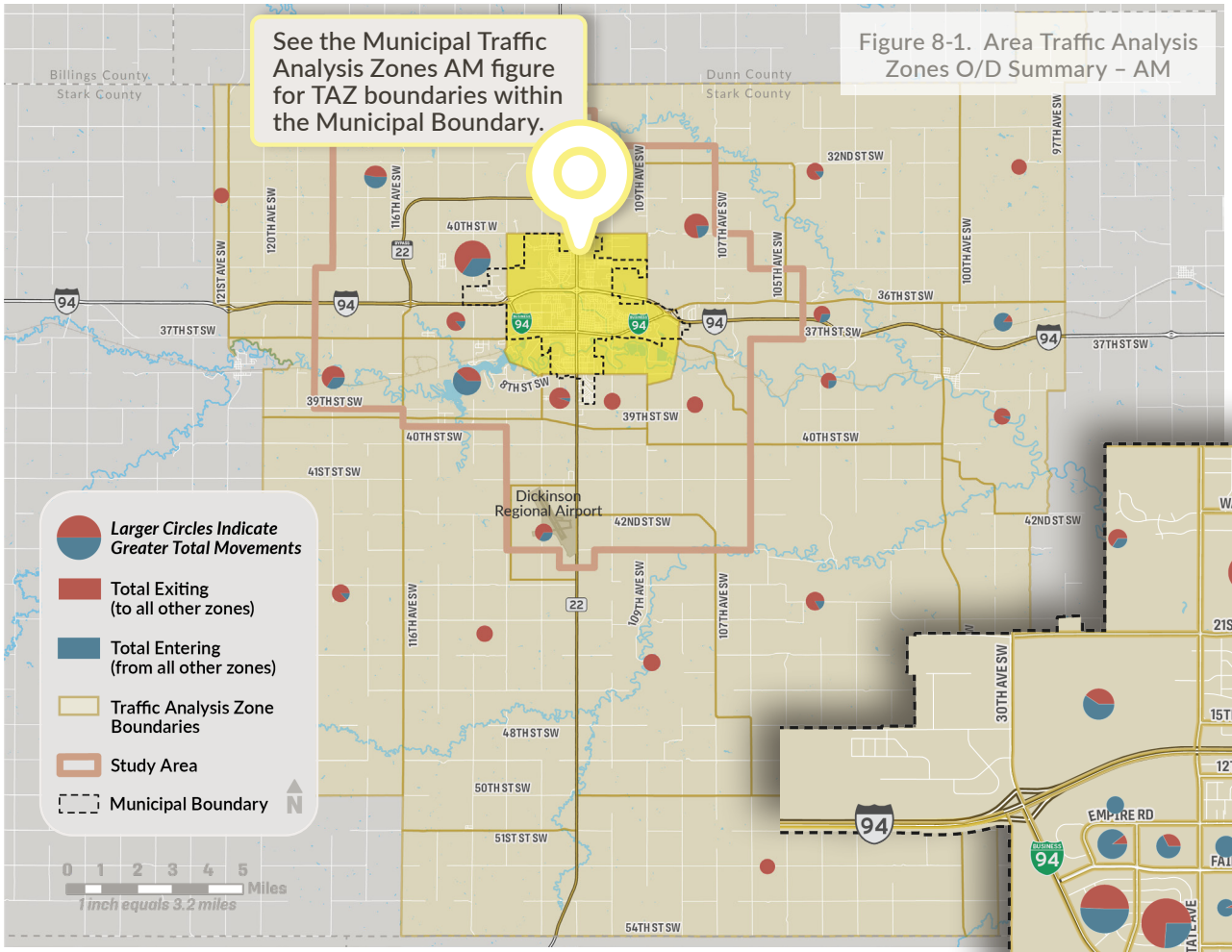


Figure 8-1. Area Traffic Analysis Zones O/D Summary – AM

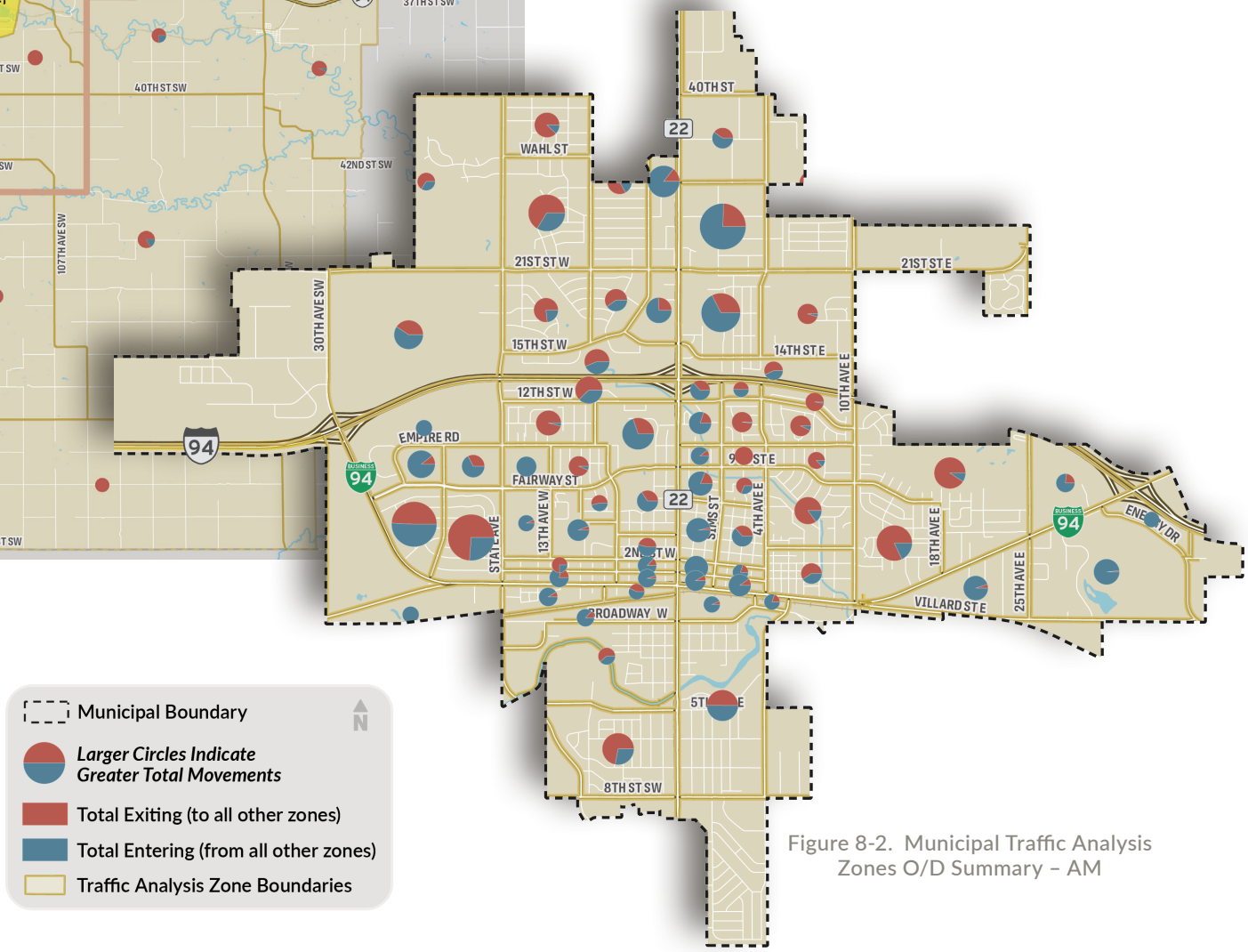


Figure 8-2. Municipal Traffic Analysis Zones O/D Summary – AM

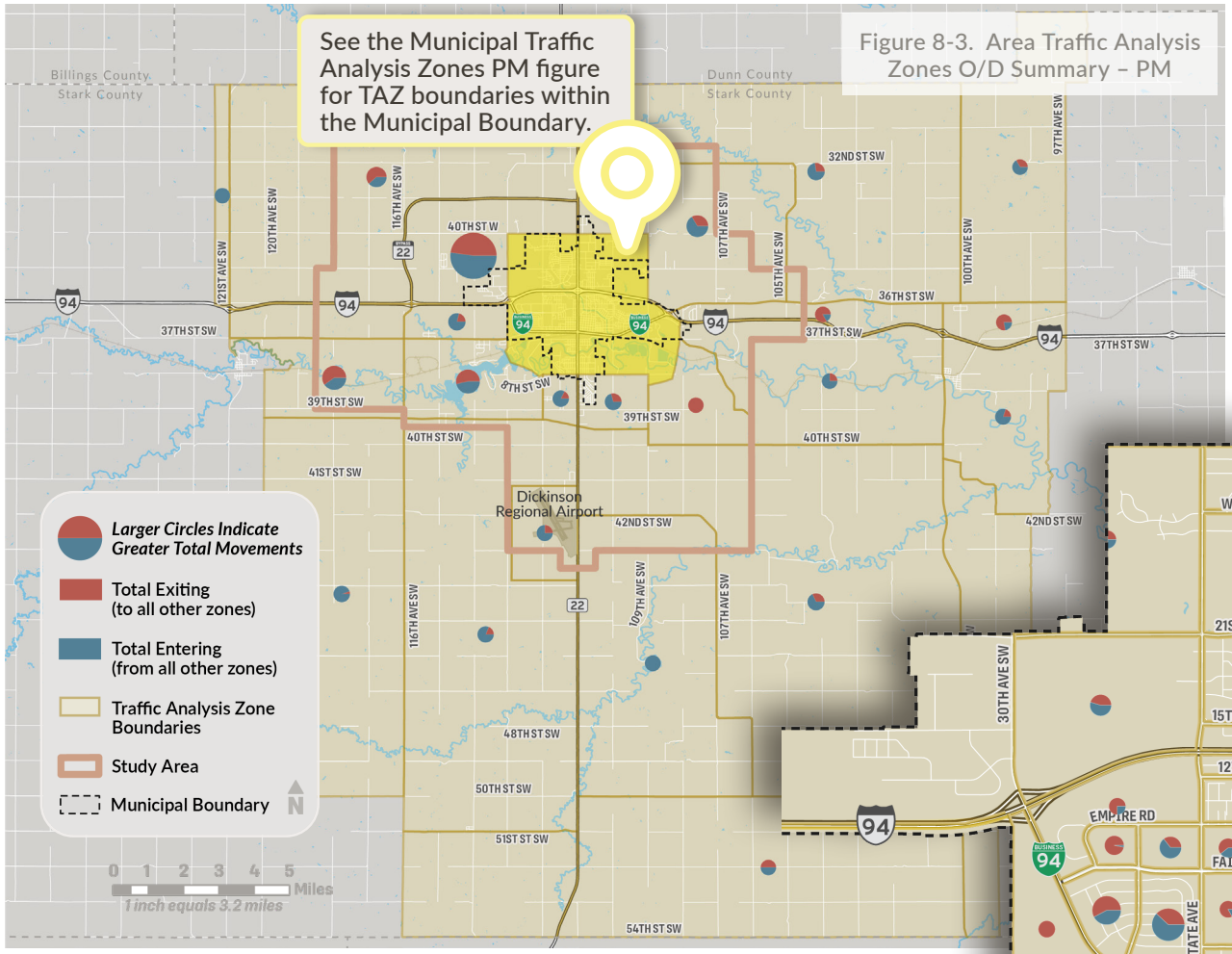


Figure 8-3. Area Traffic Analysis Zones O/D Summary – PM

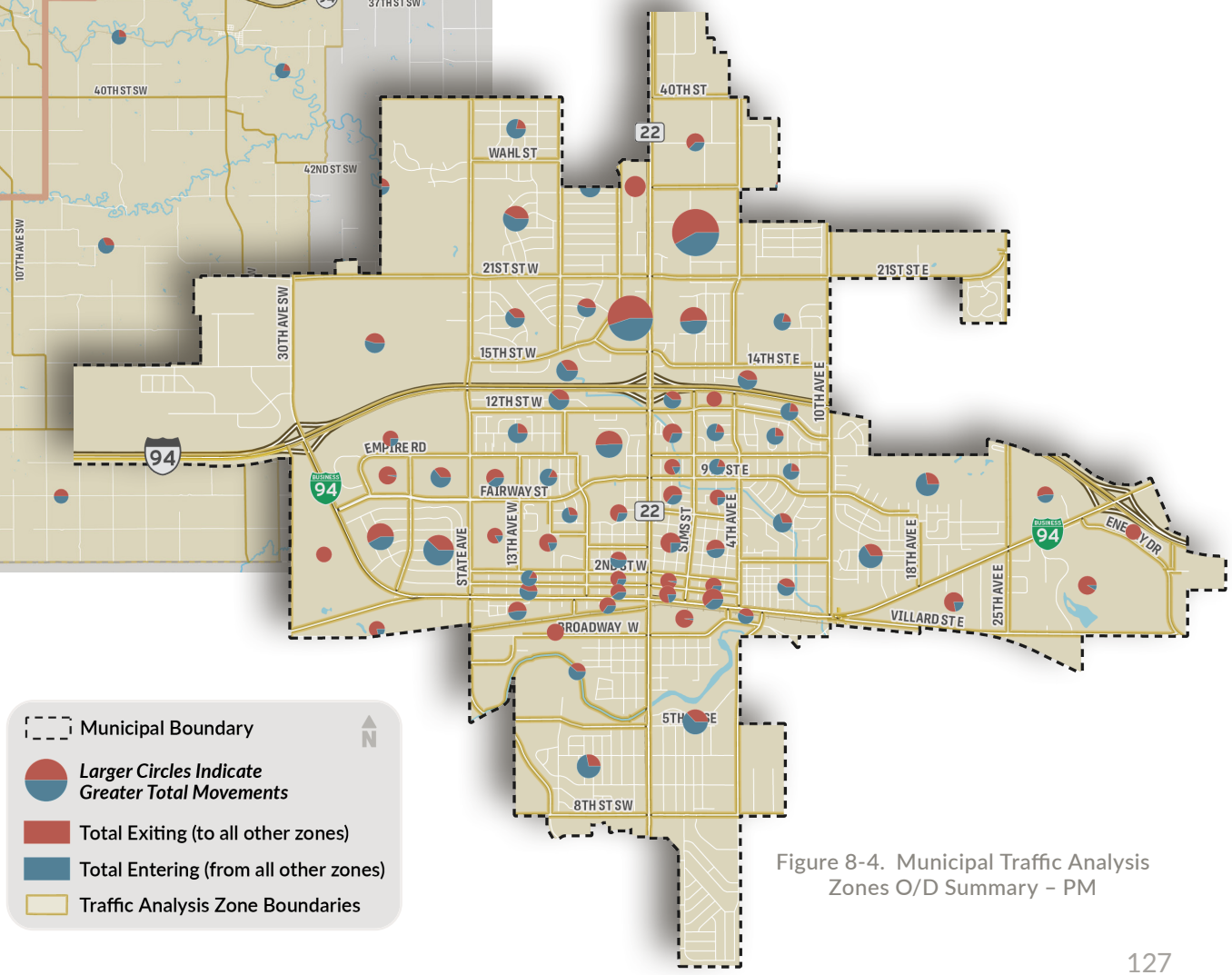


Figure 8-4. Municipal Traffic Analysis Zones O/D Summary – PM

Traffic Volume

For details about AADT, refer to **Figure 8-5. Existing AADT for 2020–2023 (Municipal)**. For the study area, the existing AADT used a baseline for generating future traffic conditions (Vistro Model) which was collected from available StreetLight Data and verified against current/existing DOT AADT data.

Figure 8-5. Existing AADT for 2020–2023 (Municipal)

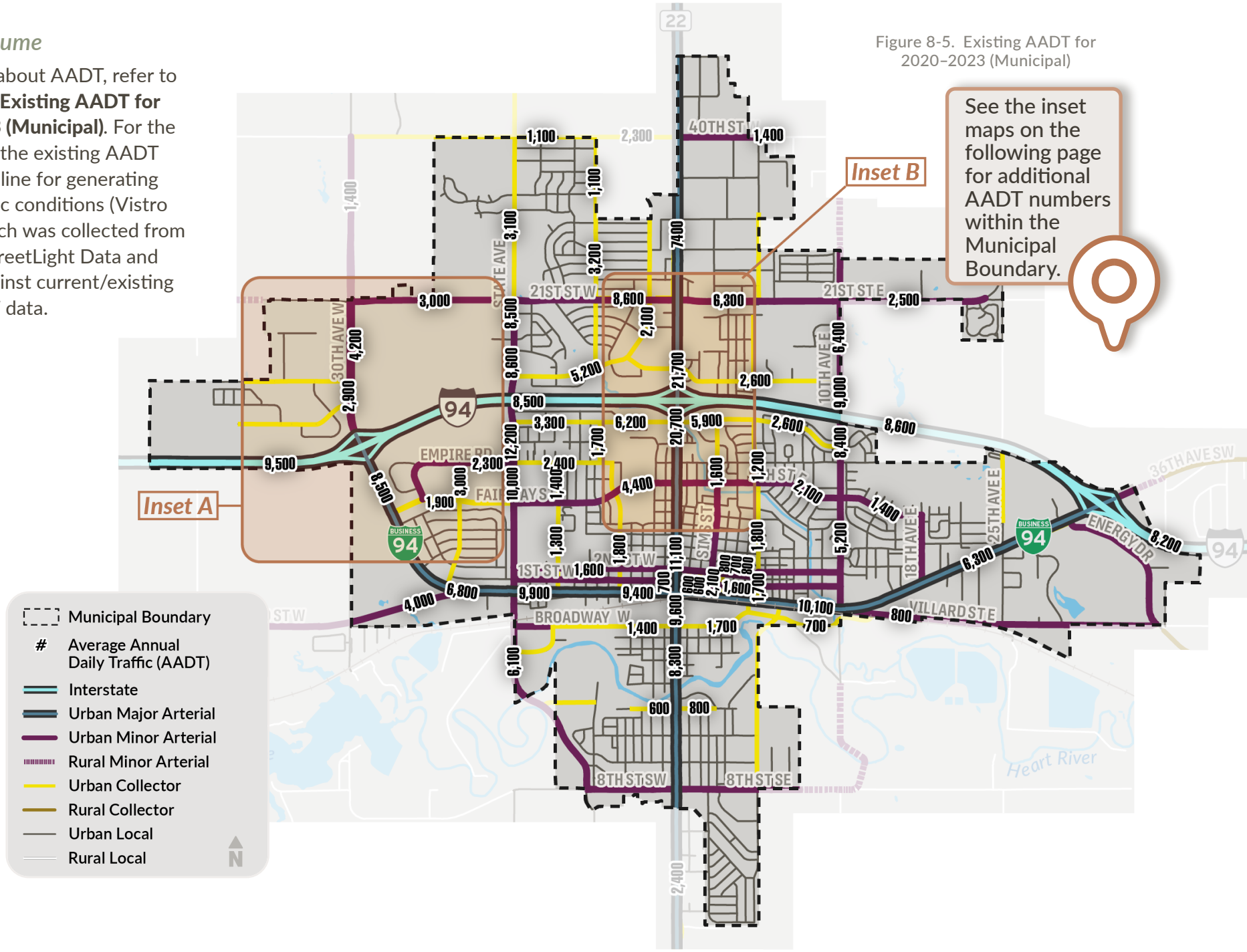
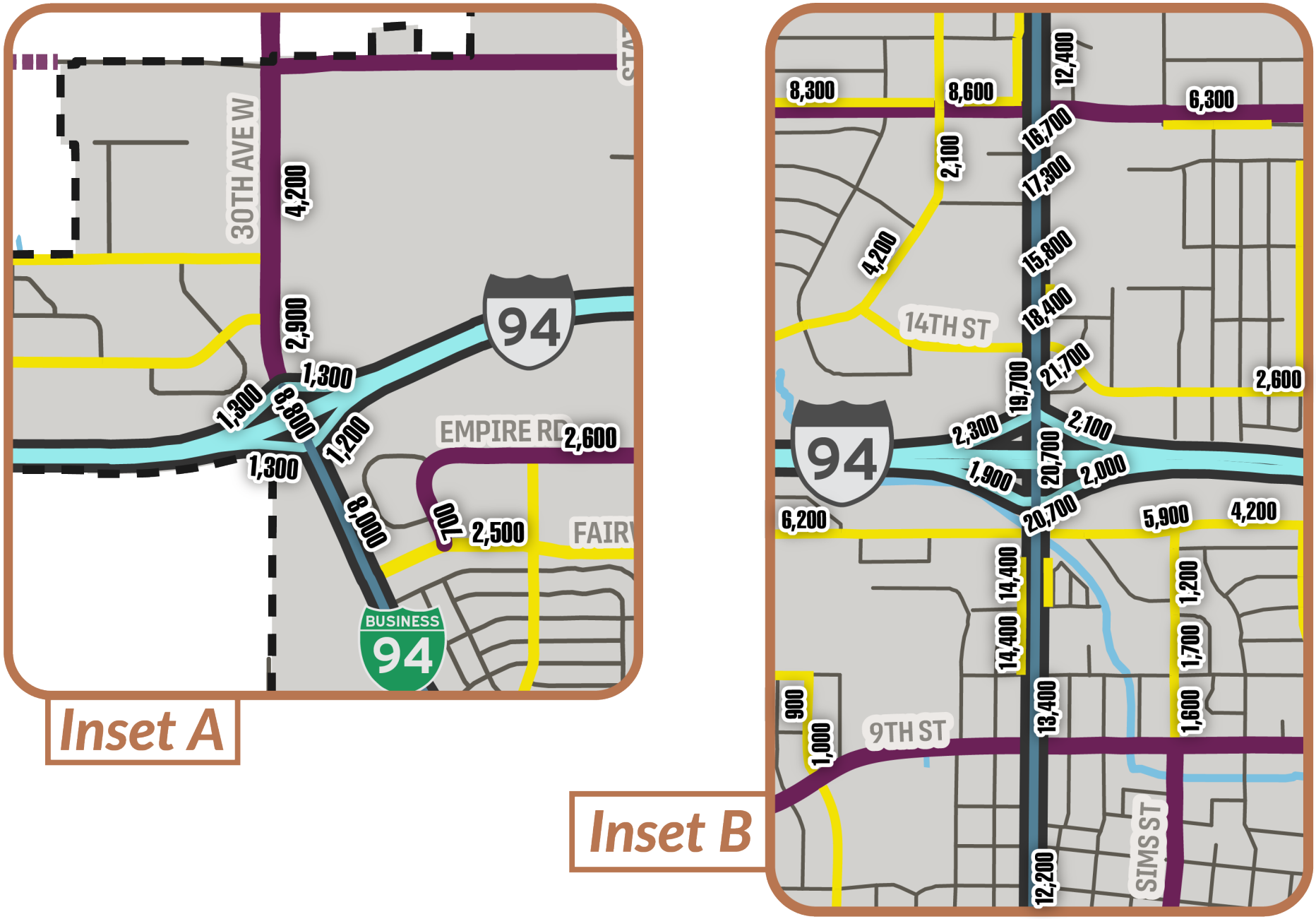


Figure 8-6. Existing AADT inset maps



Existing Level of Service (LOS)

Figure 8-7 illustrates the LOS thresholds according to the National Cooperative Highway Research Program. **Table 8-1** and **Table 8-2** summarize the percentage of these LOS ratings for the intersections analyzed, for AM and PM peak times.

INTERSECTION LOS

A study area wide LOS analysis was conducted using the designated TAZs. Based on analysis, existing AM and PM peak time intersection LOS ratings are shown in **Figure 8-8 on page 131** and **Figure 8-9 on page 132**.

Table 8-1. AM PEAK Existing Intersection LOS

LOS	TOTAL INTERSECTIONS	% OF TOTAL
A, B, C	33	80.5%
D	4	9.75%
E, F	4	9.75%
A through F	41	100%

Table 8-2. PM PEAK Existing Intersection LOS

LOS	TOTAL INTERSECTIONS	% OF TOTAL
A, B, C	130	86.1%
D	10	6.6%
E, F	11	7.3%
A through F	151	100&

Table 8-3 on page 131 and **Table 8-4 on page 133** list the existing AM and PM peak time for intersections operating at LOS E or F, which would be considered failing due to congestion. Intersections are ordered first by LOS ranking, then by delay time in seconds per vehicle (s/veh). At the AM peak time, there are currently four (4) intersections operating at LOS E or F; at the PM peak time, there are 11 intersections operating at LOS E or F. The common theme for intersection LOS is that every intersection currently congested is stop sign controlled (one being an all-way stop; the rest being two-way stops) instead of intersections with alternative or upgraded method of intersection control/traffic management (e.g., stop lights, roundabout, etc.).

Figure 8-7. LOS Thresholds by Volume-to-Capacity Ratio

Figure 8-8. Existing Intersection LOS – AM Peak (Municipal)

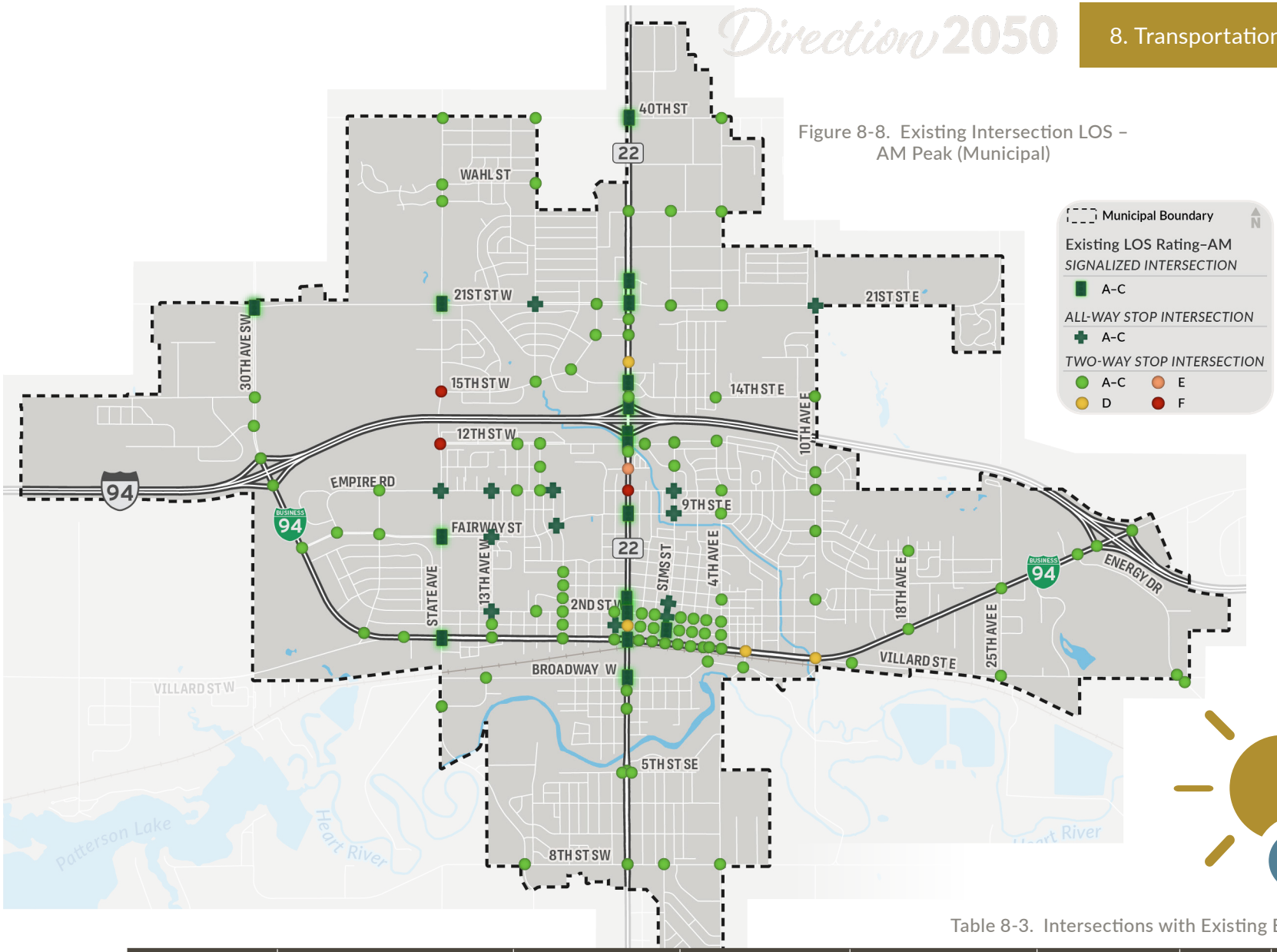


Table 8-3. Intersections with Existing E or F LOS; AM Peak

PEAK LOS RANKING	INTERSECTION	JURISDICTION	CONTROL TYPE	METHOD	WORST MOVEMENT	V/C	DELAY (S/VEH)	LOS
1	15th St W & State Ave S	County_City	Two-way stop	HCM 2010	WB Left	0.677	59.3	F
2	10th St W & Highway 22	State_Fed	Two-way stop	HCM 7th Ed.	WB Left	0.286	58.3	F
3	12th St W & State Ave S	County_City	Two-way stop	HCM 2010	WB Left	0.485	51.4	F
4	11th St w & Highway 22	State_Fed	Two-way stop	HCM 7th Ed.	EB Left	0.056	40.1	E

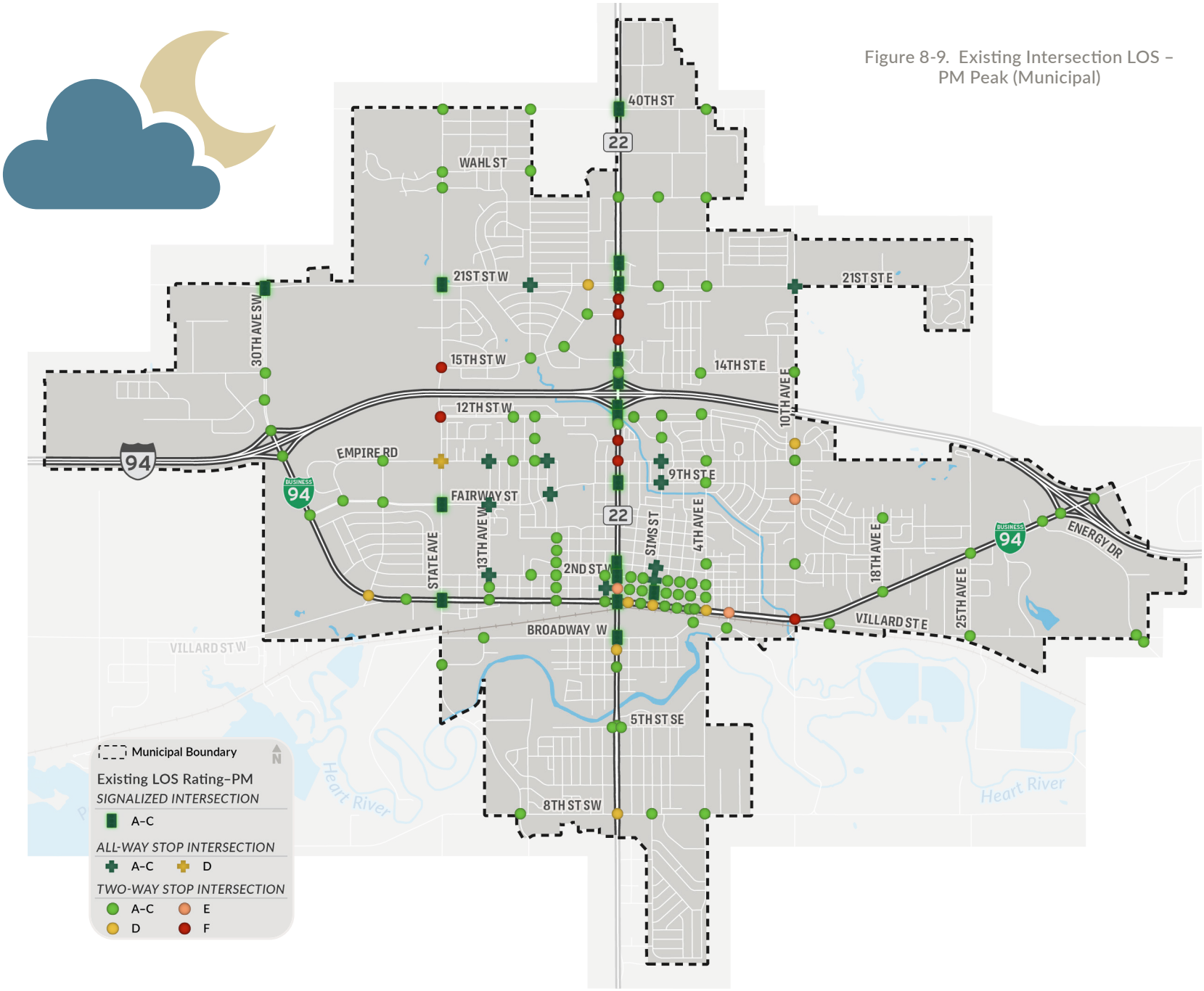


Figure 8-9. Existing Intersection LOS – PM Peak (Municipal)

Table 8-4. Intersections with Existing E or F LOS; PM Peak

PEAK LOS RANKING	INTERSECTION	JURISDICTION	CONTROL TYPE	METHOD	WORST MOVEMENT	V/C	DELAY (S/VEH)	LOS
1	15th St W & State Ave S	County_City	Two-way stop	HCM 2010	WB Left	1.096	147.9	F
2	12th St W & State Ave S	County_City	Two-way stop	HCM 2010	WB Left	0.715	79.8	F
3	Highway 22 & 16th St W	State_Fed	Two-way stop	HCM 7th Ed.	WB Left	0.235	76.9	F
4	10th St W & Highway 22	State_Fed	Two-way stop	HCM 7th Ed.	EB Left	0.049	66.5	F
5	18th St W & Highway 22	State_Fed	Two-way stop	HCM 2010	EB Left	0.325	65.7	F
6	19th St W & Highway 22	State_Fed	Two-way stop	HCM 7th Ed.	WB Thru	0.016	63.3	F
7	Villard St & 10th Ave E	State_Fed	Two-way stop	HCM 2010	SB Left	0.537	52.4	F
8	11th St W & Highway 22	State_Fed	Two-way stop	HCM 7th Ed.	EB Left	0.074	51.4	F
9	1st St W & Highway 22	State_Fed	Two-way stop	HCM 7th Ed.	EB Left	0.134	43.6	E
10	Villard St & 6th Ave E	State_Fed	Two-way stop	HCM 2010	NB Left	0.254	39.7	E
11	9th St E & 10th Ave E	County_City	Two-way stop	HCM 2010	EB Left	0.226	36.7	E

May 2025 street view imagery showing the intersection of 12th Street W and State Avenue S

© Google Earth

CORRIDOR (ROAD SEGMENT) LOS

Existing AM and PM peak time corridor LOS is shown in **Figure 8-10** and **Figure 8-11**, respectively.

STREETLIGHT DATA

Streetlight Data was utilized to generate existing AADT, LOS, as well as analyze existing origin and destination traffic volumes to give an idea of where trafficly is currently traveling to and from in both the AM and PM peak travel times. A graphic overview of existing Origin/Destination (O/D) AM/PM peak traffic volumes is provided in **infographic Table 8-5**.

Traffic Forecasting

Based on the results of the current traffic analysis, Dickinson's future traffic conditions were modeled at the intersection and corridor levels in the year 2050. This analysis incorporated not only the existing traffic conditions, but several other factors that will impact the city's development over the next two-plus decades, such as population, employment, land use, and committed transportation projects. The results of this modeling form an important part of the analysis of future needs in the transportation system.

Figure 8-10. Existing Corridor LOS AM Peak (Municipal)

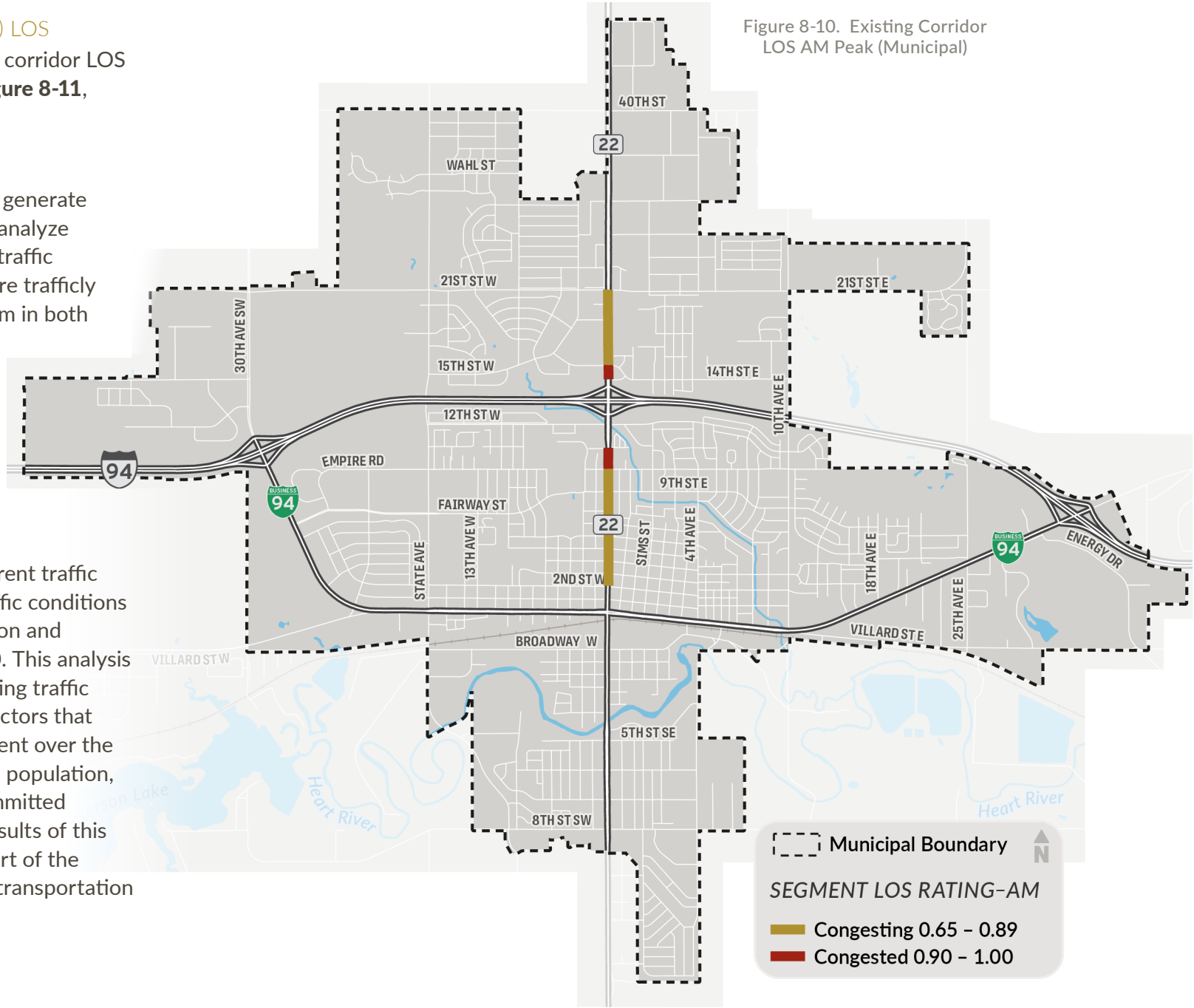
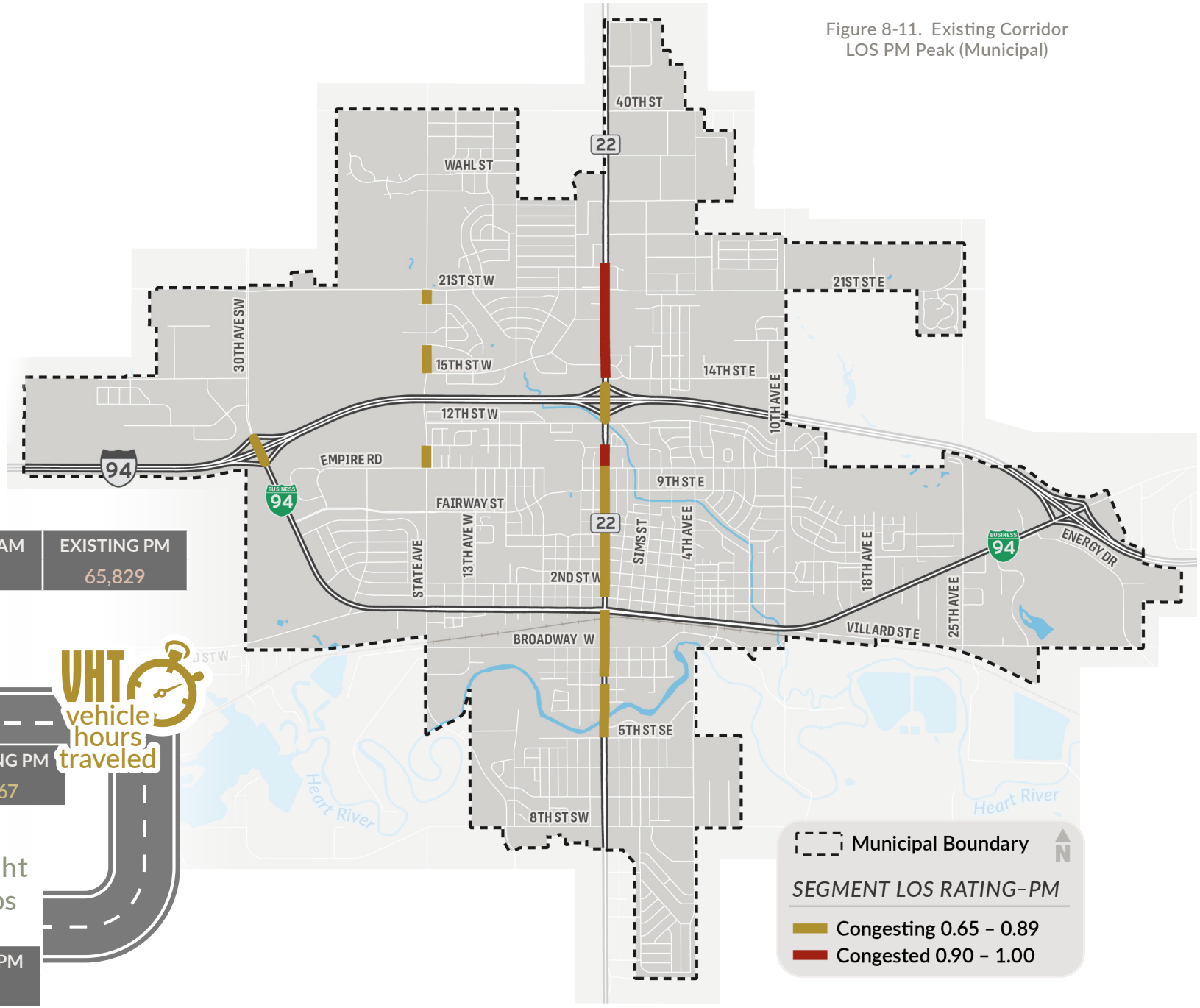


Figure 8-11. Existing Corridor LOS PM Peak (Municipal)

Table 8-5. O/D Peak Traffic Volumes

	EXISTING AM	EXISTING PM
VMT vehicle miles traveled	60,733	65,829
VHT vehicle hours traveled	1,286	1,367
streetlight O/D trips	13,294	17,113



GROWTH FORECASTING AND MODEL DEVELOPMENT

In order to accommodate new growth within the existing municipal boundary, vacant parcels within the City of Dickinson were identified. The developable acreage totals 2,450 acres available/projected to be developed by 2050. These 2,450 acres were allocated to the study area StreetLight TAZ zones to quantify the acres of developable land within each TAZ. After the acreages were assigned to StreetLight TAZs, the percentage of residential versus employment land uses in each sector were used to get respective acreage totals per TAZ.

Once the percentage of residential and employment land uses was applied to the acres in each TAZ, TripGen was used to calculate/forecast the additional trips in each TAZ for AM and PM trips. A percentage of development compared to the land it is occupying was applied (20% of residential on a property; 5% or 10% split up between other employment). Internal capture trips were calibrated during the development acreage reduction step. Final percentages were adjusted based on 2050 total growth projections.

Trip Generation was encapsulated with a generic trip generation assumption or was more specific based on the Future Land Use Map (FLUM) (**page 81** of the ***Future Land Use Plan*** chapter) and the road type it occupies. Pass-By trips are accounted for by the trip generation and routing throughout Dickinson. Major roads will show growth at a high level, which might cause a smaller growth rate to be used on major roadways.

The O/D Matrix from StreetLight was adjusted after trip generation has been added to reflect new origins and destinations, as well as committed and new project identifications. Those percentages were input into Vistro, and trips will be assigned routes accordingly. LOS and AADT forecasting was revised accordingly, based on the above methods, assumptions, and committed and new project identifications.

Volume/capacity (V/C) ratio is defined as the number of vehicles traversing a corridor at the peak hour divided by the maximum vehicular capacity of that corridor. V/C was observed for certain corridors in Dickinson in the present day, then modeled for the year 2050 based on future population growth and land use.

GROWTH ASSUMPTIONS

Dickinson is projected to grow by approximately one-third between 2025 and 2050, going from a population of about 27,500 to over 36,000. Employment is projected to grow by even more, over 40% over the same period. With more residents and jobs within city limits, traffic will naturally increase, and even corridors and intersections that have little congestion in the present may present operational issues for the city's road network in the future.

However, this new traffic will not be evenly distributed across the city. Importantly, different land uses tend to generate varying numbers of trips and at different times of day. Therefore, the city's Future Land Use map was analyzed at the TAZ level to determine where within Dickinson this new traffic is likely to occur. The heaviest development is projected to occur in the northern and western portions of the city, and these new developments will serve as new origins and destinations for trips that will contribute to traffic in Dickinson. Accordingly, while certain intersections and corridors are expected to become congested throughout the city, traffic is expected to worsen the most in northern and western Dickinson.

The traffic forecast accounts for currently committed transportation projects that have been funded through 2028 at the local, state, and/or federal level. Many of these projects are expected to reduce traffic congestion and redistribute trips from the current levels that were observed as part of the analysis.

Figure 8-12. Future Traffic in City of Dickinson (2050)

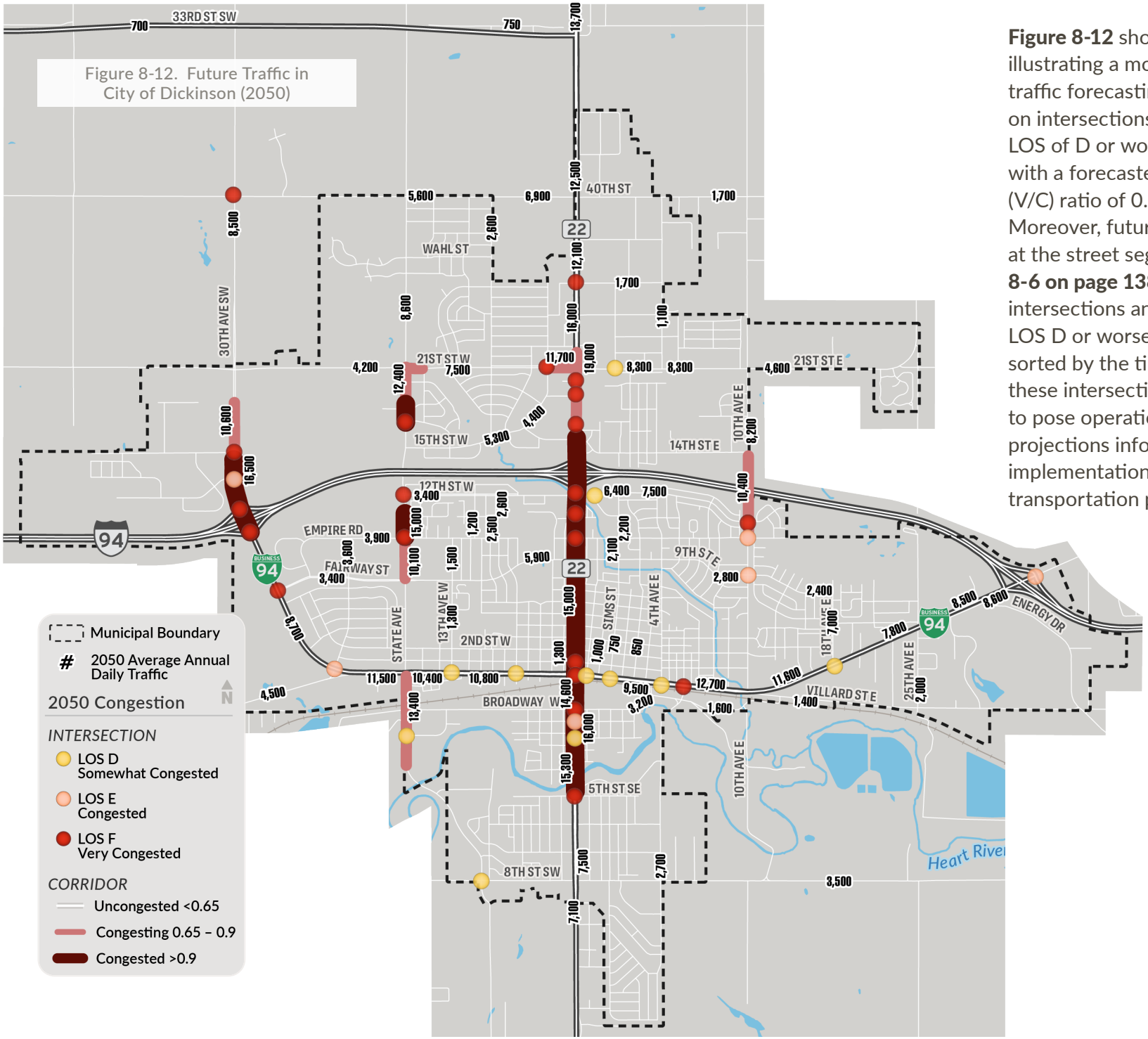


Figure 8-12 shows a citywide map illustrating a more detailed look of the traffic forecasting results, focusing on intersections with a forecasted LOS of D or worse, and corridors with a forecasted volume-to-capacity (V/C) ratio of 0.65 or higher in 2050. Moreover, future AADT is shown at the street segment level. **Table 8-6 on page 138** provides a list of intersections anticipated to demonstrate LOS D or worse in 2050. These are sorted by the time span during which these intersections are projected to pose operational needs; these projections inform the recommended implementation timelines for the various transportation projects.

Table 8-6. Intersections with Congested LOS in 2050

INTERSECTION NAME	FORECASTED NEED	CONTROL TYPE	BUILD CONTROL TYPE	AM EXISTING DELAY	AM EXISTING LOS	AM FORECAST DELAY	AM FORECAST LOS	PM EXISTING DELAY	PM EXISTING LOS	PM FORECAST DELAY	PM FORECAST LOS
19th St W & Highway 22	0–5 Years	TWSC	TWSC	22.6	C	34.8	D	66.6	F	165.7	F
18th St W & Highway 22	0–5 Years	TWSC	TWSC	21.6	C	36	E	105.8	F	511.2	F
16th St W & Highway 22	0–5 Years	TWSC	TWSC	27.9	D	52.3	F	191.6	F	1137.9	F
11th St W & Highway 22	0–5 Years	TWSC	TWSC	39.7	E	57.4	F	58	F	96.7	F
10th St W & Highway 22	0–5 Years	TWSC	TWSC	43.5	E	66.5	F	61.3	F	124	F
12th St W & State Ave	0–5 Years	TWSC	TWSC	56	F	96.6	F	79.8	F	241.5	F
15th St W & State Ave	0–5 Years	TWSC	TWSC	44.1	E	127.8	F	80.5	F	418.4	F
30th Ave E & 15th St E	5–10 Years	TWSC	TWSC	18.4	C	247.8	F	14.8	B	95.5	F
I-94 N Ramps & I-94 Business Loop	5–10 Years	TWSC	TWSC	20.7	C	250.6	F	29.2	D	404.8	F
I-94 S Ramps & I-94 Business Loop	5–10 Years	TWSC	TWSC	22.2	C	463.6	F	31.5	C	955.7	F
I-94 Business Loop & Fairway St	5–10 Years	TWSC	TWSC	17.3	C	85	F	22.5	C	349.7	F
I-94 Business Loop & 6th Ave E	5–10 Years	TWSC	TWSC	32	D	51.2	F	41.6	E	160.2	F
29th St W & Highway 22	5–10 Years	TWSC	TWSC	16.1	C	48.3	E	20.9	C	701.1	F
1st St W & Highway 22	5–10 Years	TWSC	TWSC	25.4	D	34.6	D	41.7	E	72.4	F
Highway 22 & Frontage Rds	10–20 Years	TWSC	TWSC	12.2	B	13.1	B	42.1	E	63.9	F
Empire Rd & State Ave	10–20 Years	AWS	AWS	14.6	B	19.8	C	28.3	D	79	F
40th St W & 30th Ave W	>20 Years	TWSC	TWSC	13.4	B	89.9	F	11.7	B	85	F
30th Ave W & West Ridge Dr	>20 Years	TWSC	TWSC	12.7	B	21.7	C	19.2	C	42.1	E
I-94 Business Loop & I-94 (East Side)	>20 Years	TWSC	TWSC	13.6	B	18.7	C	15.8	C	43.8	E
Broadway & Highway 22	>20 Years	Signal	TWSC	10.6	B	33.9	D	10.9	B	68.6	F
5th St S & Highway 22	>20 Years	TWSC	TWSC	19.7	C	28.6	D	25.5	D	46.5	E
9th St E & 10th Ave E	>20 Years	TWSC	TWSC	21	C	23.6	C	28.6	D	35.9	E
10th St E & 10th Ave E	>20 Years	TWSC	TWSC	17.4	C	23	C	23.8	C	41.1	E
12th St E & 10th Ave E	>20 Years	TWSC	TWSC	24.9	C	39.7	E	31.9	D	56.8	F
21st St W & 6th Ave W	>20 Years	TWSC	TWSC	23.9	C	37.6	E	24.2	C	51.1	F

PROJECT IDENTIFICATION & PRIORITIZATION

Aiming to identify future transportation project needs, several different variable types were assessed in conjunction with one another, having to do with safety, operations, and existing infrastructure conditions, each of which points to certain needs for transportation system improvements. A summary of these variables is below:

SAFETY-RELATED VARIABLES

All vehicular crashes recorded in Stark County were inventoried between 2019 and 2023. These crashes were then disaggregated by several factors.

- Severe Crashes: Crashes resulting in a fatality or an incapacitating injury were disaggregated from the rest of this data as indicating a most urgent need for intervention. In total, 5 fatal and 21 incapacitating injury crashes were identified within Dickinson city limits, and several others were identified within the urban area.
- Bike/Ped Crashes: Crashes were disaggregated if they were located at an intersection and involved a cyclist or a pedestrian. These crashes point to a need for enhanced multimodal infrastructure and/or improved safety features. In total, 20 bike/ped crashes were identified. Five bike/ped crashes were also identified as being severe:
  - One pedestrian crash resulted in a fatality – located at Highway 22 and 6th Street South.
  - Three pedestrian crashes resulted in an incapacitating injury – one located at 10th Avenue E and 8th Street E, one located at E Villard Street and Sims Street, and one located at Highway 22 and Villard Street.
  - One bicycle crash resulted in an incapacitating injury – located at W Museum Drive and Osborn Drive.
- Non-Severe Crashes: More than 2,000 crashes were identified in Stark County over the five-year period between 2019 and 2023, most of which occurred within Dickinson city limits. The vast majority of crashes were neither fatal nor incapacitating—meaning the level of severity was recorded as "Non-incapacitating injury," "Possible injury," or "Property damage only." These crashes were represented as a heat map (**Figure 1-28 on page 39**), which serves to identify intersections and corridors that see a disproportionate frequency of crashes.
- Top Ten Crash Intersections: Based on the overall density of crashes throughout the city, the top ten intersections with the most crashes were determined. These were not weighted by severity, although several of the intersections did see crashes that resulted in incapacitating injuries and/or involved a cyclist or pedestrian. These intersections are, in order:
  - Highway 22 and 15th Street
  - Highway 22 and Villard Street
  - Highway 22 and 9th Street
  - Highway 22 and 21st Street
  - Highway 22 and Museum Drive
  - Highway 22 and 8th Street
  - Highway 22 and 2nd Street
  - State Avenue and Empire Road
  - Highway 22 and 3rd Street
  - State Avenue and Villard Street

OPERATIONS-RELATED VARIABLES

These variables serve to identify corridors and intersections that are forecasted to have a greater-than-desired level of traffic congestion by 2050, according to the results of the traffic modeling.

- **Intersection LOS:** The anticipated future LOS was compared against the current LOS to assess which intersections would be seeing the greatest increases in congestion, and to estimate the year during which these intersections will begin to fail. A failing LOS may point to the need for intersection- or corridor-level improvements to increase the efficiency of traffic flow.
- **Corridor V/C Ratio:** Generally, a V/C ratio below 0.65 is considered uncongested, between 0.65 and 0.9 is approaching congestion, and over 0.9 is congested. A congested or congesting corridor may point to the need for intersection- or corridor-level improvements to increase the efficiency of traffic flow.

INFRASTRUCTURE-RELATED VARIABLES

Finally, variables were examined related to the state of existing transportation facilities within the county.

- **Pavement Needs:** Corridors with a known need for pavement improvements were identified. This is an important variable in project identification because pavement-related interventions such as mill & overlay projects can be bundled together with other street improvements in order to increase efficiency and minimize disruption to the community. Mill & overlay projects through the year 2033 were taken into account.
- **Trail Gaps:** Dickinson's existing system of bicycle and pedestrian trails was examined in order to determine gaps in the network. These gaps create safety hazards and an uncomfortable environment for cyclists and pedestrians who must instead use more dangerous portions of roadway to reach their destination. One example is on Highway 22 between Museum Drive and 9th Street. The highway includes a trail north of Museum, and 9th Street is an important east-west connection for accessing destinations such as Dickinson State University and Rocky Butte Park. However, there is currently no multimodal trail along this stretch.

All of these safety, operations, and infrastructure-related variables were synthesized to identify the intersections and corridors most in need of intervention.

PROJECT CONCEPT REFINEMENT AND PRIORITIZATION

Based on the needs assessment, future transportation projects were identified. A key consideration in this regard is the transportation projects that are already being planned throughout the city.

Statewide Transportation Improvement Program (STIP) projects have already been committed, and the project recommendations generally exclude these areas. Instead, project recommendations either consist of proposed additions to projects that are already in the city Capital Improvement Plan (CIP) and/or have been submitted (but not committed) for federal aid in the STIP; or they are entirely new projects that are independent of existing CIP projects.

Based on the identified needs and currently preliminary universe of potential future project needs, a project prioritization analysis was performed to identify improvements that could be incorporated into either committed or newly identified projects. To start this process, needs were grouped into corridor segments or spot improvements based on the singular or multiple elements. The prioritization of these corridors was further honed based on the key north-south and east-west corridors identified during the existing conditions analysis, as well as public input related to safety, efficiency, and connectivity.

Refer to **Figure 9-1** for a map of the STIP Planned projects, **Figure 9-2 on page 142** for a map of the unprogrammed projects, and **Table 9-1 on page 143** for the full list of projects.

A preliminary cost estimate has been included for each project, as shown in **Table 9-2 on page 145**. Cost estimates for different project types come from a variety of sources, including industry estimates, NDDOT unit costs, and existing projects in the North Dakota STIP. An annual inflation factor of 4% was applied to the present-day costs, up to 4 years for short range projects, 9 years for medium-range projects, and 17 years for long-range projects. These costs are meant to be used for planning purposes and do not represent design- or engineering-level estimates.

Figure 9-1. Projects Currently in the STIP

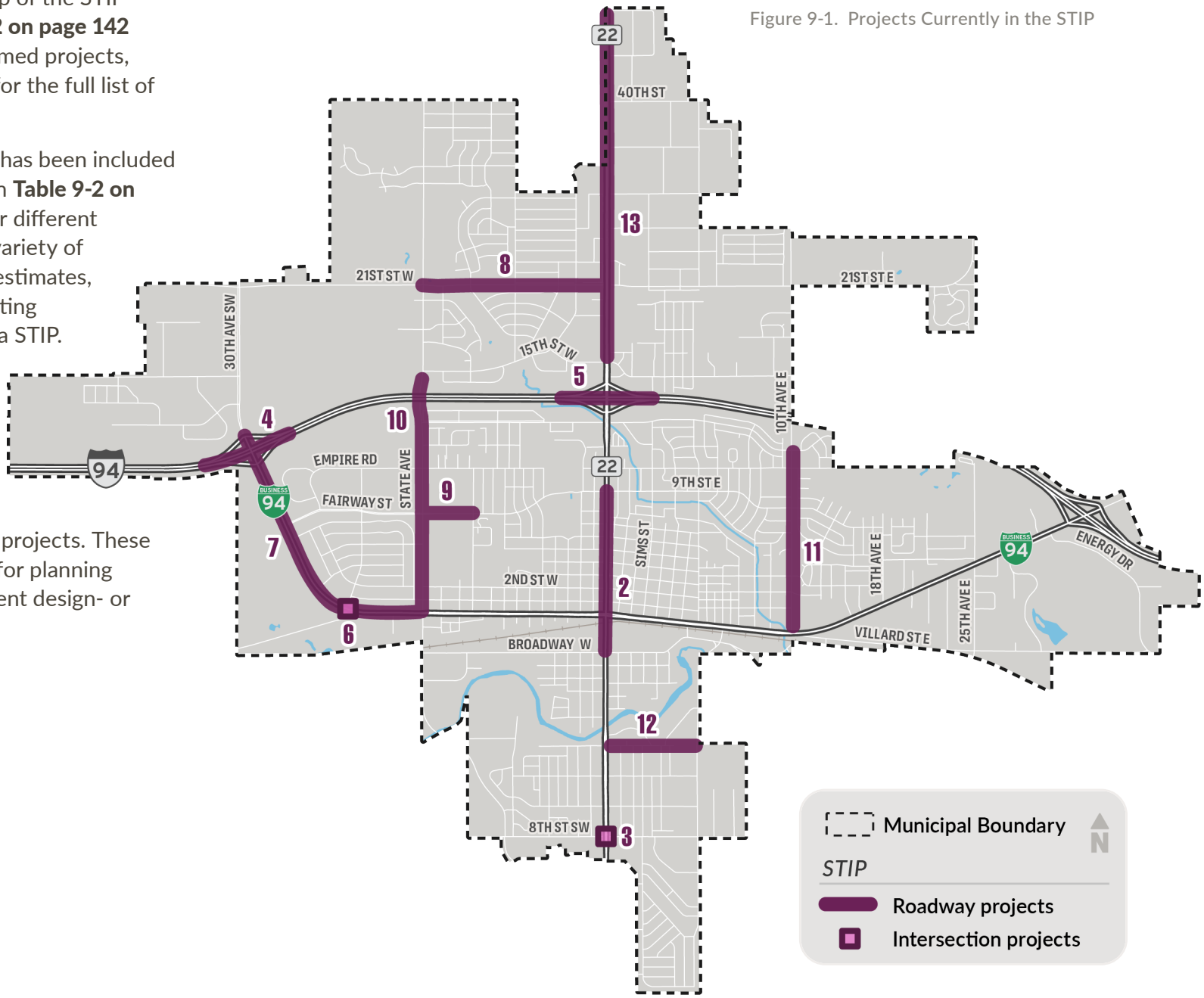


Figure 9-2. Project Phasing

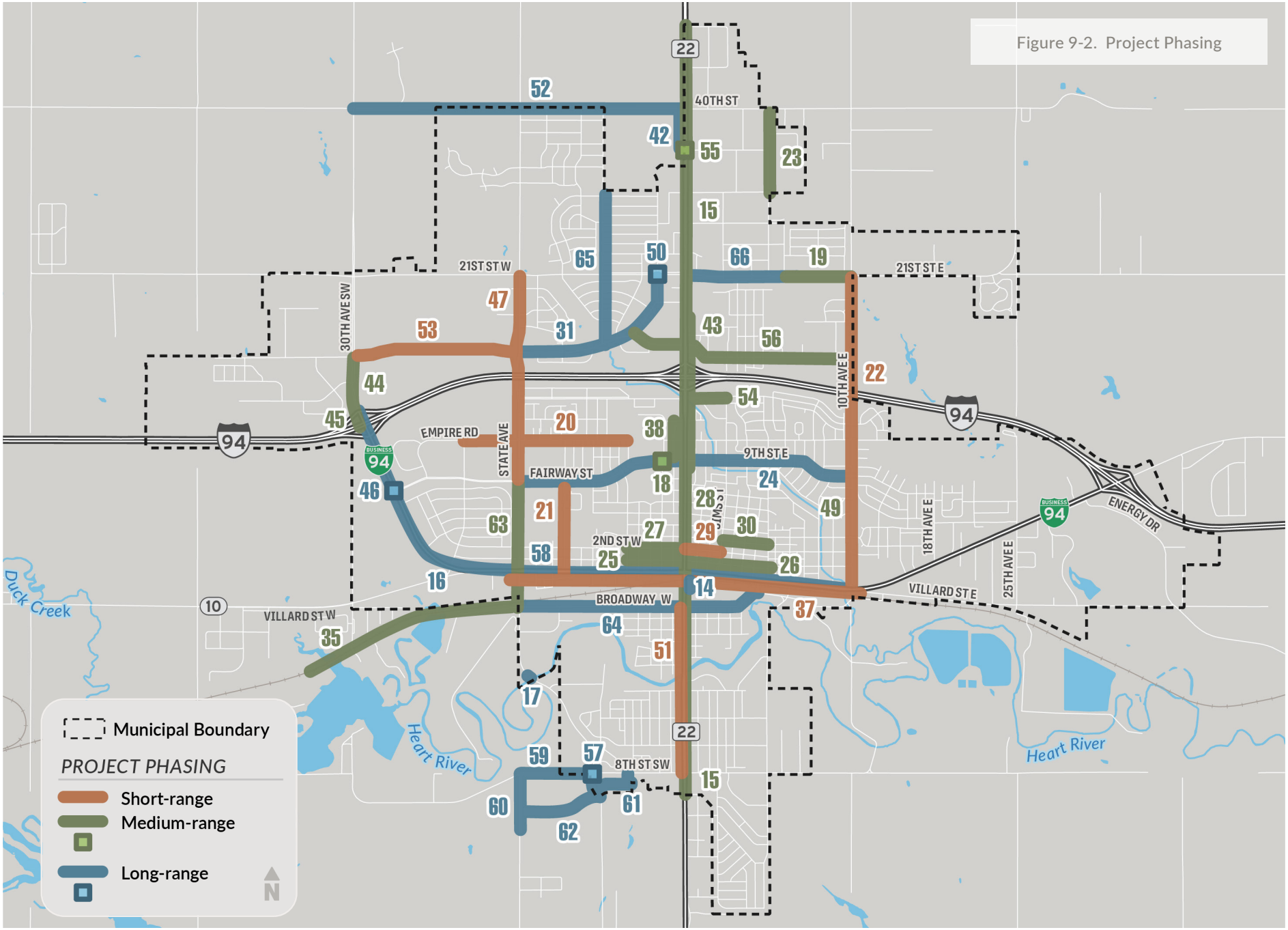


Table 9-1. All Planned Projects and Prioritization

LRTP PROJECT IDENTIFICATION #	PRIORITIZATION	CORRIDOR	TERMINUS 1	TERMINUS 2	DESCRIPTION	COST
PLANNED PROJECTS						
1	Planned	Highway 22	45th St W	21st St W	Chip Seal (follows overlay)	$1,000,000
2	Planned	Highway 22	Broadway	9th St SW	Signals	$2,000,000
3	Planned	Highway 22	8th St S		Roundabout	
4	Planned	I-94	Exit 59 - 30th		Lighting	
5	Planned	I-94	Exit 61 - Highway 22		Lighting	
6	Planned	I-94B	23rd St / CR 10		Roundabout/Intersection	$13,600,000
7	Planned	I-94B	I-94	State Ave	Reconstruction	
8	Planned	21st W	State Ave	Highway 22	Mill and Overlay	$3,200,000
9	Planned	Fairway	State Ave	13th Ave W	Mill and Overlay	$1,100,000
10	Planned	State Ave	15th St	Villard	Microsurfacing	$500,000
11	Planned	10th Ave E	Museum	Villard	Mill and Overlay	$3,000,000
12	Planned	5th St SE	Highway 22	6th Ave SE	Reconstruction	$2,000,000
13	Planned	Highway 22	North City Limits	15th St W	Microsurfacing / Chip and Fog Seal	$1,000,000
CIP PROJECTS						
14	Short Range	Highway 22	BNSF Underpass		Structural Repairs, Widening South Approach	$14,600,000
15	Medium Range	Highway 22	City Limits		Street Lights	$4,150,000
16	Long Range	I-94B	I-94	State Ave	Mirco Surfacing	$1,150,000
17	Long Range	State Ave	Bridge over Heart River		Deck Repairs	$1,100,000
18	Medium Range	9th St	5th Ave W		Intersection Improvements	$1,750,000
19	Medium Range	21st E	5th Ave E	10th Ave E	Reconstruction	$9,600,000
20	Short Range	Empire Road	23rd Ave W	7th Ave W	Mill and Overlay	$4,200,000
21	Short Range	13th Ave W	Fairway St	Villard	Mill and Overlay	$1,650,000
22	Short Range	10th Ave E	21st St E	Museum	Reconstruction	$7,250,000
23	Medium Range	4th Ave E	40th St E	29th St E	Reconstruction	$13,750,000
24	Long Range	9th St E	Highway 22	10th Ave E	Mill and Overlay	$6,050,000
25	Medium Range	1st St W	8th Ave W	Highway 22	Mill and Overlay	$1,350,000

LRTP PROJECT IDENTIFICATION #	PRIORITIZATION	CORRIDOR	TERMINUS 1	TERMINUS 2	DESCRIPTION	COST
26	Medium Range	1st St E	Sims	4th Ave E	Mill and Overlay	$300,000
27	Medium Range	2nd St W	Highway 22	8th Ave W	Reconstruction	$9,400,000
28	Medium Range	1st St W	Highway 22	Sims	Reconstruction	$1,400,000
29	Short Range	2nd St W	Highway 22	Sims	Reconstruction	$5,950,000
30	Medium Range	2nd St E	Sims St	4th Ave E	Reconstruction	$8,550,000
31	Long Range	15th St W / 6th Ave W	State Ave	21st St W	Reconstruction	$9,750,000
32	Medium Range	Downtown St Lighting			Lighting Updates	$4,150,000
33	Short Range	Annual Road Maintenance	City Wide		Operations and Maintenance	$11,250,000
34	Short Range	Annual Sidewalk Program	City Wide		Operations and Maintenance	$100,000
35	Medium Range	Crooked Crane Trail			New Trail	$500,000
36	Short Range	Entrance Signs/Wayfinding	City Wide		Signage	$600,000
37	Short Range	Villard St	State Ave	10th Ave E	Mill and Overlay and Pedestrian Bumpouts	$11,700,000
38	Medium Range	Highway 22 Frontage Rd	12th St W	10th St W	Mill and Overlay	$1,000,000
NEW PROJECTS						
39	Medium Range	Signal Upgrades	City Wide		Signals	
40	Long Range	Southwest Truck Route			Corridor Preservation	$0
41	Long Range	Southeast Truck Route			Corridor Preservation	$0
42	Long Range	West Side Trail (Highway 22)	40th St W	29th St W	Trail Extension	$1,050,000
43	Medium Range	Highway 22	23rd St W	9th St W	Access and Safety Improvements	$1,400,000
44	Medium Range	30th Ave W	15th St W	I-94 Interchange	Access and intersection improvements	$850,000
45	Medium Range	I-94B	I-94 Interchange		Interchange Expansion	$5,700,000
46	Long Range	I-94B	Fairway St		Future Signal or Roundabout	$1,150,000
47	Short Range	State Ave	21st St W	Fairway St	Signal/Safety/Access	$2,050,000
48	Long Range	Fairway St	State Ave	Highway 22	Road Narrowing / Bike Lanes	$50,000
49	Medium Range	10th Ave E	Museum	Villard	Multimodal and Mini RABs	$1,400,000
50	Long Range	21st St W	6th Ave W		AWS or Future Roundabout	$3,900,000
51	Short Range	Highway 22	Broadway	8th St S	Pedestrian Improvements	$350,000

LRTP PROJECT IDENTIFICATION #	PRIORITIZATION	CORRIDOR	TERMINUS 1	TERMINUS 2	DESCRIPTION	COST
52	Long Range	40th St W	113th Ave SW/ 30th Ave W	Highway 22	Safety study, Roundabout at 113th	$8,800,000
53	Short Range	15th St	30th Ave	State Ave	Construct 2-lane collector	$11,700,000
54	Medium Range	W Museum Dr	Highway 22	Sims St	3-Lane and Ped Safety	$50,000
55	Long Range	Highway 22	29th St W		Signalization	$800,000
56	Medium Range	15th St W / 14th St E/W	6th Ave W	10th Ave E	Restriping/bike lanes/ lane narrowing	$200,000
57	Long Range	8th St S	State Ave		Roundabout	$3,900,000
58	Long Range	Villard St	State Ave	10th Ave E	Reconstruction as 3-lane Arterial	$15,650,000
59	Long Range	8th St SW	20th Ave SW	State Ave	Roadway Urbanization with Utilities	$7,600,000
60	Long Range	20th Ave SW	8th St SW	Dickinson South Cemetery	Roadway Urbanization with Utilities	$8,750,000
61	Long Range	State Ave	8th St SW	Drainageway	New Roadway with Utilities	$3,900,000
62	Long Range	Unnamed	State Ave	20th Ave SW	East/West Roadway	$7,000,000
63	Medium Range	State Ave	Fairway St	2nd St SW	Restriping/bike lanes/ lane narrowing	$50,000
64	Long Range	Broadway / 4th Ave SE	State Ave	Villard	Restriping/bike lanes/lane narrowing	$200,000
65	Long Range	10th Ave W	29th St W	15th St W	Shared Use Path	$1,900,000
66	Short Range	21st St	Highway 22	5th Ave E	Mill & Overlay	$1,400,000

Table 9-2. Project Phasing and Total Costs

RANGE	STIP PLANNED	CIP	NEW PROJECT	TOTAL	COST (ADJUSTED FOR INFLATION)
Planned	13			13	$27,400,000
Short		8	3	11	$53,850,000
Medium		13	8	21	$72,800,000
Long		4	17	21	$94,400,000

CORRIDOR LEVEL EVALUATION

The following details provide an overview of each of the corridor segments to be addressed by the previously described interventions, as well as a handful of citywide projects and spot improvement projects. Each segment description contains a project summary that specifies if they are currently planned in the STIP, currently planned but unprogrammed (i.e., projects that have already been included in the CIP or as candidates for federal funding through the STIP), or new project recommendations. Based on flexibility of upcoming project funding, a list of Additions to Planned Projects is included for each corridor. If a currently planned project does not occur in this list, no changes or additions are being recommended at this time. Finally, New Projects are listed for each corridor, which are recommended projects not covered by the currently planned projects. A map of all corridors is included in **Figure 9-3**.

Segment #1a: Hwy 22 (45th St to 23rd St)

This segment of Highway 22 is already planned to undergo a chip seal treatment in the next five to ten years. To best balance pavement investments, operational and safety improvements at 29th Street and 40th Street will be completed with E-W corridor improvements. Long-range multimodal safety concerns will be addressed with the West Side Trail Extension along Highway 22, filling a notable gap in the network.

ADDITIONS TO PLANNED PROJECTS

None.

NEW PROJECTS

40th Street identified as a gateway single lane roundabout to drop speeds to 40 mph entering Dickinson from north. Addresses crash severity and frequency, alongside improvements within **LRTP #52** for Segment 8.

LRTP #42 – West Side Trail Extension from 40th Street W to 29th Street W (Long Range).

- Crooked crane.
- Path addressing gap in the bike/ped network.
- Addresses density of bike/ped crashes in area.

LRTP #55 – Highway 22 & 29th Street W signalization (Long Range).

- New traffic signal will be warranted based on forecasted LOS.

Segment #1b: Highway 22 (23rd Street to 9th Street)

This segment of Highway 22 is scheduled to undergo a repaving project north of 15th Street, as well as a lighting project at the interchange with I-94. However, serious operational and safety-related issues were identified along this corridor, which has been the site of a high volume of crashes, some of which were fatal, and which contains several intersections which are anticipated to exhibit a failing LOS if no action is taken. Accordingly, this is one of the highest-need and highest-priority segments in the entire city.

ADDITIONS TO PLANNED PROJECTS

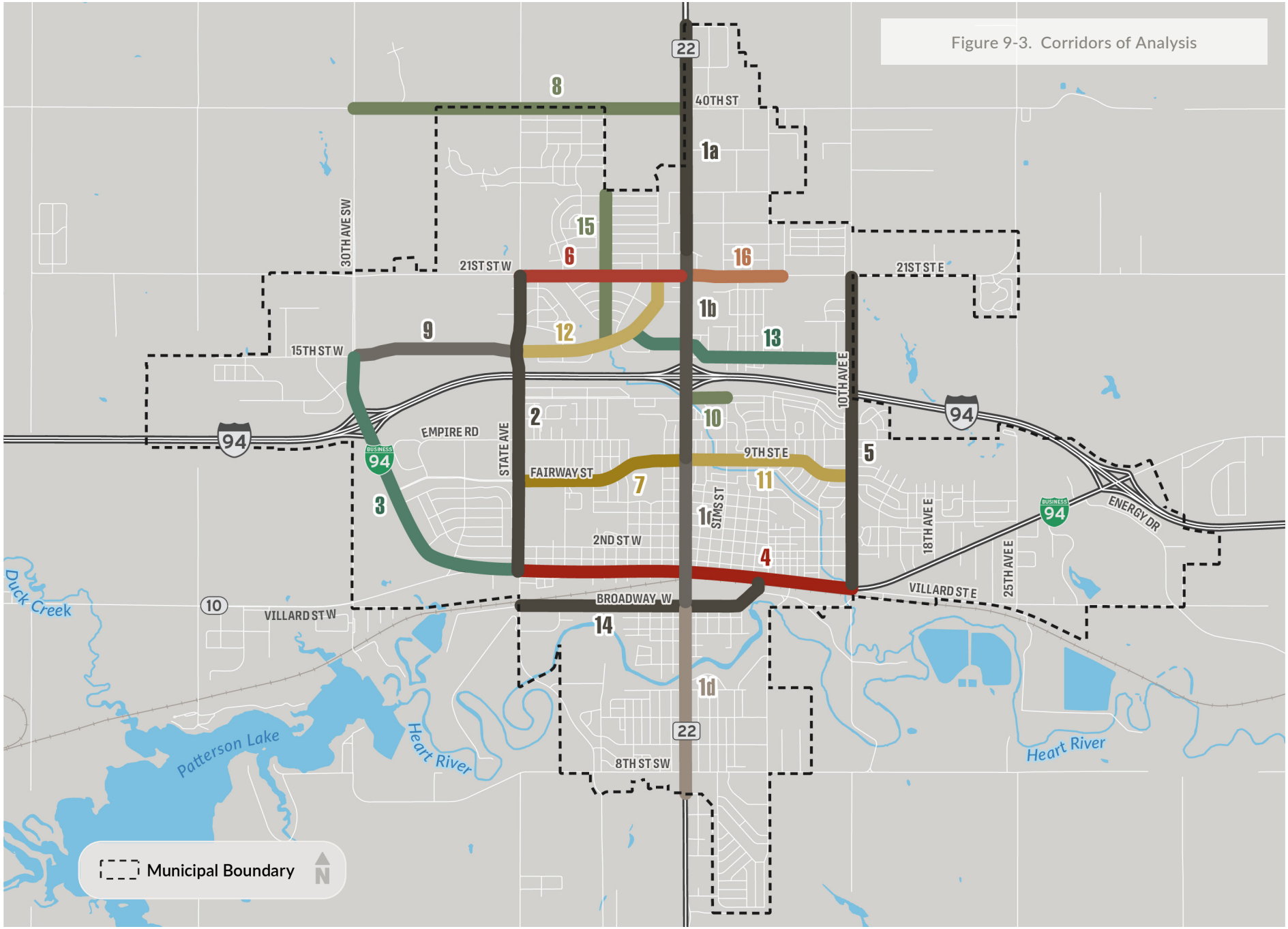
None.

NEW PROJECTS

LRTP #43 – Highway 22 access and safety improvements (Medium Range).

- New traffic signal at 18th Street will be warranted with 17th Street access revisions.
- Signal replacement and coordination needed at most signals in 1b.
- Right In-Right Out (RIRO) / ¾-Access revisions at 10th Street, 11th Street, 17th Street, and 19th Street recommended.
- Interchange analysis did not identify additional configuration improvements via CAP-X results. The diamond interchange is expected to have a 0.68 V/C by 2050 with only 10–15% delay reduction considering high-cost loops or interchange reconfigurations.

Figure 9-3. Corridors of Analysis



- Traffic signal safety improvements.
  - Add a flashing yellow arrow (FYA) at all signals (~10% crash modification factor [CMF]).
  - Backplates with retroreflective borders (~15% CMF).
  - Yellow change interval screening (~10% CMF).
  - Leading pedestrian interval (LPI) at 9th, 12th, 15th, 18th, and 21st Streets (~13% Ped CMF).

Segment #1c: Highway 22 (9th Street to Broadway)

This section of Highway 22 contains four of the city's ten highest-crash intersections, has been home to a fatal crash and several crashes involving cyclists and pedestrians, and includes two intersections expected to have a failing LOS by 2050. The Highway 22 9th Street to Broadway Traffic Signal Replacement Project completed in 2024 has addressed most of these concerns and a 3-lane expansion should be considered to the south as well with the long-range railroad underpass project.

ADDITIONS TO PLANNED PROJECTS

LRTP #14 – BNSF underpass structural repairs (Short Range).

- Likely to include only structural elements.
- Consider expansion to 3 lanes at south approach to extend turn lanes at Villard Street or provide future capacity if additional funding is identified. (>20-year ops).

NEW PROJECTS

None.

Segment #1d: Highway 22 (Broadway to 8th Street S)

This final segment of Highway 22 is anticipated to see high traffic volumes by the year 2050, and has seen a high volume of crashes at its southern end, at the intersection of Highway 22 and 8th Street S. These issues are largely expected to be alleviated by a roundabout which has already been planned in the STIP. However, this segment of Highway 22 has also seen a disproportionately high number of pedestrian crashes; therefore, consideration of pedestrian improvements along the corridor is recommended.

ADDITIONS TO PLANNED PROJECTS

None.

NEW PROJECTS

LRTP #51 – Highway 22 – 8th Street to Broadway pedestrian improvements (Short Range).

- Fill sidewalk/trail gap between 5th Street and 8th Street.
- 2-stage crossings at 2nd Street (S Leg) and 5th Street (S Leg).

Segment #2: State Avenue (21st Street W to Villard Street)

A microsurfacing project has already been planned for State Avenue in the short term. However, the prioritization analysis revealed several other more serious operational and safety issues that could reasonably be addressed at the same time as this project. State Avenue includes both of the city's ten highest-crash intersections that are not located along Highway 22, as well as several intersections that are anticipated to see traffic congestion deficiencies. Several improvements are recommended which will improve operations and safety, particularly for cyclists and pedestrians in the vicinity of Dickinson High School, Dickinson State University, and West River Community Center.

ADDITIONS TO PLANNED PROJECTS

None.

NEW PROJECTS

LRTP #47 – State Avenue from 21st Street to Fairway Street (Short Range).

- Revisions at State Avenue and 21st Street.
  - Extend WBL turn lane bay to 250'. Extend two-way left-turn lane

(TWLTL) section between State Avenue and Prairie Oak Drive with lane narrowing to preserve bike lane.
  - Provide bike box on NW quadrant to support the WBL bike movement.
  - Add FYA and retime signal with leading WBL and NBL protected movements in peak periods.
- New traffic signal at State Avenue and 15th Street (0–10 year warrants).
  - Add FYA, backplates with retroreflective borders, yellow change interval screening, and LPI (~40% CMF).
- New mini/compact roundabout at State Avenue/Empire Road addresses multimodal safety and crash frequency, and future operations (5–10 year based on the high school expansion).
- Traffic signal safety improvements at State Avenue and Fairway Street.
  - Add FYA, yellow change interval screening, and LPI (~40% CMF).
  - Add 6' bike lanes not including 2' gutter from 21st Street to Fairway Street.
  - Addresses speed concerns by narrowing travel lanes.
  - Provides multimodal connection between residential and schools.

LRTP #63 – State Avenue from Fairway Street to 2nd Street SW (Medium Range).

- Add 6' bike lanes not including 2' gutter from 21st Street to Fairway Street.
  - Addresses speed concerns by narrowing travel lanes.
  - Fills significant north-south gap in bike network.

Segment #3: I-94 Business/Villard Street (15th Street to State Avenue)

The portion of the I-94 Business Loop west of State Avenue already has several projects planned, which are likely to improve safety and operations in the years to come. Nonetheless, additional needs are anticipated which are unaddressed by these projects. Additional intersection improvements are needed at the I-94 interchange and at Fairway Street to address future traffic congestion from NW developments.

ADDITIONS TO PLANNED PROJECTS

None.

NEW PROJECTS

LRTP #44 – 30th Avenue W from 15th Street W to I-94 Interchange (Medium Range).

- ¾-Access revision at W Ridge Drive (>20 year ops need).
- Traffic signal at 15th Street W (5–10 year ops need).

LRTP #45 – I-94 Ramps & Villard Interchange (Medium Range).

- Interchange analysis identified several interchange designs that would work including diamond, loop alternatives, contraflow, or single point urban interchange (SPUI). With the existing structure limiting bridge lanes to a 2-lane cross section, a diamond with roundabout termini provided the greatest interchange capacity using the existing bridge structure.
- Diamond interchange with single lane roundabouts (5–10 year ops need).
  - Puts off need for bridge expansion for 25+ years unless structure needs replacement.
  - Tear-drop roundabouts should be considered to best address approach grades, and should consider the uphill approaches in design.

LRTP #46 – Villard Street W/Fairway Street ¾ intersection improvements (Long Range).

- Future TIS to identify full access control type with future TAZ growth to west.

Segment #4: Villard Street/I-94 Business (State Avenue to 10th Avenue E)

The portion of the Villard Street/I-94 Business Loop is a hotspot for pedestrian and bicycle crashes. In conjunction with the pavement improvement projects already planned as candidate STIP projects, multimodal improvements are recommended

to be added to this segment, such as pedestrian bumpouts. This segment is anticipated to maintain it's capacity with a three-lane section through the 2050 projections.

ADDITIONS TO PLANNED PROJECTS

LRTP #37 – Villard Street mill and overlay and pedestrian bumpouts (Short Range).

- Villard Street W mill and overlay from State Avenue to Highway 22 – pedestrian pilot test.
  - Stripe shoulder/parking lane to control mainline speeds. Lane widths narrow to 12'.
  - Painted bumpouts pilot to control sight-lines at key crossing locations.
  - 2-stage crossings at 12th Avenue W (both legs) and 6th Avenue W (W leg).
- Villard Street pedestrian bumpouts from State Avenue to 10th Avenue.
  - Bumpouts at all 4-leg crossing locations. Control sight-lines.
  - Stripe shoulder/parking lane to control mainline speeds. Lane widths narrow to 12'. Consider bike lane/buffer.
  - Address duplicative business accesses for better sidewalk continuity.
  - ADA screening/better lighting.
  - RRFBs and 2-stage crossings at 12th Avenue W (both legs), 6th Avenue W (W leg), 1st Avenue W (E and W leg), 4th Avenue SE (E leg), and 8th Avenue E (E leg).
  - Add traffic signal at 6th Avenue when WBL volume warrants the improvement expected in 5–10 years.

NEW PROJECTS

LRTP #58 – Villard Street reconstruction from State Avenue to 10th Avenue E (Long Range)

- Maintain the three-lane arterial with bumpouts.

Segment #5: 10th Avenue E (21st Street E to Villard Street E)

Being a major north-south corridor on the east side of the city, 10th Avenue has been the site of numerous crashes, including several involving pedestrians and cyclists. Additional improvements to this corridor are recommended to improve multimodal access and calm traffic.

ADDITIONS TO PLANNED PROJECTS

None.

NEW PROJECTS

LRTP #49 – 10th Avenue – (Museum Drive to Villard Street E) (Medium Range).

- Address ADA impediments on east side sidewalk.
- Add east side sidewalk from 7th Street to Museum Drive.
- 10th Avenue and 9th Street consider mini roundabout.
- 10th Avenue and Museum Drive consider all-way stop or mini roundabout.

Segment #6: 21st Street W (State Avenue to Highway 22)

21st Street is a major east-west route for the northern portion of the city, and west of Highway 22 it has been a hotspot for crashes, including at least one involving a bicycle. Improvements to the area's multimodal infrastructure are recommended in both the short and long term.

ADDITIONS TO PLANNED PROJECTS

LRTP #8 – 21st Street W mill and overlay – State Avenue to Highway 22 (Planned).

- Fix ADA sloping on south side sidewalk 10th Avenue W to 6th Avenue W.

NEW PROJECTS

LRTP #50 – 21st Street W and 6th Avenue W (Long Range).

- Consider near-term all-way stop or long-term roundabout.
- Enhance crosswalks and consider bumpouts.

Segment #7: Fairway Street/9th Street W (State Avenue to Highway 22)

Fairway Street/9th Street W is a vital access point for Dickinson's most prominent educational institutions, including both Dickinson High School and Dickinson State University, in addition to serving several parks and recreational facilities, making it a key corridor for cyclists and pedestrians. In the interest of calming traffic and improving multimodal safety, it is recommended that this street be narrowed between State Avenue and 5th Avenue in the next 10 to 20 years.

ADDITIONS TO PLANNED PROJECTS

None.

NEW PROJECTS

LRTP #48 – Fairway Street roadway narrowing (Long Range).

- Curb bumpouts at 13th Avenue W, 11th Avenue W, and 8th Avenue W.
- Bike lanes/shoulder striping on Fairway Street (parking not utilized).

Segment #8: 40th Street W (113th Avenue SW/30th Avenue W to Highway 22)

With future growth anticipated in the northwestern part of Dickinson, 40th Street W is likely to begin to pose a greater operational and safety risk in the long term. A safety study is recommended, particularly for the purpose of evaluating the feasibility and efficacy of potential multimodal improvements and single-lane roundabouts at several of the segment's highest-risk intersections.

ADDITIONS TO PLANNED PROJECTS

None.

NEW PROJECTS

LRTP #52 – 40th Street W from 113th Avenue SW/30th Avenue W to Highway 22 (Long Range).

- Add trail connection on south side between State Street to Highway 22.
- 40th Street/State Avenue – install single-lane roundabout (>20 years).
- 40th Street W/113th Avenue SW – install single-lane roundabout (>20 years).
- 40th Street W/Highway 22 – install single-lane roundabout (>20 years) in **LRTP #3** too.

Segment #9: 15th Street W (30th Avenue W to State Avenue)

An extension of 15th Street W is planned for the next five to ten years, connecting State Avenue to 30th Avenue and facilitating traffic flow in the northwestern portion of the city, where much of Dickinson's growth is anticipated to occur.

ADDITIONS TO PLANNED PROJECTS

None.

NEW PROJECTS

LRTP #53 – 15th Street from State Avenue to 30th Avenue W (Short Range).

- Construct 2-lane collector roadway.

Segment #10: Museum Drive (Highway 22 to Sims Street)

This short portion of Museum Drive has seen a disproportionate number of crashes, including the sole bicycle crash that was recorded in the city between 2019 and 2023 that resulted in an incapacitating injury. Both restriping and multimodal improvements are recommended to increase safety along this dangerous segment in the medium term.

ADDITIONS TO PLANNED PROJECTS

None.

NEW PROJECTS

LRTP #54 – Museum Drive from Highway 22 to Sims Street (Medium Range).

- Restripe 3-lane TWLTL to improve turning traffic.
- Install 2-stage crossing at current crossing east of Osborn Drive.

Segment #11: 9th Street E (Highway 22 to 10th Avenue E)

9th Street E is anticipated to undergo a mill and overlay project in the next 10 to 20 years. Given that this segment has seen a disproportionate number of crashes, it is recommended that the City take the opportunity to restripe and reconfigure the street geometry in order to improve safety, including for cyclists and pedestrians.

ADDITIONS TO PLANNED PROJECTS

LRTP #24 – Extend segment bounds on 9th Street from Highway 22 to 10th Avenue E (Long Range).

- Curb bumpouts at 2nd Avenue W, Sims Street, 2nd Avenue E, and 4th Avenue E.
- Shoulder striping on 9th Street to narrow 2-lane and define parking/bike usage.
- 10th Avenue and 9th Street consider mini roundabout with **LRTP #49**.

NEW PROJECTS

None.

Segment #12: 15th Street W/6th Avenue W (State Avenue to 21st Street W)

A reconstruction project is being planned for this portion of 15th Street W/6th Avenue W for the next five to ten years. As part of this reconstruction, improvements are recommended at the intersections at 18th and 15th Streets, as well as filling the sidewalk gaps along the segment.

ADDITIONS TO PLANNED PROJECTS

LRTP #31 – 15th Street W/6th Avenue W from State Avenue to 21st Street W (Long Range).

- Address sidewalk gaps on south/east sides.
- Consider roundabout or T-intersection all-way stop at 15th Street and 6th Avenue to reduce intersection conflict speeds and improve pedestrian crossings.
- Reduce intersection footprint at 18th Street W by allowing WBR over tracking for truck movements. This will reduce pedestrian crossing widths and increase space for sidewalks to be added.

NEW PROJECTS

None.

Segment #13: 15th Street W/14th Street (6th Avenue W to 10th Avenue E)

This corridor presents a considerable gap in the bicycle network for east-west movement on the north side of I-94. Improvements are recommended along this stretch to enhance multimodal safety and reduce traffic speeds.

ADDITIONS TO PLANNED PROJECTS

None.

NEW PROJECTS

LRTP #56 – 15th Street W/14th Street from 6th Avenue W to 10th Avenue E (Medium Range).

- Add 6' bike lanes.
  - Addresses speed concerns by narrowing travel lanes.
  - Fills significant east-west gap in bike network.

Segment #14: Broadway/4th Avenue SE (S State Avenue to Villard Street)

Broadway is a major east-west route for bicycles south of the Heart River, but its current multimodal infrastructure is insufficient. Improvements are recommended along this stretch to enhance multimodal safety, reduce traffic speeds, and connect to the bicycle network in the central part of the city.

ADDITIONS TO PLANNED PROJECTS

None.

NEW PROJECTS

LRTP #64 – Broadway/4th Avenue SE from State Avenue to Villard Street (Long Range).

- Add 6' bike lanes.
  - Addresses speed concerns by narrowing travel lanes.
  - Fills significant east-west gap in bike network.

Segment #15: 10th Avenue W (29th Street W to 15th Street W)

As the main corridor for north-south movement in the northwestern part of the city, this portion of 10th Avenue W represents an important gap in the multimodal network, and has been a hotspot for crashes. An extension of the existing 10th Avenue shared use path is recommended along this stretch to enhance multimodal safety and fill in the gap in the bicycle network.

ADDITIONS TO PLANNED PROJECTS

None.

NEW PROJECTS

LRTP #65 – 10th Avenue W from 15th Street to 29th Street (Long Range).

- Add 10' shared use path.
  - Extension of shared use path already in place north of 29th Street.
  - Fills significant north-south gap in bike network.

Segment #16: 21st Street (Highway 22 to 5th Avenue E)

This portion of 21st Street exhibits pavement needs and a considerable density of crashes that are unaddressed by other projects, such as the CIP project #14, which would reconstruct the street east of 5th Avenue E. Therefore, a new mill and overlay project is recommended.

ADDITIONS TO PLANNED PROJECTS

None.

NEW PROJECTS

LRTP #66 – 21st Street from Highway 22 to 5th Avenue E (Short Range).

- Mill and overlay project.
  - Addresses pavement need.

Spot Improvements

These projects are one-off projects that are not included in a larger corridor segment.

ADDITIONS TO PLANNED PROJECTS

LRTP #20 – Empire Road from 23rd Avenue W to 7th Avenue W mill and overlay (Short Range).

- SP1 – Empire Road and 12th Avenue W.
  - Install 2-stage pedestrian crossing

NEW PROJECTS

LRTP #40 – Southwest Truck Route corridor preservation (Long Range).

- Would decrease volumes on I-94 Business Loop, State Avenue, and 8th Street by about 300 ADT (up to 100 Heavy Commercial Annual Average Daily Traffic [HCAADT]). Likely just diverting regional trips between Highway 22 south, I-94 west, and Dickinson Regional Airport trips from the west.

LRTP #41 – Southeast Truck Route corridor preservation (Long Range).

- Would decrease volumes on I-94 Business Loop, 6th Avenue E, and 8th Street by about 500 ADT (up to 100 HCAADT). Likely just diverting regional trips between Highway 22 south, I-94 east, and Dickinson Regional Airport trips from the east. This diversion would not address the failing operations at Villard Street and 6th Avenue E.

LRTP #57 – 8th Street and State Avenue (Long Range).

- Install single-lane roundabout (>20 years) if Southwest Truck Route isn't constructed.

LRTP #59 – 8th Street SW from State Avenue to 20th Avenue SW (Long Range).

- Construct utility lines and incorporate roadway into city system.

LRTP #60 – 20th Avenue SW from 8th Street SW to Dickinson South Cemetery (Long Range).

- Construct utility lines and incorporate roadway into city system.

LRTP #61 – State Avenue from 8th Street SW to drainageway (Long Range).

- Construct new roadway with utility lines.

LRTP #62 – 20th Avenue SW to State Avenue (Long Range).

- Construct new roadway.

Citywide Planned Projects

Some transportation projects are not confined to any one road segment or intersection. These are highly specific projects that are intended to address particular needs in large parts of the city, rather than broadly improving safety or operations in particular locations. In addition to the citywide projects already in the CIP and STIP, a signal upgrade project throughout the city is recommended.

ADDITIONS TO PLANNED PROJECTS

None.

NEW PROJECTS

LRTP #39 – City-wide signal upgrades (Medium Range).

- Identified locations recommended to include FYA, backplates with retroreflective borders, yellow change interval screening, and LPI (~40% crash reduction – CMF Clearinghouse).

TRANSPORTATION DEVELOPMENT GUIDELINES

This chapter provides transportation standards and policy recommendations to guide future growth through 2050 and beyond for the City of Dickinson. A consistency review of existing transportation standards and policies and related planning studies and documentation was completed during the existing conditions analysis phase of the Direction 2050 plan and informs guideline and policy recommendations herein.

CORRIDOR PRESERVATION AND RIGHT-OF-WAY

In an effort to ensure sound planning processes and minimize future costs, corridor preservation is the process of earmarking land for future transportation corridor and/or infrastructure projects. Corridor preservation serves to identify and acquire right-of-way (ROW) for roads or other essential future infrastructure. By preserving future roadway alignments early on in the planning process, the City of Dickinson can prevent incompatible development that could hinder future roadway expansion.

PROPOSED ROADS AND FUNCTIONAL CLASSIFICATION

It is important to establish proposed functional classifications and corresponding roadway cross sections for planning future road extensions. This plan provides the city with the framework of current and conceptual future roadways needed to accommodate long-term growth. Establishing corridor preservation in tandem with functional classifications, and in coordination with Stark County for intended future roadways, will help avoid conflicts that could arise from development of land outside the current USA within the rural study area boundary, which has the potential to obstruct the logical extension of future major roadways.

FUTURE BYPASSES AND TRUCK ROUTES

As discussed previously in the ***Area-Wide Issues & Needs*** chapter, corridor preservation for the establishment of future south truck bypasses and other potential future roadway expansion is essential to ensure that appropriate ROW is dedicated for future urban and/or rural arterial and/or collector roadways. This is especially important for the establishment of potential new bypass/designated truck route corridors.

Prior to any major growth occurring outside the existing UAB and beyond 2050, it is recommended the city preserve corridors for future functionally classified arterial and collector roads currently outside the existing UAB and inside the study area, within the southwest, southeast, and northeast quadrants of the study area.

For example, in the southwest and southeast quadrants, a bypass connecting Dickinson Regional Airport to I-94 could increase safety and alleviate traffic congestion along portions of the existing truck bypass on the south end of the study area which would create a complete connection with the existing northwest ND 22 Bypass.

It is recommended that future bypasses (truck routes) for the southwest, southeast, and northeast quadrants of the study area be functionally classified as rural major arterial roadways. For the purpose of establishing appropriate ROW preservation and long-range planning for future bypasses that would serve as truck routes, it is recommended to follow a similar typical section of the present-day ND 22 Bypass, which is based on a *modified* rural minor arterial cross section. Given that this cross section standard did not exist in the previous 2013 plan, it has been added as a new *Cross Section Standard*

recommendation as a ***"Rural Major Arterial"*** (see the following sub-section which includes two 12' drive lanes, the addition of a 14' center lane used as lane buffer and center turning lane, 8' shoulders and 12' ditches, and with a total ROW requirement of 150'. In the long term, the three conceptual bypass routes are recommended to utilize these dimensions and standards for cross section and ROW preservation.

Southwest

- From the existing alignment of the ND 22 Bypass, an approximate alignment could continue south several miles past Patterson Lake and turn east to make connection with ND 22. Further study to determine a preferred future alignment is recommended.

Southeast

- South of the current Dickinson municipal boundary and east of ND 22, a future southeast bypass could complete "loop" connections to the southwest and northeast bypasses. Due to topography constraints near the Heart River, as well as freight rail crossing considerations and the need to identify an I-94 crossing location to link to the Northeast bypass, further study is warranted to determine a future preferred alternative road alignment.

Northeast

- Stark County has completed a $7.5 million pavement project of an 8-mile section of 107th Avenue SW and 32nd Street SW. This newly paved roadway functions to complete the majority of a northeastern bypass route, spanning from Highway 10, north to 32nd Street SW, and continuing west to ND 22. To complete the bypass linkage with the conceptual southeast bypass, the existing overpass at Lehigh Drive and/or the existing 107th Avenue SW section line presents routing alternatives for linking the northeast and southeast bypasses. Further alternatives analysis for preferred road alignments where crossing I-94 is recommended.

The long-term potential completion of these three additional bypasses would create a bypass and alternative/truck route loop around the city of Dickinson, helping to both alleviate congestion in town and provide access to potential future development via dedicated arterial/collector routes following these section line road alignments.

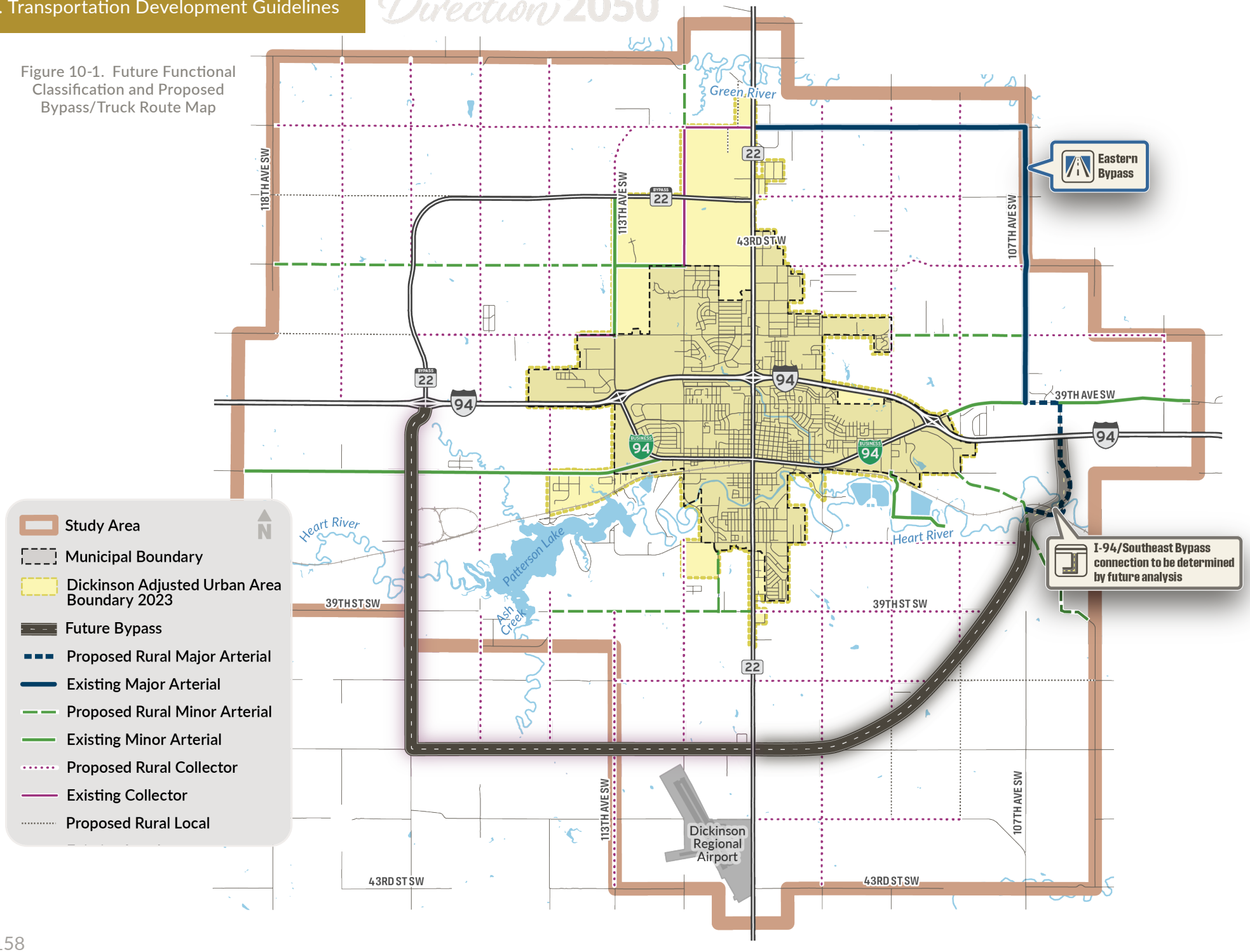
COUNTY COORDINATION

Stark County should work with the City of Dickinson to coordinate future roadway planning outside Dickinson's municipal boundary. Working together in an intergovernmental capacity will help to ensure cohesiveness in long range planning in regard to road maintenance, corridor preservation, and project delivery between municipal/county and urban/rural infrastructure needs.

This planning should be coordinated with any pending roadway investments by Stark County. In particular, a southeast segment of a potential future bypass should consider pending improvements by Stark County along 107th Avenue/32nd Street and a future potential grade crossing at the intersection of I-94.

More detailed analysis and evaluation of potential bypass concepts should be conducted beyond the scope of the Direction 2050 plan. Refer to **Figure 10-1** on the following page for conceptual approximations of potential future bypass roadway alignments, as well as updated proposed future roadway functional classifications based from the 2013 Transportation Plan.

Figure 10-1. Future Functional Classification and Proposed Bypass/Truck Route Map



ROADWAY CROSS SECTION STANDARDS

Roadway *Cross Sections* (or *typical sections*) are necessary to establish the appropriate requirements for new roadways. Typical Sections establish road function, capacity, LOS, and speed, as well as roadway aesthetics. Typical section standards for Dickinson are based on engineering concepts from the American Association of State Highway and Transportation Officials (AASHTO), *A Policy on Geometric Design of Highways and Streets 2018* (commonly called the "AASHTO Green Book"), the National Complete Streets Coalition and NDDOT's Design Manual. Some of the cross-section engineering elements included in the Dickinson standards from these guidebooks are 12-foot travel lanes with 14-foot center turn lanes. Cross sections also include Dickinson standards for two-foot-wide curb and gutter and five-foot sidewalks. Landscaped boulevards are included based upon public input and sidewalk ADA accessibility issues.

The cross sections recommended for Dickinson are defined in four categories by street functional classification: **principal (major) arterial, minor arterial, collector and local.** They are further sub-classified as being either urban or rural cross sections. All street cross sections propose to maintain the accommodation of multimodal travel (complete streets), with bicycle accommodations as bike lanes, dedicated multi-use pathways, or shared road lanes on local streets.

Note the following additional considerations for all **typical cross sections**:

- Additional ROW required where significant disparities exist.
- Additional ROW may be required at intersections in order to accommodate additional geometric configurations (i.e., turn lanes, signals, roundabouts, etc.).
- Clear zone is dependent on speed and additional clear zone is dependent on shoulder width.
- Due to the features of the site or highway, the city may require additional ROW.

An update from the 2013 plan's cross section standards is the addition of a "Rural Major Arterial (Bypass/Truck Route)" cross section that is a copy of the rural minor arterial cross section, but with the addition of a 14-foot center turn lane. This is essentially the cross section that was implemented for ROW preservation and construction of the current ND 22 Bypass in the northwest quadrant of the study area.

The following figures detail each of the recommended typical cross sections for Dickinson's roadways.

- Urban Principal (Major) Arterial
- Urban Minor Arterial
- Urban Collector
- Urban Local
- Rural Major Arterial (Bypass/ Truck Route)
- Rural Minor Arterial
- Rural Collector
- Rural Local

Figure 10-2. Urban Principal (Major) Arterial

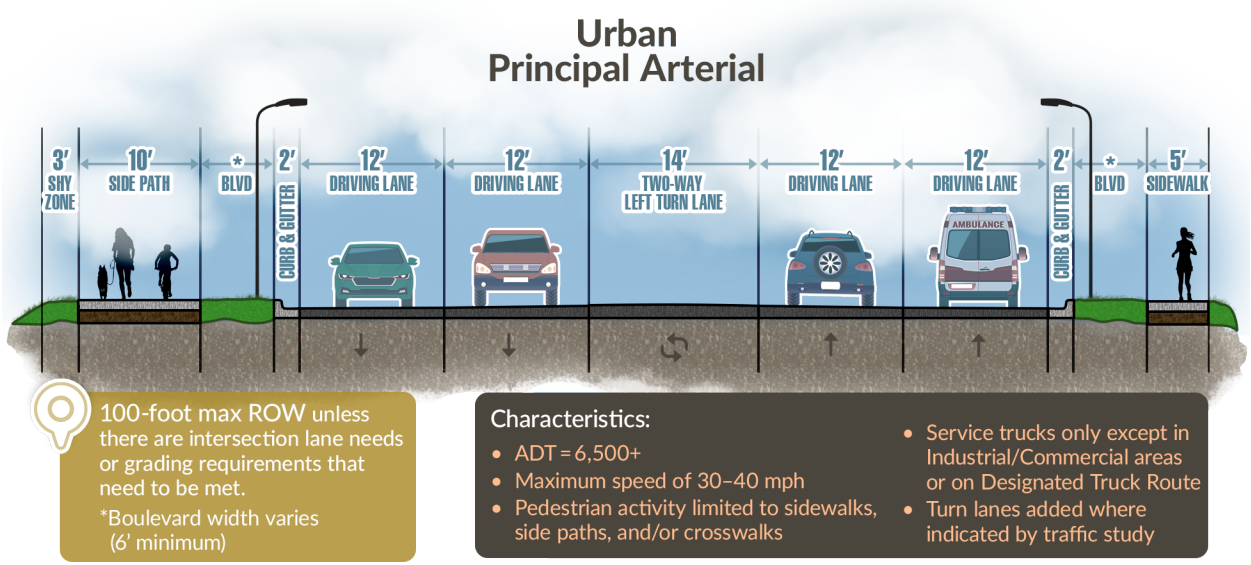


Figure 10-3. Urban Minor Arterial

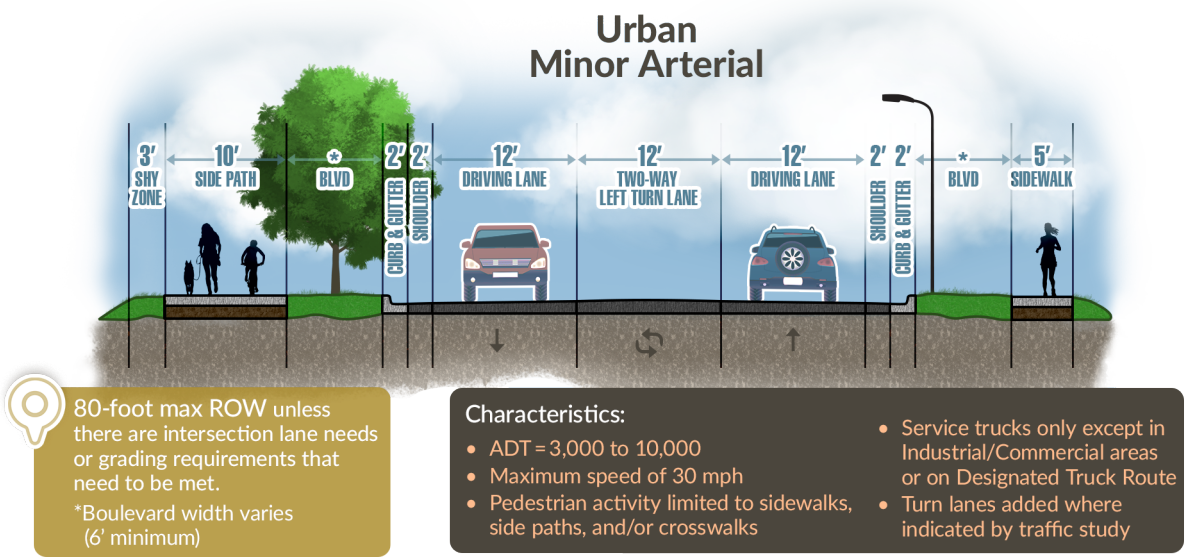
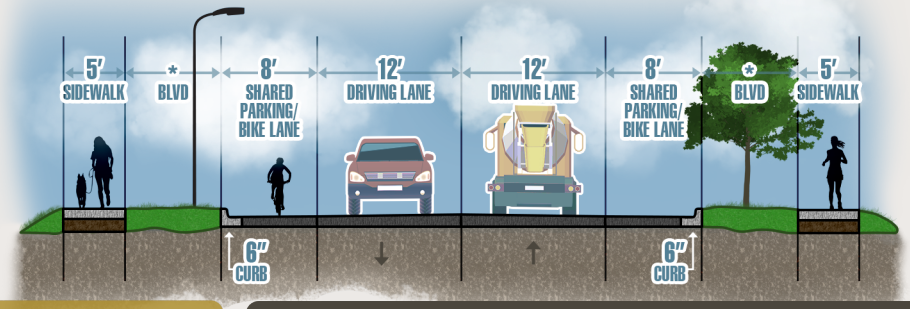


Figure 10-4. Urban Collector Option 1

Collector Option 1
Local Commercial & Local Industrial



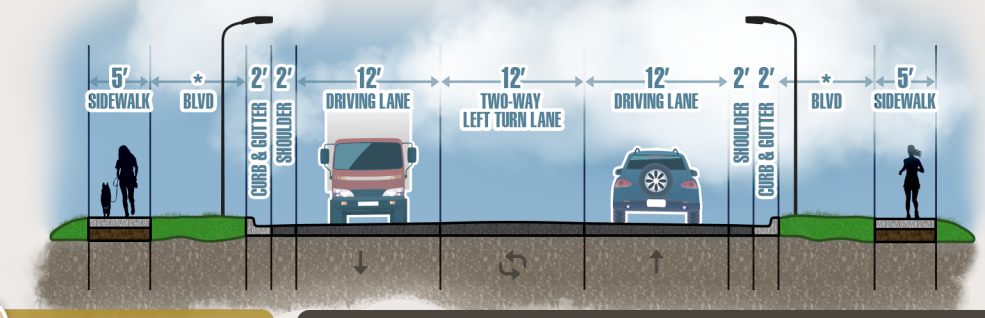
66-foot minimum ROW
*Boulevard width varies (6′ minimum)

Characteristics:

- ADT = 500 to 6,000
- Maximum speed of 30 mph
- Low volume streets that will not see future traffic volumes increase
- To allow no boulevard, parking lane buffer is required between traffic and pedestrians
- Pedestrian activity limited to sidewalks, side paths, and/or crosswalks
- Service trucks only except in Industrial/Commercial areas or on Designated Truck Route
- Turn lanes added where indicated by traffic study

Figure 10-5. Urban Collector Option 2

Collector Option 2
Local Commercial & Local Industrial



80-foot minimum ROW
*Boulevard width varies (6′ minimum)

Characteristics:

- ADT = 500 to 6,000
- Maximum speed of 30 mph
- Pedestrian activity limited to sidewalks, side paths, and/or crosswalks
- Service trucks only except in Industrial/Commercial areas
- Higher volume streets with higher percentages of truck traffic for the two-way left turn lane or have parking on both sides and no two-way left turn lane, no side paths required: i.e., 28th Ave E south of the EBL
- Consideration for the industrial zoning districts to not require sidewalk on both sides

Figure 10-6. Urban Local Option 1

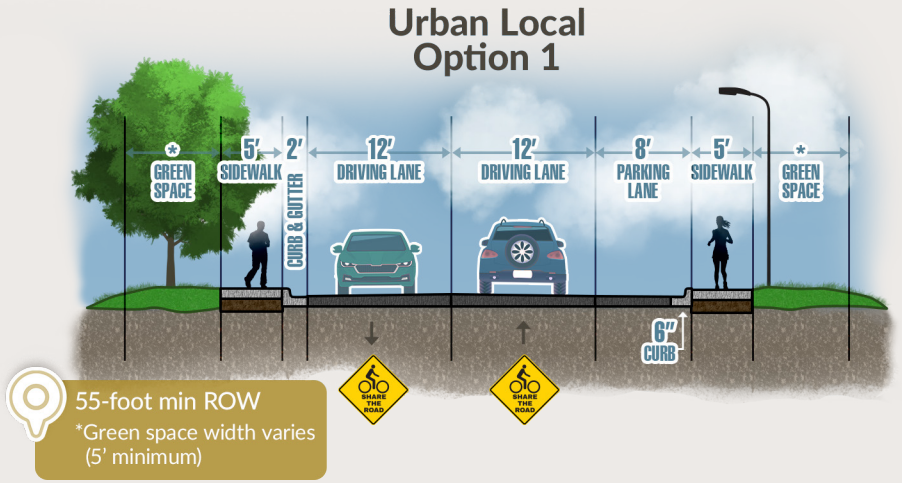


Figure 10-7. Urban Local Option 2

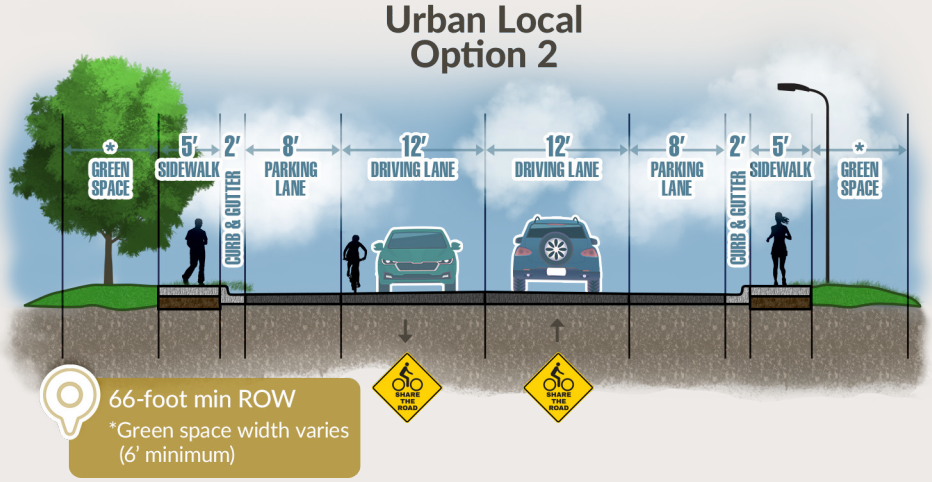


Figure 10-8. Rural Major Arterial (Bypass/Truck Route)

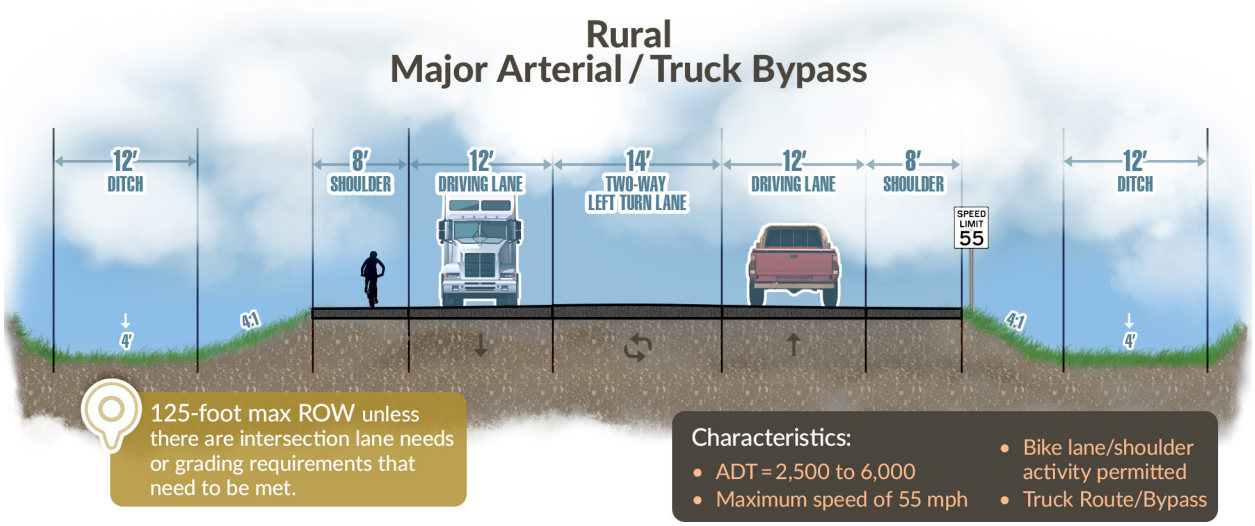


Figure 10-9. Rural Minor Arterial

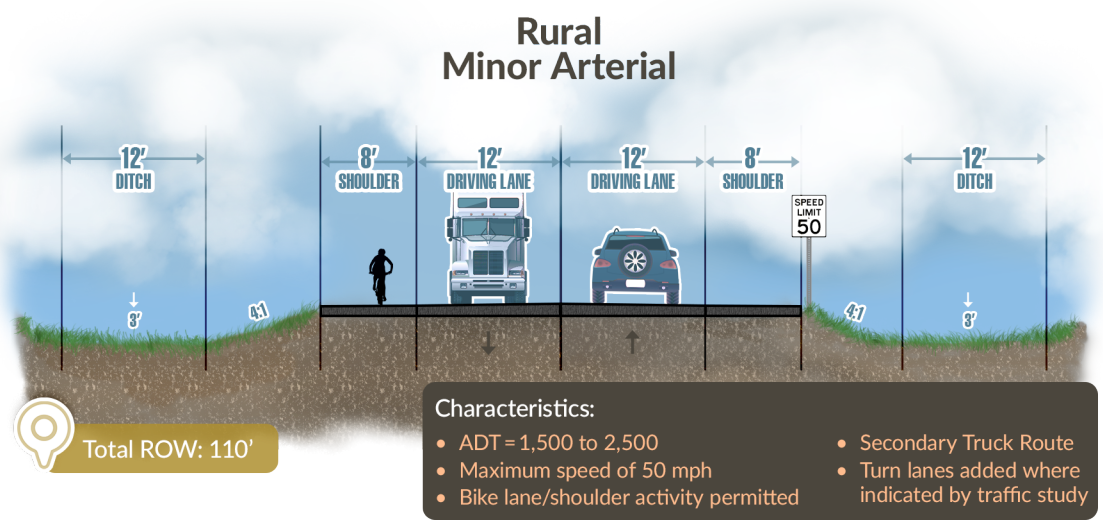


Figure 10-10. Rural Collector

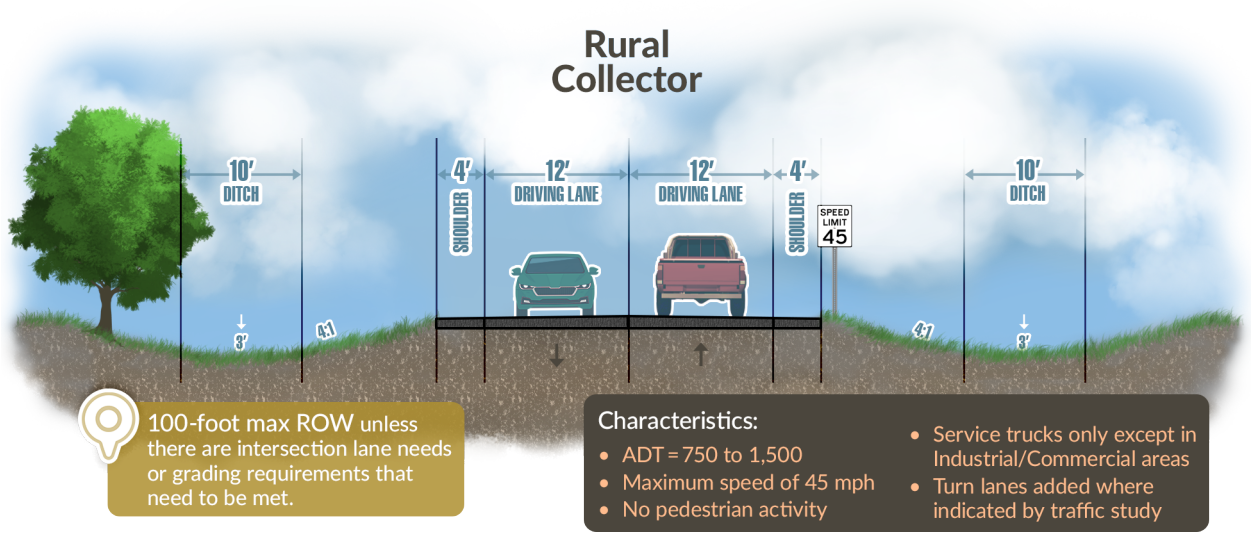
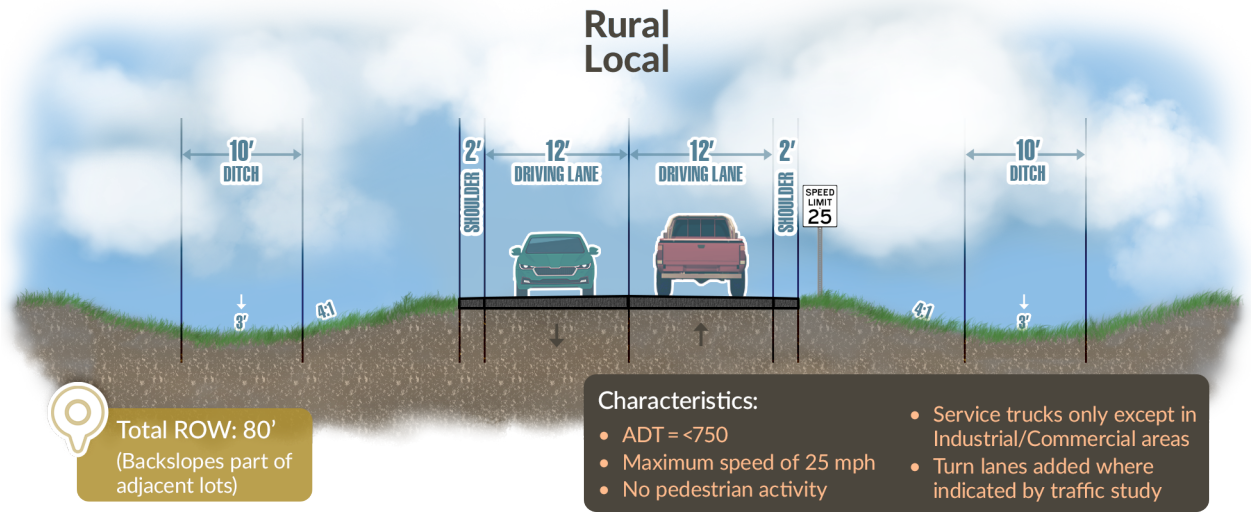


Figure 10-11. Rural Local



ACCESS MANAGEMENT

The selection of allowed points of access locations plays a key role in establishing a safe and efficient road network. Effective access management encompasses regulating entry and exit points on roadways, including the spacing of intersections and placement of driveways. Access management is essential for preserving or enhancing the smooth operation of the road system and for bolstering safety by reducing the number of potential conflict points and minimizing the risk of crashes.

Access control guidelines serve multiple purposes. These include safeguarding the public's investment in the road infrastructure and providing developers with clear directives for project planning. The guidelines are designed to strike a balance between public interest in unencumbered mobility and property owners' rights to access their properties. Access, in this context, pertains to providing convenient entry and exit points along roadways. Conversely, mobility refers to the ability to move freely and easily between locations. Most roadways fulfill both these functions to varying degrees, contingent upon their functional classification and other roadway characteristics.

Efficient management of driveway access throughout the entire road network necessitates coordinated efforts among City, County, and State authorities, as well as development interests. The City of Dickinson access guidelines have been prepared to offer direction in making decisions regarding the type and placement of access points across the city's road system.

These guidelines are typically employed in situations involving physical growth and the associated expansion and/or extension of roadways, functional classification, safety or operational concerns, evaluations of access during permit issuance or plat review processes, and in conjunction with development proposals, planning studies, and improvement initiatives. City staff require land development applications to comply with access management standards contained in the Transportation Master Plan. A primary goal of these access guidelines is to ensure that Dickinson's roadways contribute to a transportation system that minimizes safety hazards while optimizing overall efficiency.

Access Management Recommendations

Access management guidelines aim to ensure safe and efficient traffic flow. The recently updated 2025 ND DOT Traffic Operations Manual,[1] details the benefits and application of access management, which include:

BENEFITS

- Crashes and congestion are reduced.
- Roadway capacity is preserved, delaying the need for roadway widening.
- Travel times and delivery of goods and services are improved.

APPLICATION

- New roads and new developments
- Roadway reconstruction projects or land redevelopment projects as feasible
- Other road construction projects on a smaller scale as opportunities arise.
  - Retrofit projects in built-up areas may not be able to improve access management to the ideal conditions, however, well designed small improvements can still have positive effects on traffic safety, capacity, and congestion reduction.

Following 2025 ND DOT guidelines the following tables (**Table 10-1** and **Table 10-2 on page 166**) summarize proposed updated access spacing standards for Dickinson, and include direction for intersection spacing, driveway access density, and permitted access widths.

1 https://www.dot.nd.gov/sites/www/files/documents/construction-and-planning/Traffic-Operations-Manual.pdf

Table 10-1 provides NDDOT recommended minimum access spacing guidelines.

Table 10-1. 2025 NDDOT Access Spacing Guidelines

FUNCTIONAL CLASSIFICATION	MINIMUM INTERSECTION SPACING	
	SIGNALIZED (OR FUTURE SIGNAL)	UNSIGNALIZED
Interstate	1,320 ft	750 ft. Off-Ramp to RIRO*
Principal (Major) Arterial	1 mile	1 mile
Minor Arterial	1/2 mile	1/4 mile
Collector	1/2 mile	1 Block**
Local	NA	1 Block**

*Right-in-Right-out (RIRO)
**Remain unchanged from previous guidelines

Additionally, the following guidance is provided by ND DOT for optimal traffic signal spacing as follows:

- Principal arterials:
  - ½-mile signal spacing is desired
  - ¼-mile spacing minimum
  - ½-mile spacing accommodates good two-way traffic progression for a variety of signal timings
- A four-lane divided arterial with ½-mile signal spacing, and a high level of access control has the same ability to carry traffic as six lanes with ¼-mile signal spacing and a low level of access control.
- In central business districts with a 25mph posted speed, a signal spacing of 3 blocks is able to accommodate good two-way traffic progression.

Additionally, all-way stop control should typically be avoided on arterials. All-way stop control disrupts overall roadway progression resulting in deteriorated traffic operations and may also pose crash concerns where a major thoroughfare intersects a low volume roadway.

The access spacing for private access points is based on stopping sight distance. ***Stopping sight distance*** is defined as the minimum distance needed by motorists to see an object on the roadway ahead and bring their vehicles to safe stop before colliding with the object. **Table 10-2** lists the minimum spacing for unsignalized rural private access points by posted speed limit. Note that this table is based on a level roadway without any horizontal and vertical curvature. In areas with downgrades, vertical or horizontal curves, additional distance may be needed.

Table 10-2. Spacing of Rural Unsignalized Accesses on the Same Side of a Road

RURAL ROAD POSTED SPEED LIMIT (MPH)	DESIRED SPACING OF UNSIGNALIZED ACCESSES
25	325
30	455
35	625

Source: NDDOT Traffic Operations Manual (2025)

Efforts should also be made to provide positive or direct alignments when addressing multiple accesses in relatively close proximity. These are depicted in **Figure 10-12**. Negative offset intersections should be prohibited to the degree possible, though existing offset intersections may need to be grandfathered in, especially if those conditions cannot be readily corrected.

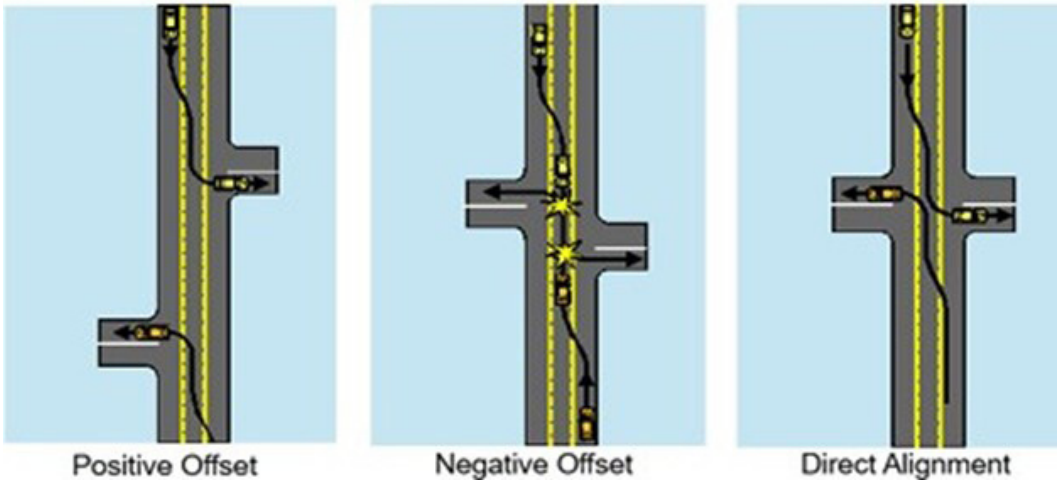
It is recommended that the development of new streets, where feasible, should be aligned to connect to existing or planned streets beyond a development, and final alignment approvals should be determined during city staff review processes.

Stark County Coordination

Access management guidelines and practices should generally be implemented at the City and County levels (e.g., jurisdictions with active land use planning programs) as these agencies are typically involved at the planning stages of development proposals. However, effective access management requires mutual support and effective communication at all governmental levels. Therefore, it is important to consider how access management guidelines are implemented as part of Stark County's planning and development review procedures.

Along state highways, NDDOT access standards apply. In addition, Stark County may use zoning regulations or access spacing standards to manage access density on roadways that fall under its jurisdiction. Currently, Stark County limits the number of access points on County roads to four per mile per side of the highway. The NDDOT has established specific guidelines for access spacing,[1] which vary depending on the type of access (public street, private access) and location (urban, rural). Generally, public street spacing is based on block length, while private access spacing focuses on providing adequate stopping sight distance.

Figure 10-12. Addressing Offset Intersections



Access Management Mitigation Tools

Comprehensive planning of new developments is the first step to achieving good access control, service, and safety. However, for locations in which direct access to a property is not permitted under the Access Management guidelines, additional options for gaining roadway access to a property may include the following:

- Traffic Operations or Traffic Impact Study: Access may be allowed if it can be demonstrated that access control lines that are less than those set forth in the guidelines have no significant impact on the operation of the roadway. Such studies are subject to the review and approval of the city or county engineer.
- Cases where one side of the roadway is developed, an attempt should be made

1 https://www.dot.nd.gov/sites/www/files/documents/construction-and-planning/Traffic-Operations-Manual.pdf (pages 46–52).

to maximize access control and minimize impact to property on the opposite side of the roadway.

- Commercial and Industrial Areas: Where existing conditions permit, the use of backage or frontage roads or raised medians may be an acceptable alternate providing traffic circulation without impacting the major roadway. Although, the city is not in favor of raised medians as a first resort, as they have proven difficult to use, particularly with agricultural equipment operations. Raised medians are not a viable solution for locations that accommodate large vehicles/agricultural equipment.
- Interim measures such as temporary access, based on binding agreement between the road authority and the and the landowner may be applicable until development warrants more restrictive control.
- Natural topographical features may require deviation from this policy.
- Variance Application: All variances must be approved by the city.

Variance Application

Access management policies may dictate otherwise, however, in some cases, a property owner may have no reasonable access alternative except from an adjacent controlled roadway. In cases such as this, it is recommended that an application process for variance be maintained and/or developed so that the property owner can apply for a variance to the policy. Require the property owner to submit a variance application with a detailed explanation as to why there is no alternative for access to the property, including details of other means they have taken to gain access from adjacent property owners. Depending on the complexity of the case, it may require that the landowner has a professional analysis conducted with a subsequent technical memorandum providing planning and/or engineering evidence which clearly cites why there is no alternative to the direct access from the controlled roadway.

LEVEL OF SERVICE STANDARDS

Considering the ongoing growth in the City of Dickinson, there remains a need to address the demand for maintaining adequate Level of Service (LOS) and capacity of municipal roadways. The following section outlines the criteria for evaluating the LOS, which play a crucial role in assessing the current and future performance of Dickinson's transportation infrastructure.

Traffic operations are described in terms of LOS, based on the methodologies described in the Highway Capacity Manual (HCM). LOS is a qualitative measure developed by the transportation engineering profession to quantify traffic operations by incorporating traffic volumes, roadway geometry, and other parameters to estimate the delay per vehicle. LOS at intersections provides a means for identifying intersections that are experiencing operational difficulties, as well as providing a scale to compare intersections with each other. The scale is based on the ability of an intersection or street segment to accommodate the amount of traffic using it. The LOS scale ranges from "A" to "F." LOS A indicates near free-flow traffic conditions with little delay and LOS F indicates breakdown of traffic flow with very high amounts of delay.

In summary, LOS standards are a valuable tool for transportation professionals to evaluate and manage traffic operations. By assessing and improving LOS, cities and transportation agencies can enhance traffic flow, reduce congestion, and improve the overall quality of transportation networks while ensuring safety for all road users.

LOS for Roadways

A capacity deficiency exists when actual traffic exceeds the vehicular capacity of the roadway. The acceptable capacity of a road is influenced by numerous factors, encompassing location, route options, roadway geometrics, the positioning of major intersections, access management, peak-hour traffic volumes, and traffic control measures. Each segment of the highway possesses a finite capacity, representing the maximum

number of vehicles it can accommodate across all its lanes. For planning purposes, the level of service for a roadway link is determined by comparing the link's traffic volume to its roadway capacity. For a more comprehensive understanding of the level of service, please refer to **Table 10-3** for additional clarification.

Table 10-3. Level of Service Definitions for Roadways

LOS	TRAFFIC FLOW	VEHICLE/ CAPACITY RATIO
A	Free Flow (Below Capacity)	0.20
B	Stable Flow (Below Capacity)	0.40
C	Stable Flow (Below Capacity)	0.60
D	Restricted Flow (Near Capacity)	0.85
E	Unstable Flow (Approaching Capacity)	1.00
F	Forced Flow (Over Capacity)	>1.00

It should be noted that while this methodology is appropriate for a planning-level regional analysis, several factors such signal density, freeway merging/diverging, and unique temporal traffic patterns are not well-captured with this methodology. Values are used as a guideline and should not be used for operational analysis purposes or final design.

In most scenarios within Dickinson's municipal limits, future traffic capacity analysis will predominantly focus on urban roadways and intersections, and rural major and minor arterials. The prevailing practice in the region is to maintain a level of service B for the rural roadway system and a level of service C for urban arterials, collectors, and intersection operations. However, roadway capacity, as it directly relates to acceptable roadway segment and intersection LOS standards, is variable based on setting/context and highly dependent on the roadway type; whether it is an interstate, business loop, expressway, four-lane divided road, two-lane highway, or located in an urban, rural, or local setting. For additional future traffic capacity guidance, the NDDOT Traffic Operations Manual relies upon the procedure set forth in the Transportation Research Board's Highway Capacity Manual.[1]

LOS for Intersections

Although the planning-level capacity can provide a good barometer of corridor operations, intersection operations often provide a clearer indication of corridor operations. LOS for intersections is a crucial metric used in transportation planning and engineering to evaluate the operational performance and efficiency of road intersections. Intersections are key points where two or more roadways intersect, and they play a pivotal role in traffic flow and safety. Assessing the level of service helps transportation professionals understand how well an intersection is functioning and whether it meets the needs of road users.

At oversaturated intersections and approaches, the delay may only reflect the vehicles that can be processed in the analysis period and not the total delay for that intersection, thus underreporting the actual delay experienced by drivers. LOS C or better is generally desirable, and LOS D may be appropriate for urbanized areas in many agencies in North Dakota. Additionally, each approach to the intersection should be designed to have the highest LOS practical. The LOS thresholds for intersection delay are shown in **Table 10-4 on page 170**.

LOS for Signalized Intersections

For signalized intersections, the LOS is based on the average stopped delay per vehicle. The procedures used to evaluate signalized intersections use detailed information on geometry, lane use, signal timing, peak hour volumes, arrival types and other parameters. This information is then used to calculate delays and determine the capacity of each intersection.

1 Transportation Research Board (TRB) Highway Capacity Manual, 7th Edition, 2022.

Table 10-4. Intersection Delay and Level of Service Thresholds

LEVEL OF SERVICE	AVERAGE DELAY (SECONDS PER VEHICLE)		DESCRIPTION
	UNSIGNALIZED INTERSECTION	SIGNALIZED INTERSECTION	
A	≤ 10	≤ 10	Near free-flow traffic.
B	> 10 and ≤ 15	> 10 and ≤ 20	Minor delays.
C	> 15 and ≤ 25	> 20 and ≤ 35	Some delays but not resulting in significant traffic congestion.
D	> 25 and ≤ 35	> 35 and ≤ 55	Delays with some traffic congestion.
E	> 35 and ≤ 50	> 55 and ≤ 80	Significant delays with significant traffic congestion, approaching capacity.
F	> 50	> 80	Breakdown of traffic flow, major traffic congestion.

LOS for Unsignalized Intersections

SIDE-STREET STOP CONTROLLED INTERSECTION

Overall intersection LOS is undefined for side-street stop-controlled intersections within the HCM. The LOS for the side-street stop-controlled intersections in the analysis is based on the delay experienced by couple of movements within the intersection, rather than on the overall stopped delay per vehicle at the intersection. This difference from the method used for signalized intersections is necessary since the operating characteristics of side-street stop-controlled intersections are substantially different. Driver expectation and perceptions are entirely different. For side-street stop-controlled intersections the *through* traffic on the major (uncontrolled) street experiences minimal to no significant delay at the intersection. Conversely, vehicles turning left and going across the major street from the minor street, or vehicles turning left from major street to minor street experience more delay than other movements and at times can experience significant delay. Vehicles on the minor street which are turning right from the minor street experience less delay than those turning left or going across from the same approach. Due to this situation, the LOS assigned to a side-street stop-controlled intersection is based on the average delay per vehicle for vehicles for the minor street approach and left turn major street approach.

ALL-WAY STOP CONTROL AND/OR ROUNDABOUT.

LOS for all-way stop controlled and/or roundabout intersections are also based on delay experienced by the vehicles at the intersection. Since there is no major street, the highest delay could be experienced by any of the approaching streets.

LOS for Pedestrian and Bicyclists

Traffic analysis should incorporate multimodal assessments, as the most recent edition of the Highway Capacity Manual provides methodologies for evaluating bicycle and pedestrian LOS.

TRAFFIC IMPACT STUDY (TIS) GUIDELINES

A Traffic Impact Study (TIS) is a tool used to manage roadway access and objectively evaluate anticipated safety and operational impacts of proposed development on the surrounding transportation system. The primary responsibility for assessing the traffic impacts associated with a proposed development rests with the developer, with any improvements identified by the TIS being the sole responsibility of the developer and will be required as part of the development construction. The City of Dickinson will serve solely in a review and approval capacity.

General

A TIS could be required for any type of development and associated trips being generated to objectively assess the safety and operational impacts of the development or modified land use on the City of Dickinson's roadway network. These impacts are typically due to the generation of new traffic volumes or shifts in travel patterns. However, the general rule, unless waived by the City of Dickinson, should be that a TIS will be required for:

- Any development generating more than 1,000 new daily trips, or developments located in sensitive areas with respect to transportation system operations or safety. Smaller developments are often required to perform a more limited review.
- Any nonresidential development proposal when trip generation during the peak hour is expected to exceed one hundred (100) vehicles, or
- Any residential development with one hundred fifty (150) or more dwelling units.
- Any development that may result in traffic issues in the opinion of the City's engineer.

If the development does not meet the above trip generation requirements, the developer should be required to submit a short memo to the City Engineer documenting why a TIS is not required or that the City Engineer has waived the requirements for a TIS.

When a TIS is required, it is recommended that the developer is responsible for assessing the traffic impacts, prepared, and signed by a registered professional engineer, and licensed in the state of North Dakota. The City should serve in a review and approval capacity. Traffic impact study approvals granted by the City shall be valid for up to two years. If significant work on the development has not commenced within the approval period, the TIS shall be updated and resubmitted for review. Unless waived by the City Engineer, studies will be required to be updated within the two-year approval period if the proposed land use(s) are significantly altered, or traffic volumes within the study area are increased by more than 15%.

Prior to starting the study, the developer or the engineer preparing the study is strongly encouraged to schedule a pre-study conference with the City Engineer. If there are any other potential jurisdiction authorities within the study area, i.e., Stark County, they should also be included in the pre-study conference to determine if there will be additional review agencies and requirements as part of the study. The purpose of a pre-study conference is to discuss the development, definition of the study area, intersections requiring capacity analysis, data collection needs, design standards, traffic and trip analysis parameters, and other methods, requirements, and assumptions. Following the pre-study conference, the developer or the engineer preparing the study shall detail the agreed upon assumptions and requirements in the report.

The boundaries of the TIS should include any roadway on the municipal roadway system that is impacted or receives an impact that lowers the LOS below "C" or causes operational deficiencies. This might include intersections with other City and/or County roadways, intersections with public streets, or adjacent driveways. The TIS will be reviewed by the City of Dickinson staff. The review will ensure that the study is acceptable and that all mitigation measures meet City standards.

Report Format and Contents

Specific requirements will vary depending on the location of the proposed development and other factors. At the pre-study conference, reductions in complexity or variations from the NDDOT Road Design Manual shall be agreed upon by the City of Dickinson. However, all traffic reports shall contain the following information unless otherwise approved by the City:

Introduction

- Background.
- Location of the proposed project.
- Description of the site.
- Objective of the study.

Study Area

- Map showing existing and future study roadways and intersections.
- Lane configurations of the existing and future study roadways and intersections.
- Site plan: including all existing and proposed access points to the city 's functionally classified municipal roadway system.
- Internal circulation network including any proposed construction phasing.
- Discussion of any non-motorized transportation facilities provided at the site.

Traffic Data

- Traffic count locations, design hour counts, and type of counts.
  - Traffic counts must be collected on Tuesday, Wednesday, or Thursday under non-adverse weather or road conditions.
  - Traffic counts may need to be collected on weekends if proposed traffic generated by the development is expected to be high on weekends.
- Review of the most recent five years of crash records in the study area.
- Other relevant data that may be required by the City Engineer.

Study/Analysis Years

- Current year and Build-out year: the year when the construction of the site will be completed and fully operational.
- 20-year horizon year.
- Interim-year analysis year if the construction will be built in multiple phases.
- Analysis should be completed for the design hours (AM and PM peak) for No-Build and Build scenarios.
  - *No-Build scenario* refers to the conditions without the proposed development scenario. This option includes no geometric improvements at the proposed site accesses, and the existing traffic counts projected to the facilities opening year traffic volumes.
  - *Build scenario* refers to the conditions of the proposed development scenario. This option pertains to geometric improvements, if any, combining projected background and development traffic.

Trip Generation and Distribution

- Description of the proposed Land Uses.
- Calculate trips generated based on the land use characteristics found in the most recent edition of the Institute of Transportation Engineer (ITE) Trip Generation Manual or any other relevant studies.
- Trip Distribution based on prevailing travel patterns, and engineering judgement.

Traffic Volume

- Traffic forecast method.
- Forecasted, pre-development background traffic volumes.
- Forecasted, post-development background traffic volumes.

Traffic Operations Analysis for design hours

- Mention of the traffic analysis software package used (e.g., Highway Capacity Software, Synchro, VISSIM, etc.) that uses the methodologies documented in the most recent version of the Highway Capacity Manual.
- Delay and Level of Service (LOS) of the existing and proposed study intersections.
- 95th percentile queueing analysis.
- Consideration for heavy vehicles, peak hour factor (PHF), saturation flow rate (use 1750), and other variables.

Warrant Analysis should be completed for No-Build and Build scenarios for the Build-out year.

- Traffic Signal and/or multi-way-stop-control warrant analysis of unsignalized intersections (can be a brief statement if traffic volumes are low).
- Turn-lane warrant analysis.
- Access spacing of the proposed accesses from the nearest crossing roadways.

Discussion of the results.

Identify issues by comparing the impacted facility with and without the development.

Mitigation measures if the traffic operational and safety issues are caused by the proposed development.

Conclusions and Recommendations.

TIS Appendices

All reports should include the following appendices, at minimum:

Summarized hourly traffic counts.

Traffic Capacity Analysis output reports showing delay per vehicle, level of service, and 95th-percentile queues.

Worksheets used in the analysis.

MULTIMODAL

Freight Rail and Transloading Facilities

The BNSF railway enables the movement of goods to and from the City of Dickinson. The Patterson Rail Terminal in the southwest of Dickinson provides opportunities for further industrial development. Freight movement is vital to both maintain the local economy and to provide Dickinson area residents and businesses with goods. However, the *North Dakota Freight and Railroad Plan* (2023) notes that tensions exist between freight rail movement and community livability, with freight rail activity being associated with unwanted noises, emissions, and vibrations, as well as introducing conflict with road-based vehicular modes such as cars, bicycles, and pedestrians.

Transportation and land use decisions in the areas surrounding both the BNSF railway and the Patterson Rail Terminal should reflect the reality of this conflict and introduce sufficient separation between these high-impact facilities and incompatible uses and roadway types. Future freight-related projects such as the proposed conceptual Southeast and Southwest bypasses should encourage efficient movements to and from these facilities while minimizing impact on the rest of the city.

Pedestrian and Bicycle Standards

A robust pedestrian and bicycle network provides numerous environmental, health, and quality of life benefits to the city. More people walking and cycling means fewer cars on the road, leading to improved air quality, decreased traffic congestion, and reduced road maintenance costs. Safe and abundant pedestrian and bicycle infrastructure allows residents to more easily lead active and healthy lifestyles. Multiple studies have found a direct correlation between active transportation options and obesity rates. In fact, the Centers for Disease Control and Prevention recently named adoption of Complete Streets policies (as detailed in the following subsection) as a recommended strategy to prevent obesity.

Active transportation facilities also deliver economic benefits by reducing household costs associated with driving. Walking and cycling are inexpensive transportation alternatives for roadway users, including those who are unable to drive or who lack access to a vehicle. A recent study found that most United States families spend far more on transportation than food.

Dickinson already has a network of sidewalks, bicycle facilities, and shared use paths (i.e., trails meant for both bicycles and pedestrians). Some of this infrastructure is oriented toward moving cyclists and pedestrians around the city; others, such as the Crooked Crane Trail and its planned connection to central Dickinson (MTP #35), are oriented toward recreation. Other multimodal projects currently recommended include extensions of the shared use paths along the west side of Highway 22 (MTP #42) and along 10th Avenue W (MTP #65).

COMPLETE STREETS

Complete Streets is a framework for street network design that promotes context-sensitivity and emphasizes safety and mobility for all roadway users, including pedestrians, cyclists, and motorists. In order to cement the City's and elected leadership's dedication to improving transportation safety, environmental quality, and livability, it is recommended that a Complete Streets policy or resolution be adopted. This policy would implement a vision for streets and roads to be designed and maintained in a manner that is safe and comfortable for all users, and responsive to community needs.

Countless jurisdictions nationwide have implemented Complete Streets policies. For one such example within North Dakota, consider the Complete Streets Approach in the Bismarck-Mandan MPO's *Arrive 2050 Metropolitan Transportation Plan* (2024). There is no singular design prescription for complete streets; each one is unique and responds to its community context. However, Dickinson can prepare the following policies to ensure streets are not designed in the auto-centric

fashion currently found on many existing and proposed roadways within the city:

- Develop ordinances requiring all collectors or arterials to have sidewalks and either an on-street or adjacent bicycle facility depending upon roadway attributes such as speed, land use, and right-of-way.

PEDESTRIANS

A comfortable environment for pedestrians is essential for improving safety, reducing congestion, and generating vibrancy, especially in downtown Dickinson. While most of the city is well-served by sidewalks and shared use paths, numerous deficiencies still exist. Dickinson has been addressing these areas utilizing a dedicated sidewalk fund to improve overall pedestrian connectivity, mobility and accessibility while limiting the number of pedestrian crossing at uncontrolled locations due to the abrupt termination of a sidewalk.

It is recommended that the City adopt a comprehensive policy surrounding the construction and maintenance of pedestrian facilities such as sidewalks and crosswalks. Several projects are proposed that would improve the pedestrian environment along corridors such as Villard Street (MTP #37), Highway 22 (MTP #51), and 15th Street W (MTP #31). Interventions Dickinson can make to improve pedestrian safety and accessibility include:

- Consistent crosswalk marking at controlled and uncontrolled intersections.
- Intuitive wayfinding and human-scale signage, particularly in downtown Dickinson
- Curb extensions, pedestrian refuges, and corner islands, to reduce pedestrian crossing distances at intersections.
- Raised crosswalks, which serve to reduce traffic speeds.
- Rectangular Rapid Flashing Beacons (RRFBs)

The FHWA has found that streets designed with sidewalks and traffic-calming measures and treatments for travelers with disabilities improve pedestrian safety.

CYCLISTS

Cycling is not only a popular form of recreation, but a low-cost alternative to driving for short trips. Given the City's relatively compact geographic footprint, many driving trips within city limits could be replaced by cycling trips provided there are bicycle facilities that are safe and comfortable enough to encourage people to forego driving, and that said facilities form a complete network reaching all parts of the city. Residents in Dickinson would benefit from additional bicycle infrastructure, specifically paved shared-use paths and on-street bike lanes.

It is recommended that the city provides this infrastructure wherever possible, with a particular emphasis toward eliminating existing infrastructure gaps and connecting the City's various neighborhoods. Dickinson's streets are in most cases wide enough to reconfigure to add bicycle facilities such as bike lanes while generating minimal impacts on traffic flow and street parking. Specific bicycle infrastructure projects are recommended along corridors such as State Ave (MTP#63), Broadway (MTP#64), and Fairway St (MTP#48). Many such enhancements will have the dual benefit of reducing traffic speeds, improving roadway safety for all users.

Passenger Rail

The Big Sky Passenger Rail Authority (BSPRA) entered the Federal Rail Administration's Corridor ID program in 2023. This organization is currently leading the charge to establish a new passenger rail line between Minneapolis and Seattle, following an existing freight rail alignment that passes through Dickinson. This rail service would create jobs, improve intercity mobility, provide safe and affordable transportation for commerce and tourism, and generate economic returns to the region, bringing visitors not only to Dickinson but to Medora,

Theodore Roosevelt National Park, and the Theodore Roosevelt Presidential Library which is scheduled to open in 2026. The city should work with the BSPRA to promote the establishment of this line with a station in Dickinson.

Dickinson should pursue opportunities to connect the passenger rail to the City of Medora via bus or micro-transit (e.g., shuttle van), which could also serve the airport and lodging destinations. Medora does not currently have the lodging capacity for increased tourism and therefore Dickinson must continue to serve as the gateway to tourism in the region.

Transit

Public transportation provides a low-cost alternative to driving and serves as a lifeline for the City's most vulnerable residents. Dial-a-ride service and service to Bismarck is provided by Dickinson Public Transit and intercity bus service is provided by Jefferson Lines. Currently, there is no fixed-route transit within the City of Dickinson, making it the second-largest city in North Dakota to lack such service, next to Williston. Given the region's growing population, the City in conjunction with Dickinson Public Transit should consider establishing one or more fixed transit routes serving key facilities and employers within the city such as Downtown Dickinson, Dickinson State University, Prairie Hills Mall, and the Museum Center, and/or connecting to major destinations outside city limits such as Medora and the Dickinson-Theodore Roosevelt Regional Airport.

FUNCTIONAL CLASSIFICATION

The current functional classification system for Dickinson was analyzed following the 2020 census to determine how closely the percentages of roadways for each classification fall within the percentages recommended by the FHWA. A summary of the system was discussed in the Existing Conditions element of the plan. Some urban system roads needed to be reclassified to suit future growth within the UAB and better align with FHWA recommended system percentage guidelines. These changes were made concurrently to this planning process. Dickinson functional classification percentages approximate the federal recommendations. **Table 10-5** reflects the comparisons.

Stark County Functional Classification System

Within Stark County's jurisdiction, NDDOT classifies US Highway 85, ND Highway 22, and ND Highway 8 as rural minor arterials. Stark County also classifies Highway 10 as a minor arterial, since it functions more similar to state/federal highways as compared to other County maintained roads. The remaining County roads are classified as rural minor arterials (i.e., ND 22 Bypass), rural collectors or rural local roadways. Many of the county rural collector roads provide direct access to property with local county roads serving short, local trips.

When growth and development necessitate change e.g., an expansion of the UAB), the City of Dickinson should work with Stark County (and/or Dunn County) as needed on functional classification changes to ensure congruity of functional classifications between the two jurisdictions.

Table 10-5. Functional Classification

FHWA FC	CURRENT SYSTEM %	FHWA RECOMMENDATION %
Interstate	3.36%	1%–3%
Principal (Major) Arterial	6.86%	4%–9%
Minor Arterial	13.82%	7%–14%
Collector	17.40%	6%–32%
Local Streets	58.56%	62%–74%

TRANSPORTATION RECOMMENDATIONS

A significant amount of costly transportation system improvements recommended in the Transportation Plan are directly attributable to expected or forecast development. Transportation recommendations are provided below to identify traffic impacts generated by development and require the land developer to contribute to the needed transportation improvement costs. In addition, there are several programs recommended in the Implementation chapter that would require developers to contribute funding for transportation projects needed to accommodate development.

- The proposed Functional Classification Map (**Figure 10-1 on page 158**) provides general alignment of future roads. Significant deviations from the road alignment shown on the **Future Functional Classification and Proposed Bypass/Truck Route Map** shall require a Comprehensive Plan amendment approved by the City Commission. Additionally, the proposed Functional Classification Map shall provide the basis for required right-of-way dedication for new or expanded roads. City staff uses the Functional Classification Map while reviewing proposed subdivision plats. Staff have found instances where due to natural physical constraints, it would be difficult if not impossible to achieve the proposed future road alignment.
- Traffic impact studies shall be required for any proposed development estimated to generate more than 100 directional trips during the peak hour of the traffic generator or peak hour on the adjacent streets or more than 750 trips in an average day. The traffic study shall be based on peak hour traffic and both capacity or operational and safety factors shall be studied. Traffic impact studies shall be prepared under the supervision of a registered professional engineer. The City requires traffic impact studies on a case by case basis.
- The land development applicant shall be responsible for providing improvements to the transportation system that are generated by the proposed development. In lieu of providing the transportation improvements needed, the City Commission may require the applicant to provide the City with a financial contribution based on the proposed development's proportional impact on the transportation system. In such cases, the applicant shall submit a cost estimate accounting for inflation and contingencies, of needed transportation improvement(s) prepared by a licensed engineer. The cost estimate shall be subject to review and approval by the City Engineering Department. The proportional transportation impact contribution shall be equal to the ratio of estimated peak hours trips generated by the proposed development and the existing peak hour trips times the estimated cost of the needed transportation improvement(s). The development order or development agreement shall specify when the needed transportation improvement(s) shall be constructed or when the proportional transportation impact contribution shall be submitted to the City. This policy shall apply to all streets within Dickinson's extra territorial area with exception of I-94.
- All land development applications shall comply with access management standards contained in the Transportation Plan. The City may grant relief from the standards when there is no practical way to achieve the standards. City staff require land development applications to comply with access management standards contained in the Transportation Master Plan.
- Streets in new development shall be aligned to connect to existing or planned streets beyond a development. This needs to be determined during the staff review process.
- A minimum of two accesses shall be provided for residential subdivisions unless otherwise allowed by Fire

Department requirements or standards. As this is a public safety issue staff usually requires either two access points for residential subdivisions or a cul-de-sac that is wide enough to accommodate emergency vehicles.

- When a proposed land development abuts vacant or undeveloped land with the same future land use classification, through streets shall be constructed to the abutting property line. The land development application shall include an off-site survey of existing conditions extending a minimum of 500 feet from the property line to ensure the future feasibility of extending the street into the abutting property.
- When a proposed land development fronts an existing or planned street where a trail is planned in accordance with the Master Trail Plan, subject to the Dickinson Park Board's recommendation, the applicant shall dedicate sufficient right-of-way to accommodate construction of the trail. The applicant shall be responsible for construction of the trail or in lieu of constructing a 10-foot wide trail and subject to the Dickinson Park Board's recommendation, the City may allow the developer to construct a sidewalk and grade the area abutting the sidewalk to facilitate the future widening of the sidewalk to a 10-foot wide trail.
- When practicable, proposed developments shall construct off-site sidewalk extensions when the termination of an existing sidewalk is within 700 feet of the project boundary, provided there is sufficient right-of-way along the adjacent properties and the adjacent proposed are developed with an urban use.
- All new roads shall be designed consistent with the roadway cross sections contained in the Transportation Plan. The City requires all new roads be designed consistent with the roadway cross sections contained in the Transportation Master Plan.
- All new streets shall require sidewalks designed with a grass boulevard separating the curb or edge of pavement and the sidewalk. This has yet to be implemented on a consistent basis.
- All non-residential development and multifamily residential development shall provide adequate bicycle parking and access to encourage bicycle travel. Bicycle parking should be located to provide convenient access to building entrances and other destinations. The City shall amend the zoning ordinance to provide specific standards for bicycle access and parking facilities.
- Integrate the character and identity of streetscape into the City's Street Manual standards.

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APPENDIX A. PUBLIC ENGAGEMENT COMMENTS

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Survey Question 7 Open Ended Responses

Why do you think course correction is needed for development?

QUESTION 7 CONTRIBUTION
Send road crew to school on how to maintain and plow. Invest in snow gates they work in big cities they should work here. Stop spending money on ideas that will be sitting empty in a year
Showcase “vibrancy” of town to retain younger families to the area. More lifestyle stores, activities. Absolutely IMPROVE the roads!
Neighborhoods were built rapidly to accommodate lightning fast growth. Now the corners that were cut are becoming evident. Road quality on the west side where Menards is located is poor.
Too much high density housing.
If the public high school is not addressed soon, this community will be in major trouble,
Fiscal responsibility, send leadership to other cities to see how they can change and improve Dickinson
More trails, biking paths, and more traffic lights at intersections
I believe more can be done with the building of a new high school and better roads. Two foundations for a community to thrive. We are behind the area in these two items.
to be inspecting road projects as they get backfilled the roads settle so bad because the city does not require compaction test as they add lifts. also more consistency in the building inspections not all codes apply to everyone the same
I think there needs to be more public trails to unify the city a little better. There are developments that are annexed into the city but essentially have no access besides driving. There should be walking/bike paths connecting the city.
Add a stop light on 12th St W and State Ave
There is no consistency/rhyme nor reason to what’s being done. The good old boys club does what’s best for them not what is best for John Q Public.
So many of the streets haven’t been maintained and the older parts have been forgotten when it comes to building new parks or community structures
There aren’t many kid/family related activities to do. Not everyone wants to just go on hikes or walk around town. More access and community involvement in activities for all disabled people.
It’s slow growth, but it’s great to see progression in moderation. More focus on downtown businesses, revitalizing downtown & the buildings. Make Villard great again.
I think change is never a bad thing, and I’m not sure Dix was prepared for how much growth there was
Many Roads are in poor condition for being fairly new

QUESTION 7 CONTRIBUTION
Fill existing subdivisions already okayed. No new ones till others start filling up. When 70% or so of street has houses built, make remaining lots put sidewalk in so we do t have walk on street Dickinson wanted boulevards, how about trimming trees
We no longer live in an oil boom but are taxed like it.
The high school should have been rebuild. We NEED a homeless shelter. MORE sober living facilities.
Dickinson needs more options for food and entertainment. Also there needs to be some fixes in the traffic system.
trees are being removed from parks and the lack of any shade has emptied out some parks
Inflation and the cost of everything including rent is out of hand
Lots of the “new roads “need repair bad
Snow removal can be improved; desperately need some roundabouts in town.
Population growth
Imbalance of development in a number of areas, not limited to, but including, affordable housing, commercial, and recreational opportunities.
Diversification in businesses
The city needs to work on prioritizing traffic flow. Single-lane traffic everywhere can turn the streets into a veritable parade at times. The city needs to seriously look into the use of roundabouts and timbale lights at high-traffic intersections.
This text box does not allow me enough space to “speak”. But do remember Dickinson in 2010ish, and all the growth before I moved here. Traffic stinks, need more trails, parks....Ill stop here..
More activities for youth especially during winter
The removal of stoplights is getting ridiculous.
More food, retail, Medical and entertainment is nessacry
More planned use of existing green spaces and provision for future green spaces
Different silos within the city governance umbrella need to better communicate, partner with one another to assure more coordinated outcomes that benefit all sectors of the community and surrounding area.
For a town this small it takes entirely too long to go across it. Hwy 22 is a disaster, it should be 4 lanes with a turning lane all the way through town. East truck route by Pro build is a nightmare. I’ve sat waiting on a train for 4hrs in a truck before
To not blatantly remove stoplights. Some of us purposely go to a controlled intersection to cross busy areas safely.
Driving on any main road in Dickinson is an absolute nightmare
Changes need to be made

QUESTION 7 CONTRIBUTION
Need to focus on our youth activities. Need another sheet of ice, Dickinson misses out a a huge chance to hoist events and revenue
The city has not invited the public into a conversation
The education buildings are outdated and need major overhauls to attract and retain population. There is also a lack of extra curricular activities for seniors, a senior center is badly needed.
There has been a lot of growth meaning new education buildings are needed. There has been very few updates
The more we have grown the less amenities we have. We are a desert for shopping, medical care, etc.
The city is hard to work with when it comes to building things. When I first came here I built a garage and struggled with getting a permit and the lumber yard wouldn't give me materials until I had a permit. The delay cost me $10,000!
Walkability especially on the Southside or near the golf course to Patterson lake recreation area. Incentives for small business development expanded. Supports for women and new American entrepreneurs. Comprehensive program to help new Americans settle
Additional shopping options, Walmart monopolizes this community, and it is reflected in their pricing. With recent inflation, Walmart continues to raise prices higher than their other locations where they are not monopolizing the area.
Several residential roads are in need of repair. Traffic in some areas gets backed up, bottle necked several times of day.
Start including roundabouts at busy intersections
The flow of traffic through town is horrendous especially highway 22. Alternate Routes need to be addressed possibly widening some of the more used streets and adjusting speed limits.
The city is not bringing in viable stores/companies to keep families here. You have to go to Bismarck for everything. The already newly developed store fronts aren't even filled.
The amount of $$ being spent/programmed on various projects seems to be excessive. Do a # of programs need to continue just because the it/they has always been around? Ex: Dickinson Bookmobile - Are the surrounding towns paying any contracted amount??
Class sizes in school are too big.
Traffic flow and safety near schools, some housing developments were poorly planned with odd shaped lots and difficult names, some business developments have been built but sit vacant while new ones are being built in odd locations
Traffic flow due to the change of 4 lane artery's to 2 lane is no good!
My biggest concern is that there is no place for teenagers and young adults to hangout. Back in the 40s and 50s kids had the malt shop in the 80s it was the mall but when I look at Dickinson I don't see any thing for us young adults and the teenager.
Dickinson has a lot of boom-era policies in place that restrict lower income residents
Making it easier for businesses to come into Dickinson, and making it easier for current ones to grow here in Dickinson

Vision Board Ideas

RESPONSE
Consider a penny increase in local sales tax so that there is always funding for road improvements, other infrastructure needs, etc.
Offer some tax breaks to attract more businesses to invest in our community. Loosen “the reins” a bit so that there is economic growth.
Quality of life here is great. Wages, recreation - great. Housing not as much. City should offer incentives to builders to build homes.
Bring in more business that are not reliant on oil or ag. As these markets eb and flow so does employment. More finance, healthcare etc.
Roundabouts at 10ave e and 21st e also at 21st w and states also states and 40th st
Lake Patterson cleaned up and an aeration system installed to promote a healthier ecosystem.
A multi level free parking garage downtown to clear out all the cars parked along the roads that make most intersections downtown hazardous
Access to walkable places. (Connected sidewalks, year around clearing of paths, etc.). PLEASE add a path out to Sundance coves neighborhood.
More emphasis on revitalizing and bringing in businesses into Downtown - making it a more inviting space for businesses and residents.
More attention to adult rec sports. Anytime I ask others about their experience its mostly negative and most sports are losing teams

RESPONSE
Create a welcoming community for all ages where people can get engaged and make a difference with like-minded people and new perspectives.
Bring in some businesses that the community could really use! What happened to TJ Maxx?? All the hype and then crickets :-(Communicate!!!
Businesses and career opportunities outside the oil industry
Attract more commerce Update/add entertainment Roundabouts are real and work
1. Seek out more businesses that bring in skilled professionals. 2. Build a park north of 21st Street West. 3. Make traffic flow better.
My concern is the amount of farmland that has disappeared around Dickinson in the last 10 years. Log into farmland.org for more info.
Good morning, The community need that I'd like to see would be the addition of a Target shopping center & a dept store in the mall.
It would be nice to have a designated sledding area for the winter. Possibly with a warming house?
The mall needs to be upgraded and modernized and maybe have a food court. There is nothing appealing about it.
Bringing & keeping businesses here. KMM, Steffes, Fisher all growing outside of ND. Many businesses want to move in but need help from city

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APPENDIX B. FUTURE LAND USE ADDITIONAL INFORMATION

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Alternative Land Use Scenarios

The contrast between the alternative scenarios is minor, indicating that most existing land uses already assigned will continue to serve the community without change. The primary differences between each scenario are in the distance from the center of the City where most new development would be targeted, and in the total dedicated to specific uses by 2050 in each sector of Dickinson, as indicated by **Table B-1 on page 187**. The largest differences are in the amount dedicated to Low Density and High Density Residential, Commercial, and Industrial uses.

The location of forecasted development also changes from one scenario to the next. These vary by definition, due to the distribution of immediately available development sites across Dickinson. The more aggressive development outcome illustrated by Scenario A favors growth on infill and "close-in" sites first, because these are the most shovel ready, with utility and road access and other urban services in place. On the other end of the spectrum, the more gradual growth scenario—in Scenario C—favors some growth outside of the existing footprint but within Dickinson's urban service area.

Scenario A focused on infill first and utilized smaller parcels closer to the existing footprint of Dickinson. It required the least short-term capital investment of the three because the infill parcels already have utility and street access. Scenario B blended the infill strategy with the need to develop at the edges of Dickinson's existing footprint. Some infill parcels are utilized, however the commercial and larger homebuilder-attracting subdivisions by necessity use available greenfield sites. On the other end of the spectrum, the more gradual growth scenario--in Scenario C--favors some growth outside of the existing footprint but within Dickinson's urban service area.

SCENARIO A

Scenario A (represented by **Figure B-1 on page 188**) indicates a strategy focused on infill first; smaller parcels closer to the existing footprint of Dickinson are utilized first. Appropriate housing types may include denser and taller residential buildings, including duplexes, townhomes, apartments, cottage courts, and ADUs (Accessory Dwelling Units) sharing a lot with a primary home. See the ***Future Housing*** chapter for details on new home types that fit with Dickinson's character and that developers will be encouraged to add to the local housing market. This scenario requires the least capital investment of the three, as the infill parcels targeted first already have utility and street access.

Table B-1. Vacant Land Dedicated to Future Land Uses for Each Scenario

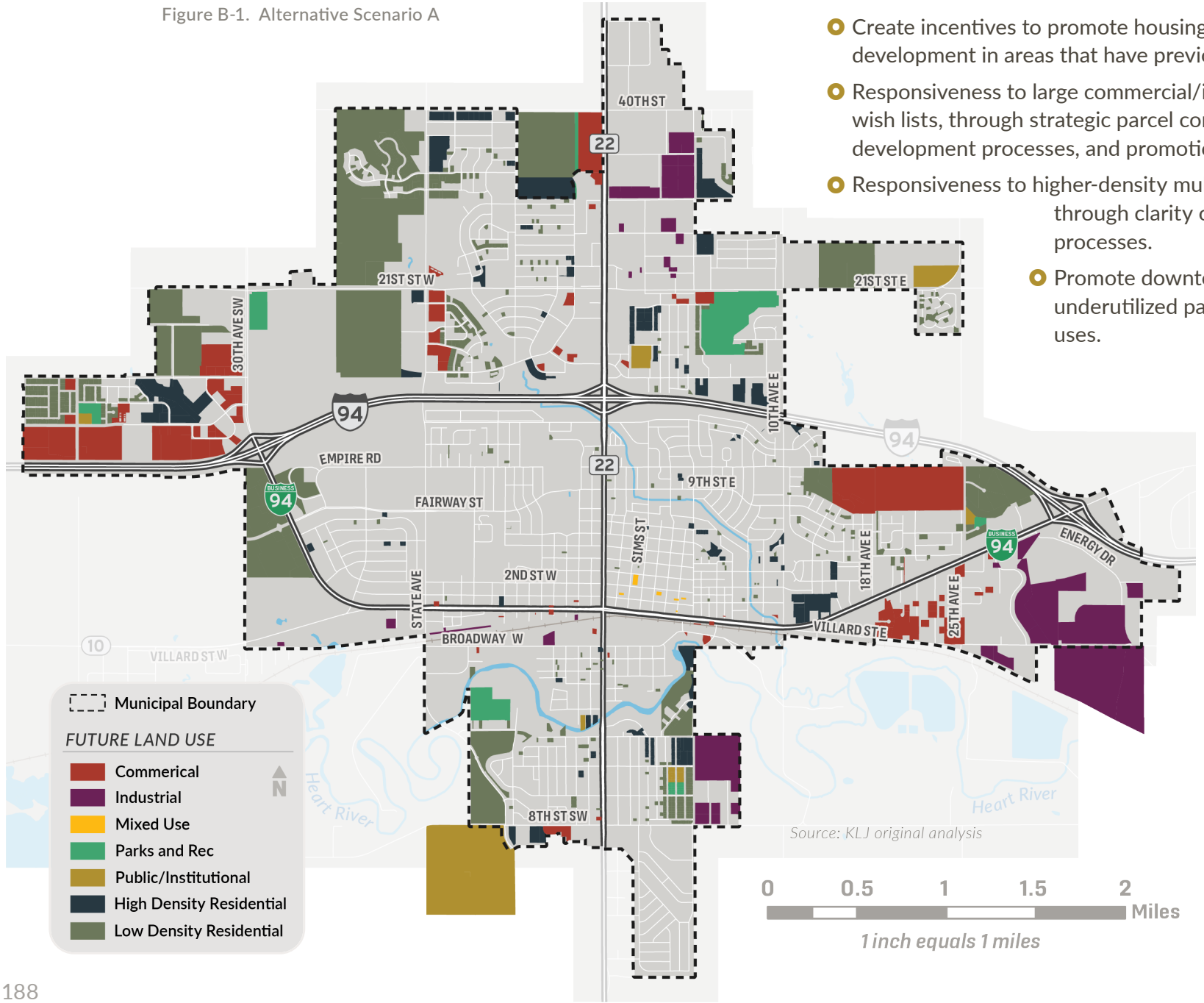
SCENARIO A							
SECTOR	1	2	3	4	5	6	TOTAL
Low Density Residential	52.2%	25.4%	88.1%	37.9%	59.3%	34.1%	46.9%
Mixed Use	0.0%	0.0%	0.0%	0.4%	0.0%	0.0%	0.1%
High Density Residential	8.5%	20.8%	6.9%	5.8%	10.8%	17.6%	9.9%
Commercial	18.8%	2.3%	1.2%	9.2%	5.7%	1.1%	12.1%
Public/Institutional	18.7%	8.8%	0.0%	0.5%	1.4%	3.1%	10.7%
Industrial	0.0%	21.3%	3.9%	45.9%	2.5%	41.7%	15.6%
Parks and Rec	1.7%	21.3%	0.0%	0.4%	20.3%	2.5%	4.6%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

SCENARIO B							
SECTOR	1	2	3	4	5	6	TOTAL
Low Density Residential	35.9%	41.6%	4.5%	37.4%	58.3%	24.3%	35.6%
Mixed Use	0.0%	0.0%	0.0%	0.4%	0.0%	0.0%	0.1%
High Density Residential	24.8%	12.7%	40.7%	3.0%	16.6%	13.3%	18.2%
Commercial	18.4%	3.3%	50.9%	11.2%	1.0%	1.1%	14.9%
Public/Institutional	20.3%	22.1%	0.0%	5.6%	1.4%	3.1%	14.3%
Industrial	0.0%	20.4%	3.9%	42.1%	2.5%	41.7%	14.7%
Parks and Rec	0.6%	0.0%	0.0%	0.4%	20.3%	16.5%	2.2%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

SCENARIO C							
SECTOR	1	2	3	4	5	6	TOTAL
Low Density Residential	21.5%	17.3%	4.8%	36.6%	60.4%	8.6%	24.6%
Mixed Use	0.0%	0.0%	0.0%	0.4%	0.0%	0.0%	0.1%
High Density Residential	45.5%	54.6%	89.5%	5.2%	15.8%	51.6%	38.9%
Commercial	14.3%	0.8%	1.8%	11.2%	1.0%	1.1%	9.9%
Public/Institutional	18.7%	14.6%	0.0%	0.5%	0.0%	2.5%	11.3%
Industrial	0.0%	3.9%	3.9%	45.9%	2.5%	34.3%	13.1%
Parks and Rec	0.0%	8.8%	0.0%	0.4%	20.3%	2.0%	2.2%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Source: KLJ Analyses

Figure B-1. Alternative Scenario A



Positioning Strategies

- Create incentives to promote housing and business development in areas that have previously been platted.
- Responsiveness to large commercial/industrial employers' wish lists, through strategic parcel combination, clarity of development processes, and promotion/marketing.
- Responsiveness to higher-density multifamily development through clarity on development processes.
- Promote downtown vacant or underutilized parcels for regionally serving uses.

SCENARIO B

Scenario B (represented by **Figure B-2**) blends the infill strategy with the need to develop at the edges of Dickinson's existing footprint. Some infill parcels are utilized; however, the commercial and larger homebuilder-attracting subdivisions by necessity use available greenfield sites.

Positioning Strategies

- Pair the consideration of future subareas with the CIP development process.
- Promote downtown vacant or underutilized parcels for regionally serving uses.

Figure B-2. Alternative Scenario B

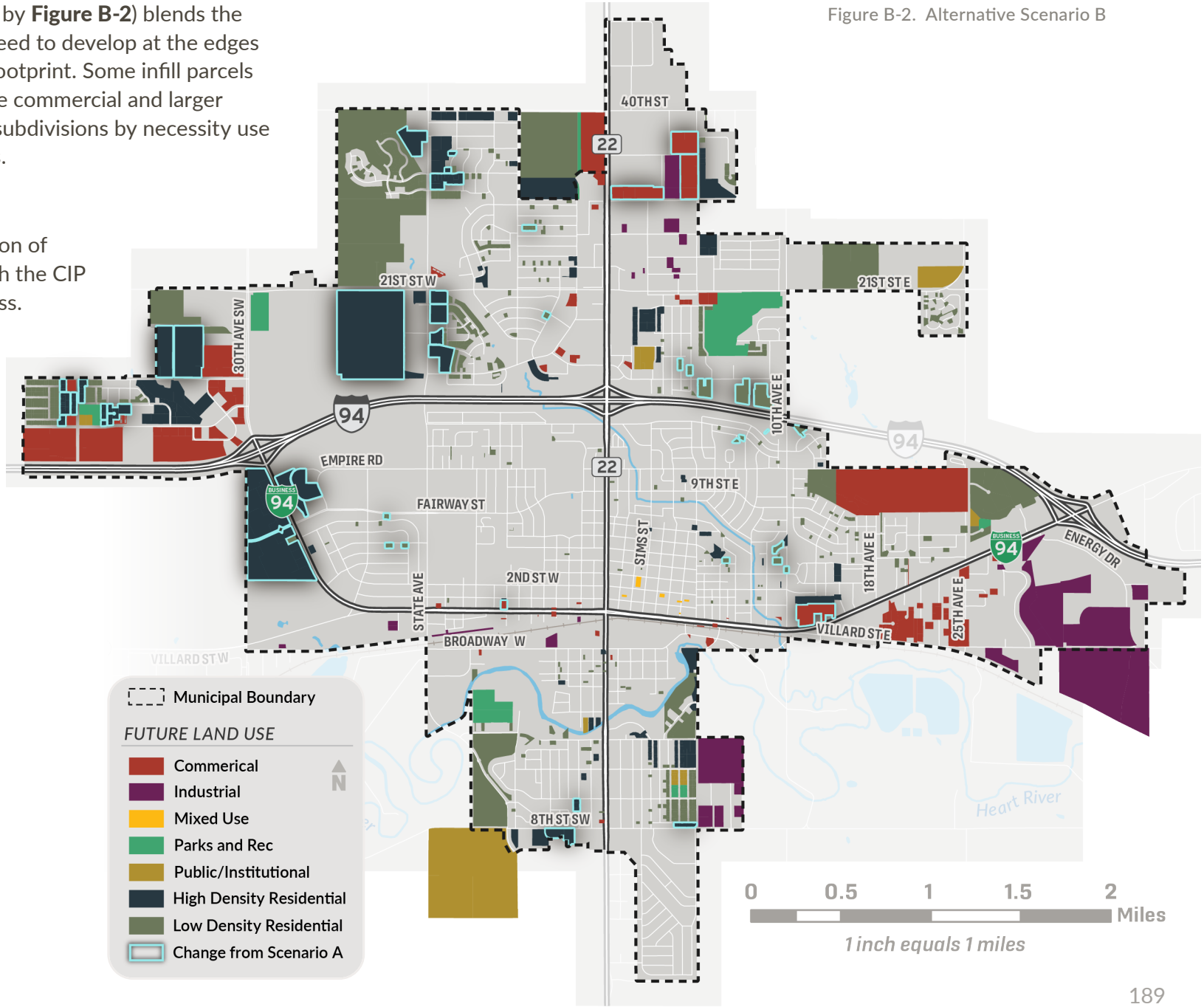
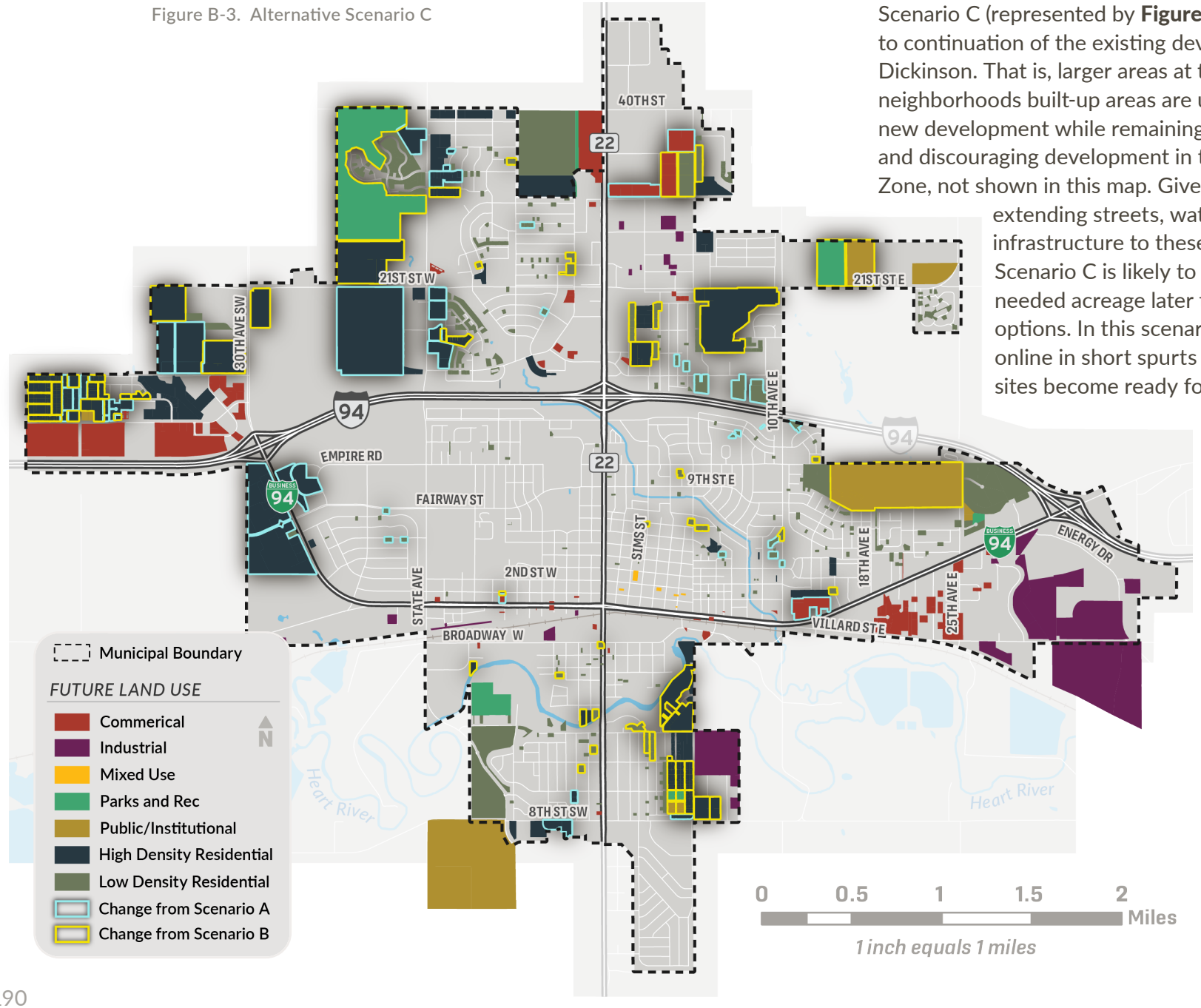


Figure B-3. Alternative Scenario C



SCENARIO C

Scenario C (represented by **Figure B-3**) is the closest to continuation of the existing development context of Dickinson. That is, larger areas at the edges of existing neighborhoods built-up areas are utilized to host most new development while remaining within the City limit and discouraging development in the Extraterritorial Zone, not shown in this map. Given the high cost of extending streets, water, sewer, and other infrastructure to these greenfield areas, Scenario C is likely to yield the projected needed acreage later than the other two options. In this scenario, additions come online in short spurts as currently vacant sites become ready for development.

Positioning Strategies

- Responsiveness to larger homebuilders' wish lists, through strategic parcel combination, clarity of development processes, and promotion/ marketing.
- Utilize the CIP as the primary tool for directing new growth areas.

A NOTE ABOUT PHASING

Phasing of development is likely to vary between the alternative growth scenarios, even if not necessarily by design. This is because infill sites are more shovel-ready (utilities, roads), and at their smaller scales require less in the way of financing, permits, development hearings, etc. As a result, Scenarios A and B indicate development that could occur sooner, if market conditions allow. This would potentially provide Dickinson with more opportunity sites to meet forecasted commercial and housing demand, and be ready for that development to occur sooner. Scenario C, by contrast, provides a more gradual solution to meeting the expected demand, not reaching the forecasted acreage totals for each land use until close to 2050.

Case Studies from Other Communities

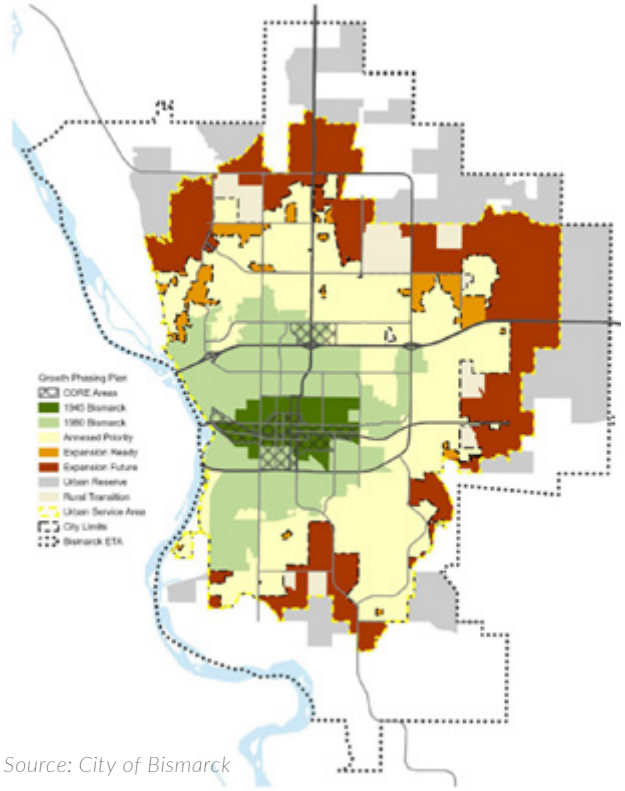
Bismarck, ND: SHAPE AND GROW

The Bismarck Together 2045 Comprehensive Plan was adopted in December 2022, containing Shape and Grow chapters that are most germane for understanding the City's growth management strategy.

The Shape chapter addresses land uses including those outside city limits. Goal S5 is to "Protect the rural character of existing and planned rural residential areas in Bismarck's Extraterritorial Area." Three policies related to this goal are:

1. Allow continued rural residential development of conventional densities only within areas designated as such within the Future Land Use Plan
2. Provide the option to develop rural residential clusters with urban densities in exchange for protected open space dedications that maintain an overall rural character of the area
3. Preserve the ability for rural residents to keep animals, gardens, and other agricultural practices appropriate to the scale of the lot.

Figure B-4. Growth Phasing Plan Map indicating the Extra-Territorial Area and Urban Service Area of Bismarck



Source: City of Bismarck

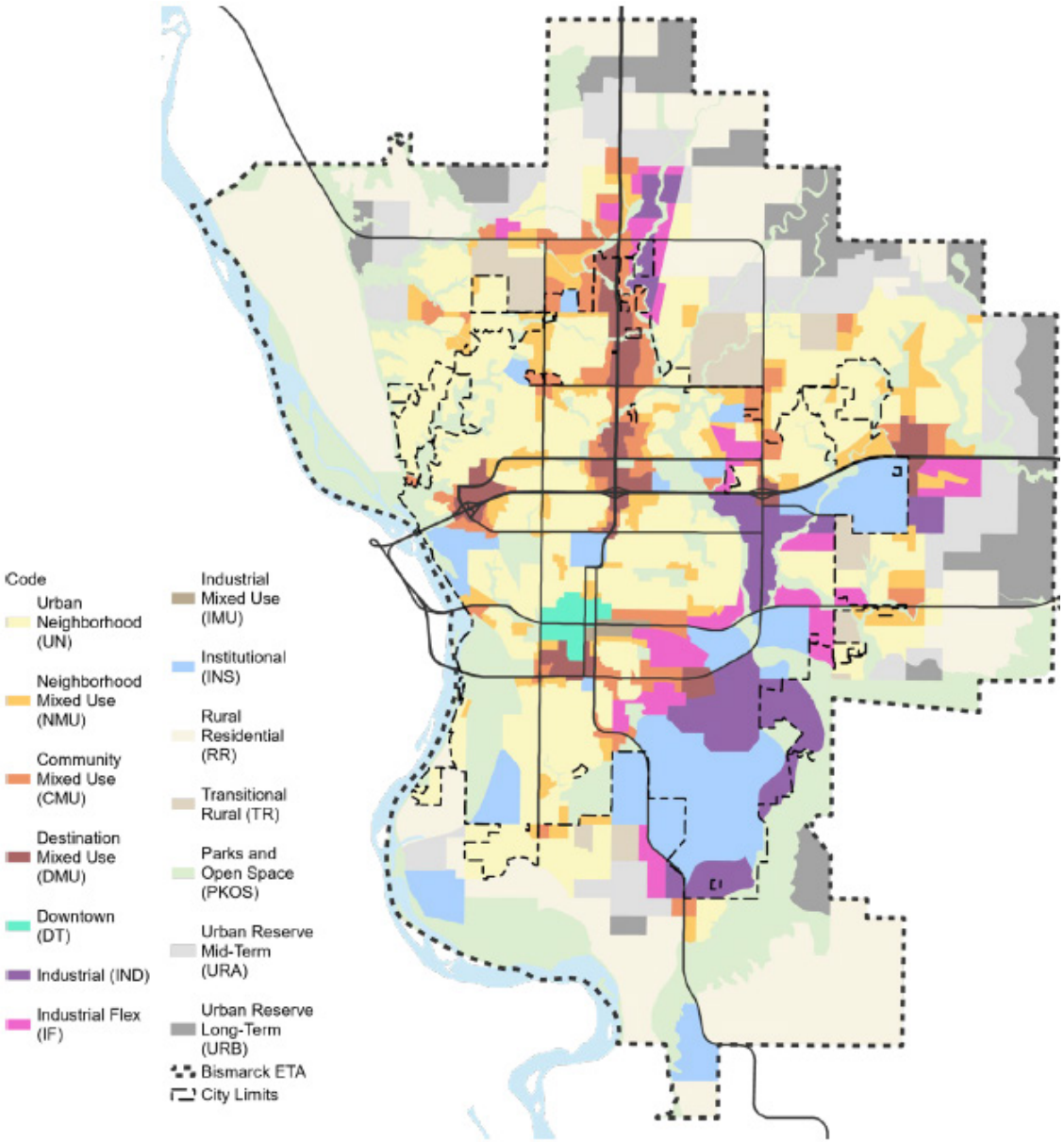
Together 2045 includes a map extending out to the limits of the city's extraterritorial area, as displayed in **Figure B-4**. Land use categories assigned to different parts of the Bismarck Extraterritorial Area include:

- Urban Reserve areas are suitable for urban development but are not projected to be annexed by the year 2045, which is the time horizon of the plan.
- Parks and Open Space are kept in a largely natural state, providing many important functions for the community and ecosystem.
- Transitional Rural are existing rural residential subdivisions in close proximity to city limits.
- Rural Residential are places for country living with convenient proximity to city life.

These categories are displayed in the full **"Bismarck Together 2045 Future Land Use Map" on page 193**. The Rural Residential land use category pertains to well established large lot single family residences typically located adjacent to agricultural uses with the expectation that potential impacts of agricultural operations are normal and acceptable.

The Transitional Rural land use category has a significant role in the approach to future outward growth. Its intent is:

> Transitional Rural areas retain similar internal characteristics to Rural Residential areas and are not expected to change significantly in the future. Potential effects of urbanization should be anticipated and proactively addressed. Roadways identified as collectors on the Major Street



Source: City of Bismarck

Plan should be designated and improved to carry through-traffic generated by surrounding areas. There may also be a need to route urban utilities through right-of-way or easements within the subdivision.

At some point in the next 25 years, annexation will likely be advantageous to both the City and residents of the Transitional Rural areas. Significant unannexed land inside city limits may cause confusion for emergency services and the general public, and police and fire response times will be faster from City agencies. Annexation would allow residents of the Transitional Rural areas to fully participate democratically in municipal governance that directly affects them.

Once annexation is imminent, a new zoning district should be created to legitimize the conditions of the Transitional Rural area as an urban subdivision. The City would work with residents to determine which site features should be improved to urban standards and which may remain in their current state. This would apply to water lines, septic or municipal sewer systems, road sections, stormwater management, sidewalks, streetlights, animal husbandry, and other features.

There may be one or more property owners within Transitional Rural areas who wish to further subdivide and redevelop their property at higher densities once urban services are available. Such redevelopment may be supported only if it is directly adjacent to existing or proposed urban development and all principles of this plan intended to ensure compatibility of adjacent low-density residential areas are followed.”

The Urban Reserve land use categories are established to reserve land that ultimately makes sense to be annexed and developed at an urban scale. Due to the long timeframe before annexing this land would be advisable, limited interim rural development is allowable under certain conditions that would support eventual urban development. One key condition is that any parcel(s) or site(s) considered for rural development should be at least 8.5 contiguous acres in size, which according to the authors is a scale known to be susceptible to redevelopment under standard market forces.

Specific goals of the Grow chapter that address the way development is preferred to occur are as follows.

Bismarck Together 2045 Goals

Bismarck's Together 2045 plan contains multiple principles with relevance for Dickinson Direction 2050. Goals that emphasize infill development and redevelopment before expanding outward, and that use a Growth Phasing Plan to guide future outward growth are:

Goal G1 is "Encourage infill and redevelopment of land already connected to municipal services." Four policies related to this goal are:

1. Apply urban design practices promoted in this plan to establish developments that add value, rather than detract from, their surroundings
2. Monitor actual off-street parking utilization and adjust requirements as necessary to provide redevelopment potential to existing parking lots with demonstrable lack of use
3. Maintain and publicize an inventory of developable vacant properties within city limits to reveal development potential
4. Encourage additional housing in the center of the community to support activity and eyes on the street for the majority of the day and night

Goal G2 is "Provide for a compact and orderly pattern of outward growth." Four policies related to this goal are:

1. Develop strategies to ensure orderly growth and development of the community by staging infrastructure extensions for efficient use of public investments in roadways, utilities, and other services
2. Prioritize annexation of tracts that are contiguous to city limits and easily provided municipal services, as identified as Expansion Priority 2 in the Growth Phasing Plan
3. Exercise zoning and subdivision authority within the City's extraterritorial area and periodically review this boundary with potential adjustments to align with expected growth
4. Evaluate the Growth Phasing Plan annually and adjust to account for actual pace and direction of growth

Goal G3 is "Coordinate expansion of city infrastructure and services with growth." Six policies related to this goal are:

1. Protect the financial interests of existing city residents and businesses by evaluating infrastructure expansion projects in terms of expected return on investment to the City or funding entity
2. Assure, prior to annexation, that adequate public facilities to support a proposed development are available or will be provided concurrently with development as service demands occur
3. Provide all municipal services, including roadways, water, sewer, stormwater, police, and fire protection equitably to all annexed land, unless certain service connections are clearly not feasible in the immediate future and both City and landowner mutually agree to forgo such services temporarily until readily available
4. Provide within all subdivision plats sufficient easements and rights-of-way to allow for orderly development and provision of municipal services beyond the boundaries of the subdivision.
5. Develop strategies to minimize disruption to nearby residents and

businesses because of public and private construction projects

6. Cooperate with the South-Central Regional Water District to seamlessly transition urbanizing areas from a rural to a municipal water system

Goal G5 is "Limit rural residential development within areas of expected urban development." The three policies supporting this goal are:

1. Preserve the ability of the City to expand its boundaries by strictly limiting rural development within the Urban Service Area of the Growth Phasing Plan, unless future urbanization is clearly feasible and agreed to by all parties
2. Allow large-lot rural residential development with a minimum lot size of eight and a half acres in areas identified as Urban Reserve in the Growth Phasing Plan, with the expectation that lots would redevelop with urban services upon annexation
3. Determine strategies to reduce development costs of large-lot rural residential subdivisions in Urban Reserve areas, in cooperation with Burleigh County Highway Department, to facilitate potential urbanization in the future

Goal G6 is "Facilitate an orderly transition of existing rural residential development close to city limits." The policies supporting this goal include:

1. Exercise sensitivity for areas identified in the Future Land Use Plan as Transitional Rural (TR) while planning for and entitling the surrounding urban development
2. Monitor need for transportation or utility extensions through Transitional Rural (TR) areas and implement when justified
3. Engage with residents of Transitional Rural (TR) areas at the appropriate time to determine mutually advantageous terms for annexation into City limits, including the potential creation of a unique zoning district based on these conditions
4. Provide walkability and connectivity for alternative forms of transportation upon annexation and urbanization of any Transitional Rural (TR) subdivisions

Together 2045 has a **Growth Phasing Plan** map that shows when areas of the Bismarck fringe and extraterritorial area are expected to annex and develop. The phasing is intended to summarize sequence of development and is not fixed in time. Timing for development is expected to be dictated by developers responding to market conditions. Three main objectives are attained with the Phasing Plan:

- **Aligns timing of Bismarck's Capital Improvements Plan and other funding with anticipated development phasing.**
- **Signals to landowners the long-term potential uses of land for the purpose of investment.**
- **Allows the Planning and Zoning Commission to identify developments that are premature, even if otherwise meeting objectives of this plan.**

The intended sequence involves four main categories:

1. Annexed Priority 1 represents land within city limits that is already served by municipal services, with limited exceptions.
2. Expansion Priority 2 represents land not yet annexed but capable of being served efficiently by municipal services with limited public or private cost. Land development in this area could potentially see City participation in the capital improvements.
3. Expansion Priority 3 involves land not yet easily serviced by existing infrastructure and municipal services, but could reasonably be expected to be annexed by the 2050 time horizon.
4. Urban Reserve represents all areas inside the extraterritorial boundary but not covered by the first three categories.

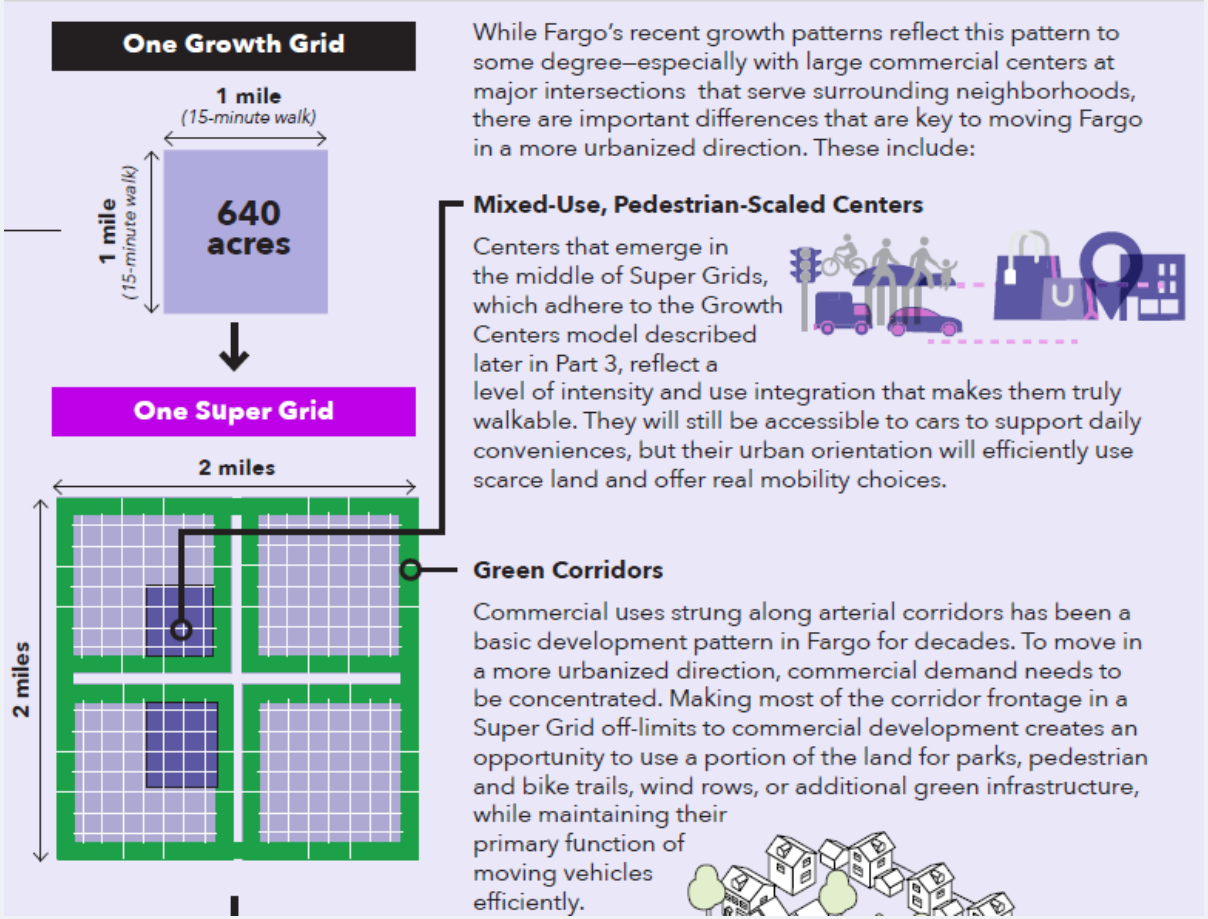
The first three categories are collectively called the Urban Service Area.

Fargo, ND: GROWTH PLAN 2024

The Fargo Growth Plan 2024 was adopted by the City of Fargo in August 2024. Due to the Diversion Project soon to be in place, vacant land protected from flooding will become a scarcer commodity than it is today. The City of Fargo has responded by encouraging increases in overall density in the City, seeking a goal of approximately one third of its future growth to occur via redevelopment and two thirds by expansion into undeveloped land.

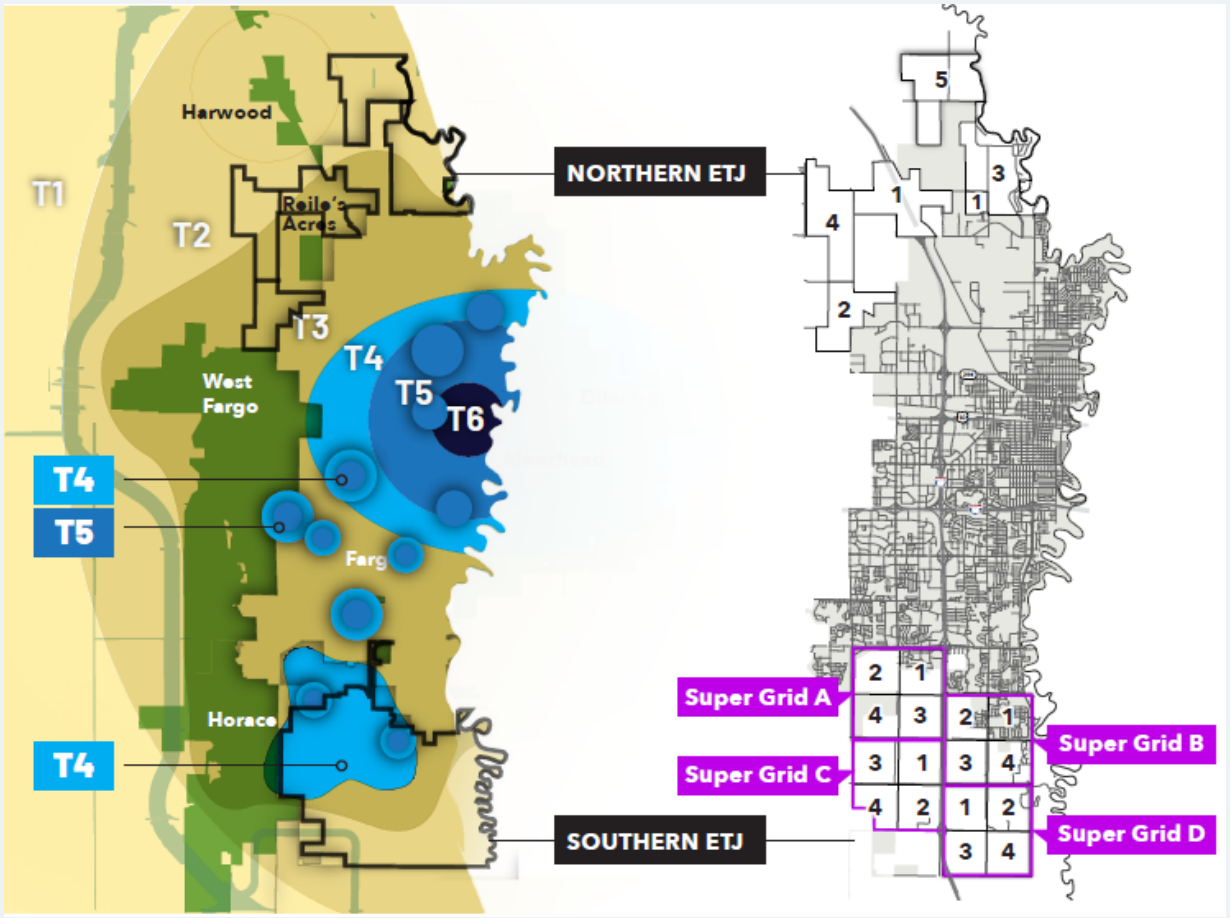
The City established four models for patterns of growth (transect, place types, a growth grid, and growth centers). The Growth Plan uses a transect and place types to define the type and intensity of growth it desires. It applies place type distribution in three different growth centers (regional, community, and neighborhood). The growth grid concept breaks down urban fringe and land in agricultural or other rural uses into a checkerboard and comprised of four Super Grids (each containing four growth grids). The intent is to promote development in one growth grid or section at a time. Once a super grid is 75% built out as defined by road and water infrastructure, the next Super Grid can start to receive development.

Figure B-6. Fargo's Super Grid Concept for Growth Management



Source: City of Fargo

Figure B-7. Application of the Super Grid Concept to Fargo's Extra-Territorial Jurisdiction



Source: City of Fargo

Direction 2050

CITY OF Dickinson North Dakota

Comprehensive Plan

APPENDIX C. INFRASTRUCTURE MASTER PLAN

Water Distribution 200

Wastewater Collection and Conveyance System 220

Technical Memorandum

Dickinson Transportation and Comprehensive Plan
Water Distribution

DRAFT

July 9, 2025

1.0 Introduction

In 2023, Kadrmas, Lee & Jackson, Inc (KLJ) entered into an agreement with the City of Dickinson to update the City's master transportation plan and comprehensive plan. As part of this agreement, KLJ teamed with Apex Engineering Group to evaluate existing capacities in the water distribution system along with future capacities and recommended capital improvements for the 2050 planning year. The future water demands are derived from the future land use, future planning area, and population projections as established in the KLJ comprehensive plan update.

The 2014 Water Utility Master Plan (WUMP) by KLJ is referenced as the basis of design for future infrastructure and improvements. The City's hydraulic water distribution model (model) was originally developed by KLJ in 2013. Since then, Apex completed a model update in 2019 and a full model calibration in 2021. The calibrated model was utilized to evaluate the existing capacities, future capacities, and capital improvements discussed in this technical memorandum (TM).

2.0 Existing Conditions

2.1 Water Treatment Plant

Water is not treated directly by the City of Dickinson but rather the City purchases finished water from Southwest Water Authority (SWA) operating under direction of the North Dakota State Water Commission. SWA operates a 12 MGD water treatment plant located in southwest Dickinson and a 6 MGD supplemental water treatment plant located adjacent to the larger plant, which serves SWA customers. These treatment plants use Ozone for a primary disinfection, quicklime for hardness, and aluminum flocculant for coagulation. The water is then stabilized, and fluoride is added for tooth decay resistance. Filtration then removes suspended particles. Finally, chloramines are then used as a secondary disinfectant to protect the drinking water during distribution to customers.

The City of Dickinson contract allocation from SWA provides up to six million gallons per day (6.0 MGD) per the 2014 Dickinson Water Utility Master Plan.

2.2 Water Distribution System

The Dickinson water distribution system consists of all indirect pumping systems. In indirect systems, pumping stations lift water to reservoirs or elevated tanks to make use of gravity to distribute the water. The distribution network consists of 156 miles of water distribution and transmission main ranging in size from 4" to 30", the majority of which is 6" and 8" diameter pipe. Watermain material in the water distribution system incudes asbestos cement (AC), cast iron, ductile iron, and polyvinyl chloride (PVC), with PVC being the most prevalent. Material types typically range in age from oldest to newest as cast iron, AC, and PVC. Ductile iron is primarily used around pumping facilities and some steel piping is used as casing pipe throughout the water distribution system. The Dickinson water

distribution system delivers an average of 2.2 million gallons of drinking water per day to the 25,000 residences across 4 different pressure zones. A map of the pressure zones can be found in Figure 2.

2.2.1 Pressure Zones

The City of Dickinson operates 4 pressure zones, 1, 2N, 2S, and 3N, which vary the hydraulic grade of the service area in order to provide adequate pressure and flow to customers. These pressure zones boundaries were developed to provide between 35 and 90 psi to customers based on the ground elevations within the zones. The varying topography throughout the service area require the variation of tower elevations and pumping facilities to raise the hydraulic grade between pressure zones. Pressure zones 1 and 2N operate off of elevated storage fed from pumping facilities in the pressure zone to fill the tanks. The overflow weir of the elevated tanks in pressure zones 1 and 2N maintain the HGL. Pressure zones 2S and 3N operate as closed pressure zones without storage and are maintained with pressure set points at the booster pump station facilities serving them. The HGL of these pressure zones is maintained by those pressure setpoints. The hydraulic grade level (HGL) of each pressure zone can be seen in Table 1.

Table 1 – Pressure Zone HGL Elevations

Pressure Zone	HGL (ft)
1	2,575’
2N	2,653’
2S	2,625’
3N	2,710’

Boundaries between the pressure zones are separated by closed gate valves that isolate the zones from one another. The exception to this is between pressure zones 1 and 2N, which incorporate 7 pressure reducing valves (PRV) along the boundary and supplement water into zone 1. There is currently not any monitoring equipment on the PRVs to monitor frequency or volume of flow between the pressure zones. Maps of the existing water main material and sizes are shown in Figure 3 and Figure 4 respectively.

2.2.2 Storage Facilities

The City of Dickinson currently has 7 storage facilities located throughout the distribution system. The total storage across all storage facilities is 4.863 million gallons (MG). This does not include the 6 MG raw water storage at the SWA water treatment plant. Storage within the water distribution system is used to provide consistent service to customers while providing storage for emergencies, fires, and supplementing pumping during peak flow demand. Details of these tanks can be found in Table 2.

Table 2 – Storage Facility Information

Existing Storage Tanks	Storage Type	Storage Capacity (Gallons)	Hydraulic Grade (ft)	Max. Level (ft)	Pressure Zone Served
10th Ave. E Tank	Ground	1,000,000	2,463’	31.25’	2N
State Ave Tank	Ground	525,000	2,653’	42’	2N
Young’s Tank (Rocky Butte)	Ground	843,000	2,578’	40’	1
East Tower	Elevated	500,000	2,578’	40’	1
4th Ave. E Tank	Elevated	500,000	2,575’	30’	1
North Tank	Elevated	500,000	2,651’	40’	2N
Northwest Tank	Elevated	1,000,000	2,653’	42’	2N

2.2.3 Pumping Facilities

Multiple pumping stations are situated throughout the distribution system. These pumping facilities serve the 4 pressure zones in the Dickinson water distribution system. Location of the pumping facilities can also be found in Figure 2. Detailed information regarding each pumping facility can be found below in Table 3.

Table 3 – Pumping Facility Information

Location	Pump No.	Rated flow rate (gpm)	Rated Head (ft)	Motor Size (hp)	RPM	Pressure Zone Served
Finished Water Pump Station	High Service Pump (3)	3,700	192	250	1800	1
10 Ave. E and Baker Ave. Booster Station	Booster Pump (2)	1000	120	40	1800	2N
River Drive Booster Station	Booster Pump 1	100	100	5	3530	2S
	Booster Pump 2	400	100	20	1760	
	Booster Pump 3	950	100	40	1780	
State Ave Booster Station	Booster Pump 1	150	100	7.5	3500	3N
	Booster Pump 2	500	100	20	1750	
	Booster Pump 3	1200	100	40	1780	
	Booster Pump 4	1200	100	40	1780	
	Booster Pump 5	1200	100	40	1780	

2.2.4 Existing Service

The goal of the City's water distribution is to deliver safe and reliable water to its customers. Acceptable pressure in a water distribution system is typically between 40 and 80 psi, where lower pressures may not deliver adequate service to properly use plumbing fixtures and higher pressures may cause plumbing fixtures to leak. Figure 2 shows the existing pressure contours from the City's water distribution system model for expected pressure during an average day. The water distribution system generally meets the acceptable pressure criteria, with the major exception being near the State Avenue Tank which is located on a hill and does not serve any customers in this area.

Fire protection is also an important service provided by the water distribution system. The City's goal is to provide 1,500 gpm of fire flow to R1 zoning, 2,500 gpm to R2 zoning, 3,500 gpm to R3 zoning, and 3,500 gpm to industrial and commercial zoning. These goals are taken into consideration when planning for watermain replacement and extending service to new customers in order to properly size water mains to achieve these goals.

Available service to new customers under existing and future conditions was evaluated using 2 methods, available pump and watermain capacity, and available flow at a minimum 40 psi pressure, for each of the 4 pressure zones. The available watermain capacity is determined by the remaining flow available based on velocity and headloss criteria established by the American Water Works Association (AWWA). These criteria are established to deliver sufficient flow in an energy efficient manner. The resulting capacities are shown in Figure 6 and are quantified as follows:

- Velocities of 4-6 feet per second or less.
- Headloss of 5-7 feet/1,000 feet for distribution mains 14" in diameter and smaller.
- Headloss of 2-3 feet/1,000 feet for transmission mains 16" in diameter and larger.

The City's hydraulic model was used to establish the available flows based on a minimum pressure of 40 psi in each of the 4 pressure zones. This represents the amount of flow available at the edge of the water distribution system on the pressure zone boundary available for development at the boundary elevation. Table 4shows a summary of the available flow at 40 psi in each of the 4 pressure zones.

Table 4 – Available Flow by Pressure Zone

Pressure Zone	Available Flow (gpm)
1	830
2N	615
2S	530
3N	1,020

Figure 1 – Existing Urban Service and Municipal Boundary

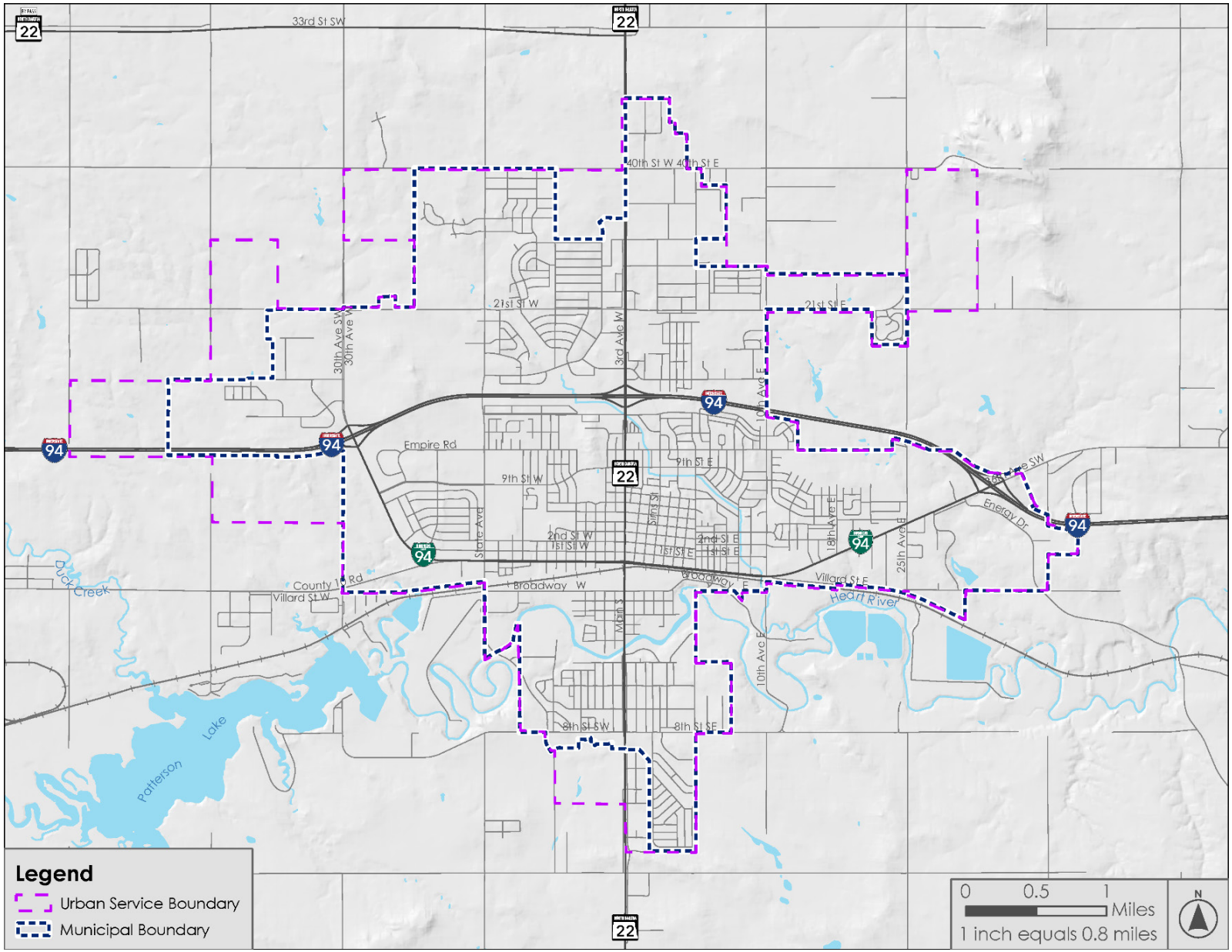


Figure 2 – Existing Water Infrastructure and Pressure Zone Boundaries

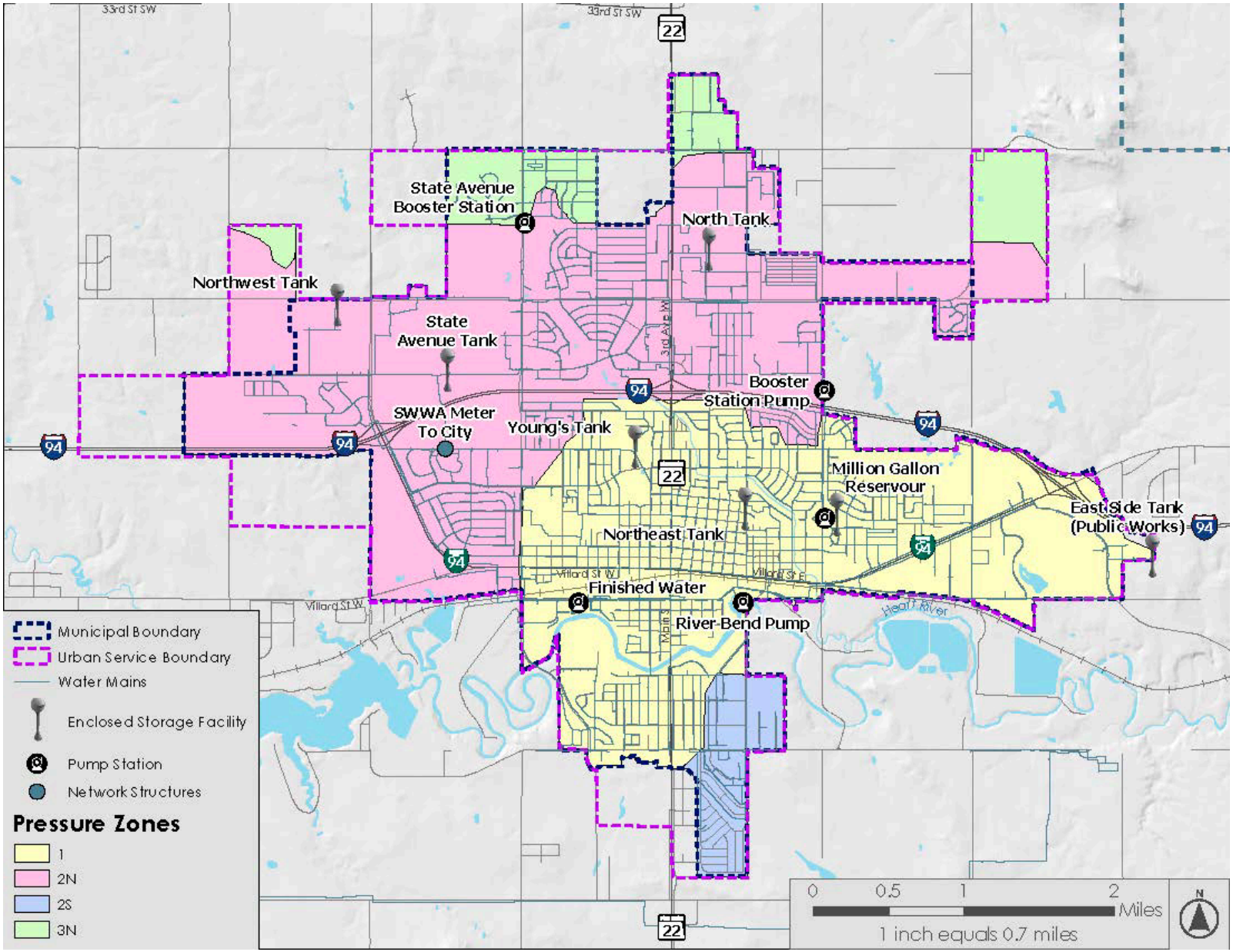


Figure 3 – Watermain Material Map

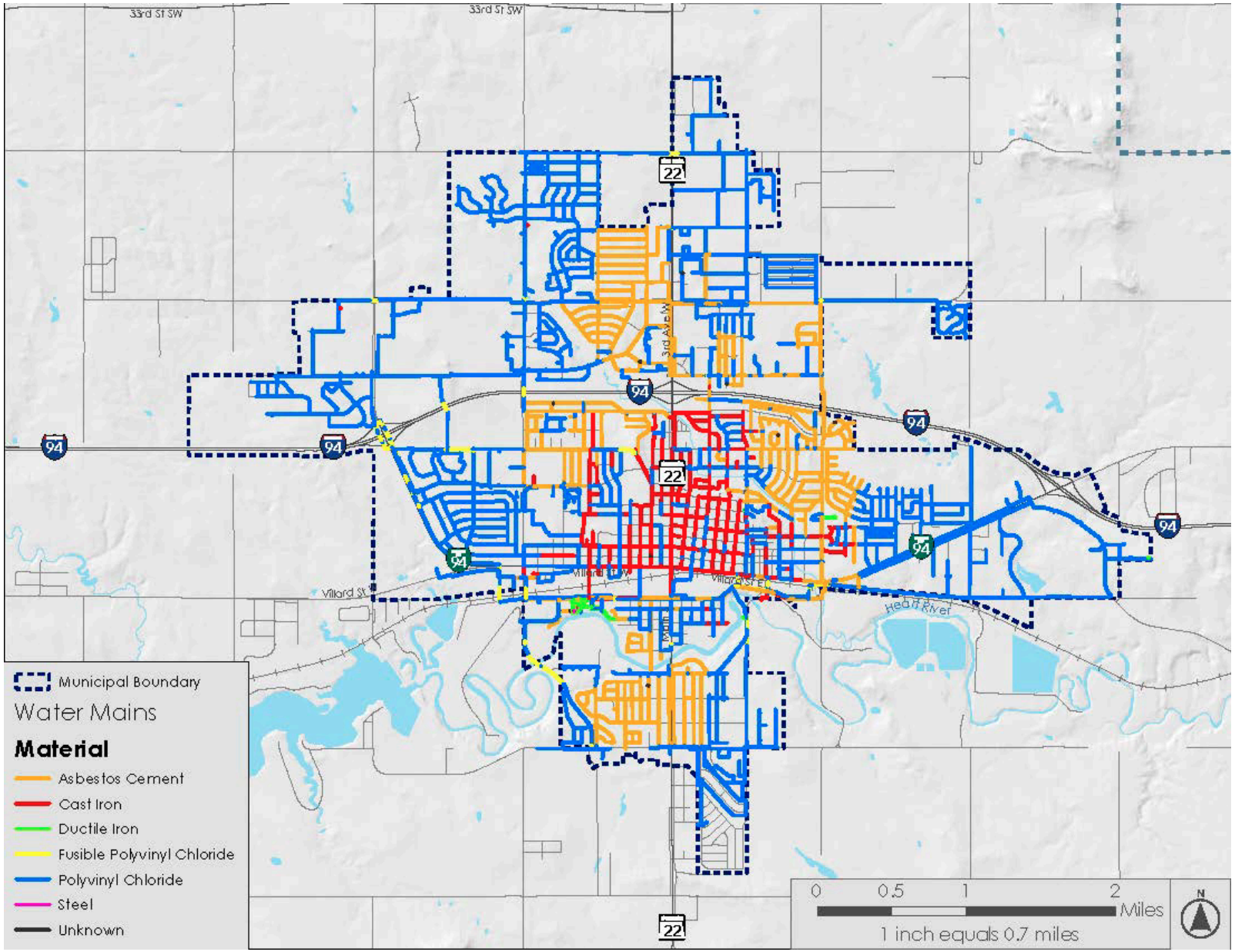


Figure 4 – Watermain Diameter Map

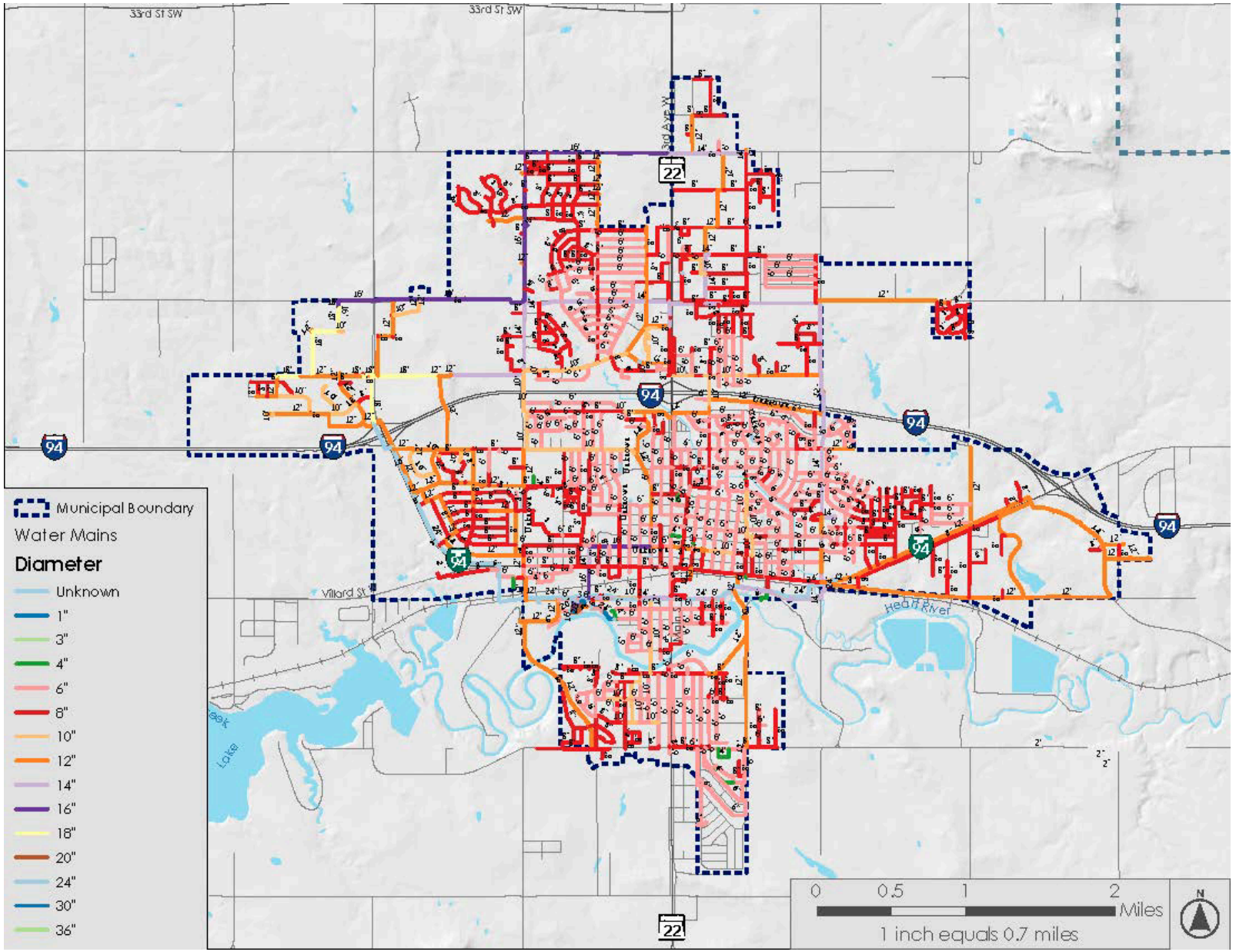


Figure 5 – Existing Pressure Contours

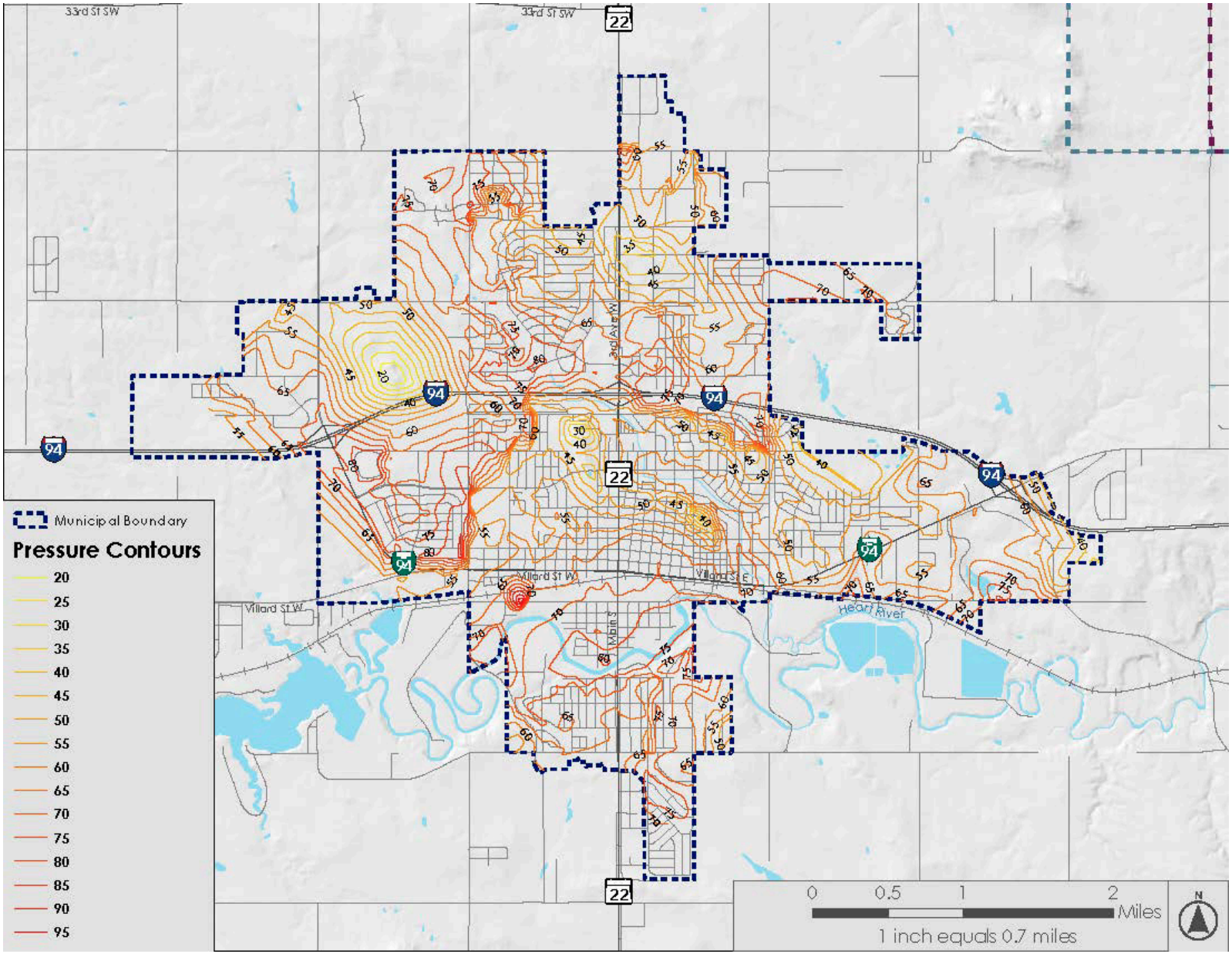
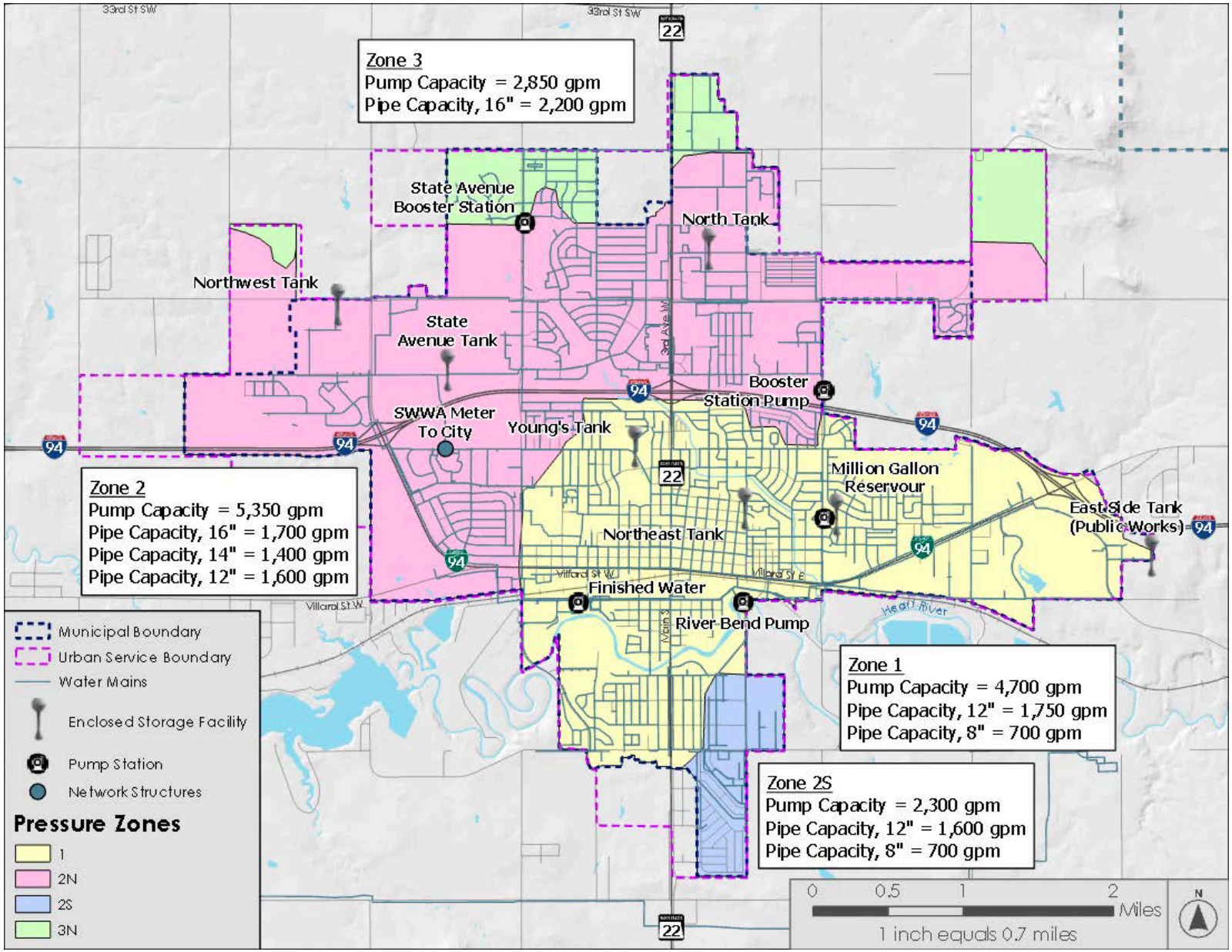


Figure 6 – Pressure Zone Capacities



3.0 Future Conditions

Using the Future Land Use and updated infrastructure planning area, acreages of developable areas in each pressure zone were calculated and future demands were determined. The effects of the future demands on the existing systems and recommended improvements to supply future demands are discussed below. The water infrastructure planning was completed within the framework of the existing 2014 Water Utility Master Plan and the calibrated water model from 2021. Watermain to serve future land use discussed and identified here are generally limited to transmission mains 12" and larger as finer details will be dictated by future development and plats.

3.1 Future Demands

Future demands were determined from the amount of developable land and land use type as identified in the future land use plan. The future demands were applied to the existing water distribution system to determine available capacity left in each pressure zone and identify recommended improvements to accommodate the increased demands. The map of future land use and pressure zones is shown in Figure 8. The total developable acres, land use type, and average gallon per acre per day (gpapd) for each pressure zone are shown in Table 4. The gpapd used for the varying land use types was the same regardless of pressure zone.

Table 5 – Future Land Use Acreage by Pressure Zone

Land Use Type	PZ 1	PZ 2N	PZ 2S	PZ 3	gpapd
Agricultural	68	653	0	128	0
Commercial	62	264	3	37	500
High Density Residential	46	292	14	35	1,500
Industrial	160	9	10	239	110
Low Density Residential	280	422	26	0	1,000
Mixed Use	1	0	0	0	1,350
Parks & Recreation	29	6	3	0	95
Public/Institutional	74	354	4	3	100
Total	**720**	**2,001**	**59**	**441**	**-**

Historical average day demands for each of the land use types in the City of Dickinson were applied to the future land use plan to determine capacities in each pressure zone. The resulting demands were applied to available flow determined in the Existing Conditions to determine remaining available flow or deficiencies. Table 6 lists the remaining available flow with the future flows applied to each pressure zone. These capacities are determined by availability of flow in transmission mains and pumping facilities. Each of the 4 pressure zones has sufficient capacity to accommodate future demands except for Pressure Zone 2N.

Table 6 – Future Available Flow by Pressure Zone

Pressure Zone	Available Flow (gpm)
1	545
2N	-100
2S	495
3N	805

Average day and maximum day future demands were based off a historical per capita demand of 120 gallons per day and a maximum day peaking factor of 2.06. Maximum day flows increase approximately 68% from existing maximum day to the 2050 future maximum day. The existing average day and maximum day demands are shown in Table 7.

Table 7 – Existing and Future Average Day and Maximum Day Demands

Demand	Average Day (gal)	Maximum Day (gal)
Existing	2,602,796	5,349,260
Future	4,373,880	9,010,193

3.2 Pressure Zone 1

Pressure Zone 1 is served via a 24" transmission main directly from the Finished Water Pump Station (FWPS). The majority of the future land development planned for Pressure Zone 1 is located on the east side of the service area which is generally served by sufficient transmission main and storage infrastructure. A 12" transmission main would need to be installed in the area of 10th Street E between 11th Avenue E and 25th Ave E to provide looping and adequate available fire flows to the future low density residential development.

3.3 Pressure Zone 2N

Pressure Zone 2N is served via a 24" transmission main directly from the FWPS and from the 10th Avenue E Tank through 2 booster pump stations in series along 10th Avenue E. The majority of the future land development planned for Pressure Zone 1 is located on the east side of the service area. The future capacity with existing infrastructure is deficient for this pressure zone, with an available capacity of -100 gpm. Modeling of future demands with existing infrastructure showed the North Tower is unable to remain full during maximum day demands. This is due to the capacity in the existing 14" transmission main from the 10th Avenue E booster pump station to Pressure Zone 2S. Past discussions with City staff regarding decommissioning the north 10th Avenue E booster pump station with improvements to the 10th Avenue E transmission main would be advised, while upgrading the firm capacity of pumps at the 10th Avenue E booster pump station to 2,000 gpm. Modeling of these improvements increased the available capacity in Pressure Zone 2N and maintained the North Tower levels.

As development progresses in Pressure Zone 2N, it is recommended to replace the existing 14" transmission main on 10th Avene E to a 16". Additional pumping capacity will be required and is recommended to

A significant amount of the future land development is located on the west side of the pressure zone. Extension of the existing 12" watermains in this area will be needed to serve the future area. Additionally, a 12" watermain extension to serve the area near Dickinson Middle School, south of 35th Street SW. A 12" transmission main extending from the State Avenue Tank to 35th Street SW will be needed to serve these areas as they develop.

3.4 Pressure Zone 2S

Pressure Zone 2S is served via the River Drive booster pump station in a closed pressure zone without storage. There is sufficient capacity in the existing booster station to supply future demands to the pressure zone. Future land development in Pressure Zone 2S is limited to infill within the existing infrastructure and does not require additional watermains. With no existing storage in the service area, the increased demands warrant evaluation of storage to satisfy emergency storage and fire flow requirements.

3.5 Pressure Zone 3

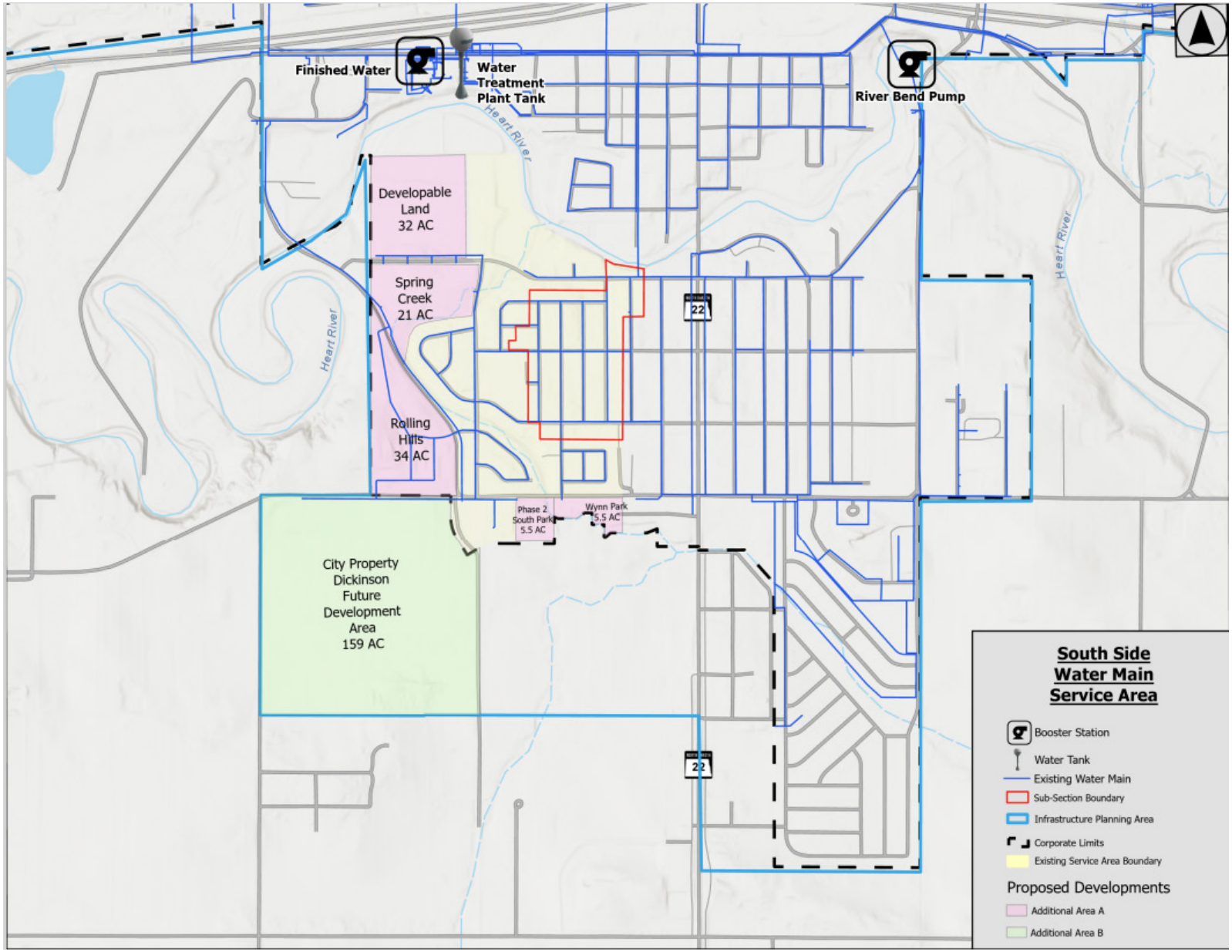
Pressure Zone 3 is served via the State Avenue booster pump station in a closed pressure zone without storage. There is sufficient capacity in the existing booster station to supply future demands to the pressure zone. There is a significant increase in demands with future development of 310,000 gallons per day. This significant increase can make operation of a closed pressure zone difficult without storage, along with the risk of pumping failure upstream of the pressure zone, inclusion of storage should be evaluated as this pressure zone develops further. The 2014 Utility Master Plan had identified a elevated storage reservoir northeast of the intersection of 40th Street and State Avenue outside of the Municipal Boundary. It is recommended to futher evaluate the location of a future storage reservoir within Pressure Zone 3 through an updated detail Water Utility Master Plan. A possible location is within the undeveloped property south of 40th Street and between 10th Ave West and 3rd Ave West.

3.6 Southwest Service Area

The Southwest Service Area is defined as the area south of State Avenue and west of 8th Avenue SW. This area is currently serviced by Pressure Zone 1 but has seen minimal development. A fire training station owner by the City of Dickinson is located within this area and has had limited fire flows due to its higher elevation relative to the pressure zone's service elevation. Development interest has occurred south of 8th Street SW and the area is shown in Figure 7. The Rolling Hills development has also been platted for the area north of 8th Street SW and west of State Avenue.

This area was previously identified in the 2014 Water Use Master Plan (WUMP) as being served by Pressure Zone 2S with a hydraulic grade of 2,625' as compared with the Pressure Zone 1 hydraulic grade of 2,575'. The varying elevations in the Southwest Service Area that exceed the service elevations for Pressure Zone 1 would concur with the WUMP as this area being in Pressure Zone 2S. Due to the area being segmented from the existing Pressure Zone 2S, a booster pump station providing pressure to the Pressure Zone 2S hydraulic grade to service the area separately would be required.

Figure 7 – Southwest Service Area



3.7 Finished Water Pump Station

The City of Dickinson purchases its water from the Southwest Water Authority (SWA) after treatment at the FWPS. Future demands indicate a maximum day demand of 9.01 mgd which exceed the current agreement amount for purchasing water. Future demands should be considered when negotiating allocation with SWA to ensure enough water is available to meet future demands. The 2014 WUMP also recommended an increase in allotment to at least 9 mgd in the event the FWPS capacity is expanded to 18 mgd. It is our understanding that these improvements to the FWPS are currently underway and would recommend increasing allotment to meet the projected 2050 demand of 9.01 mgd.

3.8 Improvements and Recommendations

Improvements and recommendations will be described individually with improvements organized by pressure zone and area. The recommended improvements in this section are all shown in Figure 9. The resulting pressure zone contours incorporating the recommended improvements is shown in Figure 10 All cost estimates in this section are based on 2025 dollars. Estimated costs for watermain are limited to excavation, installation, and material of watermain piping. Timing and trigger points of demands are not in the scope of this document and should be evaluated in further detail when the 2014 WUMP is updated.

3.8.1 Pressure Zone 1

Pressure Zone 1 improvements are limited to a 12” watermain extension along 12th Street E, totaling approximately 4,200 linear feet.

12” Watermain: $1,200,000
Total Estimated Cost: $1,200,000

3.8.2 Pressure Zone 2N

Pressure Zone 2N improvements include 12” watermain extension on the west side of the service area, upsizing of the 10th Avenue E transmission main, and improvements to the 10th Avenue E booster pump station. Improvements to the booster pump station include a new booster pump station building, pumps with a firm capacity of 2,000 gpm, controls, and emergency generator.

16” Watermain (10th Avenue E): $2,900,000
10th Avenue E Booster Pump Station Improvements: $2,400,000
Total Estimated Cost: $5,300,000

3.8.3 Pressure Zone 2S

Pressure Zone 2S improvements do not require any watermain extension or improvements. The inclusion of a 125,000 gallon water storage facility is recommended to stabilize pumped storage and provide emergency storage to the pressure zone.

Water Storage Facility: $350,000
Total Estimated Cost: $350,000

3.8.4 Pressure Zone 3

Pressure Zone 2S improvements do not require any watermain extension or improvements. The inclusion of a 250,000 gallon water storage facility is recommended to stabilize pumped storage and provide emergency storage to the pressure zone.

Water Storage Facility: $800,000
Total Estimated Cost: $800,000

3.8.5 Southwest Service Area Improvements

It is recommended the Southwest Service Area be served by a 750 gpm booster pump station, which includes 250 gpm capacity for the fully developed area and a 500 gpm fire flow. Watermain extension south of the 8th Street SW consists of 8” and 10” extensions from the existing 12” watermain.

8” Watermain: $510,000
10” Watermain: $600,000
Booster Pump Station: $800,000
Estimated Cost: $1,910,000

Figure 8 – Future Land Use Map

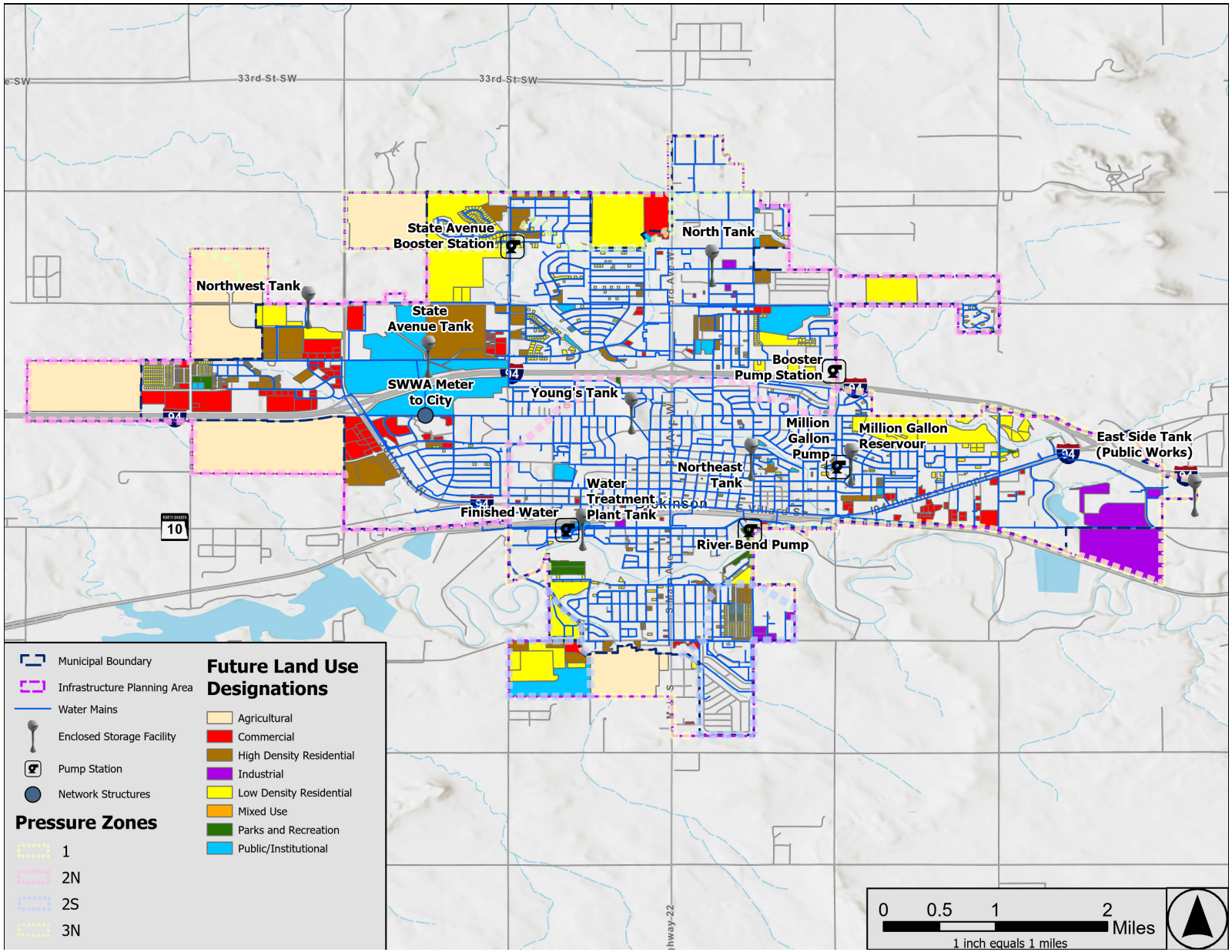


Figure 9 – Recommended Capital Improvements and Pressure Zone Boundaries

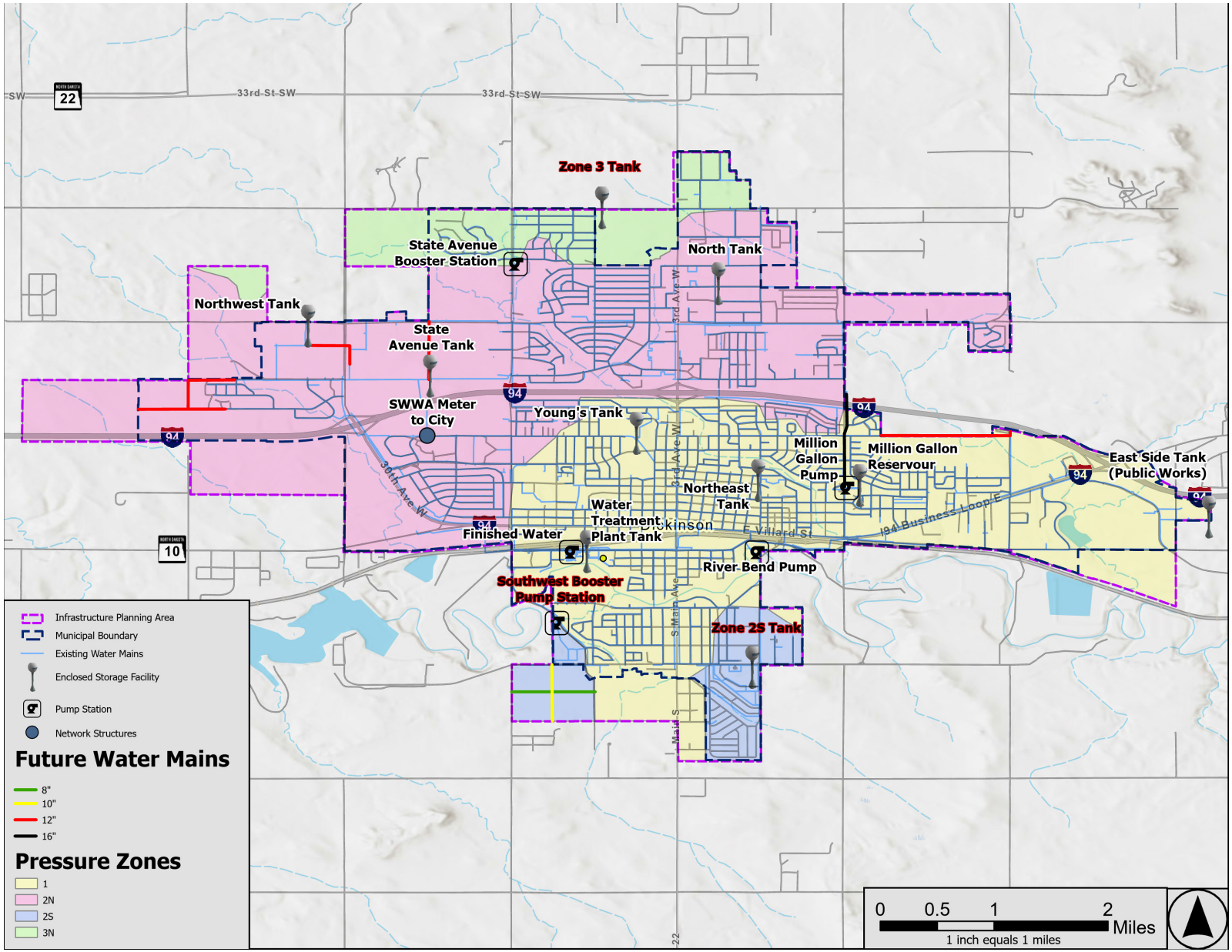
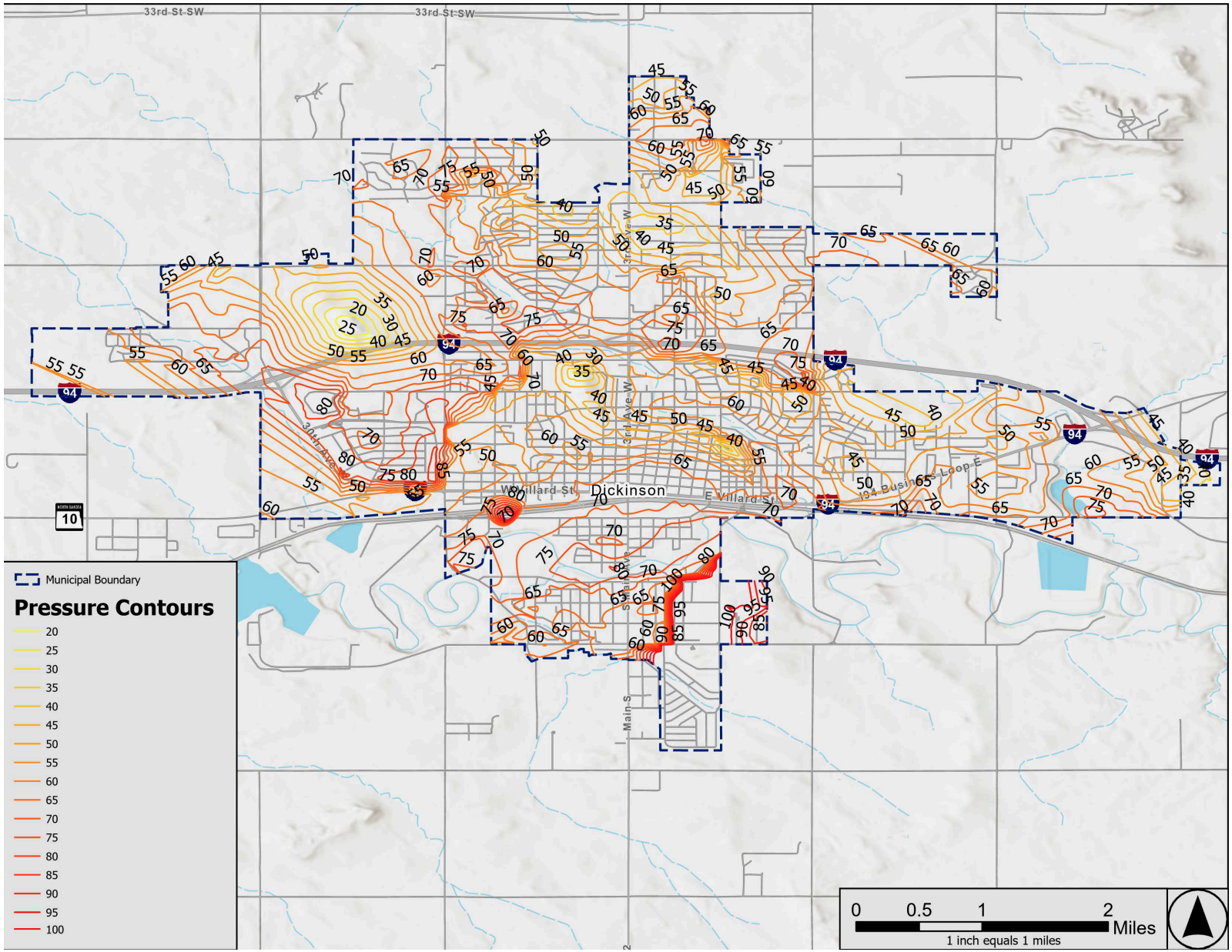


Figure 10 – Future Pressure Contours with Recommended Improvements



Technical Memorandum

Dickinson Transportation and Comprehensive Plan
Wastewater Collection and Conveyance System

DRAFT

July 14, 2025

1.0 Introduction

In 2023, Kadrmas, Lee & Jackson, Inc (KLJ) entered into an agreement with the City of Dickinson to update the City's master transportation and comprehensive plan. As part of this agreement, KLJ teamed with Apex Engineering Group to evaluate the existing capacities of the wastewater collection system along with future capacities and recommended capital improvements for the 2050 planning year. The future wastewater demands are derived from the future land use, future planning area, and population projections as established in the KLJ comprehensive plan update.

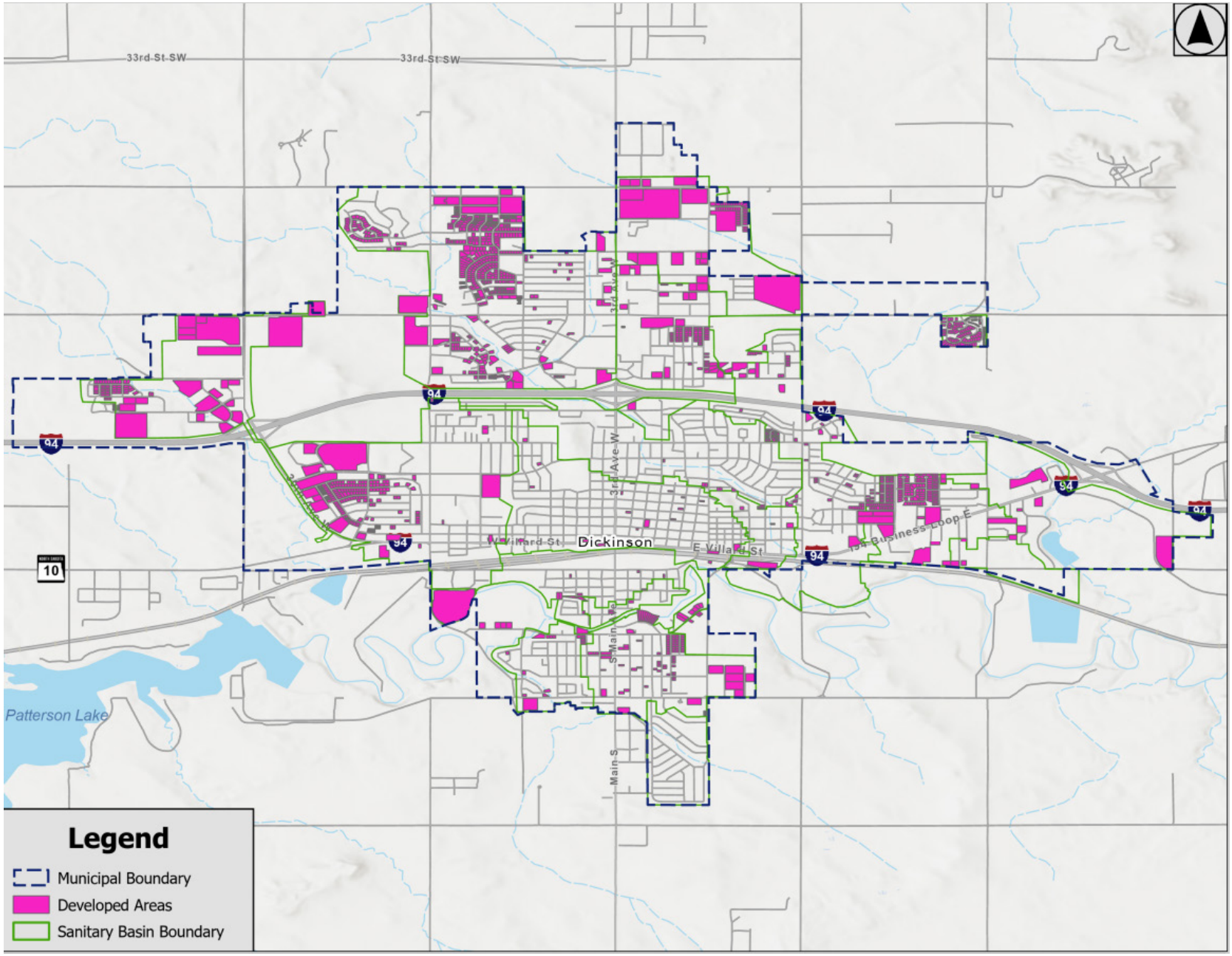
Various wastewater studies conducted by Apex between 2012 and 2023 are referenced as the basis of design for future infrastructure and improvements. Apex has been doing ongoing studies of the City's wastewater collection system to determine existing capacities, future capacities and capital improvement projects in coordination with City personnel. The results of these studies are discussed in this technical memorandum (TM).

2.0 Existing Conditions

In 2012 the City of Dickinson assessed the performance of the wastewater collection and conveyance system and, as a result, completed various capital improvement projects to meet the projected future demands. The purpose of this report is to evaluate the current wastewater collection system based on the development that has occurred since 2012.

To determine the additional demands on the sanitary sewer collection system, the locations, types and acres of development that have occurred since 2012 were determined based on aerial photography and building permits. The areas that have been developed since 2012 are shown in the following figure.

Figure 1 – Development Since 2012



Additional demands were then calculated using the following standard design criteria shown in Table 1.

Table 1 – Standard Design Criteria

Zoning		Average Daily Flow
Agricultural	0.1 DU/Ac	25 gpd/Ac
Rural Residential	1 DU/Ac	250 gpd/Ac
R-1 / Low Density Residential	4 DU/Ac	1,000 gpd/Ac
R-2 / Medium Density Residential	8 DU/Ac	2,000 gpd/Ac
R-3 / High Density Residential	16 DU/Ac	4,000 gpd/Ac
Mobile Home Residential	8 DU/Ac	2,000 gpd/Ac
Parks and Recreation		100 gpd/Ac
Public/Civic		800 gpd/Ac
Limited Commercial		80 gpd/Ac
Community Commercial		1,150 gpd/Ac
General Commercial		1,500 gpd/Ac
Downtown Commercial		1,500 gpd/Ac
Light/Limited Industrial		800 gpd/Ac
General Industrial		1,500 gpd/ac

Sources
1. "Wastewater Collection System Modeling" by Haestad
2. "Gravity Sanitary Sewer Design and Construction" WEF Manual of Practice No. FD-5/ACED No. 60.
3. City of Dickinson Zoning

Using the above criteria, planning level flows were calculated. The capital improvement projects that have been completed since 2012 have also been taken into account. The additional flows were added to the system and remaining capacities/deficiencies were determined.

The results of the evaluation of the current Wastewater Collection and Conveyance System are presented herein. This report does not evaluate the Water Reclamation Facility (WRF). At the time of this report, the WRF is the Facility Planning stages under a separate project.

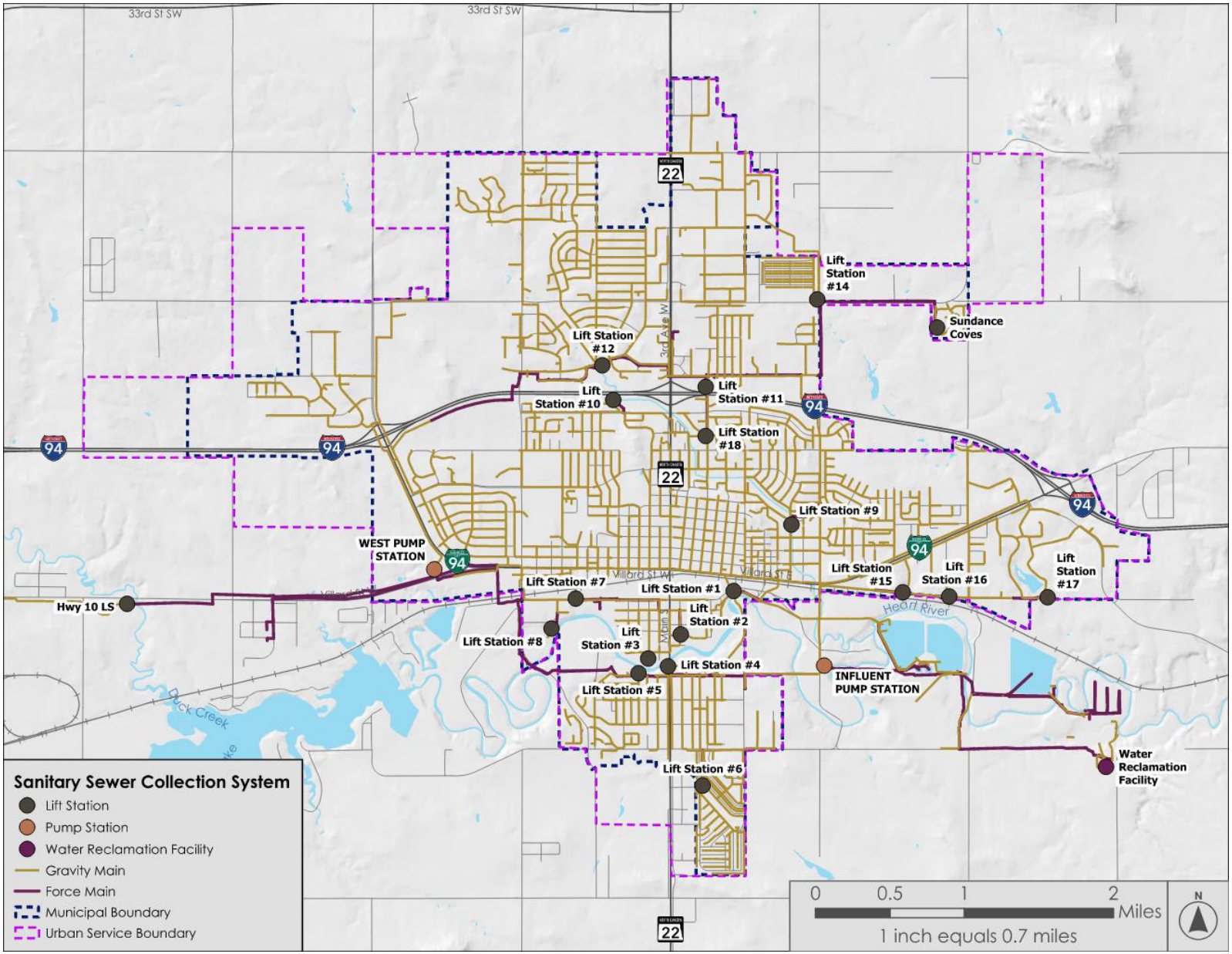
2.1 Sanitary Sewer Collection System

Collection system components are defined as follows:

- Basin/Sewershed – A service area where all wastewater flows are transported by gravity to a single location.
- Lateral – A pipeline that transports wastewater by gravity from an individual property to a main.
- Mains/Collectors – Pipelines that collect wastewater and transport it by gravity within a basin. Most public-sector sewer pipelines are described as mains or alternatively collectors.
- Force Main – A force main is a pipeline that conveys pressurized wastewater from a pump station.
- Lift Station / Pump Station – A lift station is a pumping facility where the predominant work being done is to lift the wastewater from a source and discharge it by gravity to a nearby location. A pump station is pumping facility where the work being done includes lifting the water and pumping it under pressure through a force main to a remote location. For purposes of this report, all wastewater pumping facilities will be referred to as lift stations.
- Trunk Sewers – This is a term often used for large sewer pipelines that convey flow across basin boundaries or collect flow from several individual basins.
- Interceptor – An interceptor is a gravity sewer that is installed to intercept wastewater flows in one or more established collection basin and transport that wastewater along a new route.

The City's Sanitary Sewer Collection System is shown in following figure.

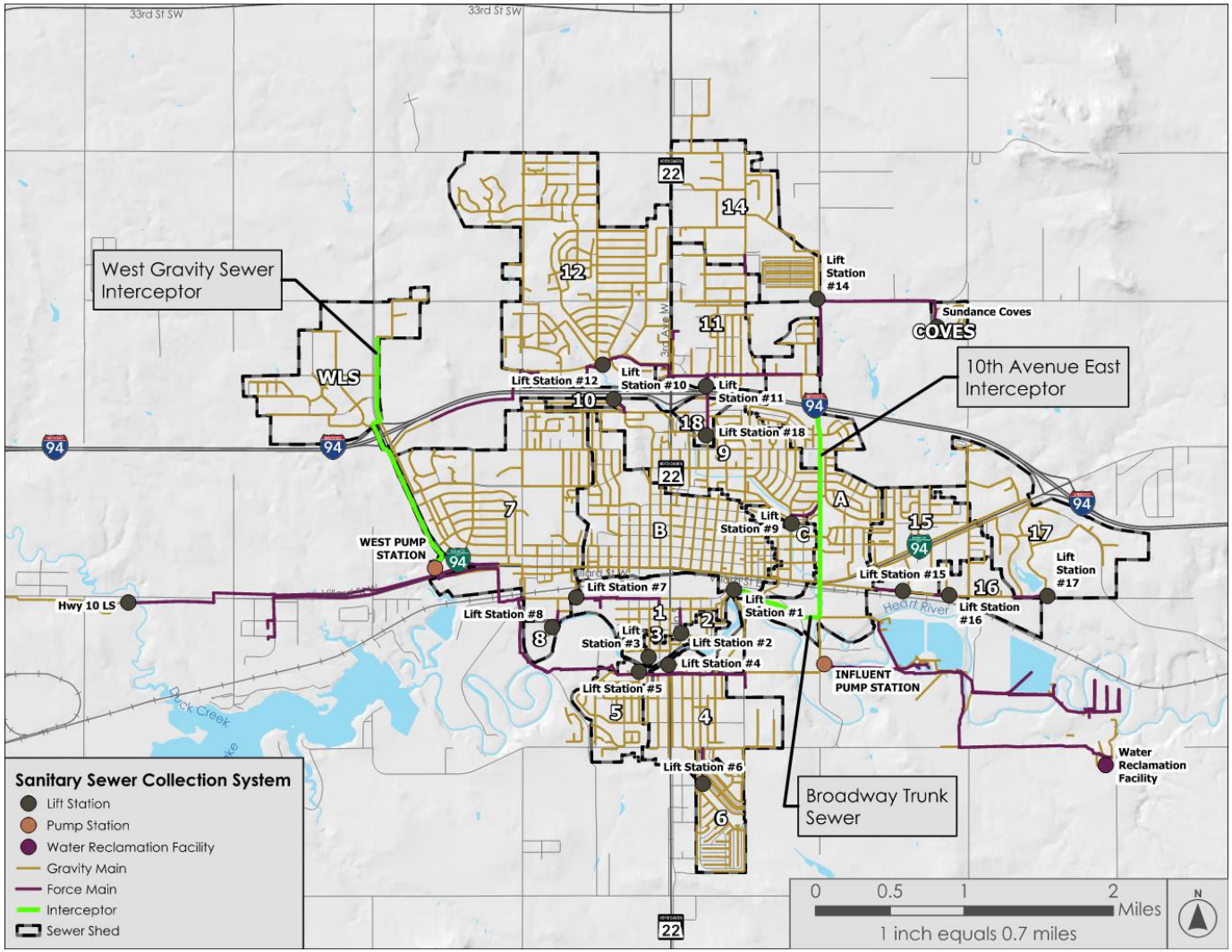
Figure 2 – Sanitary Sewer Collection System



2.1.1 Collection System Overview

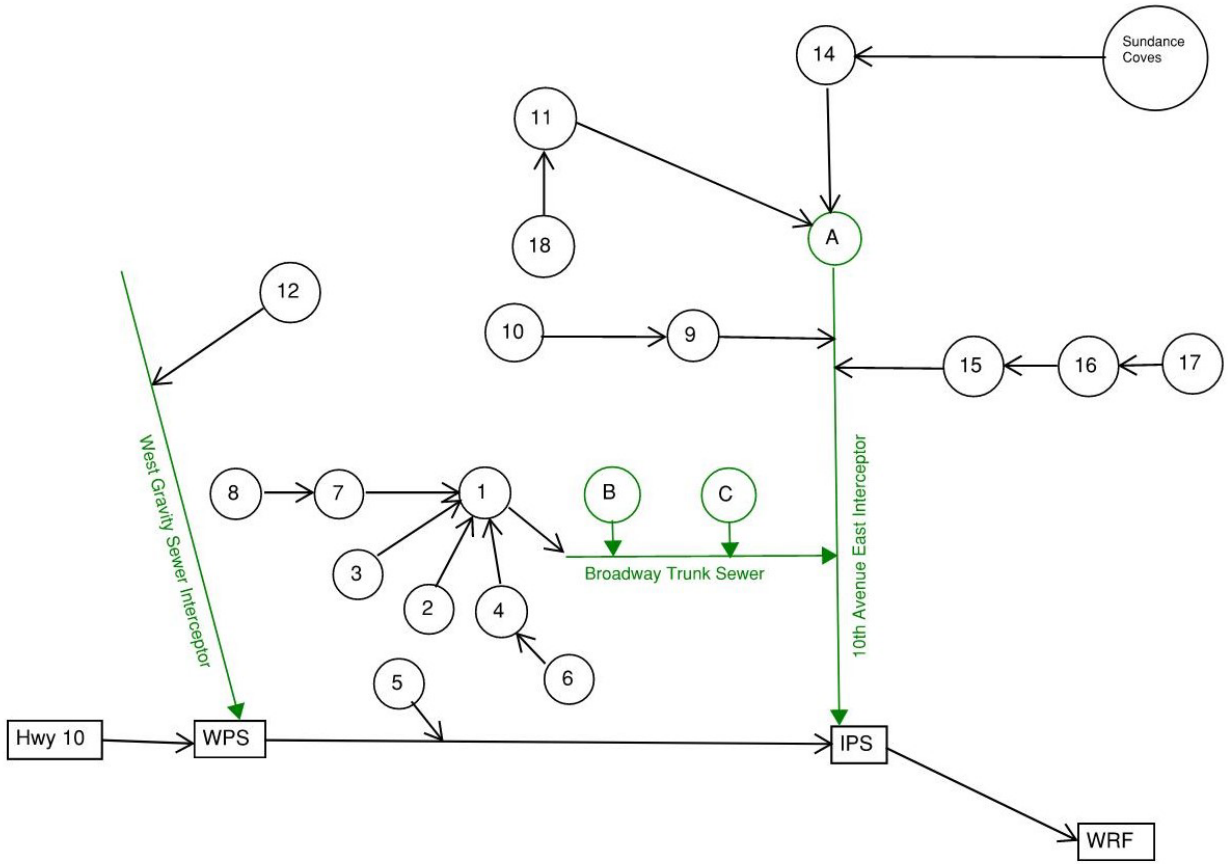
The City of Dickinson's sanitary sewer collection system consists of 22 sewershed basins. Wastewater within each basin flows by gravity to a single collection point. In 19 of the basins, the wastewater is pumped from the collection point via a wastewater lift station out of the basin. Wastewater in three of the basins flows by gravity out of the basin to a trunk sewer. The collection system basins and major interceptors are shown in the following figure.

Figure 3 – Collection System Basins and Major Interceptors



The City of Dickinson wastewater conveyance system consists of lift stations and trunk sewers that transport wastewater out of the basins either to other basins or to Interceptors. All flows are conveyed to the Influent Pump Station (IPS). The IPS pumps all of the City's wastewater to the WRF. The following flowchart illustrates how wastewater gets from the basins to the WRF. Numbered basins are served by a lift station; lettered basins are served by gravity only.

Figure 4 – Sanitary Sewer Collection System Overview



The collection system consists of approximately 203 miles of gravity sewer lines ranging in size from 8 inches in diameter to 36 inches in diameter and approximately 22 miles of forcemains ranging in size from 4 inches to 24 inches in diameter.

2.2 Lift Stations

A wastewater lift station consists of two or more pumps that convey wastewater out of a wet well and discharge into a nearby gravity sewer or into a forcemain. Wastewater lift stations are designed based on current standards so required peak flows can be achieved with one pump out of service. Maximum flow with one pump out of service is defined as the firm capacity of the lift station. Firm capacities for the lift stations that are significant for this report are shown in the following table.

Table 2 – Lift Station Capacities

Lift Station	Number of Pumps	Horsepower	Firm Capacity (gpm)
No. 1	3	40	2,800
No. 4	2	10	348
No. 5	3	70	2,000
No. 7	3	10	1,371
No. 9	2	10	519
No. 11	2	42	1,280
No. 12	3	215	4,000
No. 14	2	37	695
No. 15	2	10	290
West Pump Station (WPS) (Lift Station 22)	3	215	6,000
Influent Pump Station (IPS)	3	380	10,425

Lift stations not listed in the above table pump wastewater into the above listed sewer basins. The flows from those areas are therefore accounted for in the discussions on the above lift stations.

2.3 Existing Capacities / Deficiencies

Five primary routes in the existing collection system may be used to serve new development in the City of Dickinson. For discussion purposes these routes are referred to as the Broadway Collection and Conveyance System, 10th Avenue East Interceptor, South Dickinson Collection and Conveyance System, West Dickinson Collection and Conveyance, and East Dickinson Collection and Conveyance System. Routes will be described and evaluated individually.

2.3.1 Broadway Collection and Conveyance System

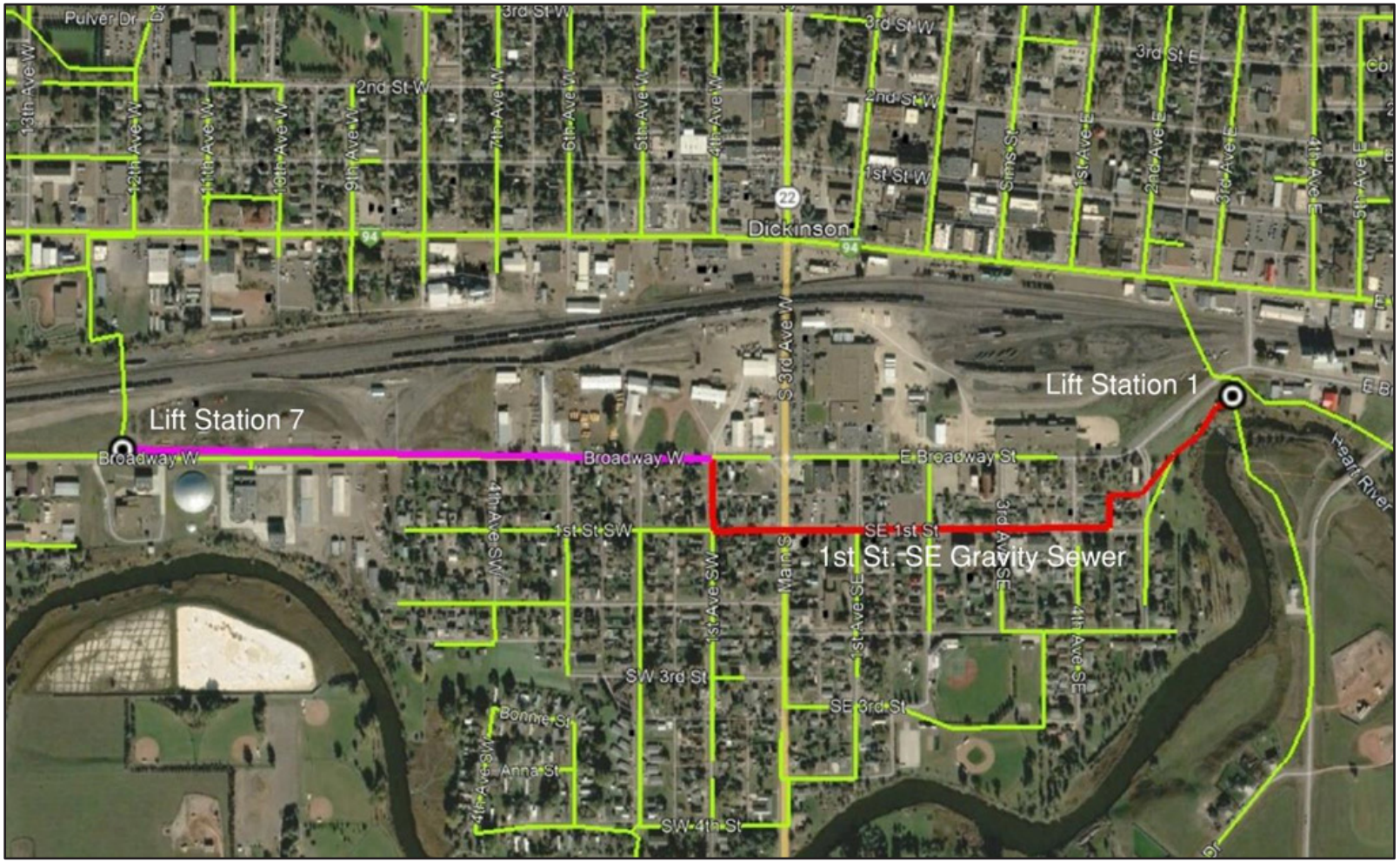
The Broadway Collection and Conveyance System collects wastewater from Basin 7 near State Avenue. This wastewater flows by gravity to Lift Station 7 on W Broadway Street near 11th Avenue Southwest. From Lift Station 7, the wastewater is pumped to the intersection of 1st Street SW and 1st Avenue SW where it enters a gravity sewer and travels east under 1st Street SW to Lift Station 1. From Lift Station 1, wastewater is pumped into the Broadway Trunk Sewer where it flows again by gravity to the Influent Pump Station. The Influent Pump Station pumps all wastewater from the City to the Water Reclamation Facility.

The limiting factors in this system are Lift Station 7, the gravity sewer running under 1st Street SE from 1st Avenue SW to Lift Station 1, which is located near the intersection of 4th Avenue SE and East Broadway Street, and the Broadway Trunk Sewer.

Lift Station 1 was upgraded in 2019. It was designed to pump wastewater for Basins 8, 7, 4, 6, 3, and 2 at full build out. Lift Station 7 had a remaining capacity of 213 gpm in 2012. Since then, the area west of 23rd Avenue W, east of the I-94 Business Loop, north of Fairway Street and south of I-94 has developed. CHI St. Alexis hospital was constructed in this area in 2014. Various other health care facilities have been constructed around the hospital with future facilities planned. Lift Station 7 is currently over capacity and in need of physical upgrades. This is discussed further in a later section of this report.

The next limiting factor in this system is the capacity of the gravity sewer under 1st Street SE. The remaining capacity in the gravity sewer under peak flow conditions was 235 gpm in 2012. It was evaluated again in 2017 with the Water Treatment Plant expansion. At that time the remaining capacity was 126 gpm. As flows from Basin 7 increase, the gravity sewer will need to be upgraded accordingly.

Figure 5 – 1st Street SE Gravity Sewer



The Broadway Trunk Sewer runs from 4th Avenue SE to 10th Avenue SE. It collects wastewater from Basin B, C, and Lift Station 1. In 2009, the 24" pipes were lined to eliminate defects and infiltration and inflow. This increased the capacity of the system due to the reduction of infiltration and inflow and smoothing the inside of the pipes, decreasing friction. It is estimated, based on the pipe size and slope, that the Broadway Trunk Sewer has a capacity of approximately 2,400 gpm. The Broadway Trunk Sewer was found to be over capacity in 2012. It was not slated for improvements at that time, possibly because surcharging would not result in sewage backing up into buildings. The Broadway Trunk Sewer runs through an industrial area, including a livestock holding yard. However, since Lift Station 1 has been upgraded to a firm capacity of 2,800 gpm, the Broadway Trunk Sewer should be studied for additional surcharging.

Figure 6 - Broadway Trunk Sewer

The limiting factors for this route are summarized in the tables below.

Table 3 – Broadway Collection/Conveyance System - Gravity

	2012 Remaining Capacity	2012-2024 Additional Flows	2024 Remaining Capacity
1st Street SE Gravity Sewer	126 gpm	50 gpm	76 gpm
Broadway Trunk Sewer	-21 gpm	15 gpm	-36 gpm

Table 4 – Broadway Collection/Conveyance System – Lift Stations

	2012 Firm Capacity	2012 Flows	2024 Firm Capacity	2012-2024 Additional Flows	2024 Remaining Capacity
Lift Station 1	1,860 gpm	1,020 gpm	2,800 gpm	15 gpm	1,765
Lift Station 7	1,371 gpm	1,158 gpm	1,371 gpm	232 gpm	-19 gpm

2.3.2 10th Avenue East Interceptor

The 10th Avenue East Interceptor collects wastewater in the north part of the City and conveys it south under I-94. After crossing under I-94, wastewater flows south along 10th Avenue East. Wastewater flows in Basin A are added to the 10th Avenue East Interceptor as it travels south down 10th Avenue East. After crossing Villard Street, the 10th Avenue East Interceptor crosses under the railroad tracks and flows south to the IPS. The IPS pumps wastewater to the WRF.

Lift Station 14 and Lift Station 11 pump wastewater to the top of the 10th Avenue East Interceptor. Lift Station 11 has a firm capacity of 1,280 gpm. Lift Station 14 was upgraded in 2014 from a capacity of 131 gpm to 695.

The limiting factors in the 10th Avenue East Interceptor are the pipe sections between Museum Drive and East 2nd Street. The existing capacities/deficiencies for these pipe sections are summarized in the table below. The City is currently implementing improvements along Sims St. to address the capacity deficiencies on the 10th Ave East Interceptor, and this will be further discussed later in this report.

Table 5 – 10th Avenue East Interceptor Collection/Conveyance System - Gravity

	2012 Remaining Capacity	2012-2024 Additional Flows	2024 Remaining Capacity
Museum Drive to East 10th St.	185 gpm	424 gpm	-239 gpm
East 10th St. to East 8th St.	457 gpm	455 gpm	2 gpm
East 8th St. to East 3rd St.	247 gpm	473 gpm	-226 gpm
East 3rd St. to East 2nd St.	884 gpm	763 gpm	121 gpm

Figure 7 – 10th Avenue East Interceptor

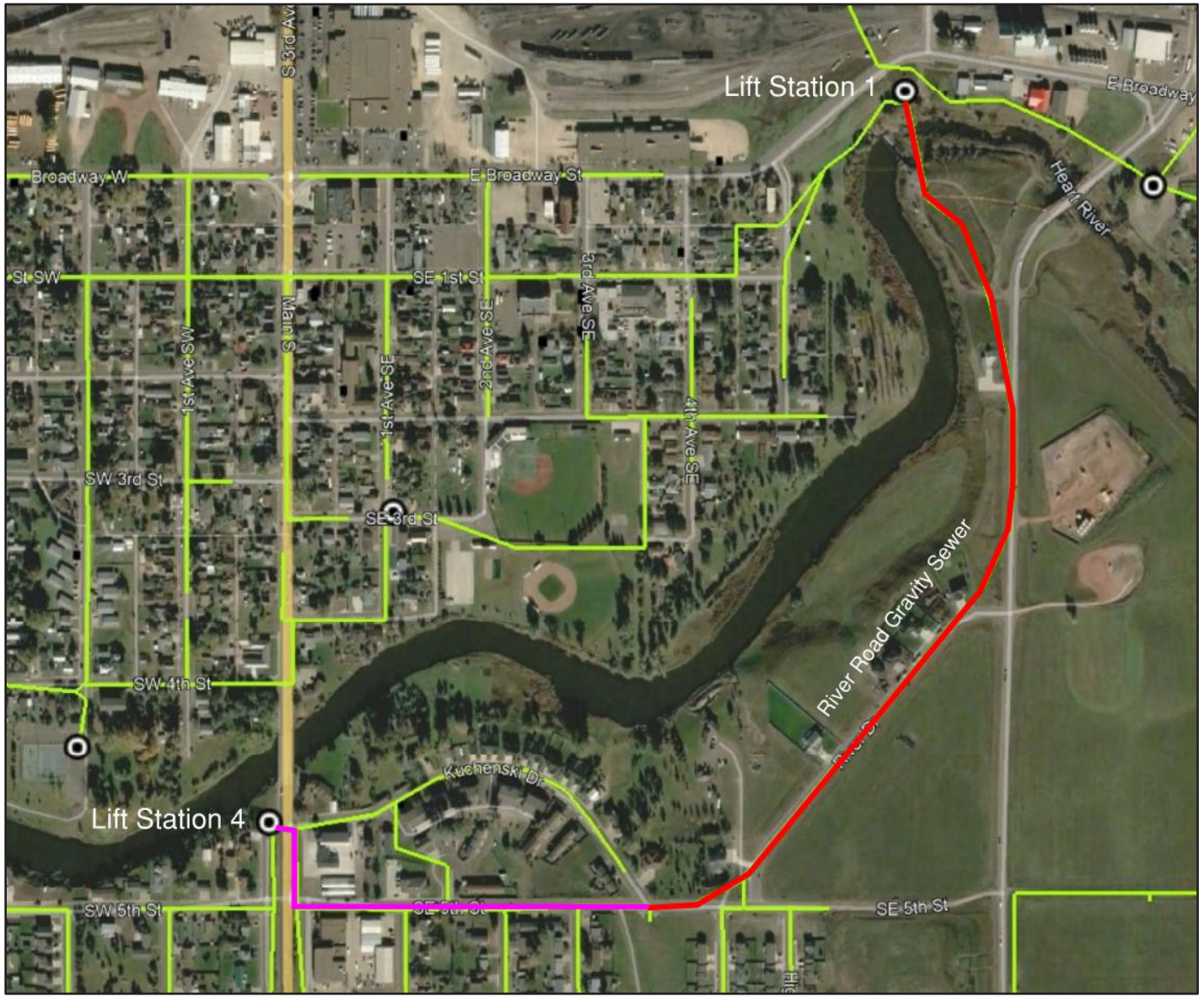
The 10th Avenue East Interceptor has also experienced problems with multiple manholes due to corrosion from hydrogen sulfide gas. In the last few years, several manholes have been repaired due to crumbling concrete barrel sections. Some were repaired using chemical grout injected into and behind the concrete to seal up leaks. Others were lined with synthetic liners impregnated with resin that, once hardened, provide new structural integrity for the manhole. A comprehensive study of the extent of the corrosion throughout the 10th Avenue East Interceptor is recommended to correct any defects in the system and propose methods to prevent further corrosion. Lining the pipeline may be a viable and economical option.

2.3.3 South Dickinson Collection and Conveyance System

The South Dickinson Collection and Conveyance System collects all wastewater south of the Heart River to either Lift Station 4 or Lift Station 5.

Lift Station 6 serves a mobile home park on the south side of Dickinson. It pumps wastewater to basin 4 where it flows to Lift Station 4. Lift Station 4 pumps to River Road. Flow in River Road flows to Lift Station 1. The limiting factors in this system are Lift Station 4 and River Road.

Figure 8 – Lift Station 4



Lift Station 4 has a firm capacity of 348 gpm. Basin 4 is composed of residential subdivisions, most of which flows to the lift station, the rest of which flows to River Road. The area is not built out. As development continues, the deficiencies in the system will increase. The deficiencies at the time of this report are shown in the following tables.

Table 6 – South Dickinson Collection/Conveyance System - Gravity

	2012 Remaining Capacity	2012-2024 Additional Flows	2024 Remaining Capacity
River Road Gravity Sewer	28 gpm	17 gpm	11 gpm
South Dickinson Gravity Sewer	304 gpm	33 gpm	271 gpm

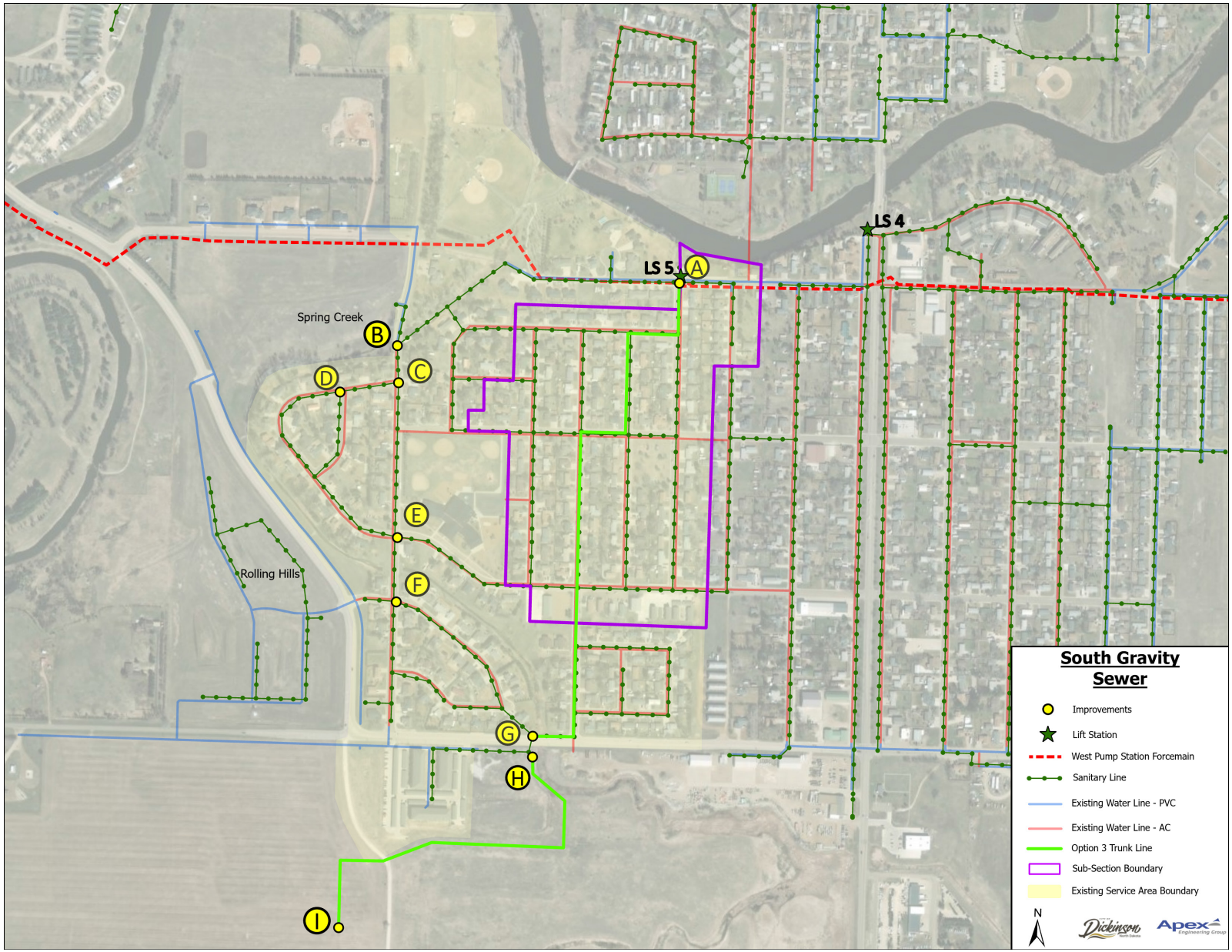
Table 7 – South Dickinson Collection/Conveyance System – Lift Sations

	2012 Firm Capacity	2012 Flows	2024 Firm Capacity	2012-2024 Additional Flows	2024 Remaining Capacity
Lift Station 4	348 gpm	874 gpm	348 gpm	75 gpm	-399 gpm
Lift Station 5	202 gpm	505 gpm	2,000 gpm	33 gpm	1,464 gpm

LS 5 originally pumped wastewater to Lift Station 4. Lift Station 5 was upgraded in 2014 and the flows collected at Lift Station 5 are now pumped into the West Pump Station forcemain which will be discussed in the next section. The station has a firm capacity of 2,000 gpm and was constructed to accommodate development south of 8th St SW.

The South Dickinson Gravity Sewer flows from the intersection of 5th Avenue SW and 8th Street SW to Lift Station 5. See figure. While the sewer does have remaining capacity at this time, it will need to be upgraded to support future development south of 8th Street SW. Future conditions will be discussed later in this report.

Figure 9 – South Dickinson Gravity Sewer

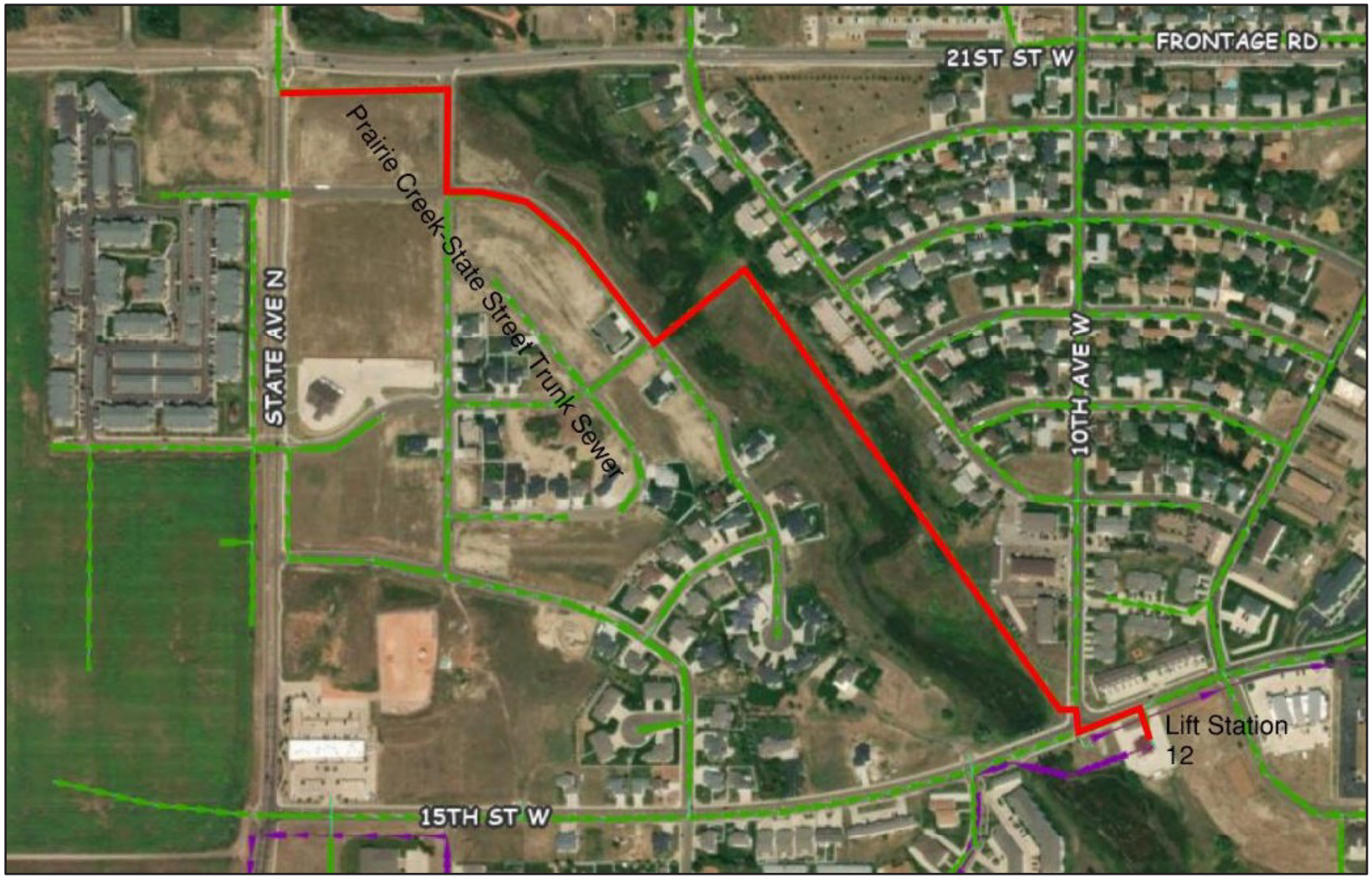


2.3.4 North and West Dickinson Collection and Conveyance System

2.3.4.1 North Dickinson - LS 12/Prairie Creek-State Street Trunk Sewer

The original Lift Station 12 had a firm capacity of 301 gpm and pumped wastewater to Basin 11. The current Lift Station 12 and the Prairie Creek-State Street Trunk Sewer were constructed in 2014 to serve a larger area to the northwest and flows were diverted from Basin 11 and sent to the West Gravity Sewer and the West Pump Station, which will be discussed below.

Figure 10 – North Dickinson – LS 12/Prairie Creek State Ave Trunk Sewer



2.3.4.2 West Dickinson – West Pump Station (LS 22) and West Gravity Sewer System

The West Pump Station (Lift Station 22) was constructed in 2013-2014 with a firm capacity of 6,000 gpm. It collects wastewater from the north in the West Gravity Sewer. The West Gravity Sewer collects wastewater from Lift Station 12 as well as the area north of I-94 and west of 30th Avenue W. The West Pump Station also has capacity to collect additional wastewater from the north and west of the City as development demands. The only flows coming from the west at the time of this report are from the Highway 10 Lift Station, approximately 4 miles east of the City. Future development to the west has been studied but has not yet materialized.

Figure 11 – West Dickinson – West Pump Station (LS 22) and West Gravity Sewer System

The capacities of the North and West Dickinson and Conveyance System are shown in the following tables.

Table 8 – North and West Dickinson Collection and Conveyance System - Gravity

	2012 Remaining Capacity	2012-2024 Additional Flows	2024 Remaining Capacity
Prairie Creek/State St Gravity	0 gpm	591 gpm	3,744 gpm
West Gravity Sewer Ph1	0 gpm	843 gpm	10,157 gpm
West Gravity Sewer Ph2	0 gpm	251 gpm	4,522 gpm

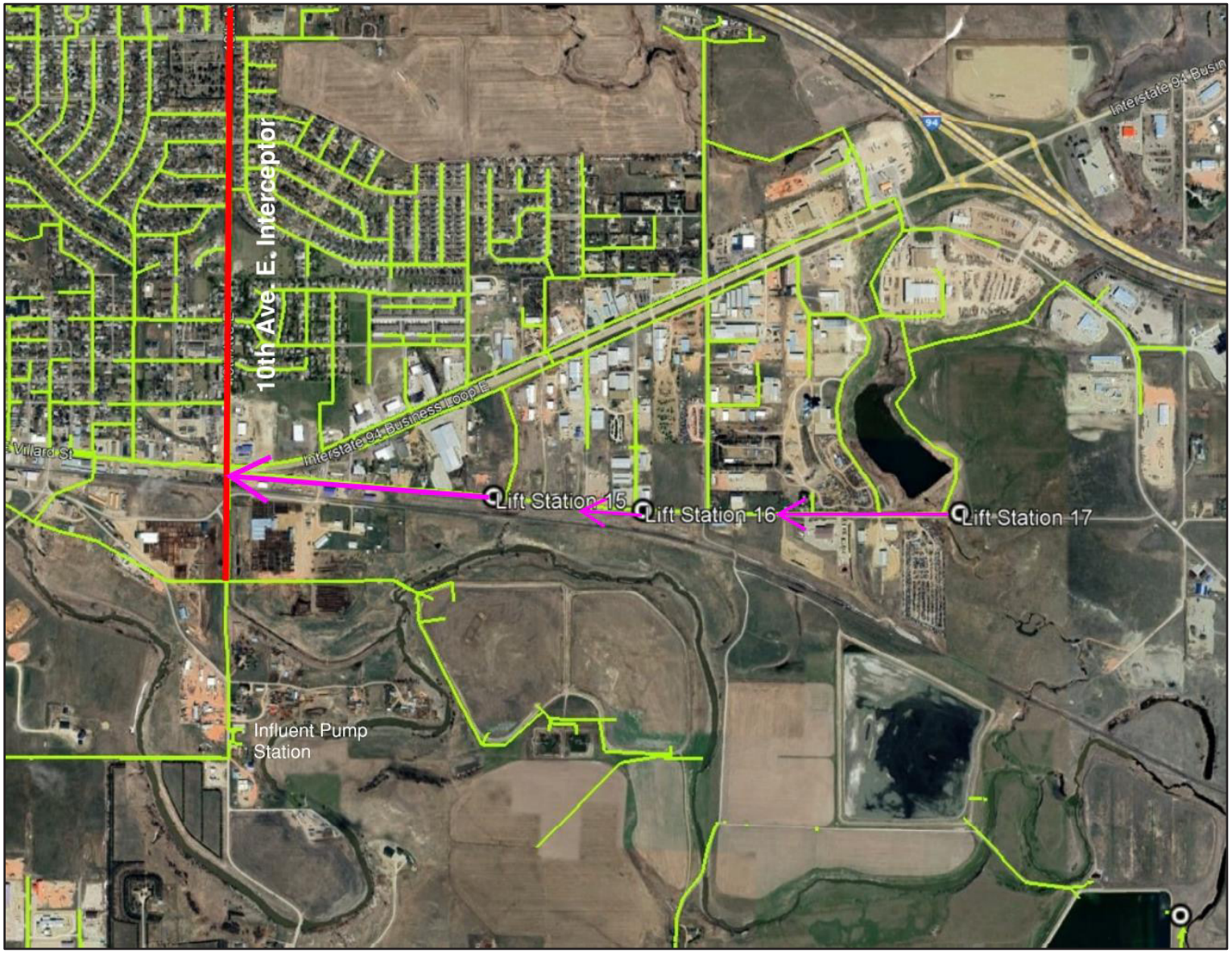
Table 9 – North and West Dickinson Collection and Conveyance System – Lift Stations

	2012 Firm Capacity	2012 Flows	2024 Firm Capacity	2012-2024 Additional Flows	2024 Remaining Capacity
Lift Station 12	301 gpm	1,385 gpm	4,000 gpm	591 gpm	3,108 gpm
West Pump Station	0 gpm	0 gpm	6,000 gpm	843 gpm	5,157 gpm

2.3.5 East Dickinson Collection and Conveyance System

The East Dickinson Collection and Conveyance System service area is generally everything east of 15th Avenue East. Basins 15, 16, and 17 are located in this area, each served by a lift station. Lift Station 17 pumps to Lift Station 16. Lift Station 16 pumps to Lift Station 15. Lift Station 15 pumps to the 10th Avenue East Interceptor.

Figure 12 – East Dickinson Collection/Conveyance System



Basins in this area (15, 16, and 17) have been combined for evaluation purposes. Significant infiltration and inflow problems in this area have been previously identified by city personnel with reports that Lift Station 15 is unable to keep up during significant rain events. Some sections of pipe in Basin 15 have been televised by the City to look for defects that allow infiltration and inflow to enter the sewer system. Some of the manholes in this area have been sealed and flow conditions have improved. However, this route still has a significant capacity deficiency without any added development. Further field investigations are recommended to identify additional defects and assist in determining corrective measures.

2.4 Influent Pump Station and Water Reclamation Facility

Wastewater discharged by domestic and industrial users in the City of Dickinson is collected and conveyed to the Influent Pump Station (IPS) and the Water Reclamation Facility (WRF) by the city's sanitary collection system. The IPS and the WRF were constructed in 2014. The following table shows the design capacity and remaining capacity for each. The IPS and the WRF are currently operating under capacity.

Table 10 – Influent Pump Station and Water Reclamation Facility Pump Capacity

	Design Capacity	2024 Existing Flows	2024 Remaining Capacity
Influent Pump Station	10,425 gpm	3,243 gpm	7,182 gpm
Water Reclamation Facility	4.25 MGD Max Month Flow	3.07 MGD Max Month Flow	1.18 MGD Max Month Flow

3.0 Future Conditions

Using the Future Land Use and updated urban service boundary, acreages of developable areas in each sewershed were calculated and future demands were determined. The effects of the future demands on the existing systems is discussed below. The wastewater infrastructure planning was completed within the framework of the existing Collection System Master Plan and subsequent planning. Wastewater infrastructure to serve future land use discussed and identified herein is generally limited to trunk lines 10" and larger as finer details will be dictated by future development and plats.

3.1 Broadway Collection and Conveyance System

The limiting factors in this system were identified in the section discussing existing conditions. Those limiting factors are Lift Station 7, the gravity sewer running from the intersection of 1st Street SE and 1st Avenue SW to Lift Station 1, and the Broadway Road Trunk Sewer.

3.1.1 Lift Station 7

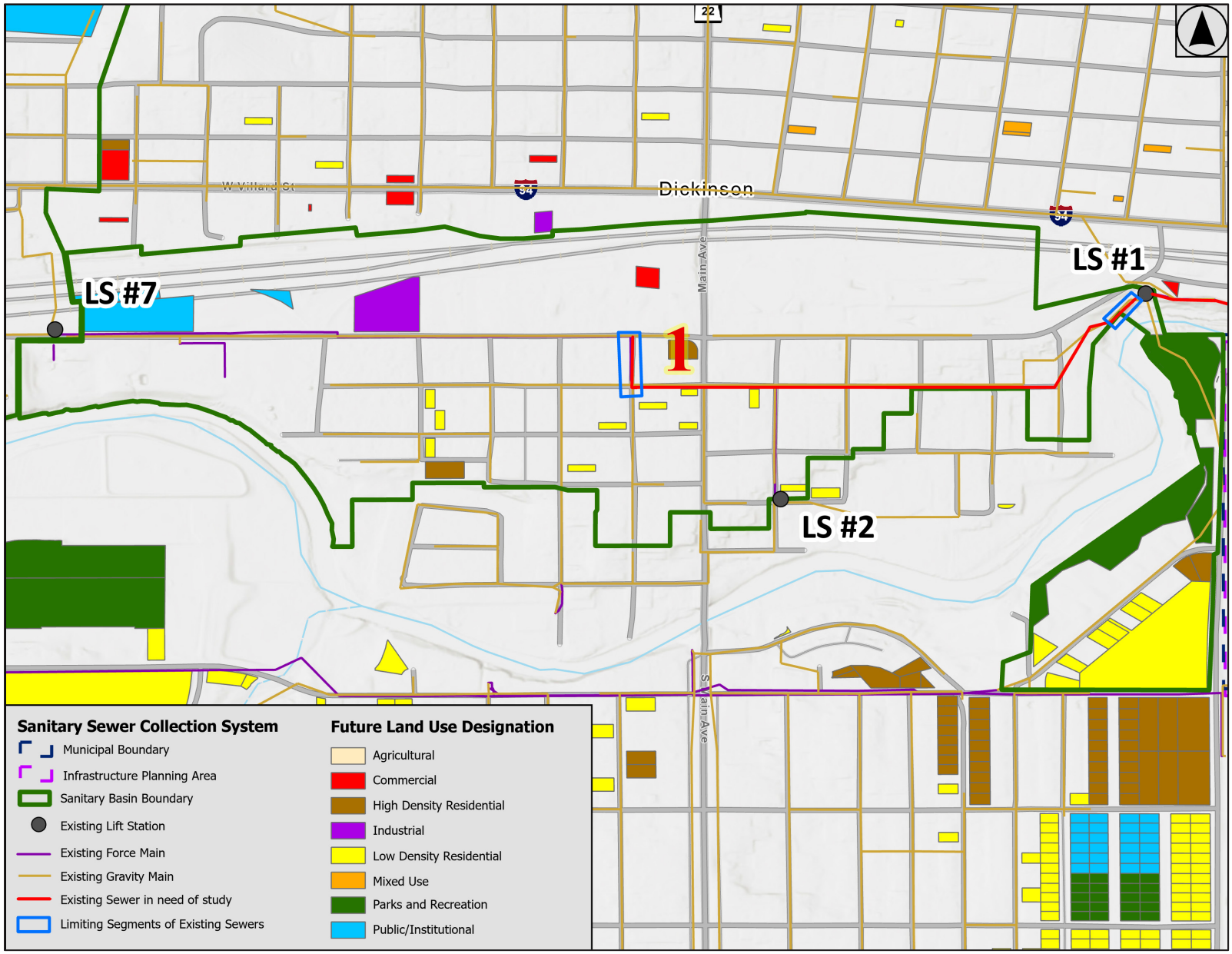
Within the Lift Station 7 service area, there are approximately 147 acres that are still able to be developed in the zoning categories of Commercial, High and Low Density Residential, Industrial, Parks and Recreation, and Public Institution. However, 111 acres are owned by the North Dakota State University agriculture research facility. That area will not be developed in the foreseeable future. Based on estimated additional flows between 2012 and 2024, Lift Station 7 has a deficiency of -19 gpm. The future land use Public Institution

currently owned by NDSU was assumed to not be development in this analysis.It should be noted that the City does not currently experience capacity issues at Lift Station 7. Calculating the future flows resulted in future average day additional flows of 39 gpm and a future peak day flow of 155 gpm. This would result in a deficiency of -174 gpm. However, Baker Boy Bakeries, which currently pumps approximately 150 gpm to the Lift Station 7 sewershed, is going to be rerouted to pump to the West Pump Station. This will reduce the demand on Lift Station 7, and the resulting deficiency will be -24 gpm. Lift Station 7 is slated for evaluation soon. Existing flow rates will be verified and other operational deficiencies will be evaluated.

3.1.2 1st St. SE to Lift Station 1

Downstream of Lift Station 7, the gravity sewer from the intersection of 1st Street SE and 1st Avenue SW to Lift Station 1 has a number of bottlenecks restricting the amount of flow that can be accommodated. This stretch of sewer was evaluated in 2017 for capacity to determine the amount of wastewater could be discharged from the Water Treatment Plant located on West Broadway Street near 11th Street SW. It should be noted that the condition of this line is unknown at this time. It is assumed to be in poor condition since it was constructed over 50 years ago. The wash water from the plant is stored in tanks on site that are designed to discharge 50 gpm to the city sewer system. The most significant bottleneck in the West Broadway sewer is located along 1st Avenue SW between West Broadway and 1st St SW. If the water treatment plant discharges 50 gpm, the reserve capacity in this line is 76 gpm. If the water treatment plant discharges 100 gpm, as it desires, the reserve capacity in this line would be 26 gpm. The second bottleneck is located at the influent line of Lift Station 1. It has a reserve capacity of 246 gpm. If the water treatment plant discharges 100 gpm, the reserve capacity of this segment will be 146 gpm. Based on the current information, the Water Treatment Plant will be limited to discharging no more than 100 gpm in order to not surcharge or overflow the sanitary sewer system. This is assuming that no increases in capacity will occur at Lift Station 7. If additional flows are needed along this stretch of sewer, the pipes will need to be upsized to accommodate the flows.

Figure 13 – Lift Station 7 to Lift Station 1



3.1.3 Lift Station 1

Lift Station 1 was upgraded in 2019 and has a current remaining capacity of 1,765 gpm. Future development as planned in the Lift Station 1 service area, including Lift Stations 7, 2, 3, and 4, would result in an average day future flow of 115 gpm and a peak day future flow of 418 gpm. out, Lift Station 1 will have a remaining capacity of 1,347 gpm.

3.1.4 Broadway Road Trunk Sewer

The Broadway Road Trunk Sewer receives wastewater flows from Lift Station 1, Sewershed B and Sewershed C. From past collection system modeling and master planning, Broadway Road Trunk Sewer has been identified as having a remaining capacity of -36 gpm. Maintenance has been performed on the sewer and it was lined with cured in place piping, which may have affected the capacity of the sewer. Future flows from Sewershed B will be approximately 48 gpm, and from Sewershed C it will be approximately 50 gpm. Lift Station 1 does have a significant amount of remaining capacity. As development occurs in sewersheds B and C and the rest of the Lift Station 1 service areas, increased amounts of wastewater could result in surcharging in the Broadway Road Trunk Sewer. As development occurs, the flows in the Broadway Road Trunk Sewer should be monitored for surcharging. Analysis of this trunk sewer is recommended and upgrades completed as needed.

Figure 14 – Broadway Trunk Sewer

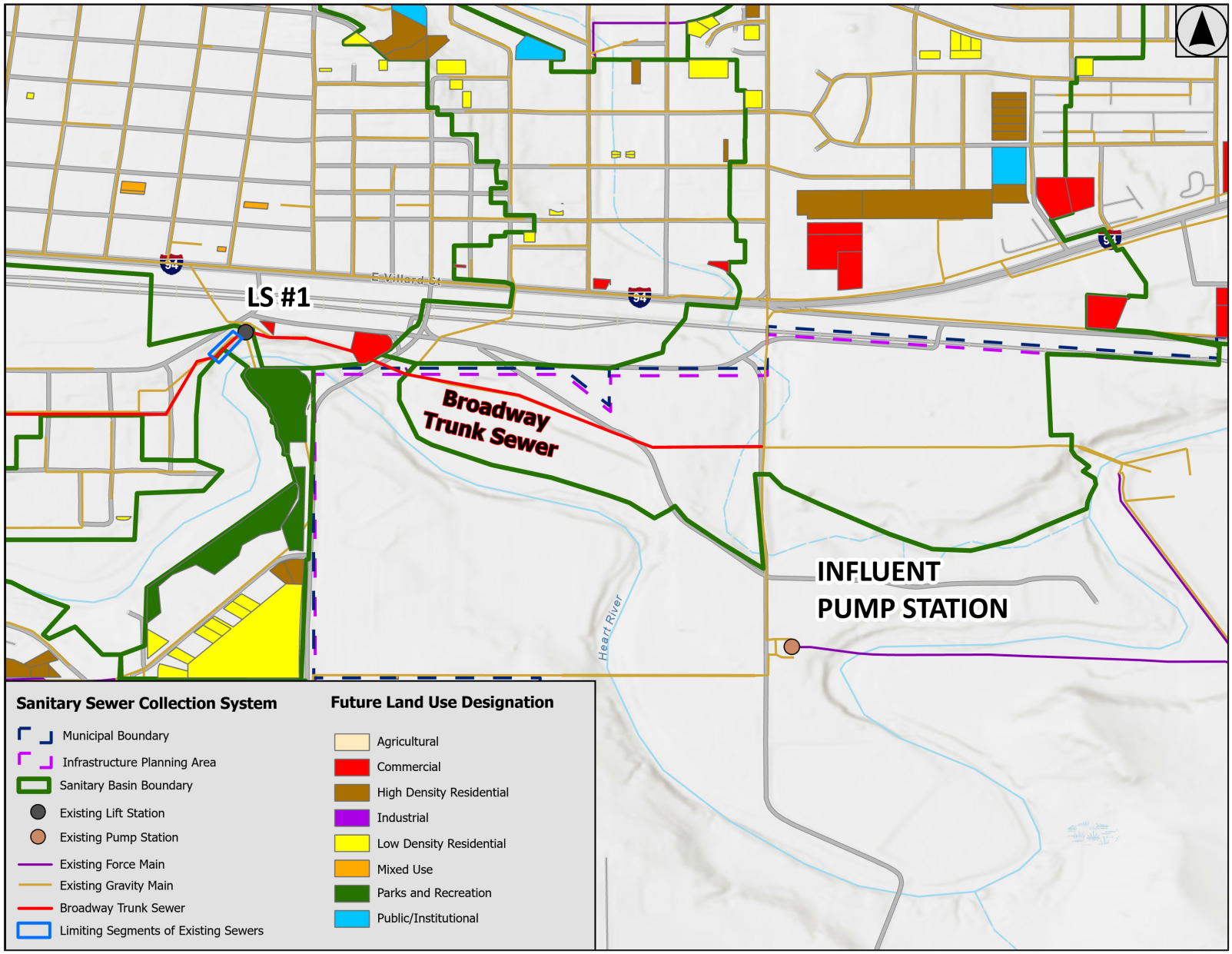


Table 11 – Broadway Trunk Sewer Capacity

	2024 Remaining Capacity	Future Peak Flows	Future Remaining Capacity
1st St SE Gravity	76 gpm	50 gpm*	26 gpm
Broadway Road Trunk Sewer	-36 gpm	418 gpm	-454 gpm
Lift Station 1	1,765 gpm	418 gpm	1,347 gpm
Lift Station 7	-19 gpm	5 gpm	-24 gpm

*Assumes increased flow from the Water Treatment Plant (100 gpm).

3.2 10th Avenue East Interceptor

The 10th Avenue East Interceptor currently has limited remaining capacity and is over capacity in some areas. As development occurs in sewersheds 11, 14 and A, the lack of capacity will result in surcharges and possible overflows. See the following table.

Table 12 – 10th Avenue East Interceptor Capacity

	2024 Remaining Capacity	Future Peak Flows	Future Remaining Capacity
Museum Drive to East 10th St.	-239 gpm	362 gpm	601 gpm
East 10th St. to East 8th St.	2 gpm	670 gpm	-668 gpm
East 8th St. to East 3rd St.	-226 gpm	993 gpm	-1,219 gpm
East 3rd St. to East 2nd St.	121 gpm	1271 gpm	-1,150 gpm

In addition to the limitations of the 10th Avenue East Interceptor, Lift Stations 11, 18 and 9 are experiencing issues. Lift Station 11, which pumps to the top of the Interceptor, has had difficulty keeping up with flows, resulting in wastewater backing up in the system and into the basements of the townhouses located next to the lift station. Lift Station 11 is also experiencing corrosion of the electrical controls due to the buildup of corrosive sewer gases in the building. Lift Station 18 pumps to Lift Station 11, contributing to the problems with Lift Station 11. Lift Station 9 pumps to the 10th Ave east interceptor further south. When the station cannot keep up with the flows, the wastewater goes over a weir and flows south into sewershed C.

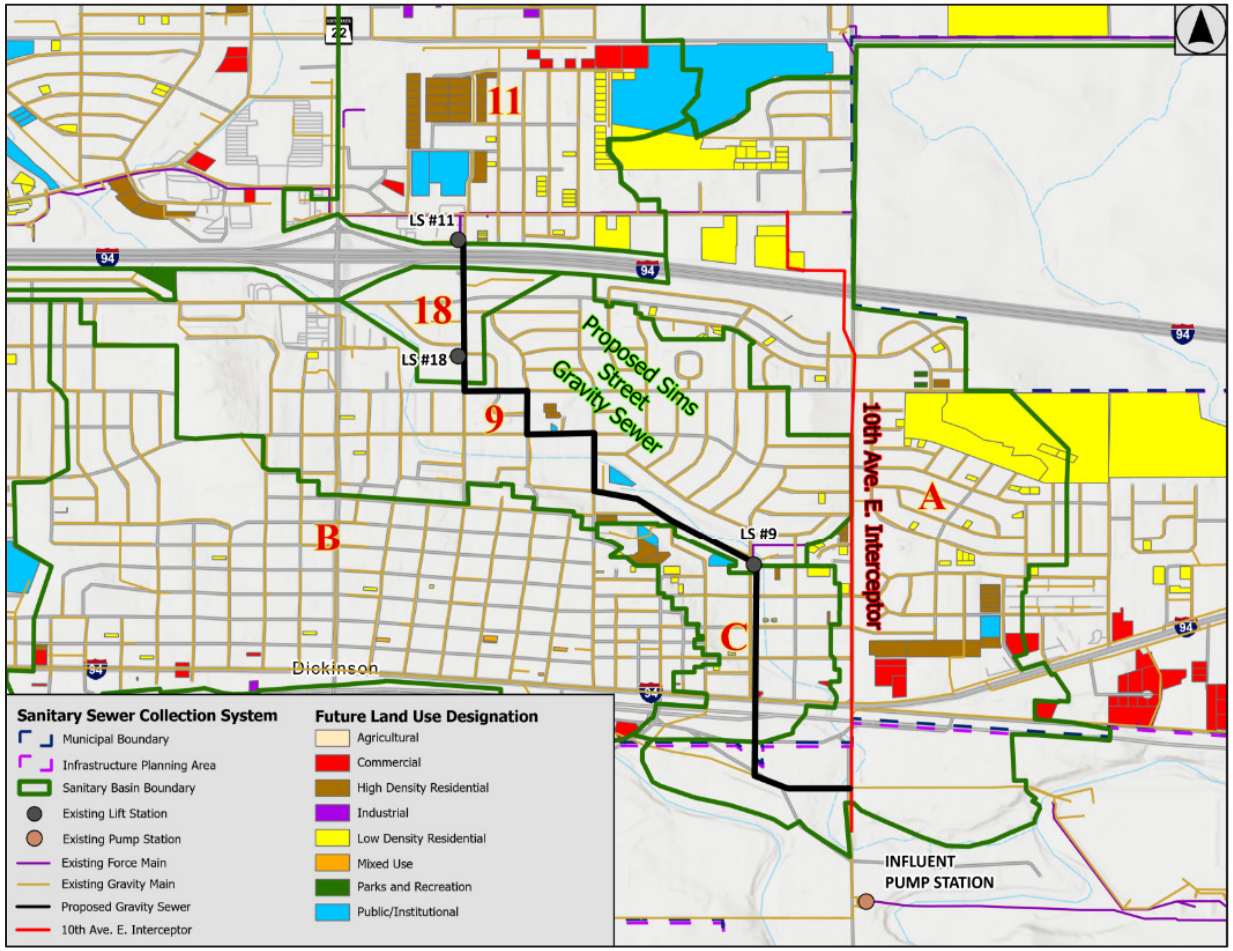
Table 13 – Lift Stations that Flow into 10th Avenue East Interceptor Capacities

	2024 Remaining Capacity	Future Peak Flows	Future Remaining Capacity
Lift Station 11	0 gpm	354 gpm	-354 gpm
Lift Station 18	25 gpm	0 gpm	25 gpm
Lift Station 9	0 gpm	25 gpm	-25 gpm
Lift Station 14	300 gpm	689 gpm	-389 gpm

LS 14 is designed to be upgraded to meet future development by upsizing the pumps to serve future flows. When the station is upgraded, it will only add to the problems in the 10th avenue east interceptor.

To alleviate the issues with Lift Station 11 and the capacity issues of the 10th Avenue East Interceptor, a gravity sewer line has been planned and partially constructed from Lift Station 11 on Sims Street south to Lift Station 18 and then continue south past Lift Station 9 to the south end of the 10th Avenue East Interceptor. When completed, Lift Stations 11, 18 and 9 will be decommissioned. This will eliminate the issues with the lift stations and free up capacity in the Interceptor. Eliminating the three lift stations will save the City time and money as it will reduce operation, maintenance, and future upgrades to the three lift stations. Lift Station 14 can be upgraded as necessary without having to upgrade the 10th Avenue East Interceptor.

Figure 15 – 10th Avenue East Interceptor



3.3 South Dickinson Collection and Conveyance System

3.3.1 Sewershed 4

Lift Station 4 is currently under capacity, especially during rain events. The homes near the lift station have experienced wastewater backing up into their basements in the past. While the city has corrected much of the infiltration and inflow during rain events, the sewershed is far from being built out. Lift Station 4 discharges at the top of the River Road Sewer. As such, any upgrades to the lift station will also impact on the gravity sewer. The area labeled ISP1 in the following figure serves into the existing gravity sewer and will not impact Lift Station 4.

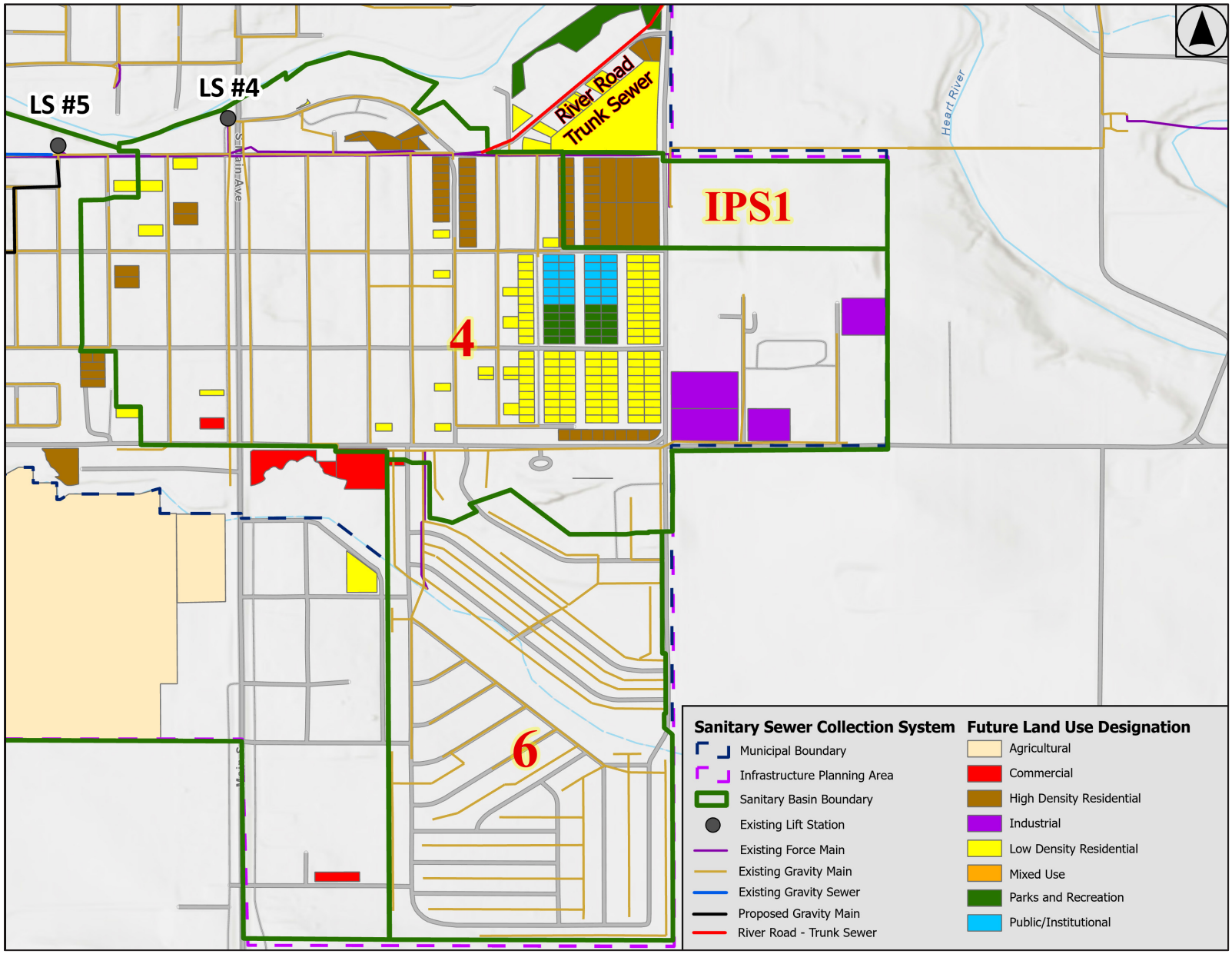
Table 14 – Lift Station 4 Capacity

	2024 Remaining Capacity	Future Peak Flows	Future Remaining Capacity
Lift Station 4	- 399 gpm	217 gpm	-616 gpm
River Road Gravity Sewer	11 gpm	57 gpm	-46 gpm*

*Assumes no upgrades to Sift Station 4.

Lift Station 5 was upgraded in 2014 with the assumption that a gravity line would be constructed from Lift Station 4 to Lift Station 5 and Lift Station 4 would be decommissioned. That would have eliminated the issues with Lift Station 4. However, that gravity line was not constructed. The construction of that gravity line could be revisited. That line would not only alleviate the issues with Lift Station 4, but also with the River Road Gravity Sewer.

Figure 16 - Sewershed 4



3.3.2 Sewershed 5

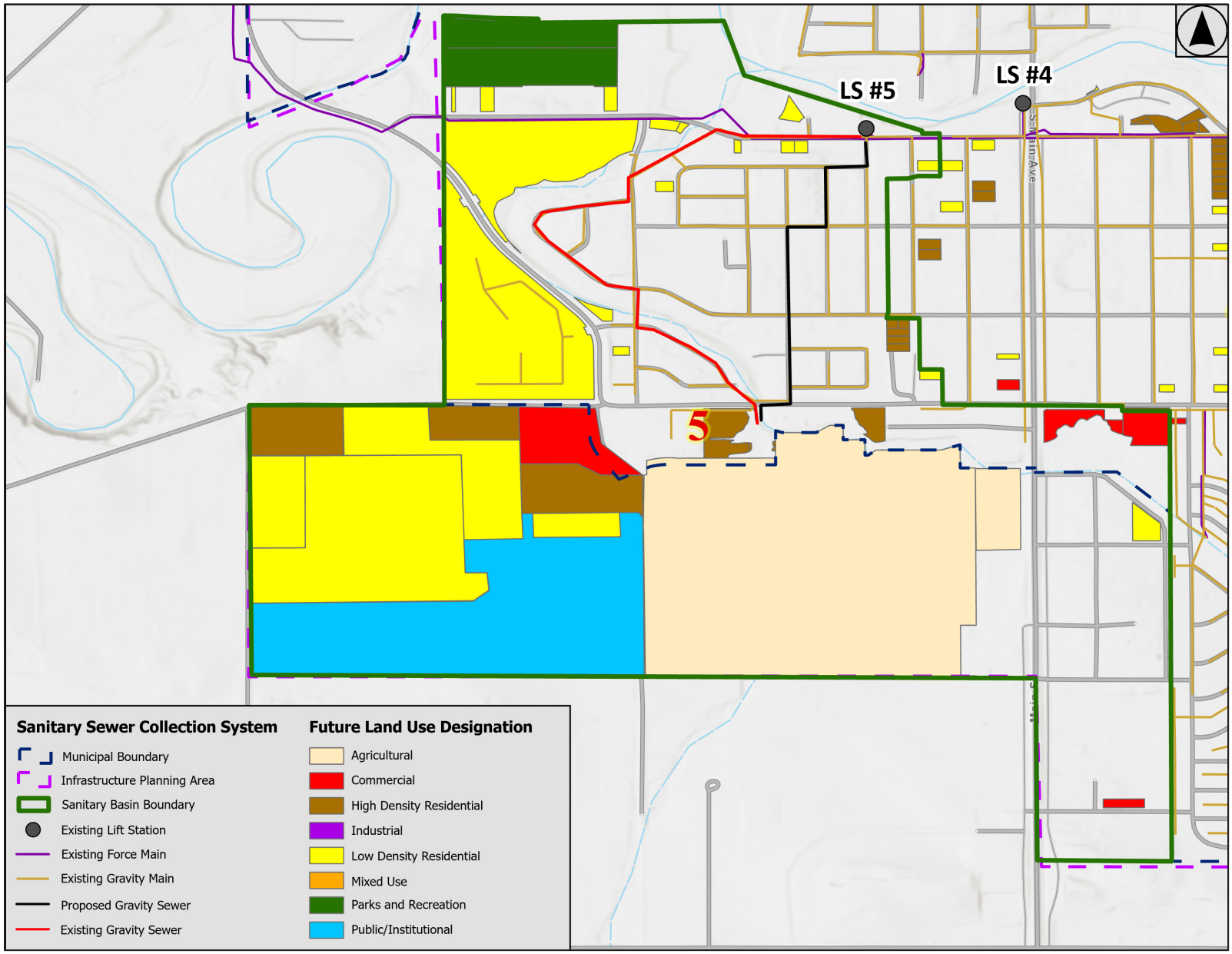
The current service area for Sewershed 5 is approximately from 5th Street SW to 8th Street SW and from Main Street S to State Avenue S. Lift Station 5 was upgraded in 2016 during the oil boom to a capacity of 2,000 gpm to be able to serve a much larger area, including Sewershed 4, area west of State Avenue S, and area south of 8th Street SW.

Sewer modeling done for the 2014 Comprehensive Plan showed that the existing gravity sewer in Sewershed 5 had limited capacity. Preliminary plans for a new trunk sewer to serve the area south of 8th Street SW were completed, but when the oil boom tapered off, the project was shelved. Since then, the proposed service area for the City has been reduced substantially, and the previous design is no longer applicable. For planning purposes, the Cities 2024 South Dickinson Area Plan proposed land use was used to calculate sewer flows from the City owned property.

The existing system does have some reserve capacity. The most limiting section is an 8" sewer at minimum slope on 8th Avenue SW from Heart Drive to Diamond Drive. This bottleneck could be reduced if the 8" pipe is upgraded to a 10" pipe, either by open cut or by pipe bursting. Other limiting sections of the existing sewer could be relayed to correct defects, increasing the capacity. Such upgrades would allow for additional development from the west and south. Development would still be limited by the capacity of the existing gravity sewer system.

Looking at the existing capacity of the gravity sewer system and the current planned zoning for the undeveloped areas within the City's service area, the preliminary plans for a new trunk sewer to serve the area south of 8th Street SW should be evaluated and modified based on the current zoning and service area boundary. Not only would it allow development to the west and south, but it would also create some excess capacity in the existing gravity sewer system as some of the existing flows would be moved to the new system.

Figure 17 – Sewershed 5



3.4 North and West Dickinson Collection and Conveyance System

3.4.1 North Dickinson - Lift Station 12

Areas 12-1 and 12-2 will sewer to Lift Station 12 but not via the Prairie Creek/State Street gravity sewer. These areas will sewer to the lift station via 19th Street West/Grasslands Drive and 15th Street West collections systems respectively. This area was not included in the design of these existing sewer systems as a portion of the property is currently owned by the North Dakota State University and used for agricultural research. This area was evaluated in 2022 in the Northwest Dickinson Master Plan. However, the FLU of these areas has been changed, and the amount of wastewater from these areas will have negative impacts on the downstream gravity sewer.

Area 12-3 and the area to the north along State Avenue will sewer to Lift Station 12 via the Prairie Creek/State Street Gravity Sewer. These areas were included in the planning and design of the Prairie Creek/State Street Gravity Sewer and Lift Station 12.

Figure 18 – Sewershed 12

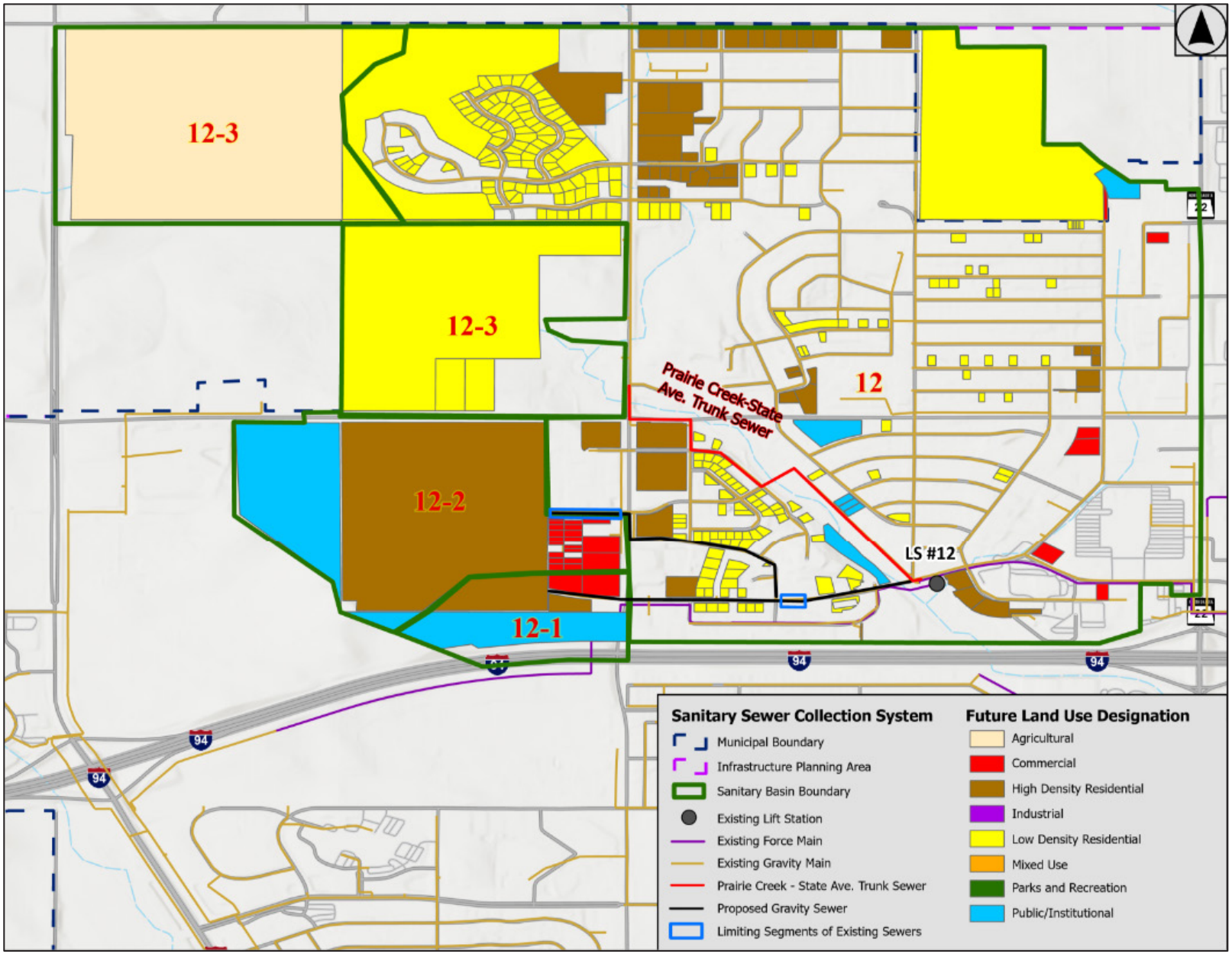


Table 15 – Area 12-1 Flows: 15th St W to Grasslands

Limiting Segment Capacity (10" pipe)	848 gpm
Existing Flows	37 gpm
Total Flows	243 gpm
Reserve Capacity	604 gpm

The existing gravity sewer along 19th Street west of State Street is an 8" sewer line at minimal slope. It was not designed to accommodate Area 12-2 as identified in the FLU.

Table 16 – Area 12-2 Flows: 19th St W

Limiting Segment Capacity (8" pipe)	344 gpm
Existing Flows	188 gpm
12-2 Flows	1,029 gpm
Reserve Capacity	-874 gpm

The downstream sewer on 15th Street West from State Ave to Grasslands Drive has the capacity to serve area 12-1 as previously planned in the NW Dickinson Master Plan. However, east of grasslands drive, wastewater from Areas 12-1 and 12-2 will converge and the existing sanitary sewer will not have the capacity to serve both 12-1 and 12-2.

Table 17 – Areas 12-1 and 12-2 Flows: Grasslands Dr

Limiting Segment Capacity (10" pipe)	807 gpm
Existing Flows	200 gpm
12-2 Flows	1,029gpm
Reserve Capacity	-411 gpm

Based on the existing reserve capacity of the gravity sewer in 19th Street West, approximately 900 dwelling units could be served without upgrading the downstream gravity sewer. However, once development is allowed to proceed, the city will need to limit the construction of new housing via development agreements. Failure to limit development until the downstream sewer is upgraded would risk the possibility of surcharging the downstream sewer to the point of backups in basements or sewer overflows.

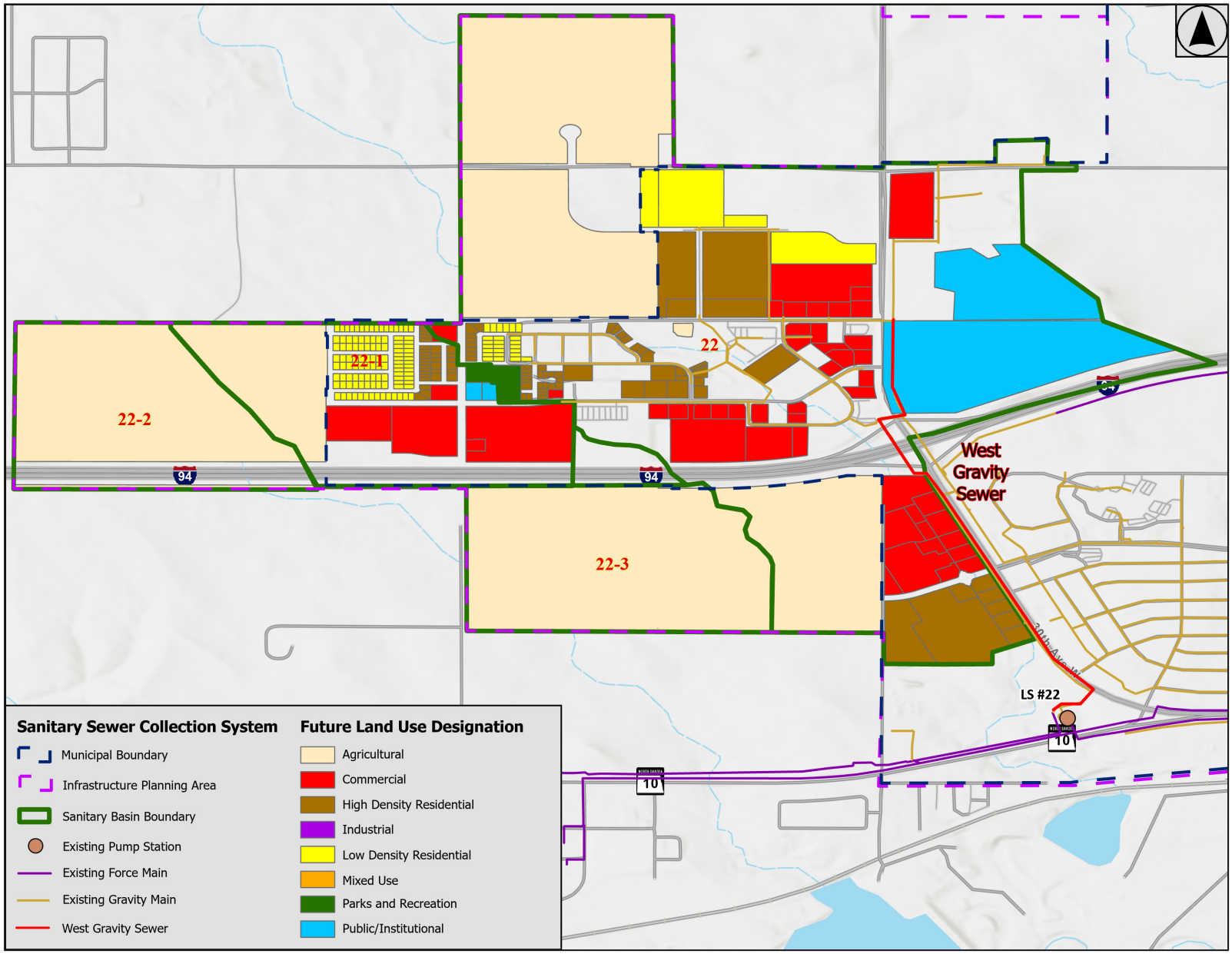
3.4.2 West Dickinson - West Pump Station (LS 22)

The west pump station (Lift Station 22) and the west gravity sewer were designed to serve a large area based on population growth planned during the last oil boom. As such, it has an excess of capacity for the present expected population growth rate. The west pump station serves the west side of Dickinson and the north side served by Lift Station 12. Lift Station 12 pumps wastewater to the west gravity sewer Phase 1.

Table 18 – West Dickinson Pump Capacities

	2024 Remaining Capacity	Future Peak Flows	Future Remaining Capacity
West Pump Station (LS 22)	5,157	1,872	3,285
Lift Station 12	3,108	2,967	141
West gravity sewer Ph1	4,522	1,872	2,650
West gravity sewer Ph2	10,157	1,156	9,001
Prairie Creek /State St. Gravity sewer	3,744	2,074	1,670

Figure 19 - Sewershed 22



The West Pump Station (LS 22) was designed to service areas to the north and west of the current urban service boundary. The Highway 10 Lift Station is located west of Dickinson on Highway 10 and was designed to serve the Dakota Prairie Refinery and the area to the west of Dickinson. The Highway 10 Lift Station pumps wastewater to the West Pump Station (LS 22). It currently only services the refinery and a few other contract users. No known development is currently planned west of the city limits. As such, no future flows have been calculated for this area.

3.5 East Dickinson Collection and Conveyance System

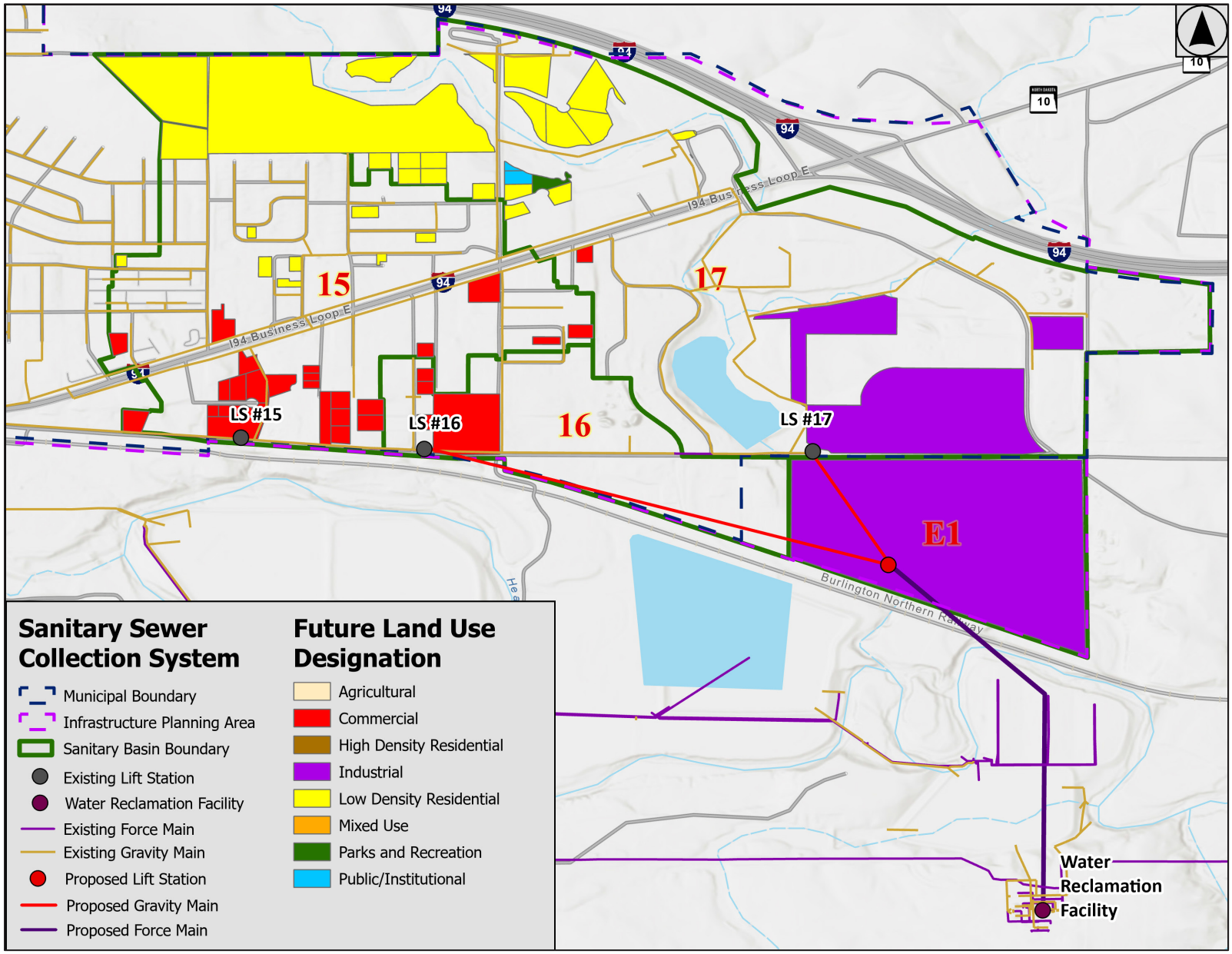
The East Dickinson Collection and Conveyance System serves sewersheds 15, 16, and 17. In fact, Lift Station 17 pumps to Sewershed 16, and Lift Station 16 pumps to sewershed 15. Lift Station 15 pumps into sewershed A. At the time of the previous Collection System Master Plan, all three lift stations were under capacity, especially during rain events. Some sections have been televised by the City and repairs have been made to reduce infiltration and inflow during rain events. However, the system is still deficient for the existing needs. In addition to the lift stations, the existing collection system may also be deficient for future development. Local development collection system improvements may be necessary. In the upper portion of Sewershed 17, there is no existing collection system. Service to this area will also need to be investigated.

Table 19 – East Dickinson Collection/Conveyance System Capacities

Lift Station	Firm Capacity (gpm)	Estimated Existing Flows (gpm)	Future Additional Flows (gpm)	Remaining Capacity (gpm)
15	290	285	400	-395
16	339	300	64	-25
17	238	250	530	-542

The existing East Dickinson Collection and Conveyance System has significant capacity deficiencies. Some of the future developments may be served with existing infrastructure if the lift stations were upgraded. However, as industrial acreage in this area develops, especially around E1, a new lift station will be required. Ultimately it is recommended that a new lift station be placed on the south side of sewershed E1 and a force main be installed from that lift station directly to the Water Reclamation Facility. Wastewater flows from sewersheds 16 and 17 can flow by gravity to a new lift station located on the south side of sewershed E1. This alternative would allow the decommissioning of Lift Station 17 and Lift Station 16. This would also take some of the demands off Lift Station 15, but LS 15 would still require upgrades. Further investigation is needed in these areas.

Figure 20 - East Dickinson



3.6 Influent Pump Station and Water Reclamation Facility

The Influent Pump Station was constructed as part of the Water Reclamation Facility improvements in 2013. Each pump in the IPS has the capacity to pump 10,425 gallons per minute to the water reclamation facility. There are three pumps, giving the station a total capacity of 13 MGD. This allows for upgrades and expansion to the WRF without having to upgrade the IPS at the same time.
The WRF is currently under evaluation for maintenance upgrades and expansions. For planning purposes, a separate evaluation from the Comprehensive Planning project determined improvements needed for a 20-year design life based on population projections and regionalization. The following documentation is from the Draft Facility Plan:

> *Population projections have been historically unpredictable due to the boom-and-bust cycle of the oil market over the past 50 years. The 2020 Census estimated population of Dickinson was 25,679 people. Based on planning information included in their 2024 Growth and Development Analysis report, Dickinson's projected population for 2045 is 36,449 persons.*
>
> *Dickinson has also been approached to provide regional wastewater treatment services for neighboring communities such as Medora, Belfield and South Heart. These communities are nearing the capacity of their existing facilities and hiring licensed/qualified operators is difficult for smaller communities. Regionalizing wastewater service with Dickinson would be an economic solution for neighboring communities when compared to expanding their own facilities. Additionally, regionalization is mutually beneficial for Dickinson, as capital and operational costs are distributed over a larger customer base, allowing Dickinson to maintain lower user rates. No formal agreements have been made at this time. The population projection for the anticipated future service area in 2045, including the communities of Dickinson, Medora, Belfield and South Heart, is 40,000 people served. Upgrades to the WRF will be designed based on this population projection.*

4.0 Improvements and Recommendations

Improvements and recommendations will be described individually. Improvements will be organized by the area served. All cost estimates in this section are based on 2025 dollars. Close coordination will be required to ensure that gravity sewer mains installed in developments are of adequate size to convey flows from upstream development areas.

4.1 Lift Station 7 Maintenance Improvements

The Lift Station 7 will be evaluated for capacity and operational improvements. This will include engineering, architectural, structural and electrical evaluation of the lift station and resulting improvements needed to facilitate operations and future needs.

Estimated Cost: $800,000

4.2 Broadway Collection System Study

The Broadway sewer collection system will be investigated and recommendations made. This will include televising the sewer collection system, manhole evaluation, flow monitoring, and capacity evaluation. Recommendations for improvements will be presented to the City. Design and construction will be considered at a later date.

Estimated Cost: $50,000

4.3 Sims St./LS 9/Basin C Gravity Improvements

The Sims Street Gravity Sewer will be designed from Lift Station 18 to Lift Station 9, through Basin C and to the Influent Pump Station. Lift Stations 11, 18, and 9 will be eventually be decommissioned. This project will be completed in multiple phases to coincide with street work in the areas.

Estimated Cost: Varies with Phases

4.4 Lift Station 4 / River Road Improvements

Lift Station 4 will be evaluated and upgraded to accommodate future flows. River Road will be evaluated and upgrades made as necessary to accommodate upgrades in Lift Station 4.

Estimated Cost: $5,000,000

4.5 South Gravity Sewer to Lift Station 5

A new gravity sewer will be designed and constructed from 8th Street Southwest to Lift Station 5 to accommodate future growth south of 8th Street Southwest.

Estimated Cost: $4,800,000

4.6 Sewer Improvements to serve Areas 12-1 and 12-2

The sewers along 19th Avenue West and 15th Avenue West will need to be upsized to accommodate the future growth in areas 12-1 and 12-2. The alternative to upgrading the sewers is to limit the growth to the maximum number of units as described herein.

Estimated Cost: $2,000,000

4.7 East Dickinson Improvements

A new East Lift Station will serve the development area in East Dickinson and pump to the Water Reclamation Facility. Gravity sewers will be extended from Lift Station 16 and 17 to the new East Lift Station.

Estimated Cost: $16,000,000

4.8 Water Reclamation Facility Upgrades

Various maintenance items and treatment system upgrades at the WRF are being designed and will be constructed to improve operations and capacity for future development. The improvements will be made in phases over the next several years.

Estimated Cost: $104,000,000

5.0 Proposed Future Projects

Project	Year	CIP Estimate
LS 7 Maintenance Improvements	2026	$800,000
Broadway Collection system Investigation	TBD	$50,000
Sims St./LS 9/Basin C Gravity Improvements	2027-2030	$7,000,000
LS 4 / River Road	TBD	$5,000,000
South Gravity Sewer to Lift Station 5	Development Driven	$4,800,000
Sewer Improvements to serve Areas 12-1 and 12-2	Development Driven	$2,000,000
LS 16/17/E1	TBD	$16,000,000
WRF upgrades	Maintenance Upgrades 2026-2027 Capacity - TBD	$6,000,000 (Maintenance) $98,000,000 (Capacity)