

**CITY OF DICKINSON NORTH DAKOTA TRANSPORTATION MASTER PLAN  
REVISED 2026**

**TRANSPORTATION MASTER PLAN DATA, ANALYSIS AND RECOMMENDATIONS**

**EXISTING TRANSPORTATION SYSTEM**

A transportation master plan (TMP) is a long-range plan addressing transportation and mobility. An existing conditions report (ECR) is a key step in the planning process. The ECR provides a snapshot in time of the existing system. The ECR assists with identifying network issues and gaps, facilitating the path to project identification, prioritization, and implementation.

The 2025 revision of the City of Dickinson Transportation Master Plan is based upon the data, analysis, and recommendations found in the *Direction 2025 City of Dickinson North Dakota Comprehensive Plan & Transportation Master Plan* as adopted, by resolution, by the City Commission on October 25, 2025 (RES 44-2025).

**TRANSPORTATION SYSTEM GIS DATABASE**

The project team compiled a GIS database of all modes of the existing transportation network and developed existing transportation network transportation system profile summaries.

The GIS data features the following information:

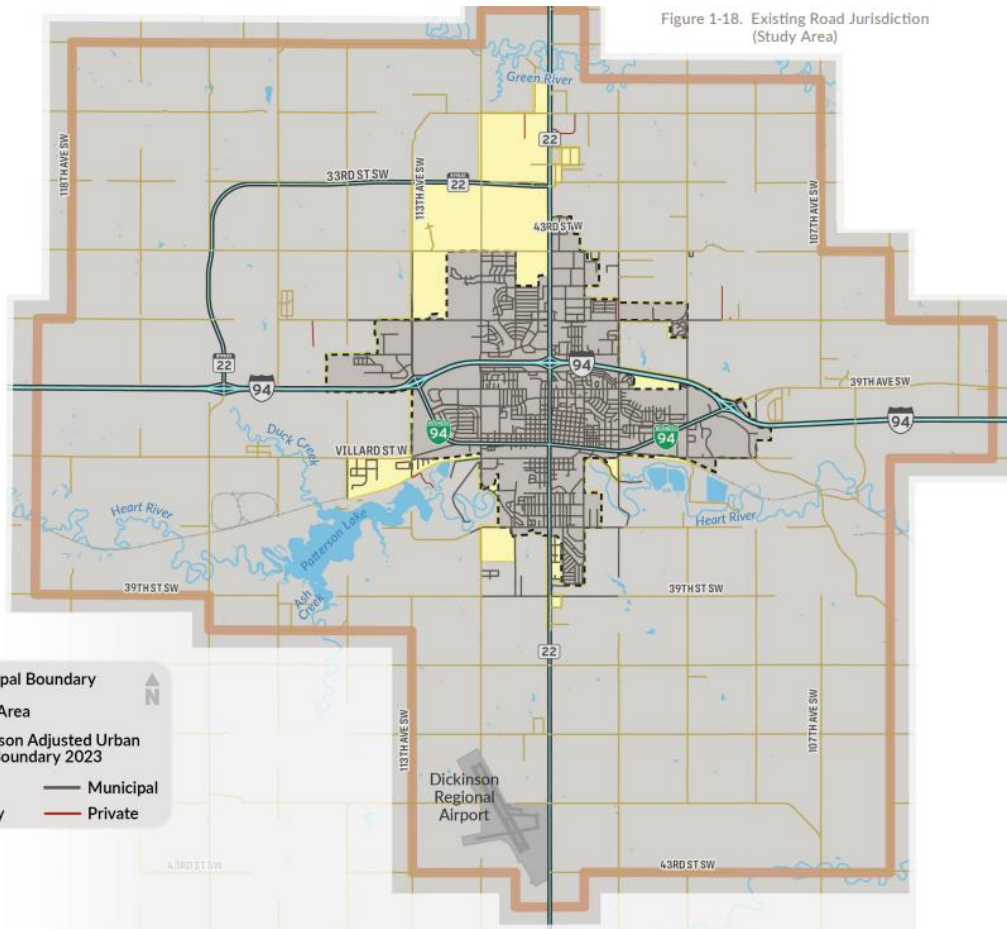
- Jurisdiction and Functional Classification of Study Area Urban and Rural Roadways;
- Traffic Data Volumes (intersections and road segments) Level of Service (LOS) Crash Statistics: Five Year Analysis; Top 10 High Frequency Crash locations;
- Pavement Conditions;
- Bridge Conditions; and
- Multi-Modal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

**JURISDICTION**

Within the Dickinson study area, there are several categories of highway and road systems that fall under numerous jurisdictions.

- The North Dakota Department of Transportation (NDDOT) is responsible for maintaining the Interstate and State Highway systems that move people and freight efficiently across the region, state, and country.
- County 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 comprises the traditional grid systems typically found across the Midwest. Depending 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 in Figure 1-18 and at the Municipal level in Figure 1-19.

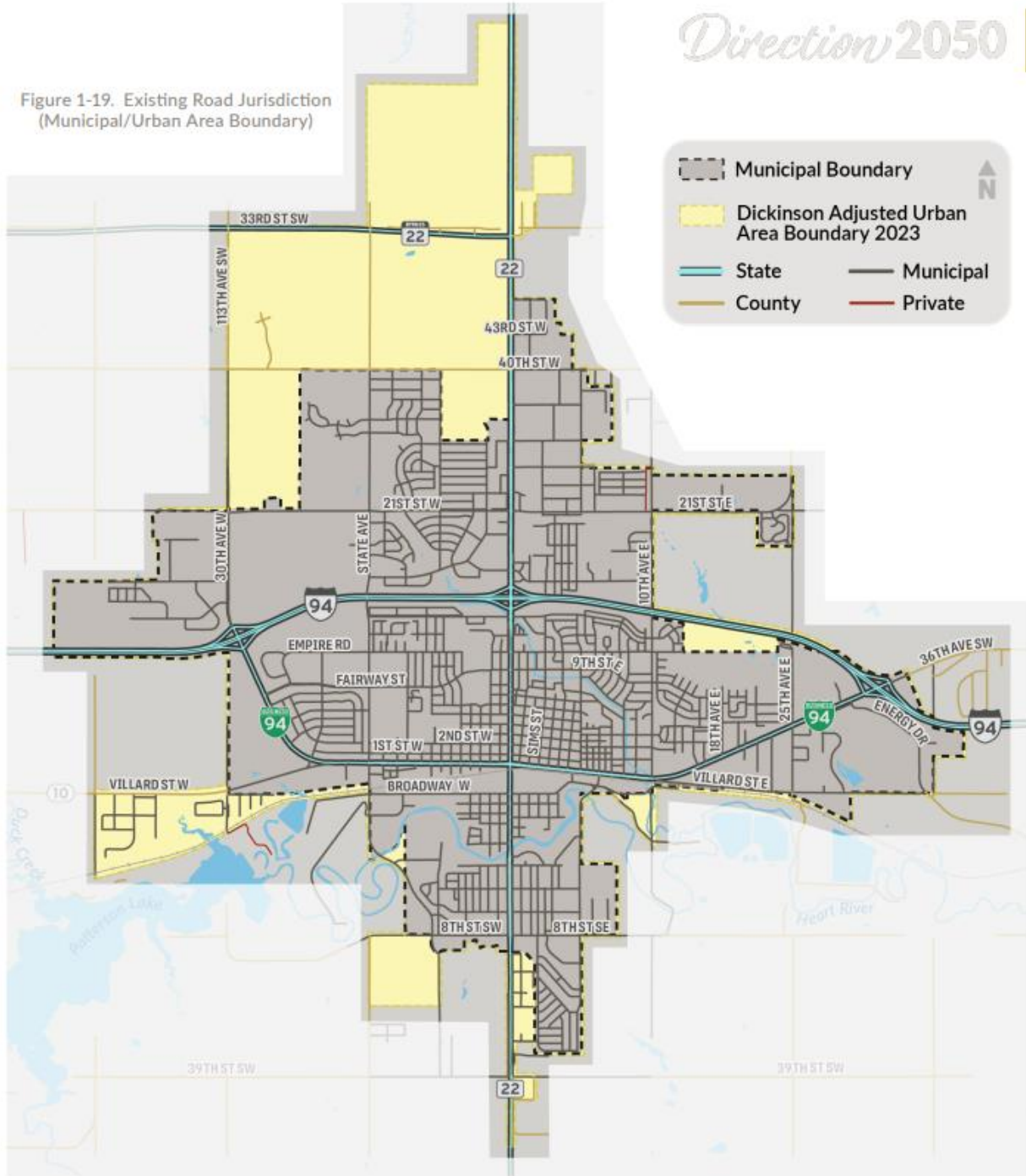
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*Direction 2050*

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



**FUNCTIONAL CLASSIFICATION**

The Federal Highway Administration (FHWA) organizes roadways into a hierarchy of five general Functional Classifications (Figure 1-20). Most streets and highways have one of the two predominant functions:

- they provide the motorist with access to abutting land; or
- they promote optimum mobility through an area.

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The operation of Dickinson’s transportation network is supported by the functional classification of its roadway system (shown in Figures 1-21 and 1-22 ). The functional classification defines the role each road segment serves to provide traffic flow throughout the study area while identifying funding sources available for roadway projects. A well-defined functional classification system provides for both efficient operation of traffic, short- and long-term system maintenance, and project funding sources.

Dickinson’s 2023 Urban Area Boundary (UAB), which sets the urban geographic boundary, is tied to Federal Highway Administration (FHWA) functional classification guidelines and, subsequently, to federal aid funding opportunities.

Potential corridor expansion or project development emerging from the Direction 2050 planning efforts should consider the following:

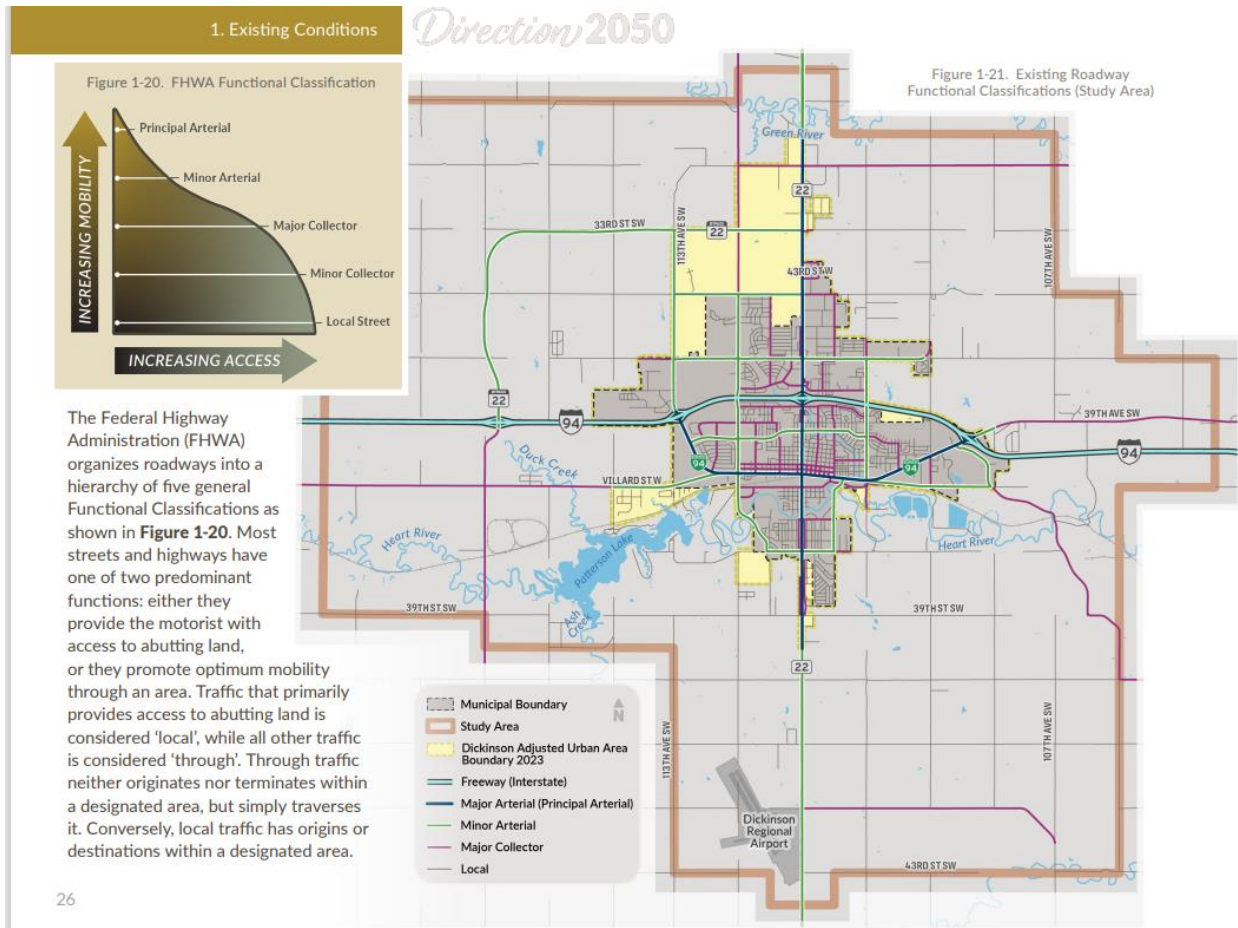
- An opportunity to incorporate the project into the next revision of the UAB;
- An opportunity to update the City’s Urban Service Boundary (USB), and
- Whether any pending or identified County or State projects on functionally classified urban roads could potentially receive federal funding.

Traffic providing access to abutting land is considered ‘local’, while all other traffic is considered ‘through’. Through traffic neither originates nor terminates within a designated area: through

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traffic traverses the area. Conversely, local traffic has origins or destinations within a



designated area.

Access control is necessary, as roadways with full or partial control of access are typically classified as major arterials or minor arterials. Delineating road facilities early in the land use planning process defines a preliminary system of arterials and, subsequently, develops 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 located outside the UAB, and urban functional classifications are located within the City's Urban Service Area (USA) and the municipal boundary.

## PRINCIPAL (MAJOR) ARTERIALS

Principal Arterials provide regional and interstate transportation for people and goods. Principal arterial facilities are designed to accommodate high speeds and long, uninterrupted trips. Principal arterials in urbanized areas constitute high-volume corridors with a large portion of regional trips.

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Interstate highways, the highest classification of arterials, are designed for high-speed and long-distance travel. U.S Interstate 94 (I-94), which runs east and west through the city and throughout the State of North Dakota, is Dickinson’s sole interstate arterial.

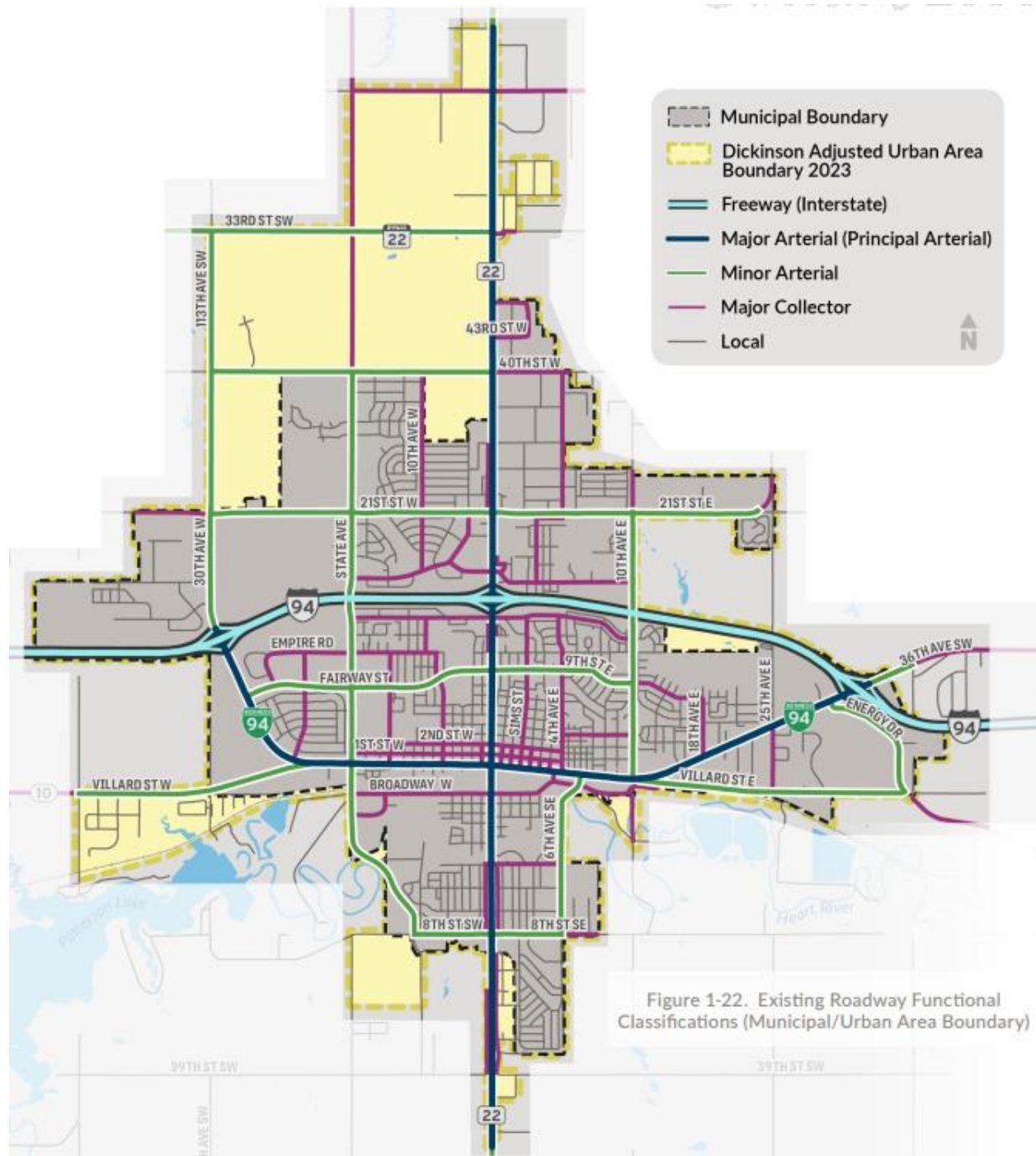


Figure 1-22. Existing Roadway Functional Classifications (Municipal/Urban Area Boundary)

Other Freeways and Expressways, while not included in the Interstate system, operate similarly to Interstate highway roadways. Roads in this classification generally have the following:

- Directional travel lanes separated by a physical barrier; and

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- Access points limited to on- and off-ramp locations or to a limited number of at-grade intersections.

Other Principal (Major) Arterials also 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 to determine eligibility for Federal funding. Presently, roads functionally classified as a 'rural major' or 'urban minor' collector or higher are eligible for Federal funding; therefore, these roadways are referred to as Federal-aid Highways. Minor Arterial routes within the street system provide connections and support to the Principal Arterial system. Trips using these facilities are generally shorter and are spread out over a smaller geographic area. Minor Arterials allow greater access than their Principal Arterial counterparts. Minor arterials can be classified into rural and urban minor arterials.

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

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

- Rural minor arterials link cities, towns, and other major traffic generators to form an integrated network to interstates and freeways. A rural minor arterial's 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;
- Rural minor arterials are spaced at intervals to allow a reasonable distance for all developed areas within an arterial highway; and
- Rural minor arterials provide for relatively high overall travel speeds, with minimal interference to through movements.

### **COLLECTORS**

Collectors gather traffic from Local Roads and they funnel traffic to the Arterial network. In densely developed areas high-volume roads may function as collectors, provide access between local streets and arterials, or provide 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 both residential and commercial/industrial areas. Urban collectors distribute and channelize trips between Local Roads and Arterials usually over a distance greater than three-quarters of a mile. Typical operating characteristics of urban collectors may include lower speeds and/or fewer signalized intersections dependent on urban density and Level of Service (LOS) requirements.

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Rural Collectors provide connectivity to key rural commercial/industrial, recreational, and agricultural locations not otherwise served by minor or major rural arterial roadways. Rural collectors may also provide connections to existing urban collectors or urban minor arterials that transition to municipal/urban area boundary functionally classed roads. Rural collectors are spaced at intervals consistent with population density. Rural Collector facilities provide service to smaller communities. Rural collectors also 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. Local Road and Streets have slower speed limits, may include traffic calming measures, and are not intended for long distance travel. Local streets typically account for the most mileage in the public road network. Local roads and street may be classified as either rural or urban.

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

Urban Local Streets comprise all roadway facilities that are not on any of the higher systems. Urban Local Streets offer the lowest mobility, but these streets also provide direct access to abutting land and to 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 and west through the state of North Dakota, and it bisects the City of Dickinson;
- ND Highway 22 (3rd Avenue W/South Main Street) runs north and south through Stark County, bisecting the City of Dickinson;
- Business Loop 94 (Villard Street) runs east and west for approximately 5.2 miles from the I-94 Exit 59 to the I-94 Exit 64.

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

Using information from the 2020 U.S. Census, the current functional classification system for Dickinson was analyzed to determine how closely the percentages of roadways for each classification falls compared to the percentages recommended by the FHWA. A summary of the system was previously discussed in the Existing Conditions section of this plan. Some urban system roads required reclassification to match anticipated future growth within the UAB and to align with the FHWA recommended system percentage guidelines. Dickinson's functional classification percentages appear to approximately equal federal recommendations (Table 1-7).

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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 U.S. Highway 85, N.D. Highway 22, and N.D. Highway 8 as rural minor arterials. Stark County classifies Highway 10 as a minor arterial, as it functions more similarly to state and federal highways than other County maintained roads. Other 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, and local County roads serve short local trips.

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

**PAVEMENT CONDITIONS**

*NDDOT International Roughness Index (IRI)*

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

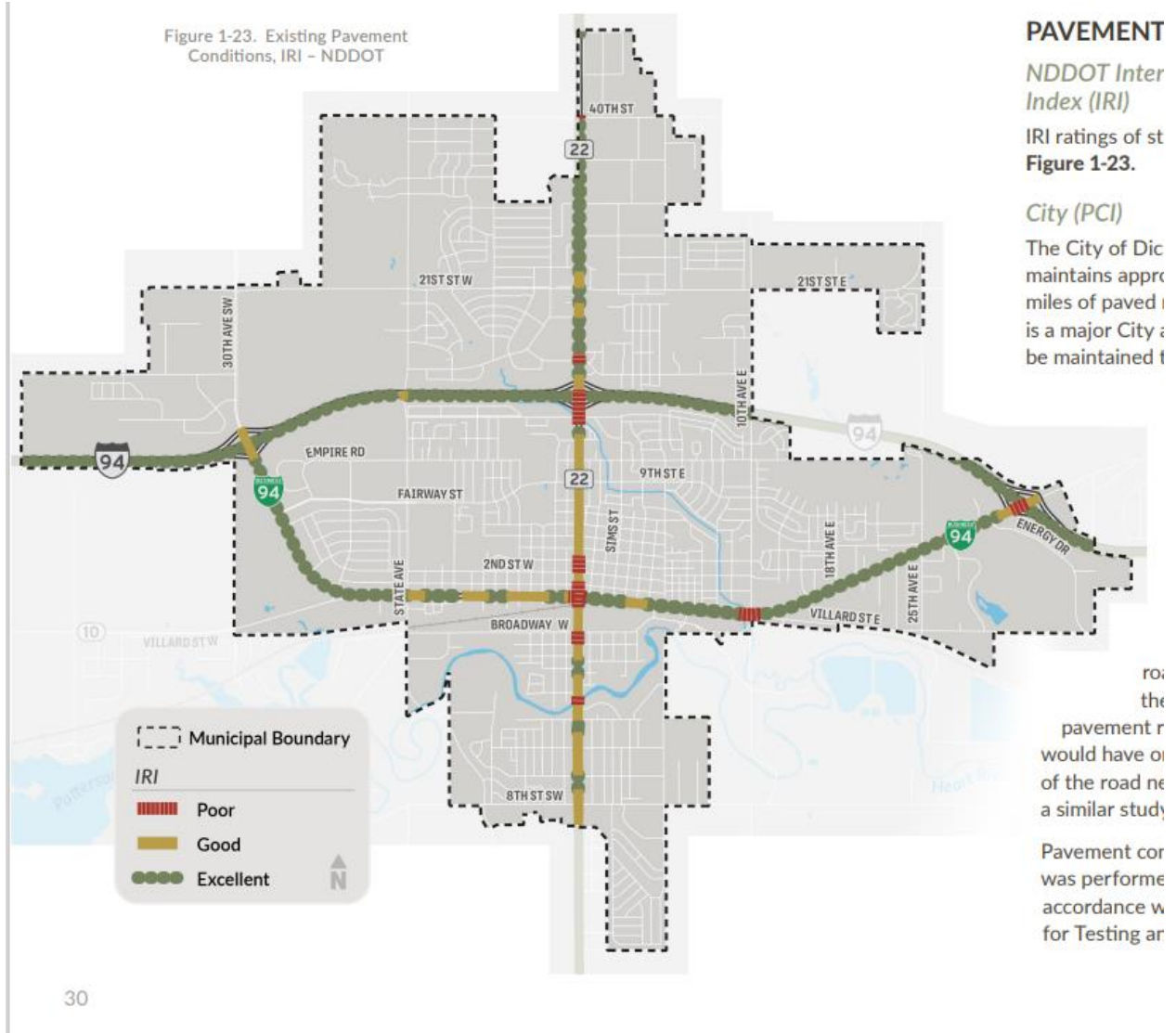
*City (PCI)*

The City of Dickinson owns and maintains approximately 157.8 centerline miles of paved roads. This road network is a major City asset that requires maintenance to preserve the City’s massive investment in this infrastructure and to 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 to 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.

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Pavement condition evaluation was performed on all City roads in accordance with the American Society for Testing and Materials (ASTM) method as described in ASTM Standard D6433. This method provides a numeric Pavement Condition Index (PCI) score for each road segment from 100 (no distress) to zero (very heavily distressed).



In September, 2023, the average PCI for the City’s road network was 78.9. In 2020 the average PCI was 76.7. The City’s PCI of the road network has increased by 2.2 points since 2020.

Potential budget streams were analyzed to determine their impact on the condition of the road network over the next ten years. This analysis indicates that \$7.55 million per year is needed to maintain the City’s road network current pavement condition.

Pavements degrade over time. The Direction 2050 project team recommends the City continue to evaluate the condition of its road network on a three-year cycle. A three-year evaluation would

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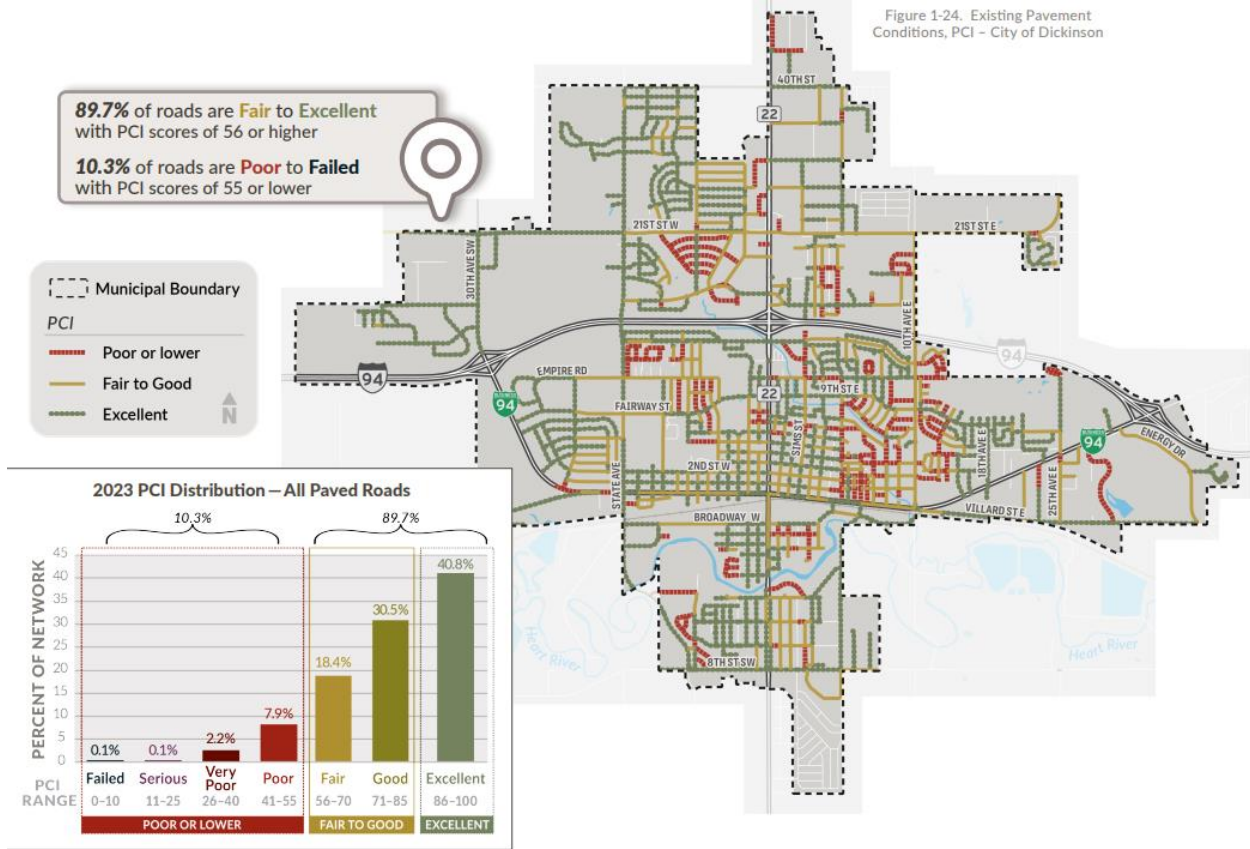
allow the City to identify roads deteriorating at an accelerated rate, and it would allow the city to reassess the funds necessary to maintain the City's roadway pavement.

The PCI score of each road segment represents its condition when the data was collected in September 2023. As road segments vary in size, simple arithmetic averages do not accurately represent overall road conditions. To address this issue the summary data in this report is weighted by segment area.

Figure 1-24 summarizes the conditions of the City's roads. Figure 1-24 includes a chart detailing the percentage of the City's roads that fall into the following ranges or categories.

- A PCI score of 40 or less indicates road segments in either Very Poor, Serious, or Failed condition. Approximately 2.4% of the City's roads have a PCI score of 40 or less. Pavements in the high end of this range (PCI above 25) may be candidates for mill, base repair, and overlay projects. Reconstruction or Full Depth Reclamation may be an appropriate strategy for pavements at the low end of this range (PCI of 25 or less) as these pavements are experiencing significant structural deficiencies.
- Road segments with PCI scores in the 41 to 55 range are considered to be in Poor condition. Approximately 7.9% of the City's roads have a PCI score in the 41 to 55 range.. These pavements are typically candidates for some form of major rehabilitation such as mill and overlay. Base repair may not be necessary in these cases.
- A PCI score in the range of 56 to 70 indicates road segments in Fair condition. Approximately 18.4% of the City's roads are in Fair condition. Pavements in Fair condition are at a critical point of service lives. Roads in Fair condition may be candidates for major rehabilitation if a functional or structural deficiency exists. Roads in Fair condition may be candidates for a preventative maintenance treatment that temporarily slows or halts deterioration. The cost to administer an effective maintenance/ rehabilitation strategy for pavements in Fair condition are still relatively low. If deterioration is allowed to continued, the cost to properly repair these roads may increase significantly.
- A PCI score above 70 indicates road segments in Good to Excellent condition. Approximately 71.3% of the City's roads are in Good to Excellent condition. Pavements that fall into these categories generally do not require rehabilitation. Pavements in the low end of this range may be candidates for preventative maintenance such as chip seal or other forms of surface treatment.

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**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. Twenty-five (25) of those structures are within City limits. Table 1-8 provides a breakdown of bridges by type, jurisdiction, and condition. Within the Study Area/Municipal Boundary in the City of Dickinson’s jurisdiction, there are two bridges in good condition, five in fair condition, and none in poor condition.

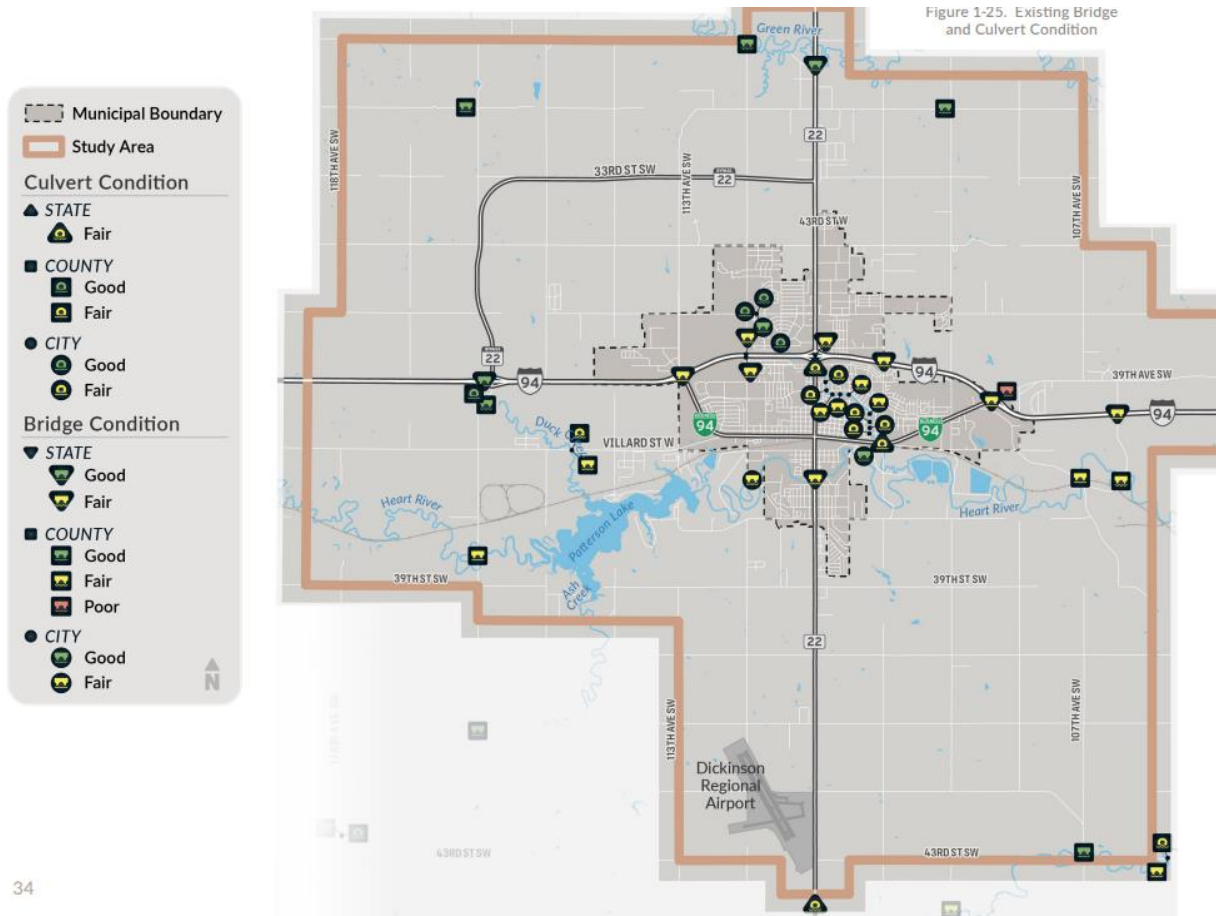
Table 1-8. Study Area Bridge and Culvert Structure Inventory

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
<b>TOTAL</b>	<b>1</b>	<b>15</b>	<b>9</b>	<b>—</b>	<b>9</b>	<b>4</b>	<b>38</b>

*BRIDGE CONDITION RATINGS*

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The condition of bridge superstructures, substructures, decks, and culverts are rated on a scale of 0 to 9. The overall condition of a bridge or culvert is determined based on the lowest of these ratings. A rating of four (4) or lower is considered as poor condition; five (5) or six (6) is considered fair, and seven (7) or above is considered good. Existing bridge and culvert conditions are shown in Figure 1-25.



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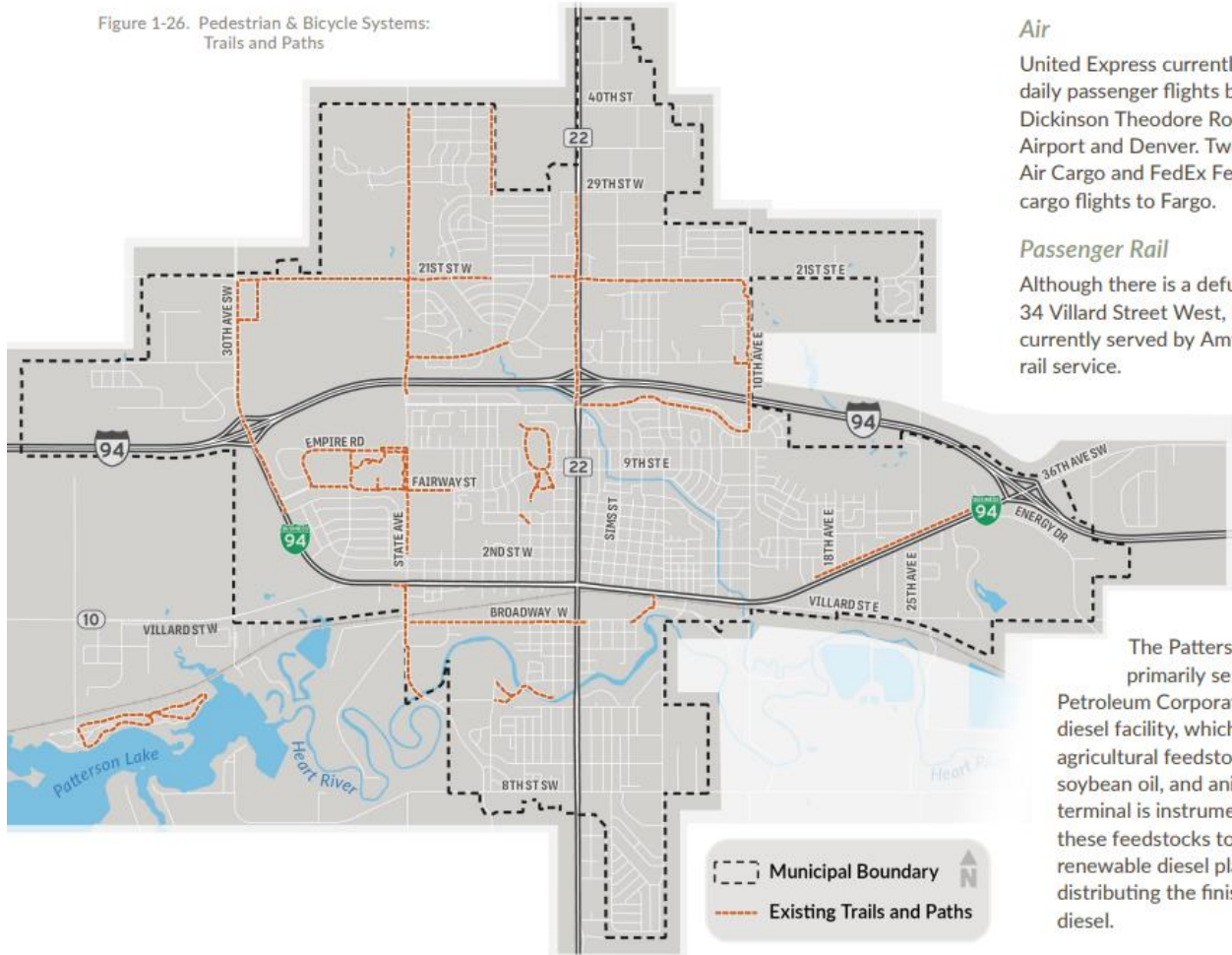
**MULTI-MODAL TRANSPORTATION SYSTEMS**

*Pedestrian & Bicycle Systems*

The Dickinson Parks and Recreation District maintains approximately 19.4 miles (102,287.5 linear feet [LF]) of existing pedestrian and bicycle trails and pathways system facilities (Figure 1-26).

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



**Air**

United Express currently offers daily passenger flights between Dickinson Theodore Roosevelt Airport and Denver. Two Air Cargo and FedEx FedEx cargo flights to Fargo.

**Passenger Rail**

Although there is a defunct 34 Villard Street West, it is currently served by Amtrak rail service.

The Patterson primarily serves Petroleum Corporation diesel facility, which agricultural feedstocks soybean oil, and animal terminal is instrumental in these feedstocks to renewable diesel plants distributing the finished diesel.

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Shared-use paths and pedestrian sidewalks in Dickinson accommodate individuals who bicycle or walk. Results of Community Survey 1 indicate 3.2% of residents either walked or cycled to work, which is consistent with U.S. Census travel-to-work data. Most walking and cycling activities occurring in Dickinson are for recreational purposes.

Participants in Community Survey 1 were asked to rate satisfaction with different aspects of Dickinson’s transportation system. Among the questions was one regarding 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 Parks and Recreation District’s Master Trails Plan is to expand the existing trail system. Specific Master Trails Plan objectives include the following:

- 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;

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- Extend the trail system to all areas of the city; and
- Construct trails along existing or expanded city street rights-of-way

*Existing Trail System*

The existing City pedestrian and bicyclist transportation system consists of shared-use paths on trails, sidewalks, striped bike lanes, and roads used by bicyclists. The Park Board and the City have developed sections of shared-use trails frequented by residents. The Park Board’s goal is to expand the existing trail system and to provide a higher level of interconnections with the trail network.

*The Master Trail Plan*

Prior to 2012, KLJ worked with the Dickinson Park Board and its staff to develop the Master Trail Plan. An existing trails plan was reviewed and revised to meet the objectives in the Master Trail Plan. The Park Board adopted the Master Trail Plan on October 8, 2012.

The Master Trail Plan consists of a master trail system map, a schedule and map of proposed trails development, design standards 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, a City of Dickinson Transportation Board was formed. As a result of this board’s efforts, transportation for this specialized group was consolidated in September 1991 under the umbrella of Elder Care.

**On Demand**

As part of consolidation efforts, special needs rides would be provided during daytime hours utilizing Elder Care buses. and Local taxi service would provide special needs rides during evenings and weekend hours. Currently, Elder Care operates 10 vehicles (four buses and six vans). Transit services are also offered to the larger Dickinson community, with weekly trips to Bismarck as well as trips to surrounding towns pending driver and vehicle availability.

**Fixed Route**

Currently, there are no fixed public transit routes in Dickinson.

**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.

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**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) provides freight rail service to Dickinson.

**Transload**

The Patterson Rail Terminal primarily serves Marathon Petroleum Corporation's renewable diesel facility by providing corn oil, soybean oil, animal fats and other agricultural feedstocks. The terminal brings these feedstocks to the Marathon Petroleum renewable diesel plant and distributes the finished renewable diesel product.

**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.

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## 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.

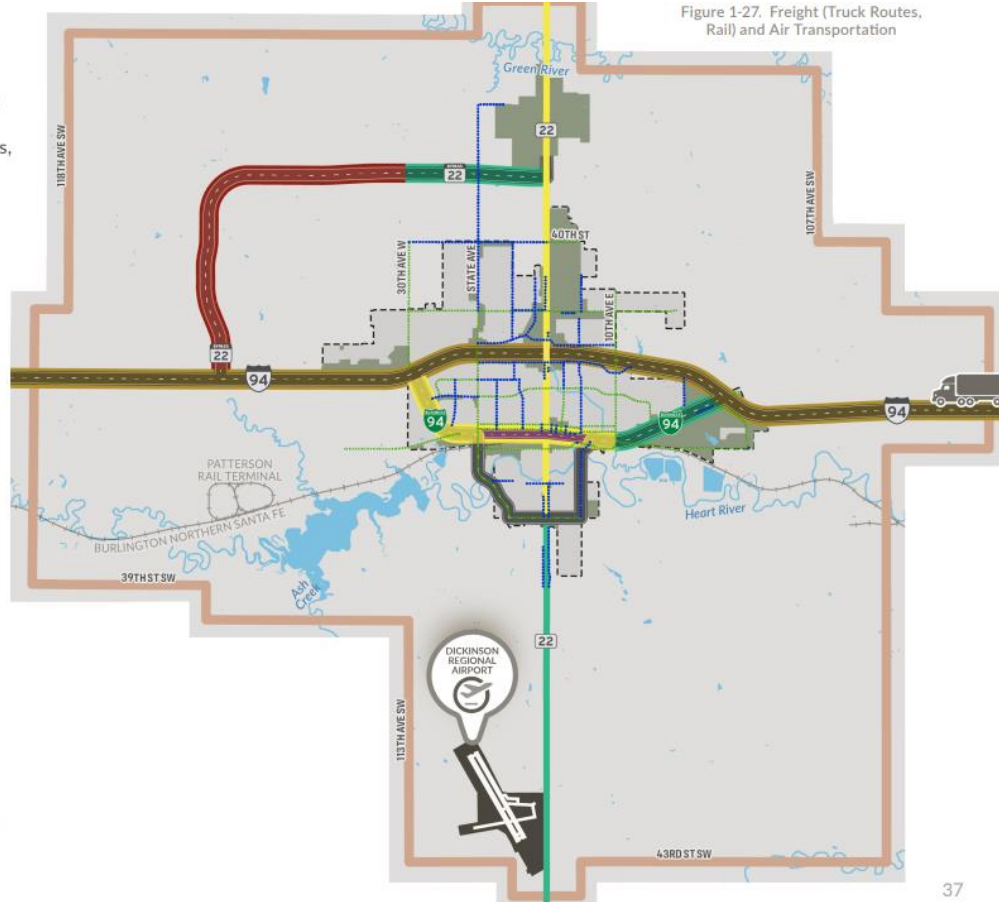
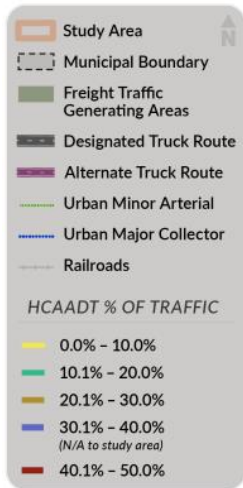


Figure 1-27. Freight (Truck Routes, Rail) and Air Transportation

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## 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 a higher frequency of crashes occurs along Highway 22. High frequencies of crashes also occur along Empire Road, Villard/94 Business Loop, and State Avenue at principle/major and minor (urban) arterial intersections.

### Crash Severity

Between 2019 and 2023, there were 2,118 total crashes within the study area. Crash severity was broken down as follows:

- 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.

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Figure 1-29 and Figure 1-30 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. Figure 1-31 shows the locations of the top 10 crash locations.

**Pedestrian/Bicycle Crashes**

Between 2019 and 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) resulted in fatalities. Figure 1-32 provides details on crash type and location.

**INTELLIGENT TRANSPORTATION SYSTEMS (ITS)**

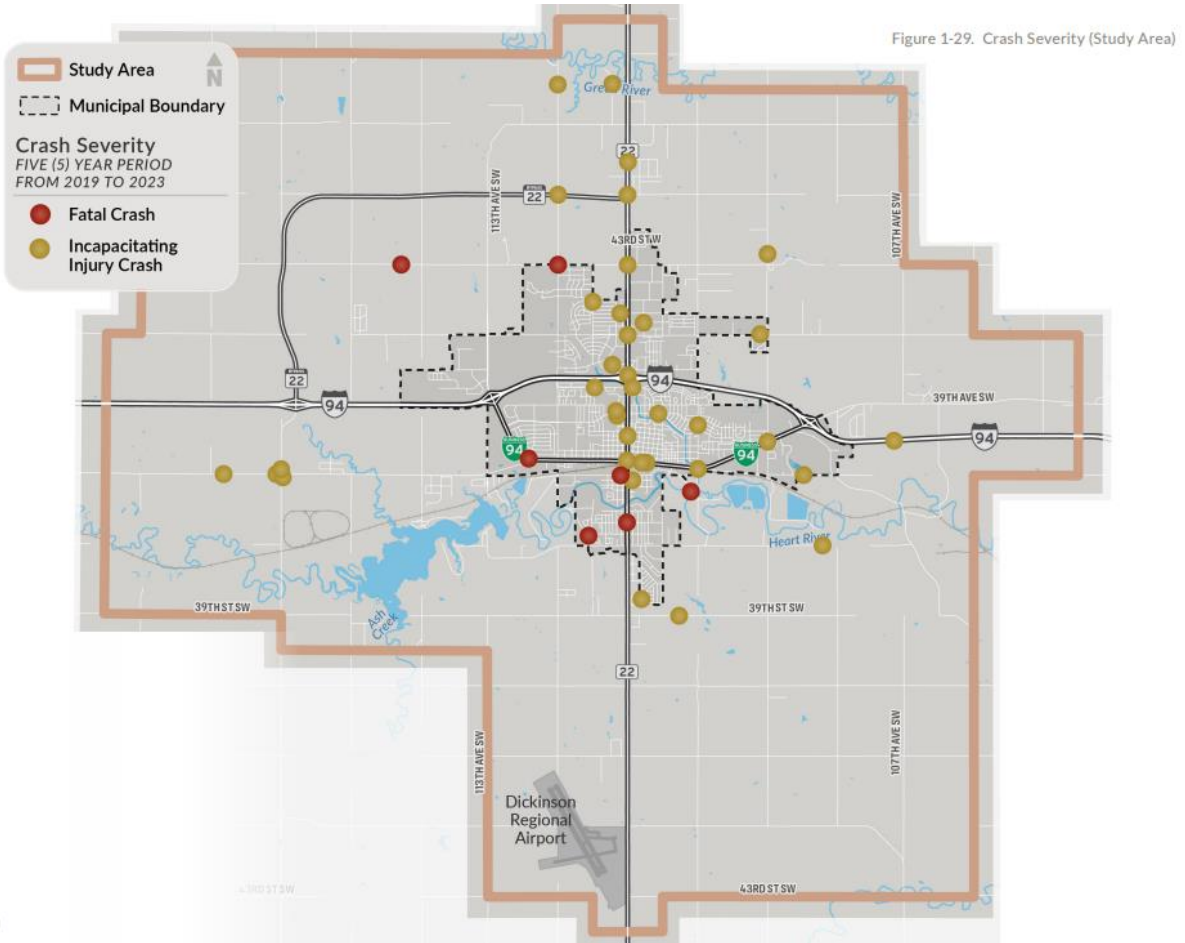
Intelligent Transportation Systems (ITS) can be utilized to reduce crashes. ITS can cover a wide range of devices, from semi-actuated signals, vehicle detection cameras, or road signs that update weather conditions or updates for congestion management. The City has installed an ITS warning sign on Hwy 22 and on Villard Avenue. ITS detects water over the roadway and triggers 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



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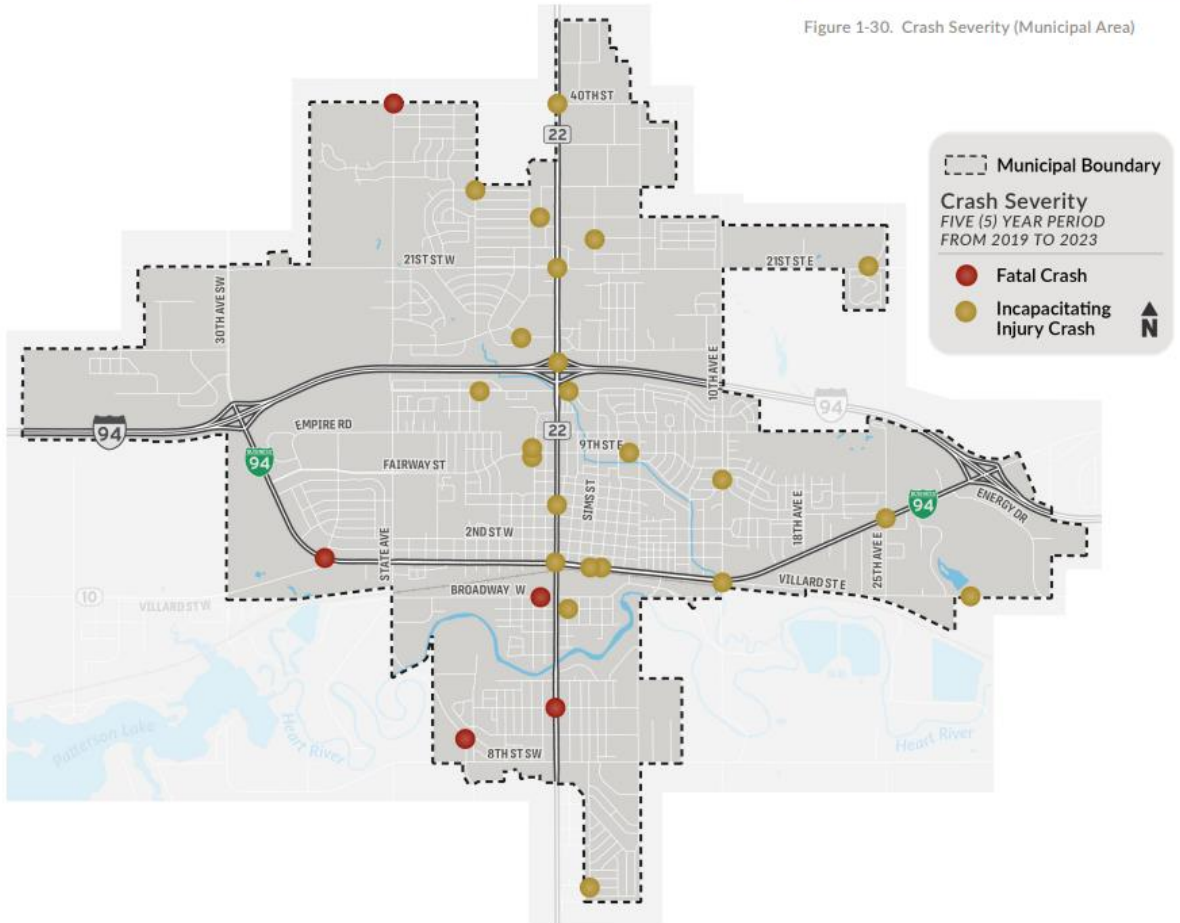


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Figure 1-30. Crash Severity (Municipal Area)





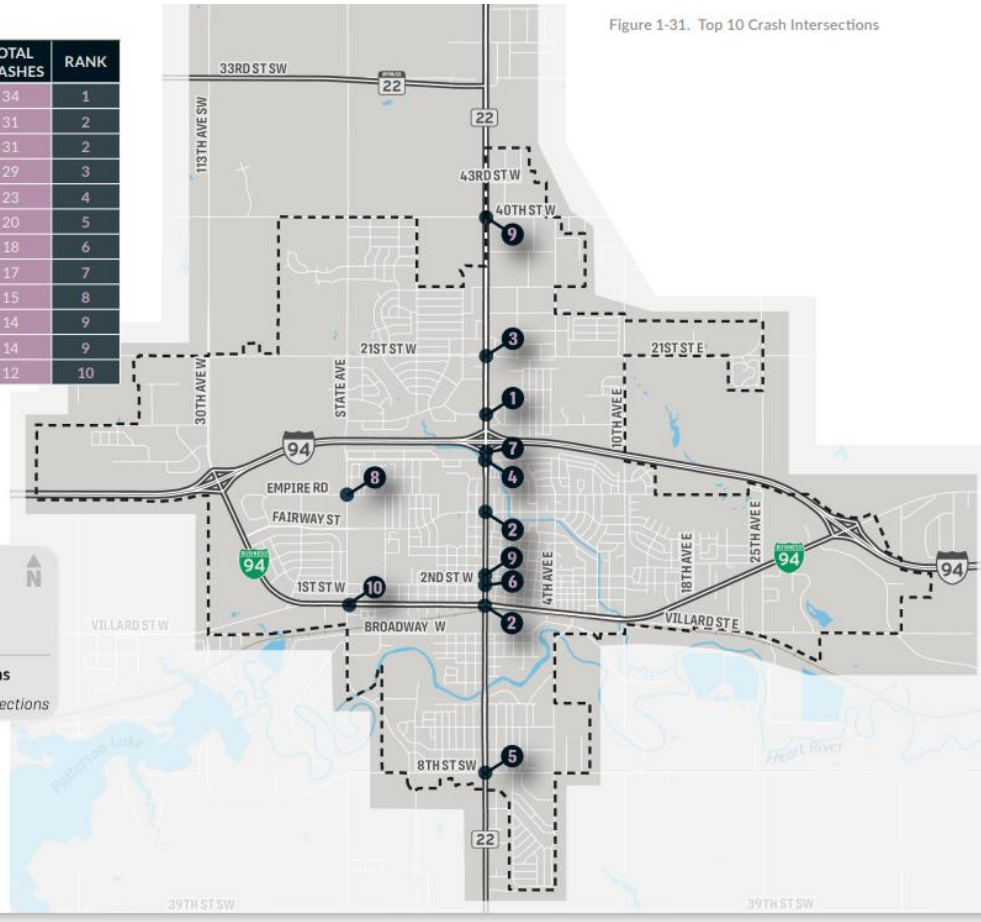
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Figure 1-31. Top 10 Crash Intersections

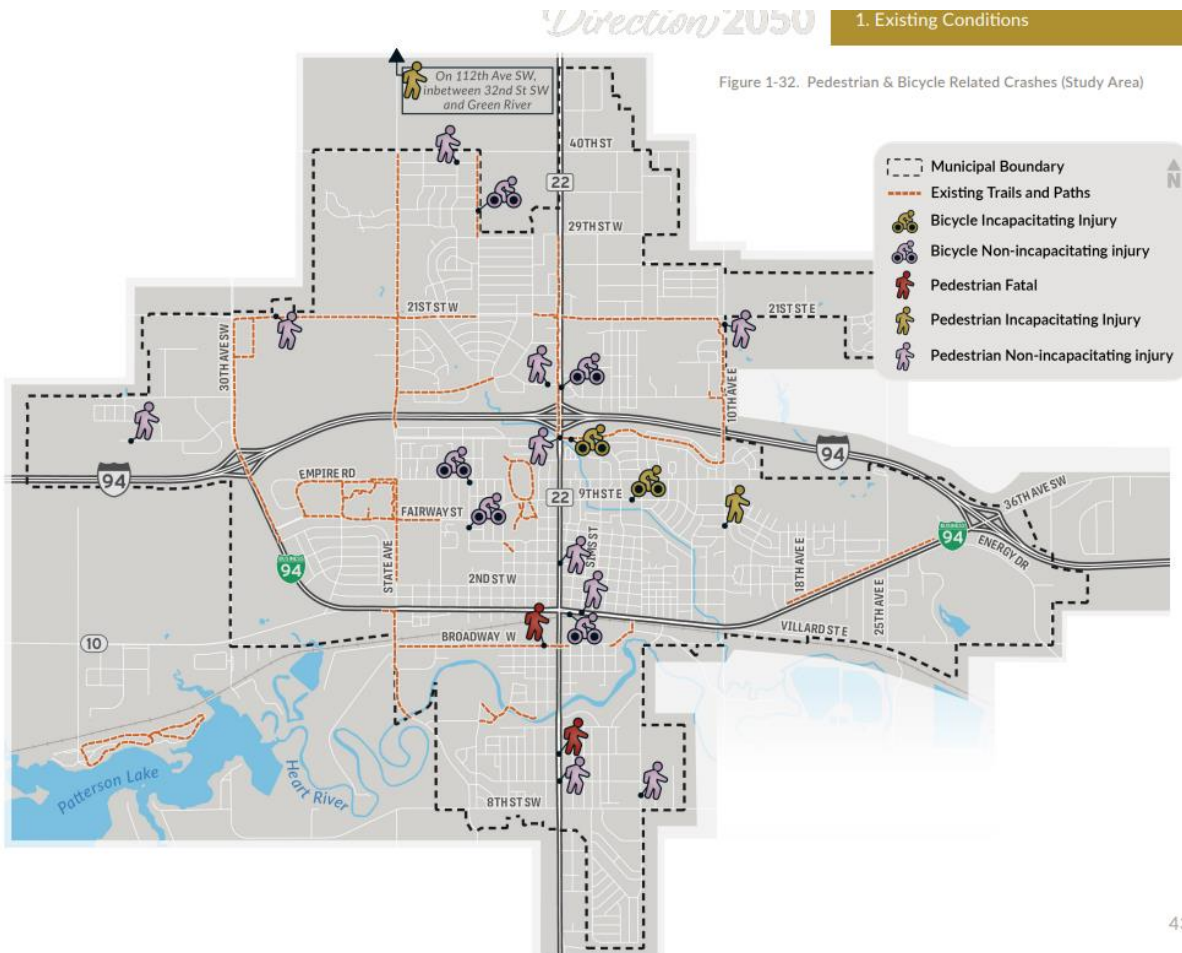
STREET 1	STREET 2	TOTAL CRASHES	RANK
ND 22	15th St W	34	1
ND 22	Villard	31	2
ND 22	9th St W	31	2
ND 22	21st St W	29	3
ND 22	Museum Dr W	23	4
ND 22	8th St SE	20	5
ND 22	2nd St W	18	6
ND 22	94 Ramps	17	7
Empire Rd	State Ave	15	8
ND 22	3rd St W	14	9
ND 22	40th St W	14	9
Villard	State Ave	12	10

 Municipal Boundary  
**Crash Intersections**  
 FIVE (5) YEAR PERIOD  
 FROM 2019 TO 2023  
 Top Ten\* Crash Intersections  
 \*Includes ties for a total of 12 intersections



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**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 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

The following conditions were considered when developing a preliminary set of transportation issues:

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- Crash history, especially at locations with fatal or serious injuries, as well as crashes involving bike riders and pedestrians;
- Pavement condition; and
- Existing and projected level of service (LOS).

Issues were initially broken down based on a series of regional and corridor levels.

**REGIONAL TRANSPORTATION ISSUES**

A series of regionally focused transportation issues were identified as needing further evaluation as part of Direction 2050:

- 107th/Stark County Corridor;
- Southeast Bypass; and
- Southwest Bypass.

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

**Municipal Corridor Issues**

**Future Potential Grade Crossing Of I-94.**

A proposed alternate truck route, as depicted in Figure 3-1, could result in grade crossing with I-94.

**Bypass Needs**

A Southeast/Southwest bypass connecting Dickinson-Theodore Roosevelt Regional Airport to I-94 could increase safety and alleviate traffic congestion along portions of the existing truck bypass in the southern portion of the study area. A Southeast/Southwest bypass could also create a complete connection with the existing northwest ND 22 bypass. As Stark County has identified necessary roadway projects along the conceptual southeast/southwest bypass route, planning and development of a proposed southeast/southwest truck bypass would require coordination with Stark County. An example of a pending Stark County improvement is a project along 107th Avenue/32nd Street as shown on Figure 3-2.

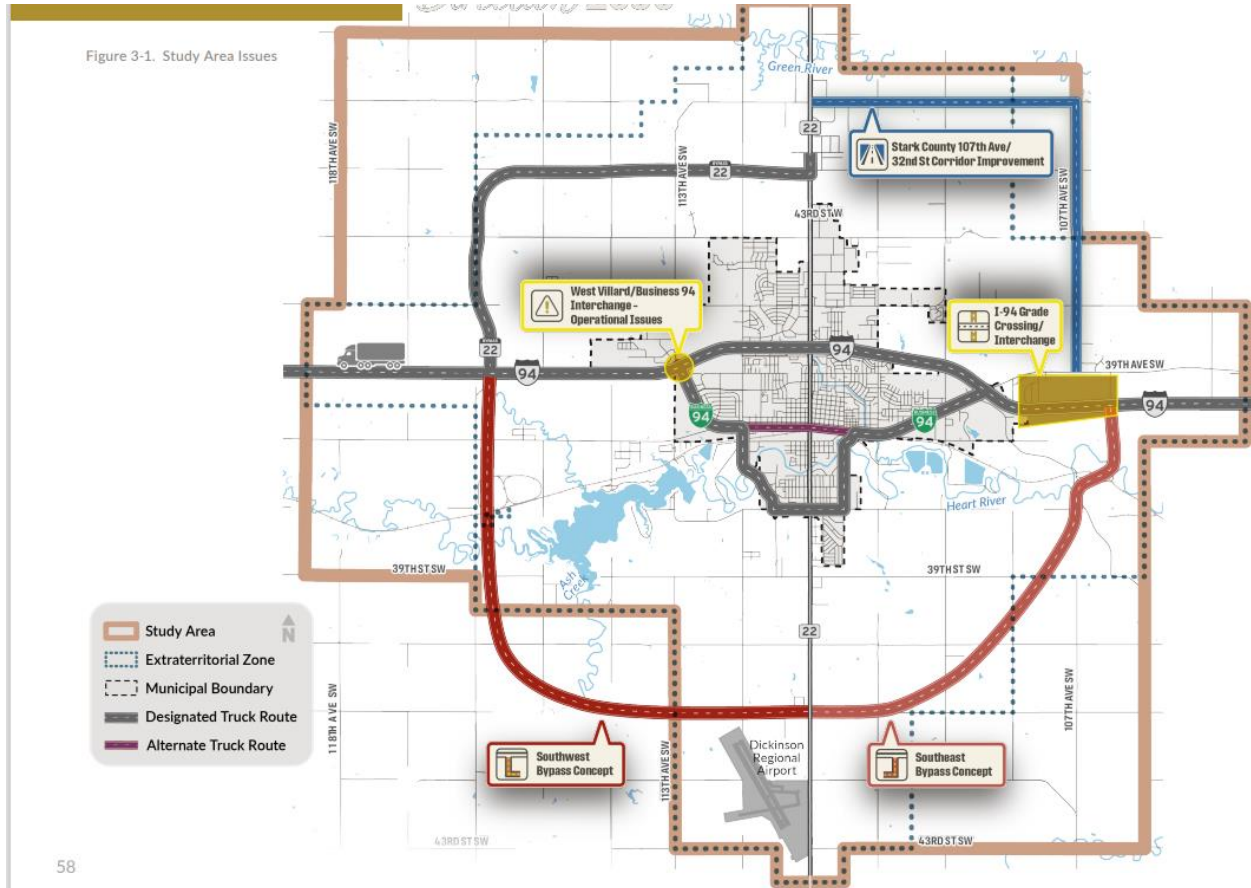
**CORRIDOR ISSUES**

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

- North/South Mobility;
- State Avenue;
- 10th Avenue;
- ND 22;
- Downtown core; and

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- West and East Villard Street (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.

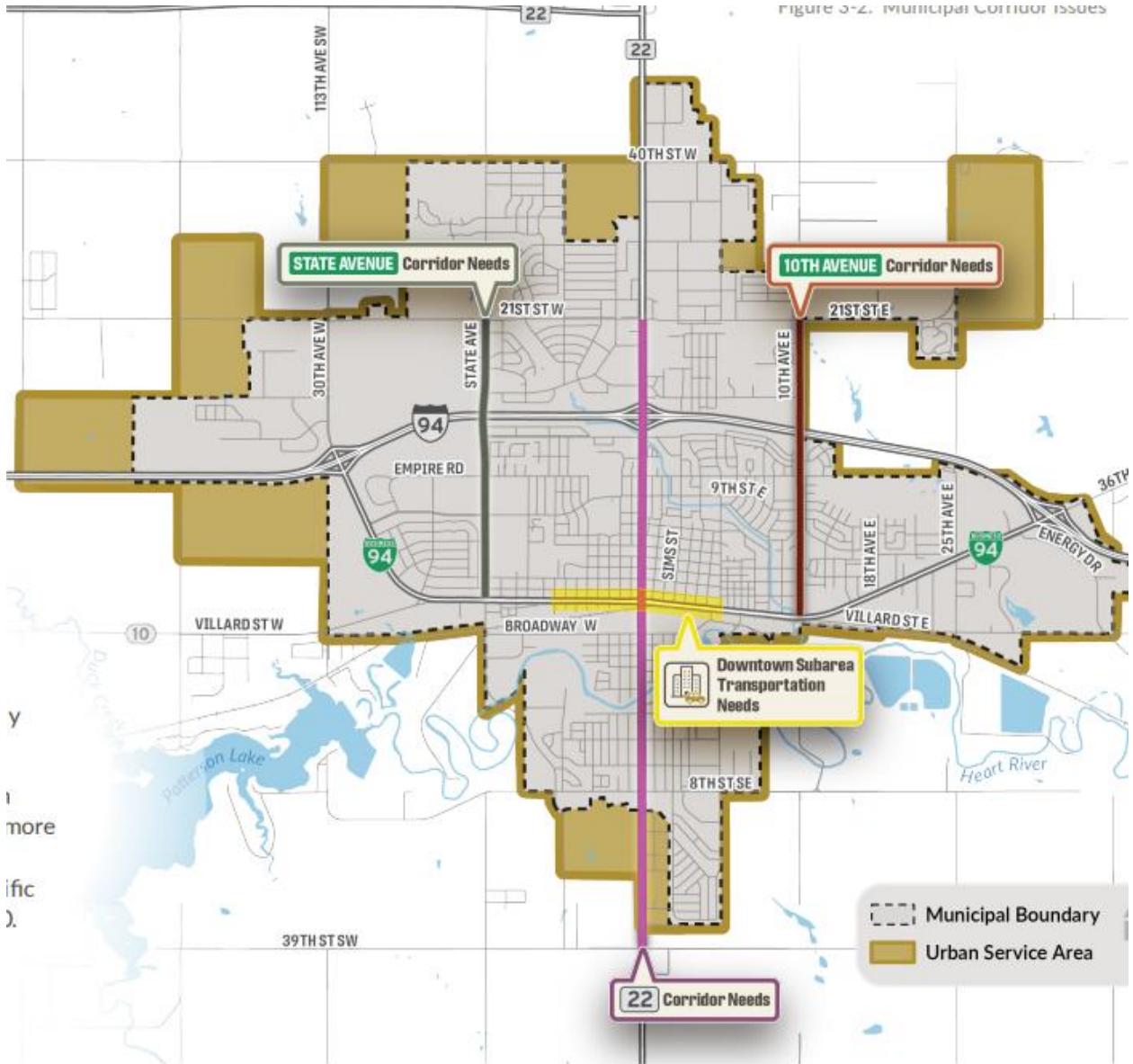


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Figure 3-2. Municipal Corridor Issues

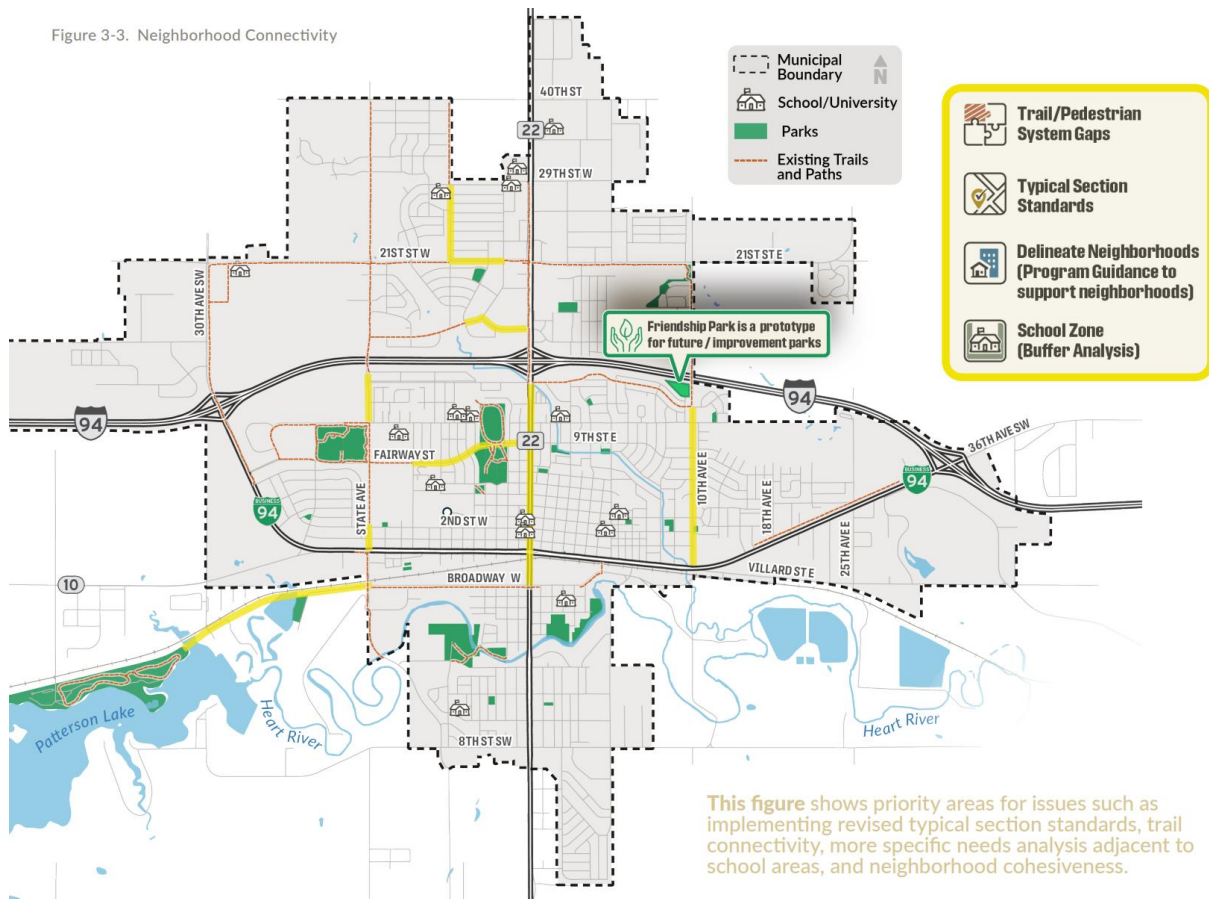


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Figure 3-3. Neighborhood Connectivity



## TRANSPORTATION & TRAFFIC FORECASTING

This chapter summarizes efforts to identify future transportation projects needed to improve safety, traffic congestion, and quality of life for Dickinson road users. This chapter also describes the methodology used to identify these projects, the preliminary results of this analysis, and, based on assessed needs and committed project schedules, a prioritization of these projects.

### Transportation Demand Model

A transportation demand model was used to assess existing traffic conditions as well as to project conditions through the year 2050. Data on current traffic patterns, Annual Average Daily Traffic (AADT) counts, corridor- and intersection-level Level of Service (LOS) were 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

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projected population, employment, and land use at the Transportation Analysis Zone (TAZ) level.

**Model Development**

Travel Demand Model (TDM) information was gathered from various sources. The project team used PTV Vistro software to develop 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 it can also provide intersection level of service information. Level of service information on local road Intersections was removed, leaving only information from intersections classified as either Interstate, Arterials or Collectors. Level of service information for roads with less than 1,000 ADT were also removed. All speed limits, lane configuration, intersection controls, and signal timing were added to the model. An intersection numbering system was developed to navigate the intersections for later analysis. TAZ data with Origin Destination from Census Block Groups, along with Trip Generation based on land use codes with Vistro, were used to create the future conditions model.

StreetLight InSight, software platform, was used to gather data sets. A total of 590 zones with Origin-Destination allowed turning movement counts were created for the 180 intersections in the model. StreetLight created a 2022 Connected Vehicle data set using information from the Highway 22, I-94, and Highway 10 zones. The 2022 Connected Vehicle Data used AADT volume as an average for the whole year to identify the demand on roads in Dickinson. 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)**

Transportation Analysis Zones (as shown in Figure 8-1 through Figure 8-4 ) were developed based on the functional classes of the roadways in Dickinson as shown in Figure 1-22 Existing Conditions. Those roadways classified as either a collector or arterial with an ADT greater than 1,000 were used.

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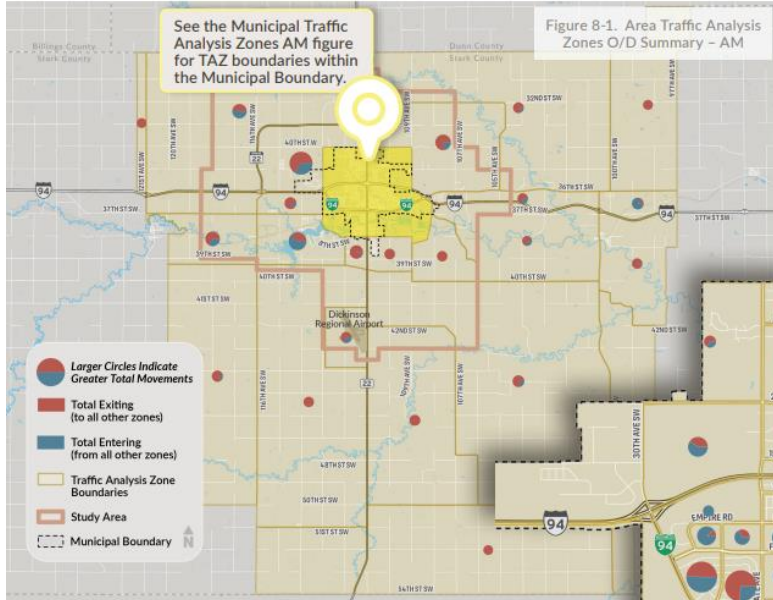


Figure 8-1. Area Traffic Analysis Zones O/D Summary - AM

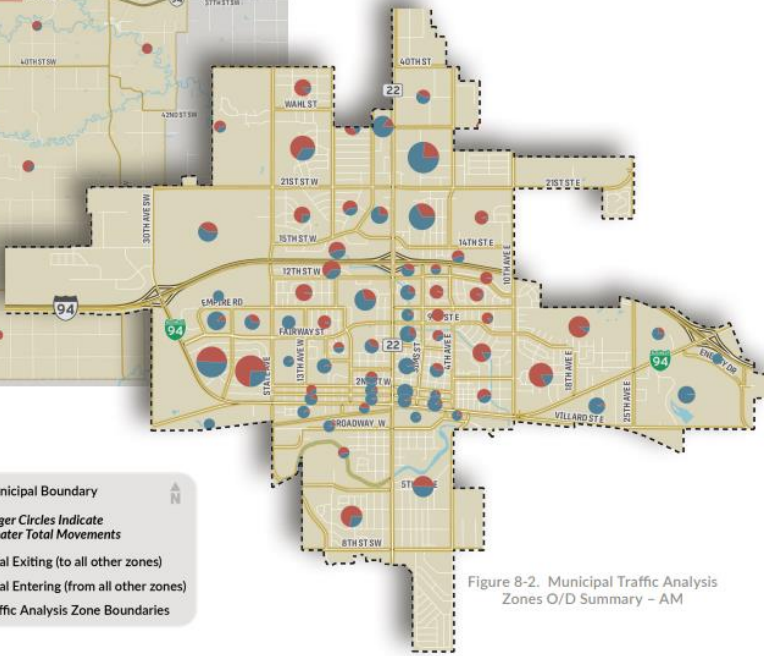
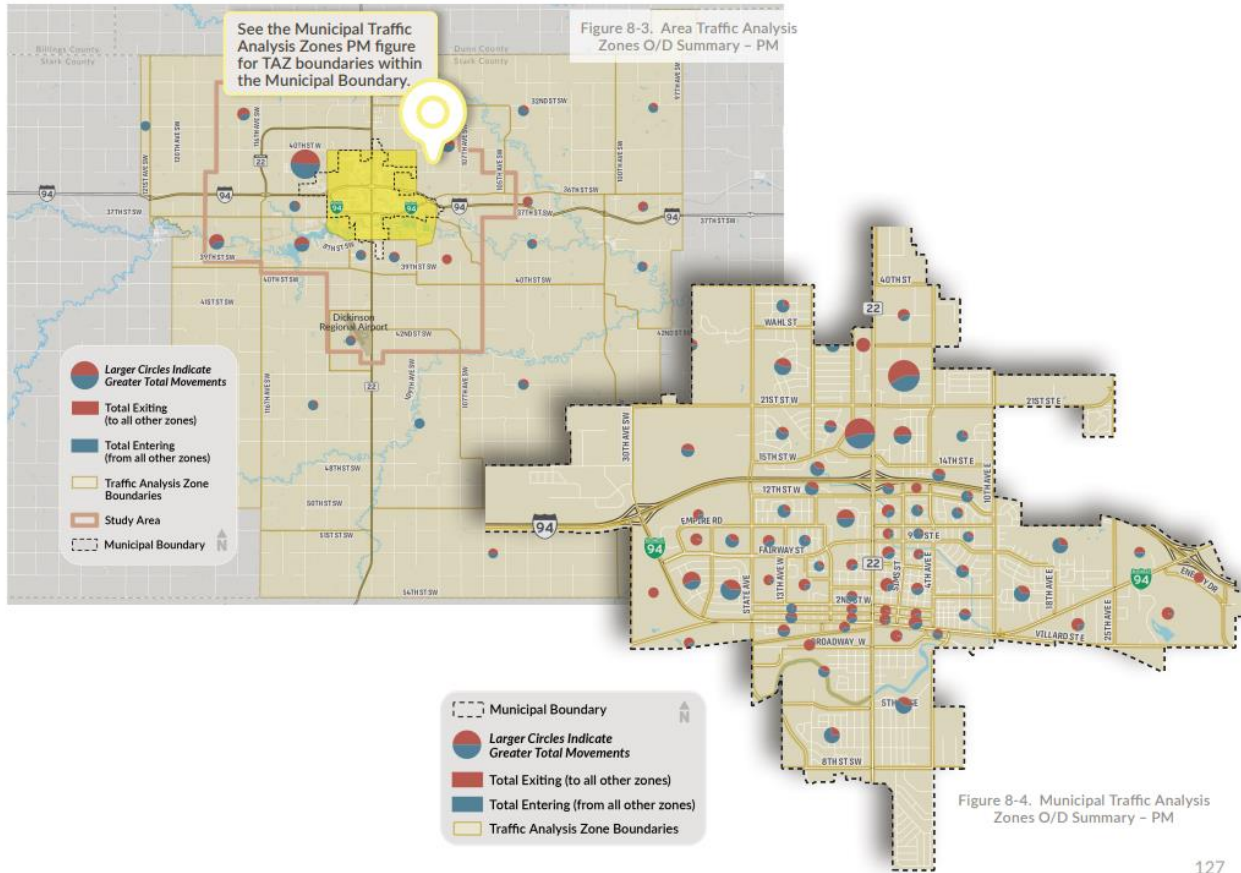


Figure 8-2. Municipal Traffic Analysis Zones O/D Summary - AM

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## Traffic Volume

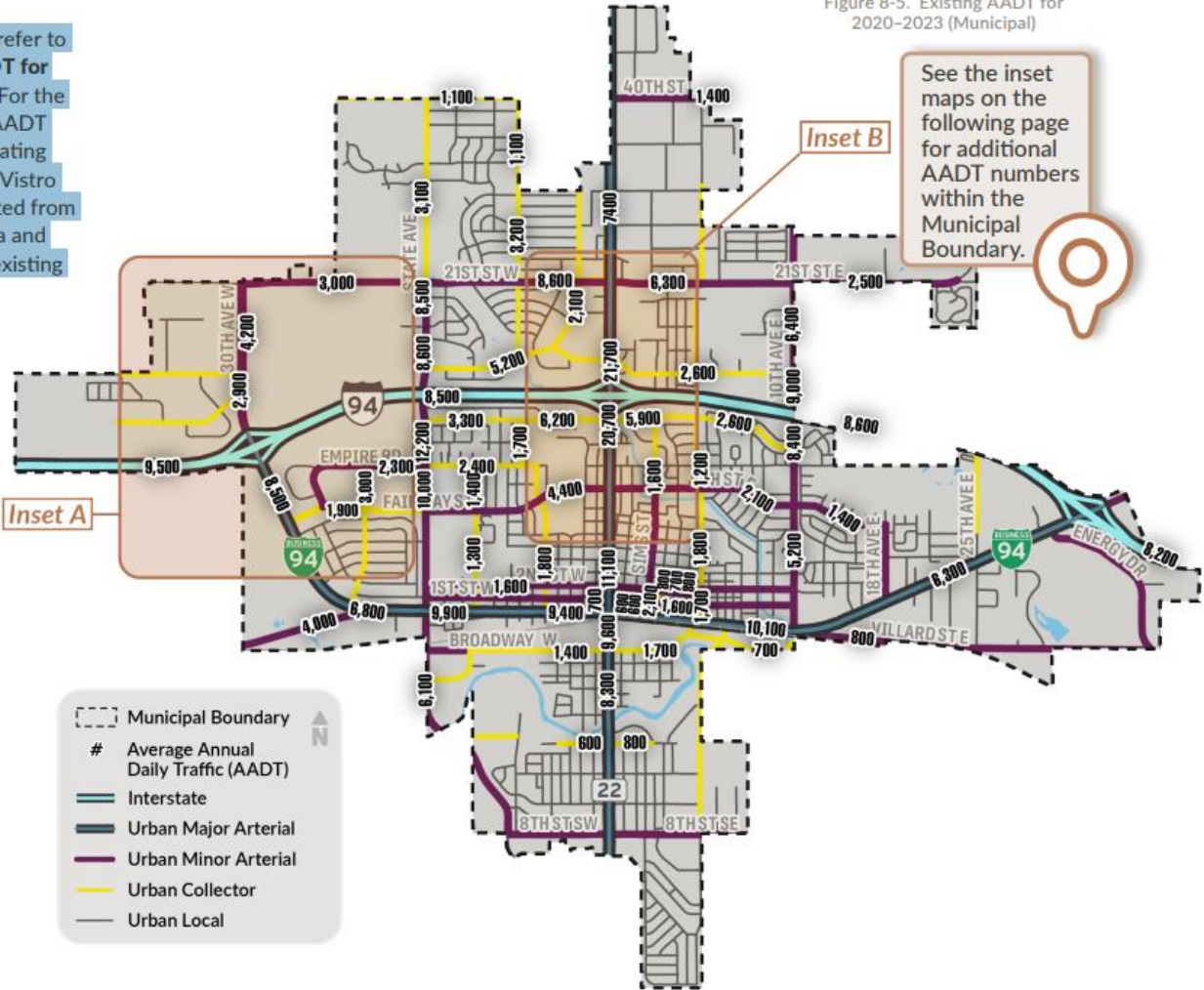
Figure 8-5, Existing AADT for 2020–2023 (Municipal), provides AADT details. For the study area, the existing AADT used a baseline for generating future traffic conditions (Vistro Model) which was collected from available StreetLight Data and verified against existing North Dakota Department of Transportation (NDDOT) AADT data.

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Figure 8-5. Existing AADT for 2020-2023 (Municipal)

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See the inset maps on the following page for additional AADT numbers within the Municipal Boundary.

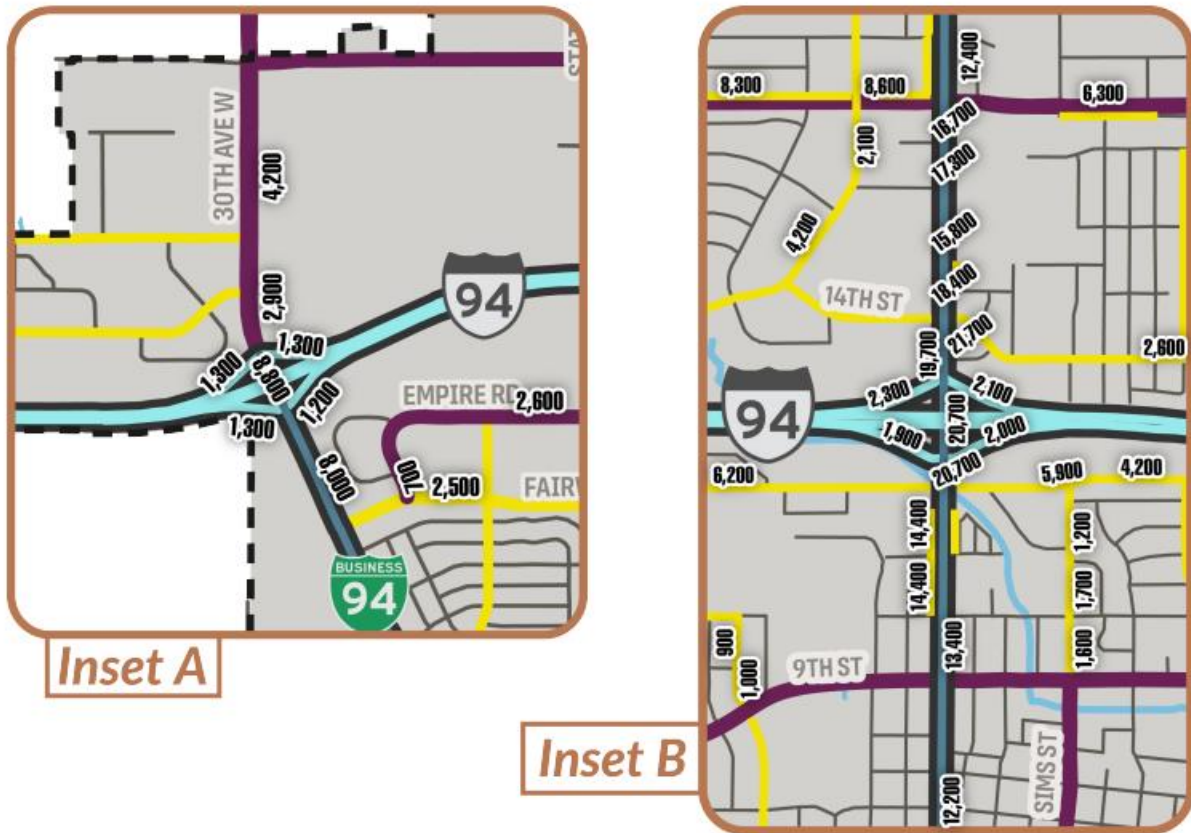


- Municipal Boundary
- Average Annual Daily Traffic (AADT)
- Interstate
- Urban Major Arterial
- Urban Minor Arterial
- Urban Collector
- Urban Local



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Figure 8-6. Existing AADT inset maps



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Existing Level of Service (LOS)


Figure 8-7 illustrates the existing 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.

Figure 8-7. LOS Thresholds by Volume-to-Capacity Ratio




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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%

**INTERSECTION LOS**

An LOS analysis of the study area was conducted using the designated TAZs. Based on that analysis, existing AM and PM peak time intersection LOS ratings were generated. Those ratings are shown in Figure 8-8 and Figure 8-9.

Table 8-3 and Table 8-4 list the existing AM and PM peak time for intersections operating at LOS E or F. Intersections operating at either LOS E or LOS F are 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 10 intersections operating at LOS E or F. The common theme for intersection LOS is 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.).

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8. Transportation & Traffic Forecasting

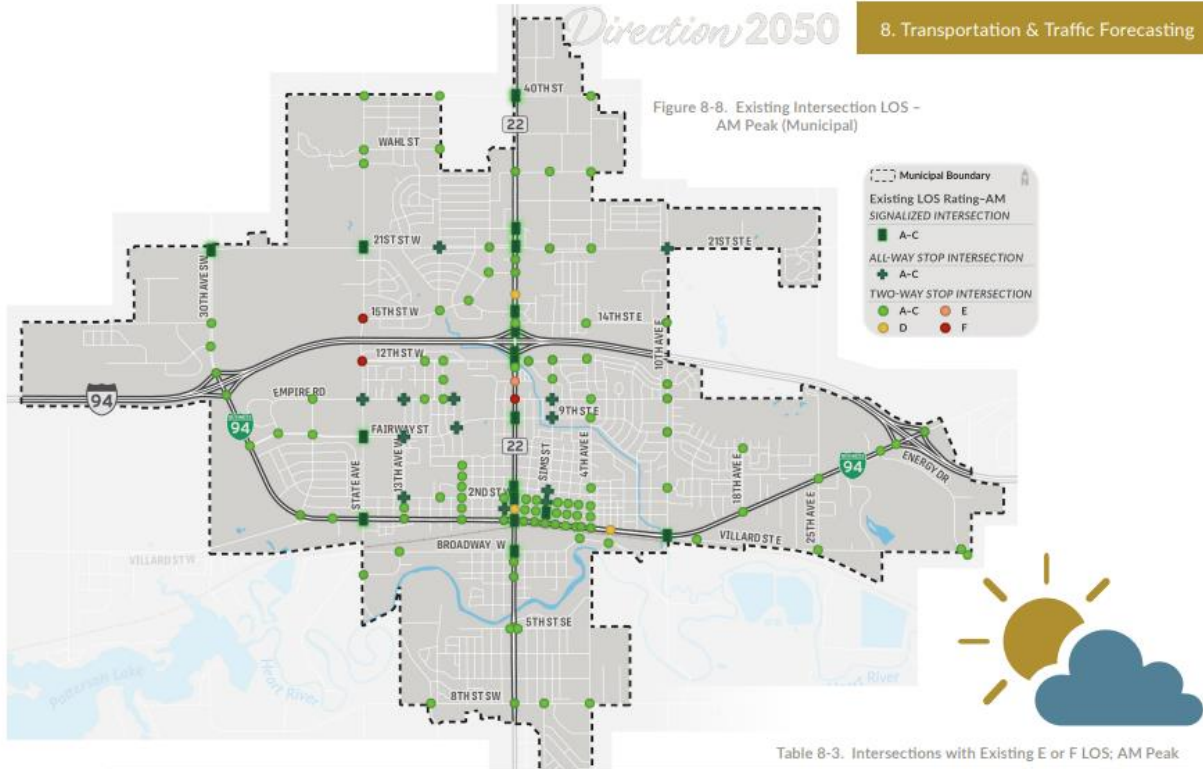


Figure 8-8. Existing Intersection LOS - AM Peak (Municipal)

Table 8-3. Intersections with Existing E or F LOS; AM Peak

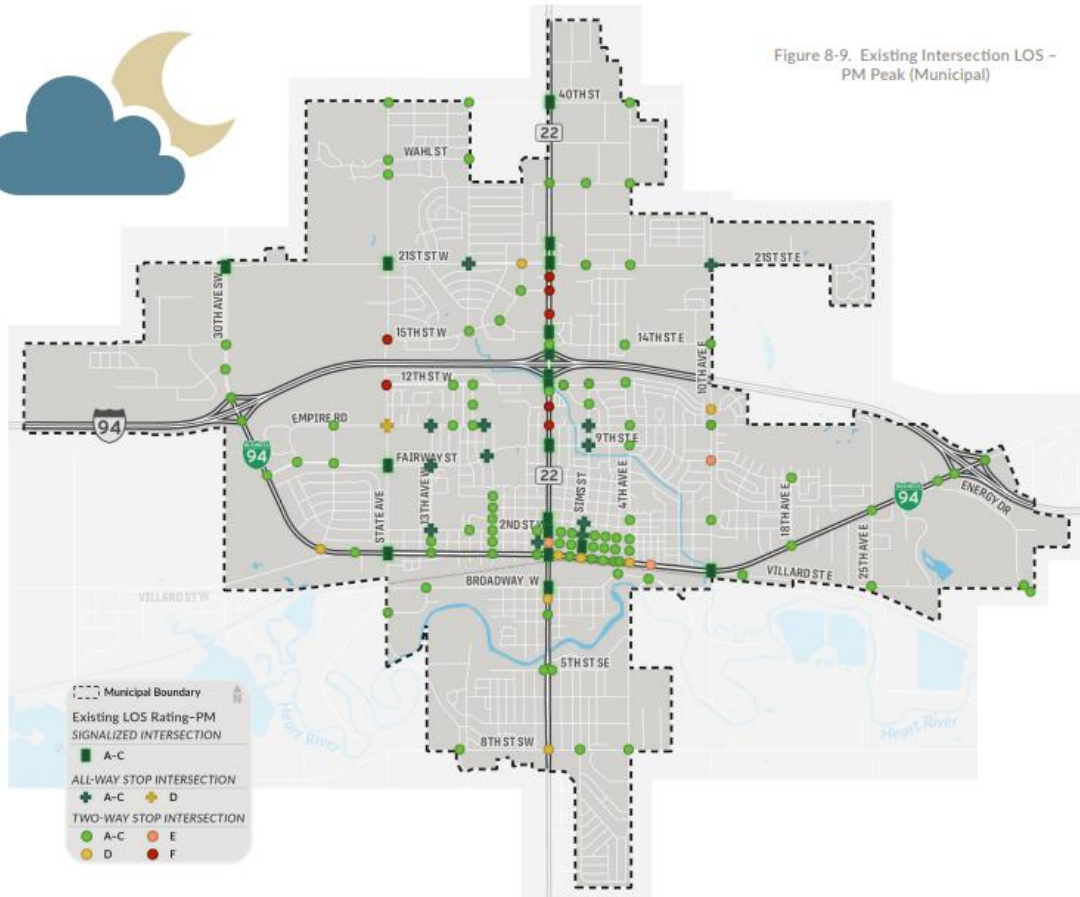
PEAK LOS RANKING	INTERSECTION	JURISDICTION	CONTROL TYPE	METHOD	WORST MOVEMENT	V/C	DELAY (S/VEH)	LOS
1	15th St W & State Ave S	County_City	Two-way stop	HCM 2010	WB Left	0.677	59.3	F
2	10th St W & Highway 22	State_Fed	Two-way stop	HCM 7th Ed.	WB Left	0.286	58.3	F
3	12th St W & State Ave S	County_City	Two-way 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



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Figure 8-9. Existing Intersection LOS - PM Peak (Municipal)



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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	11th St W & Highway 22	State_Fed	Two-way stop	HCM 7th Ed.	EB Left	0.074	51.4	F
8	1st St W & Highway 22	State_Fed	Two-way stop	HCM 7th Ed.	EB Left	0.134	43.6	E
9	Villard St & 6th Ave E	State_Fed	Two-way stop	HCM 2010	NB Left	0.254	39.7	E
10	9th St E & 10th Ave E	County_City	Two-way stop	HCM 2010	EB Left	0.226	36.7	E



## CORRIDOR (ROAD SEGMENT) LOS

Figure 8-10 and Figure 8-11 show existing AM and PM peak time corridor LOSs .

## STREETLIGHT DATA

Streetlight Data was utilized to generate existing AADT and LOS. Existing origin and destination traffic volumes were analyzed to provide an idea of where traffic is currently traveling to and from during the AM and PM peak travel times. Table 8-5 provides a graphic overview of existing Origin/Destination (O/D) AM/PM peak traffic volumes.

## Traffic Forecasting

Using an analysis of current traffic conditions, Dickinson’s future traffic conditions in the year 2050 were modeled at the intersection and corridor levels. This analysis incorporated not only the existing traffic conditions, but other factors that could impact the city’s development over the next two-plus decades, Those factors include, but were not necessarily limited to, the following:

- population;
- employment;

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- land use; and
- committed transportation projects.

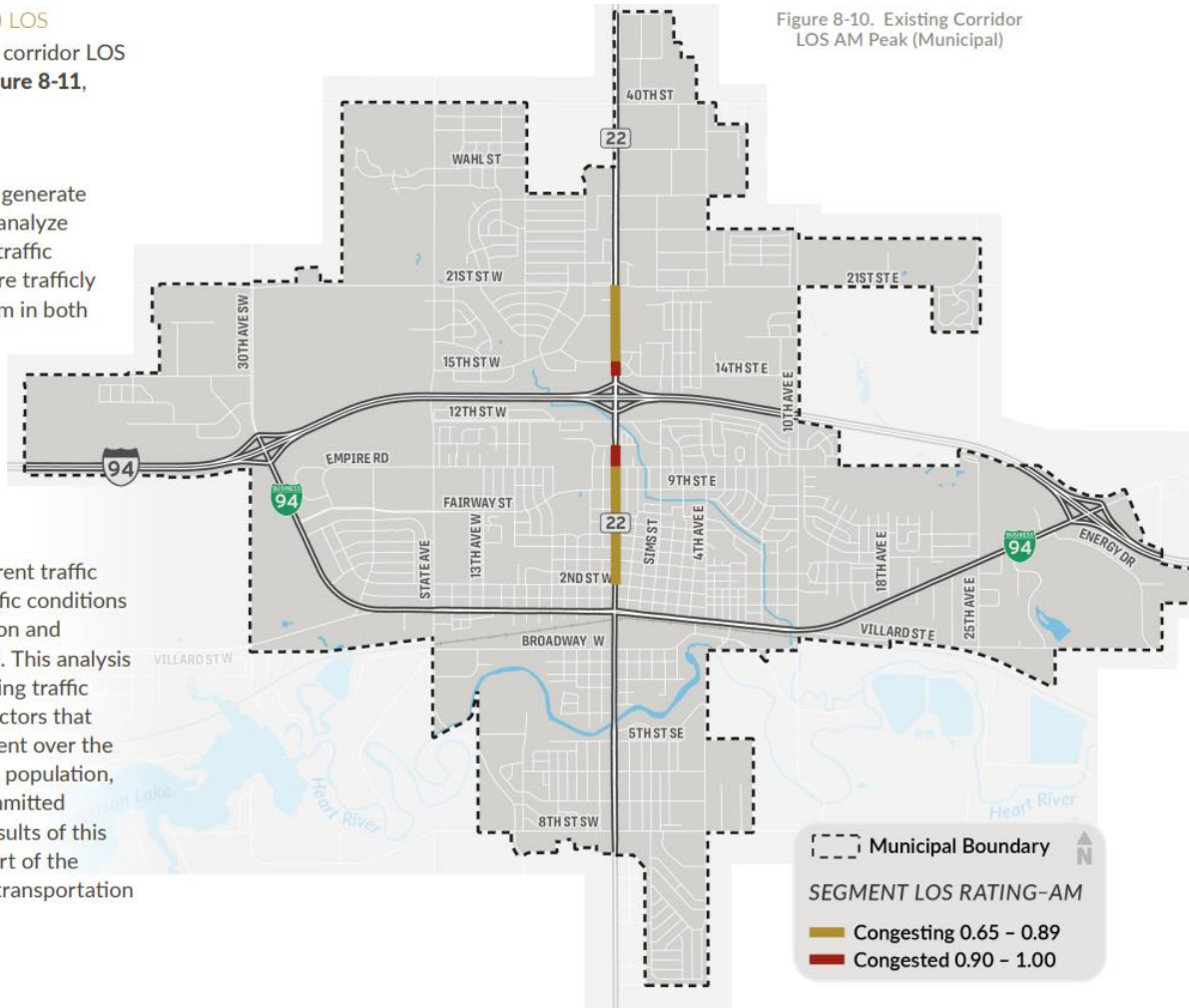
The modeling results form an important part of the analysis of future transportation system needs.

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Figure 8-10. Existing Corridor  
LOS AM Peak (Municipal)



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*Direction 2050*

**8. Transportation & Traffic Forecasting**

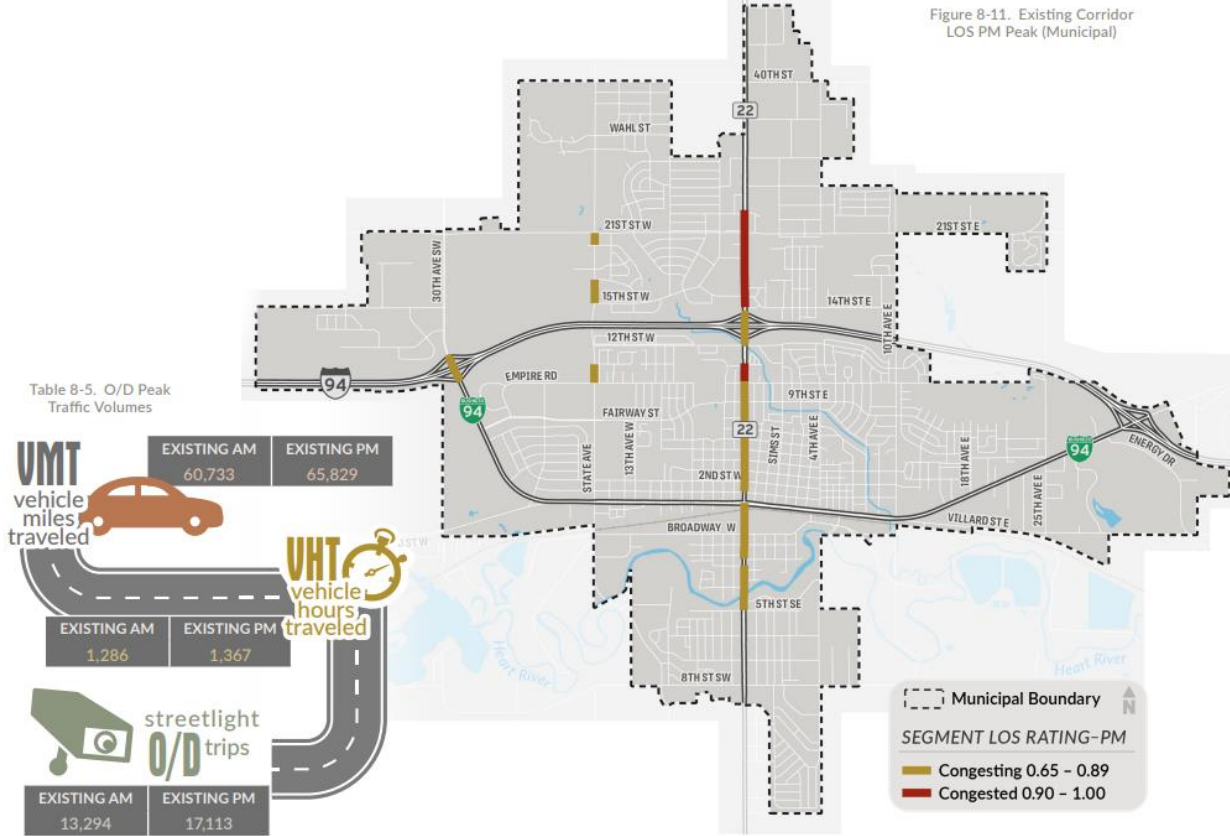


Table 8-5. O/D Peak Traffic Volumes

<b>VTM</b> vehicle miles traveled	EXISTING AM	EXISTING PM
	60,733	65,829
<b>VHT</b> vehicle hours traveled	EXISTING AM	EXISTING PM
	1,286	1,367
streetlight O/D trips	EXISTING AM	EXISTING PM
	13,294	17,113

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**GROWTH FORECASTING AND MODEL DEVELOPMENT**

A vacant land inventory was created as part of the *Direction 2025 City of Dickinson North Dakota Comprehensive Plan & Transportation Master Plan* project. One of the purposes for creating the vacant land inventory was to identify potentially developable land to accommodate future growth through 2050. According to the vacant land inventory there are approximately 2,450 acres of vacant potentially developable land within Dickinson city limits. 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 land uses and employment land uses in each sector were used to determine respective acreage totals per TAZ.

Once the percentage of residential and employment land uses was applied to each TAZ, TripGen was used to calculate and forecast additional 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.

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Trip Generation projections were based on the Future Land Use Map (FLUM) developed for the *Direction 2025 City of Dickinson North Dakota Comprehensive Plan & Transportation Master Plan* and the road type that serves the land. Pass-By trips are accounted for by the trip generation and routing throughout Dickinson. Major roads are expected to show a growth in trips at a highly increased level, which might cause a smaller growth rate to be used on major roadways. After trip generation had been added in the O/D Matrix from StreetLight was adjusted to reflect new origins and destinations, as well as committed and new project identifications. Those percentages were entered into Vistro, and trips were assigned routes accordingly. LOS and AADT forecasting were both revised based on the following:

- methods described above;
- 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.

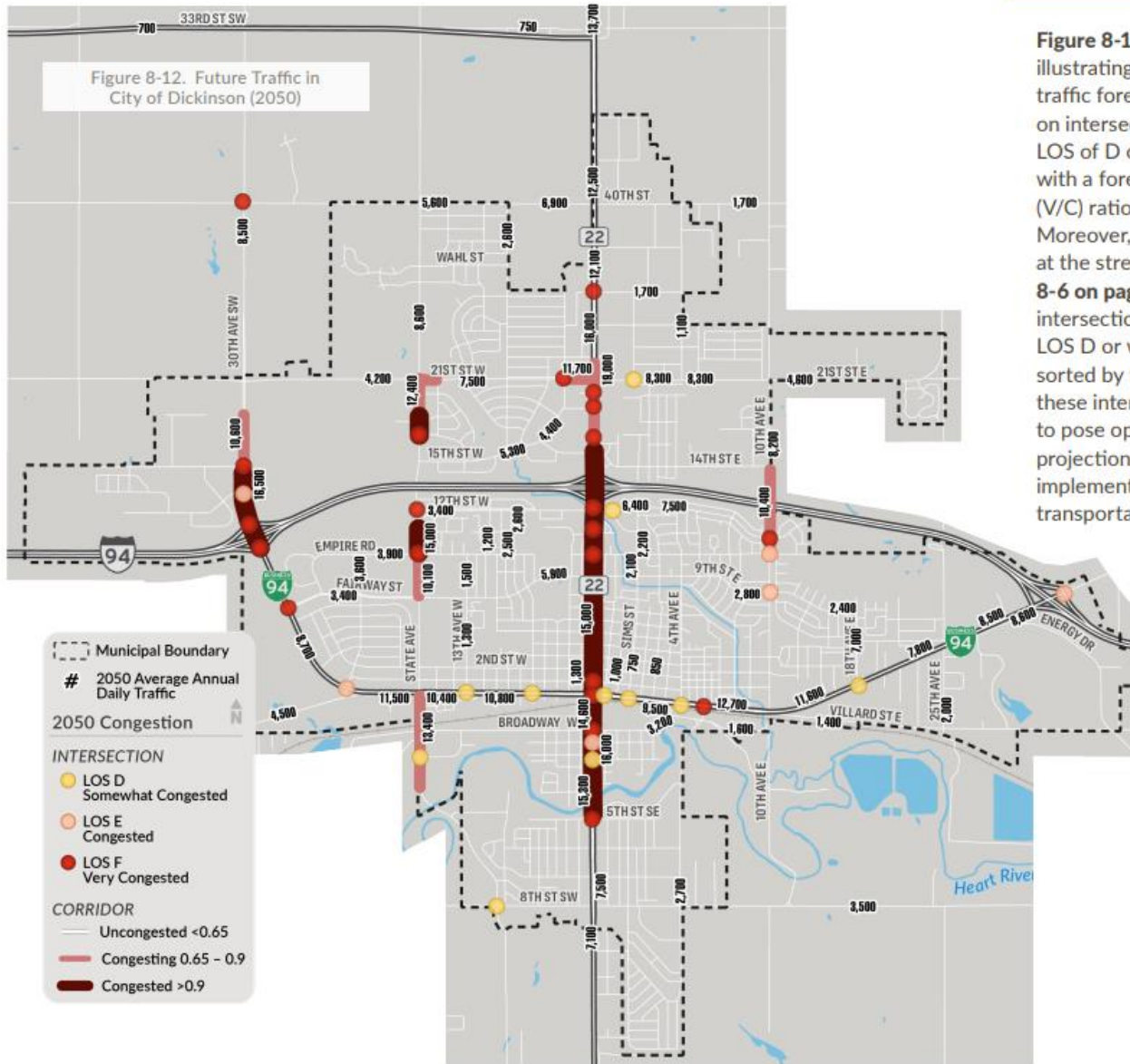
**GROWTH ASSUMPTIONS**

Between 2025 and 2050, Dickinson’s population is projected to grow from 27,500 to over 36,000: an increase of approximately 33%. Employment is projected to grow by over 40% over the same period. If population and employment both increase as anticipated, it is anticipated traffic will also increase. It is anticipated that even those corridors and intersections that presently have little congestion may face operational in the future.

As different land uses tend to generate varying numbers of trips at different times of day, it is also anticipated that this new traffic would not be evenly distributed across the city. Therefore, the city’s Future Land Use map was analyzed at the TAZ level to determine where this new traffic is likely to be generated. The most intensive development is projected to occur in the northern and western portions of the city. The anticipated new developments would contribute to new trip origins and trip destinations that could contribute to increased traffic. Accordingly, while certain intersections and corridors are expected to become congested throughout the city, traffic is expected to worsen in the northern and western parts of 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.

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**Figure 8-1** illustrating traffic fore on intersec LOS of D c with a fore (V/C) ratio Moreover, at the stre **8-6** on pag intersection LOS D or v sorted by l these inter to pose op projection implement transporta

Figure 8-12 is a citywide map depicting intersections with a forecasted LOS of D or worse as well as corridors with a forecasted volume-to-capacity (V/C) ratio of 0.65 or higher in 2050. Future projected AADT counts are 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. Intersections are sorted by the time span these intersections are projected to require operational needs. These projections are used to determine the recommended implementation timelines for transportation projects.

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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

The following variables were used to identify and prioritize the projects identified in Table 9-1 “All Planned Projects and Priorities”. Figure 9-1 and Figure 9-2 depict the locations of the projects identified in Table 9-1.

### Safety-Related Variables

All vehicular crashes recorded in Stark County between 2019 and 2023 were inventoried. These crashes were then disaggregated by the following 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. Five (5) fatal crashes 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, located at Highway 22 and 6th Street South, resulted in a fatality.

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- Three pedestrian crashes as the following locations resulted in an incapacitating injury.
  - 10th Avenue East and 8th Street East,
  - East Villard Street and Sims Street, and
  - Highway 22 and Villard Street.
- One bicycle crash, located at W Museum Drive and Osborn Drive, resulted in an incapacitating injury;
- Non-Severe Crashes. More than 2,000 crashes were identified in Stark County—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 in Figure 1-28. Figure 1-28 identifies those intersections and corridors where there are a disproportionate number of crashes; and
- Top Ten Crash Intersections. This list is based on the actual number of crashes at each intersection and not the severity of those crashes. 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; and
  - 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:

- 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; and
- 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.

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**INFRASTRUCTURE-RELATED VARIABLES**

Finally, the following 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 to increase efficiency and minimize disruption to the community. Mill & Overlay projects through the year 2033 were taken into account; and
- Trail Gaps. Dickinson’s existing system of bicycle and pedestrian trails was examined to determine gaps in the network. These gaps, which tend to be more dangerous portions of roadway, can create safety hazards and an uncomfortable environment for cyclists and pedestrians. An example is Highway 22 between Museum Drive and 9th Street. The highway includes a trail north of Museum Drive, and 9th Street is an important east-west connection for accessing destinations such as Dickinson State University and Rocky Butte Park. Currently, there is no multimodal trail along this stretch.

All of these safety, operations, and infrastructure-related variables were synthesized to identify intersections and corridors most in need of intervention.

**PROJECT CONCEPT REFINEMENT AND PRIORITIZATION**

Future transportation projects were identified based on the needs assessment,. A key consideration was identifying transportation projects that are already being planned throughout the city.

Recommended projects consist of either proposed additions to projects already in the city Capital Improvement Plan (CIP), projects have been submitted, but not committed for federal aid in the Statewide Transportation Improvement Program (STIP); or entirely new projects independent of existing CIP projects.

Based on the identified needs and potential future project needs, a project prioritization analysis was performed. This analysis identifies improvements that could be incorporated into either committed or newly identified projects. Needs were grouped into corridor segments or spot improvements based on the singular or multiple elements. Prioritization of corridors was further honed based on the following:

- key north-south and east-west corridors identified in the existing conditions analysis; and
- Public input related to safety, efficiency, and connectivity.

Preliminary cost estimates for each project are shown in Table 9-2. Cost estimates for different project types come from the following sources:

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- industry estimates;
- NDDOT unit costs; and
- existing projects in the North Dakota STIP.
- 

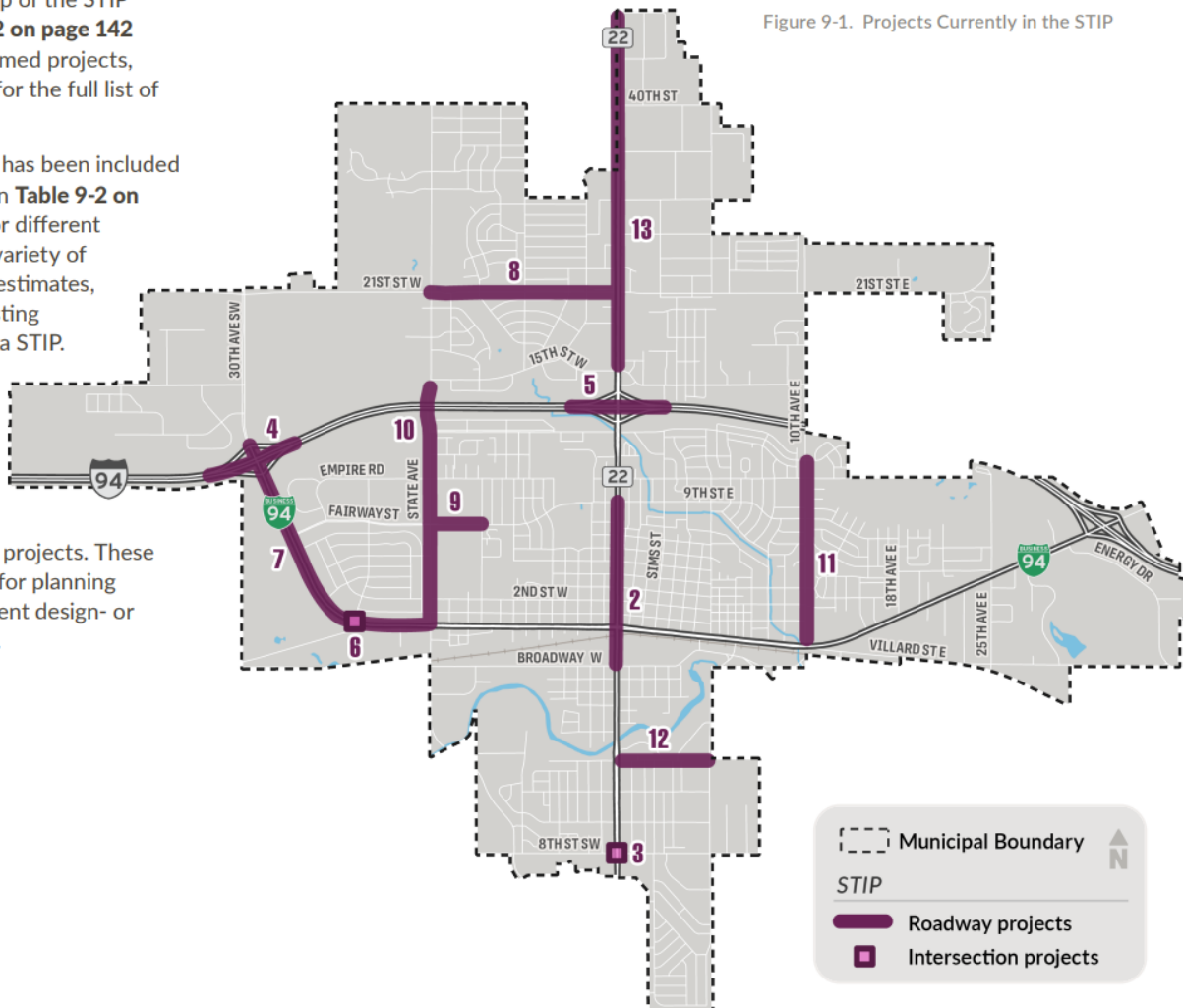
An annual inflation factor of four (4)% was applied to the present-day costs, for up to four (4) years for short range projects, nine (9) years for medium-range projects, and 17 years for long-range projects. Cost estimates are for planning purposes and do not represent design- or engineering-level estimates.

A map of the STIP projects is shown in **Table 9-2 on page 142** of the plan. For a complete list of planned projects, see **Table 9-3** for the full list of projects.

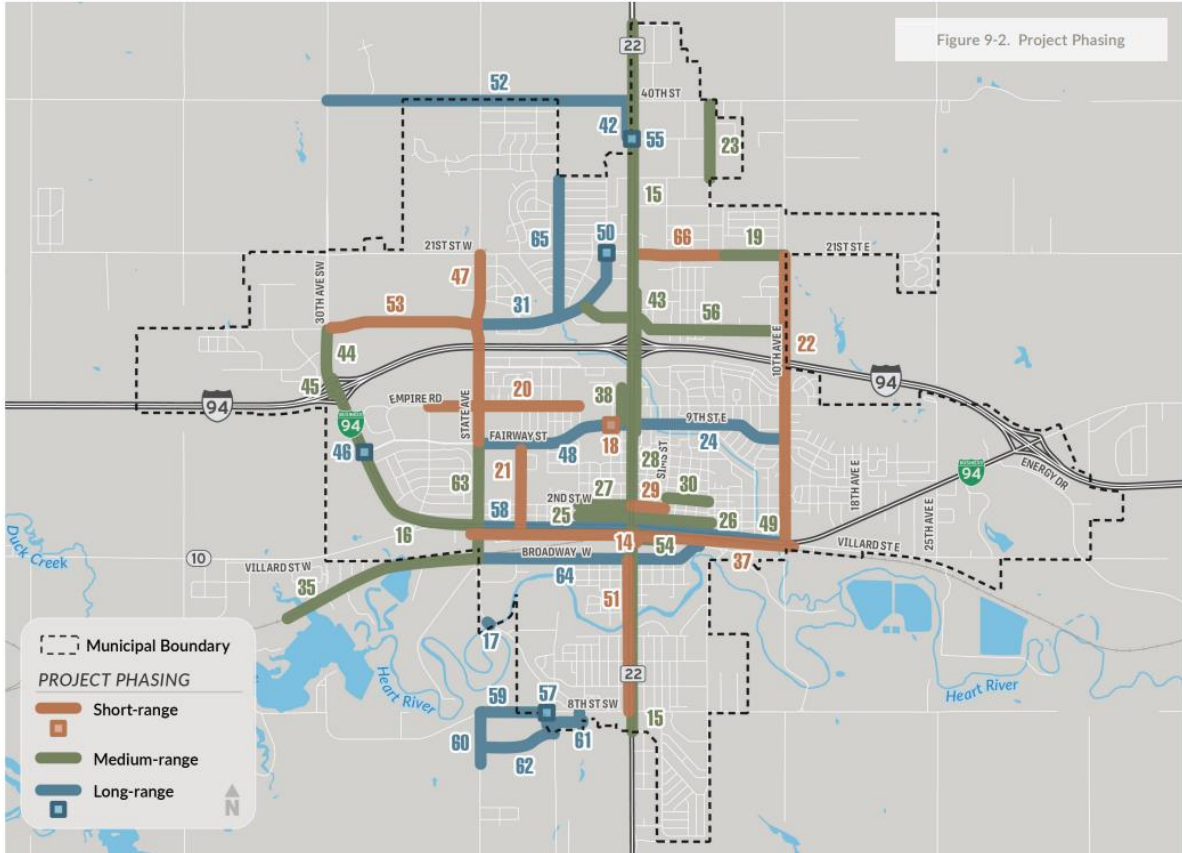
Cost estimates have been included in **Table 9-2 on page 142** of the plan. These estimates are for different project types in a variety of project locations. For more information on project estimates, see the existing project estimates in the North Dakota STIP.

Long-range projects. These estimates are for planning purposes and do not represent design- or engineering-level estimates.

Figure 9-1. Projects Currently in the STIP



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Table 9-1. All Planned Projects and Prioritization

LRTP PROJECT IDENTIFICATION #	PRIORITIZATION	CORRIDOR	TERMINUS 1	TERMINUS 2	DESCRIPTION	COST
<b>PLANNED PROJECTS</b>						
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
<b>CIP PROJECTS</b>						
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	Medium Range	I-94B	I-94 (Exit 59)	State Ave	Mirco Surfacing	\$1,150,000
17	Long Range	State Ave	Bridge over Heart River		Deck Repairs	\$1,100,000
18	Short 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



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L RTP 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
<b>NEW PROJECTS</b>						
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 (Exit 59)	Access and intersection improvements	\$850,000
45	Medium Range	I-94B	I-94 (Exit 59)		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



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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	\$8,800,00
53	Short Range	15th St	30th Ave	State Ave	Construct 2-lane collector	\$11,700,00
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	\$3,900,00
58	Long Range	Villard St	State Ave	10th Ave E	Reconstruction as 3-lane Arterial	\$15,650,00
59	Long Range	8th St SW	20th Ave SW	State Ave	Roadway Urbanization with Utilities	\$7,600,00
60	Long Range	20th Ave SW	8th St SW	Dickinson South Cemetery	Roadway Urbanization with Utilities	\$8,750,00
61	Long Range	State Ave	8th St SW	Drainageway	New Roadway with Utilities	\$3,900,00
62	Long Range	Unnamed	State Ave	20th Ave SW	East/West Roadway	\$7,000,00
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	\$1,900,00
66	Short Range	21st St	Highway 22	5th Ave E	Mill & Overlay	\$1,400,00

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		10	4	14	\$74,550,000
Medium		12	8	20	\$64,950,000
Long		3	16	19	\$81,550,000

**CORRIDOR LEVEL EVALUATION**

The following details provide an overview of each corridor segment 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 the projects 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 is not in this list, no changes or additions are recommended at this time. Finally, New Projects are listed for each corridor. Figure 9-3 is a map of all corridors.

**Segment #1a: Hwy 22 (45th St to 23rd St)**

This segment of Highway 22 has a chip seal treatment planned 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 reviewed. Filling a gap in the in the West Side Trail Extension along Highway 22 may be included.

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**ADDITIONS TO PLANNED PROJECTS**

None.

**NEW PROJECTS**

40th Street identified as a gateway single lane roundabout to address 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 and a lighting project at the interchange with I-94. However, operational and safety-related issues were identified along this corridor. This segment has been identified as the site of a high volume of crashes, some of which were fatal. This segment contains several intersections which are anticipated to have a failing LOS if no action is taken. This is one of the highest-need and highest-priority segments in the entire city.

**NEW PROJECTS**

**LRTP #43** – Recommendations for potential improvements to Highway 22 (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) /  $\frac{3}{4}$ -Access revisions at 10th Street, 11th Street, 17th Street, and 19th Street recommended.
- The 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.
- 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).

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- 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, including a fatal crash and several crashes involving cyclists and pedestrians. This segment also 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. It is recommended that a three-lane expansion to the south as well with the long-range railroad underpass project should be considered.

**LRTP #14 – BNSF underpass structural repairs (Short Range).**

- Likely to include only structural elements.
- Consider expansion to three (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 expected to experience high traffic volumes by the year 2050. A high volume of crashes at its southern end at the intersection of Highway 22 and 8th Street S already occurs. A roundabout which is already planned in the STIP should alleviate these issues. As this segment of Highway 22 has also seen a disproportionately high number of pedestrian crashes, 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 micro surfacing project has already been planned for State Avenue. However, the prioritization analysis revealed several other operational and safety issues that could also be addressed at the same time as this project. State Avenue includes both of the city’s ten highest-crash intersections not located along Highway 22, as well as several intersections expected to

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experience future traffic congestion deficiencies. Several improvements are recommended to 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 a bike lane.
  - Provide bike box on NW quadrant to support the WBL bike movement.
  - Add FYA and a real time 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 to address 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 six (6) foot bike lanes not including a two (2) foot gutter from 21st Street to Fairway Street.
  - Address speed concerns by narrowing travel lanes.
  - Provide multimodal connection between residential and schools.

**LRTP #63** – State Avenue from Fairway Street to 2nd Street SW (Medium Range).

- Add six (6) foot bike lanes not including a two (2) foot gutter from 21st Street to Fairway Street.
  - Address speed concerns by narrowing travel lanes.
  - Fill 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

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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). Additional study is needed to determine a more specific project concept for this interchange.

**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)

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 bump outs. This segment is anticipated to maintain its capacity with a three-lane section through the 2050 projections.

**ADDITIONS TO PLANNED PROJECTS**

**LRTP #37** – Villard Street mill and overlay and pedestrian bump outs (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 bump outs 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 bump outs from State Avenue to 10th Avenue.
  - Bump outs 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.

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- 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 bump outs.

**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. 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 bump outs.

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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 bump outs 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.

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**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 bump outs 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

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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. 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.

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**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. 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**

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**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).

- Potential bypass would decrease volumes on I-94 Business Loop, 6th Avenue E, and 8th Street, remove truck traffic from the city, and further serve industrial growth and in around Dickinson Airport. This concept also supports recent investments by NDDOT in the Highway 22 Bypass and the Stark County Eastern Bypass. This corridor has the potential to divert regional trips between Highway 22 south, I-94 east, and Dickinson Regional Airport trips from the east.

**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

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the citywide projects already in the CIP and STIP, a signal upgrade project throughout the city is recommended.

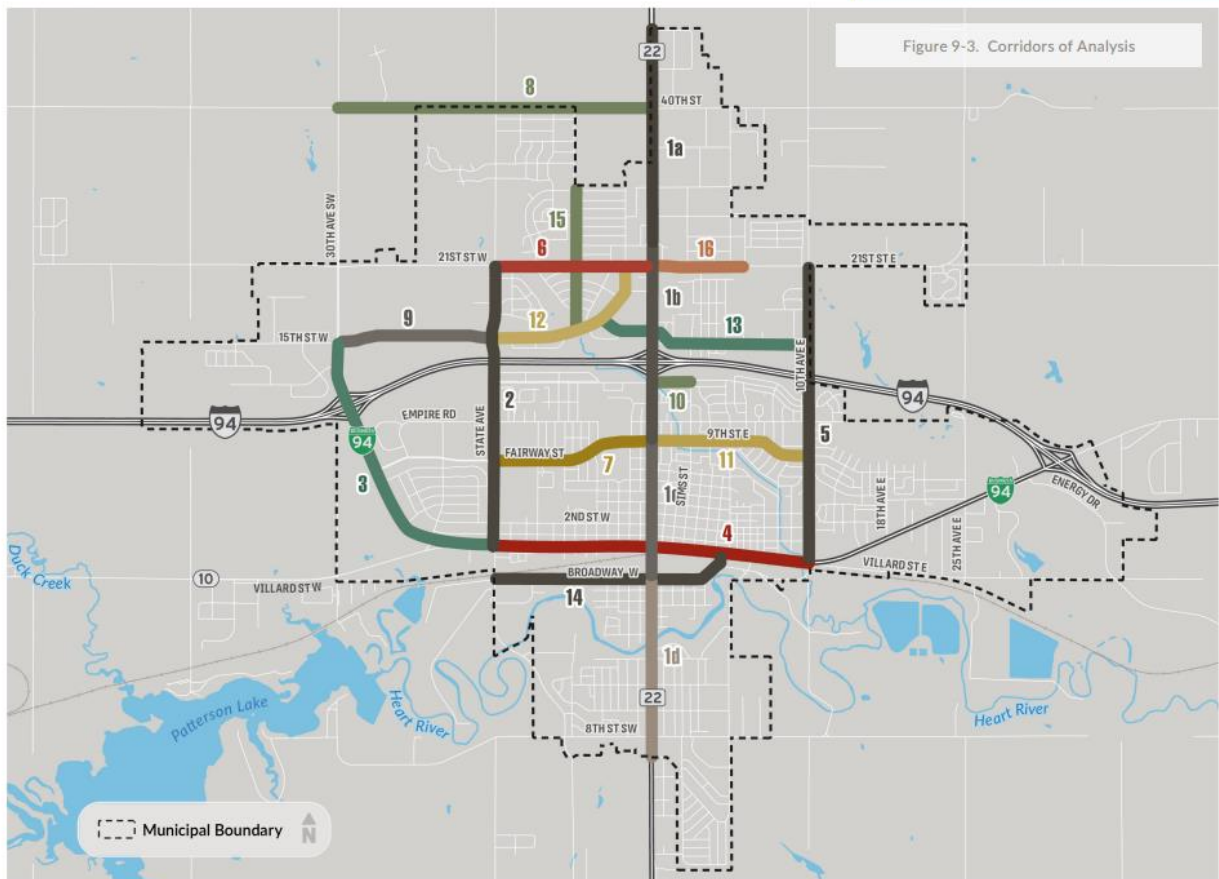
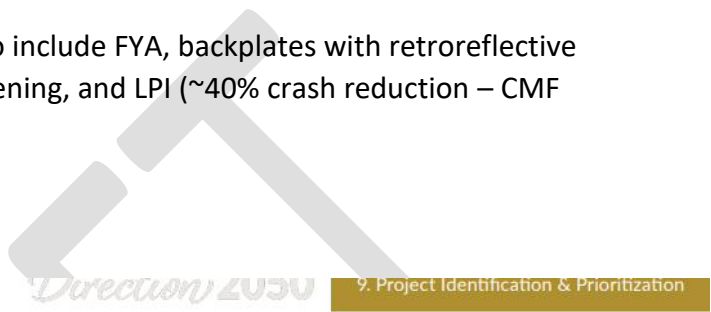
## ADDITIONS TO PLANNED PROJECTS

None.

## NEW PROJECTS

**L RTP #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)
  -



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**TRANSPORTATION DEVELOPMENT GUIDELINES**

This chapter provides transportation standards and policy recommendations to guide future growth through 2050 and beyond. A consistency review of existing transportation standards, policies, and related planning studies and documentation was completed during the existing conditions analysis phase of the Direction 2050 plan.

**CORRIDOR PRESERVATION AND RIGHT-OF-WAY**

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, inside the study area, and within the southwest, southeast, and northeast quadrants of the study area.

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 while creating 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

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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-foot drive lanes, the addition of a 14-foot center lane used as lane buffer and center turning lane, eight (8) foot shoulders and 12-foot ditches, and a total ROW requirement of 150 feet. 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 eight (8)-mile section of 107th Avenue SW and 32nd Street SW. This newly paved roadway completes 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.

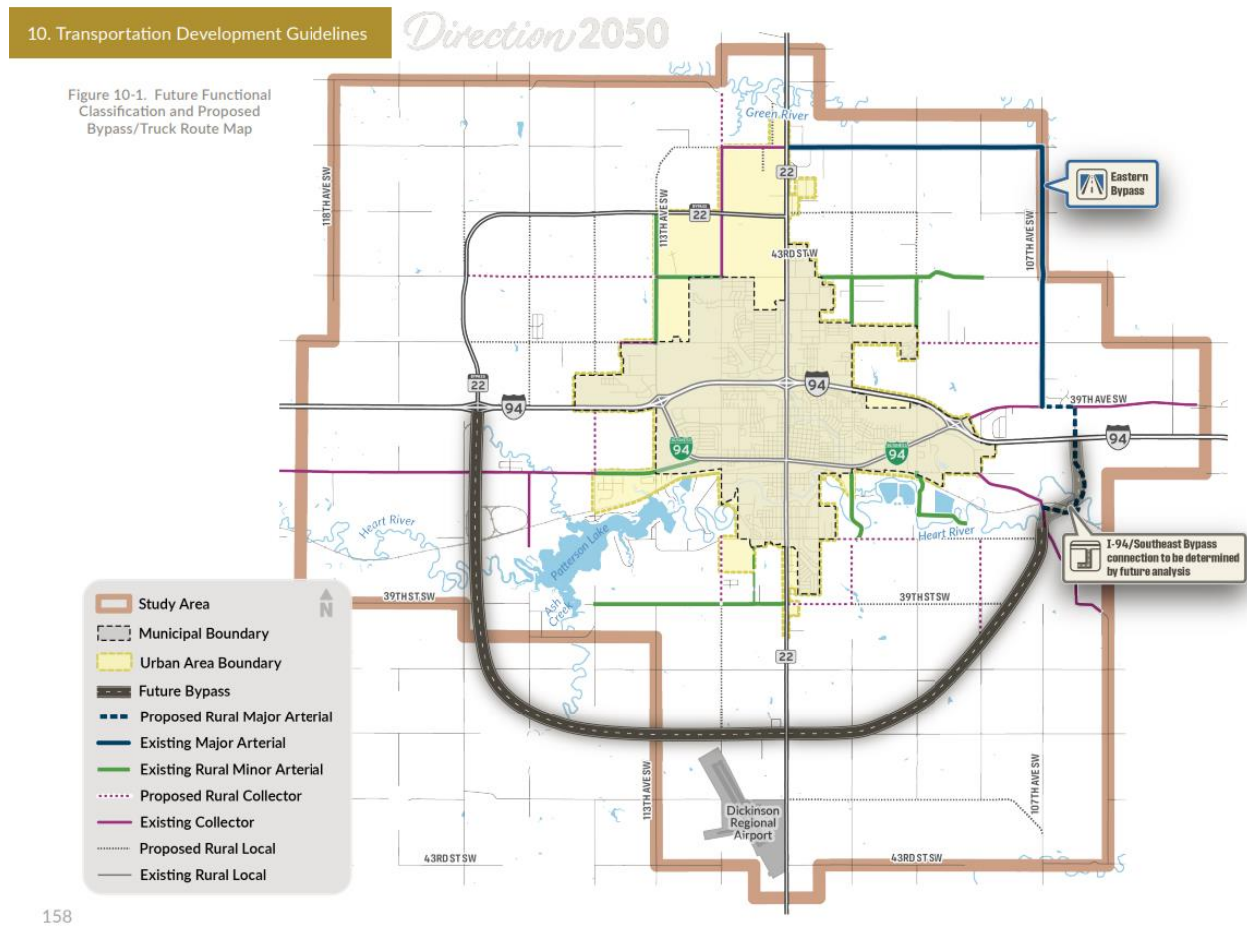
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**COUNTY COORDINATION**

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. Figure 10-1 presents conceptual approximations of potential future bypass roadway alignments, as well as updated proposed future roadway functional classifications based on the 2013 Transportation Plan.



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**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.

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



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.

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Figure 10-2. Urban Principal (Major) Arterial

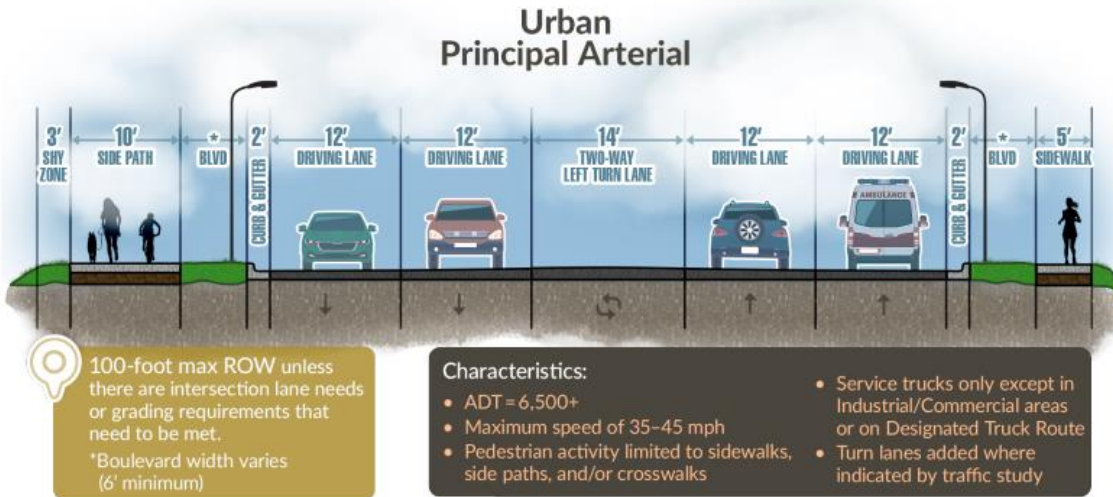
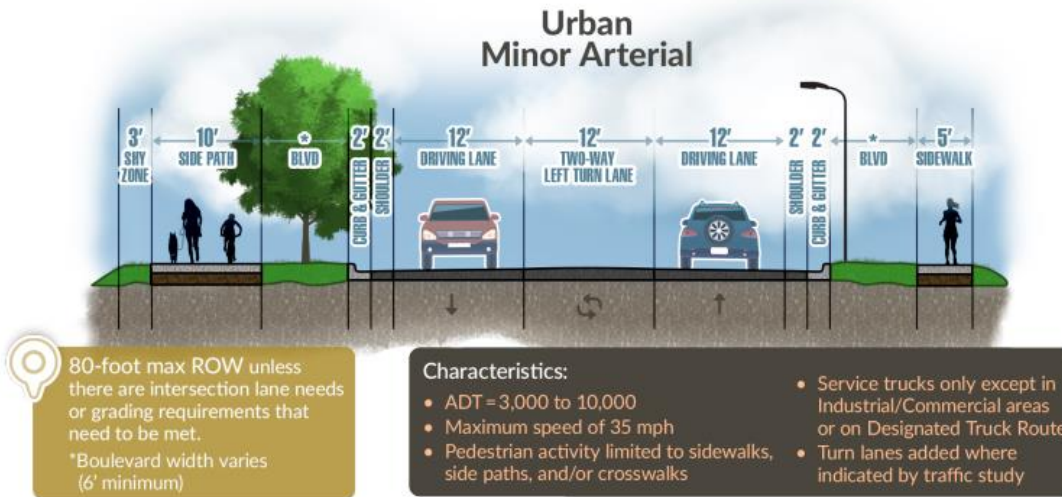
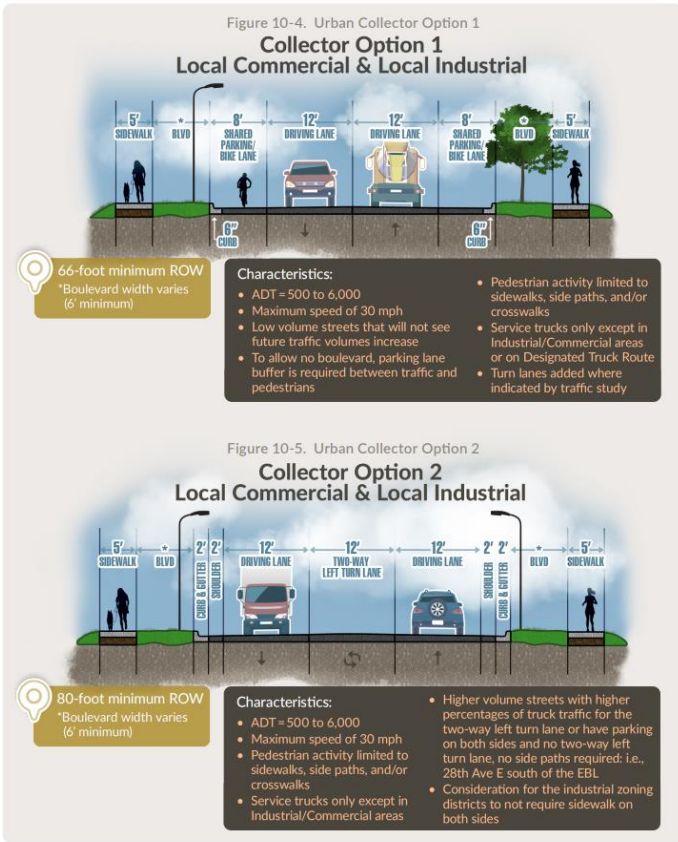


Figure 10-3. Urban Minor Arterial



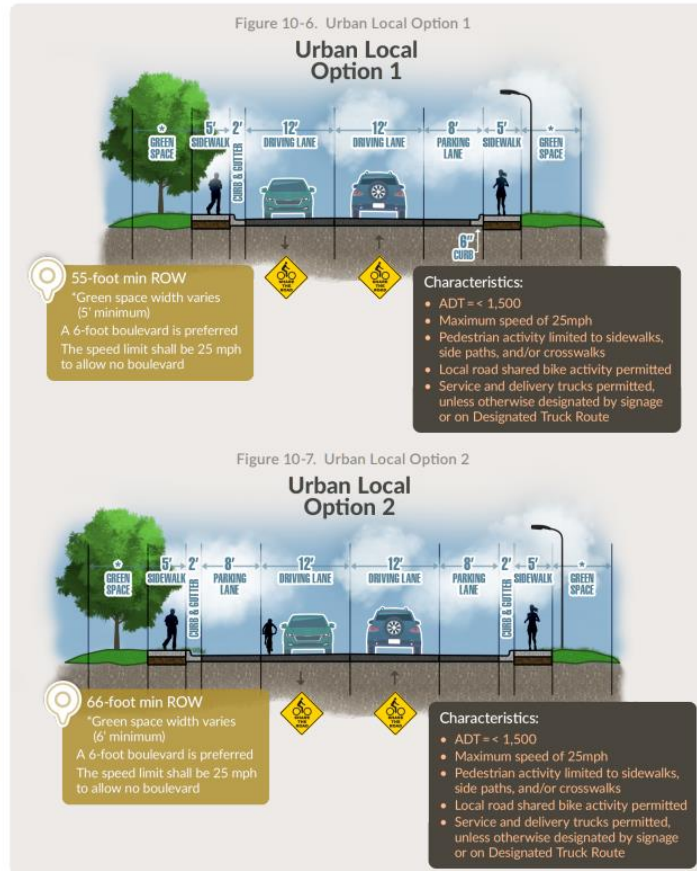
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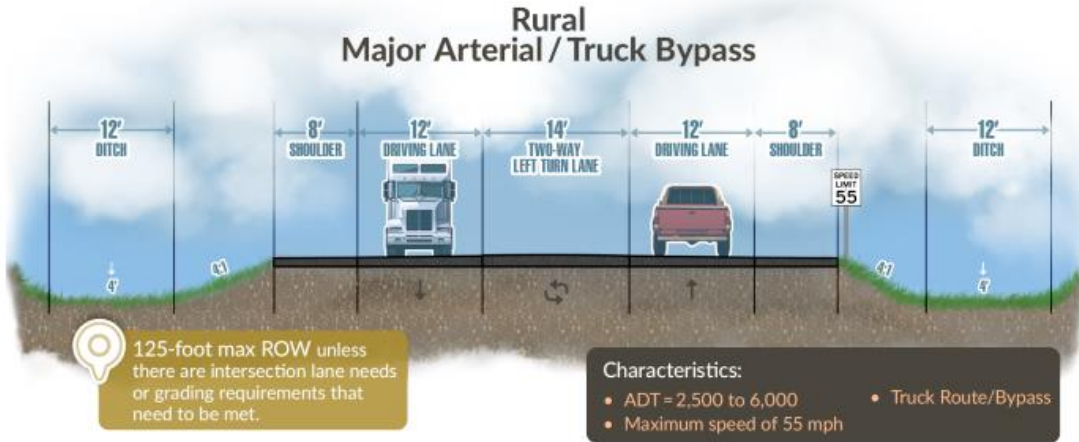
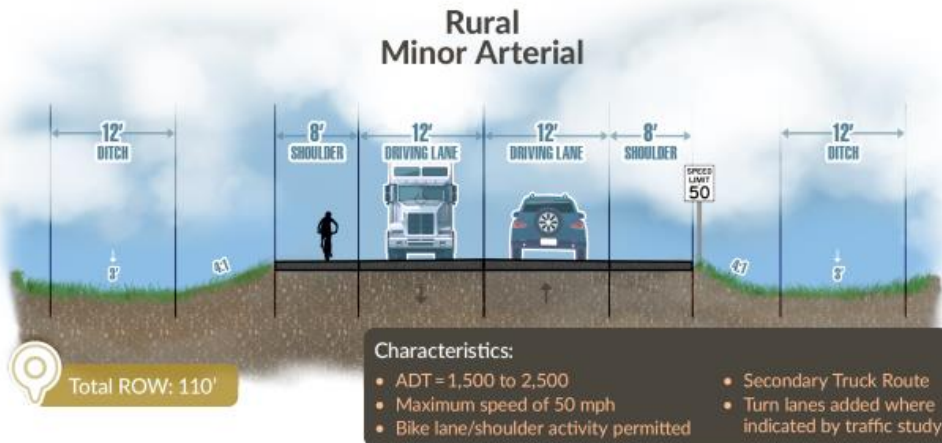


Figure 10-9. Rural Minor Arterial



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Figure 10-10. Rural Collector

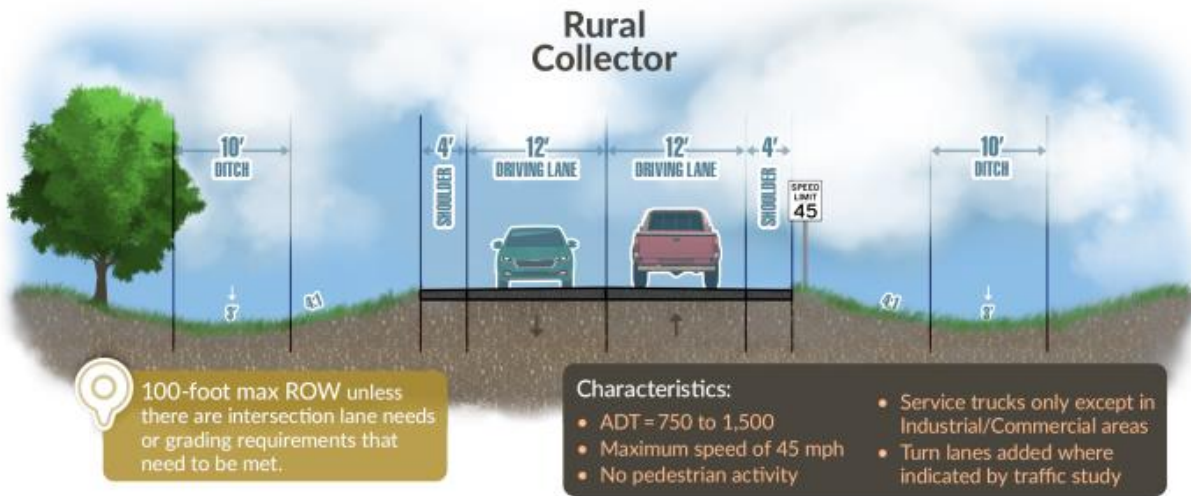
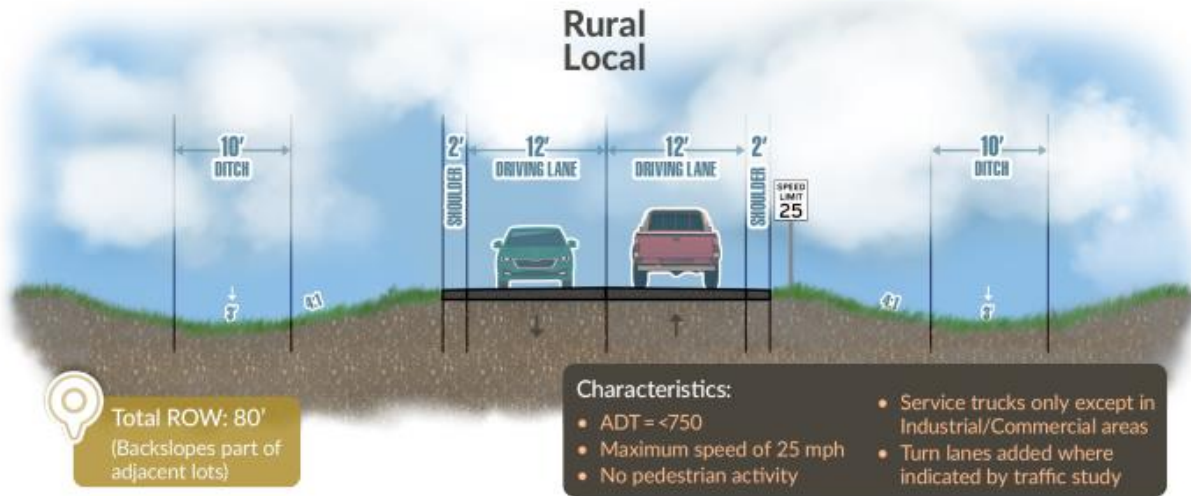


Figure 10-11. Rural Local



**ACCESS MANAGEMENT**

The selection of allowed access point locations play 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 to 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.

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Access control guidelines serve multiple purposes. These tools 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 private developers. 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 the following:

- 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 NDDOT Traffic Operations Manual,<sup>1</sup> 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.

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- 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 NDDOT guidelines, the following tables (Table 10-1, Table 10-2 and Table 10-3 and Table 10-4) summarize proposed updated access spacing standards for Dickinson, and include direction for intersection spacing, driveway access density, and permitted access widths. Table 10-3 provides minimum rural access spacing guidelines for roadways outside of City Limits but within the Extraterritorial Zone (ETZ).

Table 10-1. City of Dickinson/Stark County Urban Access Management Guidelines 1

CLASSIFICATION	MINIMUM INTERSECTION SPACING		MINIMUM INTERSECTION SETBACK
	SIGNALIZED	UN-SIGNALIZED	
Principal Arterial	1,000'	1,000'	300**
Minor Arterial	990'	650'	150'
Collector	660'	300'	60'
Local	N/A	100'	25'

*\* Can be approved through submittal of a traffic impact study*

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Table 10-2. City of Dickinson/Stark County Access Management Guidelines

INTERSECTION CROSSROADS*	ACCESS POINT*	MINIMUM DISTANCE FROM INTERSECTION*		
		LOW DENSITY RESIDENTIAL	COMMERCIAL/HIGH DENSITY	RURAL RESIDENTIAL
Local/Local	Local	25'	100'	75'
Local/Collector	Local	25'	100'	75'
Local/Collector	Collector	60'	100'	100'
Collector/Collector	Collector	60'	100'	100'
Local/Minor Arterial	Local	75'	150'	N/A
Local/Minor Arterial	Minor Arterial	300' *	650' *	N/A
Collector/Minor Arterial	Collector	75'	150'	N/A
Collector/Minor Arterial	Minor Arterial	300' *	650' *	N/A
Minor Arterial/Minor Arterial	Minor Arterial	300' *	650' *	N/A
Minor Arterial/Principal Arterial	Minor Arterial	300' *	1,000'	N/A
Minor Arterial/Principal Arterial	Principle Arterial	650' *	1,000' *	N/A
Local/Principal Arterial	Local	100'	150' **	100' **
Local/Principal Arterial	Principle Arterial	650'	1000' *	1000' *
Collector/Principal Arterial	Collector	100'	300' **	150' **
Collector/Principal Arterial	Principle Arterial	650'	1,000' **	1,000' **
Principal Arterial/Principal Arterial	Principle Arterial	650'	1,000' **	1,000' **

*\*Roadway classification is based on the functional classification map*  
*\*\*Minimum distance is based on measurement from property corner pins near the intersection*  
*Note: Access alternative to be approved by city/county engineer; on Principal Arterials*  
*Access will be considered at ¼-mile spacing or 5 accesses per mile per side including crossing arterial routes*  
*Principal arterial streets shall not allow driveway access points if possible, minor arterial streets shall limit access points as needed, and collector and local streets shall permit one access point per lot unless more are required by fire code.*



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Table 10-3. City of Dickinson/Stark County  
Rural Access Management Guidelines

FUNCTIONAL CLASSIFICATION	MINIMUM INTERSECTION SPACING	
	SIGNALIZED (OR FUTURE SIGNAL)	UNSIGNALIZED
Interstate	1,320'	750' - Off ramp to unsignalized stop control
Principal Arterial	1 mile	1 mile
Minor Arterial	1/2 mile	1/4 mile
Collector	1/2 mile	650'
Local	NA	300'

*Note: in the event rural guidelines differ between dickinson and stark county, the more stringent guideline shall be met*  
*Source: NDDOT Traffic Operations Manual (2025)*

Additionally, the following guidance is provided by NDDOT 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.

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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 10-4 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.

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,<sup>2</sup> 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.

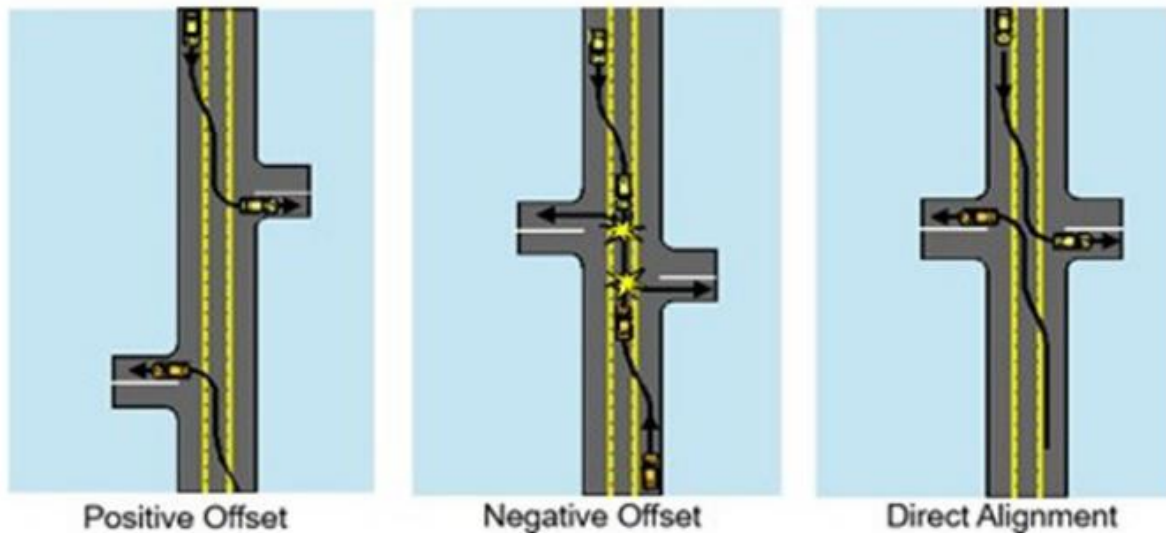
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Table 10-4. Spacing of Rural Unsignalized  
Accesses on the Same Side of a Road

RURAL ROAD POSTED SPEED LIMIT (MPH)	DESIRED SPACING OF UNSIGNALIZED ACCESSES
25	325
30	455
35	625

*Source: NDDOT Traffic Operations Manual (2025)*

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.

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- Cases where one side of the roadway is developed, an attempt should be made 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 such cases, it is recommended that an application process for variance be maintained and/or developed to allow a property owner to apply for a variance to the policy. The property owner would be required 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 submit 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

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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 10-5 for additional clarification.

Table 10-5. 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.

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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.<sup>3</sup>

**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 10-6.

Table 10-6. 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.

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**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.

**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 as 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.

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.

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**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 either that 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

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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.

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- 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.

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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 95<sup>th</sup>-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

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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

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has been addressing these areas utilizing a dedicated sidewalk fund to improve overall pedestrian connectivity, mobility and accessibility while limiting the number of pedestrian crossings 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.
- Specialized raised crosswalks that serve to reduce traffic speed without impeding snow removal operations. 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

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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 10-7 reflects the comparisons.

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Table 10-7. 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%

**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.

**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.

- Figure 10-1, 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. 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 that due to

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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 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.

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- 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.
- New streets shall require a buffer between pedestrians and active vehicle traffic. This may include grass boulevards, designated bike lanes, or designated parking lanes.
- 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.
- The City of Dickinson should consider a policy that provides for the City to incur 100% costs for the extension of Collector and Arterial roadways to support new development. In tandem, the City would not financially participate in the development of local roadways.