

Casselton Hwy 18 Corridor Study

November 2026

Draft

Casselton Hwy 18 Corridor Study

METROCOG
FM REGIONAL TRANSPORTATION PLANNING ORGANIZATION

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Table of Contents

Chapter 1 – Introduction 3

Chapter 2 – Existing Conditions 5

Chapter 3 – Access Management 15

Chapter 4 – Future Conditions 18

Chapter 5 – Roadway Lighting Analysis 27

Chapter 6 – Turn Lane Warrant Analysis 29

Chapter 7 – Traffic Signal Warrant Analysis 31

Chapter 8 – Stakeholder & Public Involvement 33

Chapter 9 – Alternatives Development 38

Chapter 10 – Network Connectivity 43

Chapter 11 - Summary & Recommendations 44

Appendicies:

- **2035, 2050, & Full Build Forecast Development**
- **Lighting Analysis**
- **Turn Lane Warrant Analysis**
- **Signal Warrant Analysis**
- **Study Review Committee Meeting Notes**
- **Public Survey Results**

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Chapter 1 – Introduction

Study Background

This study stems from a request by the City of Casselton to analyze warrants for turn lanes from ND Hwy 18 to 11th St S and to 13th St S. After continued conversations with Casselton and North Dakota Department of Transportation (NDDOT), it was decided that a corridor study of ND Hwy 18 from Cottonwood Dr/Morningside Dr to I-94 is needed given the increasing traffic on Hwy 18 and the recent and future growth along this portion of the highway.

It was also recommended in the Casselton Comprehensive & Transportation Plan (2019) that the City of Casselton 'Coordinate with the NDDOT to conduct a corridor study along the entirety of ND Hwy 18.'

Study Area

This study's area spans roughly one mile along ND Hwy 18 from Cottonwood Dr/Morningside Dr to just north of the north ramp of I-94 (exit 331). It's important to note that ND Hwy 18 in Casselton is also named Governors Dr between I-94 and Swan Creek and Langer Ave from Swan Creek to the 5th St N. The map below further shows this study area.

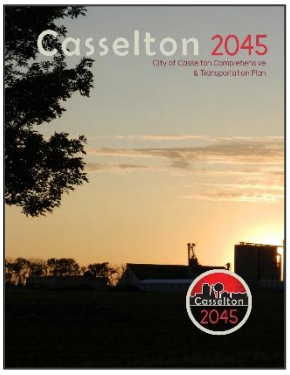
Figure 1-1 – Study Area



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Related Studies

Several past studies have included recommendations to ND Hwy 18 in Casselton. Below are recent studies/plans which provided recommendations to ND Hwy 18 in Casselton.

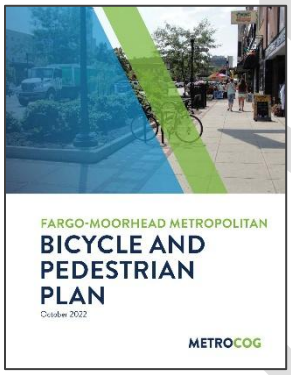


Casselton 2045 - Casselton Comprehensive & Transportation Plan (2019)

Casselton 2045 is the comprehensive plan for the City of Casselton and serves as a guiding document for future development in the city. The plan builds a framework for what the city will achieve over the next 20 to 30 years.

Transportation is a key component of the plan. With ND Hwy 18 as the spine that connects, supports, and serves Casselton, this plan provides several **recommendations** for the future of Hwy 18:

- Construct a prominent community gateway near I-94
- Coordinate with the NDDOT on access management along the entirety of ND Hwy 18
- Coordinate with the NDDOT to conduct a corridor study along the entirety of ND Hwy 18/Governors Dr/Langer Ave
- Coordinate with NDDOT to install striped crosswalks as needed along ND Hwy 18/Governors Dr/Langer Ave, prioritizing pedestrian safety to and from Central Cass Schools and near the central business district



FM Metro Bicycle & Pedestrian Plan (2022)

The Fargo-Moorhead Metropolitan Bicycle & Pedestrian Plan is a plan that's completed every five years by Metro COG. This plan looks at existing bicycle/pedestrian infrastructure, policies, and more, and provides recommendations for future improvements.

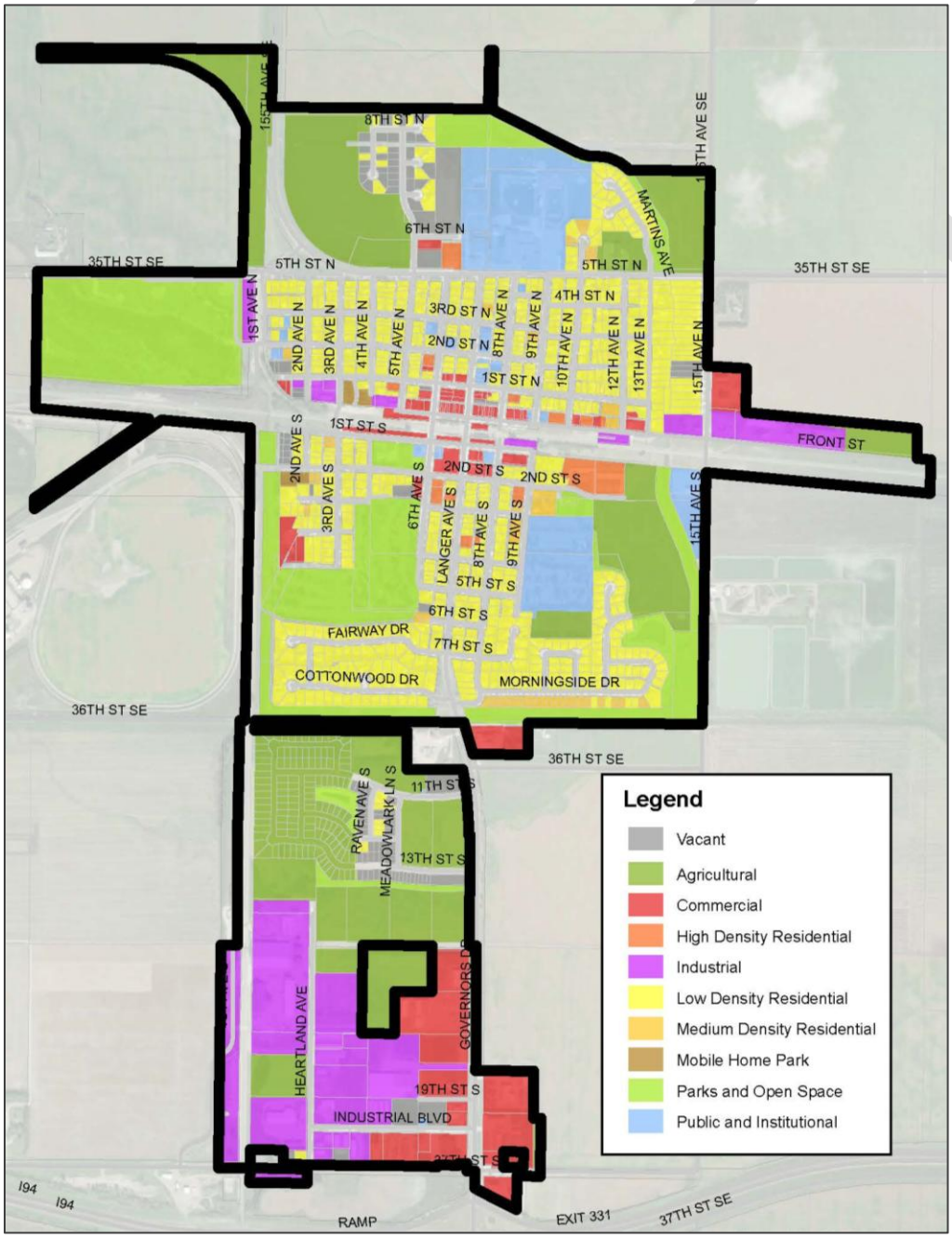
The plan recommends new/upgraded bicycle facilities along ND Hwy 18. The plan doesn't go into detail about what the specific new/upgraded facilities should entail, however, common new/upgraded facilities could include wide shoulders, shared use paths, bike lanes, or a combination thereof.

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Land Use

The Hwy 18 study corridor is located both within the City of Casselton and outside the City. The Hwy 18 study corridor currently is a mix of undeveloped farmland and developed land of various uses. The developed land primarily contains commercial land uses with residential and industrial located off the corridor, mainly to the west. To the east of the corridor is primarily agriculture land which is largely located outside of the city limits. The current land use can be seen in Figure 2-7

Figure 2-7 – Existing Land Use



Several new developments have occurred near the study corridor in recent years. These include Dollar General, Dairy Queen, an office building, and a commercial building. Additionally, a new residential development, Prairie Skies, was recently platted just west of Hwy 18 for which 11th and 13th Streets were constructed. Currently there are about ten single family homes constructed, however full buildout would include 150 – 200 homes as well as apartments and commercial buildings.

Roadway Layout

ND Hwy 18 is a two-lane roadway with a rural design (ditches rather than curb & gutter). The roadway consists of 12 ft driving lanes with shoulders ranging from 8 to 10 feet in width. The shoulders are a combination of asphalt and gravel in some sections. The Hwy 18 corridor also has a 10 ft wide shared use path on the west side of the roadway from Cottonwood Dr. to 37th St.

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Figure 2-1 – Existing Conditions

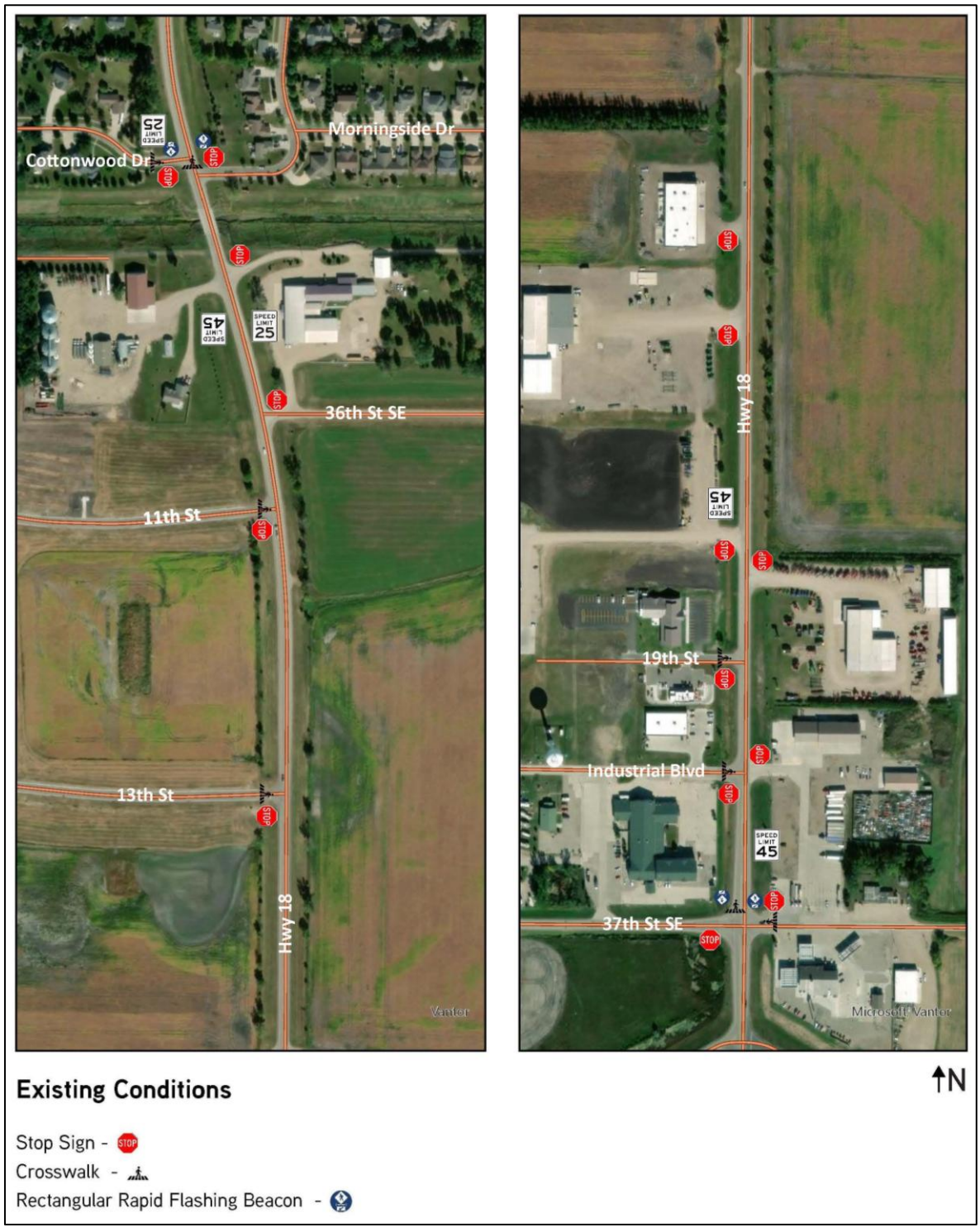
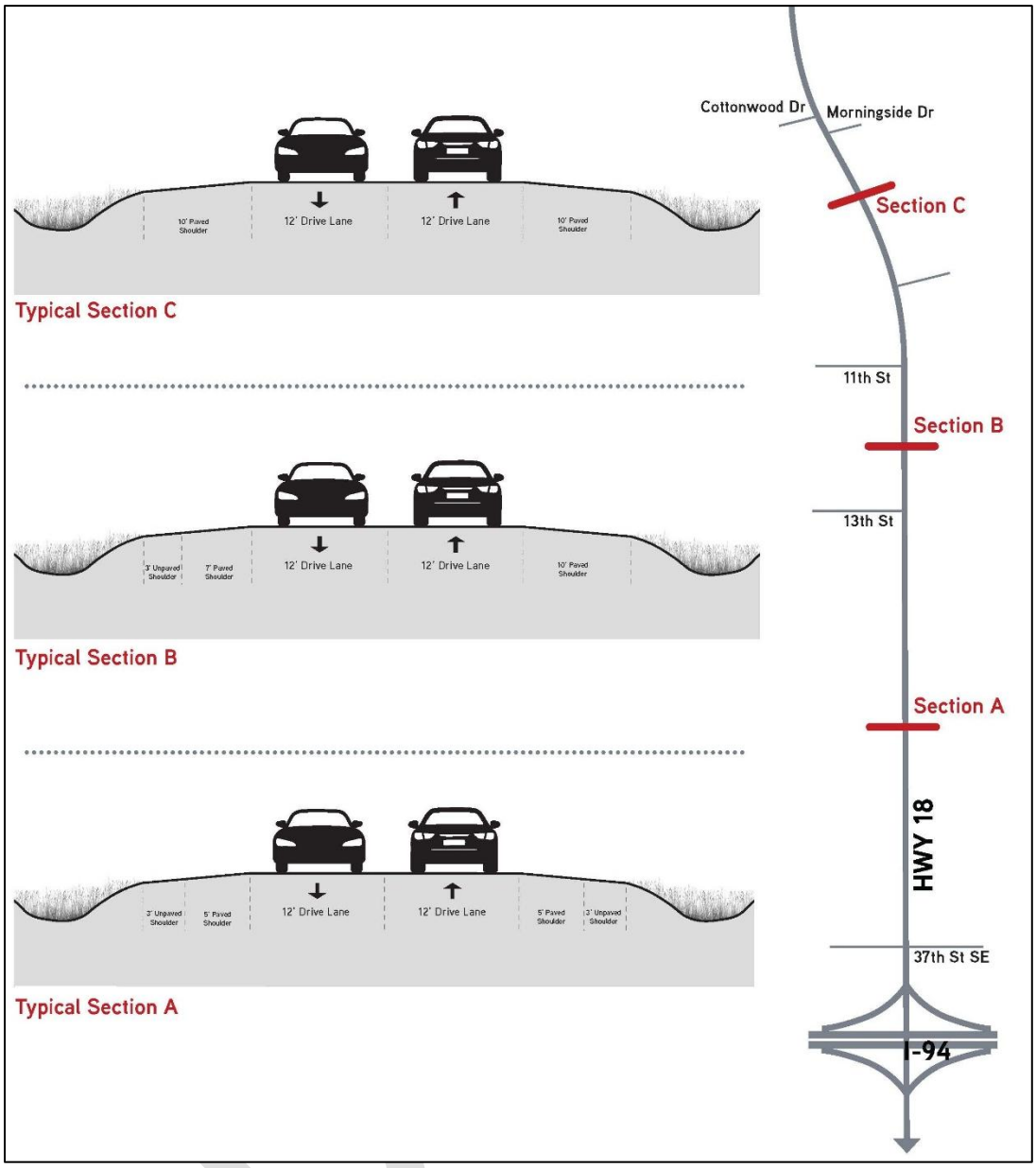


Figure 2-2 – Hwy 18 Typical Sections



Intersections & Accesses

As seen in Figure 2-1, Hwy 18 within the study area intersects with seven roadways:

- Cottonwood Dr
- Morningside Dr
- 36th St SE
- 11th St S
- 13th St S
- 19th St S
- Industrial Blvd
- 37th St SE

Seven driveways connect with Hwy 18 along with four field accesses.

There are currently left turn lanes from Hwy 18 to 37th St in both northbound and southbound directions. No additional right or left turn lanes currently exist on Hwy 18 within the study area. Turn lane analysis based on current conditions is shown later in this study.

Bicycle/Pedestrian Accommodations

Hwy 18 contains a 10 ft wide shared use path on the west side of the roadway from Cottonwood Dr to 37th St. This concrete path was recently installed in 2025 and connects the commercial services on the south end of Casselton to the core of Casselton. Two crosswalks with RRFBs (rectangular rapid flashing beacons) allow pedestrians to cross Hwy 18 at the intersections of Hwy 18 & Cottonwood Dr/Morningside Dr and Hwy 18 & 37th St.





Lighting

While roadway lighting exists along portions of Hwy 18, the study corridor doesn't contain lighting except at the far ends of the study corridor. Lighting exists north of Cottonwood Dr. and south of 37th St. Lighting analysis can be found in Chapter 5 of this document.

Bridges

There are two bridges on Hwy 18 within the study corridor. Both bridges cross Swan Creek - located just south of Morningside Dr. The roadway bridge is 40 feet wide and was constructed in 1972. Per NDDOT's 2024 Bridge Listing document, the bridge's deck and superstructure condition is in *Satisfactory Condition* while the substructure is in *Fair Condition*.



The other bridge crossing Swan Creek is the pedestrian bridge which was constructed in 2025 as part of the shared use path installation. The width of the path as part of this bridge is 10 ft wide.

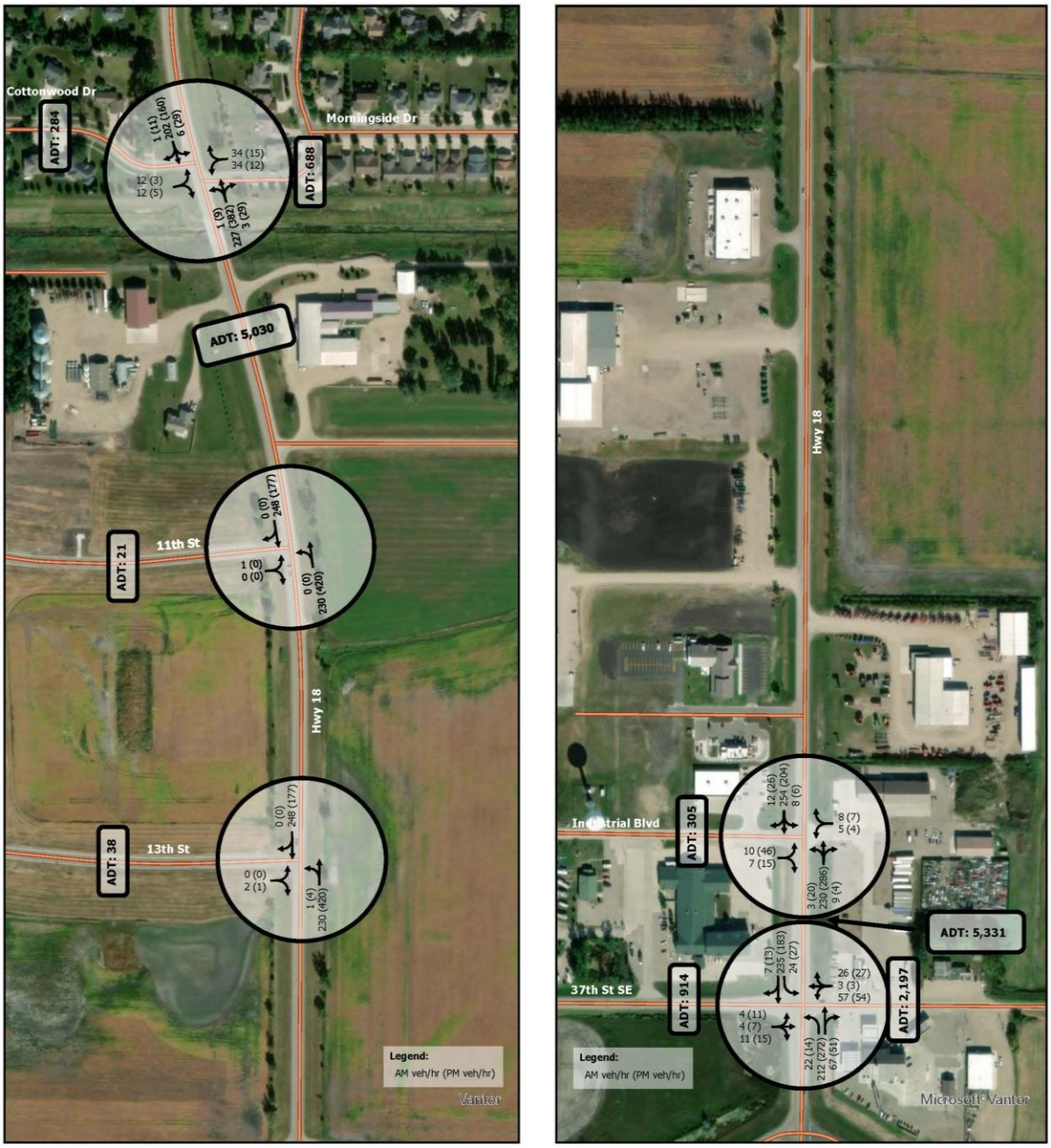
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Traffic & Operations

Traffic data for this study was collected during the weeks of October 26 – 31 and November 2 – 8, 2025. As is best practice in the Traffic Engineering profession, traffic data was collected on a Tuesday, Wednesday, and/or Thursday. 12 hours of data was collected for intersection turning movement counts while 48 hours of data was collected for average annual daily traffic (AADT) volumes.

The AADT counts and turning movement counts collected as part of this study can be seen in Figure 2-3.

Figure 2-3 – Existing Peak Hour Turning Movements



With the turning movement counts and known intersection characteristics, vehicle delay and level of service (LOS) could be calculated for each intersection and each of the intersection's approaches. Tables 2-2 and 2-3 show vehicle delay and LOS for each intersection and approach.

Level of service quantifies how an intersection is operating. Intersections are graded from A through F, which corresponds to the average delay per vehicle. The table below shows the correlation between vehicle delay and LOS for the intersection types. NDDOT considers LOS A through D as acceptable, with LOS E and F considered unacceptable.

Table 2-1 – Intersection Level of Service

Level of Service	Stop, Yield, and Roundabout Intersections	Signalized Intersections
	Delay per vehicle	Delay per vehicle
A	<10 seconds	<10 seconds
B	10 to 15 seconds	10 to 20 seconds
C	15 to 25 seconds	20 to 35 seconds
D	25 to 35 seconds	35 to 55 seconds
E	35 to 50 seconds	55 to 80 seconds
F	> 50 seconds	> 80 seconds

Table 2-2 – Intersection Veh Delay & LOS – AM Peak Hr – Existing Conditions (2025)

Hwy 18 Intersection	East leg	West leg	North leg	South leg	Intersection Overall
Cottonwood Dr	-	B (11)	A (0)	A (0)	A (1)
Morningside Dr	B (11)	-	A (0)	A (0)	A (2)
11th St	-	B (12)	A (0)	A (0)	A (0)
13th St	-	B (10)	A (0)	A (0)	A (0)
Industrial Blvd	B (11)	B (12)	A (0)	A (0)	A (1)
37th St	B (12)	C (15)	A (1)	A (1)	A (3)

Shown as: LOS (veh delay – provided in sec/veh)

Table 2-3 – Intersection Veh Delay & LOS – PM Peak Hr – Existing Conditions (2025)

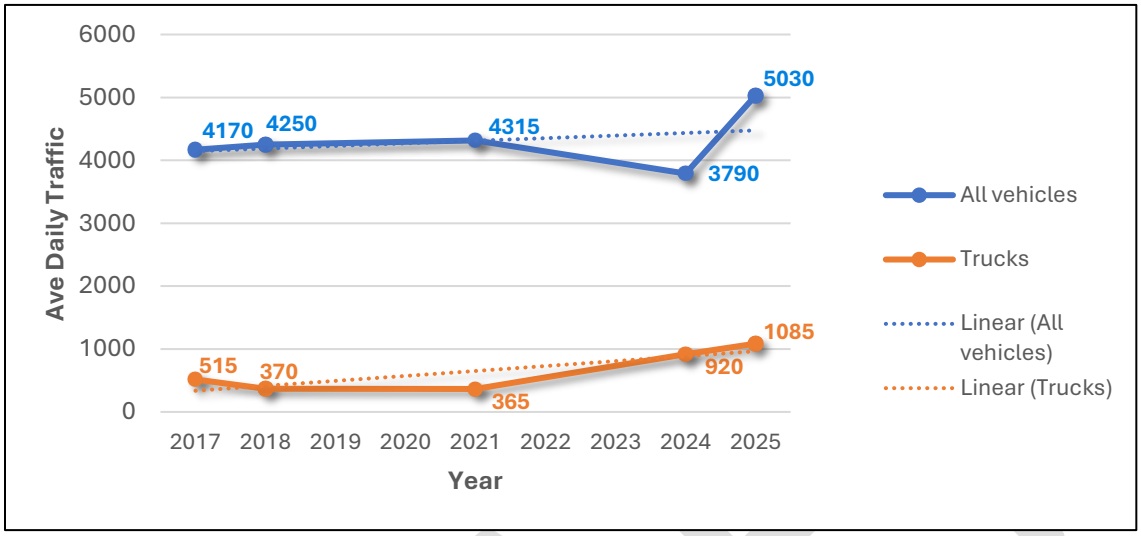
Hwy 18 Intersection	East leg	West leg	North leg	South leg	Intersection Overall
Cottonwood Dr	-				
Morningside Dr	B (13)	-	A (1)	A (0)	A (1)
11th St	-	A (0)	A (0)	A (0)	A (0)
13th St	-	A (9)	A (0)	A (0)	A (0)
Industrial Blvd	B (12)	B (14)	A (0)	A (1)	A (2)
37th St	C (15)	B (13)	A (1)	A (0)	A (3)

Shown as: LOS (veh delay – provided in sec/veh)

As can be seen in the tables above, all intersections and intersection approaches have a LOS of C or better, which are all considered acceptable.

Historic traffic counts were also obtained along the study corridor. NDDOT routinely collected traffic data on ND Hwy 18 at Swan Creek between 2017 and 2024. Figure 2-4 shows the current and historic traffic counts at this location.

Figure 2-4 – Average Daily Traffic by Year



It can be seen that the average daily traffic trended upward from 4,170 veh/day in 2017 to 5,030 veh/day in 2025. Meanwhile, truck traffic decreased from 2017 to 2021 but then increased to over 1,000 trucks/day in 2025. The percentage of truck traffic on ND Hwy 18 in 2025 is 22%.

Crash History

Crash data was collected for the past 9 years along ND Hwy 18. The map below shows the location of the recorded crashes as well as the severity and crash type. In total, 13 crashes were recorded between 2016 and 2025. No crashes involving bicycles or pedestrians were recorded. Of the 13 crashes, three involved a semi or box truck. Alcohol was not a factor in any of the crashes, however drugs were related to one crash (a head-on crash).

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Figure 2-5 – Crashes (2016 - 2025)

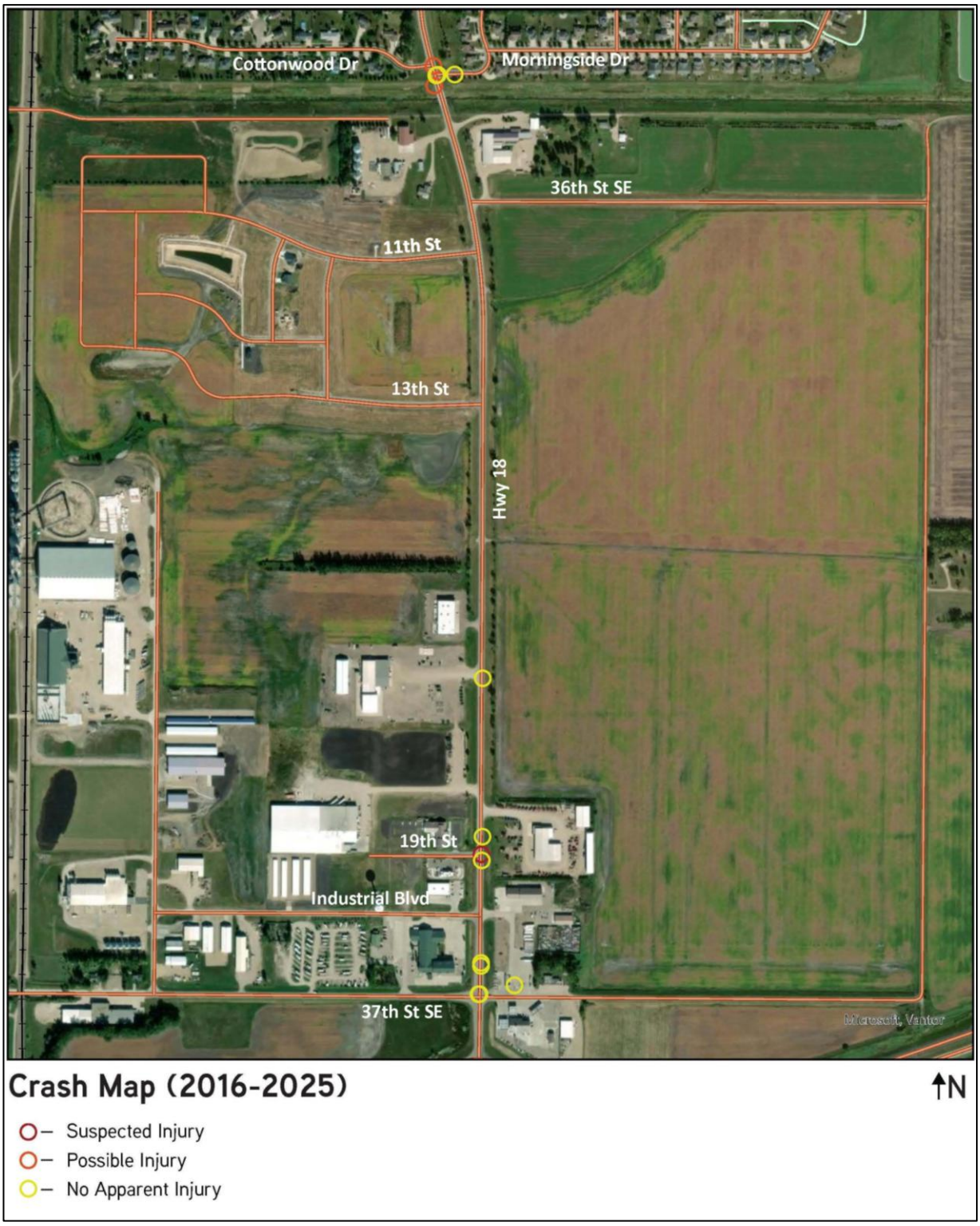


Figure 2-6 shows the year of the recorded crashes while Tables 2-4 and 2-5 show the crash type and crash severity, respectively.

Figure 2-6 – Crashes per Year

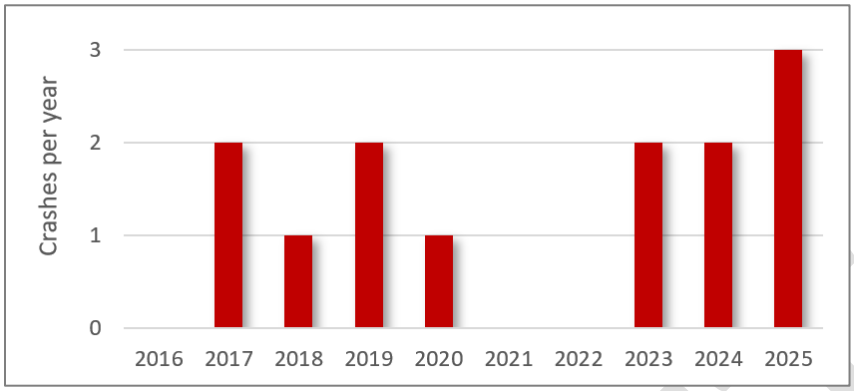


Table 2-4 – Crash Type

Year	No. of crashes
Run off the road	5
Intersection angle crashes	3
Rear-end	3
Head-on	1
Sideswipe (hit parked car)	1

Table 2-5 – Crash Severity

Crash Severity	No. of crashes
Fatality	0
Serious injury	0
Minor injury	1
Possible injury	2
Property damage only	10

Roadway Ownership & Maintenance

Hwy 18 is owned by NDDOT, however certain infrastructure along the corridor is owned and operated by the city of Casselton. NDDOT maintains Hwy 18 through Casselton, however the city maintains the lighting and shared use path and the city mows the ditches within the city limits.

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Chapter 3 – Access Management

Access management is the control of entry and exit points along a roadway. This can include both driveways and intersecting roadways. Thoughtful access management along a corridor can enhance safety and reduce delay and congestion. According to the FHWA, reducing access density on urban or suburban arterials can reduce fatal and injury crashes by 25-31%.

Both NDDOT and the City of Casselton have access spacing guidelines or ordinances. Per NDDOT's Design Manual (Section III-16), the desirable spacing of access points on a state route in urban areas is 400 – 600 feet, with consideration recommended for partial accesses where possible. For rural areas, the Design Manual recommends partial access control where possible, no more than five access points per mile, and a minimum spacing of 500 feet between accesses. However, for both rural and urban locations, accesses are ultimately reviewed by NDDOT, who has the final say into the number and location of access points. It's important to note that Hwy 18 is both within the City of Casselton (urban) and outside the City (rural).

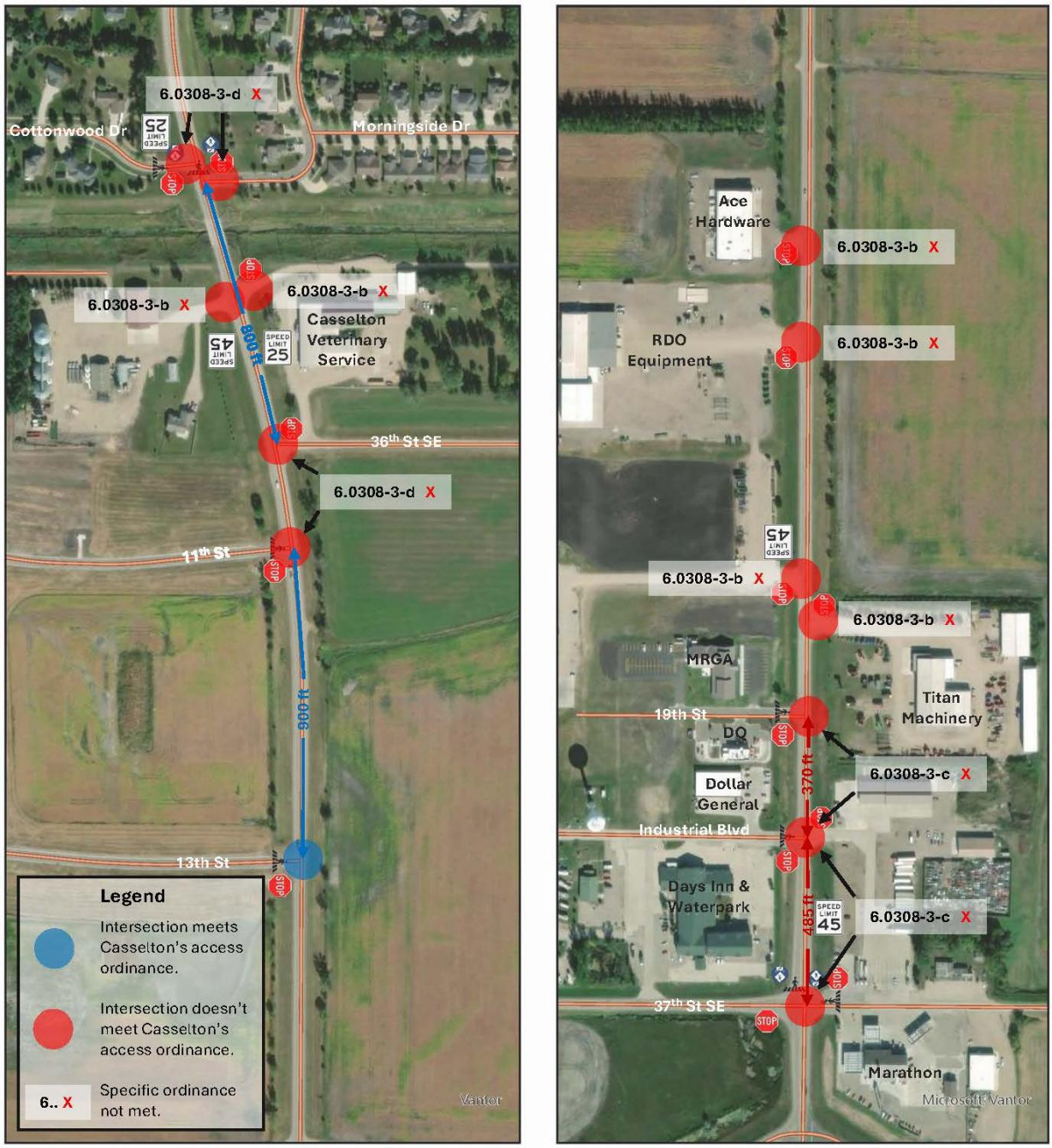
Meanwhile Casselton's ordinance (ord. 6.0308) has the following access requirements for arterial roadways. ND Hwy 18 is considered an arterial roadway in Casselton as shown in the current Casselton Comprehensive & Transportation Plan.

- There shall be no direct driveways or accesses onto arterial roadways. (6.0308-1-b)
- There shall be only three roadways intersecting with an arterial roadway within any section and these shall have a minimum spacing with any other intersection along the arterial of at least 600 feet. (6.0308-3-c)
- The roadways intersecting arterial roads shall align so as to create four-way intersections except where a natural feature of the land prevents a reasonable roadway layout. (6.0308-3-d)
- Collector and arterial roadways shall not have any residential drives accessing them, nor shall any residential parcels front on them. (6.0308-3-h)

Figure 3-1 shows the current accesses and intersections along Hwy 18 within the study area and evaluates if the criteria from Casselton's ordinance 6.0308 is met.

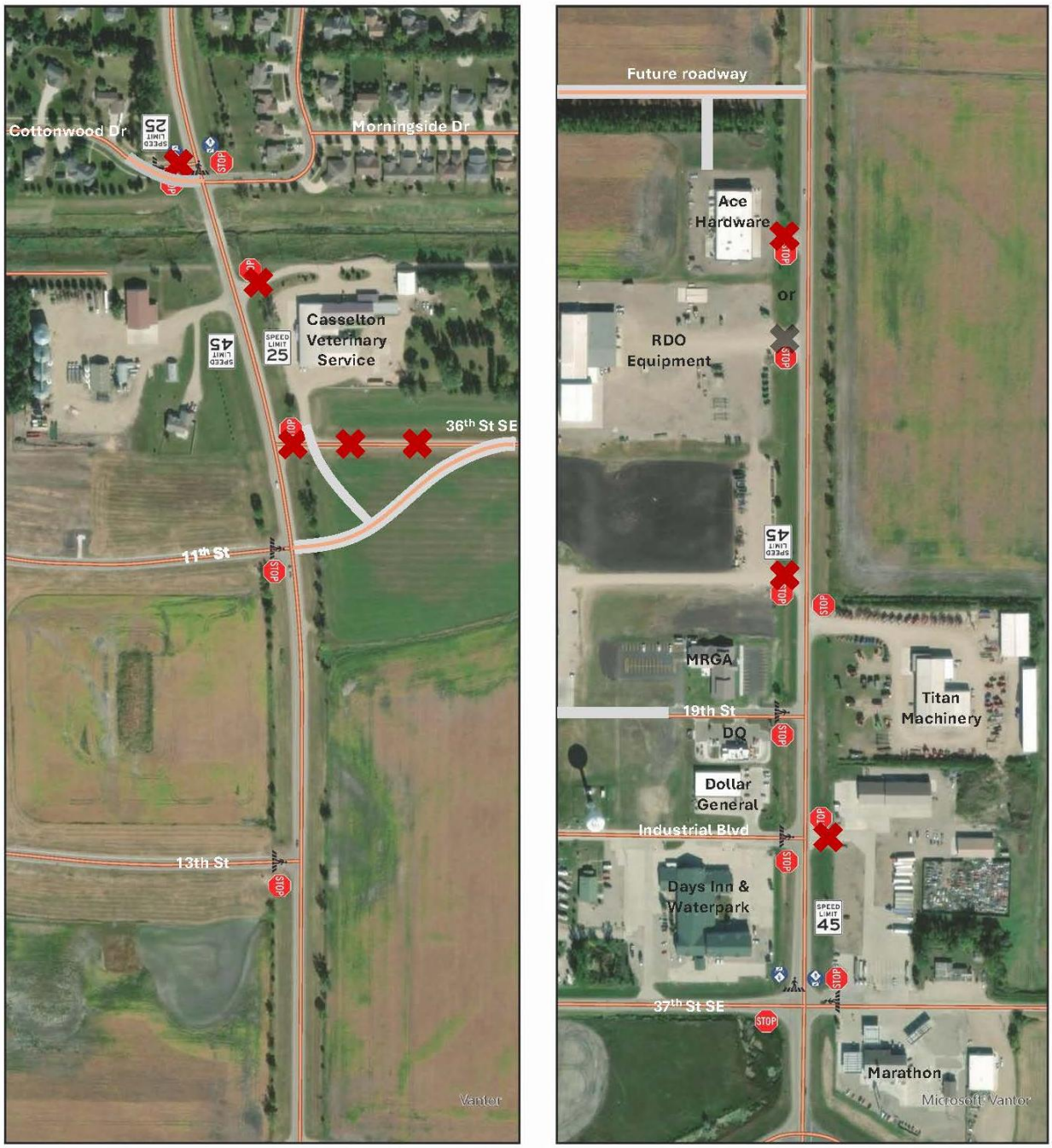
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Figure 3-1 – Existing Hwy 18 Accesses



While the ordinance is unclear whether existing accesses are grandfathered-in, it's good practice to work toward meeting Casselton's arterial roadway ordinance over the long-term. Figure 3-2 shows this study's recommended access plan over the long-term.

Figure 3-2 – Hwy 18 Long-Term Access Control Recommendations



To ensure proper access control into the future, City of Casselton should abide by the city's ordinance (6.0308-3) and NDDOT's access spacing guidelines whenever a new intersecting roadway or access point is being considered.

Chapter 4 – Future Conditions

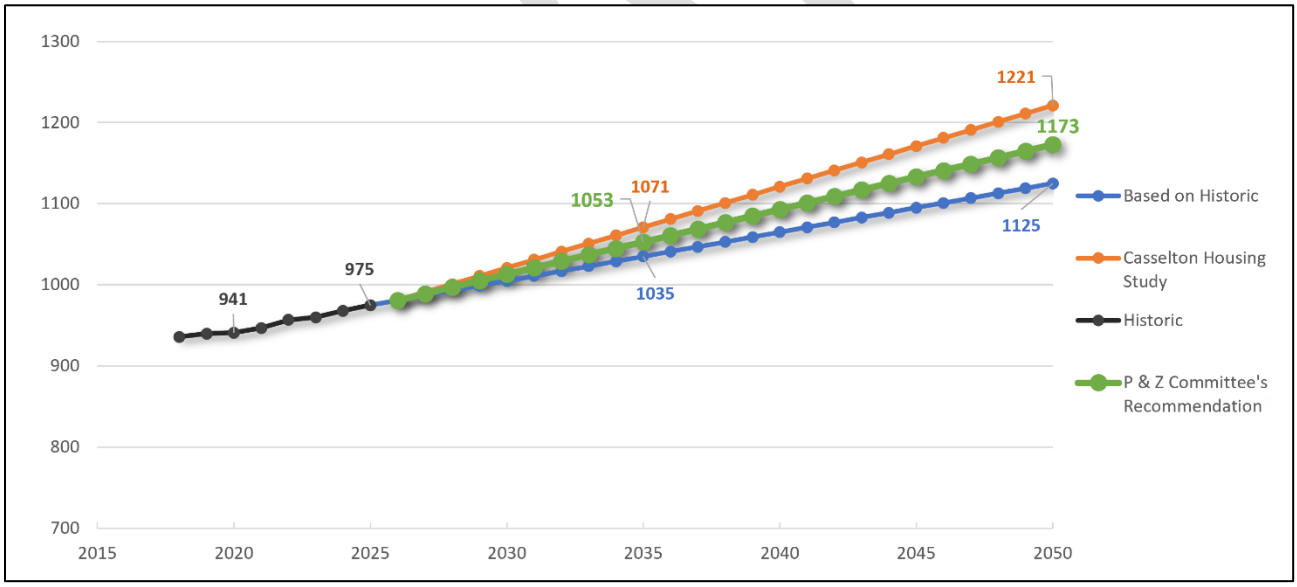
Future Land Use & Socioeconomic Forecasts

Understanding the future land use in Casselton is necessary to calculate the future traffic volumes and travel patterns. Metro COG began this process by meeting with the Casselton Planning & Zoning Committee. A meeting with the Planning & Zoning Committee occurred on April 15, 2026 where Metro COG presented two future household projections within the city of Casselton:

- The *Casselton Housing Study* projections came from projected housing shown in the 2024 Casselton Comprehensive Housing Needs Analysis.
- The *Based on Historic* projections came from historic household building permits per year between 2018 and 2025 and projecting the household building permits per year into the future.

When seeking a recommendation on the most likely future household projections, the Planning & Zoning Committee recommended a growth projection equally between the two projections provided. Figure 4-1 shows the *Based on Historic, Casselton Housing Study, and Planning & Zoning Committee's Recommendation*. The *Planning & Zoning Committee's Recommendation* was used for this study.

Figure 4-1 - Historic & Projected Households - Casselton

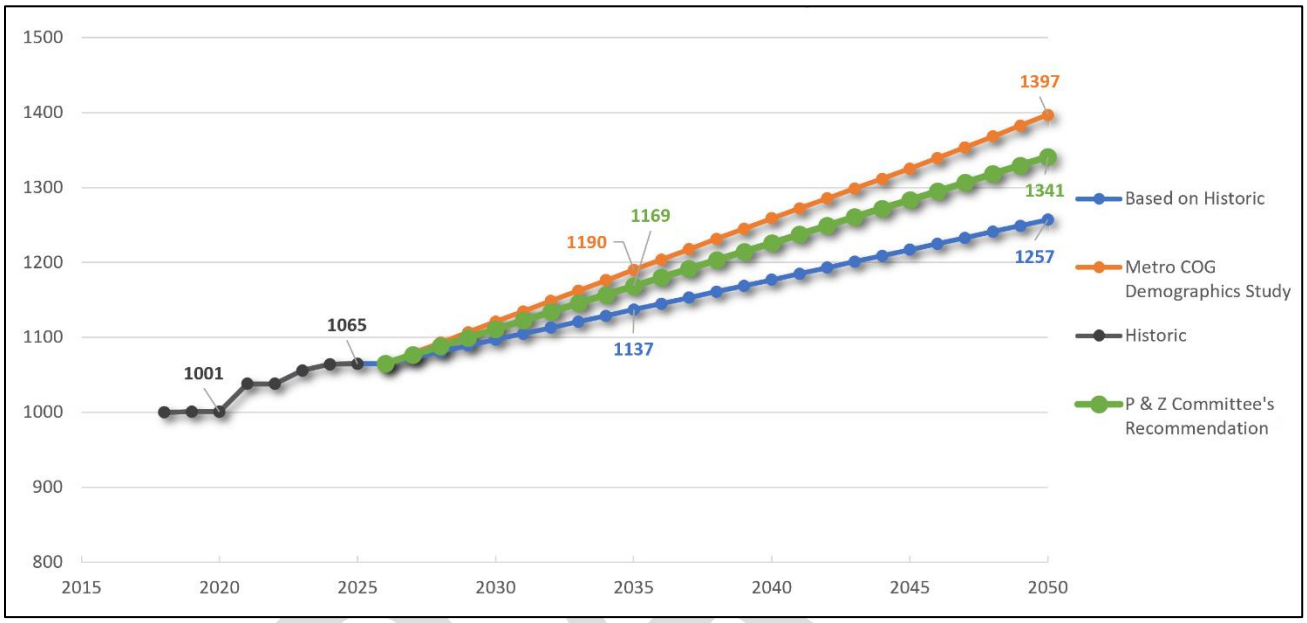


Similarly, at the meeting with the Casselton Planning & Zoning Committee, two job projections were provided to the Committee:

- The *Metro COG Demographics Study* projection used projections for Casselton from the Demographics Study which was completed in 2022.
- The *Based on Historic* projections came from commercial building permits for each year between 2018 and 2025, which were then used to estimate the number of jobs per permit. The average number of jobs per year was then calculated and projected into the future.

Upon providing these job projections to the Planning & Zoning Committee, the Committee recommended using a future jobs projection between the *Metro COG Demographics Study* and *Based on Historic* projections, but closer to the *Metro COG Demographics Study*. These three projections can be seen in Figure 4-2. The *Planning & Zoning Committee's Recommendation* was used for this study.

Figure 4-2 – Historic & Projected Jobs – Casselton

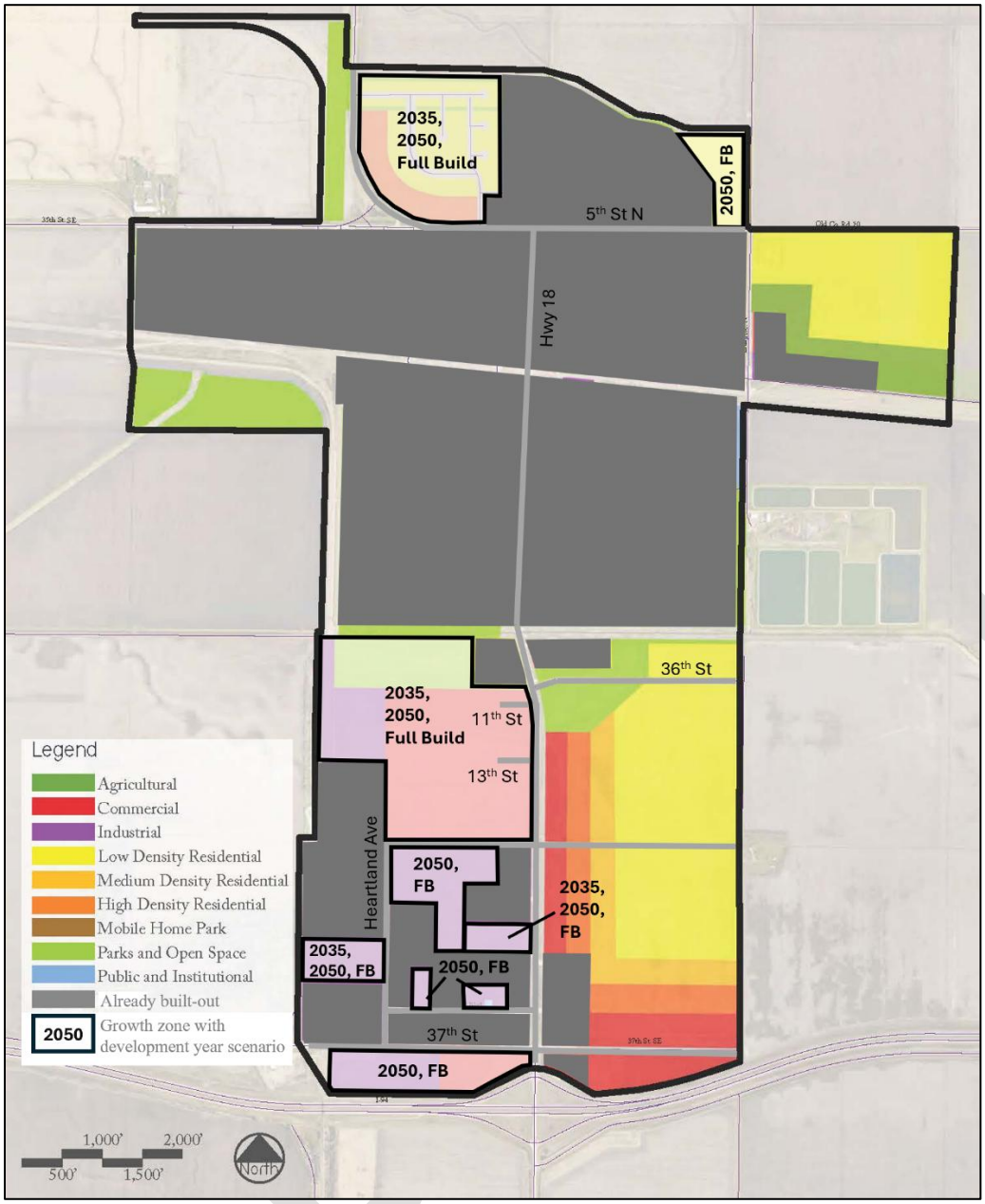


A Full Build forecast was also developed. The Full Build forecast used Casselton's future land use map along with planned land use from the Prairie Skies development to develop a scenario in which all areas of Casselton west of Hwy 18 are developed. This also includes the Casselton Farms development (northeast of Hwy 18 and west of Central Cass School).

Unlike the 2035 and 2050 forecasts, the Full Build isn't assigned to a specific year. However, it can be generally assumed that the Full Build would occur sometime after 2050.

Figure 4-3 shows Casselton's future land use map along with zones where the anticipated growth is estimated to occur for the three timeframe scenarios. Additional information regarding the 2035, 2050, and Full Build forecasts can be found in the appendix of this study.

Figure 4-3 – Casselton Future Land Use with Growth Zones



Future Traffic Conditions

Casselton's future land use map along with proposed development within the Prairie Skies development were then used to assign locations for future households and jobs. Once future households and jobs were assigned to their anticipated locations, trips were estimated to/from each future household and job area. The *ITE Trip Generation Manual* was used to calculate the number of trips. Casselton's future land use map helped inform the type of development which was then used to determine the number of trips generated.

Once trips were generated from the various growth areas, the trips were allocated to nearby roadways, including Hwy 18. The figure below shows the forecasted daily traffic for the existing (2025), 2035, 2050, and Full Build daily traffic forecasts, shown in vehicles per day.

Figure 4-4 – Existing (2025), 2035, 2050, & Full Build Daily Traffic



Forecasted trips were also calculated for the AM and PM peak hours. Figures 4-4 through 4-6 show the AM and PM peak hour trips for the 2035, 2050, and Full Build forecasts, respectively.

Figure 4-5 – 2035 AM & PM Peak Hour Turning Movement Counts

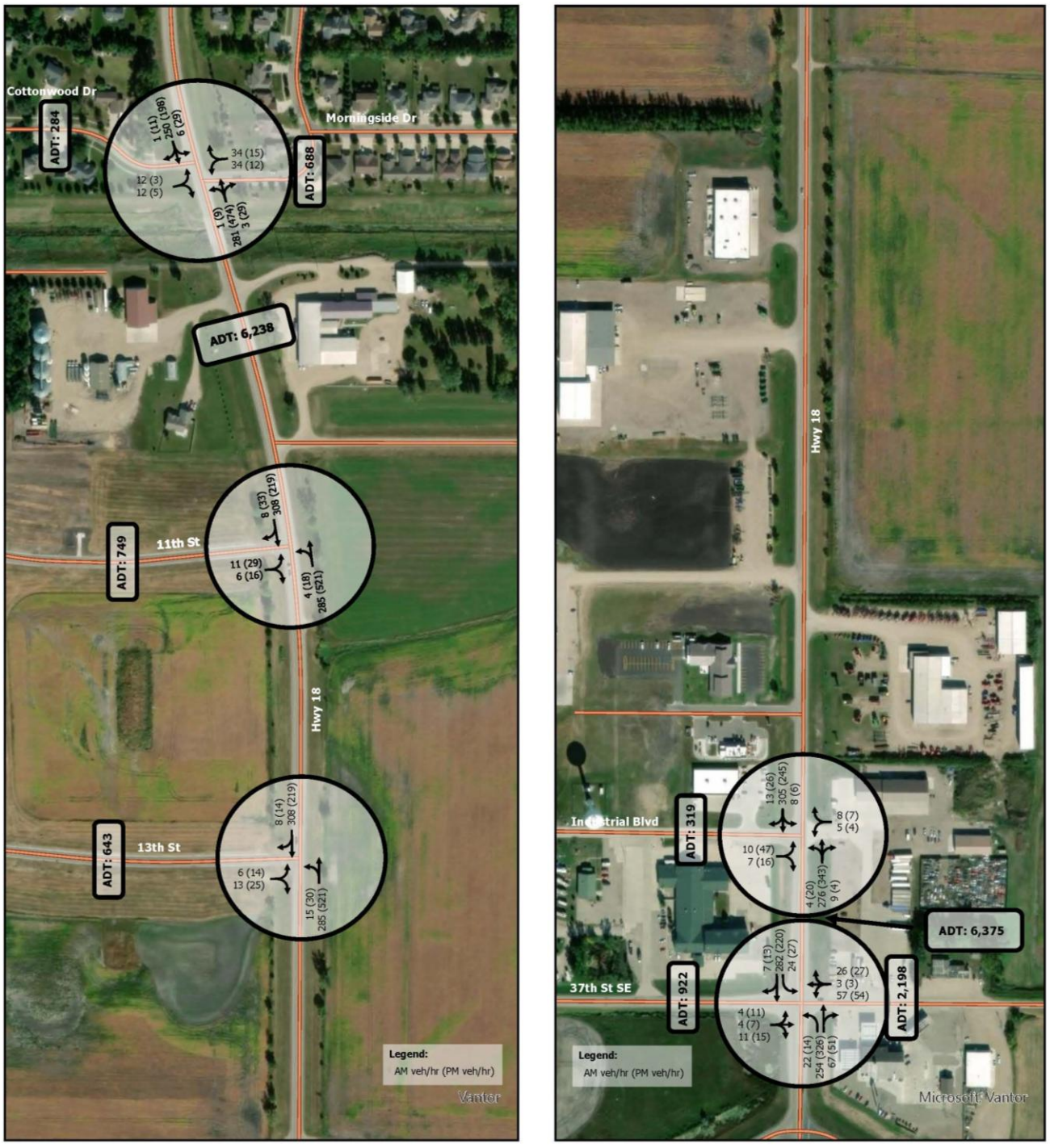


Figure 4-6 – 2050 AM & PM Peak Hour Turning Movement Counts

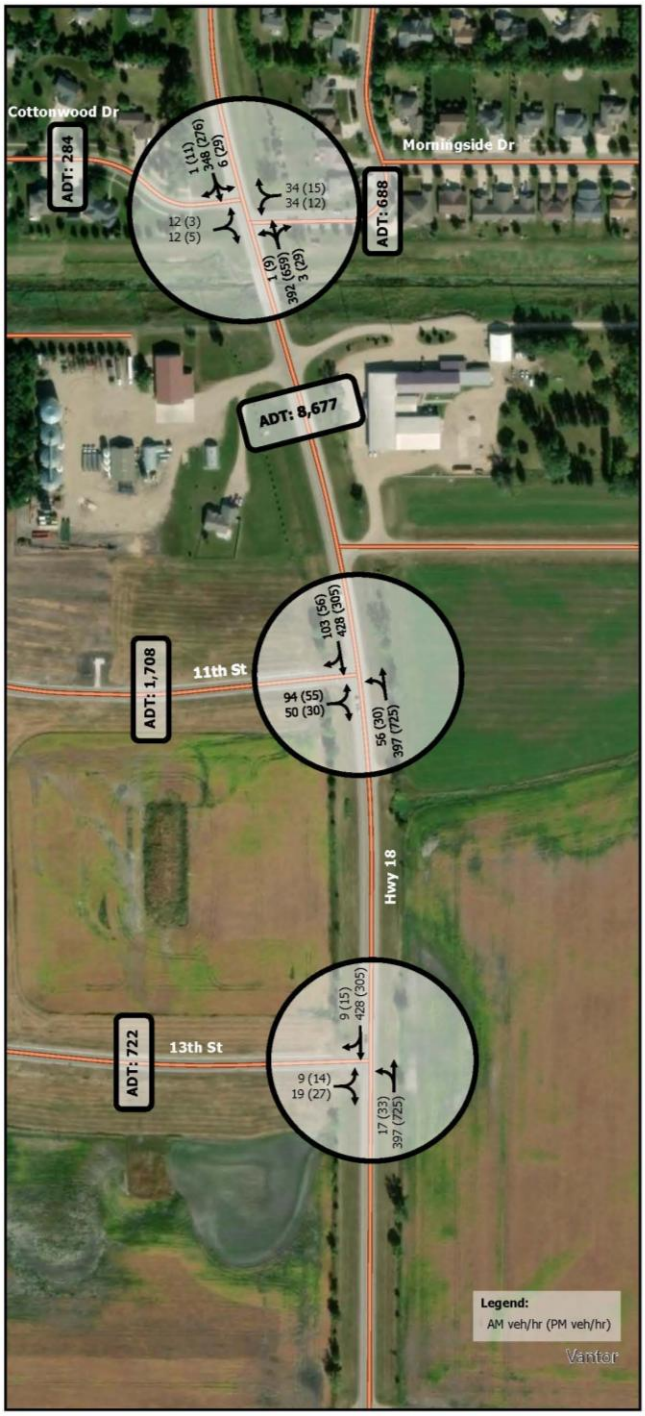
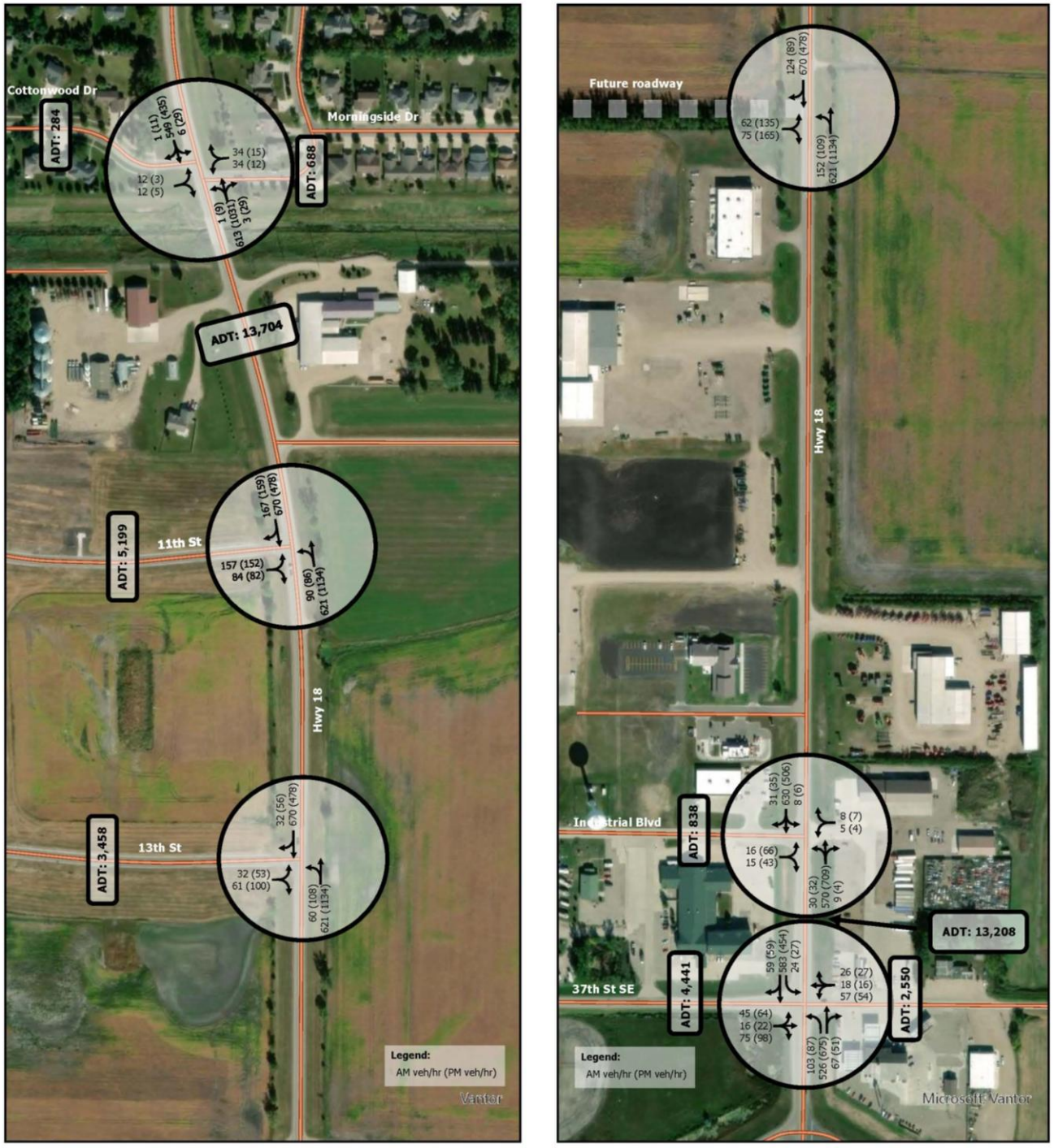




Figure 4-7 – Full Build AM & PM Peak Hour Turning Movement Counts



With the forecasted turning movement counts and known intersection characteristics, a traffic engineering software, SYNCHRO, was used to calculate vehicle delay and level of service (LOS) at each study intersection and each of the intersection's approaches. Tables 4-1 through 4-6 show vehicle delay and LOS for each intersection and approach. Please

note that intersection traffic control and intersection layouts remain unchanged from the existing conditions.

Table 4-1 - Intersection Veh Delay & LOS – AM Peak Hr – 2035

Hwy 18 Intersection	East leg	West leg	North leg	South leg	Intersection Overall
Cottonwood Dr	-	B (12)	A (0)	A (0)	A (1)
Morningside Dr	B (12)	-	A (0)	A (0)	A (1)
11th St	-	B (13)	A (0)	A (0)	A (0)
13th St	-	B (12)	A (0)	A (0)	A (1)
Industrial Blvd	B (12)	B (13)	A (0)	A (0)	A (1)
37th St	C (17)	B (13)	A (1)	A (1)	A (3)

Shown as: LOS (veh delay – provided in sec/veh)
Note: All intersection traffic control, capacity, and layout the same as existing conditions.

Table 4-2 - Intersection Veh Delay & LOS – PM Peak Hr – 2035

Hwy 18 Intersection	East leg	West leg	North leg	South leg	Intersection Overall
Cottonwood Dr	-	B (12)	A (0)	A (0)	A (0)
Morningside Dr	B (14)	-	A (1)	A (0)	A (1)
11th St	-	C (15)	A (0)	A (0)	A (1)
13th St	-	B (13)	A (0)	A (0)	A (1)
Industrial Blvd	B (12)	C (16)	A (0)	A (0)	A (2)
37th St	B (14)	C (17)	A (1)	A (0)	A (3)

Shown as: LOS (veh delay – provided in sec/veh)
Note: All intersection traffic control, capacity, and layout the same as existing conditions.

Table 4-3 - Intersection Veh Delay & LOS – AM Peak Hr – 2050

Hwy 18 Intersection	East leg	West leg	North leg	South leg	Intersection Overall
Cottonwood Dr	-	B (14)	A (0)	A (0)	A (0)
Morningside Dr	B (15)	-	A (0)	A (0)	A (1)
11th St	-	D (33)	A (0)	A (1)	A (5)
13th St	-	B (14)	A (0)	A (0)	A (1)
Industrial Blvd	B (15)	C (17)	A (0)	A (1)	A (1)
37th St	E (36)	C (22)	A (0)	A (1)	A (5)

Shown as: LOS (veh delay – provided in sec/veh)
Note: All intersection traffic control, capacity, and layout the same as existing conditions.

Table 4-4 - Intersection Veh Delay & LOS – PM Peak Hr – 2050

Hwy 18 Intersection	East leg	West leg	North leg	South leg	Intersection Overall
Cottonwood Dr	-	B (15)	A (0)	A (0)	A (0)
Morningside Dr	C (18)	-	A (1)	A (0)	A (1)
11th St	-	D (27)	A (0)	A (0)	A (2)
13th St	-	C (16)	A (0)	A (0)	A (1)
Industrial Blvd	C (16)	C (24)	A (0)	A (0)	A (2)
37th St	E (38)	D (26)	A (1)	A (1)	A (6)

Shown as: LOS (veh delay – provided in sec/veh)
Note: All intersection traffic control, capacity, and layout the same as existing conditions.

Table 4-5 - Intersection Veh Delay & LOS – AM Peak Hr – Full Build

Hwy 18 Intersection	East leg	West leg	North leg	South leg	Intersection Overall
Cottonwood Dr	-	C (20)	A (0)	A (0)	A (0)
Morningside Dr	C (25)	-	A (0)	A (0)	A (1)
11th St	-	F (694)	A (0)	A (1)	F (94)
13th St	-	E (37)	A (0)	A (1)	A (3)
Industrial Blvd	C (24)	D (32)	A (0)	A (0)	A (1)
37th St	F (320)	F (188)	A (0)	A (1)	E (37)

Shown as: LOS (veh delay – provided in sec/veh)
Note: All intersection traffic control, capacity, and layout the same as existing conditions.

Table 4-6 - Intersection Veh Delay & LOS – PM Peak Hr – Full Build

Hwy 18 Intersection	East leg	West leg	North leg	South leg	Intersection Overall
Cottonwood Dr	-	C (23)	A (0)	A (0)	A (0)
Morningside Dr	E (36)	-	A (1)	A (0)	A (1)
11th St	-	F (999+)	A (0)	A (1)	F (170)
13th St	-	F (401)	A (0)	A (1)	D (32)
Industrial Blvd	D (25)	F (84)	A (0)	A (0)	A (7)
37th St	F (310)	F (311)	A (0)	A (1)	F (54)

Shown as: LOS (veh delay – provided in sec/veh)
Note: All intersection traffic control, capacity, and layout the same as existing conditions.

As can be seen in the tables above, the existing intersections and each intersection approach are shown to operate acceptably under the 2035 forecast. As traffic increases in the 2050 forecast, the east leg of the Hwy 18 & 37th St intersection operates with an LOS E under both AM and PM peak conditions. LOS E is considered an unacceptable level of service.

Lastly, under the Full Build forecast, many of the side streets intersecting Hwy 18 are shown to operate under unacceptable levels of service, with the full intersections of Hwy 18 & 37th St and Hwy 18 & 13th St also operating under unacceptable levels of service.

Chapter 9 explores modifications to the intersections which can improve level of service.

Chapter 5 – Roadway Lighting Analysis

The process for determining whether lighting is warranted along ND state highways follows NDDOT's Traffic Operations Manual. For purposes of this analysis the study corridor was split into two segments as shown below.

Figure 5-1 – Lighting Analysis



Per NDDOT's Traffic Operations Manual, **the Southern Segment warranted roadway lighting** based on criteria 4B. The following characteristics allowed this roadway segment

to meet criteria 4B: the section is development on both sides of the road, the roadway is classified as a State Corridor, and the roadway's AADT is greater than 1,000 vehicles/day.

Per NDDOT's Traffic Operations Manual, **the Northern Segment does not warrant roadway lighting** since none of the criteria is met.

Analysis of individual intersections was also conducted to determine if intersection lighting is warranted based on NDDOT's Traffic Operations Manual. Analysis found that **no intersection lighting is warranted** based on the criteria.

If a jurisdiction wishes to pay for 50% or more of lighting installation costs and 100% of the maintenance and operating costs, that would warrant the installation of lighting per NDDOT's criteria. Also, it's important to note that if a warrant for any of the criteria is met, installation of lighting is at the option of NDDOT.

A list of the criteria and other details of this roadway lighting analysis can be found in this study's appendix.

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Chapter 6 – Turn Lane Warrant Analysis

The process for warranting the installation of turn lanes followed NDDOT's Traffic Operations Manual. Installing right or left turn lanes requires traffic data and other existing conditions to analyze whether turn lanes are warranted. This process was followed for the five intersections that were analyzed. Results of turn lane warrant analysis can be found in this study's appendix.

If a turn lane is warranted (either under existing conditions or future conditions), the table below provides details on the type of project in which the turn lanes would be installed.

Table 6-1 – NDDOT's project type for turn lane installation timeframe

Type of project	Turn lane recommended based on:
Minor Rehabilitation	Current traffic
Preventative Maintenance	
No project planned (REF95 request)	
New/Reconstruction	Projected 20-year traffic
Major Rehabilitation	
Structural Improvement	
New Development	Projected traffic for opening year of development

If a turn lane is warranted for installation, the following table describes when the turn lane would be paid for by NDDOT versus by the local government agency.

Table 6-2 – Funding Responsibility

Funded by NDDOT if:
Where development is pre-existing and meets turn lane warrants. (Timing of NDDOT installation will depend upon various factors such as: availability of funds, approval process, and possibly waiting so that turn lane installation can be tied to upcoming project).
Funded by local government agency if:
Proposed development meets turn lane warrants and if immediate installation is desired. Decision should be in conjunction with developments zoning and planning process.

The table below shows which intersections warranted turn lanes during the various analysis periods – existing conditions (2025), 2035 forecast, 2050 forecast, and Full Build forecast. This turn lane analysis only applies to turn lanes on Hwy 18 and not turn lanes on the side street approaches.

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Table 6-3 – Left turn lane warrant analysis

Intersection	Dir.	Existing (2025)	2035	2050	Full Build
Cottonwood Dr	NB	No	No	**Maybe***	**Maybe***
Morningside Dr	SB	**Yes**	**Yes**	**Yes**	**Yes**
11th Street	NB	No	**Yes**	**Yes**	**Yes**
13th Street	NB	No	**Yes**	**Yes**	**Yes**
Industrial Blvd	NB	**Maybe***	**Yes**	**Yes**	**Yes**
Industrial Blvd	SB	No	**Maybe***	**Yes**	**Yes**
37th Street	NB	**Yes** – AI	**Yes** – AI	**Yes** – AI	**Yes** – AI
37th Street	SB	**Yes** – AI	**Yes** – AI	**Yes** – AI	**Yes** – AI

AI – Already installed
**On the threshold of whether turn lane is warranted when using NDDOT Traffic Ops Manual left turn lane analysis chart. NDDOT should make determination of whether turn lane is warranted.*

Right turn lane analysis was also conducted using NDDOT's Traffic Operations Manual. No right turn lanes were found warranted along Hwy 18 in the existing conditions (2025), 2035, or 2050 scenarios. However, a right turn lane was found warranted in the Full Build scenario for southbound Hwy 18 at 11th St, but that is only the case if the speed limit is 40 mph or higher.

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Chapter 7 – Traffic Signal Warrant Analysis

Currently there are no traffic signals along Hwy 18 in Casselton. This chapter explores whether traffic signals are warranted at any of the intersections based on existing conditions and future conditions.

The process for determining whether traffic signals are warranted follows the latest (2023) FHWA Manual on Uniform Traffic Control Devices (MUTCD) manual. Nine warrants are detailed in the MUTCD for which an intersection can be considered for a traffic signal. If one of the nine warrants is met, a traffic signal could be considered at that intersection.

Table 7-1 shows the results of the signal warrant analysis for the intersection of Hwy 18 & 37th St based on existing 2025 traffic conditions. Since this is the busiest intersection along the study corridor, this intersection was studied first. If a signal is warranted at this intersection, additional intersections along the corridor would be analyzed to determine if warrant signals. If the intersection of Hwy 18 & 37th St doesn't meet the warrants, no additional intersections would be analyzed as part of the existing conditions analysis.

Table 7-1 – Signal Warrant Analysis;
Existing Conditions (2025);
Intersection: Hwy 18 & 37th St

Warrant	Result
Warrant 1	Not met
Warrant 2	Not met
Warrant 3	Not met
Warrant 4	Not met
Warrant 5	Not met
Warrant 6	Not met
Warrant 7	Not met
Warrant 8	Not met
Warrant 9	Not met

Signal <u>not warranted</u> under existing conditions

Using the future traffic conditions data developed as part of this study, traffic signal warrants were analyzed at the five study intersections for the future scenarios (2035, 2050, and Full Build). Since many of the future variables can't be projected, only Warrant 1 was analyzed. Table 7-2 shows the results of the future

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Table 7-2 – Signal Warrant Analysis – Future Conditions

Intersection	2035	2050	Full Build
Cottonwood / Morningside Dr	**Not met**	**Not met**	**Not met**
11th Street	**Not met**	**Warrant met**	**Warrant met**
13th Street	**Not met**	**Not met**	**Warrant met**
Industrial Blvd	**Not met**	**Not met**	**Warrant met**
37th Street	**Not met**	**Warrant met**	**Warrant met**

Details of the signal warrant analysis can be found in the appendix of this study.

While the analysis shows that the intersections may meet signal warrants in future year scenarios, it's important to note that this analysis is for planning purposes only. If traffic signals are desired at any of these intersections, all signal warrants will need to be run based on the latest conditions.

It's also important to note that, per the MUTCD, when considering the installation of a traffic signal, alternatives should also be considered. These alternative considerations include but are not limited to:

- Roundabouts;
- Installation of turn lanes on minor approach;
- Geometric intersection changes;
- Restrictions to turn movements

Chapter 9 in this study document analyzes roadway and intersection alternatives for the study corridor.

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Chapter 8 – Stakeholder & Public Involvement

Study Review Committee

The Casselton Hwy 18 Corridor Study was guided by a study review committee (SRC) which consisted of staff from Metro COG, the city of Casselton, and NDDOT. Below is a list of the members who served on the SRC:

- Dan Farnsworth, Metro COG
- Aiden Jung, Metro COG
- Aaron Murra, NDDOT – Fargo District
- Will Hutchings, NDDOT - Local Governments Division
- Adrienne Olson – Casselton Community & Economic Development
- Will Lipp – Casselton Public Works
- Dylan Dunn – Moore Engineering / Assistant City Engineer

The SRC met four times throughout the course of the study. Notes from the SRC meetings can be found in the appendix of this document.

Stakeholder Involvement

Obtaining feedback from stakeholders who are familiar with the study corridor and rely on the corridor was important to the study effort. Two stakeholder groups were engaged as part of this study – Central Cass School District and Property Resource Group.

Metro COG and Casselton staff met with the Central Cass School District Superintendent on June 10th, 2026 to hear comments and concerns of Hwy 18 as they relate to the School District. Below are some key takeaways from the meeting with the School District:

- Central Cass School District continues to grow (both number of students and staff)
- There are some concerns with the intersection of Hwy 18 and Cottonwood Dr./Morningside Dr., especially as it relates to pedestrians
- There is the chance in the future that a new elementary school may be needed. If so, a possible location could be northwest of the intersection of Hwy 18 & 11th St



On July 27, 2026 Metro COG and Casselton staff met with a staff member from Property Resource Group (PRG), the developer who's developing the Prairie Skies development on the west side of Hwy 18. Below is a summary of information provided from PRG:

- The overall Prairie Skies development land use plan remains the same a previously provided – Commercial closest to Hwy 18, followed by multi-family residential, to the west, and single family residential further to the west. Industrial land use is also planned on the south end of the development.

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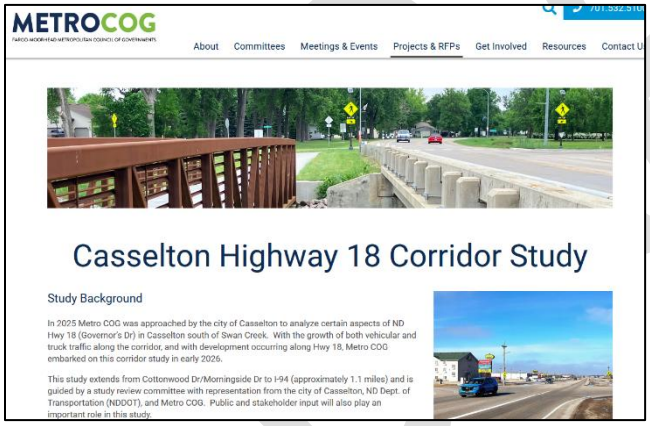
- The multi-family land use could entail apartment buildings ranging from 27 to 36-unit buildings. When asked when apartments might be constructed, it was suggested that could occur within five years perhaps.

Public Engagement

Public engagement is an important component of a corridor study as the public can provide feedback which may not be apparent from the data or information gathered. On the contrary, comments from the public can also confirm field information or data gathered throughout the study process.

This study gathered public input from mid-August to mid-September of 2026. The study webpage, hosted on Metro COG's website, provided online materials for public engagement along with an online survey and study contact information. While it's unknown how many individuals visited the project webpage, 113 individuals took the online survey.

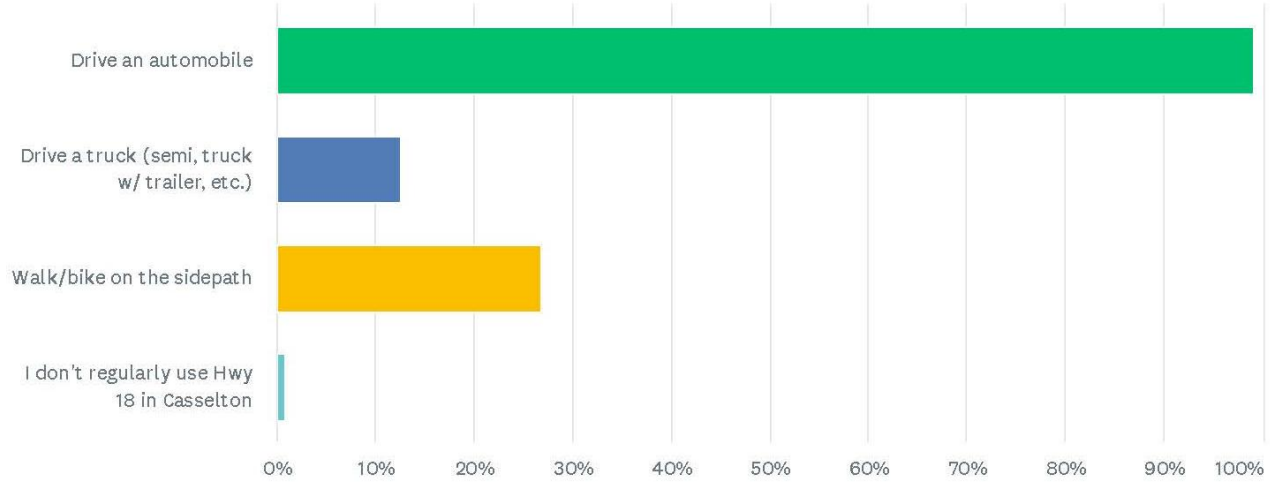
In addition to online public engagement, Metro COG had a table at the August 20th Party in the Park located in Governor's Park in Casselton. Approximately 20 individuals visited the table with two providing comments on the comment map and six taking the paper survey provided. Cards with website links and QR codes were distributed to those visiting the table so they provide additional input online.



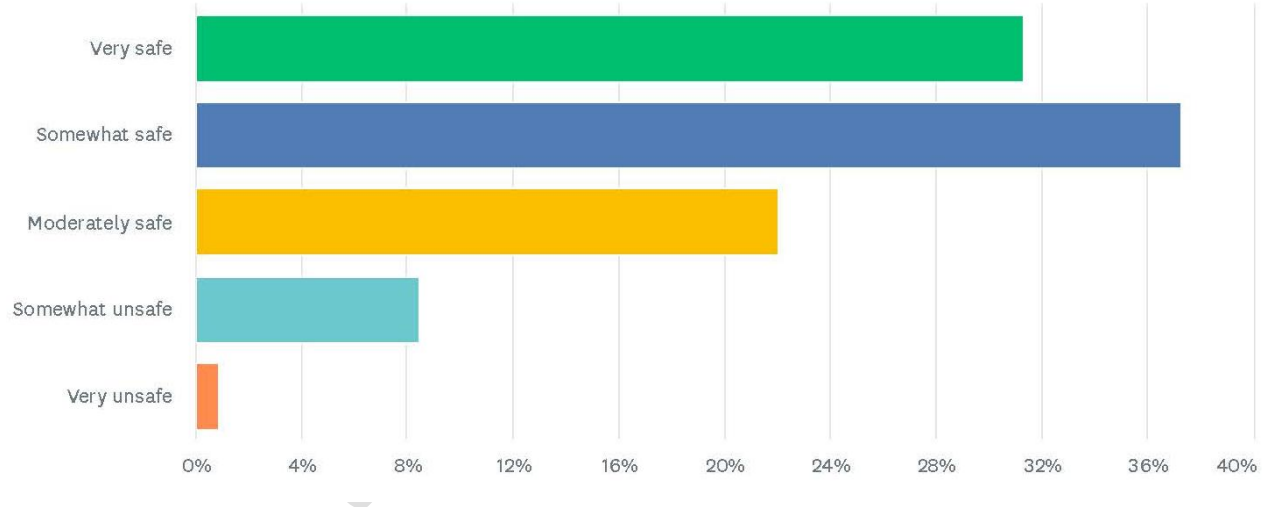


Results of the online and paper surveys can be seen below. Additional public engagement results, including the open-ended comments, can be seen in the appendix of this document.

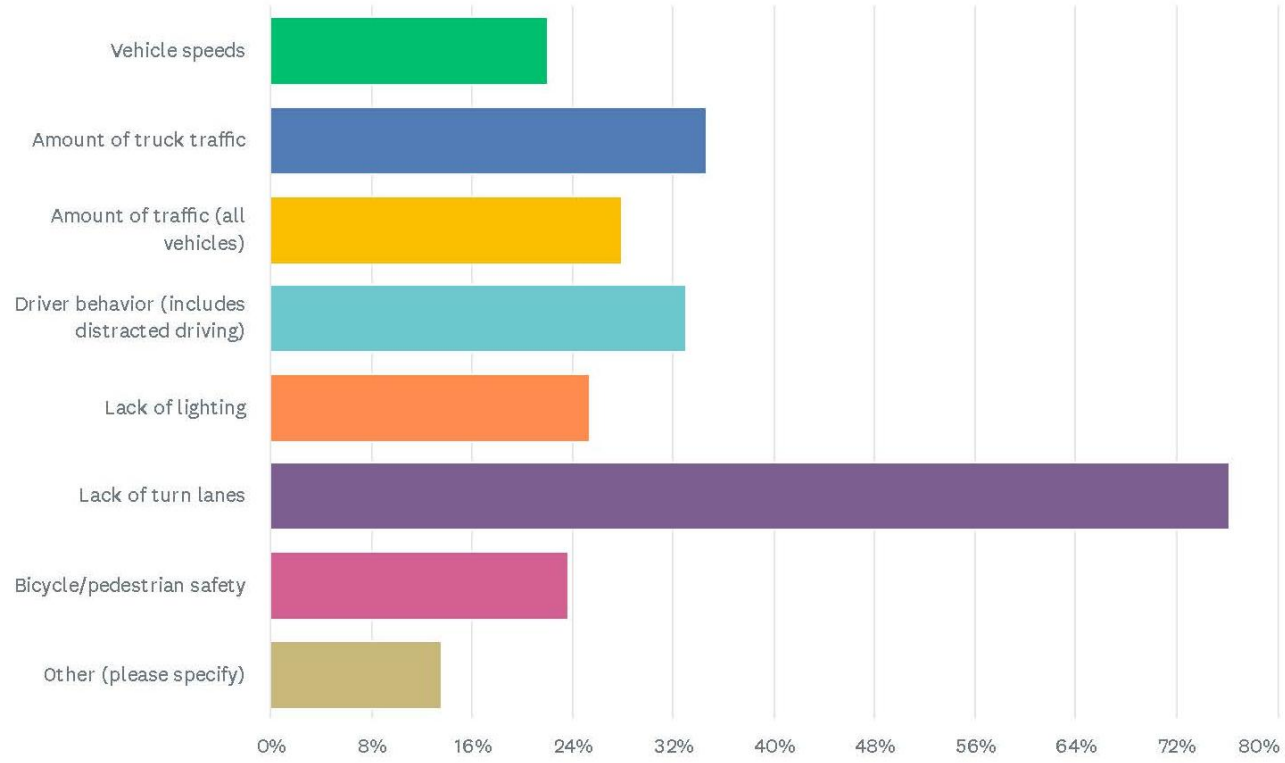
How do you regularly use Hwy 18 in Casselton? (Check all that apply)



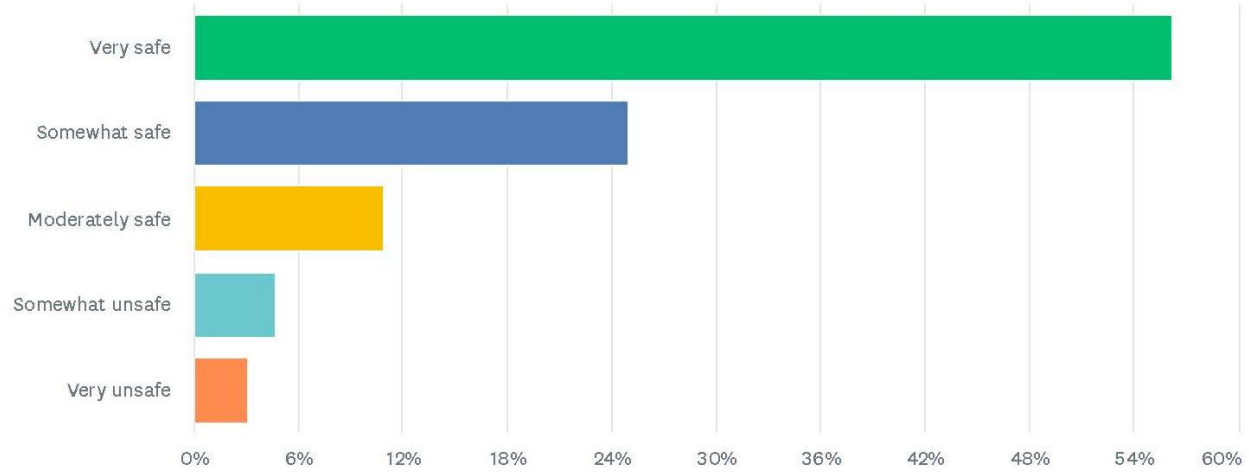
How safe do you feel when driving on Hwy 18 in Casselton?

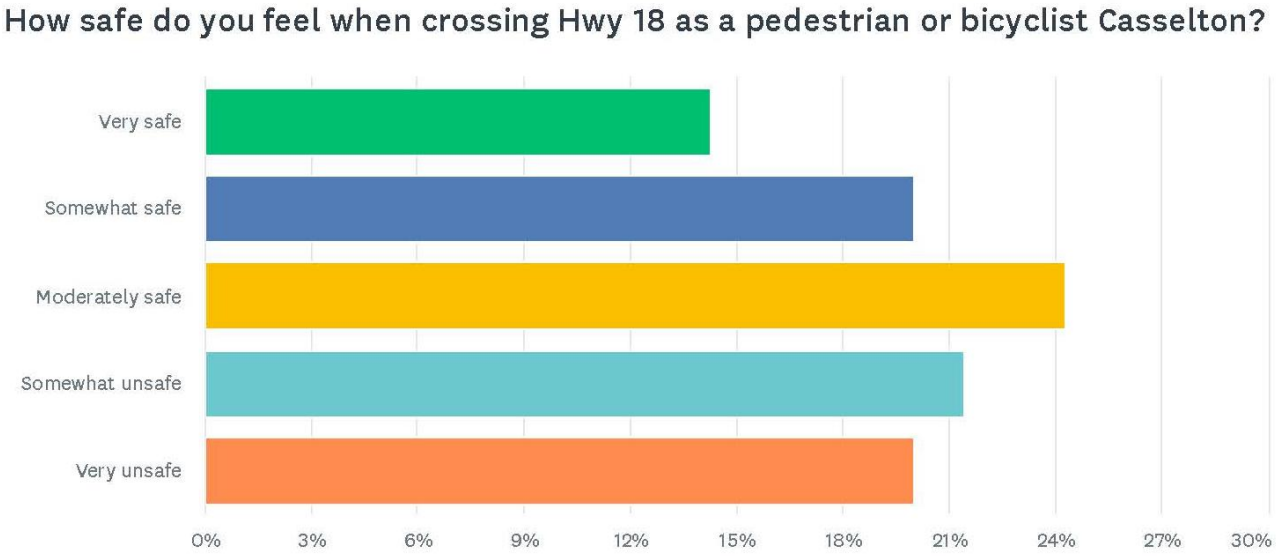


What are the biggest concerns you have with Hwy 18 in Casselton? (Check all that apply)



How safe do you feel when using the sidepath along Hwy 18 in Casselton?





The open-ended public comments were also reviewed. Upon reviewing the comments, the following themes emerged:

- Several suggested installing traffic signals at some of the existing intersections
- Several were pleased with the new sidepath along Hwy 18
- Some had concerns with the intersection of Hwy 18 & Cottonwood Dr./Morningside Dr.
- Some suggested roundabouts / others opposed roundabouts
- Many of the comments mimicked the survey results

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The NDDOT Traffic Operations manual suggests intersection types for various intersections by taking into account the daily traffic of the major roadway (in this case Hwy 18) and the intersecting minor roadway. From this, the following intersection types, shown in Table 9-1, could be appropriate for this study's intersections.

Table 9-1 – Suggested Intersection Types (from pg 14 of NDDOT Traffic Ops Manual)

Intersection	2035	2050	Full Build
Cottonwood Dr	Two-way stop control	Two-way stop control	- Two-way stop control - Access management
Morningside Dr	Two-way stop control	Two-way stop control	- Two-way stop control - Access management
11th Street	Two-way stop control	- Two-way stop control - Reduced conflict intersection - Roundabout	- Two-way stop control - Reduced conflict intersection - Roundabout - Traffic signal
13th Street	Two-way stop control	Two-way stop control	- Two-way stop control - Reduced conflict intersection - Roundabout - Traffic signal
Industrial Blvd	Two-way stop control	Two-way stop control	- Two-way stop control - Access management
37th Street	- Two-way stop control - Reduced conflict intersection - Roundabout	- Two-way stop control - Reduced conflict intersection - Roundabout - Traffic signal	- Two-way stop control - Reduced conflict intersection - Roundabout - Traffic signal

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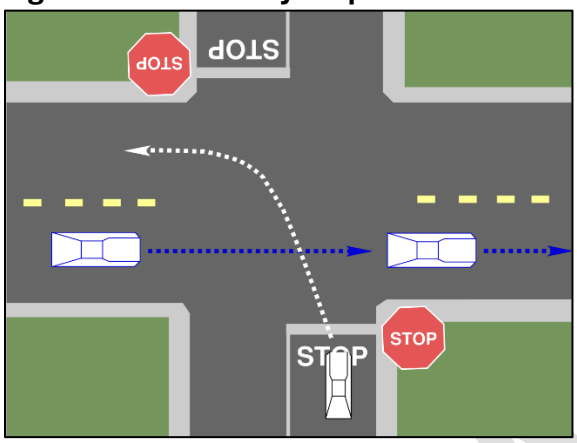
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Two-way stop control

Two-way stop control is the type of traffic control that currently exists at all intersections along Hwy 18 in Casselton. With this intersection type, the mainline (Hwy 18) has free flow traffic while the side streets are controlled with stop control.

Two-way stop control is a cost-effective way of providing the necessary traffic control for an intersection when a low volume roadway intersects with a higher volume roadway.

Figure 9-1 – Two-way stop control



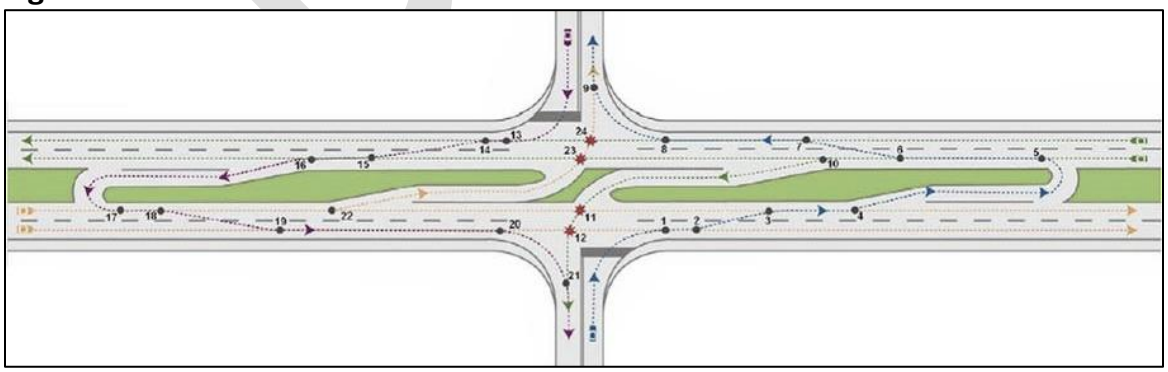
Source: Civil IITB, Prof Tom Mathew

Reduced conflict intersections

Reduced conflict intersections are intersections designed to alter how left turn movements occur by the use of medians. These intersections eliminate hazardous left turn movements from the side streets by forcing left turn movements to turn right and then making a U-turn.

Reduced conflict intersections can both improve safety and traffic flow. Studies have shown that these intersection types can increase throughput by 30%. According to the FHWA, modifying a standard two-way stop-controlled intersection to a reduced conflict intersection can reduce fatal and injury crashes by 54%.

Figure 9-2 – Reduced conflict intersection



Source: NDDOT

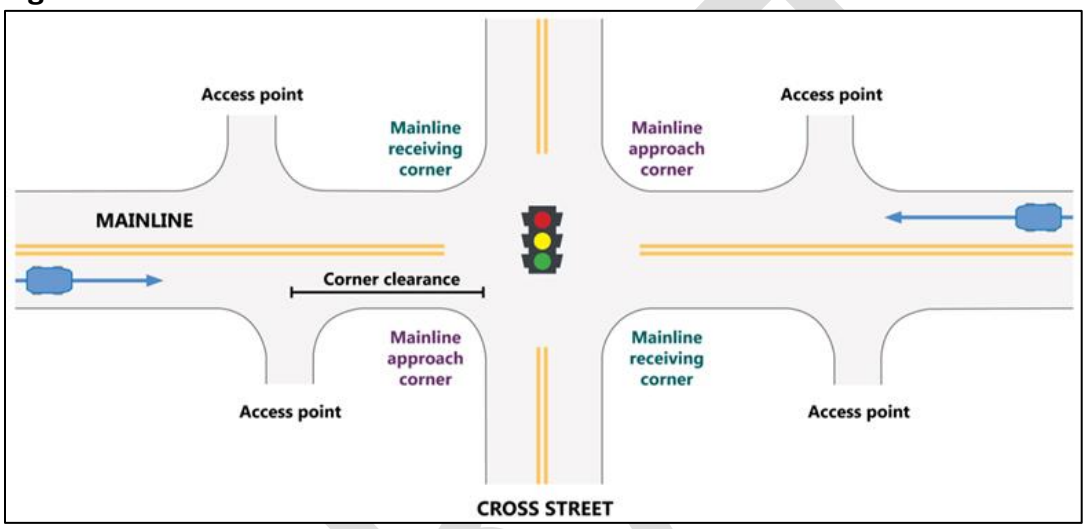
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Access control

Access control or access management refers to the control of entry and exit points along a roadway. This can include both driveways and intersecting roadways. Access management is often accomplished by closing certain driveways and restricting unwanted turning movements with the installation of center medians. Accesses can also be removed or consolidated during roadway improvements in order to lessen the number of access point.

Thoughtful access management along a corridor can enhance safety and reduce delay and congestion. According to the FHWA, reducing access density on urban or suburban arterials can reduce fatal and injury crashes by 25-31%.

Figure 9-3 – Access control



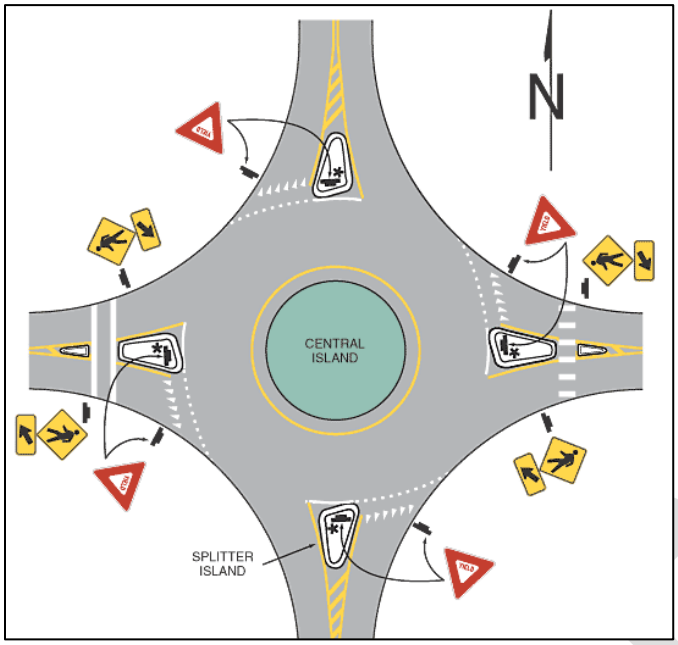
Source: FHWA

Roundabouts

Roundabouts are an intersection type which move traffic around a circular center. Drivers using roundabouts only need to stop before entering the roundabout if a conflicting vehicle is in the roundabout or if a pedestrian is crossing the intersection's crosswalk. Otherwise, vehicles can enter and exit the roundabout freely.

The ability for vehicles to enter the roundabout freely, if clear, allows roundabouts to be an efficient intersection configuration. When compared to traditional two-way stop or signalized intersections, roundabouts have relatively slow speeds, eliminate the possibility of angle/T-bone crashes, and reduce the number of conflict points. For these reasons, roundabouts are shown to reduce fatal and injury crashes by 82% when compared to two-way stop-controlled intersections.

Figure 9-4 - Roundabout



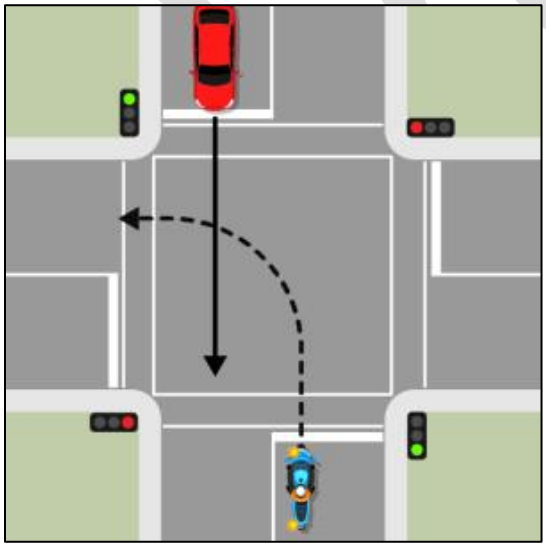
Source: FHWA - MUTCD

Traffic Signal

Traffic signals are a common traffic control for busier intersections. Traffic signals have the ability to accommodate all modes of travel and can be timed to accommodate various traffic patterns throughout the day. Many traffic signals also have the ability to detect vehicles at the intersection, making for more efficient and informed operations.

Signalized intersections can be a logical intersection type for an intersection as traffic increases over time. Unlike roundabouts, which often require a larger footprint, signalized intersections typically don't need additional space. Signalized intersections also typically cost less to construct when compared to roundabouts.

Figure 9-5 – Traffic signal



Source: NZ Transport Agency

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Community Gateway

Community gateways can welcome drivers to a community, can distinguish a community from other places, and can contribute to slower speeds since they alert drivers that they're entering a different environment.



Source: Casselton Economic Development

Within the study area, the city of Casselton currently has a community sign welcoming northbound drivers to the city, just north of Swan Creek. However, as Casselton grows to the south a welcome sign or gateway might be more appropriate just north of I-94.

The city of Casselton could consider relocating the existing northbound sign or installing a new sign between the north I-94 ramps and 37th St. A new sign could include more prominent features further showcasing Casselton and signaling to drivers the transition from rural speeds to slower in-town speeds. Examples of community gateways are shown in the images below.



Source: reedley_ca_93654 Facebook



Source: City of Rockledge webpage



Source: Sibcy Cline Realtors website



Source: GoNorthKC website

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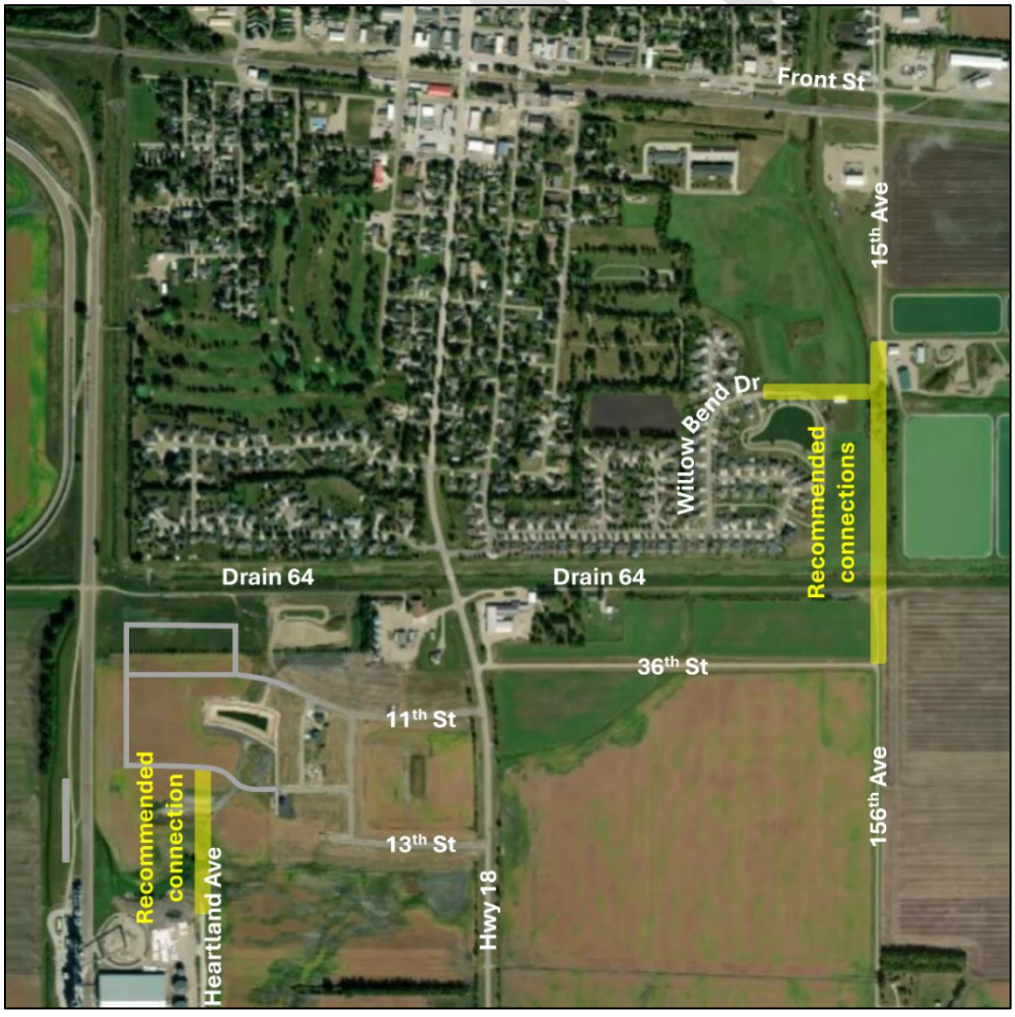
Chapter 10 – Network Connectivity

A well-connected roadway network allows traffic to disperse throughout an area and provides redundancy should any roadway close for any reason. Roadways without good network connectivity are prone to excessive traffic along certain corridors and excessive detours if a key corridor is closed.

While the city of Casselton has a well-connected roadway network north of Swan Creek, connectivity is lacking south of Swan Creek, and only one roadway crosses Swan Creek throughout the entirety of the city. With Hwy 18 as the only crossing of Swan Creek in Casselton, all traffic is funneled to this roadway, making Hwy 18 vital and high-traffic corridor. Furthermore, if Hwy 18 were closed near Swan Creek (for an accident, construction, etc.), no north-south traffic could travel across Swan Creek within Casselton.

For the reasons mentioned above, this study recommends additional north-south roadway connections within Casselton. Figure 10-1 shows additional north-south roadways and connections that the city should consider in the future.

Figure 10-1 – Recommended Network Connections



Chapter 11 - Summary & Recommendations

Summary

To summarize the content in this document, Hwy 18 within the study area operates at a satisfactory level of service. However, some improvements could improve operations and safety, such as roadway lighting along the southern segment and left turn lanes at the intersection of Hwy 18 & Cottonwood Dr/Morningside Dr.

Access control improvements should also be considered as shown in Chapter 3, and future north-south roadways near the study area will be needed to relieve Hwy 18 and provide alternate routes in the event of an emergency, construction, or other closure.

As Casselton grows, particularly south of Swan Creek, vehicular traffic is projected to increase and additional modifications to Hwy 18 may be needed. These modifications may include additional turn lanes in the short/mid-term followed by intersection alternatives in the long-term.



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Recommendations

This study's recommendations can be seen in Table 11-1 on the following page.

Table 11-1 – Study Recommendations

Category	Recommendation	Term
Access Management	As opportunities arise, implement access management strategies as shown in Figure 3-2.	As opportunities arise
Access Management	Ensure existing Casselton access management ordinances (6.0308) are followed whenever development occurs or as accesses are requested along Hwy 18.	Ongoing
Data Collection – Safety	Monitor roadway safety by reviewing crash data collected continuously by the state. Consider improvements if crash hotspots are observed.	Annually
Data Collection – Traffic	Collect traffic data every 2 – 5 years (depending on growth) in order to monitor the need for additional improvements on Hwy 18.	Every 2-5 years
Roadway Lighting	Consider installing roadway lighting from the north I-94 ramps to just north of 19th St S.	Mid-term
Turn Lanes	Install southbound left turn lane from Hwy 18 to Morningside Dr at the time of next preventative maintenance or construction project (see Chapter 6 for details).	Short-term
Turn Lanes	Consider northbound left turn lane from Hwy 18 to Industrial Blvd at the time of next preventative maintenance or construction project (see Chapter 6 for details).	Short-term
Turn Lanes	Monitor traffic conditions to determine if/when left turn lanes might be warranted at additional intersections.	Ongoing
Intersection Alternatives	Monitor traffic conditions to determine if/when intersection alternatives might be needed. See Chapter 9 for suggested intersection alternatives.	Ongoing
Community Gateways	Consider constructing a community sign or gateway on Hwy 18 just north of I-94 (see Chapter 9 for details).	Mid-term
Network Connectivity	Secure right-of-way for roadway network connections as shown in Figure 10-1.	Short-term
Network Connectivity	Implement roadway connections as shown in Figure 10-1	Mid-term

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