

## Transportation Network Analysis

Land use and transportation planning are not mutually exclusive due to their intersectionality. Identifying and addressing transportation needs based on existing data, plans, and studies will help prioritize transportation improvements that will continue to support the city's greater vision.

The transportation analysis will focus on identifying transportation needs that increase mobility, accessibility, and safety for both motorists and non-motorists. Developing a holistic transportation network that encompasses various modes of transportation will help create an inclusive transportation system.

### **Existing Transportation Barriers**

Barriers to transportation can take various forms that impact the movement of people, goods, and service as motorists and non-motorists. Transportation barriers vary between different modes of transportation. **Table 1** lists four major transportation barriers identified within the City of Northfield. It is important to note that what is considered a "transportation barrier" can vary vastly among different types of roadway users. For example, a natural resource like the Cannon River is considered a transportation barrier for motorists and non-motorists—limiting crossing opportunities to either side of the city—while a high-speed four-lane undivided corridor without dedicated pedestrian/bicyclist facilities would be considered a barrier for non-motorists.

In addition to the major barriers listed in **Table 1**, below are other examples of what may be considered a transportation barrier:

- Lack of connectivity in the existing/future transportation networks (i.e., roadway, sidewalk, bike facilities, trails)
- Poor maintenance of existing infrastructure (i.e., poor snow removal on sidewalk/trail/bicycle network, poor pavement/sidewalk conditions, etc.)
- Unfriendly walking/biking/rolling environments (i.e., lack of street lighting, no dedicated pedestrian/bicycle facilities, lack of boulevard/buffers from street, lack of active surrounding land use, etc.)
- Safety concerns (i.e., poor sight distances, geometric deficiencies, lack of lighting, no shoulders, crash concentrations, etc.)

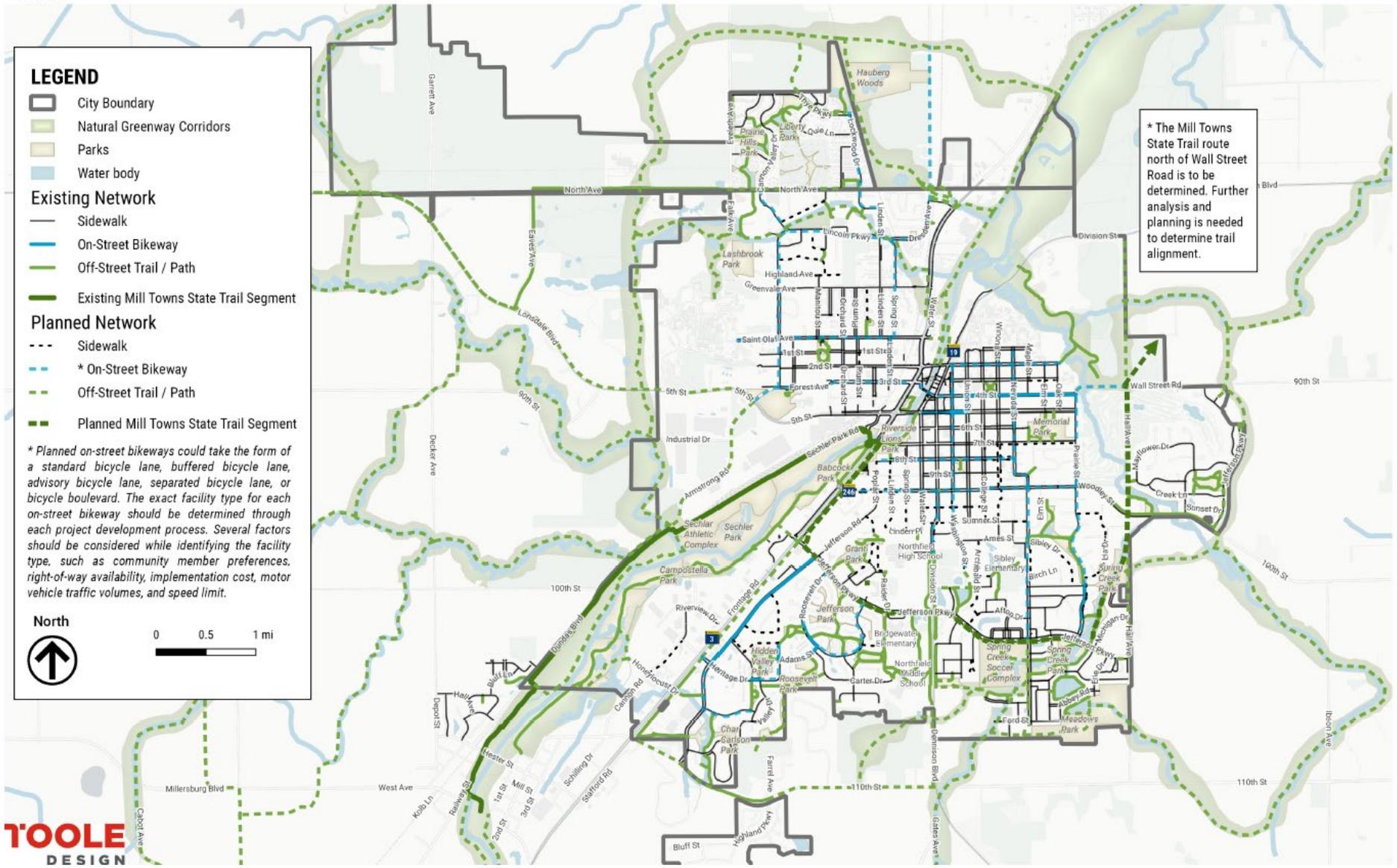
Given that transportation barriers can be very user-specific, the transportation analysis addresses the barriers listed above in more detail. Identifying transportation needs is based on existing data and completed plans/studies to date. Additional barriers that may be more user and community-specific are best identified through public engagement to ensure that the community's perspectives and needs are incorporated.

**Table 1 - Major Transportation Barriers**

Barrier Identified	Barrier to motorists, non-motorists, or both?	Notes
Cannon River	Both	<p>The Cannon River physically divides the city of Northfield. Rivers can serve as transportation barriers due to their width, depth, and meandering paths, necessitating costly infrastructure like bridges for safe crossing opportunities.</p> <p>While there are several crossing opportunities within a half mile radius in the city center – including 2nd Street and Water Street, pedestrian crossings between 2nd and Water Streets, 5th Street, MN 3/Hiawatha Pioneer Trail, and Mill Towns Trail Bridge - river crossing opportunities are limited north and south of the central area. Potential new river crossing opportunities are shown on <b>Figure 1</b>. While these two locations are approximate desired locations, a proper river crossing study is recommended for a formal determination of additional river crossing opportunities.</p>
MN 3 / Hiawatha Pioneer Trail	Non-motorists	<p>This is a major north-south transportation corridor that connects multiple communities along the west side of the Cannon River. There are some marked, on-street, unprotected bicycle lanes along the corridor closer to the city center, but vehicular speeds can range between 30 mph – 50 mph; posted speed within the city center is 30 mph while it increases outside the urbanized areas of Northfield.</p> <p>Bicycling on-street adjacent to high-speed traffic is not ideal and may prevent people from choosing to use this mode. The high-speed traffic makes this highway corridor makes it less appealing for non-motorists to travel along or across this major transportation barrier.</p> <p>A consistent separated pedestrian/bicycle facility along the corridor - one that is also connected and well-integrated into the existing sidewalk/trail network- would help address this barrier for non-motorists.</p>
MN 19 (west of Cannon River)	Non-motorists	<p>This is a major east-west route that serves as a regional corridor. MN 19 west of the river is a transportation barrier that separates the industrial from the residential areas. With major employers and freight generators south of MN 19, west of the Cannon River, there is a lot of vehicular activity along this corridor; there are a wide range of vehicular classes using this corridor. With Post’s employee parking lot located on the northside of MN 19 just across from Post’s manufacturing plant, safe crossings to the plant should be a priority.</p> <p>Additionally, access to recreational/open spaces, parks, and trails are located south of MN 19. Therefore, safe crossings along MN 19, especially east of the river, would be beneficial for the community.</p>

Barrier Identified	Barrier to motorists, non-motorists, or both?	Notes
		<p>The land use surrounding MN 19 east of the Cannon River has greater density and is more inviting for non-motorists. The two-lane undivided roadway has a posted speed of 30 mph and multiple crossing opportunities for non-motorists.</p> <p>A consistent separated pedestrian/bicycle facility along the corridor -one that is also connected and well-integrated into the existing sidewalk/trail network- would help address this barrier for non-motorists.</p>
Progressive Rail and Canadian Pacific (railroad tracks)	Both	<p>There are two railroad companies that operate within the city's boundaries west of the Cannon River. Railroad operations often disrupt traffic operations with vehicles having to stop at railroad crossings in order for rail freight to pass. Additionally, Progressive Rail and Canadian Pacific operate on the west side of the Cannon River and when there is a railcar passing, this blocks access to either side of the city.</p> <p>Railroad tracks are often considered a transportation barrier due to their ability to disrupt traffic operations. All roadway users must stop to let rail pass, and this prevents people from accessing either side of the city. The city may consider grade-separated intersections to improve accessibility, mobility, and connectivity. However, grade-separated intersections are expensive to implement and require extensive coordination to ensure minimal disruption to railroad and roadway traffic operations.</p>

**Figure 1- Northfield Planned Walking and Bicycling Network**



## Network Gaps

This section of the analysis will look at the existing surface transportation networks – roadway, sidewalk, on-street bikeway, and off-street trail/path — to help identify gaps and transportation needs. Since the completion of the 2008 Comprehensive Plan, the City has dedicated efforts to improve its surface transportation network for all roadway users. Below is a short list of transportation related studies and plans that have been completed by or in partnership with the City in efforts to improve Northfield's surface transportation networks:

- Parking Study for Downtown Northfield (2022)
  - Existing Conditions Assessment and Shared Parking Analysis – a memorandum that summarizes findings from the 2022 study and provides updated parking directives based on new concerns raised by business owners downtown related to limited parking spaces
- The 2020 Riverfront Enhancement Action Plan
- City of Northfield Pedestrian, Bike, and Trail System (2019)
- City of Northfield Gateway Corridor Improvement Plan (2012)
- Safe Routes to School Plan (2009)
- Northfield Modal Integration Project Study Report (2009)
- Northfield Area Access Management and Safety Plan (2009)

The City of Northfield has an extensive roadway network for motorists that provides connectivity to all parts of the city. Unlike the roadway network, there are gaps within the sidewalk, on-street bikeway, and off-street trail/path networks. The lack of connectivity in these non-motorized transportation networks can serve as a transportation barrier, discouraging active transportation.

The network gap analysis focuses on how multimodal components could be integrated to best serve the needs of all roadway users, continuing to support the city's effort to encourage and introduce active transportation as a reliable form of transportation.

### Roadway

The city's surface transportation network consists of state (MN 3, MN 19, MN 246), county (CSAH 1, CSAH 23, CSAH 28, CSAH 43, CSAH 47, CSAH 81, CR 79, CR 81), and local roadways. The existing roadway network sufficiently provides motorists access to service locations and local and regional destinations in Northfield. The city's roadway network is predominantly a grid system; the grid system exists in the older parts of the city, but newer developments have diverged from the gridded street pattern. The two areas identified by the city for priority connection are connecting 9th and Woodley Streets just east of MN 3 and extending Washington Street's connection just south of Northfield Prairie Creek Cemetery.

A grid system is versatile because it provides better distribution and access to land and resources. It also provides more flexibility for network expansions when future developments occur. For example, a gridded street system allows for better connectivity than a branched street system; branched street systems are common suburban development patterns with cul-de-sacs that do not connect to the greater transportation network. As future developments occur within, adjacent, or abutting the municipal boundary, Northfield should revisit its roadway network to ensure that new roadways or extension of existing roadways continue or re-establish the grid pattern, improving mobility and accessibility for existing and future roadway users.

Based on the existing roadway network, crossing opportunities along the Cannon River are clustered in the city center. As listed in **Table 1**, there are several crossing opportunities for motorists and non-motorists within a half mile radius of the city center -2nd Street, Water Street, non-motorist crossing between 2nd and Water Streets, 5th Street, MN 3/Hiwatha Pioneer Trail, and Mill Towns Trail Bridge.

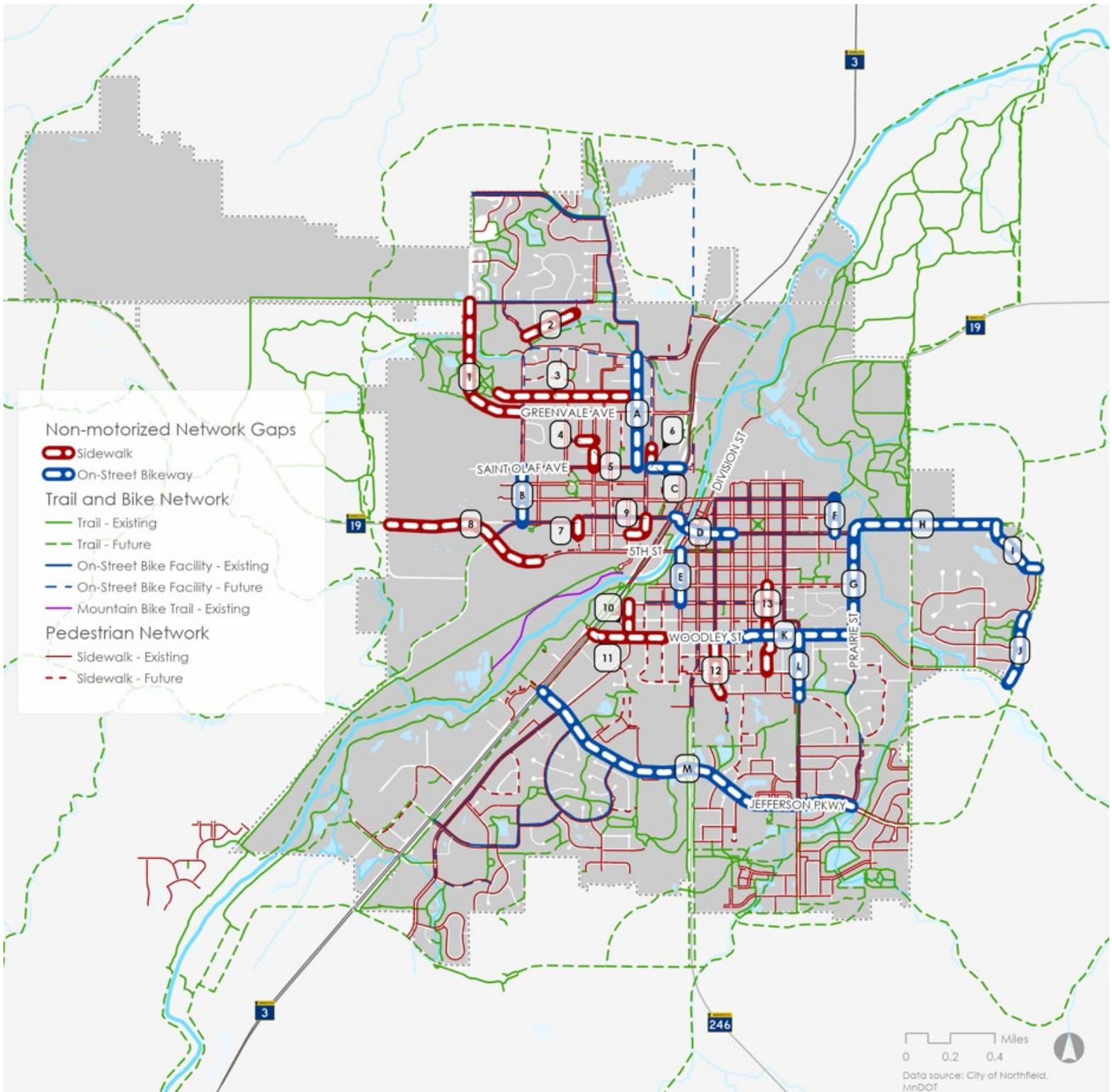
Consideration of a new river crossing should be focused closer to the northern and southern city limits; it should also consider areas where environmental impacts could be avoided or minimized.

### Sidewalks

Northfield's sidewalk network is the second most complete system after the roadway network. While pedestrians may not have any safety concerns sharing the road with vehicles on a low traffic volume local roadway, it is always good practice to consider constructing sidewalks whenever opportunities arise (i.e., reconstruction, major maintenance/construction projects, underground utility improvements, etc.). Roadway improvement projects are great opportunities to ensure that the cost of implementing the city's complete street policy does not disproportionately outweigh the need or use of the facility.

Understanding that municipalities often have limited financial resources and there is a need to prioritize projects, **Table 2** lists major gaps within the existing sidewalk. The Pedestrian, Bike, and Trail System Report (2019) includes a map that highlights all existing city streets where sidewalks are recommended (**Figure 1**). The main purpose of **Table 2** is to prioritize connectivity and help the city first establish a continuous network. **Figure 2** maps the gap segments identified in **Table 2**.

Figure 2 – Non-Motorized Network Gaps



**Table 2 - Sidewalk Network Gaps**

<b>Fig 2 Ref.</b>	<b>Gaps</b>	<b>From/To</b>	<b>Is there a CIP Project Programmed?</b>
1	Greenvale Ave/CSAH 43	<b>From</b> Lincoln St <b>To</b> North Ave	No
2	Summerfield Dr	<b>From</b> Cannon Valley Dr <b>To</b> North Ave	No
3	Highland Ave	<b>From</b> Lashbrook Park <b>To</b> Spring St	No
4	Summit Ave	<b>From</b> Oxford St <b>To</b> Orchard St	No
5	Orchard St	<b>From</b> St. Olaf Ave <b>To</b> Orchard Pl	No
6	Spring St	<b>From</b> St. Olaf Ave <b>To</b> Bishop Dudley Dr	No
7	Odd Fellows Ln	<b>From</b> MN 19 <b>To</b> 4th St	No
8	TH 19	<b>From</b> Approx. 1,270 feet west of Odd Fellow Ln <b>To</b> City's westerly limits	2027 – Sidewalk/Trail/Bike Construction
9	4th St/Linden St	<b>From</b> S Poplar St <b>To</b> 3rd St	No
10	S Poplar St	<b>From</b> 8th St <b>To</b> Woodley St	No
11	Woodley St	<b>From</b> Spring St <b>To</b> MN 3	No
12	Washington St	<b>From</b> Approx. 220 feet north of Fremont St <b>To</b> E Ames St	2025 – Reclamation; Sidewalk/Trail/Bike Construction; Pedestrian Crossing Improvement (Ames St & Washington St)
13	Winona St	<b>From</b> 7th St <b>To</b> Sumner St	2024 – Reconstruction (7th St to Woodley St); Sidewalk/Trail/Bike Construction (7th St to Sumner St); Pedestrian Crossing Improvement (8th St and Winona St)

*On-Street Bikeway and Off-Street Trail/Path*

The city's on-street bikeway and off-street trail/path networks exist but they lack continuity. One of the essential components that encourages active transportation is network continuity. Not all bicyclists have the same level of comfort riding along with vehicular traffic or using different types of bicycle facilities. Generally, protected or separated bicycle facilities serve all ages and abilities and are preferred infrastructure to support bicycling as a sustainable, safe, and reliable mode of transportation. Additionally, riders' level of comfort may increase over time with built experience which could change their preference/desire for certain types of facilities.

The Pedestrian, Bike, and Trail System Report (2019), Pedestrian, Sidewalks, Mixed Use Trail & On-Street Bike Lanes map, and Google aerial images were reviewed to identify on-street bikeway and off-street trail/path networks gaps. For the purpose of this analysis, on-street bikeway is inclusive of various forms of bicycle facilities; it could be a standard bicycle lane, buffered lane, advisory lane, separated lane,

or a dedicated bicycle boulevard. **Table 3** lists major on-street bikeway gaps. Gaps listed in **Table 3** constitute a priority list that would allow the city to first establish a continuous and connected network before considering further network expansions. **Figure 2** maps the gaps identified in **Table 3**.

**Table 3 – On-Street Bikeway Network Gaps**

<b>Fig 2 Ref.</b>	<b>Gaps</b>	<b>From/To</b>	<b>Is there a CIP Project Programmed?</b>
A	Linden St	<b>From</b> Lincoln Pkwy <b>To</b> St. Olaf Ave	No
B	Lincoln St	<b>From</b> St. Olaf Ave <b>To</b> Forest Ave	No
C	St. Olaf Ave	<b>From</b> Spring St <b>To</b> MN 3	No
D	3rd/Water/4t St	<b>From</b> MN 3 <b>To</b> Union St	No
E	Water St	<b>From</b> 5th St <b>To</b> 8th St	2026 – Mill and Overlay (5th to Woodley St); Pedestrian Crossing Improvements (5th St, 6th St, and 8th St)
F	Oak St	<b>From</b> 4th St <b>To</b> 2nd St	No
G	Prairie St	<b>From</b> Woodley St/CSAH 28 <b>To</b> 4th St	No
H	Wall St Rd/CR 79	<b>From</b> 4th St <b>To</b> Rosewood Rd	2024 -- Reconstruction (4th St to city's easterly limit); Sidewalk/Trail/Bike Construction (4th St to Rosewood Rd)
I	Rosewood Rd	<b>From</b> E Jefferson Pkwy <b>To</b> Wall St Rd/CR 79	No
J	E Jefferson Pkwy	<b>From</b> Heywood Rd <b>To</b> Woodley St/CSAH 28	No
K	Woodley St/CSAH 28	<b>From</b> Prairie St <b>To</b> Washington St	2024 –Pedestrian Crossing Improvement (College St)  2025 – Pedestrian Crossing Improvement (Washington St)
L	Maple St	<b>From</b> Woodley St/CSAH 28 <b>To</b> Sibley Dr	2025 – Reclamation; Sidewalk/Trail/Bike Construction; Pedestrian Crossing Improvement (Ames St & Washington St)
M	Jefferson Pkwy	<b>From</b> Prairie St <b>To</b> MN 3	2024 – Mill and Overlay (Division St to MN 3); Sidewalk/Trail/Bike Construction (Division St to MN 3); Pedestrian Crossing Improvements (west leg of Division St roundabout, Raider Dr, Judicial Rd, Roosevelt Dr W, Jefferson Rd); Mini-roundabout (Jefferson Rd)

Fig 2 Ref.	Gaps	From/To	Is there a CIP Project Programmed?
			2026 – Mill and Overlay (Spring Creed Rd to Division St); Sidewalk/Trail/Bike Construction (Prairie St to east leg of Division St roundabout); Pedestrian Crossing Improvements (Prairie St, Maple St, Estate Ln/Washington St)

Existing off-street trail/path network has the potential for expansion and enhanced connectivity. Off-street trail/path network connectivity can be enhanced when it is linked to sidewalks or an off-street bikeway. Given that off-street trail/path facilities are designed to accommodate pedestrians, bicyclists, and other non-motorists, they are a versatile component of surface transportation that could be used for recreational or transportation purposes. The Pedestrian, Bike, and Trail System Report (2019) includes a detailed map that identifies all potential planned on-street bikeway and off-street trail/path (**Figure 1**). Especially with the presence of riverfront and nature areas, off-street trail/path networks can be a great way to encourage healthy lifestyles and promote active transportation. Areas of interest for future trail expansion include areas along the Cannon River and the outskirts of Northfield’s city limits.

Additionally, on-street bikeways on local roadways typically are not buffered and have shared lane markings. Shared lane markings are beneficial for all roadway users as they alert motorists of potential bicyclists on the road, serve as a form of wayfinding along bicycle routes, minimize bicycling on sidewalks, enhance safety through increased awareness of sharing lanes with non-motorists, etc. However, shared lane markings or ‘sharrows’ are also the least desirable type of facility as they do not have dedicated space or a buffer that protects bicyclists from vehicles.

The current on-street bikeway network lacks connectivity and continuity beyond a given area. Additionally, the City should consider better defining its bicycle routes, facilities, network by facility types to provide better information to bicyclists who may be planning their cycling routes based on facility types. Using signage for better wayfinding is also recommended to help guide bicyclists remain on designated bicycle routes; shared lane markings on pavement can easily deteriorate overtime.

**Access to Destinations**

Within Northfield, there are numerous service locations as well as regional and local destinations. While network gap elimination and network expansions are typically good solutions to enhance access to destinations, the lack of service locations and destinations in certain areas of the city contributes to poor accessibility for Northfield residents and community members; thus, this is both a transportation and land use issue. For example, there are no full-service grocery stores west of the Cannon River. While non-motorists on the west side of the Cannon River can access grocery stores on the east side using a combination of the existing sidewalk and off-street trail/path, this is not an ideal travel path for non-motorists. When looking at accessibility for non-motorists, it is important to consider travel distance, time, trip purpose, etc. The City should consider how existing and future land use and zoning can improve access for all members of its community given that poor access to destinations in Northfield is not solely contributed by lacking complete sidewalk, on-street bikeway, and off-street trail/path networks.

The City should identify areas where land use and zoning changes can be introduced to encourage future development patterns that are inclusive of improving access to community resources – grocery stores, hospitality, health care providers, open space/parks/recreation centers, etc.—and amenities. As the City works with existing and future developers, it is crucial that the City establish clear standards to ensure that the developments are well-integrated within the existing and planned sidewalks, on-street bikeways,

and off-street trails/paths networks to enhance accessibility. The “Complete Streets Policy Implementation” section below will further detail how the existing surface transportation networks can be more inclusive of active transportation needs throughout the city.

## **Safety**

Governments have a responsibility to enforce regulations and standards to ensure roadway safety. By prioritizing roadway safety initiatives, governments can take proactive measures to minimize crash severity and enhance safety for all roadway users.

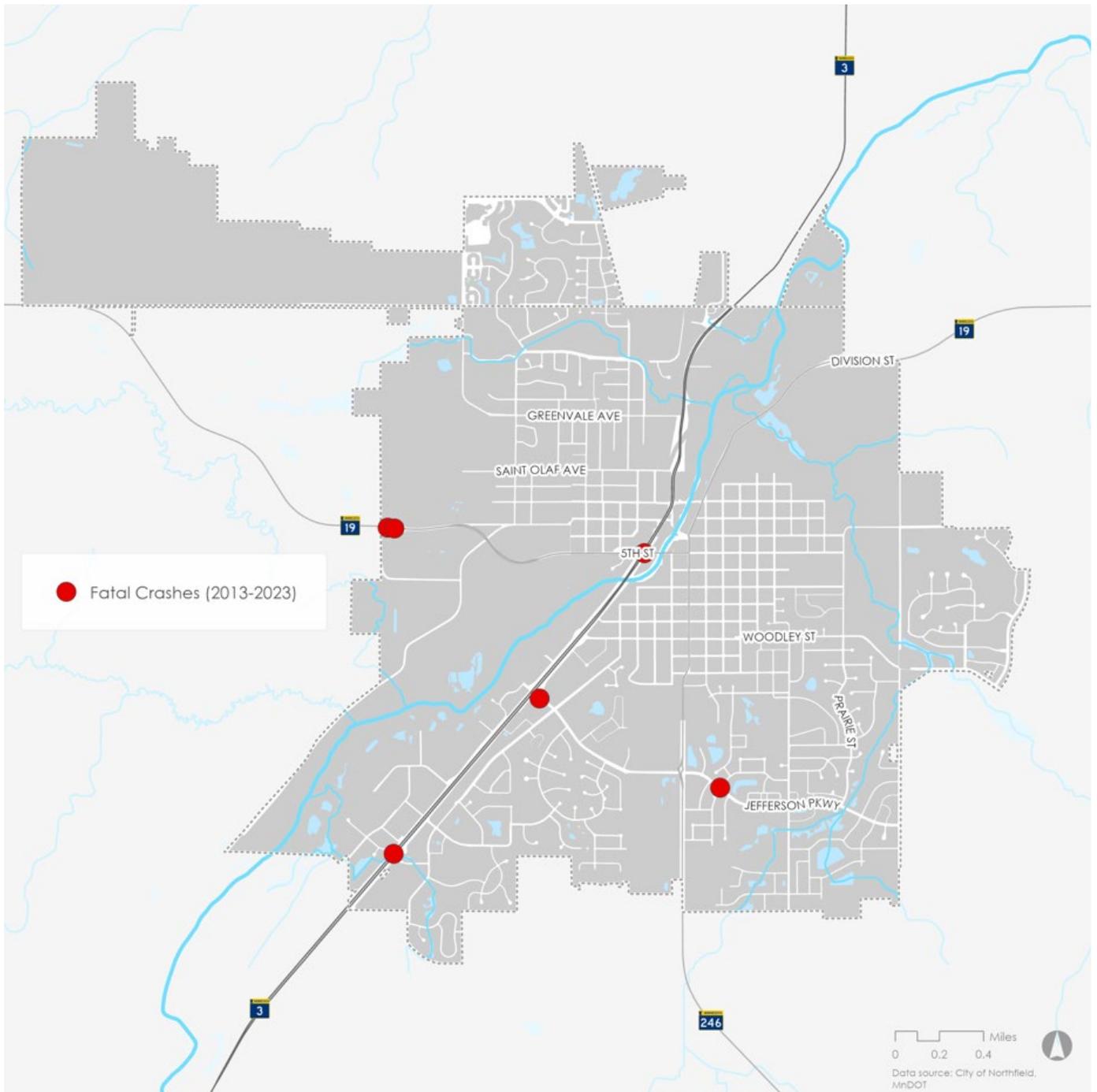
The City of Northfield has continuously prioritized roadway safety and one of its efforts includes the completion of the Safe Routes to School (SRTS) Plan in 2009. High priority improvements recommended in the 2009 SRTS Plan primarily focused on achieving network connectivity—sidewalks, on-street bikeway, and off-street trail/paths—and identifying intersections with safety concerns for non-motorists. Since the completion of the plan, the city has made efforts to help eliminate gaps within the existing sidewalk, on-street bikeway, and off-street trail/paths networks when possible; the 2024-2028 Capital Improvement Plan (CIP) continues to reflect on Northfield’s ongoing efforts to prioritize safety concerns identified in the 2009 SRTS Plan. However, there are a few high priority improvements from the 2009 SRTS Plan that still need to be addressed:

- Greenvale Park Elementary School
  - Intersection improvement at Cannon Valley Dr and Lincoln Pkwy
    - Install signage for student/pedestrian crossing.
    - Consider installing center medians on Lincoln Pkwy
- Spring Creek Elementary School
  - Intersection improvements at Sibley Dr/Maple St
    - Curb bump-outs
- Bridgewater Elementary School
  - Realigning existing marked crosswalk through the high school’s driveway to reduce skewed pedestrian pathway and to minimize the crossing distance.
- Northfield Middle School
  - Better designated pedestrian route along Division St south of Jefferson Pkwy

A detailed map of all improvements identified for each school area can be found in the 2009 SRTS Plan.

Additionally, 10-year crash data (2013-2023) made available through Minnesota Crash Mapping Analysis Tool (MnCMAT2) was reviewed to help areas within the existing surface transportation network with potential safety concerns. Identification of these areas are solely based on crash severity. **Table 5** lists the six fatal crashes in the last ten years. It cannot be assumed that intersections and segments with fatal crashes have calculated critical crash rates that are of significance. Therefore, a segment/intersection crash analysis is recommended to determine if there is a true safety issue/concern at the select locations. **Figure 3** maps the location of the six fatal crashes listed in **Table 5**.

**Figure 3 – Fatal Crashes (2013-2023)**



**Table 4 – Crashes Between 2013-2023 Resulting in Fatalities**

Incident ID	Year	Crash Type	Location	Is there a CIP Project Programmed at this Intersection?
1022339	2022	Bicycle/Vehicle	MN 3/5th St Intersection	No
1037759	2022	Bicycle/Vehicle	Jefferson Pkwy/Afton St Intersection	No
1047976	2022	Angle	MN 3/Honeylocust Dr Intersection	No
1099937	2023	Signal Vehicle	MN 19/St. Olaf Dr Intersection	No
1117719	2023	Head-on	MN 19/St. Olaf Dr Intersection	No
1095652	2023	Angle	Jefferson Pkwy/MN 3 Service Rd Intersection	No

### **Complete Streets Policy Implementation**

The existing *Complete Street Policy* includes four goals and eight policy directives. The purpose of the city’s *Complete Street Policy* is to “...design surface transportation corridors that balance the needs of all users while implementing the principles of the Comprehensive Plan of enhancing Northfield’s sense of place and creating a highly connected multimodal transportation network” (*City of Northfield Complete Street Policy 2012*).

Implementing complete street policies is crucial for creating safer, more accessible, and sustainable transportation networks. These policies prioritize the needs of all road users –pedestrians, bicyclists, and motorists— by integrating design elements that accommodate diverse modes of transportation. Complete streets enhance safety by reducing the risk of accidents and injuries, promoting active transportation and public health, fostering economic vitality through increased access to businesses and services, and supporting environmental sustainability by encouraging alternatives to car-centric travel. Additionally, they contribute to social equity by ensuring equitable access to transportation options for all members of the community, regardless of age, ability, or socioeconomic status. Implementing complete street policies is essential for creating vibrant, livable communities that prioritize the well-being and mobility of all residents.

It is best to implement complete street policies during the early stages of urban planning and transportation infrastructure development, ideally before significant investments are made in road construction or maintenance projects. By incorporating complete street principles from the outset, communities can avoid costly retrofits and ensure that new infrastructure is designed to accommodate all road users safely and efficiently. However, complete street policies can also be implemented at any stage of development, including during the renovation or retrofitting of existing streets and transportation networks. Regardless of the timing, the key is to prioritize the integration of complete streets principles into transportation planning, design, and policy initiatives to create safer, more accessible, and sustainable communities for all residents.

As noted above, Northfield should always consider how to incorporate its *Complete Streets Policy* when there are capital improvement projects. Capital improvement projects do not always have to be major reconstruction or rehabilitation projects in order for the city to implement its *Complete Streets Policy*; for example, if there is sufficient right-of-way or if there is the ability to acquire additional right-of-way, the city can consider including on-street bike lanes as part of mill and overlay projects. Each project in the 2024-2028 CIP should have been programmed to consider implementing the city’s *Complete Streets Policy* where possible.

The city’s *Complete Streets Policy* and the Pedestrian, Bike, and Trail System Plan are great resources that the city should utilize to help create an environment that is more walkable and bikeable. The

Pedestrian, Bike, and Trail System Plan provides good guidance on design standards and facility types for specific roadways within the Northfield transportation network. Additionally, implementing complete street policies help address parking concerns by:

- **Balancing Priorities:** Complete street policies prioritize the needs of all surface transportation users, including non-motorists and motorists. By considering the needs of all users, Northfield can design streets that efficiently allocate space for on-street parking while ensuring safe and accessible environments for other modes of transportation. The city already recognizes that there is a parking concern in its downtown area and there is a plan for a new parking facility that would provide 280 parking spaces.
- **Flexible Design/Curbside Management:** Complete streets encourage flexible design approaches that accommodate on-street parking alongside other transportation features such as bike lanes and pedestrian amenities. This can involve designing streets with wider bicycle lanes or designated parking lanes to accommodate parked vehicles without obstructing or compromising traffic operations.
- **Mixed-Use Development:** Complete streets policies often promote mixed-use development and higher-density land use patterns, which can reduce the demand for on-street parking by allowing people to live, work, and shop within walking distance of their destinations. This reduces the need for residents and visitors to rely solely on on-street parking for access to amenities. Additionally, mixed-use development provides opportunities to implement shared parking agreements to make better use of public spaces and right-of-way.
- **Parking Management:** Complete streets policies can involve implementing parking management strategies such as pricing, time restrictions, shared parking agreements, and permit programs to better manage the demand for parking spaces. By pricing parking according to demand and adjusting policies based on utilization patterns, Northfield can ensure that on-street parking spaces are used more efficiently and encourage turnover in high-demand areas.
- **Alternative Transportation:** Complete streets policies prioritize alternative modes of transportation such as walking and cycling which can reduce the overall demand for parking. By providing safe and convenient infrastructure for these modes as well as various options for storage including bicycle lockers, racks and other features, Northfield can encourage residents and visitors to choose alternatives to driving and parking on-street.

By taking a comprehensive approach to street design and transportation planning, Northfield can create more efficient, equitable, and sustainable on-street parking systems that meet the needs of its residents and visitors.

## **Key Findings and Recommendations**

Below is summary of key findings and recommendations based on the existing and planned surface transportation network within Northfield:

- There are four major transportation barriers within Northfield: Cannon River, MN 3, MN 19 and the railroad tracks. These four barriers impose various types of challenges to motorists and non-motorists such as but not limited to: accessibility, mobility, safety, and connectivity. These barriers are highlighted in **Figure 4**.
- Cannon River, MN 3, and the railroad tracks divide the city into east and west which makes access to certain areas of town challenging. Crossing opportunities over the Cannon River are concentrated in the center of the city, but there currently lacks river crossing opportunities on the north and south sides of the city. **Figure 4** identifies two potential future river crossing

opportunities. However, a feasibility study is recommended to identify transportation needs and resource impacts to formally determine and justify additional crossing opportunities over Cannon River.

- Generally, the city has a gridded transportation system. A gridded street system is versatile because it allows for better connectivity than a branched street system; branched street systems are common suburban development patterns with cul-de-sacs that do not connect to the greater transportation network. **Figure 4** highlights two areas within the city where street connectivity could be enhanced. These areas are typically outside the city's urban core.
- Northfield's sidewalk network is the second most complete system after the roadway network. However, there are gaps within the existing sidewalk network. **Figure 4** identifies gaps within the nonmotorized (i.e., sidewalk, on-street bikeway, and off-street trail/path) transportation networks that have been prioritized to enhance connectivity.
- The city's on-street bikeway and off-street trail/path networks exist but they lack continuity. As noted in the city's Pedestrian, Bike, and Trail System Report (2019) already, the City should consider better defining its bicycle routes/network by facility types to provide better information to bicyclists who may be planning their cycling routes based on facility types. Using signage for better wayfinding is also recommended to help guide bicyclists remain on designated bicycle routes; shared lane markings on pavement can easily deteriorate overtime. **Figure 4** identifies gaps within the nonmotorized (i.e., sidewalk, on-street bikeway, and off-street trail/path) transportation networks that have been prioritized to enhance network connectivity.
- Given the intersectionality between land use and transportation planning, there are numerous service locations as well as regional and local destinations that lack appropriate access. While network gap elimination and network expansions are typically good solutions to enhance access to destinations, the lack of service locations and destinations in certain areas of the city contributes to poor accessibility for Northfield residents and community members. The city should consider how existing and future land use and zoning can improve access for all members of its community given that poor access to destinations in Northfield is not solely contributed by lacking complete sidewalk, on-street bikeway, and off-street trail/path networks. **Figure 4** maps the service/destination locations.
- Crash data (2013-2023) made available through Minnesota Crash Mapping Analysis Tool (MnCMAT2) recorded six fatal crashes in the last ten years. While it cannot be assumed that intersections and segments with fatal crashes have calculated critical crash rates that are of significance, these are areas of concern that the City could further investigate by completing a crash analysis to determine if there is a true safety issue/concern at the select locations. **Figure 3** previously highlights the fatal crash locations.
- The City should continue to implement its Complete Streets Policy whenever possible. When programming capital improvement projects for upcoming fiscal years, the City should consider how Complete Streets Policy can be applicable to improve experience for non-motorists.

**Figure 4 – Key Findings Summary Map**

