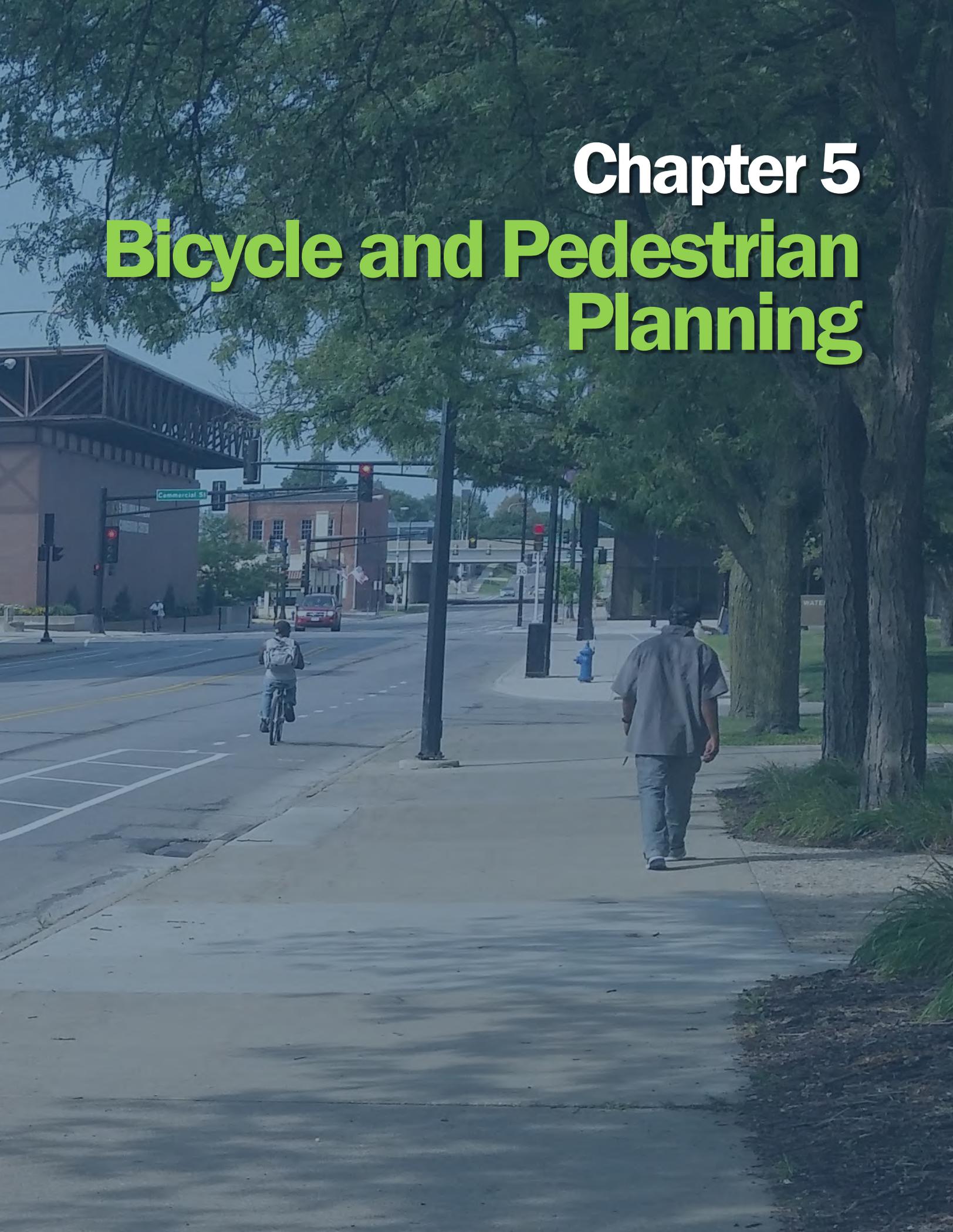


# Chapter 5

# Bicycle and Pedestrian Planning



# Chapter 5 – Bicycle and Pedestrian Planning

This chapter primarily focuses on bicycling and walking as modes of transportation, though it also includes activities such as jogging, using a wheelchair, and using an e-bike.

While these activities are often done for recreation or exercise, this chapter will focus primarily on their role as modes of transportation. From this perspective, the same principles that apply to motorized transportation also apply to non-motorized transportation. This includes improving safety, reducing delays, and maximizing traffic flow.

## Overview of Bicycle and Pedestrian Facilities

In order to understand how pedestrians and bicyclists interact with the transportation system, it is important to identify the facilities used by these modes of transportation. Table 5.1 identifies each facility type in the most general sense, as they apply to each mode:

**Table 5.1: Bicycle and Pedestrian Facilities**

Facility	Bicycles	Pedestrians	Example
Sidewalk (< 8 ft)	No	Yes	Rainbow Dr sidewalks
Paved Trail (≥ 8 ft*)	Yes	Yes	Greenhill Rd trail
Paved Shoulders	Yes	Not recommended	W 27th St shoulders
Bike lane	Yes	No	Park Ave bike lanes
Driving lane	Yes	No	Cedar Heights Dr

\*10 ft wide paved trail preferred

The decision of which facilities to include in a new construction or reconstruction project is determined by the respective jurisdiction. Sidewalks and paved trails accommodate pedestrian travel; while paved trails, bike lanes, paved shoulders, and driving lanes accommodate bicycle travel. However, not all facility types provide equal service for bicycles. As a rule of thumb, bike lanes are generally the most advantageous facility in urbanized areas for bicycling for transportation. Like automobile traffic, bicycles operating on collector and

arterial roadways have the priority at most intersections. This allows bicyclists to travel uninterrupted for multiple blocks at a time between traffic control devices. Roads with bike lanes provide the additional benefit of separating drivers and bicyclists who typically operate at different speeds. This makes bicycles feel safer and can reduce delay for drivers.



Bicyclists on W 4th St, Waterloo

## METRO AREA STATS

**136.8**

Miles of bikeways in the MPO area

**18,100**

Miles walked daily by MPO residents<sup>1</sup>

**6.8%**

Of all trips are walking trips<sup>1</sup>

**9,167**

Residents have bicycled in the past week on average<sup>1</sup>

**53.7%**

Of bicycle trips are by people with at least a Bachelor's degree<sup>1</sup>

1. Estimates from 2017 NHTS Add-On

Conversely, bicyclists operating on a parallel trail typically do not have the priority at intersections, and frequently must slow down or stop at intersections and driveways. Confusion at conflict points can also increase the likelihood of crashes and may slow traffic operations. There are some instances where a paved trail is preferable to bike lanes, such as roadways with high speed limits or for nature trails not situated alongside a roadway. However, in more concentrated urban areas, bicycles tend to face greater delays on paved trails than on bike lanes. The *Guide for the Development of Bicycle Facilities* by AASHTO lists 14 conflicts associated with paved trails or “side paths”, including the following:

- Bicyclists are often not seen by motorists turning left or right.
- Motorists may block crossings at intersections and driveways.
- Stop or yield signs along trails are generally ineffective.
- Fixed objects can constrain the usable width of a trail.

Sidewalks should not be considered a bicycle facility. Any side path less than eight feet wide is considered a sidewalk. In addition to the conflicts listed above, there are other disadvantages of bicycling on a sidewalk:

- Conflicts with pedestrians are more likely.
- Motorists may not expect bicyclists to appear suddenly at crossings and driveways.
- Uneven sidewalk pavement can make riding less comfortable and increase delay.



While bicycling on sidewalks is allowed in most areas in the MPO, sidewalks do not efficiently fulfill the needs of bicycle transportation and should not be considered a substitute for other bicycle facilities.

Bicyclists may operate on the vast majority of driving lanes in the MPO area in the same manner as automobile traffic. The only places where it is illegal for bicyclists to operate on-road are on Interstate highways and highways with a posted minimum speed limit. While the law allows bicycling on most driving lanes, in practice this can often be dangerous for bicyclists and frustrating for drivers. Any time a bicyclist avoids the most direct route because of perceived danger, it should be considered a delay for the bicyclist.

On the other hand, many local roads with low traffic volumes are suitable for bicycling as-is without the need for additional bike lanes or trails. These roads may be suitable to designate as “shared lanes” which can be defined with Share the Road signage, Bikes May Use Full Lane signage, Bike Route signage, or shared lane markings (or “sharrows”). Even without any signage, these roads are perfectly acceptable for bicycle transportation. Many of these roads are included in the MPO Bikeway Plan shown as Map 5.2.

For pedestrians, the development of trails and sidewalks is more straightforward. Generally, sidewalks and trails offer equal accommodation for pedestrians, though sidewalks less than five feet wide are not suitable for pedestrians walking two abreast. Additional improvements for pedestrians involve site-specific treatments that reduce crossing distances, calm traffic, and provide a safe area to wait for traffic. Some of these treatments are included in the next section.

While much discussion about pedestrian planning relates to transportation improvements, land uses play an equal if not greater role in shaping the environment for walking. Large block sizes, setback distances, and parking lots can increase the distance pedestrians must travel and compel them to walk along informal routes. In addition, many businesses and civic buildings do not have a designated walkway to their front door, so pedestrians must walk through parking lots or grassy areas to reach their destination. For these reasons, discussions about pedestrian planning should not be limited to trails and sidewalks alone.



Pedestrian near Ridgeway Avenue in Waterloo

### Site-Specific Bicycle and Pedestrian Treatments

A variety of site-specific treatments can be used in addition to each of the five facilities described prior. Currently, these treatments are employed sparingly in the MPO area, and some do not currently exist at all.

Table 5.2 describes some of the most common treatments. This is only an overview and is not intended to serve as an exhaustive list of treatments. All treatments presented on the next pages are eligible for Transportation Alternatives Program (TAP) and Surface Transportation Block Grant (STBG) funding.

**Table 5.2: Site-Specific Bicycle and Pedestrian Treatments**

<p>New York City, nacto.org</p>	<p><b>Median refuge island</b>            Facility type: Sidewalks and Trails</p> <p>Description: A protected space in the middle of a road crossing, typically designed as part of a median, that allows pedestrians and bicyclists to cross one direction of traffic at a time</p> <p>Benefits: Reduces time spent waiting for traffic, and reduces exposure in the crosswalk</p>
<p>Canada, Flickr user drdul</p>	<p><b>Curb extensions (or bulb-outs)</b>            Facility type: Sidewalks</p> <p>Description: Any lateral shift in the curb that narrows the width of the street</p> <p>Benefits: Improves visibility, reduces exposure in the crosswalk, and reduces travel speeds</p>

	<p><b>Vertical speed control</b>  Facility type: All</p> <p>Description: Raised pavement in driving lanes including speed humps, speed tables, and speed cushions</p> <p>Benefits: Reduces travel speeds</p>
	<p><b>Narrower driving lanes</b>  Facility type: All</p> <p>Description: Driving lanes no greater than 11 feet wide, and parking lanes no greater than nine feet wide</p> <p>Benefits: Reduces travel speeds, and reduces crossing distance</p>
	<p><b>Pedestrian alleys</b>  Facility type: N/A</p> <p>Description: An alley where vehicles are restricted, and installations are added to appeal to pedestrians</p> <p>Benefits: Eliminates conflicts with vehicles</p>
	<p><b>Buffers and delineators</b>  Facility type: Bike lanes</p> <p>Description: Additional separation between bike lanes and driving lanes by means of buffer markings and delineator posts</p> <p>Benefits: Reduces conflicts, and improves perceived safety</p>
	<p><b>On-road wayfinding signs</b>  Facility type: Bike lanes and driving lanes</p> <p>Description: Signage that directs bicyclists to local destinations via bike lanes and designated bike routes</p> <p>Benefits: Improves operations, reduces delay</p>

Waterloo, INRCOG

Atlanta, nacto.org

Marion, INRCOG

Des Moines, INRCOG

St Paul, INRCOG

	<p><b>Bike boxes</b>  Facility type: Bike lanes and driving lanes</p> <p>Description: A designated area at signalized intersections for bicyclists to wait at the head of a traffic lane</p> <p>Benefits: Improves visibility, reduces conflicts, reduces traffic delays</p>
	<p><b>Signal detection and actuation</b>  Facility type: Bike lanes and driving lanes</p> <p>Description: A marked location for bicycles to actuate detection at signalized intersections</p> <p>Benefits: Improves traffic operations, and reduces delay</p>
	<p><b>Bicycle signals</b>  Facility type: Bike lanes</p> <p>Description: A traffic control device for bicyclists to be used along with conventional signals</p> <p>Benefits: Improves traffic operations, and reduces conflicts between bicyclists and other modes</p>
	<p><b>Bike Boulevards</b>  Facility type: Driving lanes</p> <p>Description: A street with low traffic volumes designed to prioritize bicycles and restrict through movements by vehicles</p> <p>Benefits: Reduces conflicts, maintains low travel speeds</p>

Tampa, twitter

San Luis Obispo, nacto.org

Madison, nacto.org

Portland, nacto.org

## National Guidance

Above all, planning for bicycles and pedestrians is United States law. Section 217 in Title 23 of the U.S. Code addresses bicycle transportation and pedestrian walkways. Subsection (g) relates to planning and design:

(1) In general.—

Bicyclists and pedestrians **shall** be given due consideration in the comprehensive transportation plans developed by each metropolitan planning organization and State in accordance with sections 134 and 135, respectively. Bicycle transportation facilities and pedestrian walkways **shall** be considered, where appropriate, in conjunction with all new construction and reconstruction of transportation facilities, except where bicycle and pedestrian use are not permitted.

(2) Safety considerations.—

Transportation plans and projects **shall** provide due consideration for safety and contiguous routes for bicyclists and pedestrians. Safety considerations **shall** include the installation, where appropriate, and maintenance of audible traffic signals and audible signs at street crossings.

In 2010, the United States Department of Transportation (DOT) issued a Policy Statement on bicycle and pedestrian accommodation regulations and recommendations:

“The DOT policy is to incorporate safe and convenient walking and bicycling facilities into transportation projects. Every transportation agency, including DOT, has the responsibility to improve conditions and opportunities for walking and bicycling and to integrate walking and bicycling into their transportation systems. Because of the numerous individual and community benefits that walking and bicycling provide — including health, safety, environmental, transportation, and quality of life — transportation agencies are encouraged to go beyond minimum standards to provide safe and convenient facilities for these modes.”

The DOT encourages transportation agencies to adopt similar policy statements on bicycle and pedestrian accommodation and go beyond the minimum design standards and requirements to create safe, attractive, sustainable, accessible, and convenient bicycling and walking networks. Several recommended actions are included in the DOT Policy Statement:

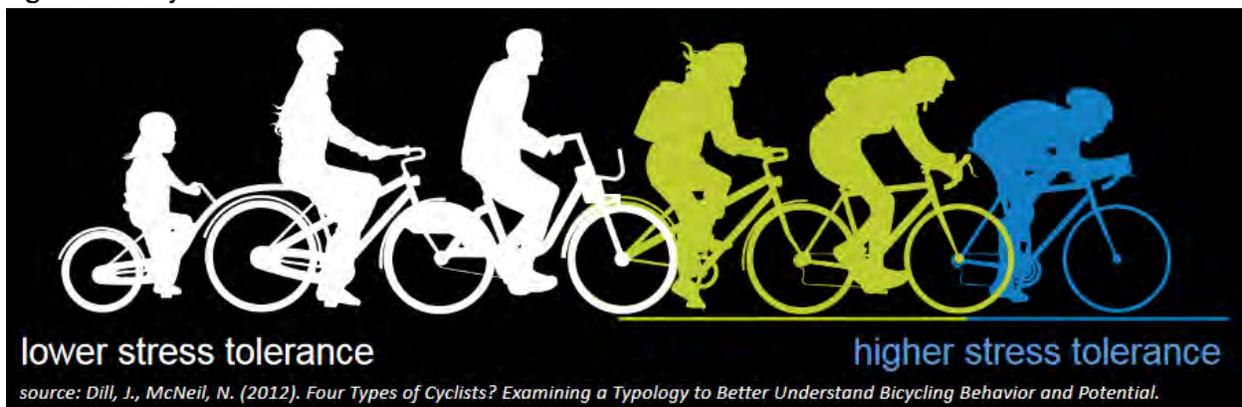
- Considering walking and bicycling as equals with other transportation modes
- Ensuring that there are transportation choices for people of all ages and abilities, especially children
- Going beyond minimum design standards
- Integrating bicycle and pedestrian accommodation on new, rehabilitated, and limited-access bridges
- Collecting data on walking and biking trips
- Setting mode share targets for walking and bicycling and tracking them over time
- Removing snow from sidewalks and shared-use paths
- Improving non-motorized facilities during maintenance projects

The Federal Highway Administration (FHWA) is a division of the DOT, and issues the Manual on Uniform Traffic Control Devices, which has a significant impact on the design of bicycle facilities. The MUTCD sets the standards for traffic signage, signals, and pavement markings in the United States. The last update to the MUTCD was in 2009.

In addition to federal policy, other organizations also influence transportation planning for bicycles and pedestrians. The American Association of State Highway and Transportation Officials (AASHTO) is the standards-setting body for the design and construction of highways and streets in the United States. AASHTO is an organization of State DOTs, not an entity of the federal government. However, the FHWA ultimately uses a formal rulemaking process to adopt AASHTO standards for application on the National Highway System.

Foremost is the AASHTO Green Book, *A Policy on Geometric Design of Highways and Streets*. The most recent edition of the Green Book, the 7th Edition, is more flexible, multimodal, and performance-based than in the past. In addition to the Green Book, AASHTO also publishes the *Guide for the Development of Bicycle Facilities* and the *Guide for the Planning, Design, and Operations of Pedestrian Facilities*. An update to the bicycle guide is anticipated in 2019. The guide is expected to include significant updates given the rapid advancement of bicycle treatments over the last decade.

**Figure 5.1: Bicyclist Skill Levels**



51-56% of the public is interested but concerned, 5-9% is somewhat confident, and 4-7% is experienced and confident

Another notable organization is the National Association of City Transportation Officials (NACTO), which is a coalition of municipal departments of transportation. No cities in Iowa are members of NACTO. However, NACTO has been very influential in the advancement of bikeway and street design at a national level for the past several years. NACTO's *Urban Bikeway Design Guide* was released in 2011 and includes several treatments not yet adopted in the MUTCD or AASHTO manuals. In 2013, NACTO released the *Urban Street Design Guide* which focuses on the street as a whole and emphasizes pedestrian activity at intersections, sidewalks, and sitting areas, as well as traffic calming and streetscaping measures.

## State Guidance

National advances in bicycle planning have outpaced Iowa in recent years. In 2011, Iowa was ranked the 6th most bicycle friendly state according to the Bicycle Friendly State program. In 2017, Iowa was ranked 30th. Among other critiques, the Bicycle Friendly State program identified that the state is not spending a significant share of its federal funds on bicycling and walking projects compared to other states.

However, the Iowa DOT is currently completing its *Bicycle and Pedestrian Long Range Plan*, which will be the first planning document of its kind in the state. Following adoption of the plan, the Iowa DOT also intends to adopt a Complete Streets policy, and MPOs can use this policy as a basis for their own policies. The Iowa DOT Complete Streets policy will require bicycle and pedestrian accommodations to be considered for all primary road projects. Accommodations are to be implemented unless the additional cost would be excessively disproportionate to the need or probable use, or there is a demonstrated absence of future need as

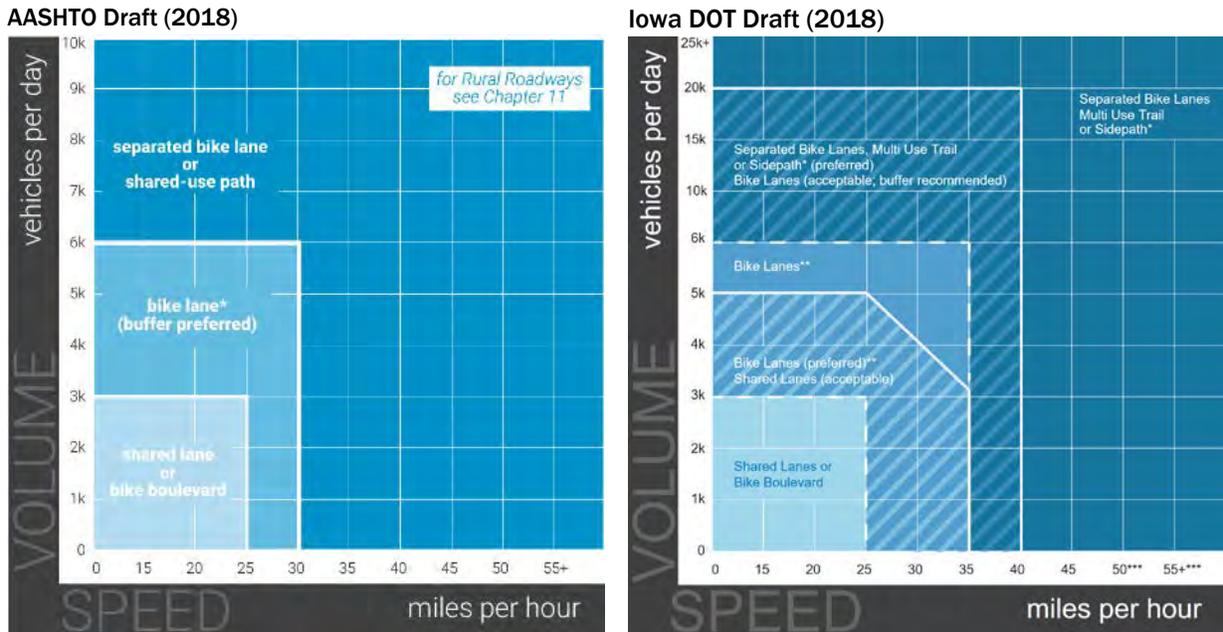
determined by factors including current and future land use, current and projected user volumes, population density, and crash data.

The Iowa DOT also plans to update the state's *Design Manual* and *Bridge Design Manual* to reflect national best practices regarding bicycle and pedestrian facilities, particularly on-road facilities. These updates will be coordinated with the on-road bicycle section from the Statewide Urban Design and Specifications (SUDAS) manual.

Draft recommendations include basic design parameters for sidewalks, trails, curb ramps, crosswalks, refuge islands, and signals for pedestrians. For bicycles, the plan will identify basic design parameters for trails, paved shoulders, bike lanes, separated bike lanes, bike boulevards, shared lanes, wayfinding, and intersection treatments.

The Iowa DOT is developing one facility selection matrix for urban setting and another for rural settings. The matrix for urban settings presented in the draft Iowa DOT plan appears somewhat more detailed than the draft matrix developed by AASHTO. The MPO will stay up-to-date on state and federal guidelines for bicycle facility selection criteria as these plans move forward. Figure 5.2 shows each matrix in its current draft form.

Figure 5.2: Draft urban bikeway facility selection matrices



For rural areas, guidance will include recommended minimum shoulder widths, recommended facility selection criteria, and a plan for the statewide trails system. The Iowa DOT’s previous long-range transportation plan adopted in 2012 identified a three-tiered system of classifying trails by statewide significance. In the newest Long-Range Transportation Plan, and the draft Bicycle and Pedestrian Long-Range Plan, the Iowa DOT has indicated it will return to its original concept of a larger statewide network of trails that connects rural communities, metropolitan areas, state and county parks, and natural amenities.

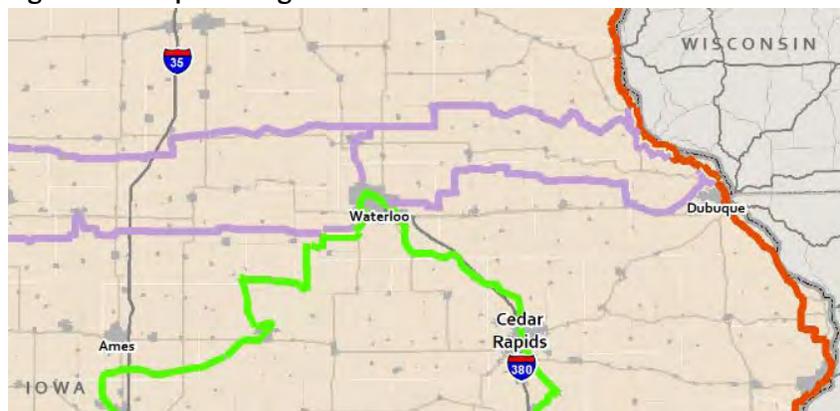
Planned statewide trails of significance to the MPO area include the Cedar Valley Nature Trail to Cedar Rapids, a trail north to Waverly, a trail east to Dubuque, and a combination of trails to the south and west toward the Des Moines metropolitan area. Figure 5.3 shows part of the Statewide Trails Vision relevant to the MPO:

Figure 5.3: Statewide Trails Vision around the MPO area



Also being planned at a statewide scale is the proposed United States Bike Routes (USBR). Of significance to the MPO area is USBR 36, a planned bike route from New York to Oregon with established segments in Pennsylvania and Indiana. Two alignments are proposed for this route. The northern route would bypass the MPO area, while the southern route would pass through the MPO area. Between the two alignments, the southern route has a greater share of on-road rural roads considered “good” for bicycling compared to the northern route (90 vs 75 percent), though the southern alignment has 35 more on-road miles altogether. Figure 5.4 shows the proposed routes for USBR 36 in purple, as well as the American Discovery Trail route in green.

**Figure 5.4: Proposed alignments for US Bike Route 36**



## Local Advisory Committees

In 2013, the City of Waterloo and City of Cedar Falls both adopted Complete Streets resolutions consistent with the National Complete Streets Coalition guidance. Adopting a Complete Streets policy was a prerequisite of becoming a certified Blue Zones community, and both cities have since attained Blue Zones certification. The goal of Blue Zones is to improve the health and wellness of areas by encouraging citizens to take individual actions, and by efforts through employers, schools, restaurants, grocery stores, and city policy.

One outcome of these resolutions was the creation of an advisory committee in each city. These committees are the Waterloo Complete Streets Committee and the Cedar Falls Bicycle and Pedestrian Advisory Committee. MPO staff regularly attend both meetings to provide input, seek input, and provide updates on related projects and initiatives. While both committees share a similar role, the makeup of their attendees are notably different. In Waterloo, the committee is chaired by a member of the community, but the majority of attendees are affiliated with the City government. Conversely in Cedar Falls, the vast majority of committee members are Cedar Falls residents, and only one or two City staff attend each meeting. While each arrangement has its benefits and drawbacks, both committees address similar topics and face similar challenges.

The Waterloo Complete Streets Committee is chaired by a Waterloo resident and includes representation from a variety of City departments, community organizations, and interested individuals. City staff regularly provide updates on street reconstruction projects and commercial developments to identify opportunities for improving sidewalk connectivity. For larger projects, such as the University Avenue reconstruction project, engineering firms have attended meetings and presented project updates to allow the committee to provide input directly. The committee also had a hand in promoting the Park Avenue bike lanes discussed later in this chapter. The committee chair provides updates to the Mayor and City Council and occasionally submits recommendations to City department heads. While this committee has significant participation by City staff, it lacks representation from the broader community. The committee meeting time of 1:30 p.m. likely affects this.

The Cedar Falls Bicycle Pedestrian Advisory Committee is chaired by a Cedar Falls resident and includes representation from City planning, law enforcement, the school district, and several members of the community. From 2009 to 2017, Cedar Falls was awarded the status as a Bronze Bicycle Friendly Community by the League of American Bicyclists, and the committee has recently applied to retain its status. The committee occasionally makes recommendations to the City regarding specific projects and potential improvements for bicyclists. More predominantly, the committee engages in a variety of educational and community events including Bike Rodeos, Bike to School events, Pedal Fest, a Mayor's bike ride, and Bike Month activities in May. The committee also conducts outreach by submitting content to the city's quarterly newsletter, its Facebook page, and occasionally on local access television Channel 15. A small amount of funding is allotted to the committee by the City for education, and the committee is able to send a representative to relevant conferences including the Iowa Bicycle Summit. While this committee has significant community involvement, it currently lacks representation from City engineers and Council members.

## **Existing Facilities**

The MPO area has a variety of facilities for bicycles and pedestrians including over 115 miles of paved trails. However, the definition of a paved trail is inherently up to interpretation. Today's standard for new trail construction is 10 feet wide, and eight-foot wide trails are acceptable in certain circumstances such as where low bicycle and pedestrian traffic is anticipated. Nonetheless many trail segments in the MPO area were constructed before this standard was adopted and are only six to eight feet wide. Also, areas such as the University of Northern Iowa campus and Downtown Waterloo have several pedestrian facilities at least eight feet wide, though their function is not conducive for bicycle traffic. Existing trails presented in this document represent trails that are conducive for bicycle travel and are at least part of a predominantly eight to ten-foot-wide trail.

Currently, paved trails make up the vast majority of separated bicycle facilities in the MPO area. However, the MPO area also has bike lanes, paved shoulders, shared lane markings (or "sharrows"), and signed bike routes. Table 5.3 shows the total centerline length of each facility type in the MPO area. The term buffered bike lanes refers to a bike lane with a painted buffer as described previously, and may or may not include vertical infrastructure such as delineator posts. The term on-road path refers to a segment of roadway that is designated for both bicycle and pedestrian travel, usually as part of a much longer paved trail.

The development of the first protected bike lanes in the MPO area began in 2017 along Park Avenue in Waterloo. The term protected refers to any sort of vertical protection between a bike lane and driving lane, such as delineator posts, planters, or parked cars. Initially, only parked cars served as the vertical separation, but then the City installed delineator posts in 2018 to prevent through traffic from driving in the parking area. Development of the Park Avenue bike lanes was spearheaded by the Waterloo Complete Streets Committee. The committee debated whether to wait to secure grant funding to develop more elaborate bike lane treatments, or to advance a low-cost lane reconfiguration as soon as possible. The majority of the committee favored the latter option, and the recommendation was advanced to the City Council. MPO staff helped facilitate discussions between multiple City departments and elected officials, and staff also helped develop the initial planning-level design of the protected bike lane concept.



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## Current Projects

There are several ongoing bicycle and pedestrian infrastructure projects underway in the MPO area. The University Avenue reconstruction projects in Cedar Falls and Waterloo and the U.S. Highway 63 reconstruction project in Waterloo are currently under construction, and both roads will include a paved ten-foot-wide trail for bicycles and pedestrians. A standalone paved trail project is also under construction along Center Street in Cedar Falls. Center Street becomes Waverly Road past city limits, and Black Hawk County is currently adding three-foot paved shoulders along Waverly Road for the purpose of facilitating bicycle travel. The paved shoulders will extend nearly as far as the City of Janesville which is outside the MPO area.

In the next few years, as shown in **Chapter 3, Table 3.5**, a number of large roadway reconstruction projects are expected in the coming years, some of which may also include additional bicycle and pedestrian infrastructure. Some projects of particular interest include La Porte Road, West Ridgeway Avenue, and Franklin Street in Waterloo, Main Street and Cedar Heights Drive in Cedar Falls, Gilbertville Road in Elk Run Heights, and Lafayette Road in both Evansdale and Raymond. Some type of pedestrian facility is expected with all these projects, and facilities for bicyclists are likely as well. In addition, a standalone paved trail project on Union Road in Cedar Falls is also programmed for STBG funding in FY 2020.

## Current Planning

The MPO is currently working on several bicycle and pedestrian related projects. These include both short-range and long-range planning efforts. This section intends to describe only those efforts that are long-range in nature, and does not intend to cover all bicycle and pedestrian projects MPO staff work on.

### 2045 MPO Bikeway Plan

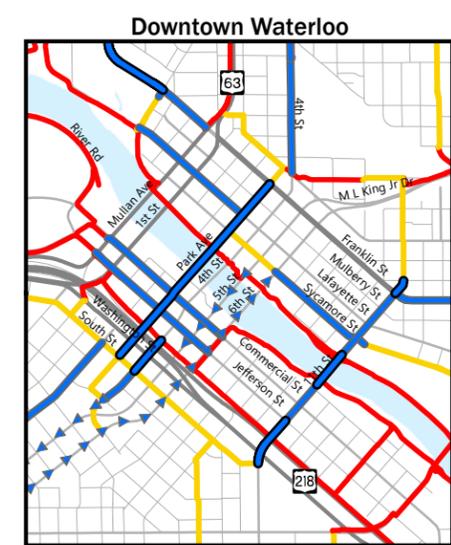
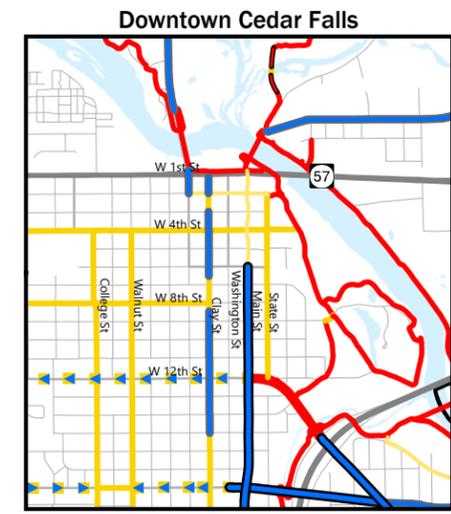
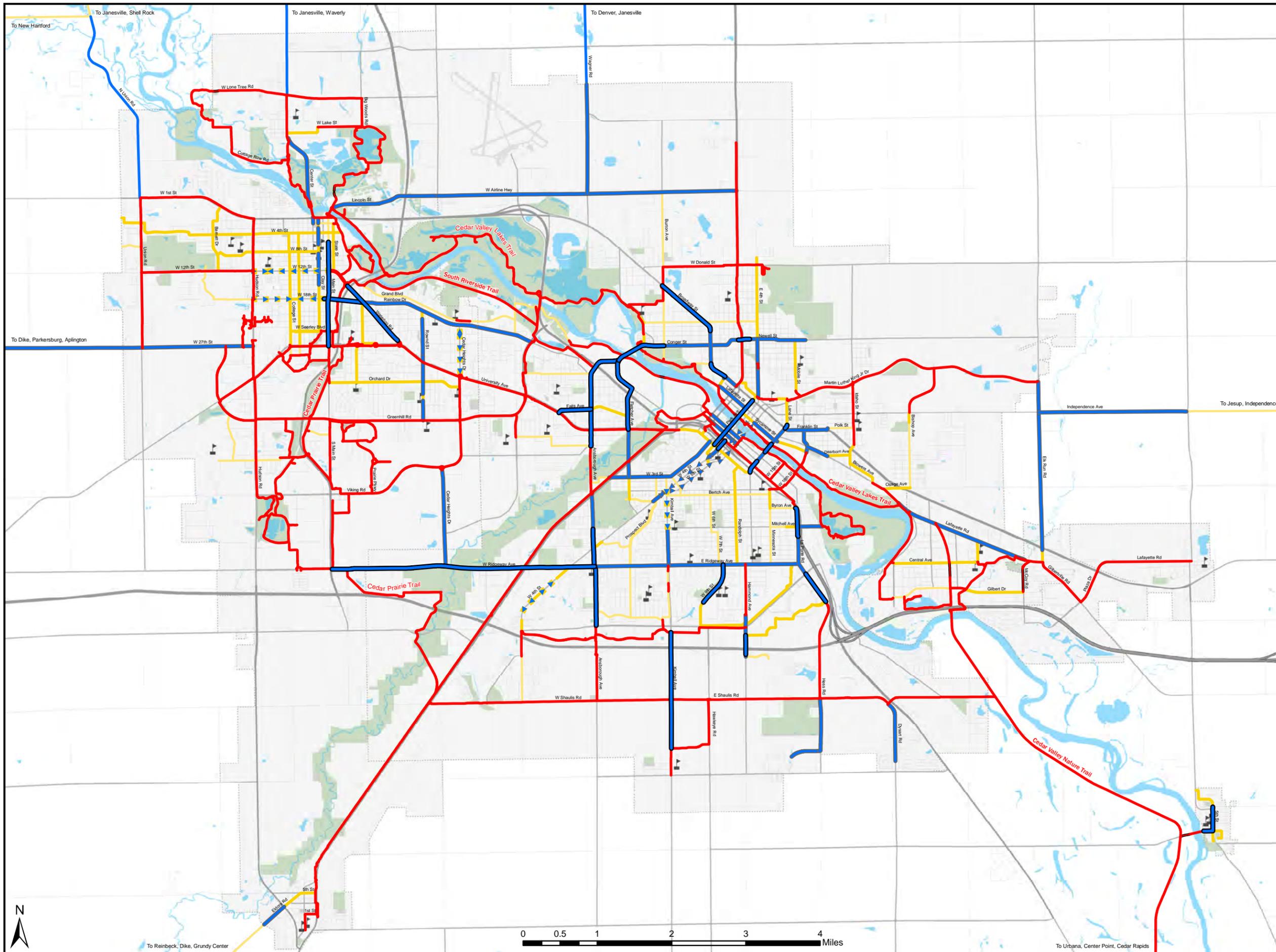
The 2045 MPO Bikeway Plan is a significant update from the previous 2040 Bicycle Accommodation Plan. The term “bikeway” refers to a way of travel for bicycles. This was chosen as the name for this update, because bicycle accommodations could refer to facilities such as bike racks and fix-it stations which this plan does not address.

The main difference between the 2040 and 2045 plans is that roadways were reviewed in greater detail to determine more feasible planned facility types. Several factors were considered when making these determinations including each road’s right-of-way, trees, driveways, drainage areas, traffic volumes, and lane configurations. Connectivity to businesses and educational institutions was also a priority.

Another fundamental difference between the two plans is that the 2045 Plan identifies low-volume residential streets that can be used by bicyclists without any additional treatments. While the 2040 Plan also identified shared lanes, the 2045 Plan does so with the intent of connecting more separated bicycle facilities. In this respect, shared lanes for bicycles are analogous to collector streets for cars, while bike lanes and paved trails function more like arterial roadways.

The MPO area currently has a variety of different bicycle facility types. Table 5.3 shows the existing mileage of each facility type, and the existing and planned mileage combined in the 2045 MPO Bikeway Plan. As noted above, a major emphasis of this plan is identifying low-volume roads suitable as part of a bicycle network, and the planned increase in signed on-road bike routes and shared lane markings reflects this.

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Legend

- Buffered Bike Lanes
- Bike Lanes
- Paved Shoulders
- One-Way Bike Lane
- Uphill Bike Lane, Downhill Sharrows
- Sharrows
- Planned Signed Bike Route
- Trail
- On-Road Path
- City Boundaries

Data Source: INRCOG

**INRCOG**  
Iowa Northland Regional Council of Governments

Disclaimer: This map is for reference only. No liability is assumed for the accuracy of the data delineated herein, either expressed or implied by INRCOG.

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**Table 5.3: Existing and planned miles of bicycle facilities**

Facility Type	Existing Miles	Existing + Planned Miles
Bike lanes (including buffered and one-way)	3.2	58.4
Paved shoulders	7.4	14.0
Shared lane markings (i.e. sharrows)	5.0	31.3
Signed on-road bike routes	4.3	51.0
Paved trails (including on-road paths)	116.9	149.0

### **Pedestrian Master Plan**

The foremost planning effort related to pedestrians is the MPO Pedestrian Master Plan. Planning for the Pedestrian Master Plan began in 2014, and three public input surveys were developed specifically for the plan:

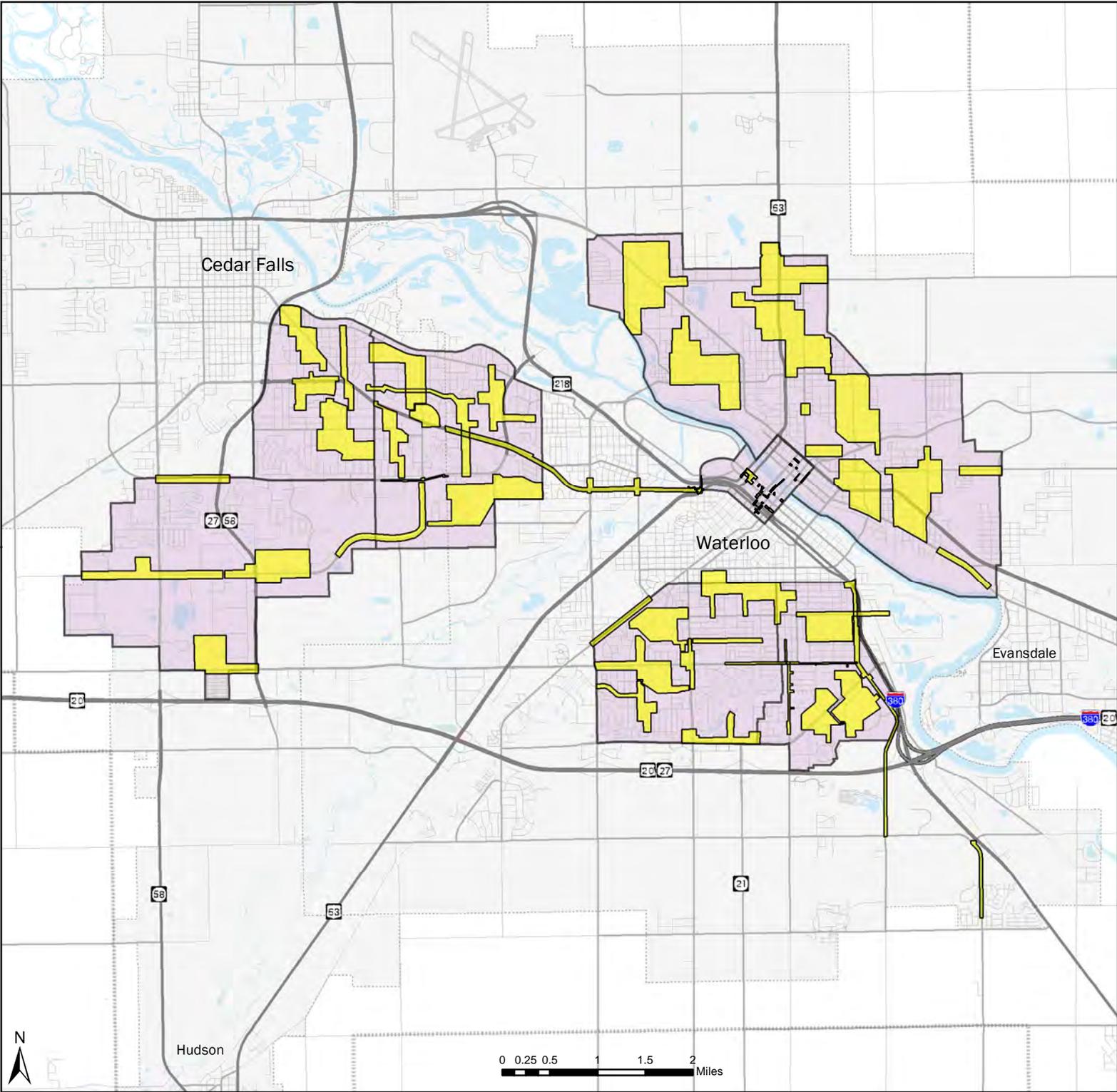
- 2015 Pedestrian Master Plan Mail-Out Survey, 344 responses
- 2015 Special Outreach Survey, 207 responses
- 2016 Public Input Meeting Survey, 92 responses

Recommendations for the Pedestrian Master Plan are currently being developed, and they will include pedestrian infrastructure projects as well as policies and procedures that benefit pedestrians in other ways. Project recommendations are based in part on the results of the initial mail-out surveys. Respondents were asked to select one area they would improve for pedestrians, out of 24 areas total. The highest ranked areas were reviewed by MPO staff to determine the “focus areas” of the plan. In other words, these are the areas with the greatest demand for pedestrian improvements where new investments may have the greatest public benefit.

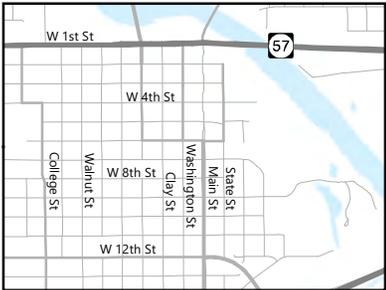
After the focus areas were identified, individual project concepts were drafted by MPO staff in each area. The concepts were presented in detail at the Pedestrian Master Plan public input meetings held in November and December of 2016. The locations of the focus areas and draft project recommendations are shown on Map 5.3.

In addition, the plan will utilize a significant amount of data from the 2017 National Household Travel Survey (NHTS) Add-on. The NHTS Add-on includes responses from 1,221 households representing 2,450 individuals in the MPO area. In addition to the survey responses, over 500 walking trips were also recorded. MPO staff is currently working with the FHWA and NHTS project leaders to help develop a tool to quickly display these results on maps online. The Plan is expected to be completed in spring 2019, following the adoption of this LRTP.

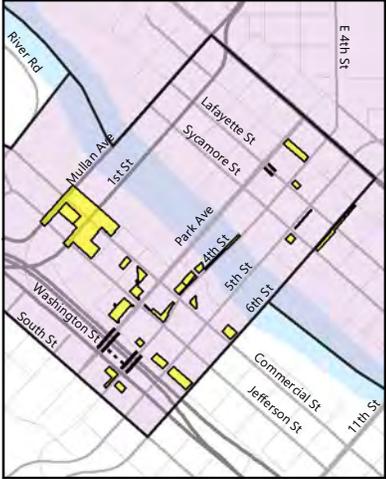
# Map 5.3 Pedestrian Master Plan Focus Areas



**Downtown Cedar Falls**



**Downtown Waterloo**



**Legend**

- Pedestrian Master Plan Focus Areas
- Draft Project Recommendation Areas

Data Source: INRCOG

### Trail Wayfinding Signage

In 2016, the Cedar Trails Partnership secured a grant from Principal Financial for wayfinding signs on the paved trails in the metropolitan area. The Cedar Trails Partnership reached out to MPO staff for guidance, and the MPO agreed to plan the implementation of the new signs. These signs would be implemented in several jurisdictions, and would effectively replace the smaller wooden signs scattered along the trails. Meetings were held with representatives from the Cedar Trails Partnership, the MPO, each City, and George Wyth State Park.



MPO staff determined the location of each sign, the destinations displayed on each customized sign, and the optimal routes to each destination. The Cedar Valley Trails graphic and sign layout was developed as a committee, using graphic elements from the Cedar Trails Partnership logo and Prairie Pathways interpretive panels.

Each sign also shows the distance to each destination, as well as the estimated time it would take by bicycle based on an average speed of 10 miles-per-hour. Each customized sign displays the closest destination first, followed by any other destinations in the same direction, and then the next closest destination in a different direction.

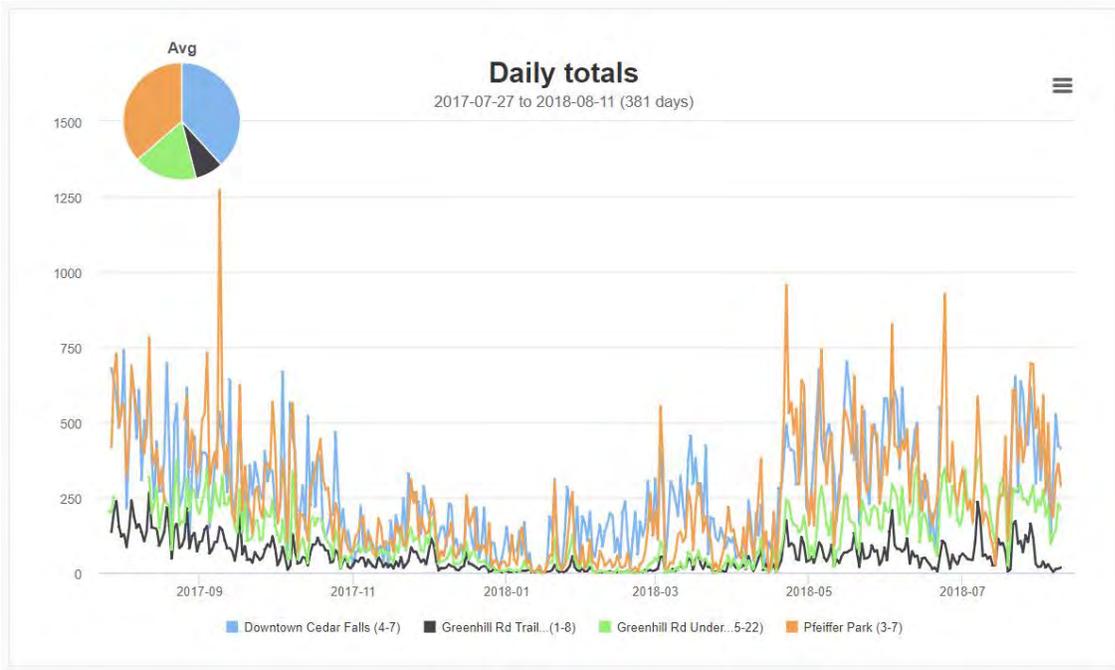
Altogether over 140 customized wayfinding signs were installed throughout the MPO area, in addition to dozens of standard bike route sign assemblies. All signs have since been installed, and a second phase of signs is anticipated to be developed in 2019 to exhaust the remaining grant funds.

### Trail Counts

MPO staff has also been collecting counts of trail usage at several points along the paved trails network. The last manual count took place in 2014. However, much of the week was raining, and by the weekend parts of the paved trails network had flooded.

Since then, the Cedar Trails Partnership worked together with INRCOG to purchase and install ten electronic trail counters throughout the metropolitan area. The electronic counters will help supplement the manual counts and provide reliable trip data for the future. In addition, the counters can be set out at various locations more frequently or for special events when tracking is desired. The counters have been collecting data continuously since July 2017. The electric counters do not differentiate different types of trail users. In 2019, INRCOG staff plan to conduct manual counts to validate the count data. Staff also plan to complete a trail count report in 2019.

**Figure 5.5: Trail count daily totals, 2017-2018**



### **Bicycle Ordinance Updates**

In 2018, the City of Hudson was the first city in Iowa to adopt an updated bicycle ordinance based on the Iowa Bicycle Coalition’s model ordinance. The model ordinance is a template that includes 17 sections addressing a variety of topics including rules for lamps and reflectors, obedience to signals, and passing a bicyclist. In the MPO area, the last known updates to any city’s ordinances related to bicycling were in the 1970s.

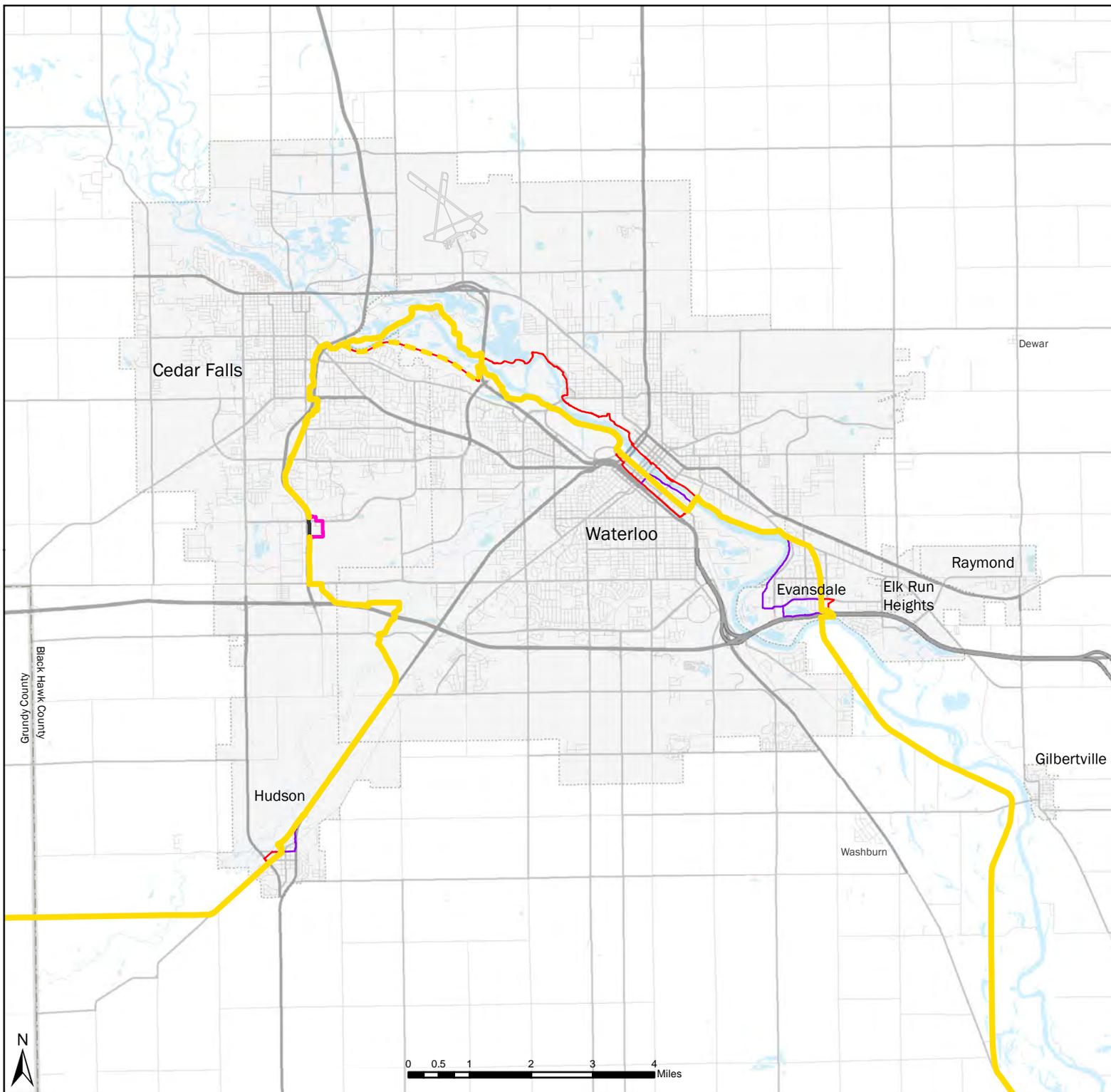
Waterloo and Cedar Falls have since begun discussions among staff to update their own ordinances. In Waterloo, the ordinance update is being led by the city’s Traffic Operations department. In Cedar Falls, discussions are led by the Bicycle and Pedestrian Advisory Committee with participation from the city’s Planning and Police departments.

### **American Discovery Trail**

The American Discovery Trail (ADT) is a designated east-west bicycle route extending from the East Coast to California. The ADT uses some paved trails, though it is predominantly designated along roadways. The official ADT route splits into a Northern Route and Southern Route between Ohio and Colorado, and the MPO area is situated along the northern route. In fact, the trail through George Wyth State Park is the northernmost point along the entire trail nationwide.

The ADT includes the Cedar Valley Nature Trail, the Evansdale Nature Trail, portions of the Cedar Valley Lakes Trail and South Riverside Trails, and the Cedar Prairie Trail. Locally, the route has been considered to include the entirety of the two riverfront trails between Pfeiffer Park in Cedar Falls and Downtown Waterloo. However, the official route as of 2016 is a single linear route, and it does not exclusively follow the existing riverfront trails. A sizable portion of the official route actually follows Commercial Street in Waterloo, even though there are now paved trails on both sides of the river parallel to the official route. It is a goal of the MPO to coordinate with the ADT Board to realign the official route through the MPO area to make optimal use of the existing paved trail network. Map 5.4 shows the official ADT route, other routes identified as part of the ADT in the past, and areas of the trail where a realignment will be possible or necessary.

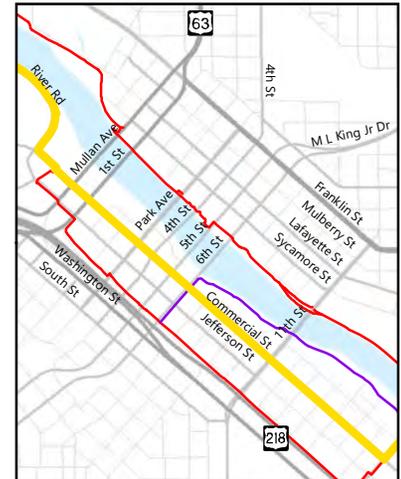
# Map 5.4 American Discovery Trail



## Downtown Cedar Falls



## Downtown Waterloo



## Legend

- Official Route
- - - Official Alt. Route for High Water
- Routes Shown in 2040 Plan
- Required Route Realignment
- Potential Route Realignment
- To Be Abandoned

Data Source: INRCOG, American Discovery Trail Society



**INRCOG**  
Iowa North Central Regional Council of Governments

Disclaimer: This map is for reference only. No liability is assumed for the accuracy of the data delineated herein, either expressed or implied by INRCOG.

## Socioeconomic Data and Public Input

According to U.S. Census American Community Survey data, an estimated 0.5 percent of workers in Black Hawk County bicycle to work, and 4.6 percent walk to work. Furthermore, it is estimated that 2.3 percent of workers do not have a vehicle available.

While Census data can give us a broad understanding of commuting trends, National Household Travel Survey (NHTS) Add-on data provides greater insight into the characteristics of those who travel by bicycling or walking. Among all trips, not just commute trips, an estimated 1.2 percent of trips were by bicycle and an estimated 6.8 percent of trips were by walking. Altogether, MPO residents made a cumulative 1,774,000 person-trips by bicycle and 10,359,000 person-trips by walking.

In terms of distance, MPO residents bicycled an estimated total of 5,370,000 miles and walked an estimated 6,596,000 miles. On a daily basis, this equates to about 14,700 miles of bicycling and 18,100 miles of walking per day. While these values may seem high, they apply to all of the estimated 121,357 persons over five years of age living in the MPO area. In other words, each MPO resident bicycles 0.12 miles per day and walks 0.15 miles per day on average. Of all trips recorded in the NHTS Add-on, the average bicycling trip was 3.03 miles in length, and the average walking trip was 0.64 miles. Table 5.4 shows a variety of data on bicycling and walking in the MPO area, including information presented above.

**Table 5.4: Bicycle and pedestrian trip statistics in the MPO area**

	<b>Bicycling</b>	<b>Walking</b>
Commute to work <sup>1</sup>	0.5 %	4.6 %
All trips	1.2 %	6.8 %
Annual person trips	1,774,000 trips	10,359,000 trips
Annual trip distance	5,370,000 miles	6,596,000 miles
Average trip distance	3.03 miles	0.64 miles
Average trip duration	22.33 minutes	17.03 minutes
Mode used in past 7 days	9,167 residents	66,290 residents

<sup>1</sup> –U.S. Census American Community Survey data (2012-2016) for Black Hawk County. All other values are from the 2017 NHTS Add-on for the MPO area.

These values can be cross-tabulated with other variables including gender, race, household income, educational attainment, and homeownership status to draw further conclusions about bicycle and pedestrian trends in the MPO area. This chapter does not attempt to identify correlations among these variables. The Pedestrian Master Plan will review the survey results further as they relate to walking. Future bicycle and transit planning initiatives may necessitate a need to identify correlations for these modes. However, there were fewer bicycle and transit trips recorded than walking trips, and therefore the statistical margins of error are higher for these modes.

It is a goal of the MPO to produce a report on the NHTS Add-on data to provide a more guided and comprehensive analysis of the results. Several factors should be considered including margin of error, confidence intervals, weighting, and which dataset is used, before further results of the Add-on surveys are presented to the public.

## Lane Reconfiguration Model Scenario

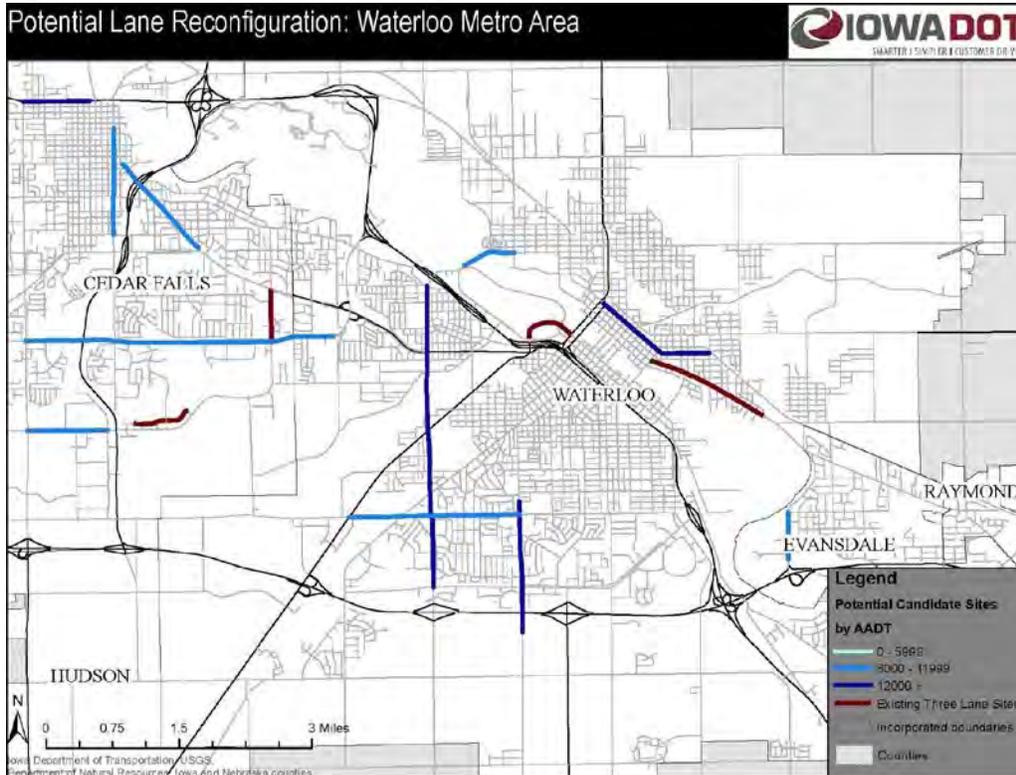
Data provided by the FHWA (*Evaluation of Lane Reduction "Road Diet" Measures on Crashes*, FHWA-HRT-10-053) indicates that 4-lane to 3-lane conversions lead to a 19 to 47 percent reduction in total crashes. The FHWA considers "road diets" as a proven safety countermeasure, alongside other proven treatments such as turning lanes and medians.

In 2017, the Iowa DOT conducted a Statewide Screening for Potential Lane Reconfiguration. Table 5.5 and Figure 5.6 show the roads identified in the screening:

**Table 5.5: Iowa DOT Screening for Potential Lane Reconfigurations in the MPO area**

City	Route	Termini	AADT	Length	Access density	Traffic signals	Crash rate
Cedar Falls	W Viking Rd	Hudson Rd to Nordic Dr	7,800	0.90	10	Yes	600
Cedar Falls	Main St	6th St to Seerley Blvd	10,200	1.19	37	Yes	419
Cedar Falls	Greenhill Rd	Hudson Rd to Katoski Rd	10,300	3.47	1	Yes	320
Cedar Falls	Waterloo Rd	State St to University Ave	11,900	1.28	37	Yes	293
Cedar Falls	1st St/IA-57	Hudson Rd to Tremont St	14,600	0.74	61	Yes	399
Evansdale	River Forest Rd	Central Ave to Deerwood Park Rd	8,500	0.53	47	No	158
Waterloo	W Conger St	River Rd to Burton Ave	9,900	0.60	8	No	219
Waterloo	W Ridgeway Ave	Sergeant Rd to Kimball Ave	11,700	1.92	21	Yes	397
Waterloo	Franklin St	E 1st St to Nevada St	12,800	1.39	35	Yes	639
Waterloo	Kimball Ave	US-20 to Acadia St	13,200	1.47	13	Yes	586
Waterloo	Ansborough Ave	E San Marnan Dr to Maynard Ave	18,400	3.40	25	Yes	334

**Figure 5.6: Map of Iowa DOT Screening for Potential Lane Reconfigurations in MPO area**  
Potential Lane Reconfiguration: Waterloo Metro Area



Based on the Statewide Screening, MPO staff developed a Travel Demand Model scenario specifically for projects that may require a lane reconfiguration in order to provide space for bike lanes. The intent of this analysis is to show the impact of widespread implementation of lane reconfiguration projects, and assumes that each project would include bike lanes. Table 5.6 shows a list of road segments included in this analysis. It is important to note that this is just one scenario, and that the design decision of any roadway ultimately rests with the respective City. A fully connected on-road and off-road bicycle network could take on a variety of forms.

**Table 5.6: List of road reconfigurations in the Lane Reconfiguration Model Scenario**

City	Route	Termini	Length	Reconfiguration	Accommodation	DOT List
Cedar Falls	Main St	6th St to University Ave	1.4 mi	4-5 to 3 lanes	Buffered bike lanes	Yes, mostly
Cedar Falls	Waterloo Rd	IA-58 SB Ramp to University Ave	1.0 mi	4-6 to 3-4 lanes	Buffered bike lanes	Yes
Cedar Falls	18th St	Washington St to Waterloo Rd	0.5 mi	4 to 3 lanes	Buffered bike lanes	No
Waterloo	W Conger St	River Rd to Burton Ave	0.7 mi	4 to 3 lanes	Buffered bike lanes	Yes
Cedar Falls/ Waterloo	W Ridgeway Ave	IA-58 to Ansborough Ave	3.5 mi	4-5 to 3 lanes	Buffered bike lanes	Yes, partly
Waterloo	W Ridgeway Ave	Ansborough Ave to Kimball Ave	1.0 mi	4 to 3 lanes	Bike lanes	Yes
Waterloo	E Ridgeway Ave	Kimball Ave to Baltimore Ave	0.4 mi	4 to 3 lanes	Bike lanes	No
Waterloo	Franklin St	E 11th St to Nevada St	0.6 mi	4-5 to 3 lanes	Bike lanes	Yes
Waterloo	Franklin St	E Mullan Ave to Utica St	0.2 mi	4 to 3 lanes	Bike lanes	No
Waterloo	Kimball Ave	Tower Park Dr to ¼ mi S of US-20	0.5 mi	4 to 3 lanes	Buffered bike lanes	Yes, partly
Waterloo	Ansborough Ave	E San Marnan Dr to Martin Rd	1.3 mi	4 to 3 lanes	Buffered bike lanes	Yes
Waterloo	Ansborough Ave	Martin Rd to US-63	0.5 mi	4 to 3 lanes	Bike Lanes	Yes
Waterloo	Ansborough Ave	Black Hawk Rd to River Rd	1.4 mi	4-5+ to 3-4 lanes	Buffered bike lanes	Yes, mostly
Waterloo	Falls Ave	University Ave to Ansborough Ave	0.4 mi	4 to 2 lanes	Buffered bike lanes	No
Waterloo	Westfield Rd	Fletcher Ave to Ansborough Ave	0.5 mi	3-4 to 2-3 lanes	Buffered bike lanes	No
Waterloo	Fletcher Ave	Westfield Rd to University Ave	0.6 mi	4-5 to 3 lanes	Buffered bike lanes	No
Waterloo	Broadway St	Park Rd to Utica St	0.3 mi	4 to 2 lanes	Buffered bike lanes	No
Waterloo	Broadway St	Park Rd to Kern St	0.4 mi	4 to 3 lanes	Bike lanes	No
Waterloo	Broadway St	Kern St to Burton Ave	0.9 mi	4 to 2 lanes	Buffered bike lanes	No
Waterloo	Conger St / Newell St	Logan Ave to Ankeny St	0.2 mi	5 to 3 lanes	Buffered bike lanes	No
Waterloo	Lafayette St	Vinton St to Nevada St	0.3 mi	3 to 2 lanes	Bike lanes	No
Waterloo	Vinton St	Lafayette St to Sycamore St	0.1 mi	4 to 3 lanes	Bike lanes	No
Waterloo	W 11th St	South St to Jefferson St	0.2 mi	4-6 to 2-4 lanes	Buffered bike lanes	No
Waterloo	11th St	Jefferson St to Franklin St	0.6 mi	4 to 3 lanes	Bike lanes	No
Waterloo	E 11th St	Franklin St to Lane St	<.1 mi	4 to 3 lanes	Buffered bike lanes	No

Waterloo	W 4th St	NB Washington St to South St	0.1 mi	3-4 to 2 lanes	Buffered bike lanes	No
Waterloo	W 4th St	Wellington St to 200' W of Wellington St	<.1 mi	3 to 2 lanes	WB bike lane, EB sharrows	No
Waterloo	Williston Ave/W 5th St	Kimball Ave to Bayard St	0.2 mi	2 to 1 lane	One-way buffered bike lane	No
Waterloo	W 5th/6th St	Bayard St to Sycamore St	1.3 mi	3 to 2 lanes	One-way buffered bike lane	No
Waterloo	Commercial St	Mullan Ave to W 6th St	0.5 mi	3-4 to 2-3 lanes	Bike lanes	No
Waterloo	Jefferson St	Mullan Ave to W 6th St	0.5 mi	3 to 2 lanes	Bike lanes	No
Waterloo	La Porte Rd	Cornwall St to 200' S of San Marnan Dr	0.5 mi	4-5 to 3 lanes	Bike lanes	No
Waterloo	E Mitchell Ave	La Porte Rd to RR tracks	0.1 mi	4 to 3 lanes	Bike lanes	No
Waterloo	Hammond Ave	350' S of Wildwood Dr to San Marnan Dr	0.2 mi	3-4 to 2-3 lanes	Bike lanes	No
Gilbertville	5th St	14th Ave to 21st Ave	0.3 mi	4 to 3 lanes	Bike lanes	No

The results of the Travel Demand Model scenario for the 2045 MPO Bikeway Plan are included in **Chapter 3**, and can be compared to the standard 2045 model scenario (E+C+P) to identify the potential traffic impacts of widespread lane configurations for bike lanes. While there are some isolated decreases in level of service, overall the model scenario does not show a significant increase in traffic congestion systemwide. Cities need to prioritize the trade-offs between achieving a high level of service for automobiles and improving accessibility for bicyclists and other users of the roadway.

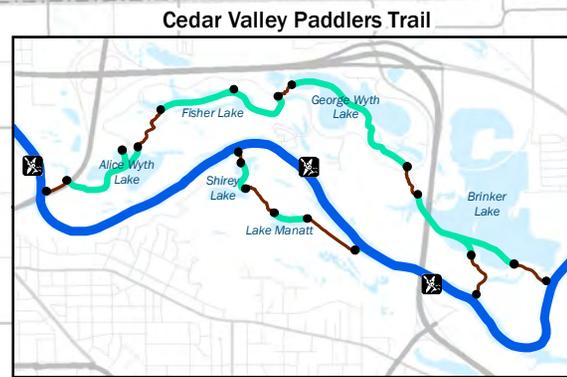
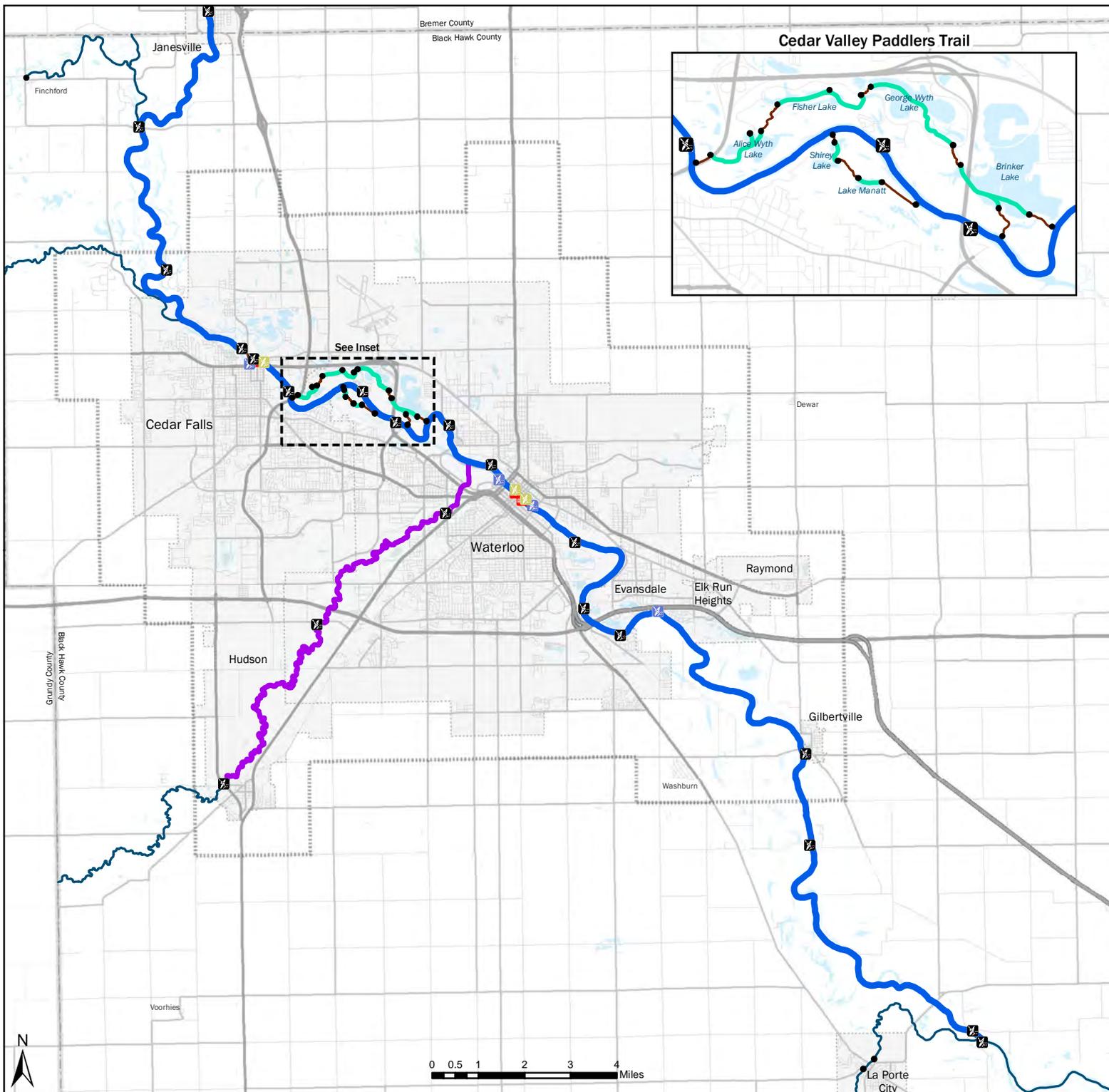
## Other Non-Motorized Projects

### Water Trails Master Plan

In 2017 and 2018, INRCOG has been in the process of developing a Water Trails Master Plan for Black Hawk County. This project is funded through the Iowa Department of Natural Resources (DNR) and will identify site-specific improvements to river accesses throughout the County, including about 20 sites in the MPO area. Many of these river accesses are situated near or along paved trail, creating multiple opportunities of “pedal paddle” trips. These are trips where a paddler drops off their bike at their take-out location, drives to the put-in location, paddles downstream, locks up their canoe or kayak, bicycles back to their vehicle, and returns with the vehicle to pick up their canoe or kayak.

Two public input meetings were held in July and August 2018 on the Water Trails Master Plan, and 92 individuals completed surveys to help guide development of the water trails. The plan is expected to be completed in December 2018.

# Map 5.5 Water Trails in Black Hawk County



## Downtown Cedar Falls



## Downtown Waterloo



## Legend

- Cedar River Water Trail
- Black Hawk Creek Water Trail
- Cedar Valley Paddlers Trail
- Other Stream
- Portage
- River Access, Existing
- River Access, Potential
- River Access, Changes Planned Locally
- Other Access
- Dam
- MPO Boundary

Data Source: INRCOG



**INRCOG**  
Iowa North Central Regional Council of Governments

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### Safe Route to School

Safe Routes to School (SRTS) is a nationwide effort to promote children safely walking and bicycling to school through engineering, education, enforcement, encouragement, and evaluation (5-E's). SRTS projects are eligible under the Transportation Alternatives Program (TAP). INRCOG has been awarded Statewide TAP funding in multiple years to fund a staff person to coordinate a regional Safe Routes to School initiative in partnership with the Iowa Bicycle Coalition and Upper Explorerland Regional Planning Commission in Decorah. The goal of the program is to increase the number of students walking and bicycling to school with the ultimate goal of improving the overall health and well-being of the region's youth. To date, INRCOG has done the following:



- Supported Safe Routes related education, activities and events in 20 elementary schools in 12 school districts in INRCOG's six-county area including the MPO area
- Maintained two routine Walking School Bus programs encouraging physical activity and safety for over 75 students and continues to add new programs
- Hosted 20 Bike Rodeo safety education events in 2018, to educate over 1,400 students in bike and pedestrian safety
- Continuously attended four area community wellness coalitions with emphasis on physical activity, safety, and education
- Organized trail rides for two elementary schools
- Provided input for the development of a new online student data collection tool

Though there is no dedicated Safe Routes to School funding for infrastructure projects anymore, the MPO is committed to maintaining the Safe Routes to School Coordinator position to continue and grow these activities.



**Soft Trails**

The MPO features a network of soft trails that provide hiking, bicycling, running, and skiing opportunities. There are over 40 miles of soft trails through the metropolitan area with the heaviest concentrations in George Wyth Memorial State Park and Hartman Reserve. The Cedar Valley Association for Soft Trails (CFAST) is a local group dedicated to promoting, maintaining, and building sustainable soft trails in the area. A variety of events are held throughout the year to encourage people to explore and enjoy the soft trails in the metro area. CFAST provides an online interactive map to identify tracks and the locations of parking, water, and restrooms.

[www.cvast.org](http://www.cvast.org)

**Drive Safe Cedar Valley**

A local effort aimed at improving driving habits and decreasing the number of crashes is Drive Safe Cedar Valley. The goal of this effort is to change the culture of driving in the region. The public awareness program has used spokespersons, special events, targeted education programs, children's coloring books, and other public awareness initiatives to highlight community-wide safe-driving issues. The campaign is a partnership between the City of Waterloo, the Iowa DOT, and INRCOG, and the project continues to be funded in part through the MPO.

[www.drivesafecv.com](http://www.drivesafecv.com)

[www.kidstrafficsafety.com](http://www.kidstrafficsafety.com)