



City of Omaha **Bicycle Wayfinding Manual**



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1 INTRODUCTION

About this Manual

This manual provides a step-by-step process for the City of Omaha to follow to sign on-street bicycle routes. Currently the City has just a few signed bicycle routes with the most notable being the Benson Route, from the initial “Bike Omaha Network” system. The Benson Route sign panels include information on the endpoints of the routes (“Benson” and “Riverfront”) as well as some directions to nearby destinations and it represented an improvement in bicycle routing. However, City staff and bicycle advocates were still unsatisfied with the sign panel design: it wasn’t intuitively easy to understand that the signs indicated a bicycling route and the panels were difficult to read at bicycling speed. Additionally, there were no set protocols that were being followed by the city for bicycle routing and have been many advancements in bicycle wayfinding that were not being used in the City to benefit bicyclists in Omaha (benefits of wayfinding provided below).



Figure 1 An existing Benson bike route sign

In the coming years, the City will move forward on signing a network of bike routes on low-traffic streets to guide bicyclists around the city. This manual will facilitate those efforts. It may also serve as a guide for Douglas County and surrounding communities to build their own networks of signed bike routes throughout the Heartland area.

Process

The manual was developed under the oversight of Live Well Omaha, which funded the endeavor through private fundraising from the Omaha metro community, with the input and guidance of City Planning Department staff and the multi-sector Bike Omaha Network Advisory group. The Bike Omaha Network Advisory group includes staff from a variety of city and county agencies, as well as representatives of advocacy organizations and regular bicycle riders. The group began meeting on a monthly basis in July 2016 and provided input on the content, sign panel design, and destination selection considerations of the manual.

1.1 WHY BICYCLE WAYFINDING IS IMPORTANT

Why provide a Comprehensive Bicycle Wayfinding System?

Most city residents are familiar with navigating their street network in a motor vehicle. As drivers, residents may not even notice how streets and highways follow well-marked paths, transitioning seamlessly, even as streets’ official names may change. Visitors and tourists getting around by car can also usually depend on supplemental wayfinding designed for motorists.



However, the bicycle network is often “invisible” to both visitors and lifelong residents. Bicyclists traveling on shared-use paths often travel at different grades, sometimes passing beneath streets. They also frequently follow railroad or river corridors that have a different angle than the street network. Bicyclists trying to remain on bike-friendly streets may need to use complicated routes to avoid high-traffic arterials, dangerous freeway interchanges, and hills.

Figure 2 The South Omaha Trail connection to the Field Club Trail may be confusing to people accustomed to traveling by car. Adding wayfinding signs can help path users orient themselves to the rest of the city.

A comprehensive bicycle wayfinding sign system is therefore an affordable way for cities to create an extensive bicycle network often targeting lower-traffic streets. Other reasons for investing in bicycle wayfinding include:

Navigation

- To promote the use of preferred bike routes and to encourage bicycling on designated corridors
- To provide guidance along routes which are not intuitive or are different from those followed by motorists
- To provide navigational assistance to popular destinations

Safety

- To provide a visual cue for motorists that bicyclists should be expected on streets, potentially increasing driver awareness of bicyclists
- To direct bicyclists to routes that are appropriate for their skill level.
- To increase the overall number of people bicycling, which has been shown to increase safety

Encouragement

- To provide a higher level of comfort and confidence for people choosing to travel by bicycle
- To show how easy (or quick) it is to get to destinations by bicycle.

1.2 NATIONAL GUIDANCE ON BICYCLE WAYFINDING

The following national manuals provide guidance on specific aspects of bicycle wayfinding. A brief description of the guidance available in each manual is included below.

Manual on Uniform Traffic Control Devices (MUTCD) Guidelines

The Manual on Uniform Traffic Control Devices (MUTCD 2009 edition) includes guidance and standards for:

- Sign design for bicycle guide signs, bicycle routes, and auxiliary plaques.
- Sign installation details such as minimum height of signs above ground and horizontal placement from edge of the roadway or trail
- Symbols and appropriate abbreviations for destination names
- Sign examples
- Sign placement, mounting height requirements, sign size, and layout

The MUTCD introduces sign types and provides additional right-of-way placement guidelines for directional signs. Finally, the MUTCD has a section on community wayfinding, which provides information about customizing wayfinding signs for drivers on roads that are not freeways. The Nebraska 2011 Supplement to the MUTCD does not provide any additional guidance on community bicycle wayfinding.

The AASHTO Guide for the Planning, Design and Operation of Bicycle Facilities

The American Association of State Highway and Transportation Officials (AASHTO) Guide builds upon and is consistent with the guidance and standards in the MUTCD. The guide explains the use and benefits of different sign types for bicycle wayfinding. It also provides guidance on where to use signs: on what types of routes and how to place signs at intersections. A new edition to be released in 2018 will include expanded guidance in a full chapter on wayfinding.

Additional Wayfinding Design Guidance

The National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide provides guidance based on current best practices in large cities. It covers types of signs and destinations, pavement markings, typical applications, and design guidance.

1.3 WAYFINDING BEST PRACTICES

Design User

A bicycle route sign system should be designed for casual bicycle riders who may be familiar with Omaha neighborhoods and landmarks but unfamiliar with the best route to use to get there. This may include:

- Those new to bicycling for transportation purposes or unfamiliar with the neighborhood street system
- Those new to the community
- Those unfamiliar with a neighborhood through which they are traveling



- Visitors, tourists, and B-Cycle users

The basic process of wayfinding for all modes of travel involves four steps:

- 1. Orientation** refers to determining one's location relative to nearby landmarks and the destination. To improve orientation, use landmarks, which provide strong orientation cues. Maps can also help in the orientation step.
- 2. Route Decision** refers to choosing a route to get to the destination. To improve route decision-making, minimize the number of navigational choices and provide signs or prompts at decision points. Maps can help improve route decision making.
- 3. Route Monitoring** refers to checking the chosen route to confirm that it is leading to the destination. To improve route monitoring, "breadcrumbs"—visual cues highlighting the path taken—can aid route monitoring, particularly when a wayfinding mistake has been made and backtracking is necessary.
- 4. Destination Recognition** refers to recognizing the destination. To improve destination recognition, give destinations clear and consistent identities.

-- William Lidwell, Kristina Holden and Jill Butler, *Universal Principles of Design* (2003)

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2 OVERALL APPROACH, SCOPE, AND ROUTE PLANNING PROCESS

2.1 HIGH-PRIORITY CORRIDORS FOR BICYCLE WAYFINDING

Signing a bike route with wayfinding is an attractive investment in the bicycle network because it is so economical. Many bike routes require little funding aside from the cost of making, installing, and maintaining signs. Even so, funding for any kind of transportation improvement is a scarce resource, and planners must decide which corridors should get the highest priority. Omaha has several resources to help determine whether a bike route is a high-priority along a corridor:

- **The Bike Omaha Network**, originally planned in 2007 with the City of Omaha, is the highest-priority for wayfinding. Draft wayfinding sign plans for all the Bike Omaha Network routes are being developed in 2017 for Live Well Omaha and the City as part of the same project that is developing this manual.
- **The Heartland Connections Bicycle and Pedestrian Plan**, approved by the Omaha-Council Bluffs Metropolitan Area Planning Agency (MAPA) in 2015, identifies wayfinding recommendations in many corridors throughout the greater Omaha area in Chapter 5—Bicycle Element. Some of the corridors will already be getting wayfinding treatments as part of the effort identified in the paragraph above.
- **The Bike Omaha Network Advisory Group** meets regularly to discuss issues related to bicycle planning and facilities in Omaha. This group has developed its own recommendations and refinements to the corridors in the Bike Omaha Network.



Figure 3: The Bike Omaha Network routes will be the first bike routes to have wayfinding signs.

2.2 ROUTE FEASIBILITY ANALYSIS AND INVENTORY OF EXISTING SIGNS

Prior to determining the final route of the wayfinding plan, it is often necessary to check the route. Omaha has many local conditions that a map—even online maps—won't reveal. These include steep hills, unpaved streets, and tricky crossings of busy roads. In many cases, local bicyclists who are familiar with the area can provide granular-level advice on routing bike routes at the neighborhood level. Google Streetview, Bing StreetSide, and the Strava Global Heatmap are also useful tools. They should be supplemented by a field survey of the streets and roadways along the proposed route, checking the following conditions:

- Observed traffic volumes and speeds
- Potential difficulty with left-turn movements
- Pavement quality
- Steep slopes and opportunities to avoid them
- Routing simplicity, continuity and circuitousness
- Need for signal improvements or modifications

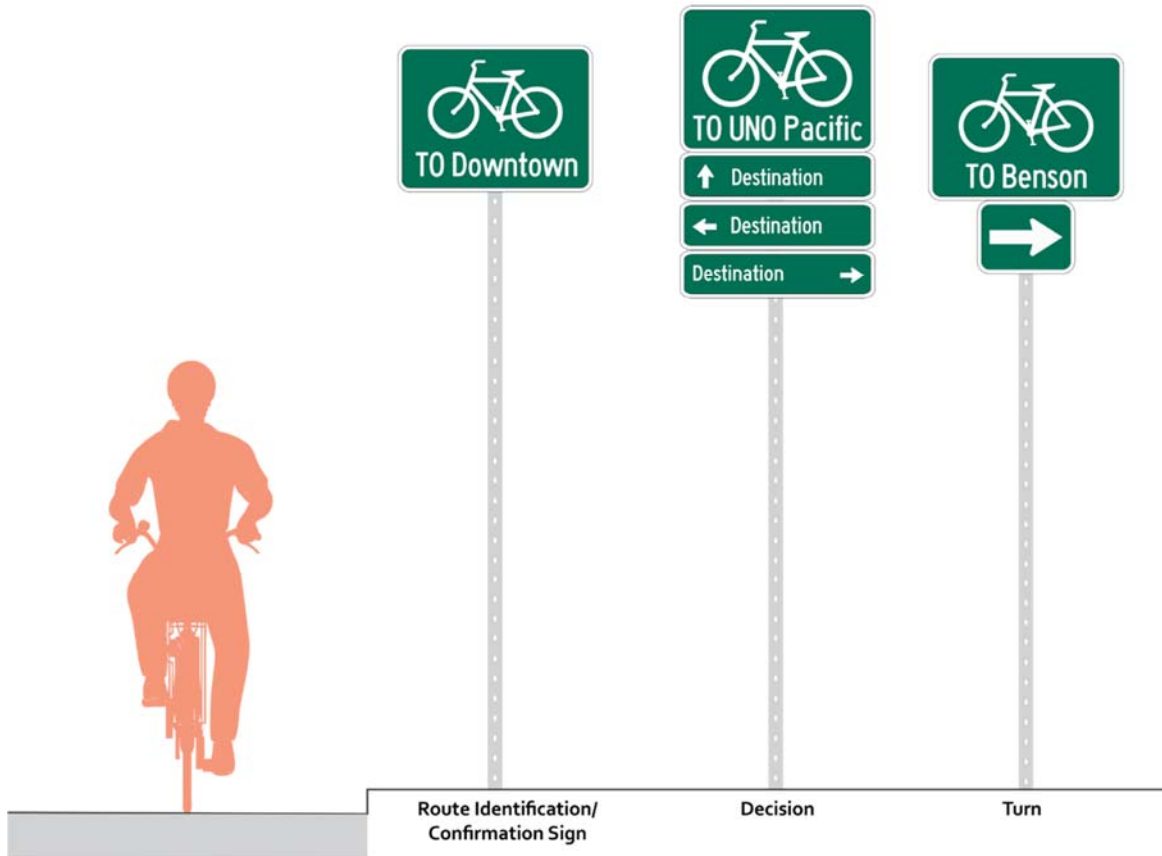
- Aesthetic qualities such as shade, great views, nice homes, etc.
- The presence of existing signs that can aid in wayfinding, such as park name signs, shared use path signs, and Bicycles May Use Full Lane (BMUFL) signs.

The findings of the feasibility analysis can be used to determine the following:

- If route adjustments should be made from initial suggestions and proposals
- If improvements should be made prior to, or after route signing
- If additional gateway signs or kiosks should be recommended at the entryway to parks or significant shared-use paths.
- If existing sign posts can be used for wayfinding signs

3 PROTOCOL FOR SIGN ASSEMBLY TYPES AND PLACEMENT

3.1 BICYCLE WAYFINDING SIGN TYPES OVERVIEW



Bicycle wayfinding systems provide three general kinds of guidance:

- 1) **Route Identification/Confirmation** assemblies signal that the bicyclist is on a bike route and (optionally) identify the route name. They correspond to the “**Route Monitoring**” steps in the wayfinding process (see page 3)
- 2) **Decision assemblies** provide guidance at decision points. They correspond to the **Orientation** and **Route Decision** step in wayfinding by providing advance information about a direction of travel.
- 3) **Turn assemblies** guide the bicyclist at turning points. They correspond to the **Route Decision** and **Route Monitoring** steps in wayfinding by providing visual cues and prompts at decision points.

The design and layout of the different types of sign panels in an assembly are discussed in Chapter 4 of this manual. This section only prescribes where each wayfinding sign type should be physically placed along a bikeway.

3.2 PLACEMENT OF CONFIRMATION/ROUTE IDENTIFICATION ASSEMBLIES C

Confirmation assemblies assure that a cyclist is on a designated bikeway and confirm that bicyclists are on the correct route, such as after a turn. They correspond to the **Route Monitoring** steps in wayfinding by providing information about the destinations that can be reached along a route, usually after a decision/turn has been made.

When used:

- To mark the start of a route.
- At the far side of intersections with other bike routes, to reassure bicyclists of their direction.
- When there are long stretches of a bike route without any turns or other bike route signs, confirmation signs can be placed like “breadcrumbs” to aid in **Route Monitoring**.
- If two or three destinations are close together, select a single location (“Downtown”) that represents all destinations



Figure 4 Example of a Confirmation Assembly

Placement guidelines:

- Place at the beginning of the route
- Place following decision signs or turn signs, on the far side of the intersection, 25-100 feet beyond the intersection.
- Place every 1/4 to 1/2 mile, if no decision or turn has been made, to reassure riders that they are traveling in the right direction.
- In urban neighborhoods with short blocks and greater density of activity, confirmation assemblies for straight segments of routes need not be located after every intersection with a bikeway. They should be located at least 1/4 mile apart.
- In complicated routes with many turns, confirmation assemblies may not be needed, if the bicyclist can see upcoming decision or turn signs.
- In rural areas (at the edges of Omaha especially to the south and west of the city), confirmation assemblies should be used at the edge of developed areas, to alert users to the distance to the next developed area or services.

3.3 PLACEMENT OF DECISION ASSEMBLIES D

Decision sign assemblies are installed in advance of a point where a bicyclist needs to make a decision about their direction. They correspond to the **Orientation** and **Route Decision** step in wayfinding by providing advance information about a direction of travel.

When Used:

- On a bike route, in advance of intersections, to show bicyclists how to get to destinations that are easily reached from the route, or where two or more routes intersect.
- On a bike route, at an intersection, and where other decisions may be required (such as alternative routes to cross a wide, busy intersection)



Figure 5 Example of a Decision Assembly

Placement guidelines:

- On low-traffic streets, decision assemblies should generally be located 25-50 feet in advance of the intersection. In rural areas, higher traffic streets, and on sloped streets in the downhill direction, signs should be about 50-100 feet in advance of the intersection due to bicyclists' higher travel speeds or inability to quickly observe signs because of heavier traffic. On shared use paths, when a minor spur intersects the main path, the three decision assemblies can be mounted to the same post at the intersection, in a spot where the assemblies will be visible from all directions.
- When destinations require a left turn that requires bicyclists to move across traffic lanes, a decision sign should be placed the following distances in advance of the turn:
 - One lane merge: 100-200 feet
 - Two lane merge: 200-300 feet
- When a decision sign is placed more than 100 feet in advance of a turn, a "second chance" decision sign should be placed at the intersection so it can be seen from the waiting area for the left turn.

3.4 PLACEMENT OF TURN ASSEMBLIES T

Turn assemblies show when a bicycle route turns onto another street or turns from a path to a street. They, like decision signs, correspond to the **Route Decision** and **Route Monitoring** steps in wayfinding by providing visual cues and prompts at decision points.

When Used

- On a bike route, in advance of a turn in the route.
- Turn signs are not used at the junction of intersecting bikeways or when a decision sign assembly would be used to indicate destinations off the bikeway.



Figure 6 Example of a Turn Assembly

Placement Guidelines:

- On low-traffic streets, turn signs should generally be located 25-50 feet in advance of the intersection. On sloped streets in the downhill direction, signs should be about 50-100 feet in advance of the intersection due to bicyclists' higher travel speeds.
- When the route requires a left turn that requires bicyclists to move across traffic lanes, a decision sign should be placed the following distances in advance of the turn:
 - One lane merge: 100-200 feet
 - Two lane merge: 200-300 feet
- When a decision sign is placed more than 100 feet in advance of a turn, a "second chance" turn sign should be placed at the intersection so it can be seen from the waiting area for the left turn.
- When a street widens to include a right turn lane in advance of an intersection, requiring bicyclists to decide about what lane they should use to reach their destination, turn signs should be placed near the start of the taper of the right turn lane.

3.5 SUPPLEMENTAL SIGNS

Some locations and situations need supplemental signs. The manual will not address the design or placement of the following supplemental signs in detail, but recommends using them to aid in all steps of the wayfinding process.

Gateway Signs **G**

Gateway signs help in the **Destination Recognition** step by helping mark important access points to shared use paths or parks.

- They should be installed at important access points to shared use paths, parks, and other destinations.
- They should be quite large and should be placed in a highly visible spot where they can be seen by passing motorists and bicyclists.



Figure 7: A Gateway sign at the intersection of the Field Club Trail with Leavenworth Street.

Map and Information Kiosks **K**

Map and Information Kiosks

Map kiosks provide both pedestrians and bicyclists a map of the surrounding area, helping in the **Orientation** step in wayfinding. They can help users reach destinations off the bikeway. Information kiosks can also provide rules and regulations, general safety tips, contact information for emergencies or maintenance, and jurisdictional branding.

The National Park Service’s Wayside Map Standards can be used as a reference for kiosk map design. Because people are used to reading maps that have north at the top, all attempts should be made to place the panel so that it will be read by a person facing north, or within 90 degrees of north. If the kiosk map panel must be placed so that it will be read by a person facing south, the map should be oriented with south at the top.

Map and information kiosks should be installed at the following locations:

- At trailheads or other major gateways along regionally-significant bikeways
- Where regionally-significant bikeways intersect
- At waysides, or at a major park or destination on a path
- When there are important destinations that are nearby, but not directly on, the bikeway.



Figure 8: A Map kiosk in Fitchburg, Wisconsin.

Street Name Signs S

On urban bike routes, consider that there will already be street name signs at all street intersections. Bicyclists can see and refer to these signs for wayfinding. Street names can be an important reference points that help during the **Route Decision** and **Route Monitoring** steps of wayfinding. Therefore, a simple street name sign assembly placed at the intersection of a path and a street (or placed on the side of a bridge so path users can see the street name as they pass under it), can help bicyclists stay aware of their location within the larger street network.



Figure 9: A Street Name sign assembly where a path meets a road

Warning and Regulatory Signs

In addition to the signs described above that help bicyclists with wayfinding, other regulatory signs may be needed along the bikeway to help warn drivers of motor vehicles that they should expect bicyclists or pedestrians to be present. Occasionally, bicycle warning signs should ideally also be installed on paths or bikeways where conditions could cause a bicyclist to lose control of a bicycle. An engineer who is familiar with the MUTCD and Nebraska State Law should be consulted to provide exact placement of regulatory and warning signs.

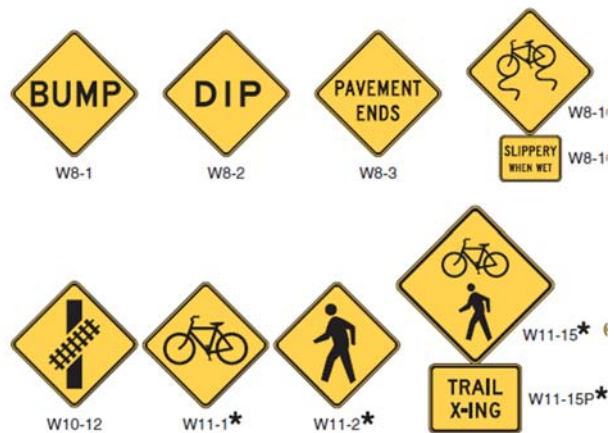


Figure 10: An excerpt of Warning signs for bicyclists from the MUTCD

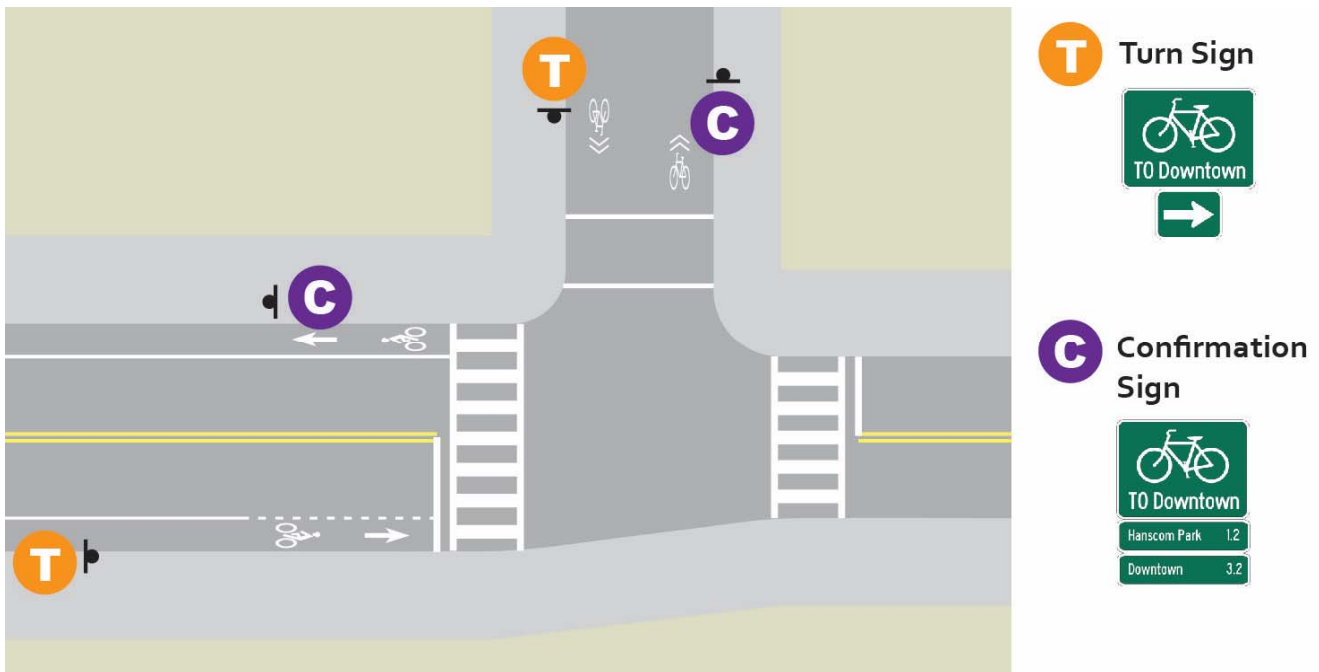
3.6 WAYFINDING SIGN PLACEMENT EXAMPLES

The following examples show how the signs described above might be placed in some typical scenarios. Each direction has a decision or turn sign on the approach to the intersection. Major bikeways will have confirmation signs after the decision points, to assure users that they are on the correct route. Minor bikeways or side streets do not need confirmation signs.

Bike Route Turn from One Street to Another

In the situation shown below, the turn sign on the street with the bike lane is placed 100-200 feet in advance of the turn, to give the bicyclist time to merge into the left lane before turning left onto the side street. The turn sign on the street with the sharrows is much closer to the intersection because it is signaling a right turn that does not require a lane merge.

Confirmation signs should be located within sight of a bicyclist exiting the turn, to reassure that they are traveling in the right direction.

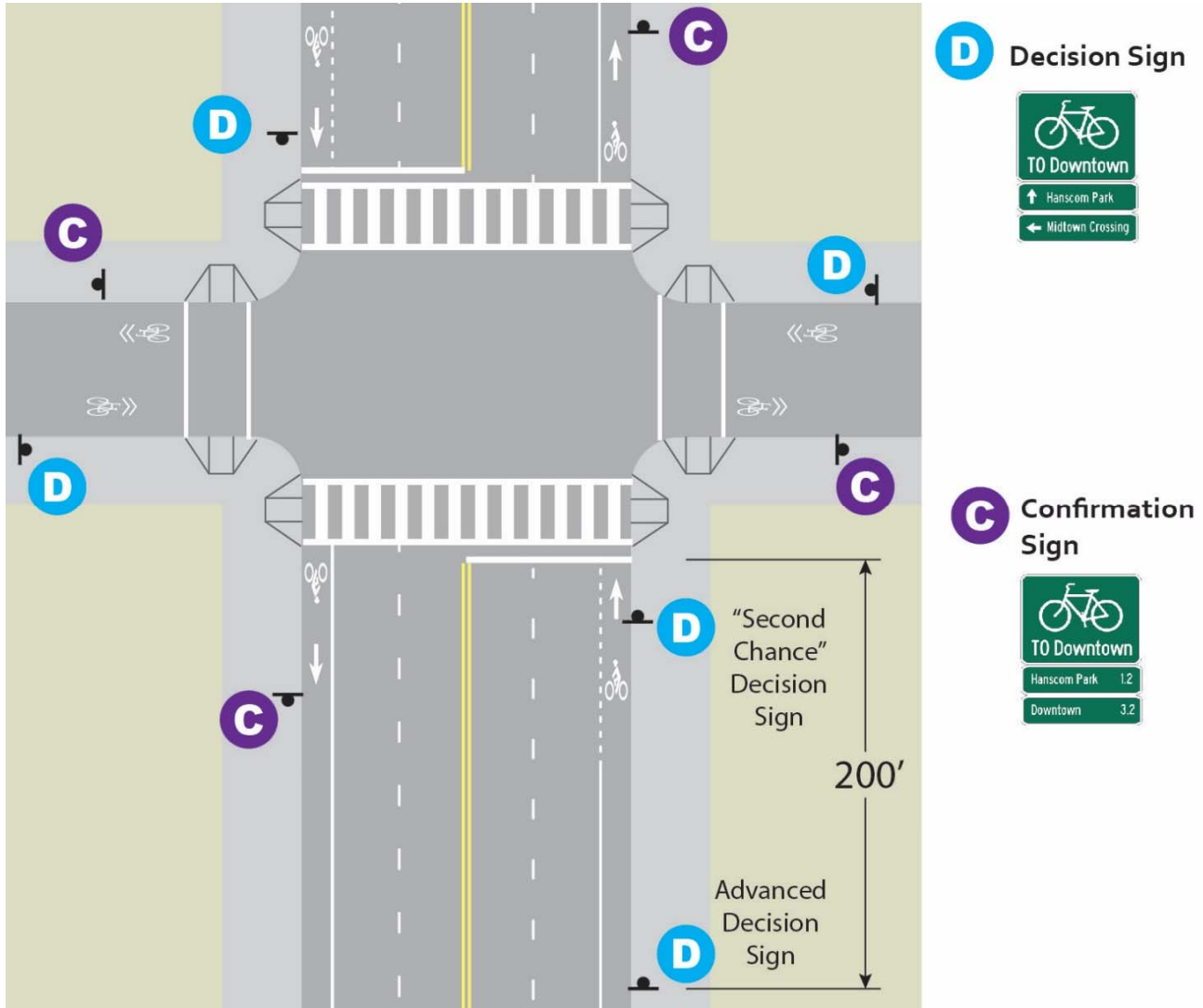


Note: the sign symbols in these scenarios are rotated to show the direction that the sign is facing. The round “post” symbol is shown behind the “panel” symbol. For example, the sign symbol to the left of this paragraph shows a sign that would face a bicyclist approaching from the right (“east”):

Intersection of Two On-Street Bike Routes

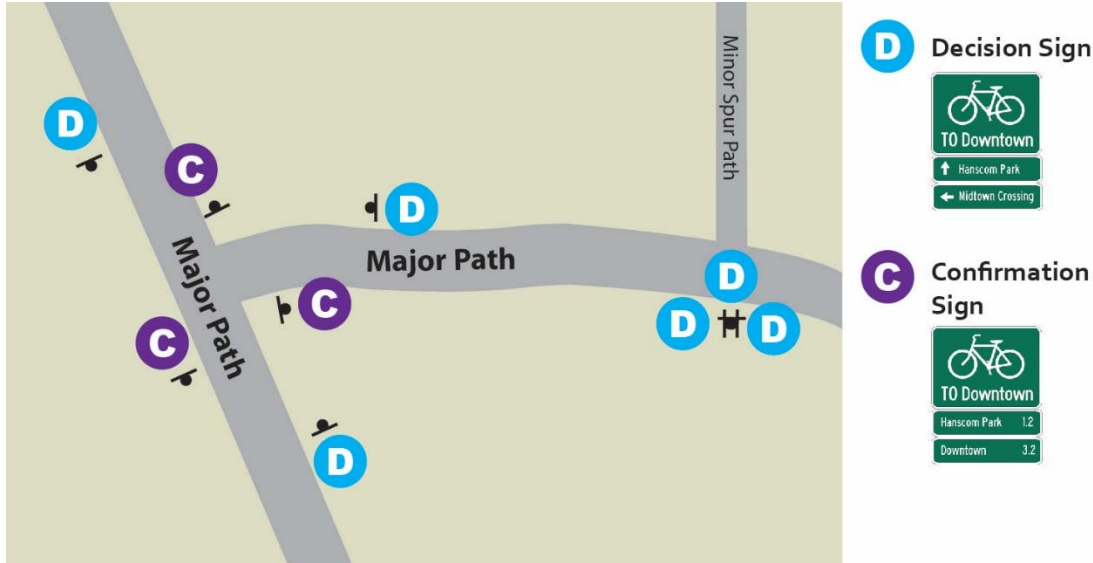
For the intersection of two bike routes, decision signs should be placed on all approaches and confirmation signs should be placed on all exits. In the situation below, a bicyclist turning left from the south approach will need to merge across two lanes of traffic. This will require an “Advance” Decision sign to be placed over 200 feet from the crosswalk at the intersection. In case the bicyclist missed the first decision sign, a “second chance” decision sign is placed close to the intersection.

Confirmation signs should be located within sight of a bicyclist exiting the turn, to reassure that they are traveling in the right direction.



Path Intersections

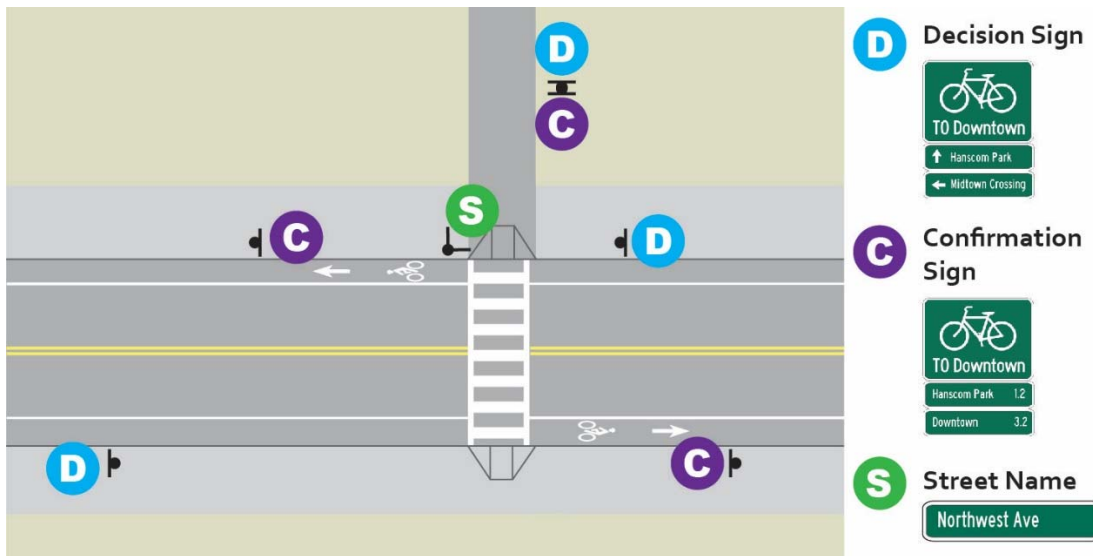
At the intersection of two major paths, place confirmation signs very close to the path junction. Where a minor path spur connects to a major path, all the decision assemblies can be mounted on the same post. Confirmation signs are not necessary at minor path spurs.



Intersection of On-Street Bike Route with Major Path

Where shared-use paths cross streets, a Street Name sign assembly provides a base level of guidance. They are commonly placed above Stop or Yield signs. Using a Street Name assembly on top of a Stop or Yield sign frees up space on the decision sign on the path; it will no longer be necessary to include a fingerboard with the street name, only to the destinations that can be reached from the intersection.

On shared-use paths, it is preferable to mount signs so they would be viewed by path users to the right of the path. However, to save space or costs, confirmation signs and decision signs can sometimes be mounted on the same post.



Intersection of On-Street Bike Route with Major Path (Not At-Grade)

When a path goes underneath a bridge, a Street Name sign mounted on the underside of the bridge helps path users orient themselves to the street network. This can be especially helpful for path users in the event of an emergency.

On shared-use paths, it is preferable to mount wayfinding signs so they would be viewed by path users to the right of the path. However, to save space or costs, confirmation signs and decision signs can sometimes be mounted on the same post.

The example below shows a major path access point with a parking lot. At a major path access points, a Gateway sign informs both bicyclists and drivers of the presence of the path. A Map Kiosk will be helpful for path users who are both entering and exiting the path.



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4 DESTINATION HIERARCHY AND SIGN LEGENDS

Developing a destination hierarchy is an important step in programming the sign types and sign legends along a bike route. This chapter describes the processes that can be used to develop a hierarchy, and some conventions for how to refer to destinations on signs.

4.1 IDENTIFICATION OF POTENTIAL DESTINATIONS

Planners should use local knowledge and review existing maps and GIS data to develop an initial list of destinations served by the existing or planned bike route. When selecting destinations, the following should be considered:

- Consider well-known landmarks, parks, municipalities, business districts, shopping areas, major sports venues, major bikeways, transit locations, and schools (university, high school, middle schools, and elementary schools) along or near the route.
- Individual businesses should usually not be listed as destinations because they can move or go out of business, and agencies do not want to appear to be favoring specific businesses. If there is a need to sign to an important destination that happens to be a single business, it should be referred to generically, such as “Grocery Store”. Another approach is to use symbols for food or services instead of words.
- If planners are unsure of the destinations the bike route serves, they can consult local bicycle advisory groups, bicycle advocacy organizations, or bicycling clubs. One way to determine which landmarks are destinations are the most important is to ask people who are familiar with the area to sketch quick maps of the route.

4.2 ORGANIZING THE DESTINATIONS INTO A HIERARCHY

To create a legible and intuitive system, destinations can be assigned to one of three groups: (Primary, Secondary, and Tertiary) based upon their usefulness as navigational references for bicyclists and their likelihood of being destinations for bicycling trips. Developing a destination hierarchy serves several purposes:

- Establishes which destinations should be selected as “control” destinations that will appear on the Route Identification (ID-D) signs;
- Determines how far away each destination will be included on sign assemblies; and
- Helps planners choose which destinations to include on wayfinding sign assemblies.

To establish a hierarchy, the following factors should be considered:

- How well-known is the destination and how useful is it as a navigational reference? The most well-known destinations and most useful navigational references should be in the Primary destination group.
- How many people are likely to visit the destination annually? Is the destination commonly accessed by bicyclists? Does the route provide good access to the destination? The venues with the most visitors, especially ones who arrive by bicycle, should be in the Primary or Secondary destination group.
- If the destination is on a bikeway or a bike trail, how well-known is it? How many people use it? For example, in Omaha the landmark St. Cecilia’s Cathedral is on the Benson Bike Route. Even if few people ride bicycles to go to the Cathedral, including it on a wayfinding sign will help orient them in relation to the rest of the area near the bike route.
- It may be tempting to use a major road as a wayfinding reference, especially in areas where there are few significant landmarks. However, planners should strive to avoid referring to roads. Including the road on wayfinding assemblies might imply to some users that the road is a designated bike route. Also, roads are linear features that can be accessed at many different points, leading to uncertainty about the point along the road where the bike route will cross it, as well as the exact direction or distance to the road.
- Neighborhood destinations, such as elementary schools, libraries, and local parks, will usually be in the Tertiary destination group.
- To minimize sign clutter and maintenance costs, only the most popular or useful destinations should be chosen.



Figure 11 St Cecilia’s Cathedral may not be a cycling destination, but it is a useful landmark and reference point for navigating the area.

Using the considerations listed above, stakeholders and the Advisory Group identified potential destinations throughout central Omaha. Potential destinations were mapped for the five Bike Omaha Network routes, and organized into a hierarchy of Primary, Secondary, and Tertiary destinations (displayed in Figure 2 on the following page):

- Primary: Downtown Omaha, neighboring cities and villages, regional destinations, university campuses, regional trails and bicycling destinations
- Secondary: Community landmarks, shopping districts, main streets, major city parks
- Tertiary: Elementary and middle schools, local parks

Stakeholders and the Advisory Group also identified some of the most important Primary wayfinding destinations for the whole Omaha region. Those are displayed in Figure 3.

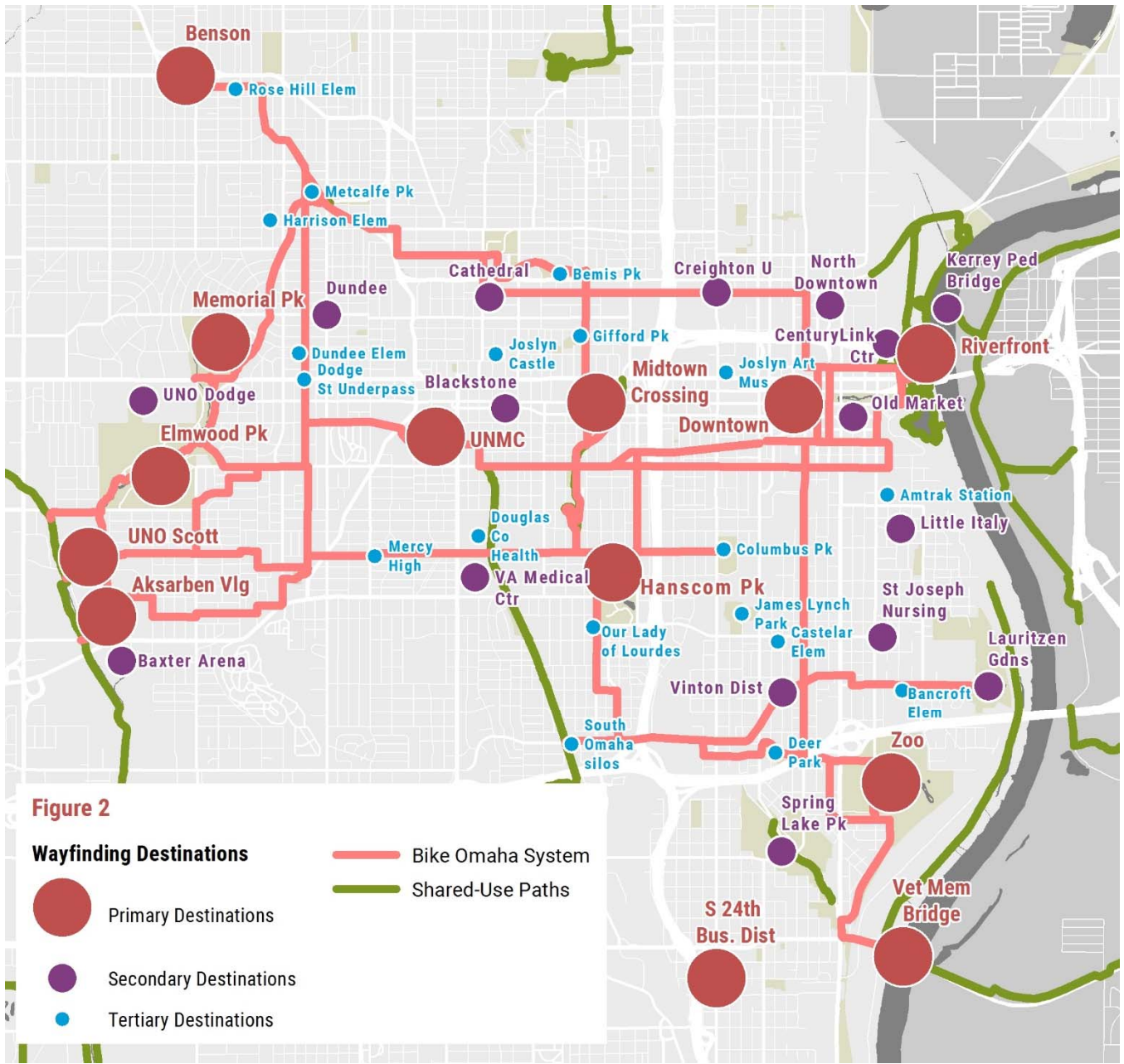


Figure 12 Wayfinding Destination Hierarchy for Central Omaha

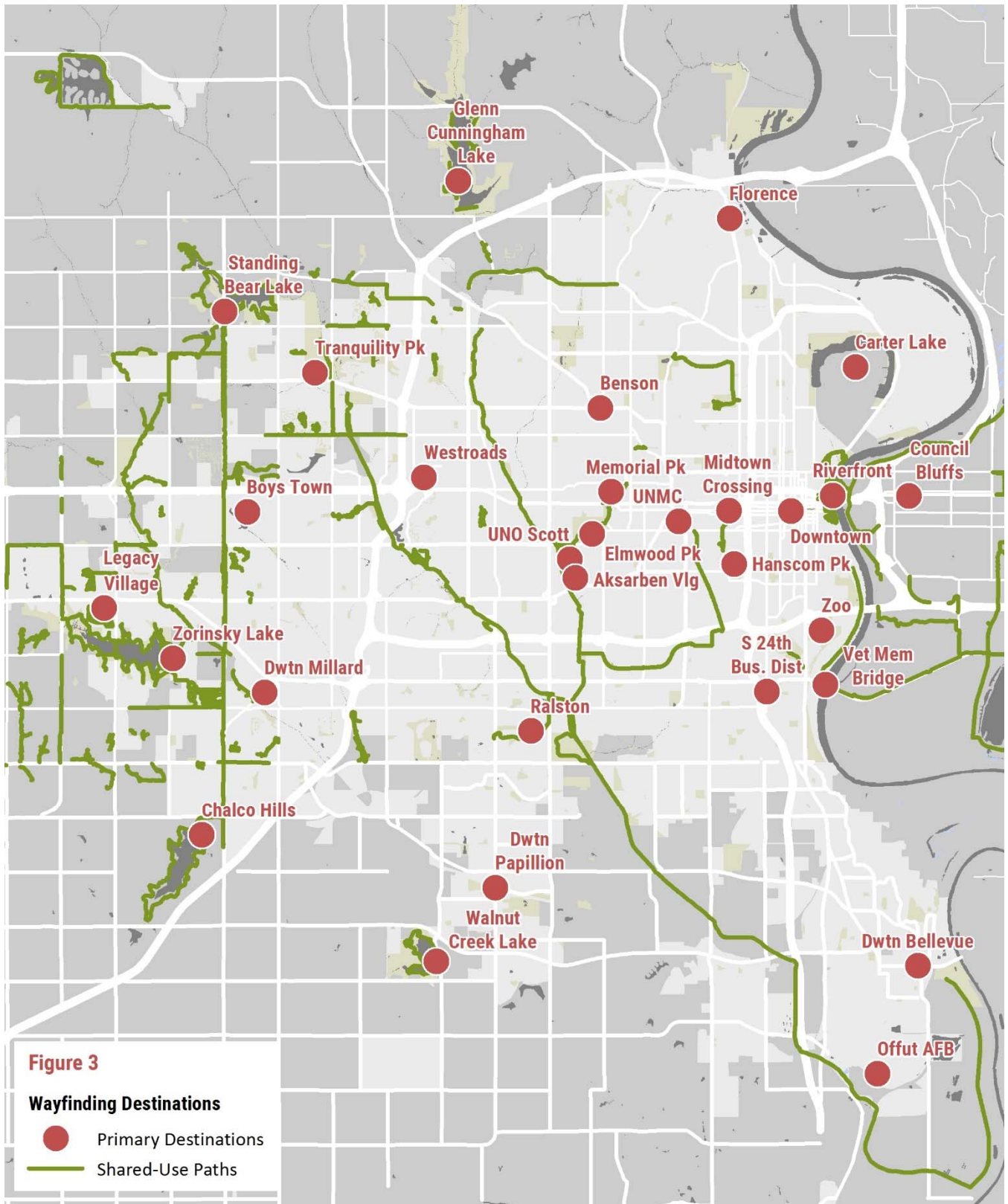


Figure 13 Primary Wayfinding Destinations for the Omaha Region

4.3 STANDARDS FOR MEASURING DISTANCE

Distance

In many cases, planners will have more possible destinations that could be included in a wayfinding assembly than space available for them. The destination hierarchy should guide planners when deciding at what distance destinations should be included on wayfinding signs. Suggested distance guidelines for the destination hierarchy are displayed Table 1. In practice, the distance at which each destination appears on wayfinding signs will require the judgement of the person or committee who is planning the wayfinding along the bikeway.

Table 1: Distance Standards

Context	Primary Destinations	Secondary Destinations	Tertiary Destinations
Dense Urban Areas	Up to 4 miles	Up to 2 miles	Up to 1 mile
Suburban/Rural Areas	No distance limit	Up to 5 miles	Up to 1 mile

Measure-to Points

If the destination is a municipality, a large park, or destination with a large area, planners must establish a measure-to point. Google maps' bicycle directions allow quick and easy distance measurement for planning purposes.

- For large parks, facilities, and university campuses, measure distance to the nearest main entrance relative to the approach direction.
- The distance to Cities and or Villages should be measured to the civic/commercial center—as is the practice in highway wayfinding.
- For shared-use paths and trails, measure distance to the closest intersection to the path.
- The measure-to point for Downtown Omaha is the area bounded by 20th Street, Leavenworth Street, and Cass Street.

4.4 CAPITALIZATION, PUNCTUATION, AND ABBREVIATION

Consistent use of capitalization, punctuation, abbreviations, and place names is essential for providing legible and readily understandable signs.

- Use upper-and-lower case for all signs except I-BR “BIKE ROUTE” signs. The first letter of each word should be capitalized and all others should be lowercase.
- Do not use periods for abbreviations (e.g. “Turner Blvd”) unless necessary to distinguish an abbreviation from another word. For example, the word “Business” may be abbreviated as “Bus.” to distinguish it from the word “bus” (as in a transit vehicle).
- Standard abbreviations for road types should always be used, such as Street (St) or Avenue (Ave). Refer to the table below for common abbreviations. When in doubt, look up official USPS Abbreviations online: <http://www.gis.co.clay.mn.us/usps.htm>

Common Term	Abbrev.	Common Term	Abbrev.	Common Term	Abbrev.
And	&	Feet	Ft	River	Riv
Avenue	Ave	Gardens	Gdns	Road	Rd
Block	Blk	High School	High	South	S
Boulevard	Blvd	Lake	Lk	Southwest	SW
Business	Bus.	Lane	Ln	State	State
Center	Ctr	Memorial	Mem	Station	Stn
Community	Comm	Middle School	Middle	Street	St
County	Co	Mile(s)	Mi	Terrace	Ter
Creek	Crk	Museum	Mus	Trail	Trl
Creighton University	Creighton U	Neighborhood	Nhbd	University of Nebraska Medical Center	UNMC
District	Dist	North	N	University of Nebraska Omaha-Dodge Campus	UNO Dodge
Downtown	Dwtn	Park	Pk	University of Nebraska Omaha-Scott Campus	UNO Scott
Drive	Dr	Path	Path	Veteran, Veterans	Vet
East	E	Pedestrian	Ped	Village	Vlg
Elementary School	Elem	Recreational	Rec	West	W

4.5 NAMING CONVENTIONS FOR WELL-KNOWN DESTINATIONS AND NEIGHBORHOODS

Omaha has many well-known destinations and neighborhoods. Bike routes going to these destinations and neighborhoods should use ID-D panels where possible, instead of the standard “BIKE ROUTE” panel (I-BR). The table below lists the naming conventions for some of the most common destinations as they should appear on both Identification panels (ID-D) and fingerboard panels (FB).

- Identification panel (ID-D) text should be shorter in length, and destinations can be more vaguely defined geographically (e.g., “Benson”).
- Fingerboard panel (FB) text can be longer and more detailed in length because the font size is smaller. The destinations should be more specifically defined, because they will be displayed alongside the distance to the destination (e.g. “Dwtm Benson 1.2”).

Destination or Neighborhood	How it will appear on Identification (ID) panel	How it will appear on Fingerboard (FB) panel
Aksarben Village	TO Aksarben	Aksarben Vlg
Benson Business District	TO Benson	Dwtm Benson
Blackstone Business District	TO Blackstone	Blackstone Bus. Dist
Creighton University	TO Creighton U	Creighton U
Downtown Omaha	TO Downtown	Downtown
Dundee Business District	TO Dundee	Dundee Bus. Dist
Elmwood Park	TO Elmwood Pk	Elmwood Pk
Florence (downtown)	TO Florence	Dwtm Florence
Hanscom Park	TO Hanscom Pk	Hanscom Pk
Henry Doorly Zoo and Aquarium	TO Zoo	Zoo
South 24 th Street Business District	TO S 24 th Bus. Dist	S 24 th Bus. Dist
Midtown Crossing District	TO Midtown Crossing	Midtown Crossing
Ralston (downtown)	TO Ralston	Dwtm Ralston
Riverfront Park	TO Riverfront	Riverfront
University of Nebraska Medical Center	TO UNMC	UNMC
University of Nebraska-Omaha, Dodge Campus	TO UNO Dodge	UNO Dodge
University of Nebraska-Omaha, Scott Campus	TO UNO Scott	UNO Scott
Veteran’s Memorial Bridge	TO Vet Mem Bridge (or, TO Iowa)	Vet Mem Bridge
Vinton Street Historic District	TO Vinton Dist	Vinton Bus. Dist

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5 SIGN PANEL DESIGN AND LAYOUT

5.1 CUSTOMIZATION AND CONFORMANCE WITH MUTCD STANDARDS

The Bike Omaha Network Advisory workgroup desired a clear, easily-understood sign design that could be consistently used on bicycle routes both in and outside of the Omaha city boundaries. The group did discuss options to customize the sign system for local conditions, including signs that might warn bicyclists of steep slopes, or signs that would include a locally-branded “look.” However, the group ultimately decided to adhere as closely as possible to the Manual on Uniform Traffic Control Devices (MUTCD) sign guidance for the sake of consistency and ease of implementation including sign production. The design is slightly modified from the MUTCD specifications to allow for longer destination names, and to add the option of branding “High-Comfort Routes” (see next section). Differences from the MUTCD sign layout specifications are shown in Table 1.

Table 1: Recommended Changes from MUTCD-D11 sign guidance

Difference from MUTCD Sign Layout Specification	Rationale
Reduced horizontal buffer between edge of green and sign content from 1.5" to 0.75".	Greater ability to accommodate longer destination names.
Reduced horizontal distance between elements on fingerboard signs from 2" to 1" (for example, between arrows and destination text).	Greater ability to accommodate longer destination names.
Option of replacing bicycle symbol with a “parent and child bicyclist” symbol.	Ability to brand certain bike routes as “high-comfort” routes appropriate for a very wide range of ages and abilities.
Greater variety of arrows used on fingerboard signs	Permits the use of arrows that best represent the direction of travel.

5.2 BRANDING HIGH-COMFORT ROUTES

At this stage, Omaha does not yet have on-street bike routes that can be classified as “high-comfort”. However, the advisory group wanted to have the capacity to designate such routes if they are developed in the future. The manual proposes to designate high-comfort routes by replacing the bicycle symbol on both the Identification and fingerboard panels, where appropriate, with a symbol that conveys the “high-comfort” concept. Using a parent and child bicycling image humanizes the symbol and conveys the concept of high comfort.

5.3 SIGN TYPOLOGY

The wayfinding sign types shown here are for on-street bike routes only. The primary signs and elements of Omaha’s bicycle wayfinding system include the following:

- **Route Identification/Confirmation Signs.** These sign assemblies assure that a bicyclist is on a designated bikeway and confirm they are on the correct route, such as after a turn. Confirmation signs can include supplementary fingerboards showing destinations and distance.
- **Turn Signs** show when a bicycle route turns onto another street or turns from a path to a street.
- **Decision Signs.** These sign assemblies are installed in advance of a point where a bicyclist needs to make a decision about their direction. They show how to get to destinations that are easily reached from the route. To save space, decision signs should **only show direction, not distance**.
- **Bikeway Street Signs.** These signs would replace existing street name signs at intersections, as a way of alerting both drivers and bicyclists that the street is a bike route.

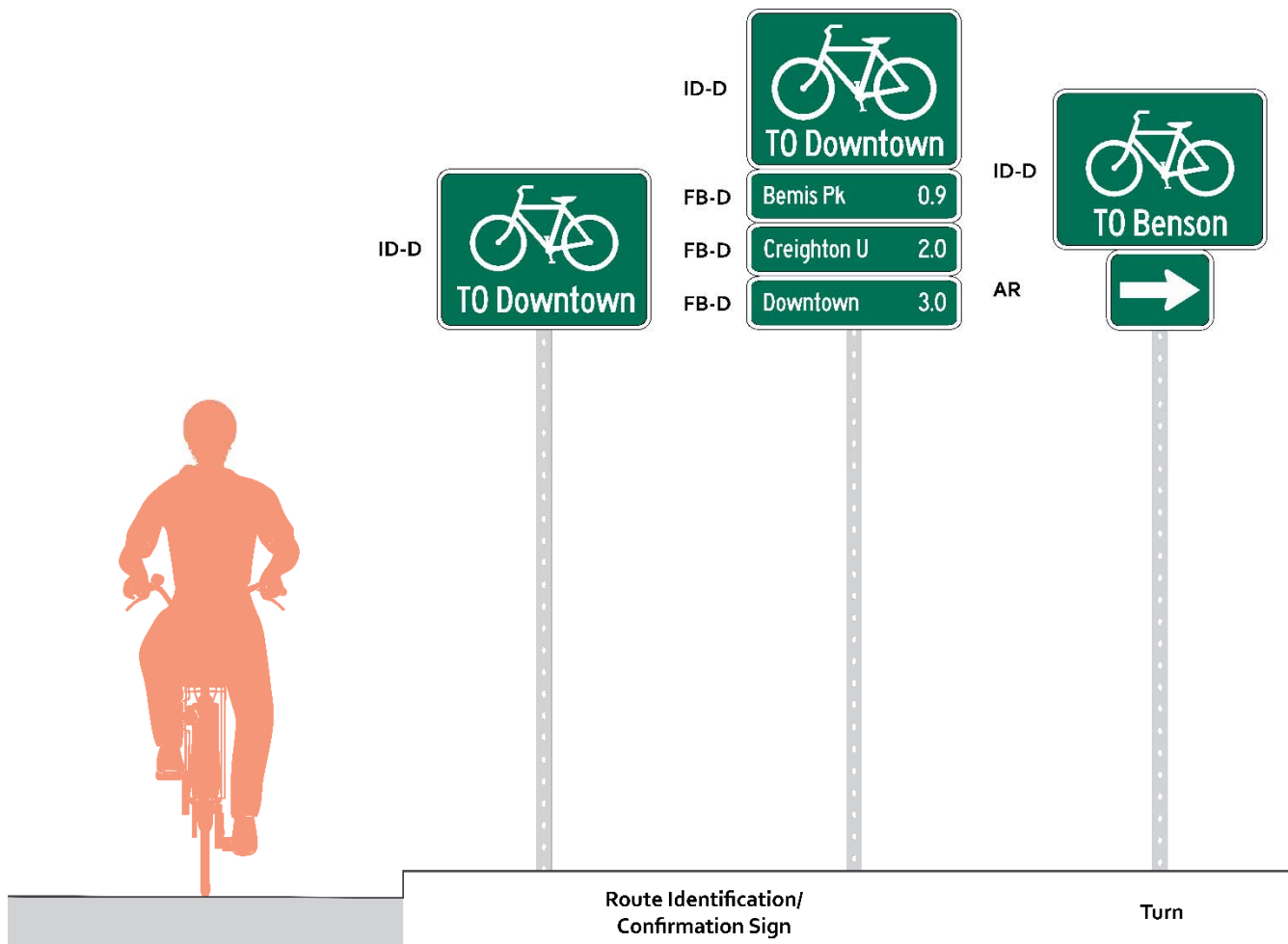


Figure 14 Route Identification/Confirmation Signs and Turn Signs

The following sections describe the specific panel design and layout for each of the panels that make up the sign assemblies shown on these two pages. Abbreviated codes have been assigned to each of the panels. These codes can be referred to when developing signing plans for bike routes. The following pages show each panel and code in more detail, but there are three basic sign panel types and codes.

- Route identification panels (**ID**)
- Bicycle guide fingerboard panels (**FB**)
- Directional arrows (**AR**)

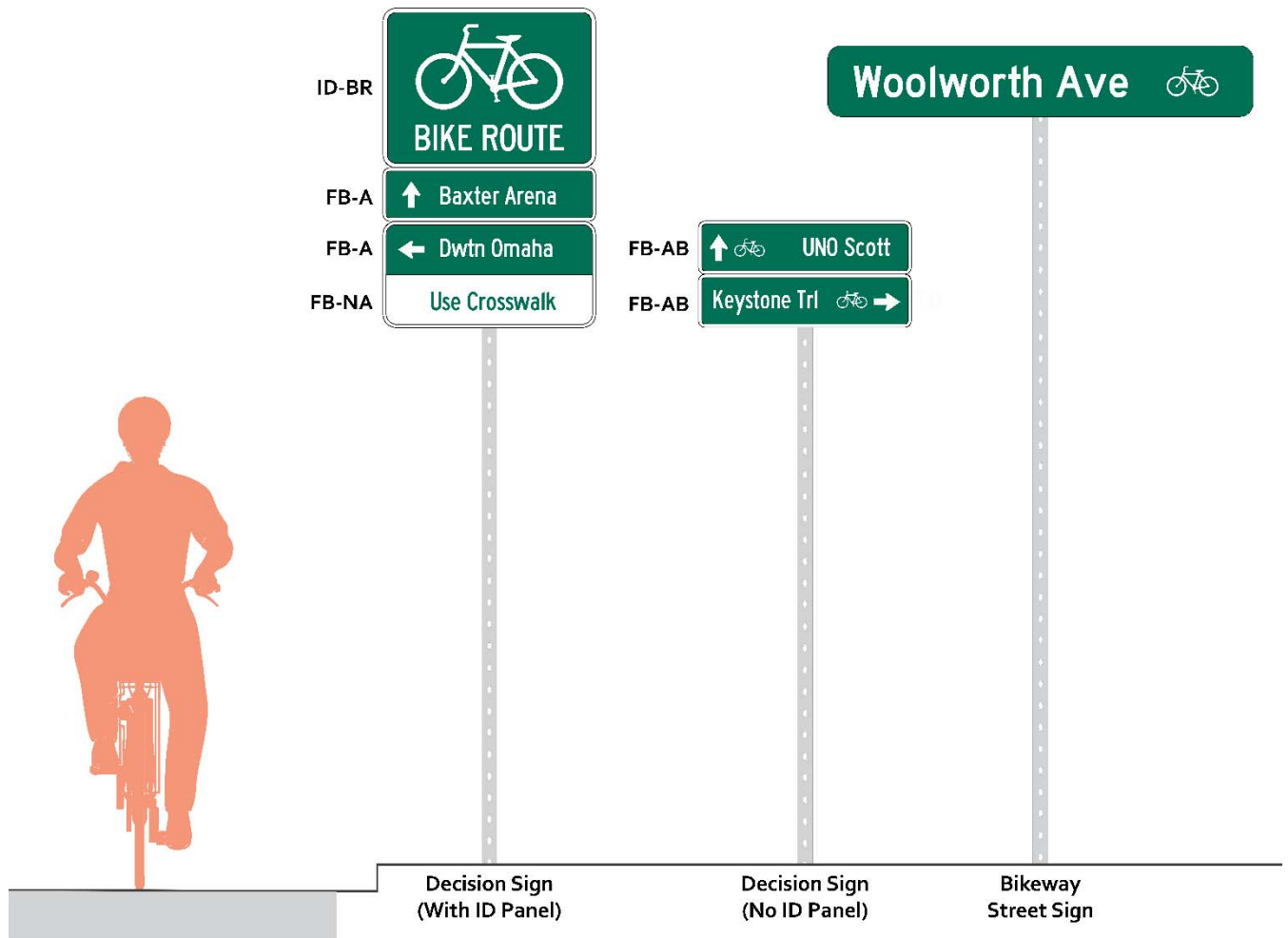
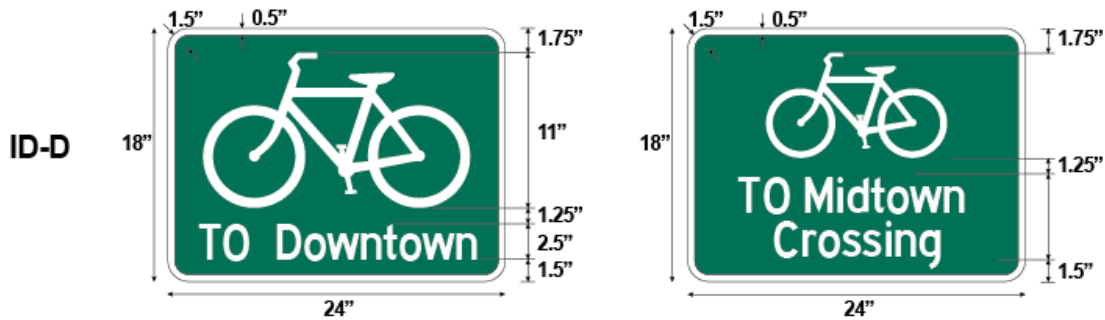


Figure 15 Decision Signs and Bikeway Street Sign

5.4 ROUTE IDENTIFICATION/CONFIRMATION PANEL LAYOUT



ID-BR

**Unnamed On-Street
Bike Route**



ID-N

**Named On-Street
Bike Route**



HC-N

**High Comfort
Named On-Street
Bike Route**

Sign Function and Application

Route Identification/Confirmation:

- **ID-D:** Names a specific “control” destination or district. The control destination should remain the same on all successive confirmation signs until that destination is reached. Most Route Identification signs in Omaha should use this layout.
- **ID-BR:** Generic on-street routes
- **ID-N:** Named on-street routes
- **HC-N:** Named High Comfort routes

Size and Features

MUTCD standard:

- 18 inches tall x 24 inches wide
- Standard color and bicycle symbol

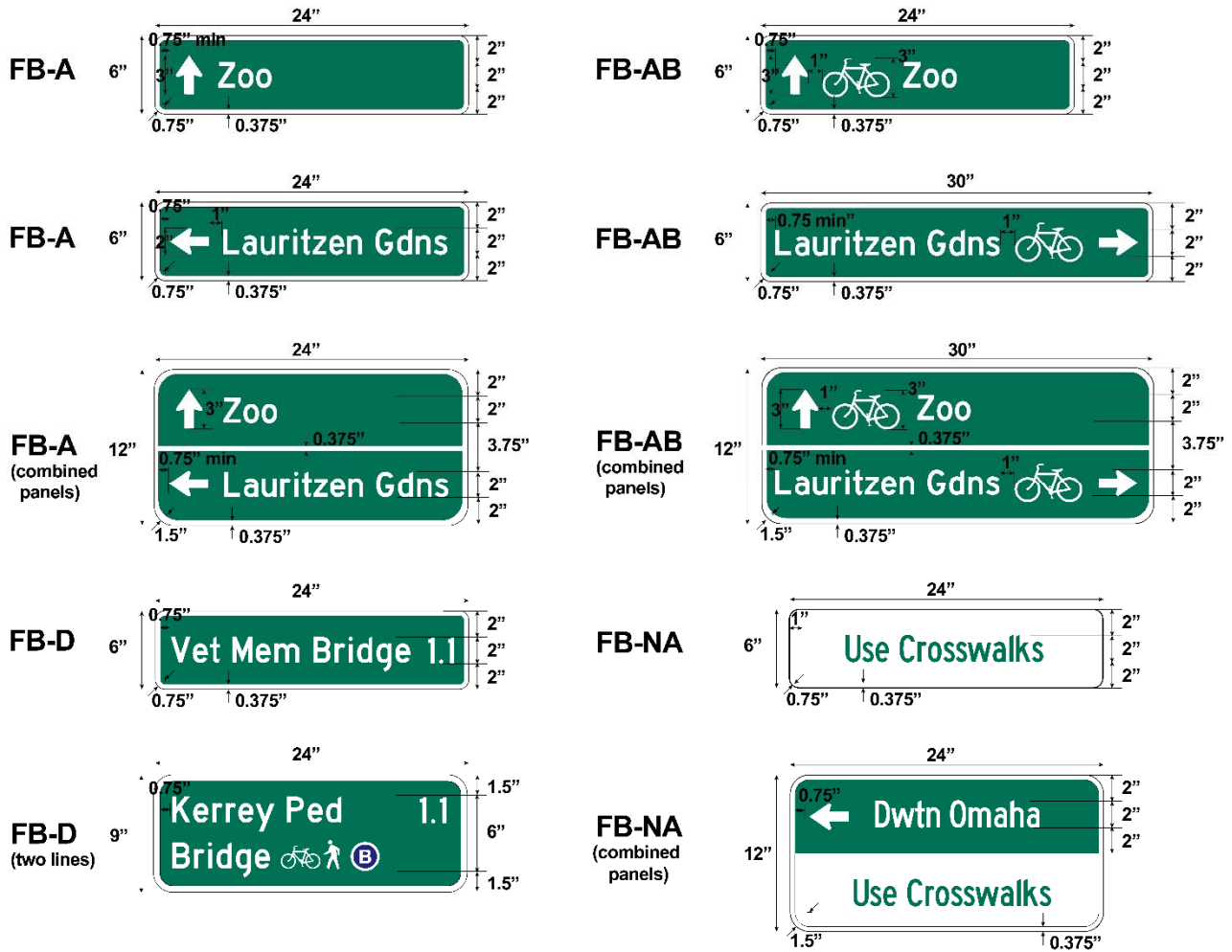
Font

Highway Gothic, minimum 2-inch height for capital letters

Best Practices

- Destination names use title case
- The word “TO” is all uppercase
- For long route names, size of font may be reduced to 2-inch height, kerning can be reduced, or a second line can be added

5.5 FINGERBOARD PANEL LAYOUT



Sign Function and Application

- Displays the names of destinations or named bikeways that can be reached from the current bikeway, along with either direction (arrows) or distance.
- **FB** panels with bike symbols (**FB-AB**) can be used without ID signs
- **FB-NA** panels with white backgrounds and green text can be used to provide navigational assistance in complex or confusing situations.

Size and Features

- Standard size, 6 inches tall x 24 inches wide
- Width may be increased to accommodate bicycle symbols or longer destination names. Standard widths are 24, 30, and 36 inches
- Height may also be increased to accommodate long destination names. A two-line destination name can be accommodated on a 9-inch tall panel as shown in the **FB-D** example above.
- **FB-NA** signs can be combined with **FB-A** or **FB-D** signs onto a single panel.

Font

- Highway Gothic, minimum 2-inch capital letter height, title case
- For long route names, size of font may be reduced to fit name on sign, or kerning can be reduced

Fingerboard Sign Assembly Best Practices

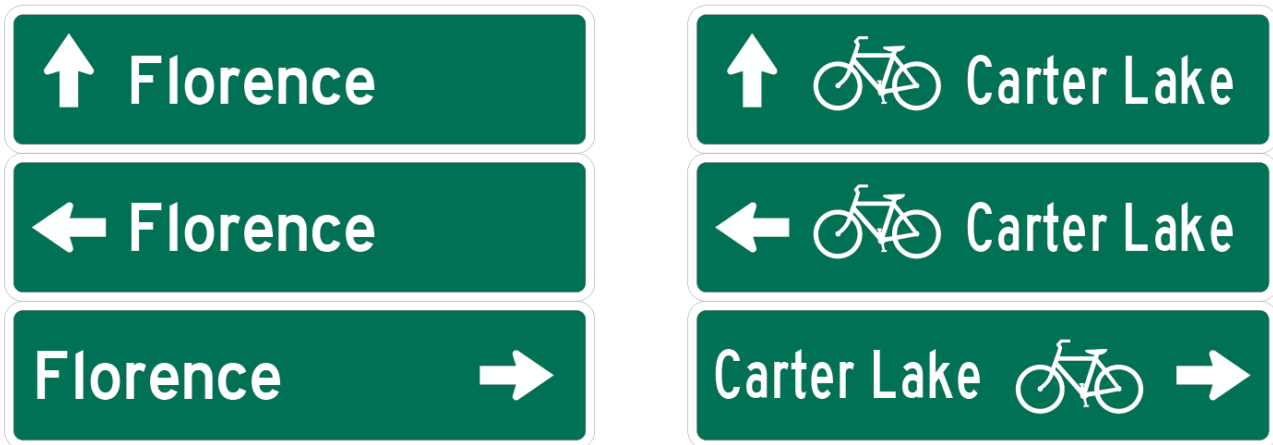


Figure 16 Fingerboard signs indicating arrow order and placement, with and without bicycle symbol. When the Identification Panel is not included on a sign assembly, the bicycle symbol helps drivers and bicyclists understand that the signs are for bicycle wayfinding

5.5.1.1 Spacing

- The minimum horizontal space between the edge of the green and the beginning of the sign content is 0.75 inches (this is reduced from the MUTCD standard of 1.5 inches)
- Standard horizontal spacing between the main elements of a fingerboard (arrows, text, symbols, and distance) is one inch; the recommended minimum spacing is 0.75 inch
- For long names that do not fit on one line, try these steps before adding a second line:
 - For destinations, slightly longer than one line, use kerning to compress the font horizontally to no less than 90% of standard size
 - Use intuitive abbreviations (see list of standard abbreviations in section 4.4)

5.5.1.2 Order of Destinations

- Signs should be grouped and oriented to show all through destinations (up arrow) first, then left turns, then right turns
- Destinations should then be ordered, from top to bottom, from nearest to farthest order (e.g., 0.3 mi, 0.5 mi, 1 mi) so that all through destinations are listed first, nearest to farthest, and so on with left turns and then right turns
- Fingerboards can be manufactured and mounted separately for maximum flexibility or they may be combined and mounted as a single sign panel

5.5.1.3 Symbols

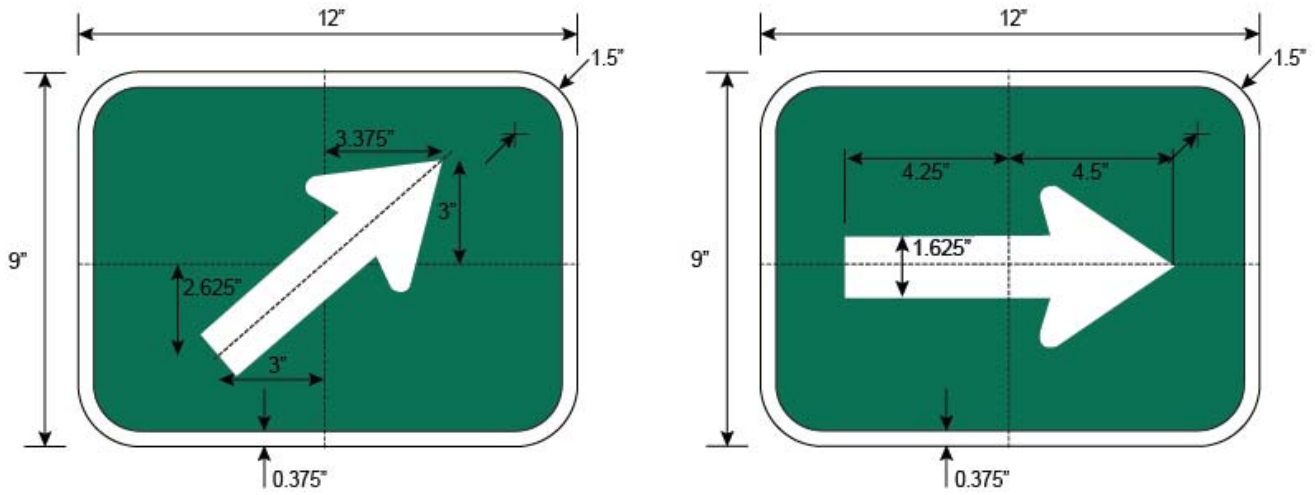
- Through and left arrows always appear on the left side of the sign; right arrows on the right side of sign
- Symbols for bicycle/pedestrian modes should always be placed between the legend text and the arrows or mileage.
- Symbols for services/amenities should be placed immediately to the right of the legend text

- The B-cycle “B” symbol can be used to indicate the presence of a bike share station at a destination, as shown in the **FB-D** example above. The outer circle and the B should be white, while the inside of the circle can be a dark blue as specified in the MUTCD.

5.5.1.4 Distance

- Distances to destinations should be measured from centers of intersections, destination entrance or center of neighborhood; consistency is important
- Omaha has chosen to only include distance, not travel time, on fingerboards. Including travel time in addition to distance results in fonts that are less than 2 inches on the fingerboards. It is difficult for a bicyclist traveling at 10-12 mph to read and understand signs with less than 2-inch capital letter height.
- When distances are less than one mile, a zero is placed before the decimal, e.g., 0.5. When the distance is a number with a zero in the tenth place, e.g. 3.0, a zero is not used, e.g., 3.
- Distances under 5 miles should be rounded to the nearest tenth of a mile; 5-10 miles, to the nearest half-mile; and over 10 miles, to the nearest mile

5.6 ARROW PLAQUES



Sign Function and Application

- To supplement the route identification signs when there is a turn in the route

Size and Features

- Standard size, 9 inches tall x 12 inches wide
- Any of the standard MUTCD directional arrow plaques may be used

5.7 BIKEWAY STREET SIGN



Sign Function and Application

Size and Features

Font

- **To indicate a street is a bike route**
- Standard size, 8 inches tall; width varies depending on the length of the street name
- Highway Gothic font with at least 4-inch capital letter height and lower-case letters at least 3 inches in height
- Supplementary lettering to indicate the type of street (such as St, Ave, or Rd, may be in smaller lettering)

6 POSTS AND MOUNTING

6.1 GENERAL SIGN PLACEMENT PRACTICES

- Typically, bicycle guide signs are placed on the right side of the street. On multi-use trails, they may be placed on the left side of the trail due to space or other constraints.
- Ensure that the arrows on an assembly do not point to a minor side street, alley, or driveway that could be mistaken for the intended turn.
- Where bicyclists are guided to or are likely to use a crosswalk as part of the route, locate guide signs near pedestrian signal heads.
- Where some bicyclists may choose to use a sidewalk and others may choose to use the street, signs should be located to serve both locations wherever possible.
- Care should be taken to avoid placing signs in tree canopies or where they will be blocked from view by vegetation, other signs, parked vehicles (especially large vehicles and trucks), and buses at bus stops.
- Every attempt should be made to use existing lamp posts or parking restriction sign posts when placing an assembly, both to reduce sign clutter and save costs. Consider if there are already signs for motorists that bicyclists will likely see, or if bicyclists will be able to see their destination, making an additional sign unnecessary.
 - Bike signs must not be added onto existing poles with regulatory signs (i.e. stop, yield, etc.)
 - Wayfinding assemblies may be placed above parking restriction signs
 - Wayfinding assemblies may be placed below Bike Lane signs.

6.2 POST STYLE AND HEIGHT

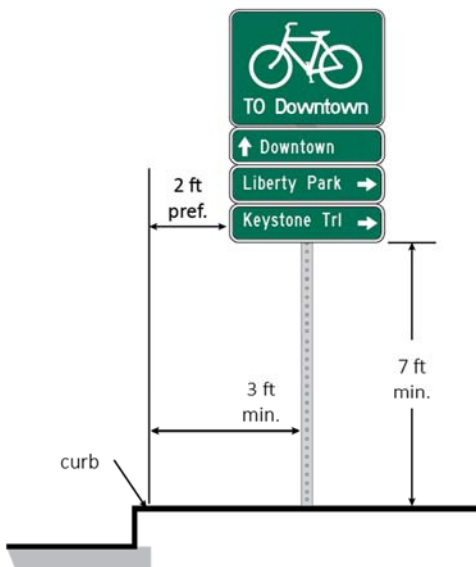
Signs and sign posts shall be installed in accordance with the City of Omaha's standards. The following post and mounting system is compatible with the sign placement in this manual:

- 2-inch square perforated galvanized metal pole or 2 3/8-inch round galvanized post.
- For on-street bikeways next to sidewalks: poles of 12 feet in height are usually of adequate length when installed to accommodate an Identification (**ID**) panel with 2 supplementary fingerboard (**FB**) panels, and still maintain sign height standards.
- Longer poles are needed if additional signs will share the same pole and the pole will be sunk deeper in the ground.

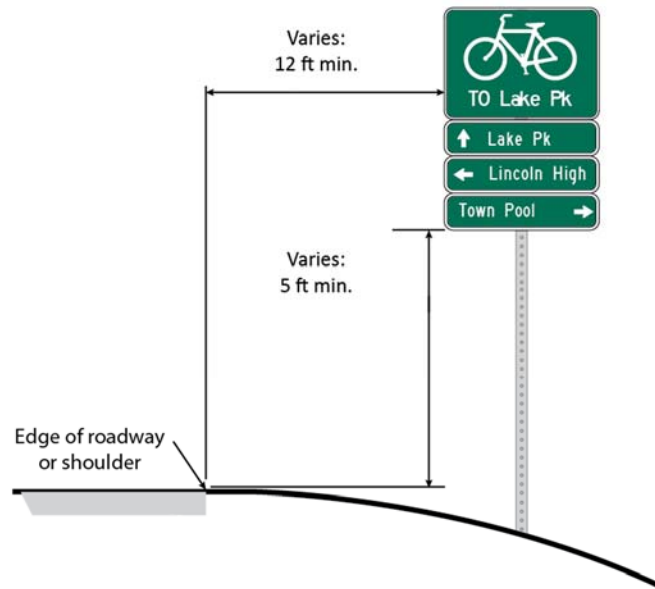
6.3 CLEARANCE GUIDELINES

The sign mounting height and clearance guidelines shown below are drawn from the Manual on Uniform Traffic Devices (Part 2, Section 2A.18, Mounting Height)

Sign post installation on urban streets



Sign post installation on rural roadways



Clearance for Urban Streets

Vertical Clearance

- Minimum of 7 feet from the ground to the bottom edge of the sign

Lateral Clearance

- Minimum of 2 feet from face of the curb to the side edge of the sign (post should be installed at least 3 feet from the face of the curb)
- In dense commercial areas where existing posts are close to the curb: 1 foot from face of curb to edge of sign (post should be installed at least 2 feet from face of curb)
- Signs should not intrude into the pedestrian travelway on the sidewalk

Clearance for Rural Cross-Sections

Vertical Clearance

- Minimum of 5 feet from the pavement to the bottom edge of the sign

Lateral Clearance

- Minimum of 12 feet from the edge of the travel lane to the edge of the sign