

Suggested Typical Signage and Pavement Marking

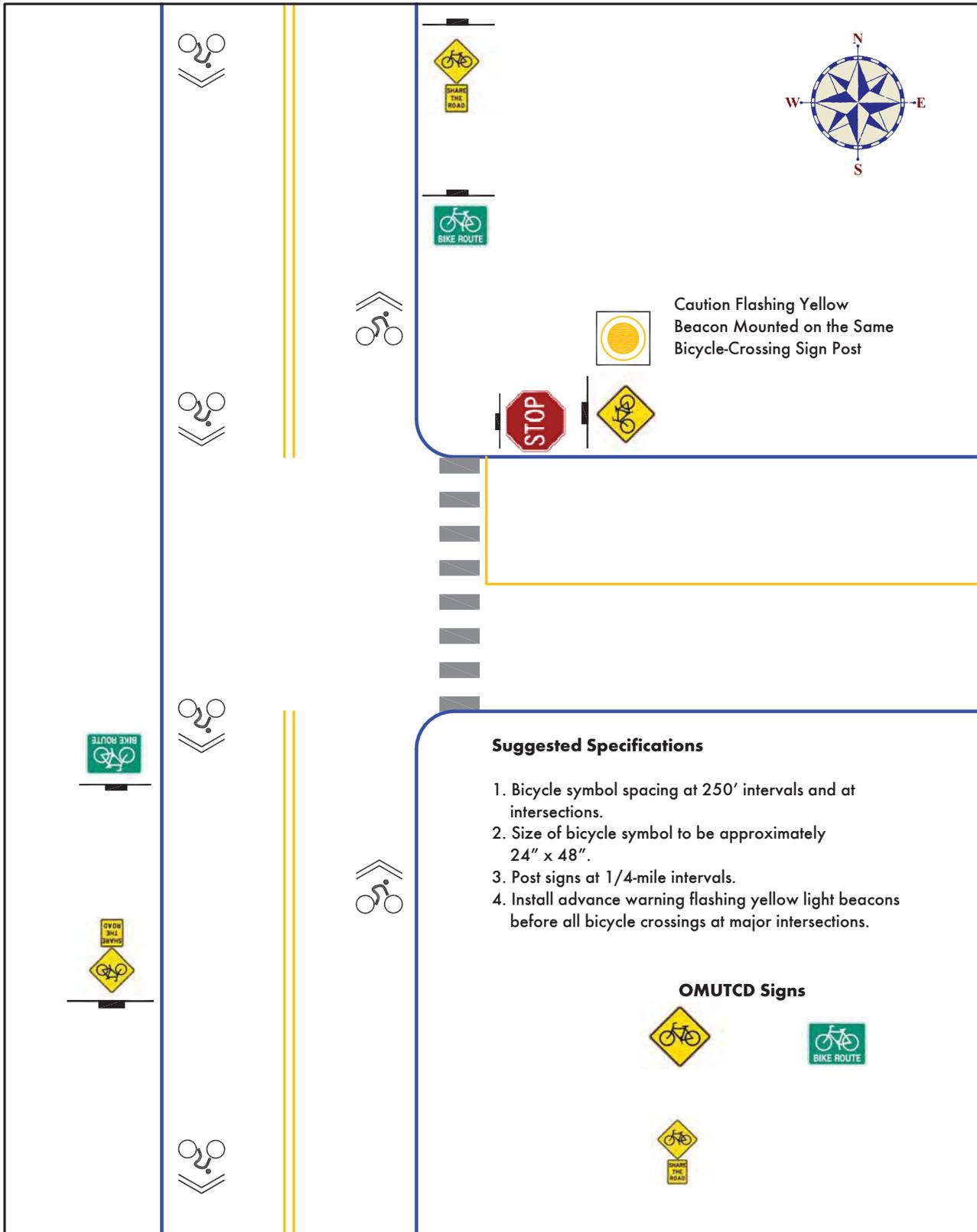
Bicyclists should be able to identify easily the designated bicycle routes. Clearly marked bicycle routes are important for the safety of cyclists as road users are more likely to pay closer attention to the presence of bicyclists when they recognize that the particular road they are using is also shared by bicyclist. Furthermore, bicycle routes should have signs with destination information to enable bicyclists unfamiliar with the community to find their way to their destinations. When bicyclists know that the bicycle routes in their communities are fully connected and integrated with other modes of transportation, they will likely feel more confident that these routes will not lead them astray. They will know that these routes can bring them back to the same point from which they started because the routes are continuous and form a complete circuit.

The following suggested measures will help identify and mark the designated bicycle routes:

- Space posted signs at approximately ¼-mile intervals.
- Stencil or imprint, at 250-ft intervals on the pavement, the “Shared-Lane” marking symbol, also commonly known as “sharrow,” to mark or identify the designated bicycle routes.
- Install destination signs (i.e., the public library, schools by name, community centers, public parks, City Hall, golf course, etc.).
- Use high reflectivity, durable, white paint on the pavement, as shown on the schematic diagrams.
- Use warning yellow flashing lights in both directions at bicycle crossings where traffic does not stop to increase the visibility of crossing locations and to alert drivers to the likelihood of the presence of bicyclists.

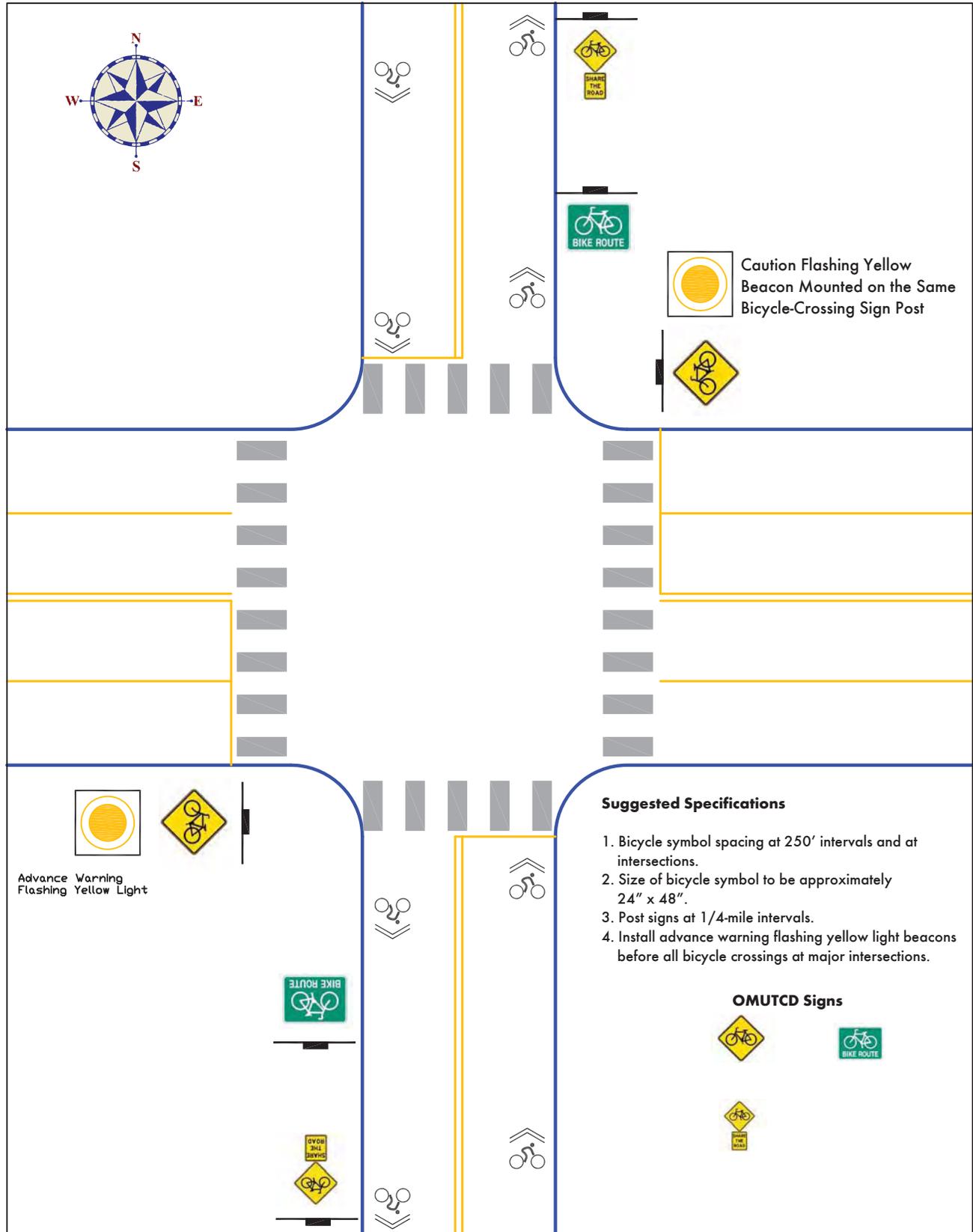
The following two templates show suggested typical signage and pavement markings on and at intersections along the bicycle route network.

Suggested Typical Signage and Pavement Marking



Prepared by NOACA, June 2008

Suggested Typical Signage and Pavement Marking



Suggested Treatment at Key Locations

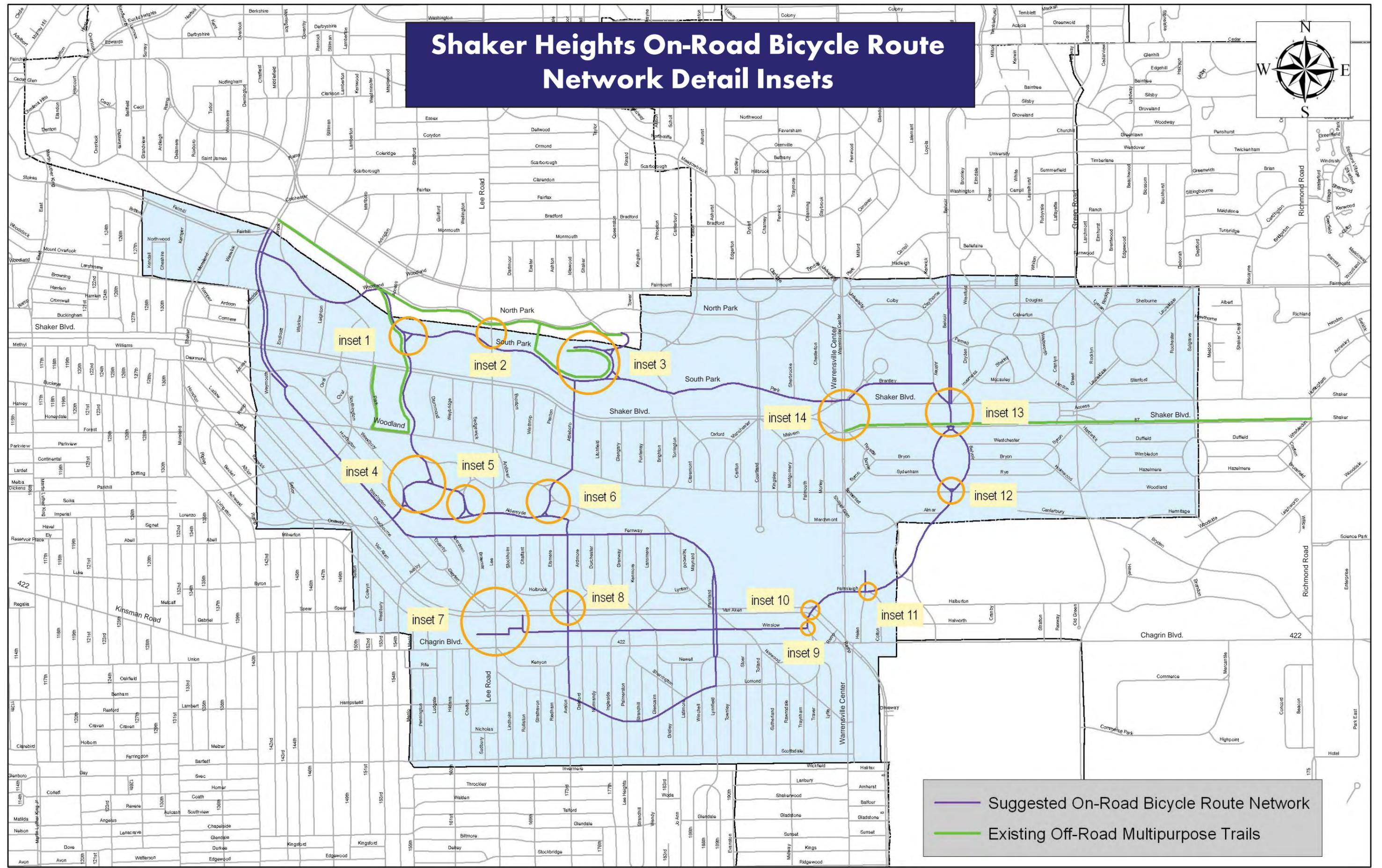
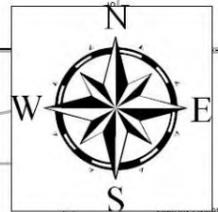
Pavement markings and bicycle route signage at many key locations are shown on the following schematic diagrams to illustrate how to define and highlight these locations for better visibility. The signs identify the bicycle routes and help bicyclists recognize and follow the bicycle routes as they travel. The pavement-marking scheme increases safety by increasing awareness among cyclists and drivers sharing the road. The pavement marking and signage schemes help to point out the preferred locations for crossing and to guide cyclists to the direction of the flow of bicycle traffic. The signs and caution/warning devices highlight the existence of bicycle routes

and urge motorists to be cognizant that bicycles and vehicles coexist and share the same roadway facilities.

The “Detail Insets” map shows key locations for which suggested detail treatment at each location is illustrated in a separate drawing inset. All other locations for which insets were not provided are deemed ordinary or typical and should be treated according to the template showing suggested typical pavement marking and signage. All traffic control devices shown on the maps or sketches are those that presently exist.



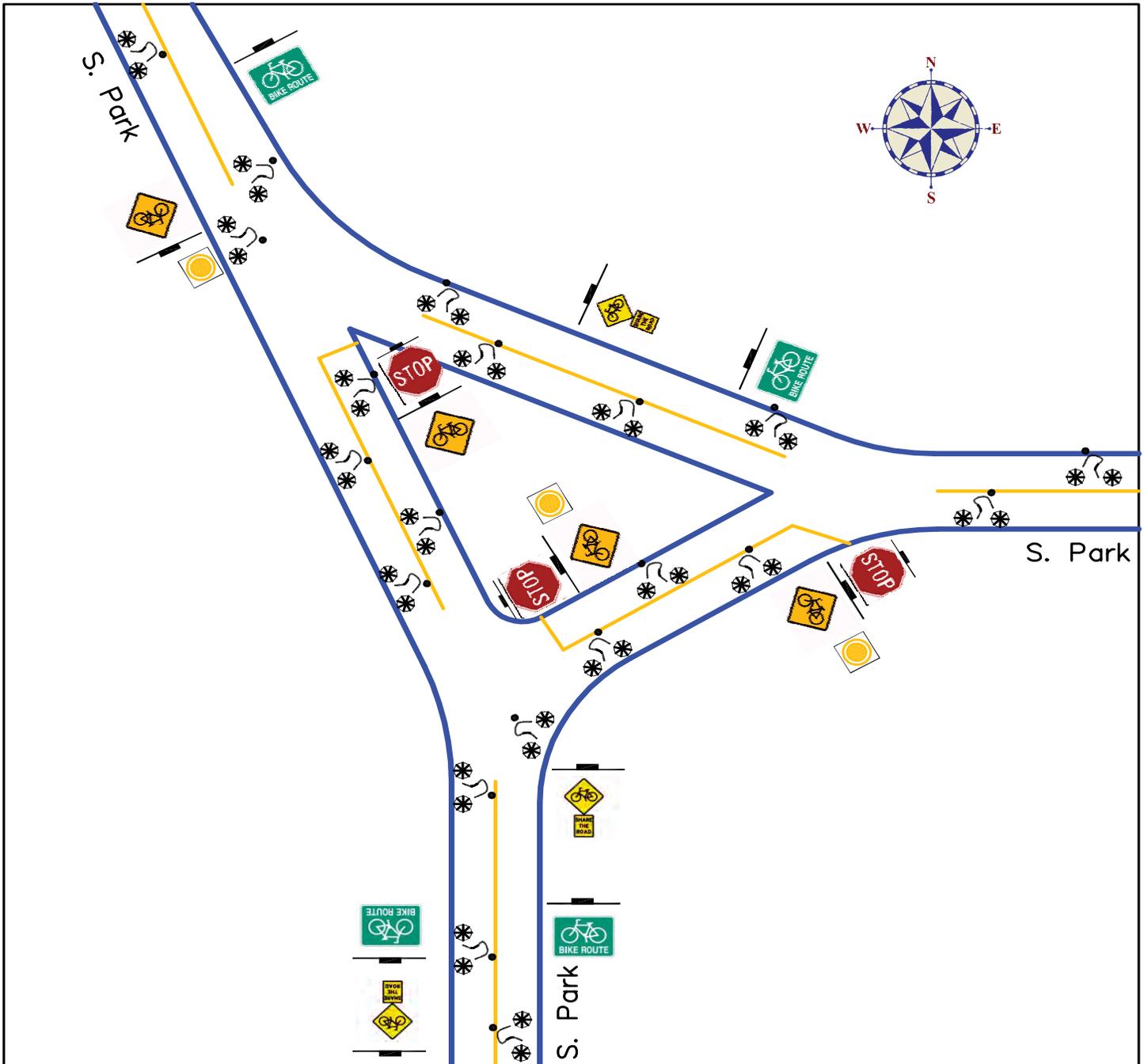
Shaker Heights On-Road Bicycle Route Network Detail Insets



— Suggested On-Road Bicycle Route Network
— Existing Off-Road Multipurpose Trails

Inset 1a

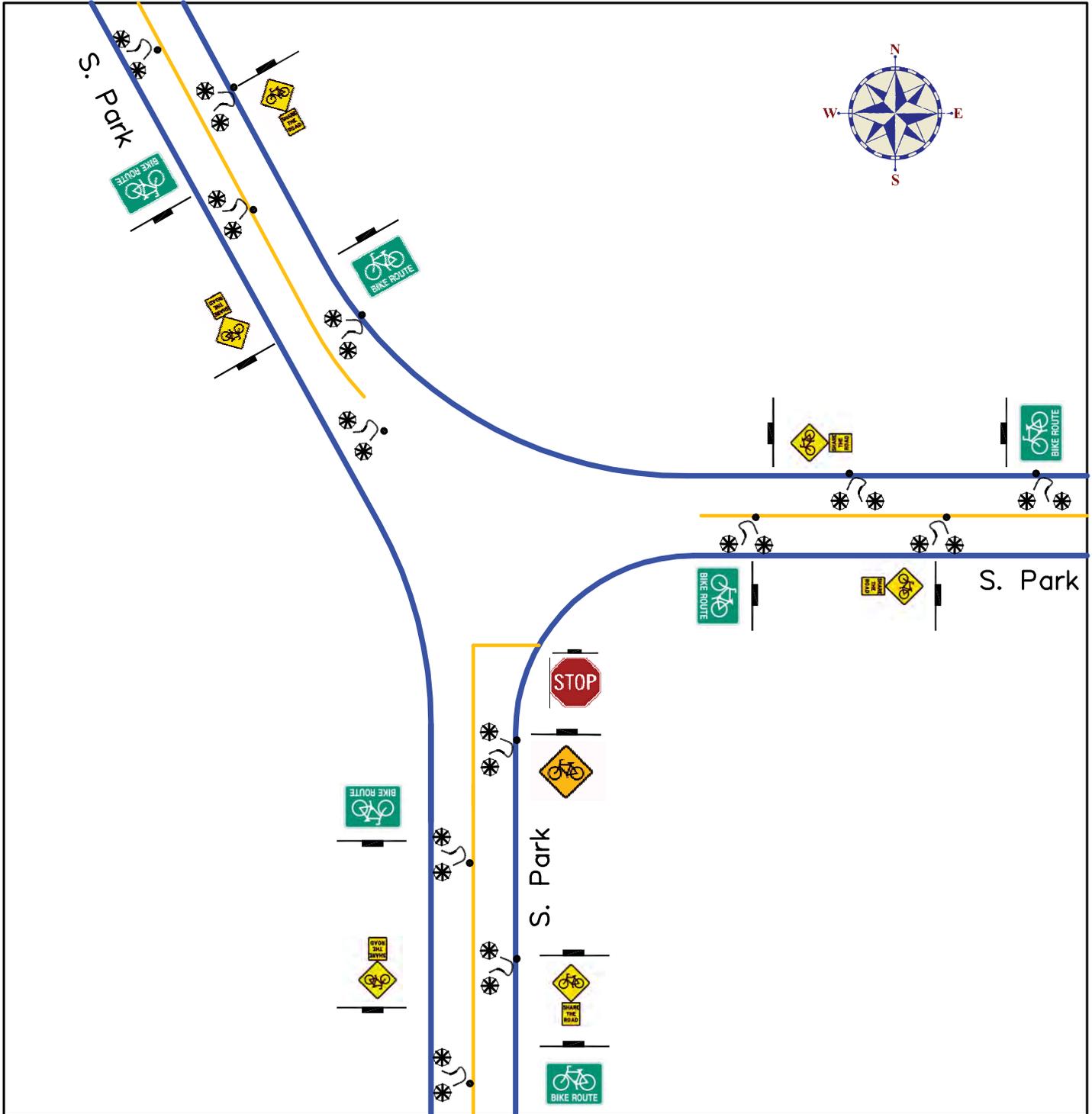
South Park Boulevard - South Park Boulevard Alternative 1 (Existing Intersection Geometry)



Prepared by NOACA, June 2008

Inset 1b

South Park Boulevard - South Park Boulevard Alternative 2 (Modified Intersection Geometry)



Prepared by NOACA, June 2008

Inset 1c

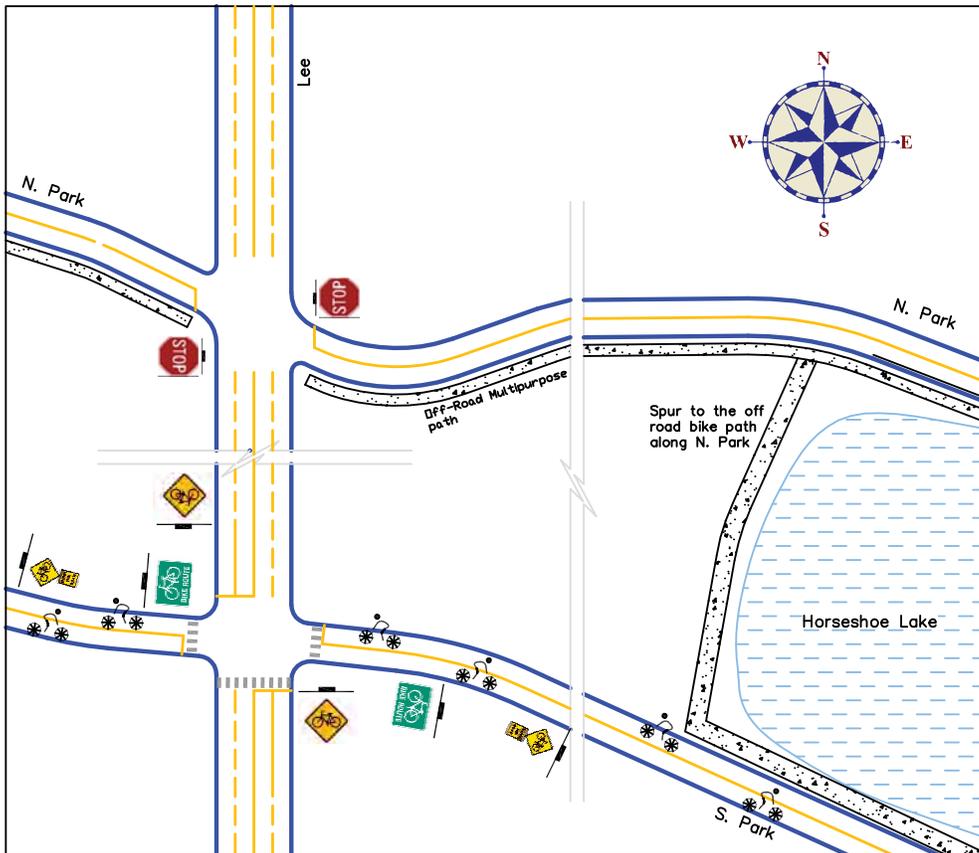
South Park Boulevard - South Park Boulevard Illustration of Alternative 2 on Aerial Photo



Suggested Modified Intersection Layout: Convert the intersection into a simple T-intersection to change the existing traffic movement pattern in order to reduce the number of crossings and the vehicular traffic movement conflicts with bicycle traffic.

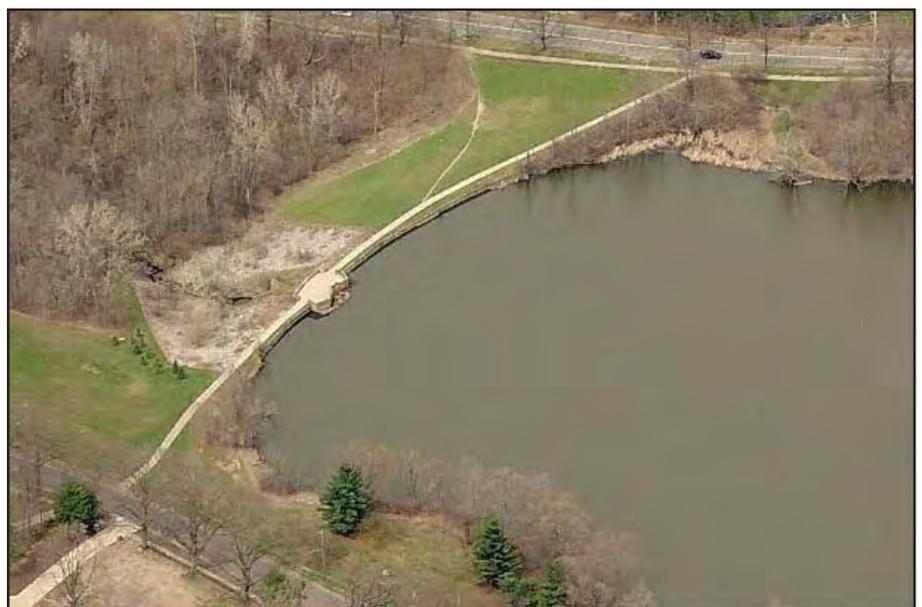
Inset 2

Lee Road - South Park Boulevard - North Park Boulevard - Horseshoe Lake Spur



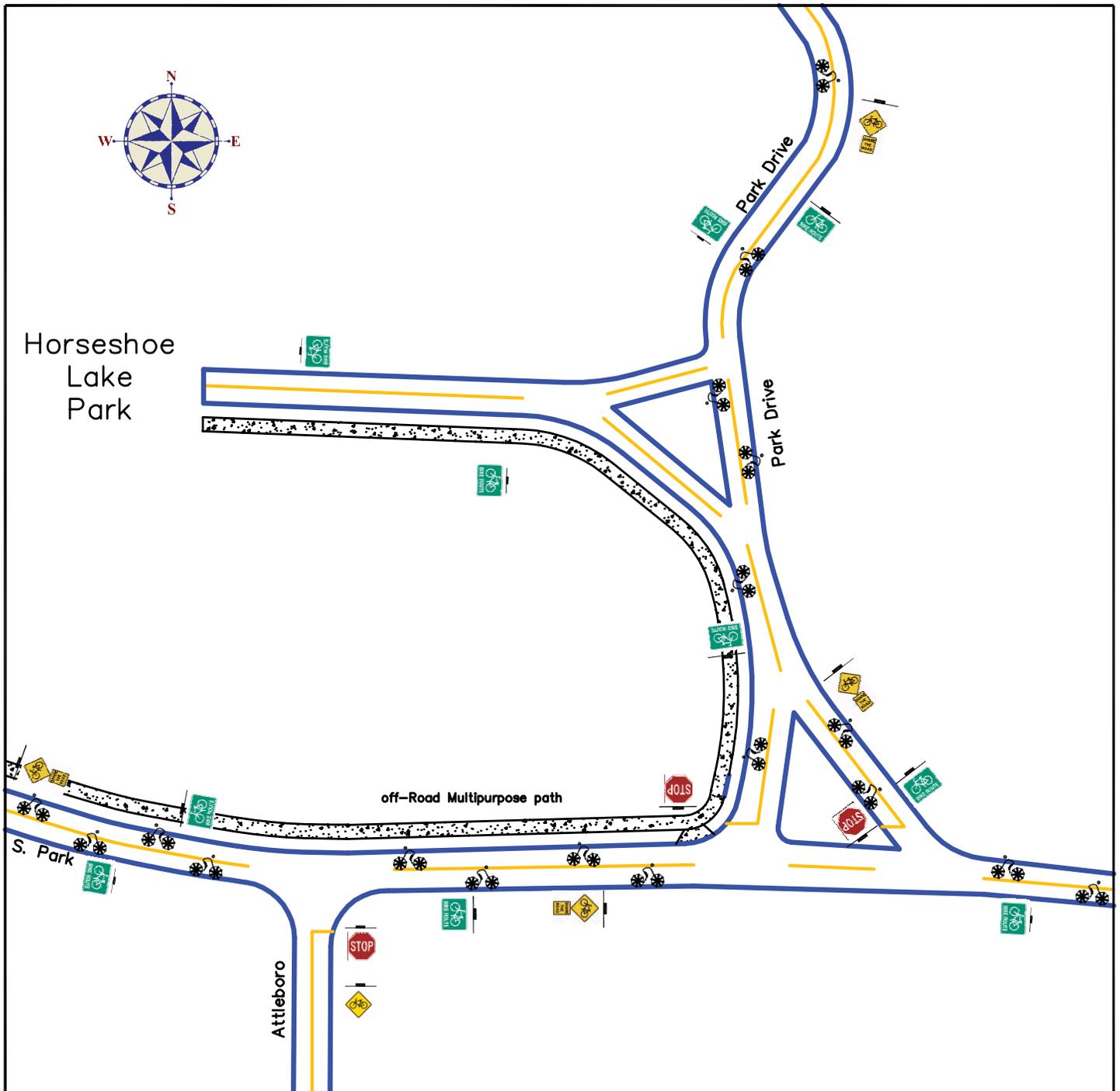
Prepared by NOACA, June 2008

The diagram above illustrates the off-road spur connecting the off-road multipurpose paths along both North Park Boulevard in Cleveland Heights and South Park Boulevard in Shaker Heights and their relative interconnection with the on-road bicycle route on South Park Boulevard.



Aerial photo of the area represented in the diagram above.

Inset 3 South Park Boulevard - Attleboro Road - Park Drive

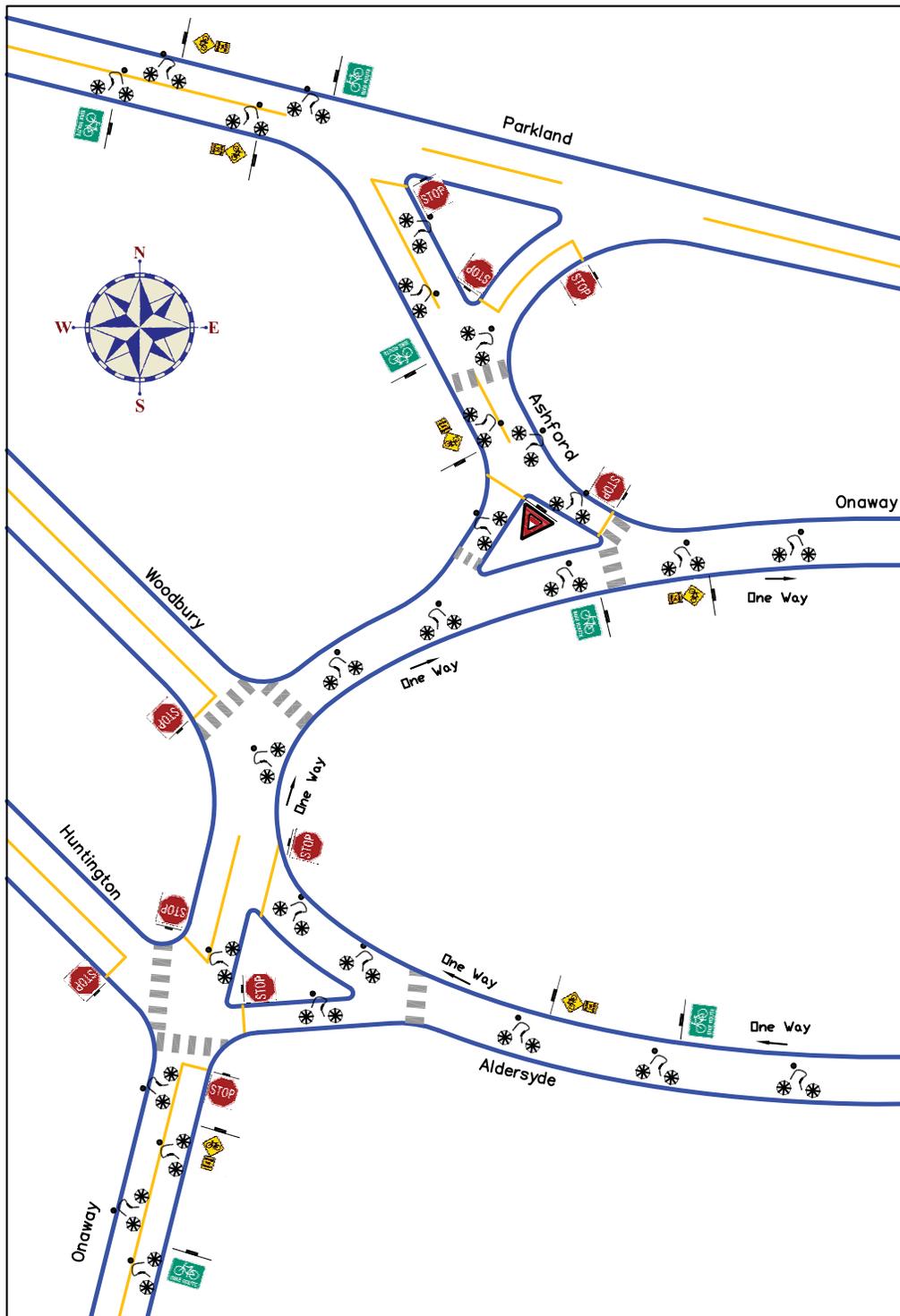


Prepared by NOACA, June 2008

This diagram illustrates the on-road bicycle route connection to Horseshoe Lake Park and the off-road multipurpose path.

Inset 4

Onaway Circle: The Western Section

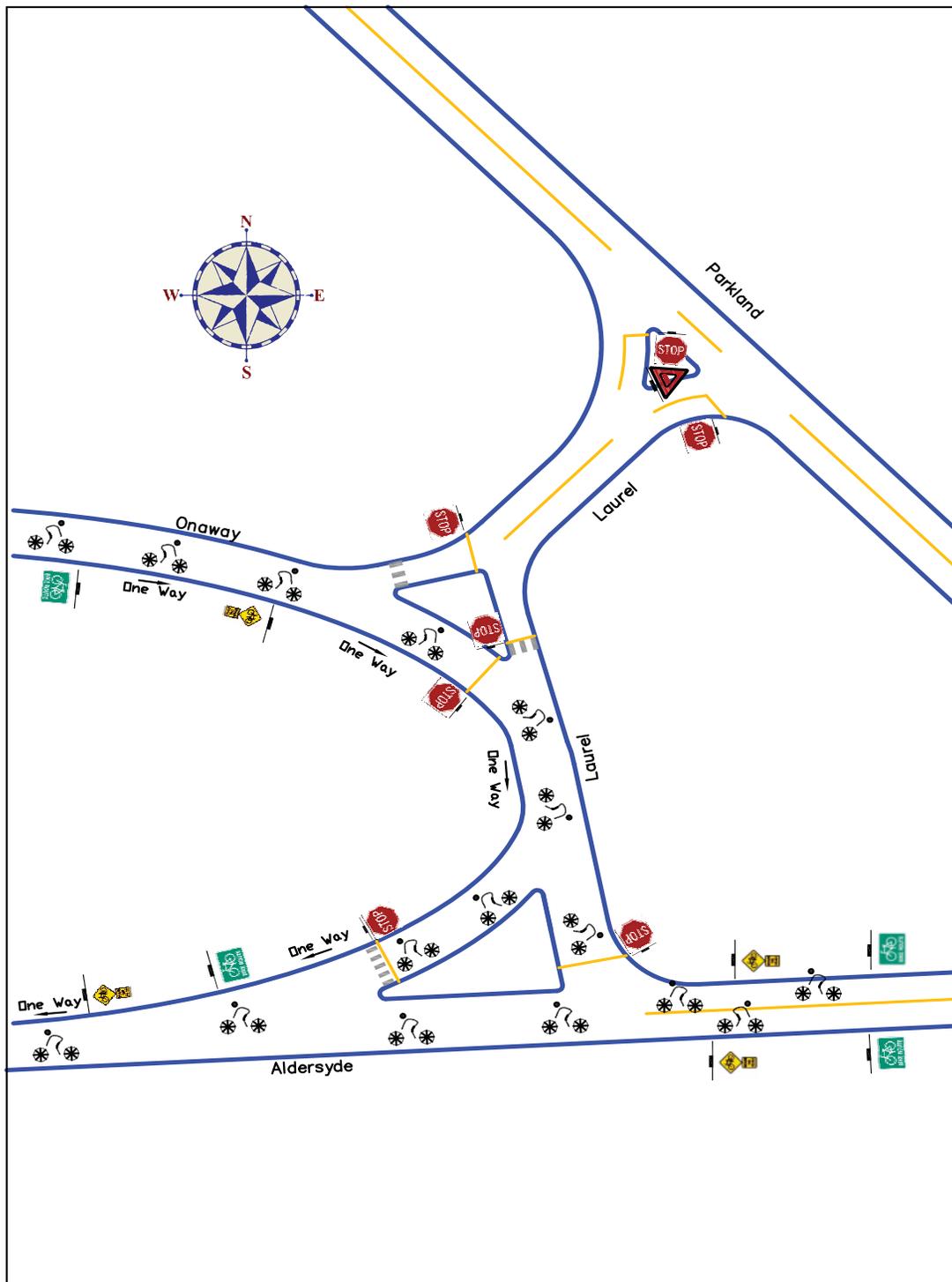


Prepared by NOACA, June 2008

Note: All traffic control devices shown in this diagram are as they currently exist. No new ones were suggested.

Inset 5

Onaway Circle: The Eastern Section

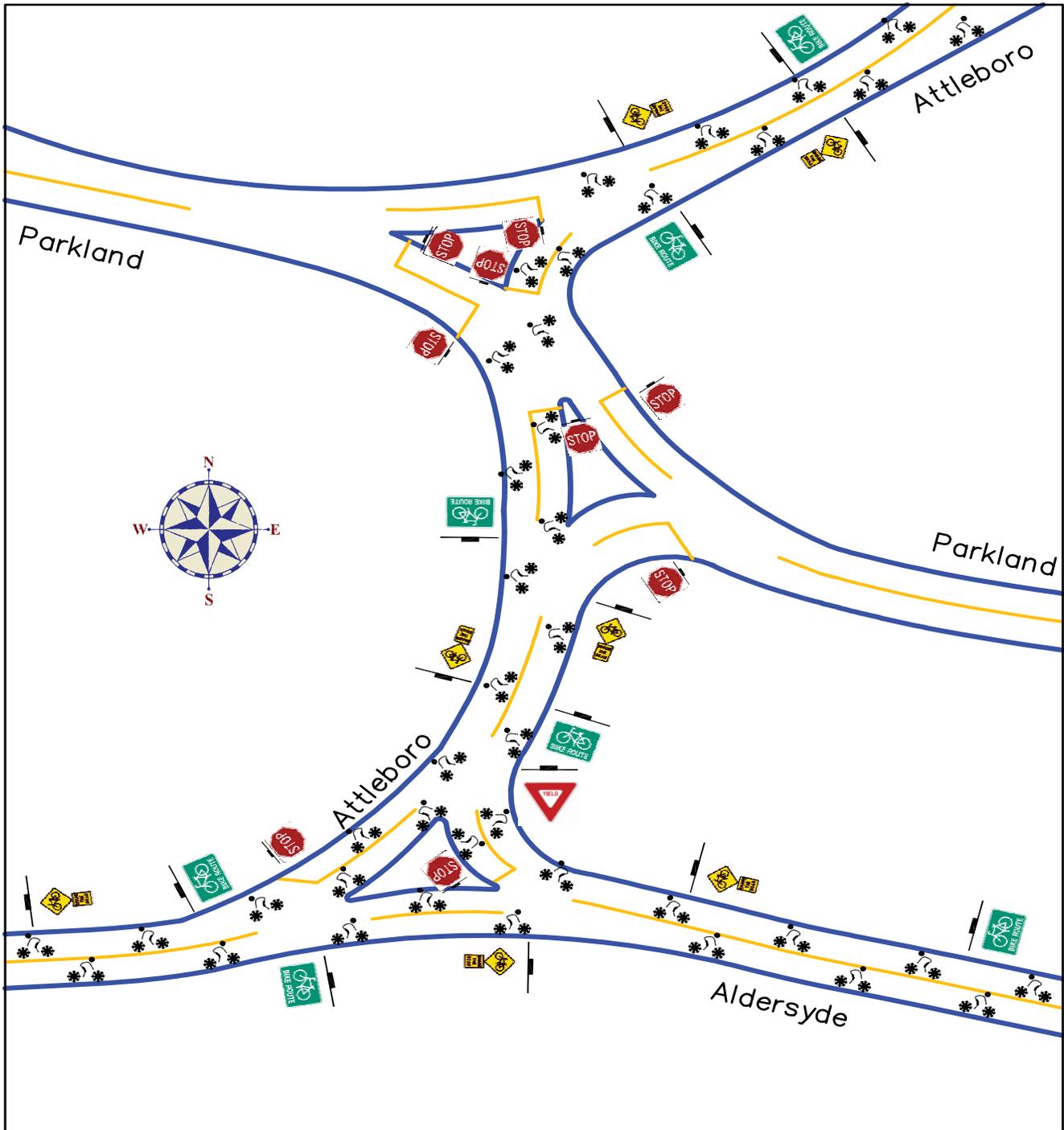


Prepared by NOACA, June 2008

Note: All traffic control devices shown in this diagram are as they currently exist. No new ones were suggested.

Inset 6

Attleboro Road - Aldersyde Drive - Parkland Drive



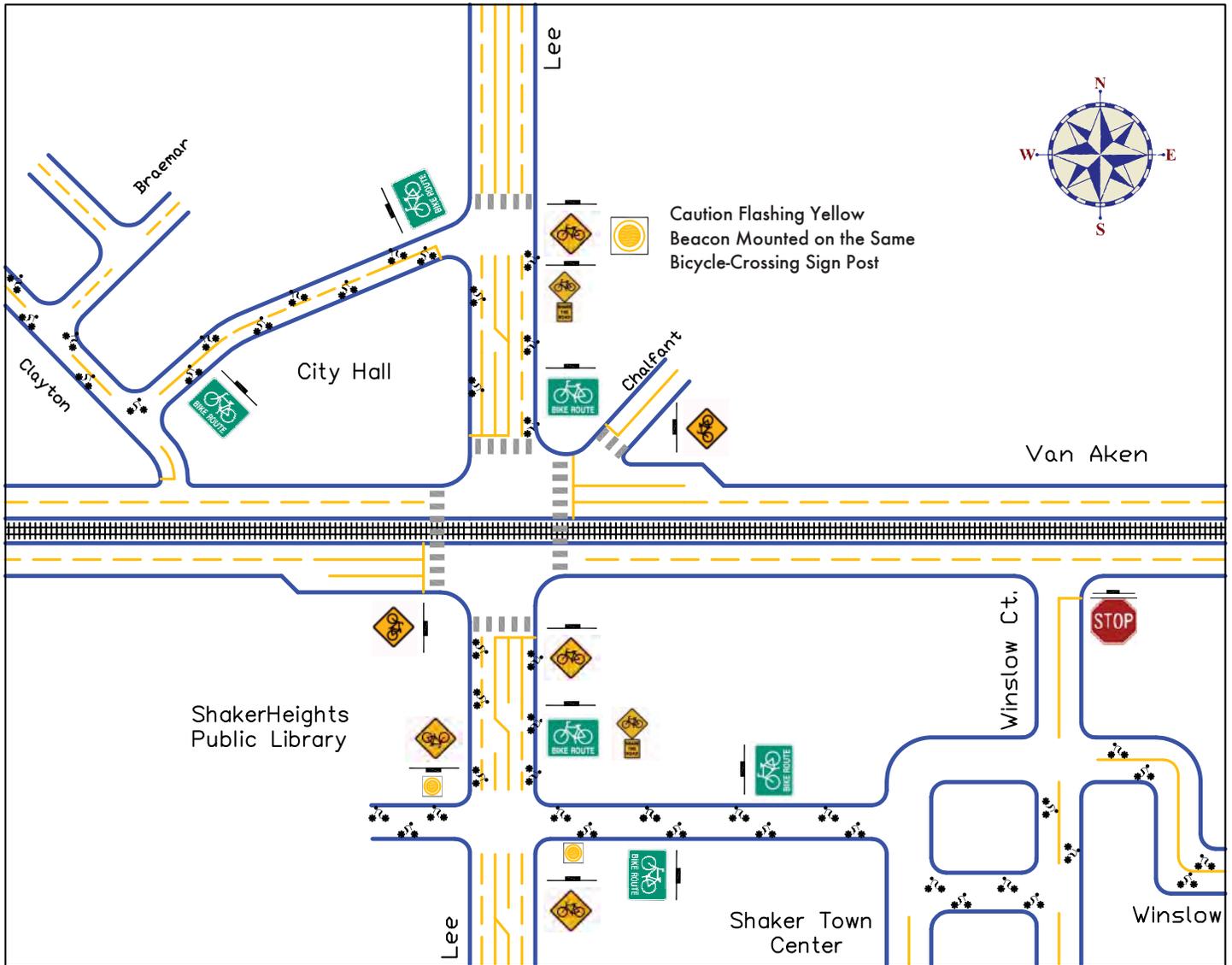
Prepared by NOACA, June 2008

Note: All traffic control devices shown in this diagram are as they currently exist. No new ones were suggested.

Inset 7

Van Aken Boulevard - Lee Road

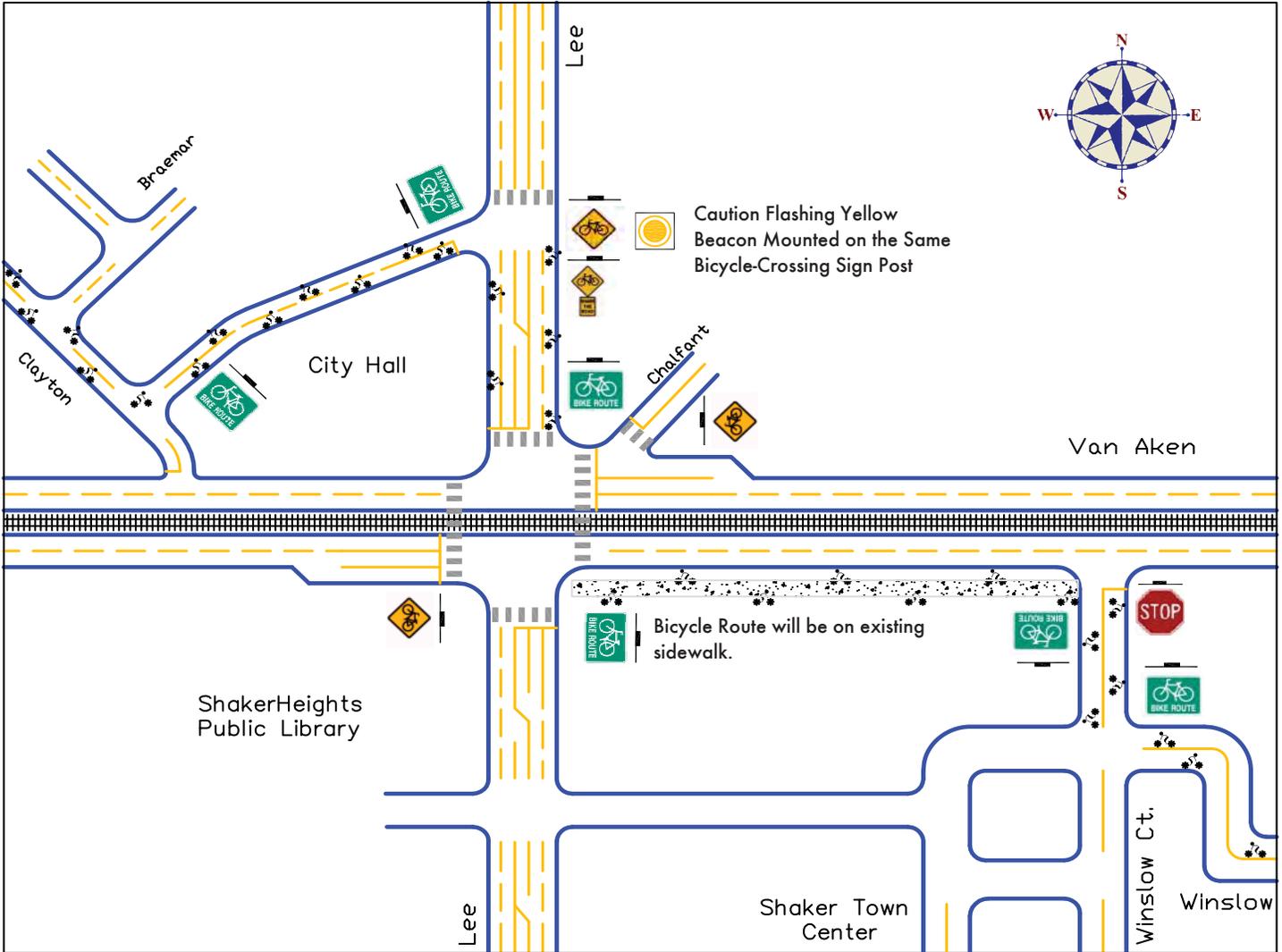
Alternative 1



Prepared by NOACA, June 2008

Inset 7a

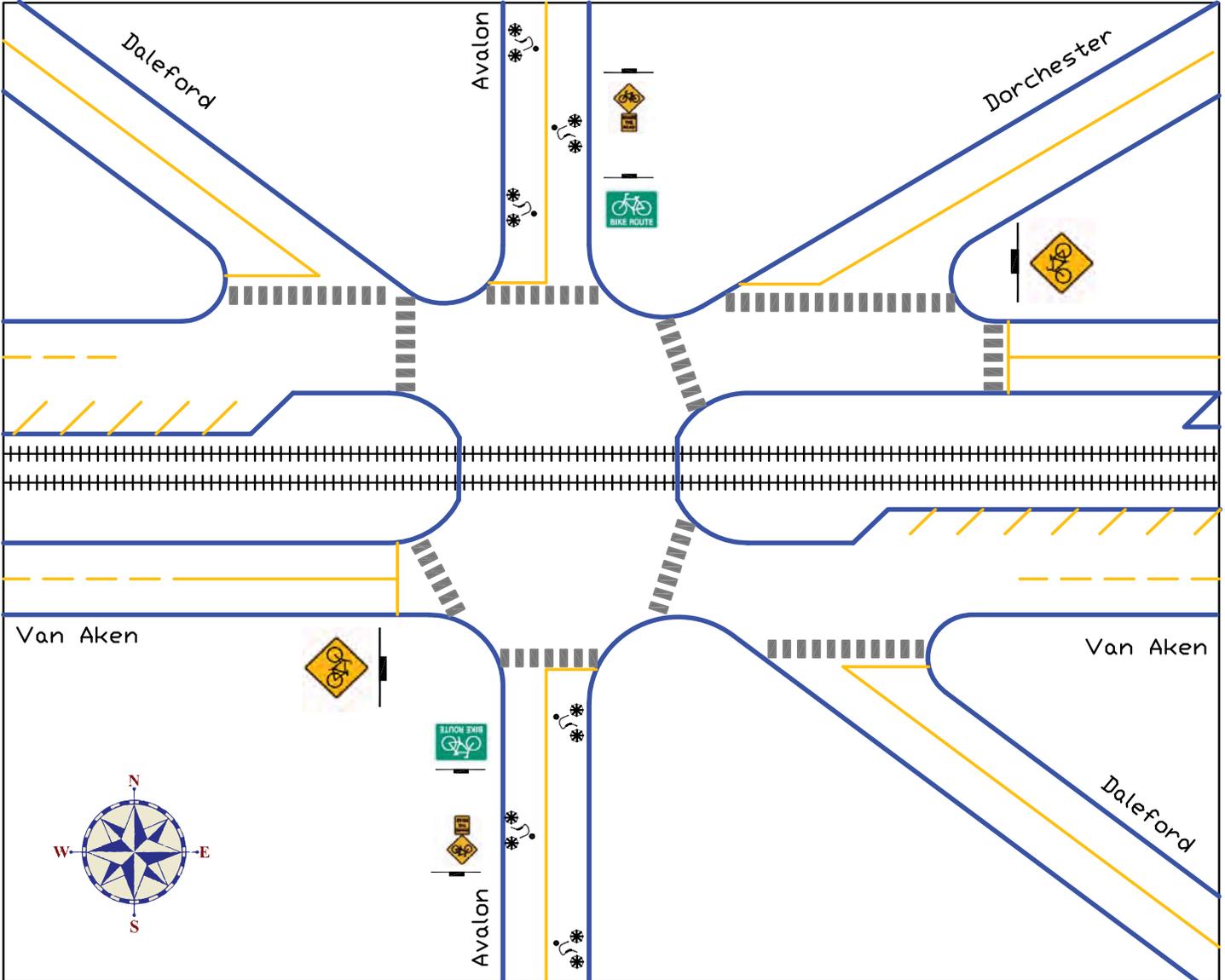
Van Aken Boulevard - Lee Road Alternative 2



Prepared by NOACA, June 2008

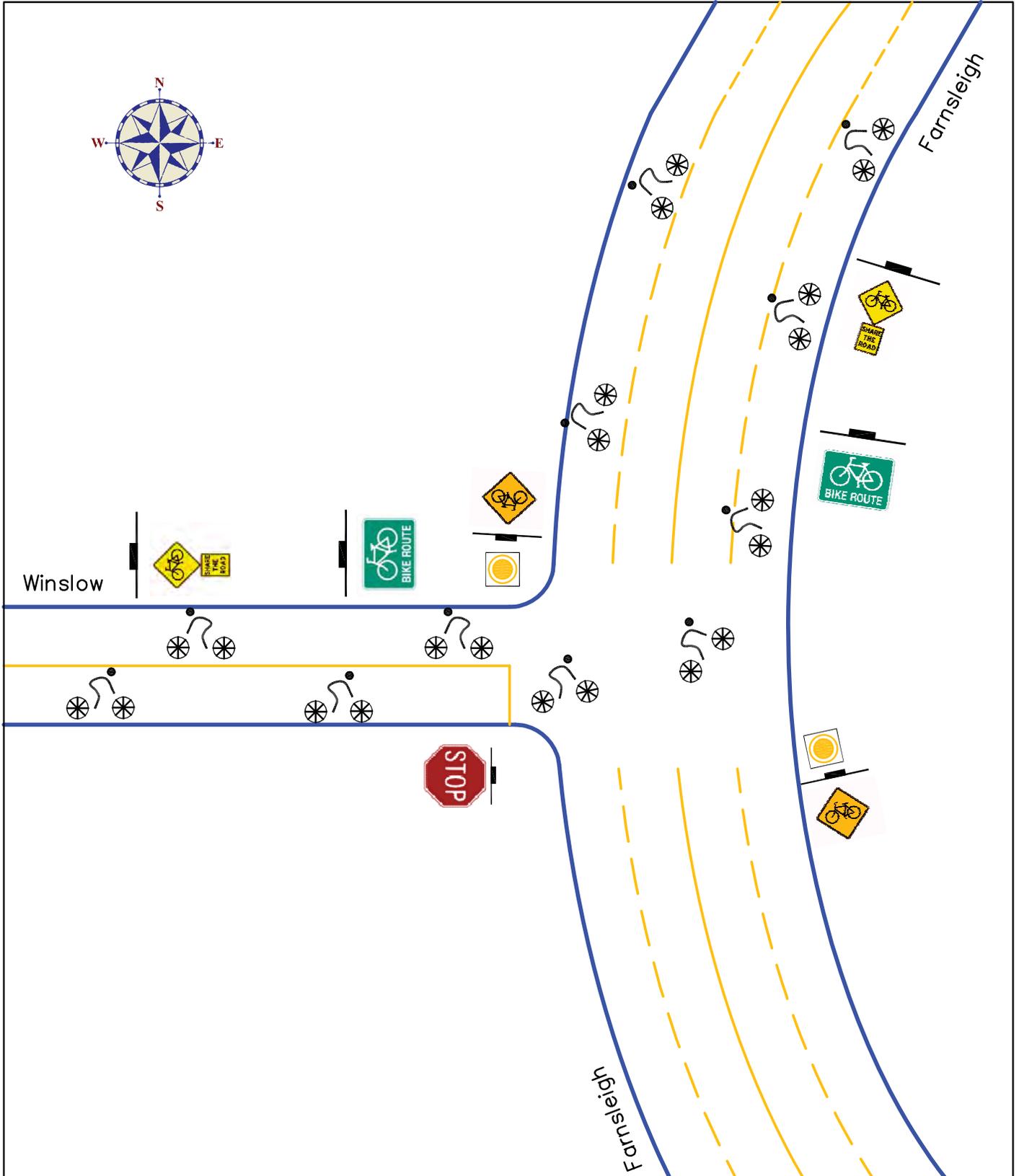
Inset 8

Van Aken Boulevard - Avalon Road



Prepared by NOACA, June 2008

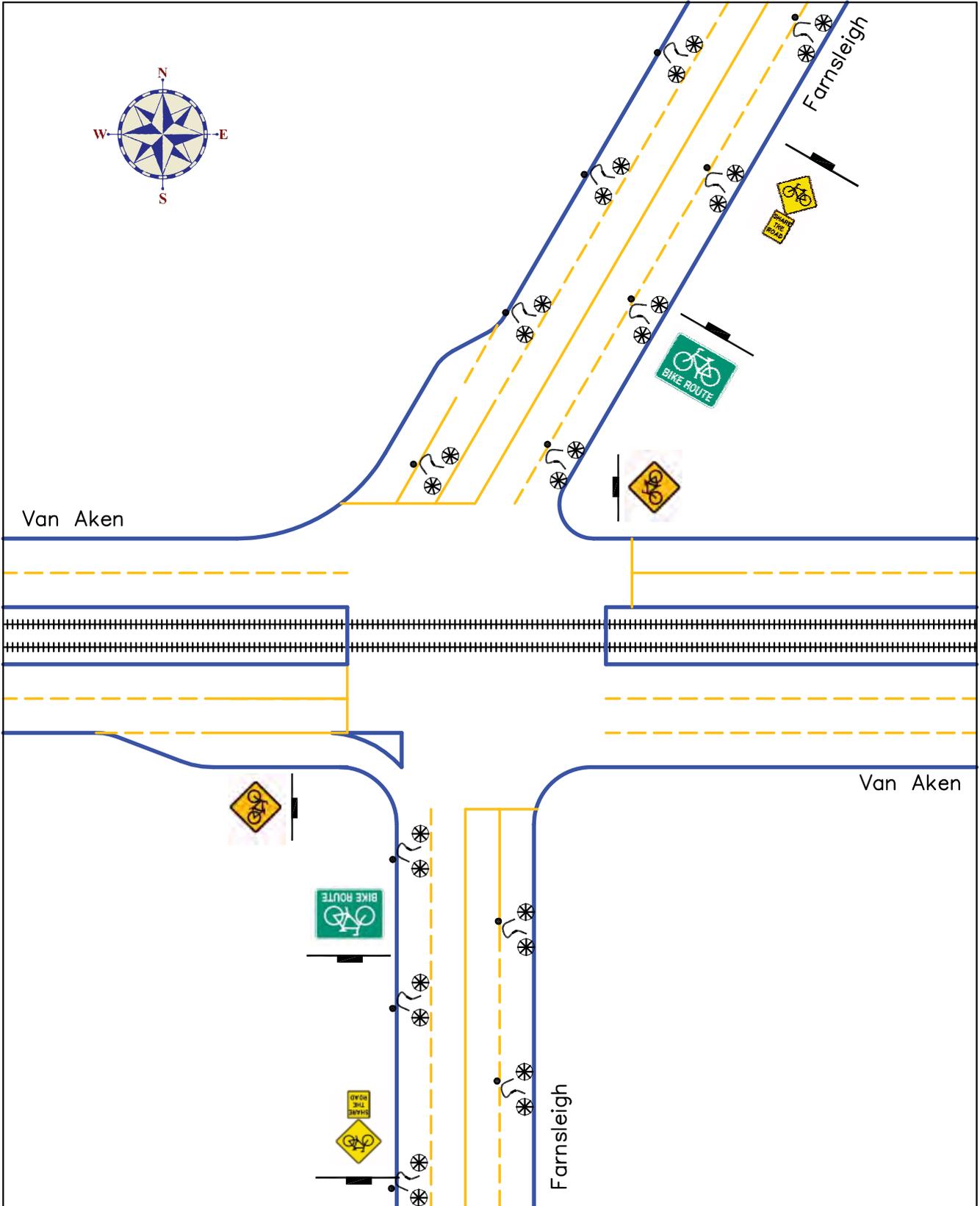
Inset 9 Farnsleigh Road - Winslow Road



Prepared by NOACA, June 2008

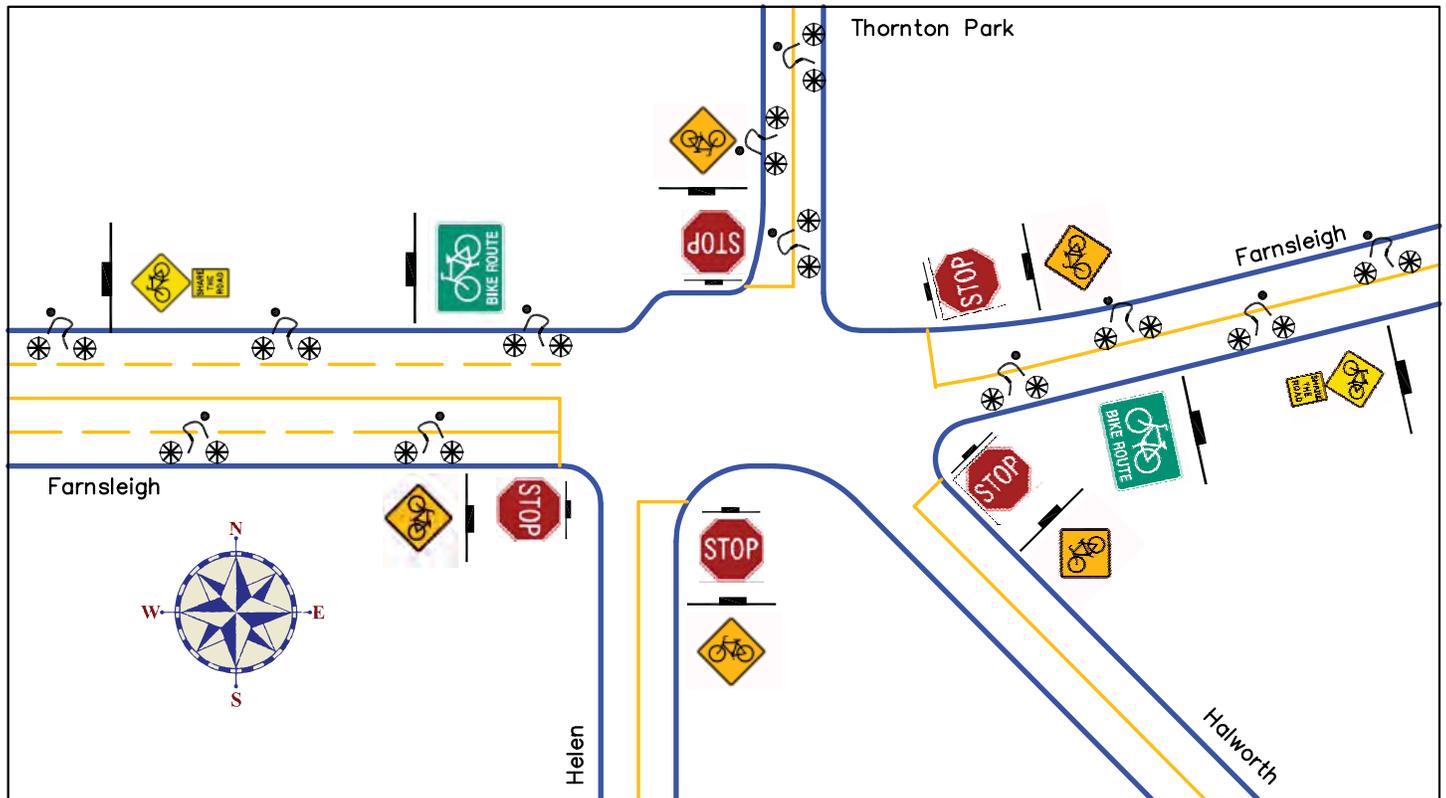
Inset 10

Van Aken Boulevard - Farnsleigh Road



Inset 11

Farnsleigh Road - Helen Road - Halworth Road

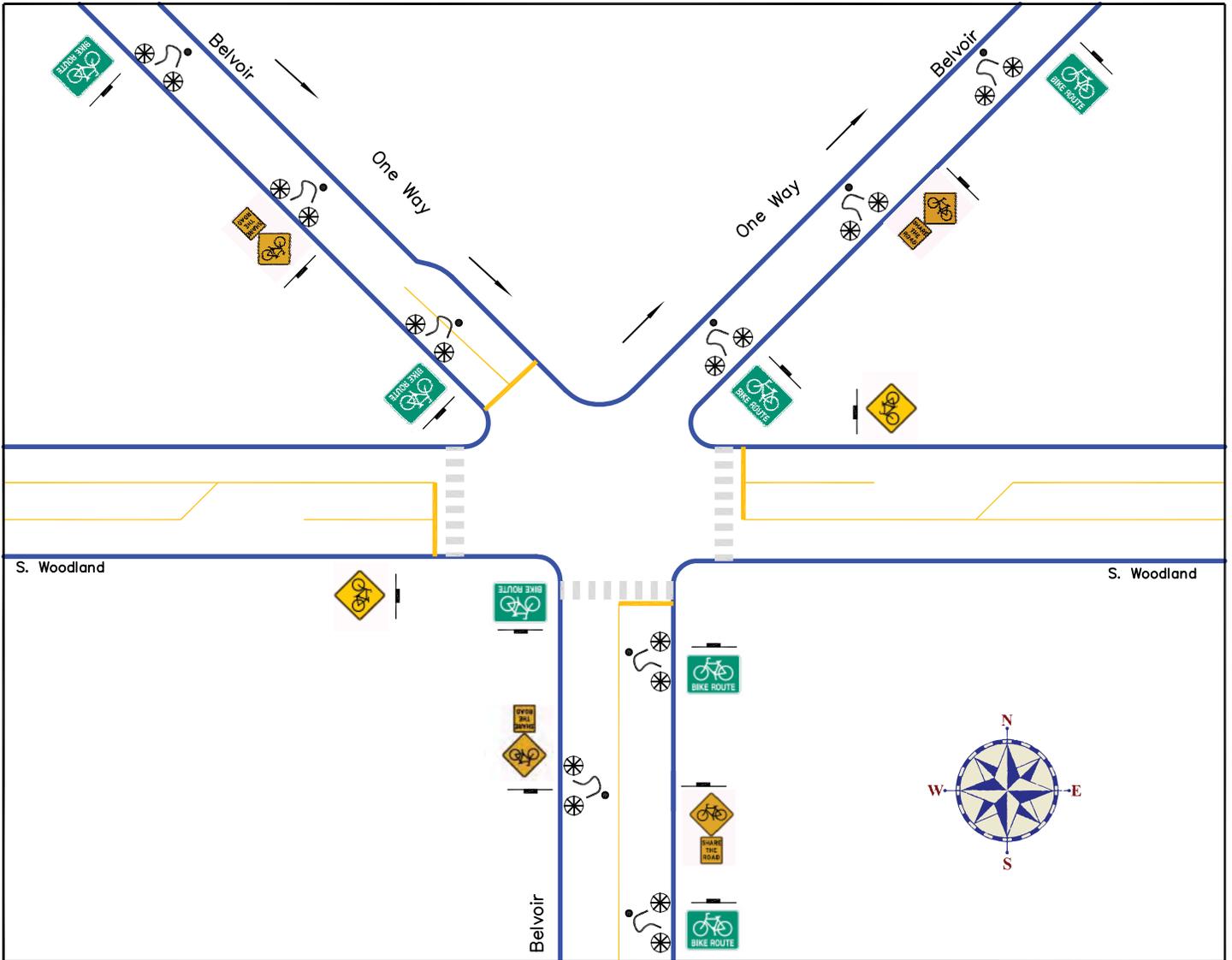


Prepared by NOACA, June 2008

This diagram illustrates the suggested on-road bicycle route connection to Thornton Park.

Inset 12

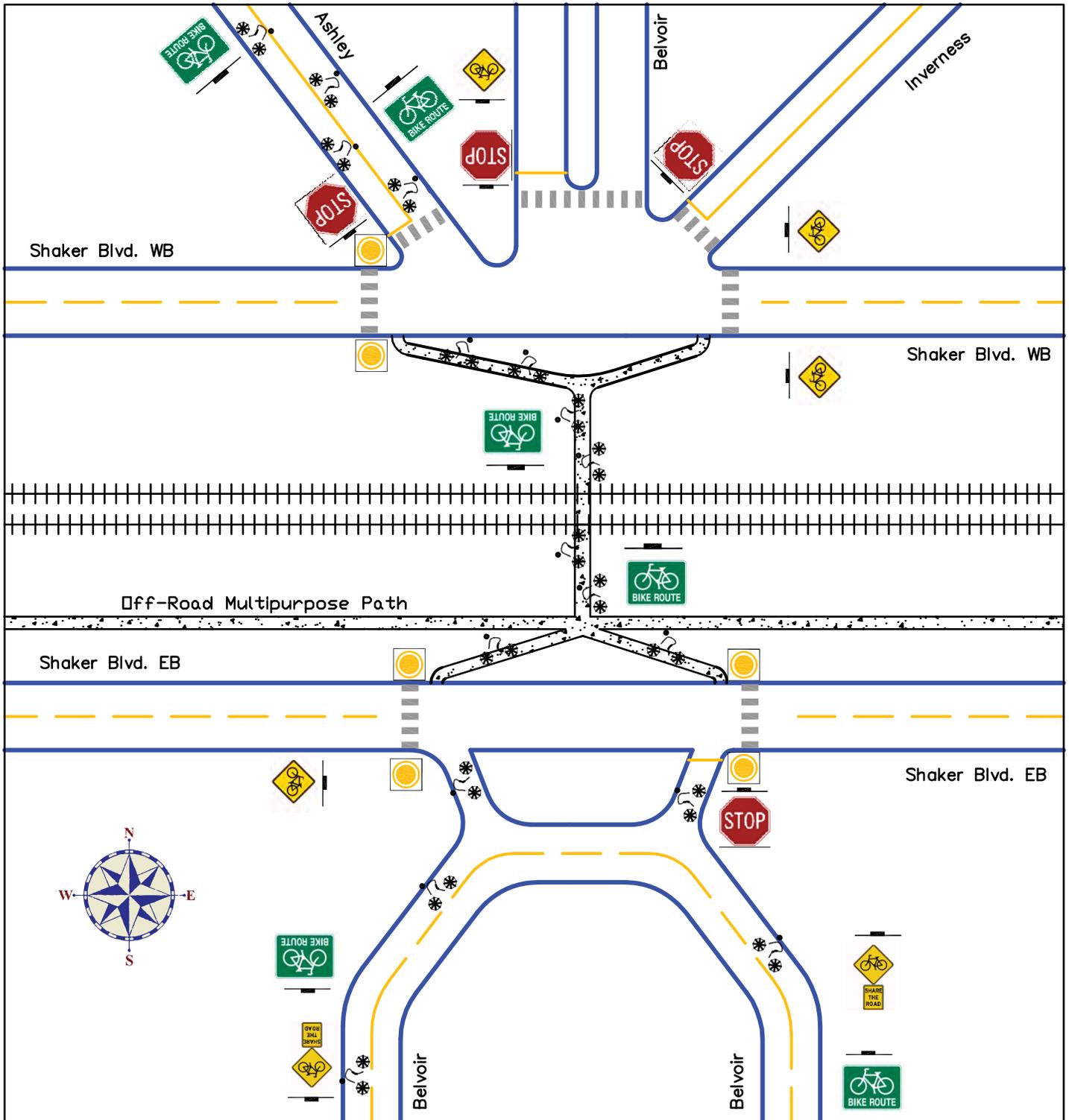
South Woodland Road - Belvoir Oval



Prepared by NOACA, June 2008

Inset 13

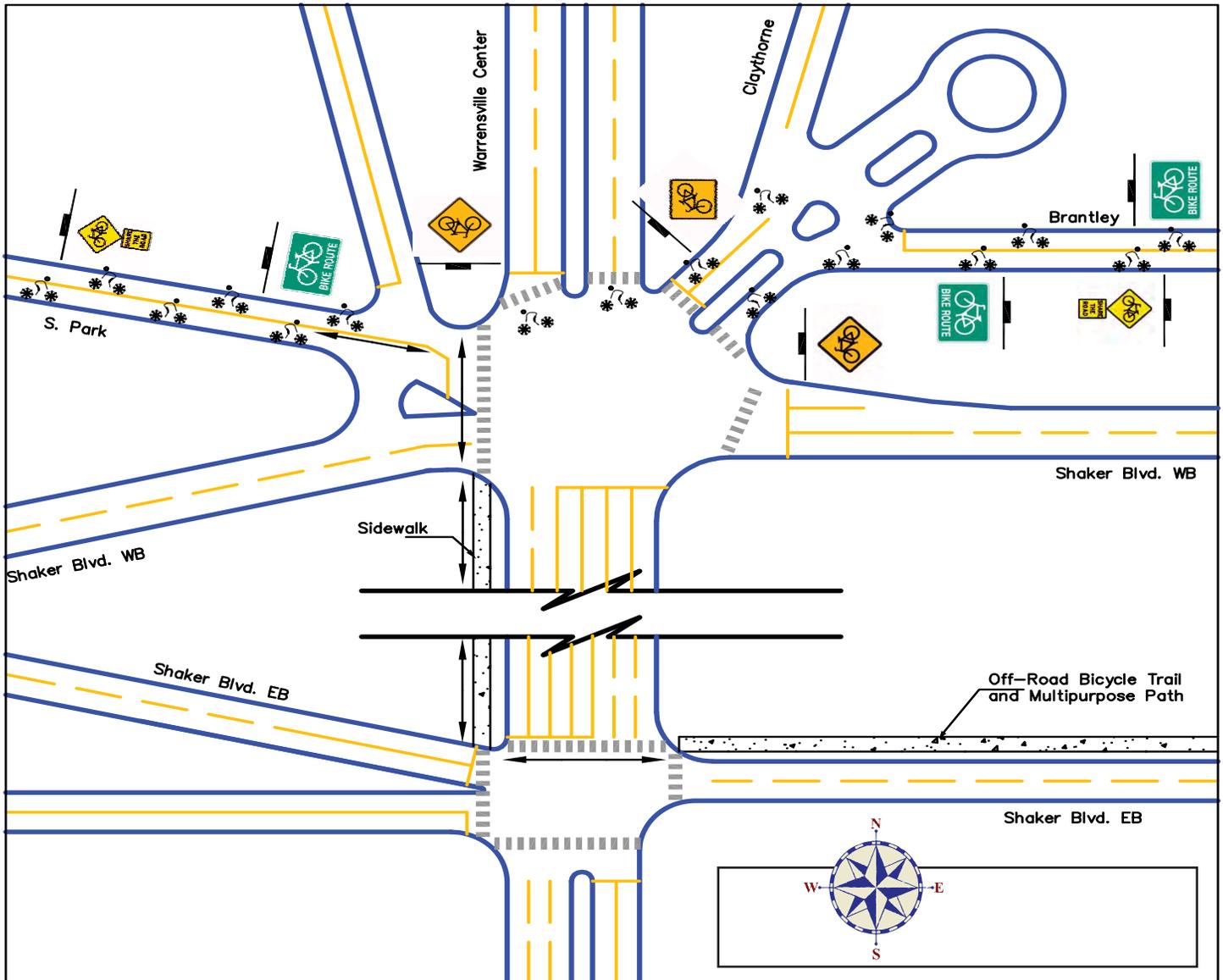
Shaker Boulevard - Belvoir Boulevard



Prepared by NOACA, June 2008

Inset 14

Shaker Boulevard - Warrensville Center Road - South Park Boulevard - Claythorne Road



Prepared by NOACA, June 2008

Note: Arrows illustrate the connection between the Shaker Boulevard Median Multipurpose Trail and the South Park suggested on-road bicycle route. Riders will cross Warrensville Center Road at the Shaker Boulevard eastbound side and ride on the sidewalk to South Park Boulevard.

Appendices

A. Material Concerning Shared Lane Marking and Identification

B. Information, Destinations, and Guide Signs



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Appendix A

Material Concerning Shared Lane Marking and Identification



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National Committee on Uniform Traffic Control Devices

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TECHNICAL COMMITTEE RECOMMENDATION

TECHNICAL COMMITTEE: Bicycle Technical Committee

DATE OF ACTION: 07 January 2005 (*revised 23 June 2005, 18 January 2007*)

TOPIC: Proposed Shared Lane Marking
Part 9 of the MUTCD

ORIGIN OF REQUEST: NCUTCD Bicycle Technical Committee

DISCUSSION:

Traffic lanes are often too narrow to be shared side-by-side by bicyclists and passing motorists. Where parking is present, bicyclists wishing to stay out of the way of motorists often ride too close to parked cars and risk being struck by a suddenly opened car door (being "doored"). Where no parking is present, bicyclists wishing to stay out of the way of motorists often ride too close to the roadway edge, where they run the risks of being run off the road, being clipped by overtaking motorists who misjudge passing clearance, or of encountering drainage structures, poor pavement, debris, and other hazards.

Riding further to the left avoids these problems, and is legally permitted where needed for safety. However, this practice can run counter to motorist expectations. A pavement marking that indicates the legal and appropriate bicyclist line of travel, and cues motorists to pass with sufficient clearance, is needed. In recognition of this need, several symbols and variations are being used by numerous local agencies around the country.

To address this growing problem, the City of San Francisco selected two (2) candidate Shared Lane Markings based on a human factors study, and conducted an on-street test of those markings that was completed in February of 2004.

The results showed significant improvements to bicyclists' and motorists' positioning in the roadway, and identified the bike-with-chevron marking as most effective. These results have since provided guidance to the California Department of Transportation (Caltrans) to adopt the Shared Lane Marking in the California Supplement to the MUTCD.

The draft proposal that the Bicycle Technical Committee is transmitting to sponsors is based on the findings of the San Francisco study and the language and figure adopted in the MUTCD California Supplement.

Results from the San Francisco study indicate that the shared lane marking:

- Improves positioning of the bicyclist and motorist
 - Increases the distance between bicyclists and parked cars (by 8 inches in the SF study)
 - Increases the distance between overtaking motorists and bicyclists (by 2 feet in the SF study)
- Improves bicyclist behavior
 - Reduces wrong-way bicycling, a major cause of collisions (by 80% in the SF study)
- Reminds motorists of likely bicyclist presence
 - When surveyed, motorists claimed they did not notice the marking; however, the data indicates that their position on the roadway was adjusted to better accommodate bicyclists.

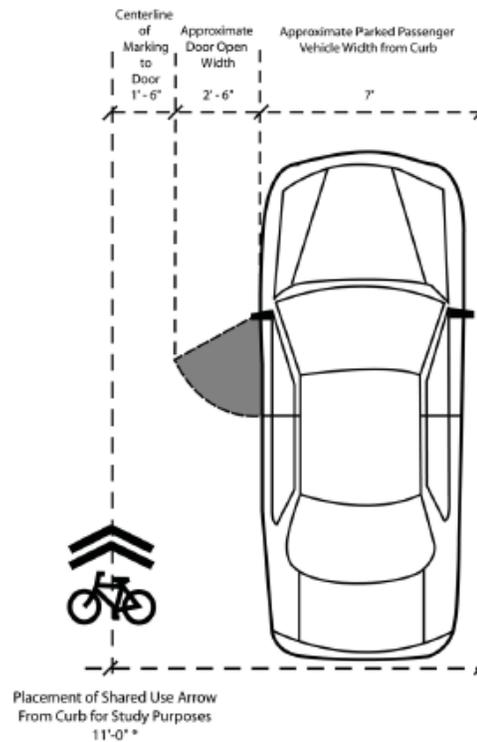


Diagram from San Francisco Shared Lane Marking study

These proposed changes were also reviewed by the NCUTCD Markings Technical Committee at their meeting in January 2005.

COMMITTEE ACTION:

The Bicycle Technical Committee recommends that the National Committee forward this proposal to Federal Highway Administration for consideration.

Approved 35-0-3 by NCUTCD Council 19 January 2007.

Section 9C.XX Shared Lane Marking

Support:

The Shared Lane Marking is intended to:

1. Help bicyclists position themselves in lanes too narrow for a motor vehicle and a bicycle to travel side by side within the same traffic lane;
2. Encourage safe passing of bicyclists by motorists;
3. Reduce the chance of a bicyclist's impacting the open door of a parked vehicle in a shared lane with on-street parallel parking;
4. Alert road users of the lateral location bicyclists may occupy; and
5. Reduce the incidence of wrong-way bicycling.

Option:

The Shared Lane Marking shown in Figure 9C-X may be used to assist bicyclists with positioning in a shared lane with on-street parallel parking and to alert road users to the location a bicyclist may occupy within the traveled way.

Standard:

If used in a shared lane with on-street parallel parking, Shared Lane Markings shall be placed so that the centers of the markings are a minimum of 3.3 m (11 ft) from the curb face, or from the edge of pavement where there is no curb.

Shared Lane Markings shall not be used on shoulders or in designated bicycle lanes.

Guidance:

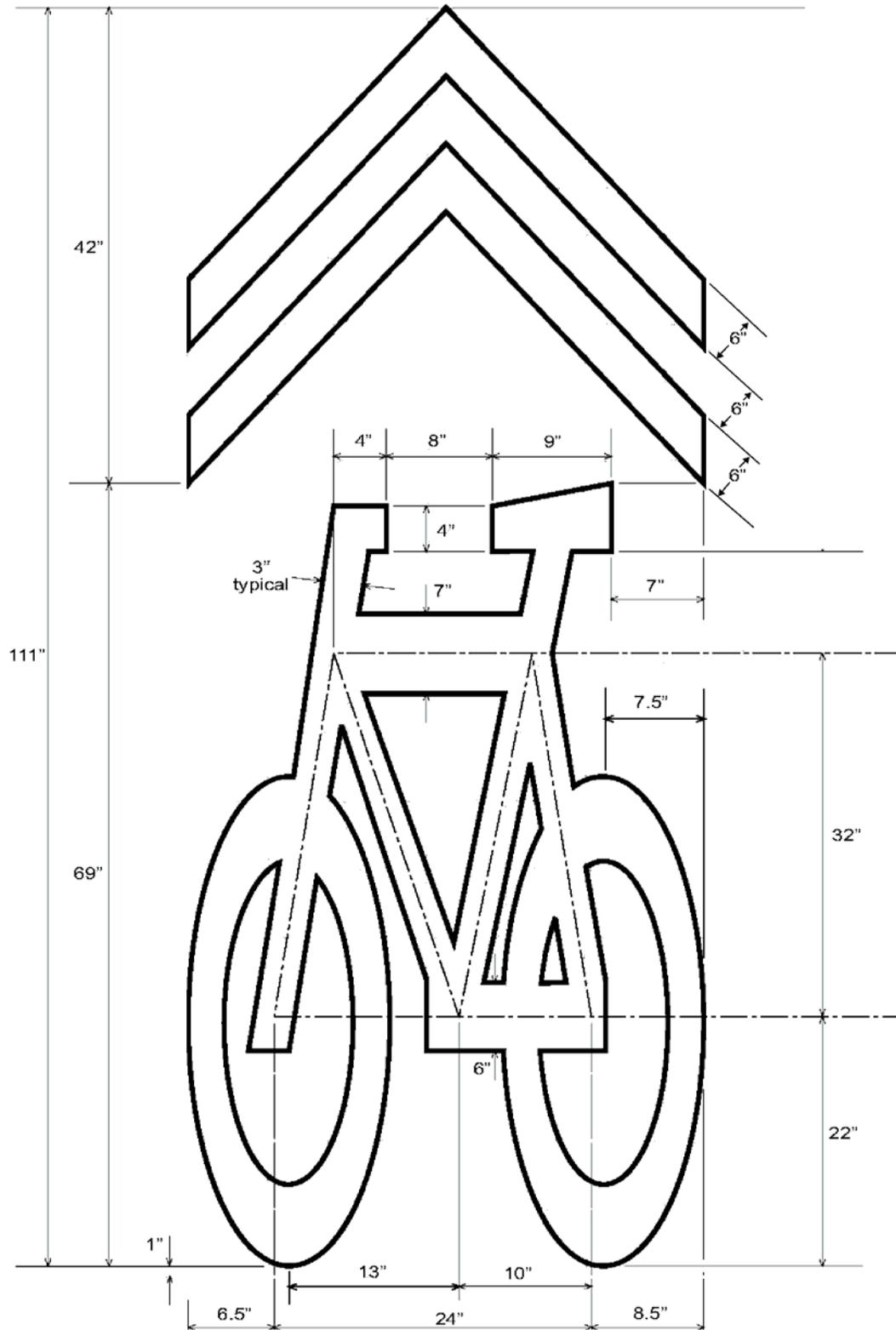
The Shared Lane Marking should not be placed on roadways with a speed limit above 55 km/h (35 mph).

When used, the Shared Lane Marking should be placed immediately after an intersection and spaced at intervals not greater than 75 m (250 ft) thereafter.

Option:

When the shared lane marking is used, the distance from the curb or from the edge of pavement or paved shoulder may be increased beyond 3.3 m (11 ft).

Figure 9C-XX. Shared Lane Marking



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Appendix B

Information, Destinations, and Guide Signs

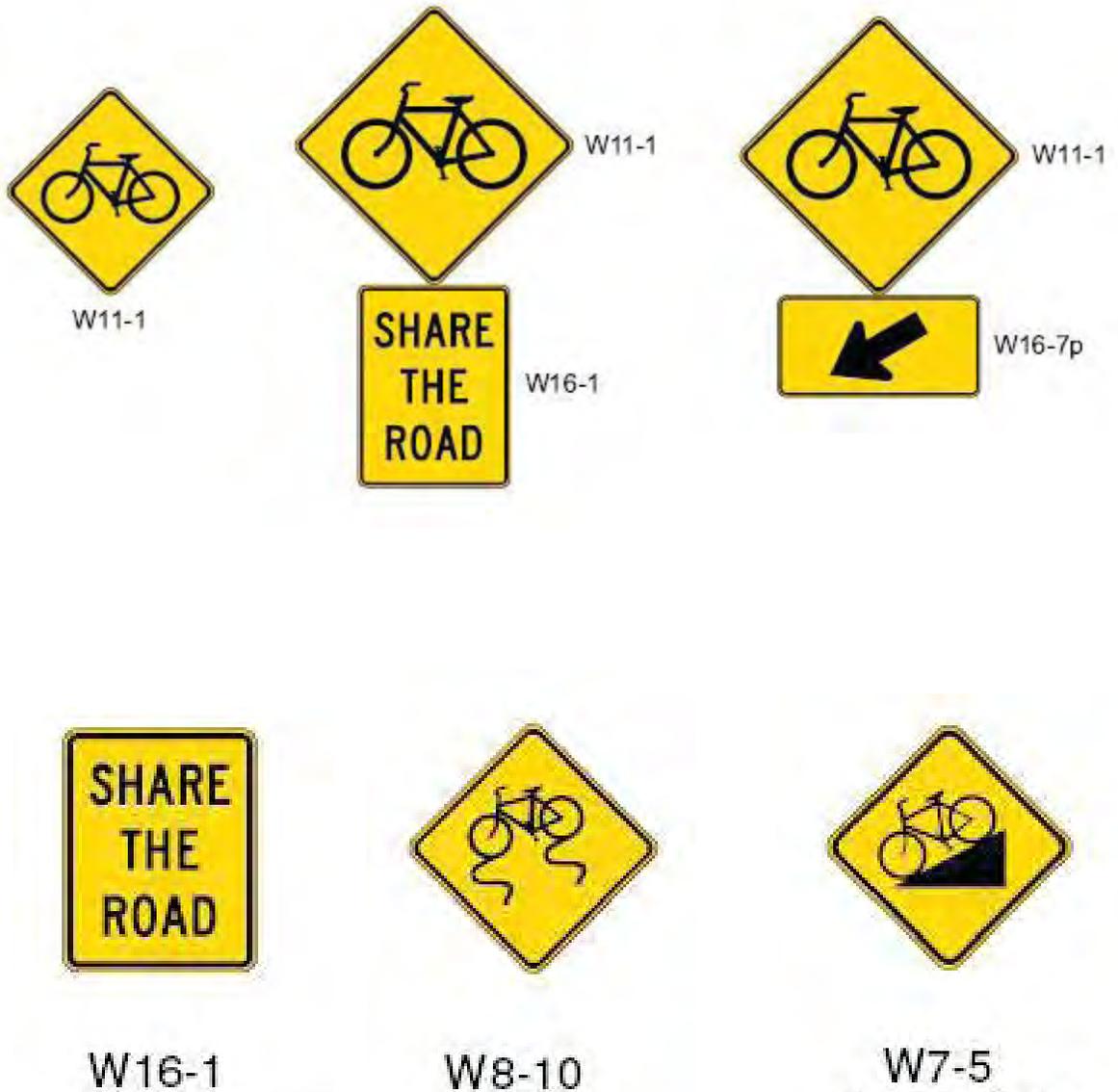


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Information, Destinations, and Guide Signs

Ohio Manual of Uniform Traffic Control Devices (OMUTCD), 2005

Warning Signs



Information, Destinations, and Guide Signs

Ohio Manual of Uniform Traffic Control Devices (OMUTCD), 2005

Guide Signs



D11-1



D1-1b



D1-1c



D1-H4



D1-H4a



M7-2



M7-3



M7-4



M7-5



M7-6



M7-7