



City of Albany Bicycle Signage and Wayfinding Strategy

JUNE 2013

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City of Albany

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1 Introduction

The City of Albany Bicycle Signage and Wayfinding Strategy is part of a larger effort to promote bicycling as a healthy and sustainable mode of transportation in Albany. It is a follow-up to the Albany Bicycle Master Plan (2009). A Bike Share Feasibility Study is being produced in tandem with this report.

The Bicycle Signage and Wayfinding Strategy included two public workshops. At the first workshop, attendees defined important routes and destinations in the city to be included in wayfinding signage. The Alta team presented a draft of the detailed signage plans for 11 priority routes for feedback at the second workshop. Along with input from the Bicycle Master Plan Implementation Plan Committee, and a review of adopted plans and policies, the feedback from both workshops helped to inform recommendations found in this document.

This report includes an existing conditions inventory of relevant planning documents and analysis of bicycle traffic in Albany. The strategy also includes overall guidance on the type and design of proposed signage, as well as the identification of 11 priority wayfinding signage routes. Detailed maps and cost estimates for these routes are included in the Appendices to this report.



Figure 1: Jeff Olson from Alta Planning + Design speaks at a public workshop at the College of St. Rose on January 24, 2013.

2 Existing Conditions Inventory

In preparation for the bicycle-related signage and wayfinding recommendations, Alta reviewed relevant planning documents adopted by the City and conducted an inventory of existing conditions. This inventory included:

- generators of bicycle traffic (college campuses, parks, retail areas, etc.)
- existing bike accommodations both on-road (bike lanes and shared lane markings) and off-road (shared use paths and trails)
- existing signage within city limits

2.1 Relevant Planning Documents

City of Albany Bicycle Master Plan (2009)

The Bike Master Plan outlines a comprehensive strategy to encourage increased bicycling in the City of Albany. Seven key design ideas are presented to facilitate bicycle movements. These include major bikeways, neighborhood routes, multi-use trails, bike gutters on stairs, bikeable buses, a signage strategy, and bicycle parking in the City of Albany.

The signage strategy recommends that bike route guide signs be located at decision points along designated bike routes. Signage should follow guidelines in the 2010 Manual for Uniform Control Devices (MUTCD). Specific recommendations include providing separate signing of bike routes for wayfinding, informational signage on distances and destinations, advanced trail signage, and a coherent and consistent system of signage that is easily identifiable.

The Master Plan recommends a 20 Year Bikeway Network Plan that includes both major and neighborhood bikeways, as well as trails and greenways. Major bikeways are identified on major routes through the City. These routes include: Western Avenue, Madison Avenue, Washington Avenue, Central Avenue, New Scotland Avenue, Delaware Avenue, Whitehall Road, Clinton Avenue, Broadway, Green Street/South Pearl Street, Lark Street, Northern Boulevard/Manning Boulevard/Ten Broeck Street, Quail Street, Manning Boulevard, McCarty Avenue/Southern Boulevard, and Holland Avenue/Morton Avenue/Rensselaer Street. A variety of design options are proposed for these major bikeways, including shared lane markings and bike lanes.

Albany 2030 Plan

On Monday, April 2, 2012 the City of Albany Common Council voted unanimously to adopt the Albany 2030 Comprehensive Plan. This momentous vote officially established the first comprehensive plan in the City's 400 year history. The Albany 2030 Plan will greatly improve local quality of life for generations to come. In a tremendous demonstration of collaboration, thousands of community stakeholders from diverse backgrounds and neighborhoods came together to build consensus about their local priorities for the City of Albany. The Albany 2030 Plan and the City's Bicycle Master Plan are coordinated documents that create a guide for policy makers to make decisions on bicycle amenities, infrastructure and improvements. Albany 2030 built a framework for the City's future based on extensive research and community input.

The Albany 2030 Plan identifies the need to promote multi-modal connections. Specific strategies include developing a Complete Streets policy and coordinating transportation investment to support preferred land uses. Improving the pedestrian environment is also a recommendation with strategies including maintaining and improving sidewalk connections and expanding greenways. Encouraging cycling to improve health and reduce

vehicle miles travel is also recommended through promoting and implementing the Bicycle Master Plan, connecting regional trails, and educating cyclists and drivers. This sustainable approach will guide local (re)development and (re)investment in a manner that meets the needs of residents, businesses and stakeholders while maintaining and elevating the City's character, quality of life, and environmental and fiscal health.

The interconnection of the various City systems is identified throughout the plan and summarized in Chapter 3.9 of the report. The Albany 2030 Plan identifies the correlations between transportation and other systems such as community form, the economy, natural resources, housing and neighborhoods, utilities and infrastructure, and institutions.

City of Albany Neighborhood Plans

Several localized neighborhood plans have been completed for areas within the City of Albany, such as the Arbor Hill and South End neighborhoods. The following is a list of the studies reviewed and summaries of the bicycle and wayfinding improvements they recommend.

- Hudson River Crossing Study (CDTC/NYS DOT, 2008) – Bicyclist improvements on the Dunn Memorial Bridge and rehabilitation of the Livingston Avenue walkway.
- Lawn Avenue Gateway Design Study (Albany Housing Authority/CDTC, 2002) – The presence of cyclists is acknowledged as an existing condition.
- North Swan Street Multi-modal Accessibility Study (City of Albany/Albany Housing Authority/CDTC, 2008) – Construction of new sidewalks, street tree plantings, and crosswalks; return to two-way traffic.
- Pinebush Transportation Study Update (CDTC, 2004) – Incorporation of Fuller Road and New Karner Road as part of the bicycle and pedestrian network.
- Capital South Plan: SEGway to the Future (City of Albany/South End Action Committee, 2007) – Conversion of Morton Avenue to a pedestrian and bicycle-friendly boulevard from Lincoln Park to the Hudson River with continuous bike lanes and sidewalks. Create a link to the waterfront under I-787.
- Albany Education District Enhancement Study (City of Albany/CDTC, 2012) - Improve pedestrian and bicycle connections within the district, to local schools, and to retail centers. In addition to improved crosswalks, the installation of bicycle racks is also recommended.
- Harriman Campus – University at Albany Transportation Linkage Study (CDTC, 2007) – Examine potential to stripe a curb-side bicycle lane or shoulder on Fuller Road; improve wayfinding; create bicycle lanes on the Harriman Ring Road; improve non-motorized access at Brevator and Belvedere and along University Drive.

2.2 Generators of Bicycle Traffic

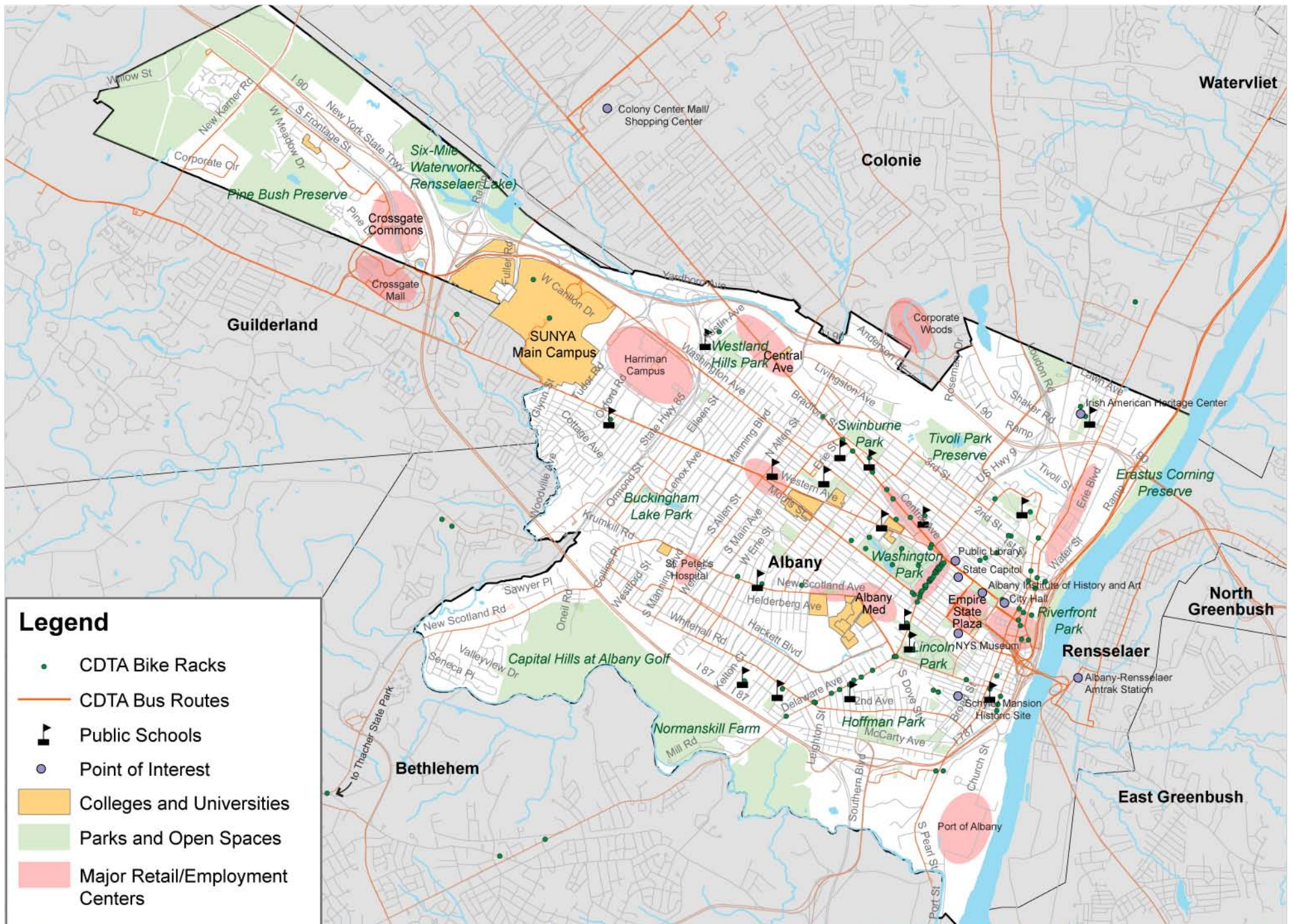
The City of Albany has a variety of institutions, schools, parks, commercial centers, and cultural destinations that generate existing bike traffic, or create the latent demand for future bicycling. One of the largest generators in the city is the Empire State Plaza and surrounding Capital buildings. Thousands of people travel to and from these buildings every day. Albany Medical Center and St. Peter's Hospital, both located in midtown Albany, are large generators, as are the few other large office complexes located around the City of Albany, specifically on Western Avenue Extension.

There are also several colleges located within the City of Albany that become large generators during the school year. The University at Albany has its large main campus in the western portion of the city and a downtown campus near Washington Park. The College of St Rose is located along Madison Avenue and Sage College is located near the Albany Medical Center.

There are also several other significant open-space destinations within the City of Albany. Washington Park, Lincoln Park, 6 Mile Waterworks, the Corning Preserve and the Pinebush Preserve are all popular recreational destinations.

Retail centers are located throughout the City of Albany. There are several retail districts in the downtown area; along Lark Street, State Street, and N Pearl Street. Several other large retail centers are located along Central Avenue, Madison Avenue, and Washington Avenue Extension.

In aggregate, the Generators of Bicycle Traffic are shown on the map on the following page. They are illustrated to help Alta and the project team understand areas of the city where bicyclists are currently riding and to indicate where future demand exists. This, in turn, helps to inform recommendations for bicycle wayfinding signage and other improvements. The map also includes existing locations of bike racks throughout the city. This too helps the project team comprehend where current demand exists for bicycle-related improvements and hints at areas where future use can be expected.



Map 1: Generators of Bicycle Activity

City of Albany Bicycle Master Plan Implementation

Source: Data obtained from City of Albany | Author: Shannon Simms | Date: 8/27/12



0 0.5 1 Miles



2.3 Existing Bicycle Conditions

There are several multi-use trails and bicycle accommodations throughout the City of Albany (see map on page 7). Multi-use trails are prevalent in both Washington and Lincoln parks, as well as the Pinebush Preserve. The Mohawk-Hudson Bike-Hike Trail is located along the Hudson River waterfront; the 10' wide asphalt trail starts near the Dunn Memorial Bridge and runs north through the city. An additional multi-use trail is located on the north side of Hackett Boulevard. The University at Albany has also created a greenway around the main campus.

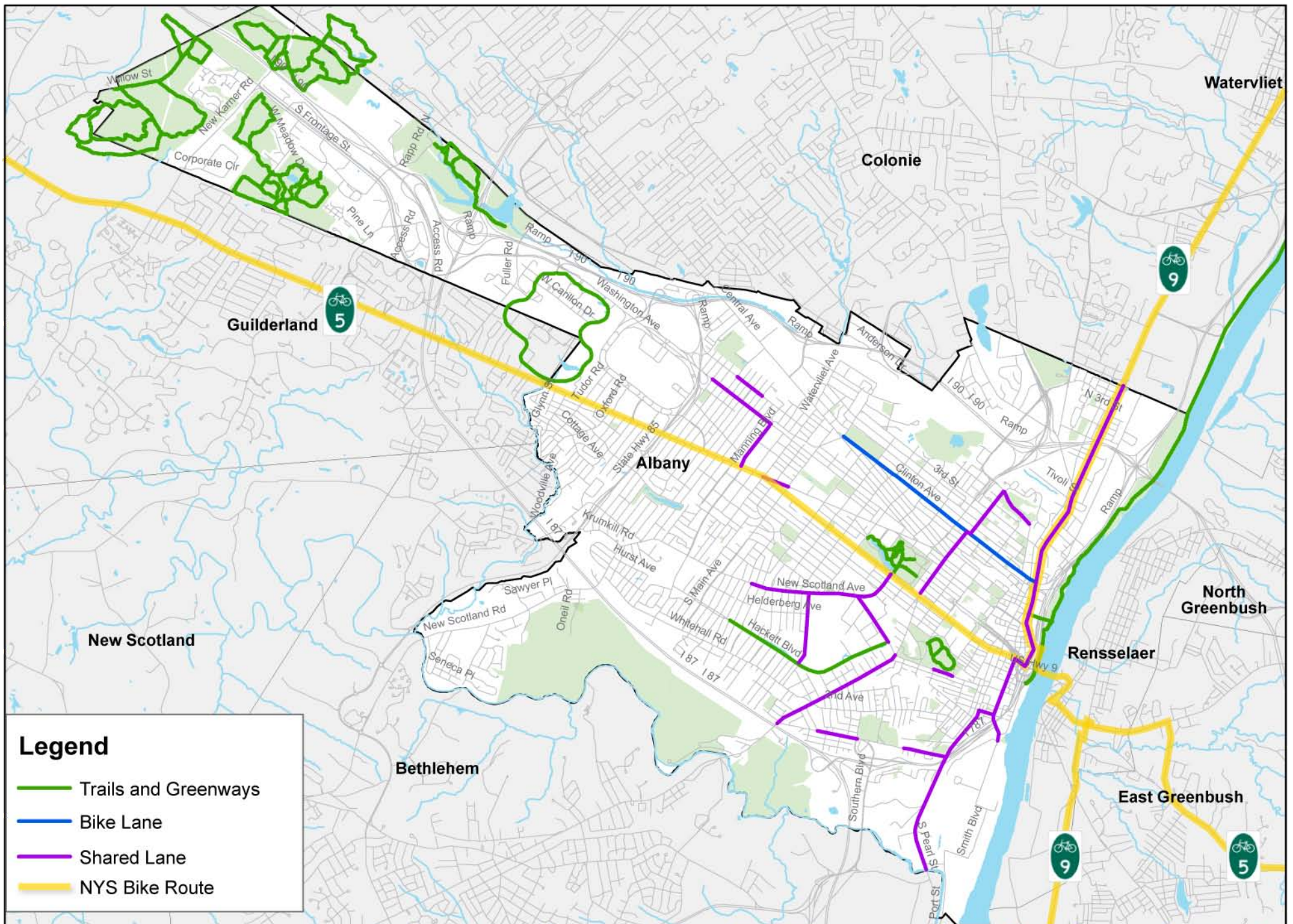
On-road bicycle accommodations are present on several roadways within the City. Shared lanes with sharrows exist on Washington Ave, Main St, Western Ave, Madison Ave, Delaware Ave, Academy Rd, New Scotland Ave and Lark Street. There are 5 foot bike lanes in either direction on Clinton Ave between Ten Broeck St and Lexington Avenue. There are several roadways that have been reconstructed to provide a wide 14 foot outside lane that provides some breathing room for bicyclists. These roadways include: Central Ave (Everett Rd to City line); Whitehall Rd (New Scotland to Cardinal); Western Ave (Manning to Brevator); Washington Ave (Jemain to UAlbany); and New Scotland Ave (I-87 to City line).

There are two New York State Bike Routes (NYSBR) that transverse the City of Albany. NYS BR5 runs east to west from the Dunn Memorial Bridge, along Madison Ave and Western Ave to the City line. NYS BR9 runs north to south extending from the northern City line on Broadway to the Dunn Memorial Bridge.

2.4 Existing Wayfinding Signage

A range of wayfinding signage is located throughout the City of Albany. Route information and vehicle signage is prevalent throughout the City. This includes regulatory signage, route markers, and both route and destination directional signage. Small bicycle markers are also located along the NYS Bike Routes. Additional on-road bicycle signage (such as 'share the road' signs) are minimal throughout the city.

In addition to wayfinding signage that is oriented to motor vehicles, there is pedestrian scale wayfinding signage located throughout the downtown district, specifically on North Pearl St and State St. These blue signs are located on the sidewalk (roughly 8 feet in height) and provide directions to local businesses and destinations, such as the Corning Preserve. Various wayfinding and historic information signage is also located sporadically throughout the rest of the city.



Map 2: Existing Bicycle Infrastructure

City of Albany Bicycle Master Plan Implementation

Source: Data obtained from City of Albany | Author: Shannon Simms | Date: 8/27/12



0 0.5 1 Miles



3 Wayfinding Signage

The section begins with an introduction to bicycle wayfinding and its benefits, guidelines for bicycle wayfinding signage as outlined in the Manual for Uniform Control Devices (MUTCD), as well as the New York State Supplement to the MUTCD and the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide. Further on, a summary of the eleven priority signage routes are included with detailed maps. A signage inventory and cost estimates are included for the routes in the appendix of this report.

Signage can serve both wayfinding and safety purposes, including:

- Helping to familiarize users with the bikeway system;
- Helping users identify the best routes to significant destinations;
- Directing bicyclists to preferred routes;
- Helping to address misperceptions about time and distance; and
- Helping to overcome a “barrier to entry” for people who do not bicycle often, but who want to get started.

Placing signs throughout the city indicating to bicyclists their direction of travel, the location of destinations, and the riding distance to those destinations will make the bicycle system more accessible to all users. To be most effective, wayfinding signage should be coupled with other bike-facility improvements along a given roadway, either striped bike lanes or, at a minimum, shared lane markings in the travel lane. Wayfinding signs also provide visual cues to motorists that they are driving along a bicycle route and should use caution. Signs are typically placed at key locations leading to and along bicycle routes, including the intersection of multiple routes. Choosing the right number of signs is important, since having too many road signs can clutter the right-of-way. It is recommended that bikeway signs be posted at a level most visible to bicyclists and pedestrians.

3.1 Signage Guidance

Uniformity, legibility and adherence to existing standards are among the elements to consider when determining the appropriate wayfinding sign design for Albany. National, state, and local standards, along with local input, should guide the development of signage design. Specifically, the 2009 MUTCD and the New York State Supplement to the 2009 MUTCD provide the most relevant standards, while additional guidelines can be found in the NACTO Urban Bikeway Design Guide.

3.1.1 Signage Types

Confirmation Signage:

The purpose of confirmation signage is to indicate to cyclists and drivers that the roadway is a designated bikeway. Directional arrows should not be included on this type of signage. Placement should be every ¼ to ½ mile on off-street accommodations and every 2 to 3 blocks along on-street bicycle accommodations, unless another type of sign is used (e.g., within 150 feet of a turn



Figure 2: Variety of Confirmation Signage

or destination sign). Confirmation signage should also be placed soon after turns to confirm destination(s). Pavement markings can also act as confirmation that a bicyclist is on a preferred route. The images in Figure 2 are examples of existing confirmation signage from different communities.

Destination Signage:

Turn Signs:

The purpose of turn signs is to indicate a change in the bicycle route; where the bicycle route turns from one street onto another. Information should include destinations and arrows. Placement of turn signs should be located on the near-side of intersections where bike routes turn (e.g., where the street ceases to be a bicycle route or does not go through). Pavement markings can also indicate the need to turn to the bicyclist. Examples of turning signs from a few sources that conform to standards and guidelines are shown in Figure 3.



Figure 3: Turn Signs

Decision Signs:

The purpose of decision signs is to mark the junction of two or more bikeways and to inform bicyclists of correct designated bike routes to access key destinations. It is recommended that decision signs include destinations, arrows, distances, and travel times. Placement of decision signs should be located on the near-side of intersections in advance of a junction with another bicycle route and along a route to indicate a nearby destination. The following are examples of decision signs that conform to standards and guidelines.

Figure 5 exemplifies the placement of these types of signage locations at an intersection as outlined by the MUTCD.



Figure 4: Decision Signs

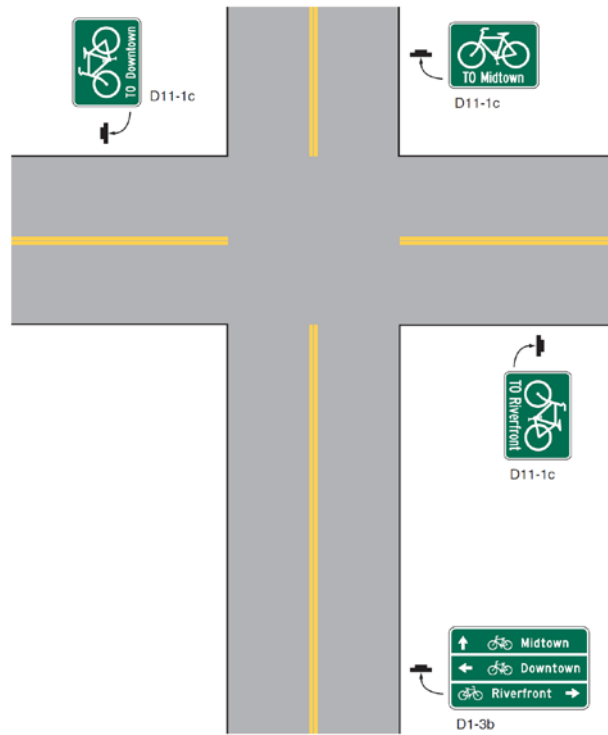


Figure 5: Example of Bicycle Guide Signing, Figure 9B-6 from the MUTCD

3.1.2 Design Guidance

Bicycle Route Signage

The bicycle route signage standard contains a route destination and a green background with a retroreflective white legend and border. The signage shall also include a pictograph or words that are associated with the route or agency that has jurisdiction over the route, for example, the route name or identification as a New York State or City of Albany bicycle route.

Bicycle route signage should establish continuous routing, and can be used with various types of bikeways.

Auxiliary plaques indicate additional information about the bicycle route. Colors need to match the associated bicycle route sign. Junction, cardinal direction, and alternative route plaques should be mounted above the bicycle route sign, while advanced turn arrows and direction arrows should be mounted below the bicycle route sign. Auxiliary plaques with word legends should be a minimum of 12 x 6 inches and plaques with arrow symbols should be a minimum of 12 x 9 inches. Destination signs may also be mounted below the bicycle route signs.



Figure 6



Figure 7

Destination Signage

Destination, or wayfinding, signage directs bicyclists to stay on bicycle routes or other routes. Wayfinding signage also directs users to different types of destinations such as commercial centers, schools, parks, and hospitals. Primary destinations, such as the downtown area, should be included on signage up to five miles away from the location. Secondary destinations may be included up to two miles away, while tertiary destinations that are more local in nature may be included on signage up to one mile way. In the future, signage can also help direct people to nearby bike share stations, if a system were to be implemented.

Neighborhood Bikeway Signage & Pavement Markings

Neighborhood bikeways are low-volume streets where motorists and bicyclists share the same space and generally travel at the same speed. There are several techniques for identifying and signing neighborhood bikeways. Street sign modification such as color coding or adding a bicycle symbol is an unobtrusive way of identifying a neighborhood greenway without adding new signage to the roadway. Traditional bicycle route signs as described above can also be used. Additional or different symbols are recommended to differentiate the neighborhood bikeway from other higher traffic bicycle routes.

Pavement markings can be used in tandem with signage. Pavement markings are another way to identify routes and alert vehicles to the presence of bicyclists. Pavement markings can range from shared lane markings to small dots that measure a foot across to identify that the street is a designated neighborhood bikeway. These markings can also vary by route. Any signage or pavement markings that are non-standard require permission from New York State Department of Transportation and the Federal Highway Administration.

Other Bicycle Route Signs

There are other bicycle route signs that can be used to identify roadways as bicycle routes and warn drivers of the presence of bicyclists. The NYS supplement to the MUTCD does not allow for the use of "Bikes May Use Full Lane" signage. The preference is given to shared lane markings and "Share the Road" signage (MUTCD W16-1), which should be used when there is a need to warn motorists to watch for bicyclists, such as sharp curves or narrow lanes. "Share the road" signs must accompany a bicycle warning sign (MUTCD W11-1), as shown in Figure 8, and should be installed at least 50 feet prior to the condition that would warrant this additional alert to drivers. The "Share the road" signs can be used on their own, or in conjunction with the bicycle sign, as shown.



Figure 8

Mile Markers

Shared use paths should include mile markers that indicate direction or distance to the trail terminus, a trailhead or other access point. Mile markers are also helpful when providing locational information to maintenance crews or for emergency response. Mile markers are typically good locations to also post signs with phone number or e-mail addresses where someone can report any maintenance, security or safety issues along the path.

Pavement Markings

There are several options for bicycle pavement markings. Bicycle lane markings are used to designate a portion of the roadway for preferential use by bicyclists. According to MUTCD guidelines, longitudinal pavement markings must be used to define these bicycle lanes. Bicycle lane markings should be placed at the beginning of a bicycle lane, and at periodic intervals, based on engineering judgment. Markings and designations can be used approximately every 250 feet, and should be located prior to intersections and crossings.

Bicycle lanes must not be positioned to the right of a right turn only lane or to the left of a left turn only lane, to avoid conflicts with turning vehicles.

Shared lane markings are road markings used to indicate a shared lane environment for bicyclists and automobiles. According to the *AASHTO Guide for the Development of Bicycle Facilities* (2012), these markings are intended to alert all road users to the lateral position bicyclists are likely to occupy within the traveled way, therefore encouraging safer passing practices. The *NACTO Urban Bikeway Design Guide* additionally states that shared lane markings may be configured to offer directional or way finding guidance.

Shared lane markings (SLM) cannot be used on shoulders or in designated bicycle lanes and should not be placed on roadways with a speed limit above 35 mph. Shared lane markings should be placed immediately after an intersection and spaced no greater than 250 feet thereafter.

If used in a shared lane with parallel parking, shared lane markings should be placed so that the center of the markings are at least 11 feet from the face of the curb or the edge of the pavement. If the shared lane that sits adjacent to the parallel parking is less than 14' in width, one option is to place the SLM in the center of the travel lane. This configuration places the SLM between most vehicles' wheel-wells and can therefore reduce wear and tear on the roadway marking. If no on-street parking is present, the center of the SLM should be at least 4 feet from the face of curb or edge of pavement.

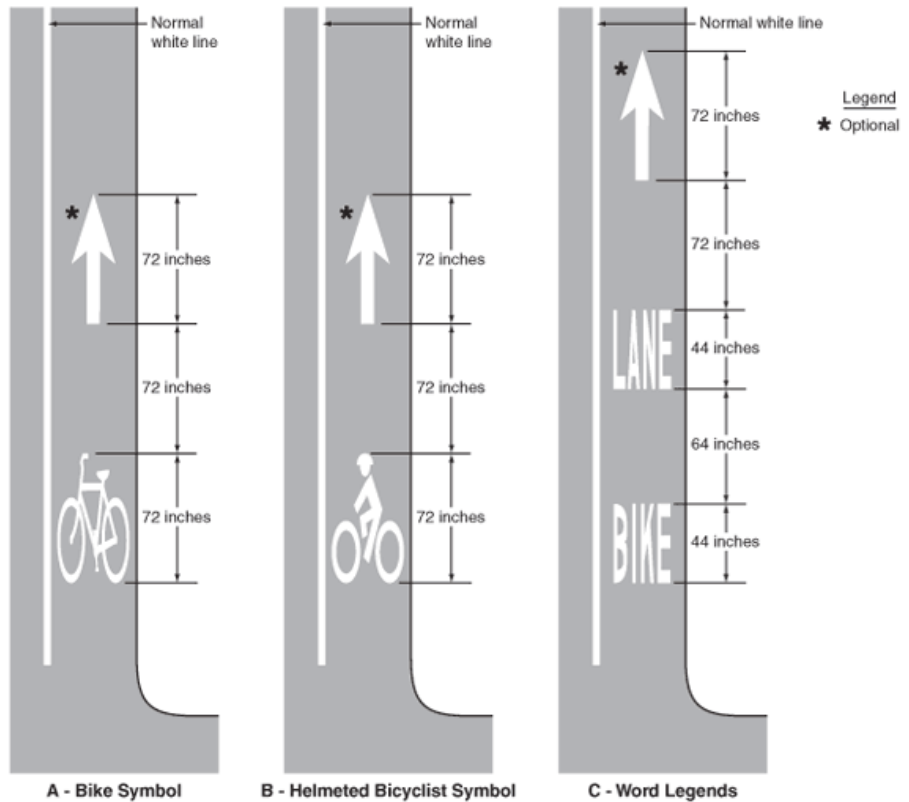


Figure 9

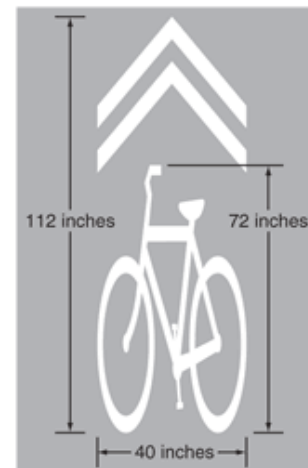


Figure 10

3.2 Albany Signage

This Strategy report recommends that Albany implement bicycle route signage along wayfinding routes throughout the City of Albany and identify priority destinations for cyclists. Signage design should include the identification of the bicycle route name (such as "Washington") and a list of key destinations along each route with directional arrows. The addition of mileage readings is intended to help bicyclists understand the approximate distance to each destination.

The Strategy also recommends that wayfinding signage should be coordinated in conjunction with other safety and accessibility improvements for bicyclists along the particular roadway. The wayfinding signage, therefore, should be considered one item within a toolbox of potential enhancements including shared lane markings ("sharrows"), bike lanes or other, more innovative facilities such as bicycle signals, cycle tracks and bike boxes.

Ultimately, some type of signage should identify all of the routes indicated in the Albany Bike Master Plan. However, priority routes and destinations for wayfinding signage are identified below.



Figure 11

3.2.1 Wayfinding Routes

Eleven priority wayfinding routes were identified through comments made at the September community workshop and in conversation with the study advisory committee. These routes run along a handful of key streets throughout the city, some with existing or planned bike facilities, some with low volumes and speeds, and some on busier streets without existing/planned shared lane markings or bike lanes. Signage is recommended at or near the City line wherever possible to help cyclists transition to or from Albany's adjacent communities.

The priority routes are described below and identified on Map 3.

Priority Routes

1. Western Avenue, Madison Avenue, Lark Street, Washington Avenue and State Street from University at Albany to the Corning Preserve
2. Washington Avenue from University at Albany to Lark Street
3. Western Avenue from Madison Avenue to Washington Avenue
4. Broadway from City Line to State Street
5. Central Avenue from the City Line to Clinton Avenue
6. New Scotland Avenue from City Line to Madison Avenue
7. Manning Boulevard from New Scotland Avenue to Clinton Avenue
8. Clinton Avenue from Manning Boulevard to Broadway
9. Delaware Avenue from City Line to Madison Avenue
10. Lark Street from Washington Avenue to Livingston Ave
11. South Pearl Street from State Street to City Line

ALBANY BICYCLE SIGNAGE AND WAYFINDING STRATEGY

If and when a bicycle route map is developed, this study recommends that the map be incorporated into public kiosks installed in key locations in the city, primarily at the intersections of the priority routes or at important destinations such as the University at Albany campus or City Hall (see Map 3 for proposed locations). QR codes can also be included on map kiosks and linked to an online interactive bicycle route and destination map.

3.2.2 Priority Destinations

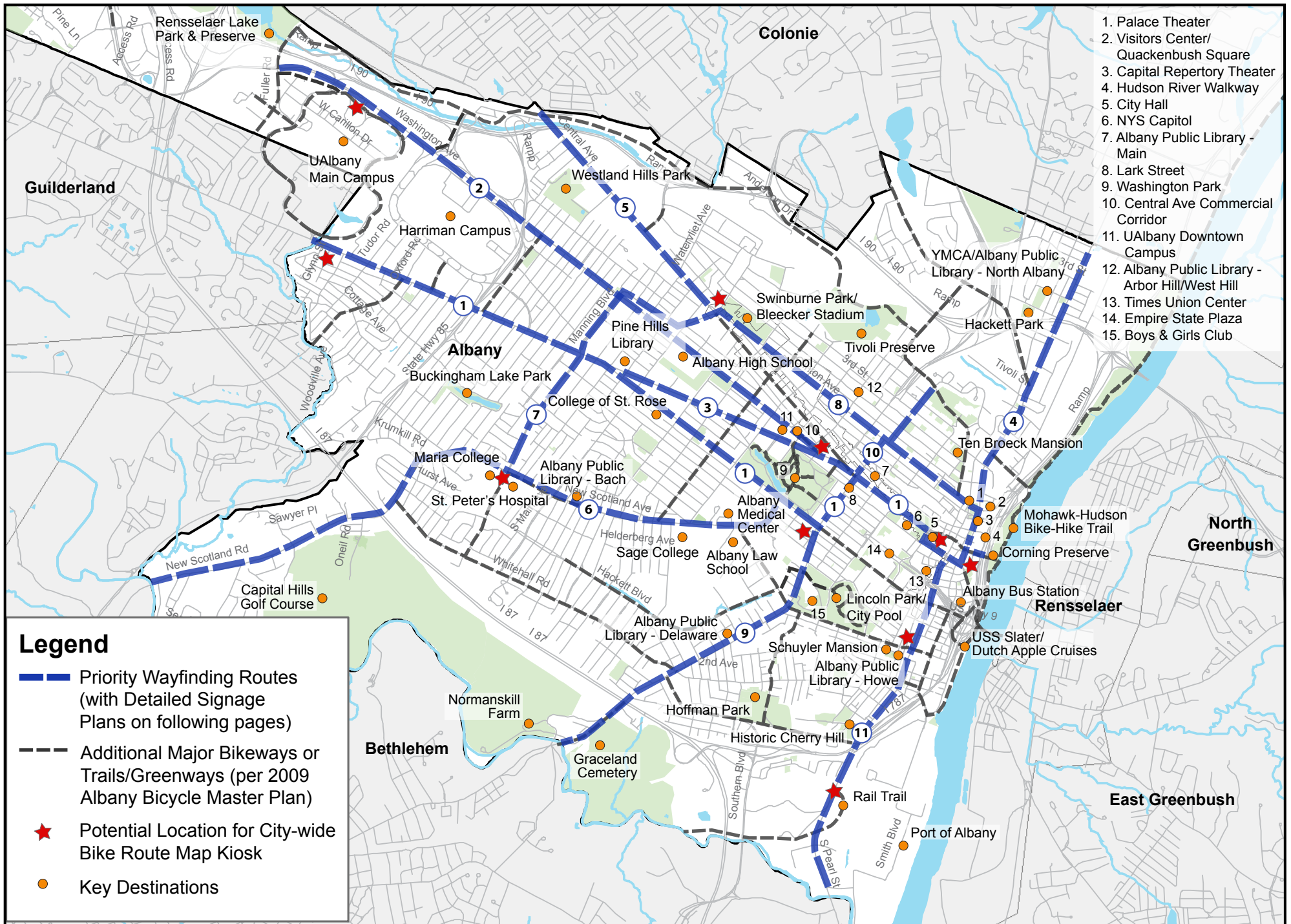
A number of priority destinations were also identified by participants in the community workshop. Priority destinations are those that should be highlighted by wayfinding signage, on maps and directional signs.

These included: Corning Preserve, University at Albany (main and downtown campus), Empire State Plaza, Lark Street, miscellaneous grocery stores, Washington Park, Albany Medical Center, College of Saint Rose and Central Avenue. These destinations are also highlighted in Map 1 on the following page.

Other key destinations that should be noted include area hospitals, city schools, parks, government buildings, and other universities. Each destination that is identified should be given a hierarchy level to determine at what distance signage begins.



Figure 12: In key locations throughout Madison, WI, map kiosks show the city-wide bicycle network along with primary destinations



Map 3: Priority Routes for Wayfinding Signage



3.3 Implementation

Wayfinding plans for the 11 priority routes have been developed to illustrate how and where bicycle wayfinding should be implemented on key bicycle routes throughout the city. The signage plans are shown in Appendix B. In addition, cost estimates were developed for materials and installation of the routes. Approximate quantities for each type of bicycle wayfinding signage have been developed based on bicycle route mileage proposed. Table 1 summarizes the cost for each route, and detailed cost estimates are included in Appendix A.

Table 1: Cost Estimates for Materials and Installation of Priority Routes

| Route | Description | Endpoint 1 | Endpoint 2 | Number of Signs | Total cost |
|-------|--|----------------------|------------------|-----------------|-----------------|
| 1 | Western Ave. / Madison Ave. / Lark St. / Washington Ave. / State St. | University at Albany | Corning Preserve | 28 | \$11,200 |
| 2 | Washington Ave. | University at Albany | Lark St. | 13 | \$5,400 |
| 3 | Western Ave. | Madison Ave. | Washington Ave. | 9 | \$3,800 |
| 4 | Broadway | City Line | State St. | 15 | \$6,000 |
| 5 | Central Ave. | City Line | Clinton Ave. | 3 | \$1,400 |
| 6 | New Scotland Ave. | City Line | Madison Ave. | 13 | \$5,400 |
| 7 | Manning Blvd. | New Scotland Ave. | Clinton Ave. | 8 | \$3,400 |
| 8 | Clinton Ave. | Manning Blvd. | Broadway | 10 | \$4,200 |
| 9 | Delaware Ave. | City Line | Madison Ave. | 13 | \$5,400 |
| 10 | Lark St. | Washington | Livingston Ave. | 6 | \$2,500 |
| 11 | South Pearl St. | State St. | City Line | 9 | \$3,800 |
| | TOTAL | | | 127 | \$52,500 |

Appendix A: Priority Route Cost Estimates



CALCULATED BY: KGD
CHECKED BY: CDF

DATE: 1/14/2013
DATE: 6/28/2013

Albany Bicycle Linkage
28-Jun-13

Summary of Cost Estimates
28-Jun-13

| Route # | Description | Segment Length | Construction Cost | Total Cost |
|----------------|---|-----------------------|--------------------------|-------------------|
| 1 | UAlbany to Corning Preserve via. Western, Madison, Lark, Washington/State | 5.0 | \$ 11,200.00 | \$ 11,200.00 |
| 2 | Washington Ave: SUNY to Lark St | 4.0 | \$ 5,400.00 | \$ 5,400.00 |
| 3 | Western Ave: Madison Ave to Washington Ave | 1.4 | \$ 3,800.00 | \$ 3,800.00 |
| 4 | Broadway: City Line to End | 1.3 | \$ 6,000.00 | \$ 6,000.00 |
| 5 | Central Ave: City Line to Clinton Ave | 1.6 | \$ 1,400.00 | \$ 1,400.00 |
| 6 | New Scotland Ave: City Line to Madison Ave | 4.2 | \$ 5,400.00 | \$ 5,400.00 |
| 7 | Manning Blvd: New Scotland Ave to Clinton Ave | 1.9 | \$ 3,400.00 | \$ 3,400.00 |
| 8 | Clinton Ave: Manning Blvd to Broadway | 2.0 | \$ 4,200.00 | \$ 4,200.00 |
| 9 | Delaware Ave: City Line to Madison Ave | 2.1 | \$ 5,400.00 | \$ 5,400.00 |
| 10 | Lark St: Washington Ave to Livingston Ave | 0.8 | \$ 2,500.00 | \$ 2,500.00 |
| 11 | S.Pearl St: State St to City Line | 2.3 | \$ 3,800.00 | \$ 3,800.00 |

TOTALS: \$52,500.00 \$52,500.00



CALCULATED BY: KGD
CHECKED BY: CDF

DATE: 1/14/2013
DATE: 6/28/2013

Albany Bicycle Linkage
28-Jun-13

Description of Major Improvements:

Route 1: UAlbany to Corning Preserve via. Western, Madison, Lark, Washington/State

*Approximately 5.0 miles

Approximate ROW required: **SF** **0.0000** **Acres**

| ITEM DESCRIPTION | UNITS | PRICE | QUANTITY | TOTAL |
|----------------------------------|-------|----------|----------|-------------|
| Signs | EA | \$150.00 | 28 | \$ 4,200.00 |
| Sign Posts - Type A w/ knockouts | EA | \$175.00 | 28 | \$ 4,900.00 |

-All signs assumed dimensions = 24"x36" = 6.0 sf x \$25/sf = \$150

SUB-TOTAL \$9,100.00

ROUNDED SUBTOTAL: \$ 9,100

CONTINGENCY (10%) \$ 1,000

MAINT. AND PROT. OF TRAFFIC (4%) \$ 400

SURVEY AND STAKEOUT (2%) \$ 200

MOBILIZATION (4%) \$ 500

CONSTRUCTION TOTAL: \$ 11,200

SOFT COSTS:

DESIGN ENGINEERING (0%) \$ -

CONSTRUCTION INSPECTION (0%) \$ -

PROJECT TOTAL: \$ 11,200



CALCULATED BY: KGD
 CHECKED BY: GEG

DATE: 1/14/2013
 DATE: 1/16/2013

Albany Bicycle Linkage
28-Jun-13

Description of Major Improvements:

Route 2: Washington Ave: SUNY to Lark St

*Approximately 4.0 miles

Approximate ROW required: **SF 0.0000 Acres**

| ITEM DESCRIPTION | UNITS | PRICE | QUANTITY | TOTAL |
|----------------------------------|-------|----------|----------|-------------|
| Signs | EA | \$150.00 | 13 | \$ 1,950.00 |
| Sign Posts - Type A w/ knockouts | EA | \$175.00 | 13 | \$ 2,275.00 |

-All signs assumed dimensions = 24"x36" = 6.0 sf x \$25/sf = \$150

SUB-TOTAL \$4,225.00

ROUNDED SUBTOTAL: \$ 4,300
 CONTINGENCY (10%) \$ 500
 MAINT. AND PROT. OF TRAFFIC (4%) \$ 200
 SURVEY AND STAKEOUT (2%) \$ 100
 MOBILIZATION (4%) \$ 300

CONSTRUCTION TOTAL: \$ 5,400

SOFT COSTS:
 DESIGN ENGINEERING (10%) \$ -
 CONSTRUCTION INSPECTION (0%) \$ -

PROJECT TOTAL: \$ 5,400



CALCULATED BY: KGD
CHECKED BY: GEG

DATE: 1/14/2013
DATE: 1/16/2013

Albany Bicycle Linkage
28-Jun-13

Description of Major Improvements:

Route 3: Western Ave: Madison Ave to Washington Ave

*Approximately 1.4 miles

Approximate ROW required: **SF 0.0000 Acres**

| ITEM DESCRIPTION | UNITS | PRICE | QUANTITY | TOTAL |
|----------------------------------|-------|----------|----------|-------------|
| Signs | EA | \$150.00 | 9 | \$ 1,350.00 |
| Sign Posts - Type A w/ knockouts | EA | \$175.00 | 9 | \$ 1,575.00 |

-All signs assumed dimensions = 24"x36" = 6.0 sf x \$25/sf = \$150

SUB-TOTAL \$2,925.00

ROUNDED SUBTOTAL: \$ 3,000

CONTINGENCY (10%) \$ 300

MAINT. AND PROT. OF TRAFFIC (4%) \$ 200

SURVEY AND STAKEOUT (2%) \$ 100

MOBILIZATION (4%) \$ 200

CONSTRUCTION TOTAL: \$ 3,800

SOFT COSTS:

DESIGN ENGINEERING (10%) \$ -

CONSTRUCTION INSPECTION (0%) \$ -

PROJECT TOTAL: \$ 3,800



CALCULATED BY: KGD
 CHECKED BY: GEG

DATE: 1/14/2013
 DATE: 1/16/2013

Albany Bicycle Linkage
28-Jun-13

Description of Major Improvements:

Route 4: Broadway: City Line to End

*Approximately 1.3 miles

Approximate ROW required: **SF 0.0000 Acres**

| ITEM DESCRIPTION | UNITS | PRICE | QUANTITY | TOTAL |
|----------------------------------|-------|----------|----------|-------------|
| Signs | EA | \$150.00 | 15 | \$ 2,250.00 |
| Sign Posts - Type A w/ knockouts | EA | \$175.00 | 15 | \$ 2,625.00 |

-All signs assumed dimensions = 24"x36" = 6.0 sf x \$25/sf = \$150

SUB-TOTAL \$4,875.00

ROUNDED SUBTOTAL: \$ 4,900
 CONTINGENCY (10%) \$ 500
 MAINT. AND PROT. OF TRAFFIC (4%) \$ 200
 SURVEY AND STAKEOUT (2%) \$ 100
 MOBILIZATION (4%) \$ 300

CONSTRUCTION TOTAL: \$ 6,000

SOFT COSTS:
 DESIGN ENGINEERING (10%) \$ -
 CONSTRUCTION INSPECTION (0%) \$ -

PROJECT TOTAL: \$ 6,000



CALCULATED BY: KGD
 CHECKED BY: GEG

DATE: 1/14/2013
 DATE: 1/16/2013

Albany Bicycle Linkage
28-Jun-13

Description of Major Improvements:
 Route 5: Central Ave: City Line to Clinton Ave
 *Approximately 1.6 miles

Approximate ROW required: **SF 0.0000 Acres**

| ITEM DESCRIPTION | UNITS | PRICE | QUANTITY | TOTAL |
|----------------------------------|-------|----------|----------|-----------|
| Signs | EA | \$150.00 | 3 | \$ 450.00 |
| Sign Posts - Type A w/ knockouts | EA | \$175.00 | 3 | \$ 525.00 |

-All signs assumed dimensions = 24"x36" = 6.0 sf x \$25/sf = \$150

| | |
|-------------------------------------|--------------|
| SUB-TOTAL | \$975.00 |
| ROUNDED SUBTOTAL: \$ | 1,000 |
| CONTINGENCY (10%) \$ | 100 |
| MAINT. AND PROT. OF TRAFFIC (4%) \$ | 100 |
| SURVEY AND STAKEOUT (2%) \$ | 100 |
| MOBILIZATION (4%) \$ | 100 |
| CONSTRUCTION TOTAL: \$ | 1,400 |
| SOFT COSTS: | |
| DESIGN ENGINEERING (10%) \$ | - |
| CONSTRUCTION INSPECTION (0%) \$ | - |
| PROJECT TOTAL: \$ | 1,400 |



CALCULATED BY: KGD
 CHECKED BY: CDF

DATE: 1/14/2013
 DATE: 6/28/2013

Albany Bicycle Linkage
28-Jun-13

Description of Major Improvements:

Route 6: New Scotland Ave: City Line to Madison Ave

*Approximately 4.2 miles

Approximate ROW required: **SF 0.0000 Acres**

| ITEM DESCRIPTION | UNITS | PRICE | QUANTITY | TOTAL |
|----------------------------------|-------|----------|----------|-------------|
| Signs | EA | \$150.00 | 13 | \$ 1,950.00 |
| Sign Posts - Type A w/ knockouts | EA | \$175.00 | 13 | \$ 2,275.00 |

-All signs assumed dimensions = 24"x36" = 6.0 sf x \$25/sf = \$150

SUB-TOTAL \$4,225.00

ROUNDED SUBTOTAL: \$ 4,300
 CONTINGENCY (10%) \$ 500
 MAINT. AND PROT. OF TRAFFIC (4%) \$ 200
 SURVEY AND STAKEOUT (2%) \$ 100
 MOBILIZATION (4%) \$ 300

CONSTRUCTION TOTAL: \$ 5,400

SOFT COSTS:
 DESIGN ENGINEERING (10%) \$ -
 CONSTRUCTION INSPECTION (0%) \$ -

PROJECT TOTAL: \$ 5,400



CALCULATED BY: KGD
 CHECKED BY: GEG

DATE: 1/14/2013
 DATE: 1/16/2013

Albany Bicycle Linkage
28-Jun-13

Description of Major Improvements:

Route 7: Manning Blvd: New Scotland Ave to Clinton Ave

*Approximately 1.9 miles

Approximate ROW required: **SF 0.0000 Acres**

| ITEM DESCRIPTION | UNITS | PRICE | QUANTITY | TOTAL |
|----------------------------------|-------|----------|----------|-------------|
| Signs | EA | \$150.00 | 8 | \$ 1,200.00 |
| Sign Posts - Type A w/ knockouts | EA | \$175.00 | 8 | \$ 1,400.00 |

-All signs assumed dimensions = 24"x36" = 6.0 sf x \$25/sf = \$150

SUB-TOTAL \$2,600.00

| | |
|----------------------------------|----------------------|
| ROUNDED SUBTOTAL: | \$ 2,600 |
| CONTINGENCY (10%) | \$ 300 |
| MAINT. AND PROT. OF TRAFFIC (4%) | \$ 200 |
| SURVEY AND STAKEOUT (2%) | \$ 100 |
| MOBILIZATION (4%) | \$ 200 |

CONSTRUCTION TOTAL: \$ 3,400

SOFT COSTS:

| | |
|------------------------------|-----------|
| DESIGN ENGINEERING (10%) | \$ - |
| CONSTRUCTION INSPECTION (0%) | \$ - |

PROJECT TOTAL: \$ 3,400



CALCULATED BY: KGD
 CHECKED BY: CDF

DATE: 1/14/2013
 DATE: 6/28/2013

Albany Bicycle Linkage
28-Jun-13

Description of Major Improvements:
 Route 8: Clinton Ave: Manning Blvd to Broadway
 *Approximately 2.0 miles

Approximate ROW required: **SF 0.0000 Acres**

| ITEM DESCRIPTION | UNITS | PRICE | QUANTITY | TOTAL |
|----------------------------------|-------|----------|----------|-------------|
| Signs | EA | \$150.00 | 10 | \$ 1,500.00 |
| Sign Posts - Type A w/ knockouts | EA | \$175.00 | 10 | \$ 1,750.00 |

-All signs assumed dimensions = 24"x36" = 6.0 sf x \$25/sf = \$150

| | |
|-------------------------------------|--------------|
| SUB-TOTAL | \$3,250.00 |
| ROUNDED SUBTOTAL: \$ | 3,300 |
| CONTINGENCY (10%) \$ | 400 |
| MAINT. AND PROT. OF TRAFFIC (4%) \$ | 200 |
| SURVEY AND STAKEOUT (2%) \$ | 100 |
| MOBILIZATION (4%) \$ | 200 |
| CONSTRUCTION TOTAL: \$ | 4,200 |
| SOFT COSTS: | |
| DESIGN ENGINEERING (10%) \$ | - |
| CONSTRUCTION INSPECTION (0%) \$ | - |
| PROJECT TOTAL: \$ | 4,200 |



CALCULATED BY: KGD
 CHECKED BY: CDF

DATE: 1/14/2013
 DATE: 6/28/2013

Albany Bicycle Linkage
28-Jun-13

Description of Major Improvements:

Route 9: Delaware Ave: City Line to Madison Ave
 *Approximately 2.1 miles

Approximate ROW required: **SF 0.0000 Acres**

| ITEM DESCRIPTION | UNITS | PRICE | QUANTITY | TOTAL |
|----------------------------------|-------|----------|----------|-------------|
| Signs | EA | \$150.00 | 13 | \$ 1,950.00 |
| Sign Posts - Type A w/ knockouts | EA | \$175.00 | 13 | \$ 2,275.00 |

-All signs assumed dimensions = 24"x36" = 6.0 sf x \$25/sf = \$150

| | |
|-------------------------------------|--------------|
| SUB-TOTAL | \$4,225.00 |
| ROUNDED SUBTOTAL: \$ | 4,300 |
| CONTINGENCY (10%) \$ | 500 |
| MAINT. AND PROT. OF TRAFFIC (4%) \$ | 200 |
| SURVEY AND STAKEOUT (2%) \$ | 100 |
| MOBILIZATION (4%) \$ | 300 |
| CONSTRUCTION TOTAL: \$ | 5,400 |
| SOFT COSTS: | |
| DESIGN ENGINEERING (10%) \$ | - |
| CONSTRUCTION INSPECTION (0%) \$ | - |
| PROJECT TOTAL: \$ | 5,400 |



CALCULATED BY: KGD
 CHECKED BY: GEG

DATE: 1/14/2013
 DATE: 1/16/2013

Albany Bicycle Linkage
28-Jun-13

Description of Major Improvements:

Route 10: Lark St: Washington Ave to Livingston Ave

*Approximately 0.8 miles

Approximate ROW required: **SF 0.0000 Acres**

| ITEM DESCRIPTION | UNITS | PRICE | QUANTITY | TOTAL |
|----------------------------------|-------|----------|----------|-------------|
| Signs | EA | \$150.00 | 6 | \$ 900.00 |
| Sign Posts - Type A w/ knockouts | EA | \$175.00 | 6 | \$ 1,050.00 |

-All signs assumed dimensions = 24"x36" = 6.0 sf x \$25/sf = \$150

SUB-TOTAL \$1,950.00

| | |
|----------------------------------|-----------------|
| ROUNDED SUBTOTAL: | \$ 2,000 |
| CONTINGENCY (10%) | \$ 200 |
| MAINT. AND PROT. OF TRAFFIC (4%) | \$ 100 |
| SURVEY AND STAKEOUT (2%) | \$ 100 |
| MOBILIZATION (4%) | \$ 100 |

CONSTRUCTION TOTAL: \$ 2,500

SOFT COSTS:

| | |
|------------------------------|------|
| DESIGN ENGINEERING (10%) | \$ - |
| CONSTRUCTION INSPECTION (0%) | \$ - |

PROJECT TOTAL: \$ 2,500



CALCULATED BY: KGD
 CHECKED BY: CDF

DATE: 1/14/2013
 DATE: 6/28/2013

Albany Bicycle Linkage
28-Jun-13

Description of Major Improvements:
 Route 11: S.Pearl St: State St to City Line
 *Approximately 2.3 miles

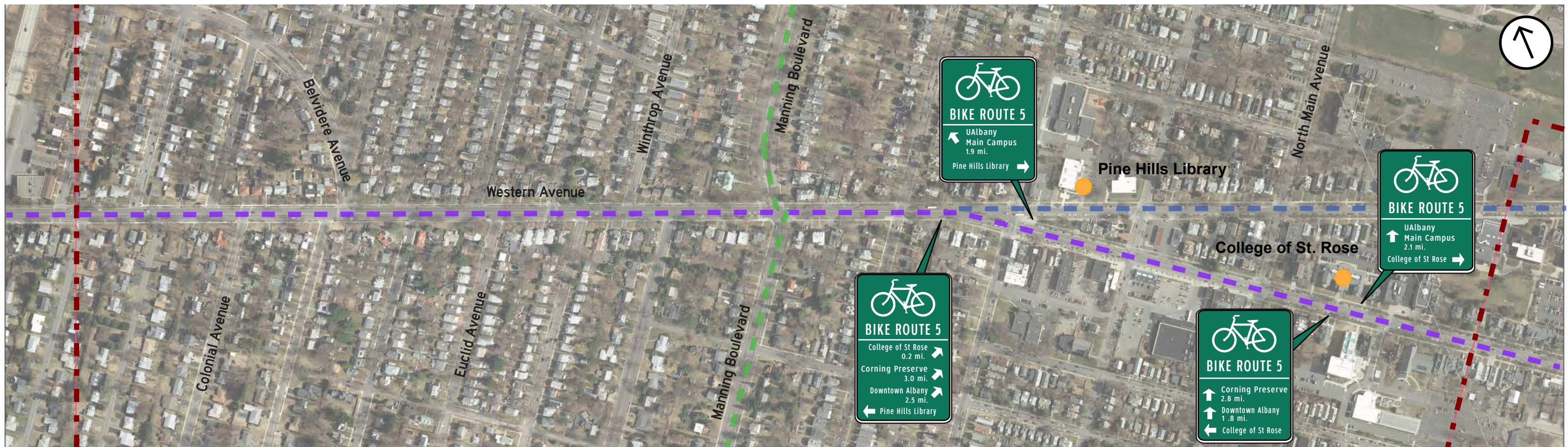
Approximate ROW required: **SF 0.0000 Acres**

| ITEM DESCRIPTION | UNITS | PRICE | QUANTITY | TOTAL |
|----------------------------------|-------|----------|----------|-------------|
| Signs | EA | \$150.00 | 9 | \$ 1,350.00 |
| Sign Posts - Type A w/ knockouts | EA | \$175.00 | 9 | \$ 1,575.00 |

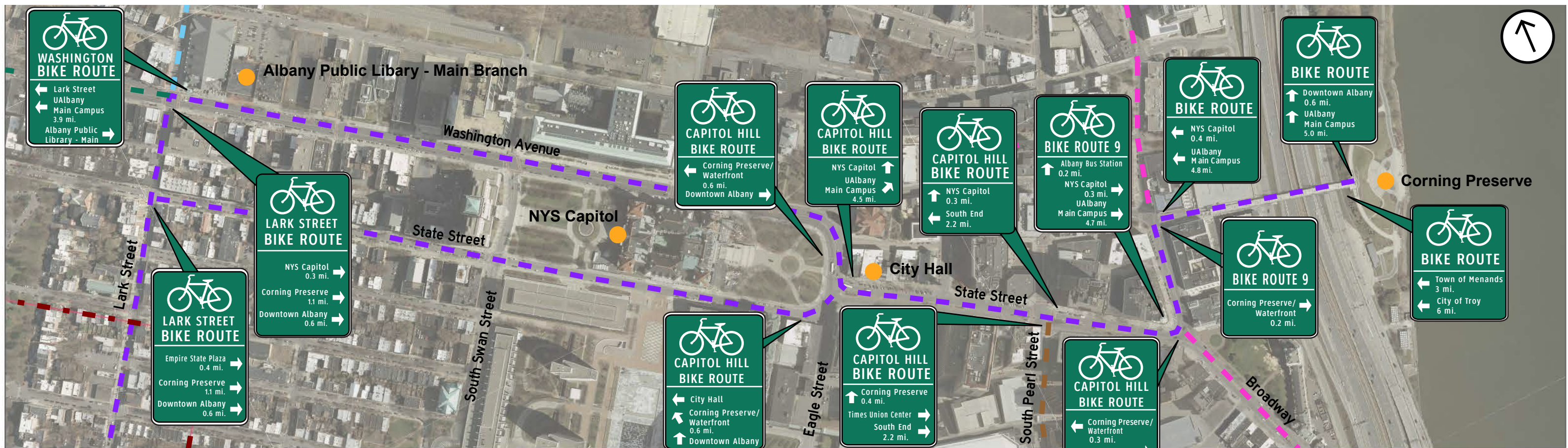
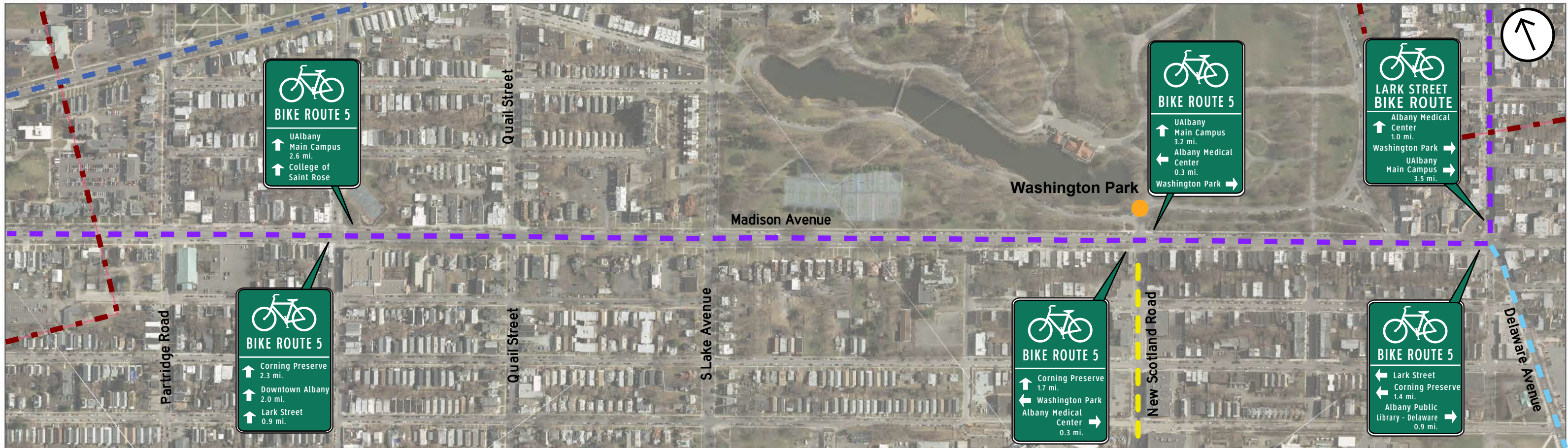
-All signs assumed dimensions = 24"x36" = 6.0 sf x \$25/sf = \$150

| | |
|-------------------------------------|--------------|
| SUB-TOTAL | \$2,925.00 |
| ROUNDED SUBTOTAL: \$ | 3,000 |
| CONTINGENCY (10%) \$ | 300 |
| MAINT. AND PROT. OF TRAFFIC (4%) \$ | 200 |
| SURVEY AND STAKEOUT (2%) \$ | 100 |
| MOBILIZATION (4%) \$ | 200 |
| CONSTRUCTION TOTAL: \$ | 3,800 |
| SOFT COSTS: | |
| DESIGN ENGINEERING (10%) \$ | - |
| CONSTRUCTION INSPECTION (0%) \$ | - |
| PROJECT TOTAL: \$ | 3,800 |

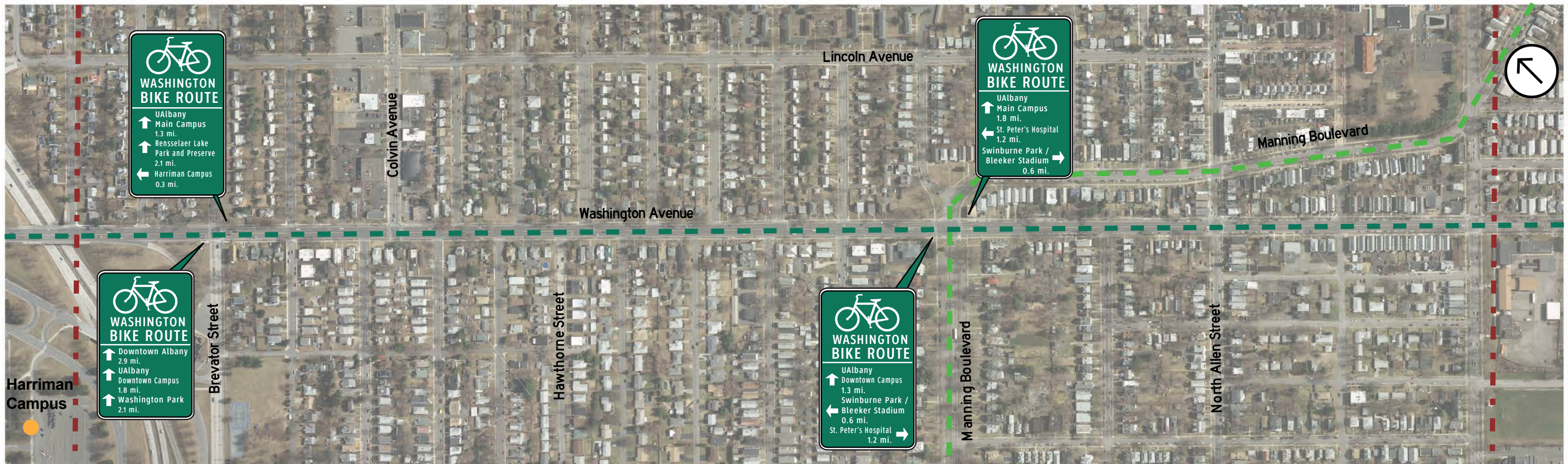
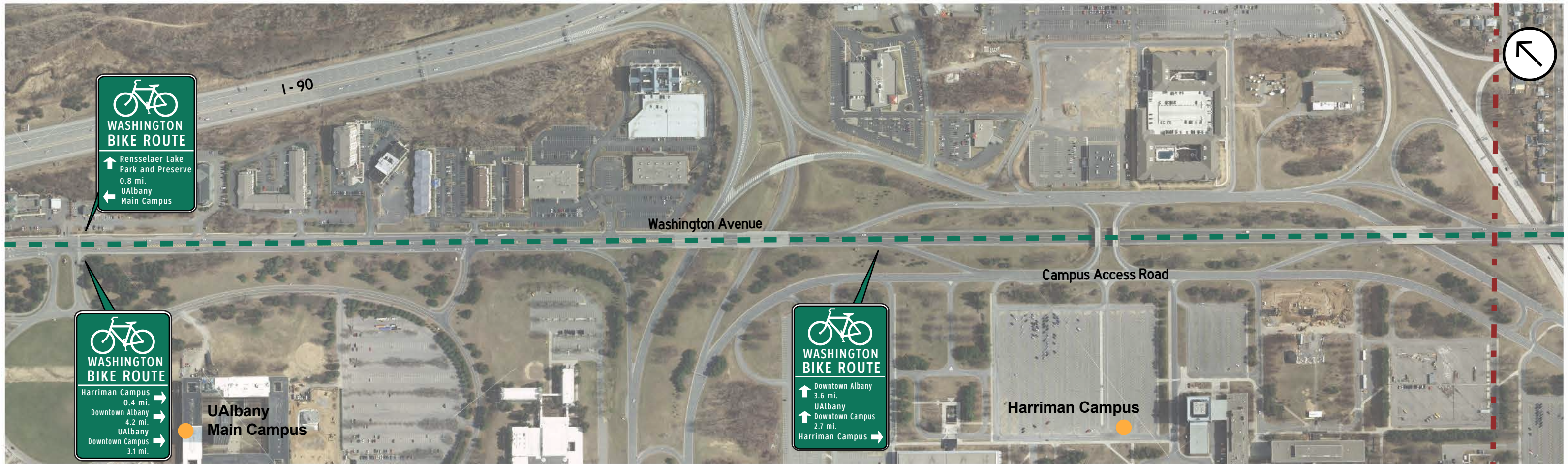
Appendix B: Detailed Priority Route Maps



Route 1: Western Ave./Madison Ave./Lark St./Washington Ave./State St./ from UAlbany to Corning Preserve



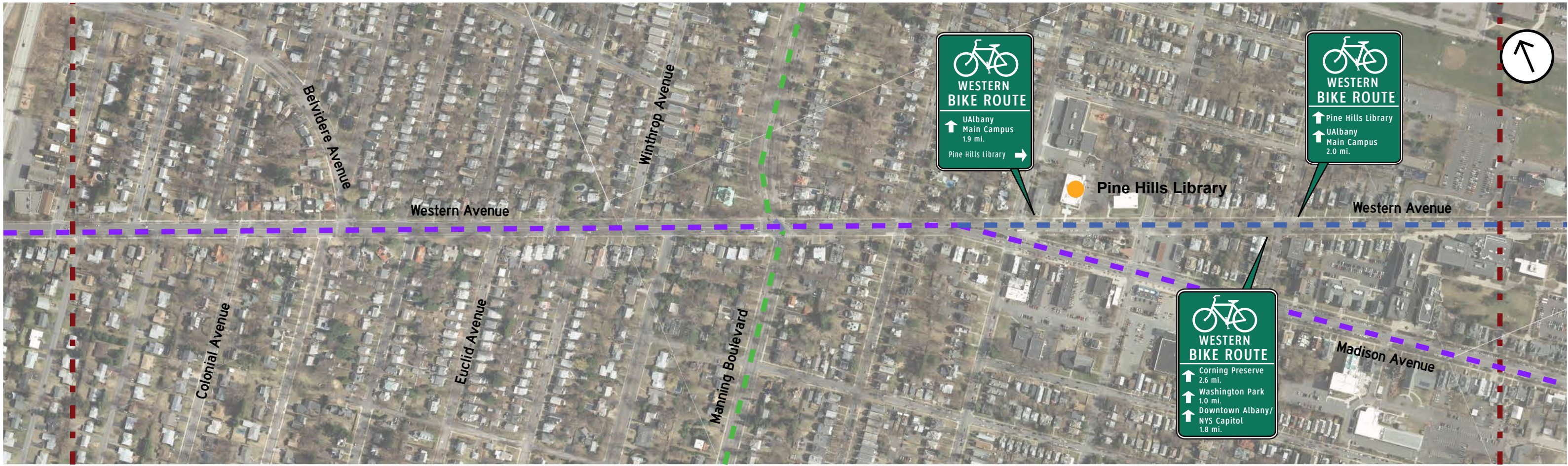
Route 1 (con't): Western Ave./Madison Ave./Lark St./Washington Ave./State St./ from UAlbany to Corning Preserve



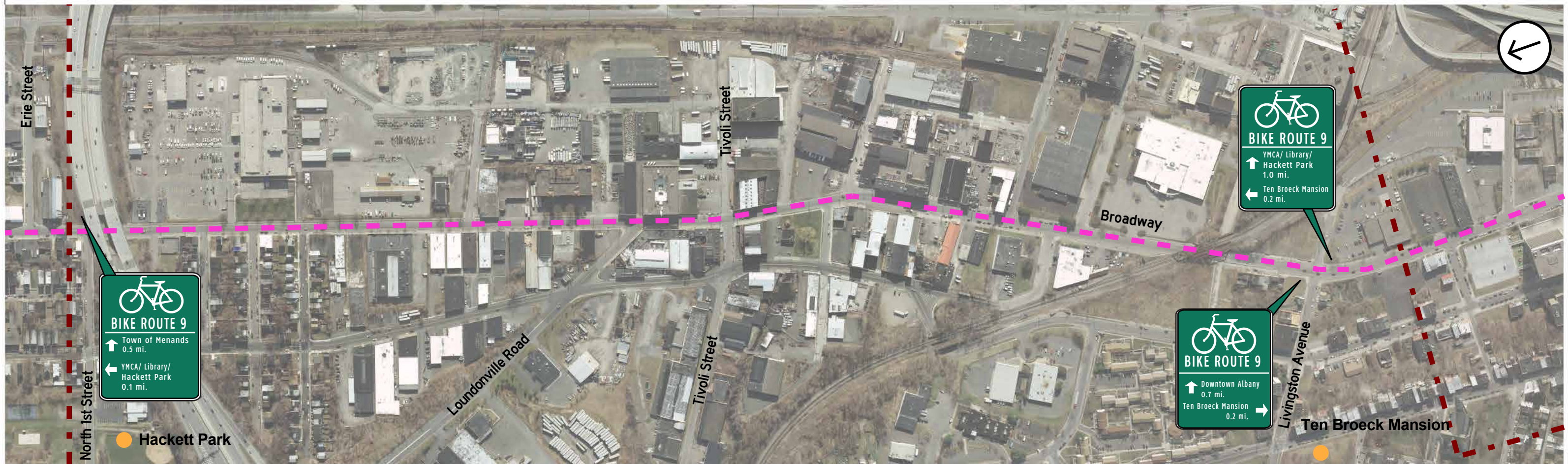
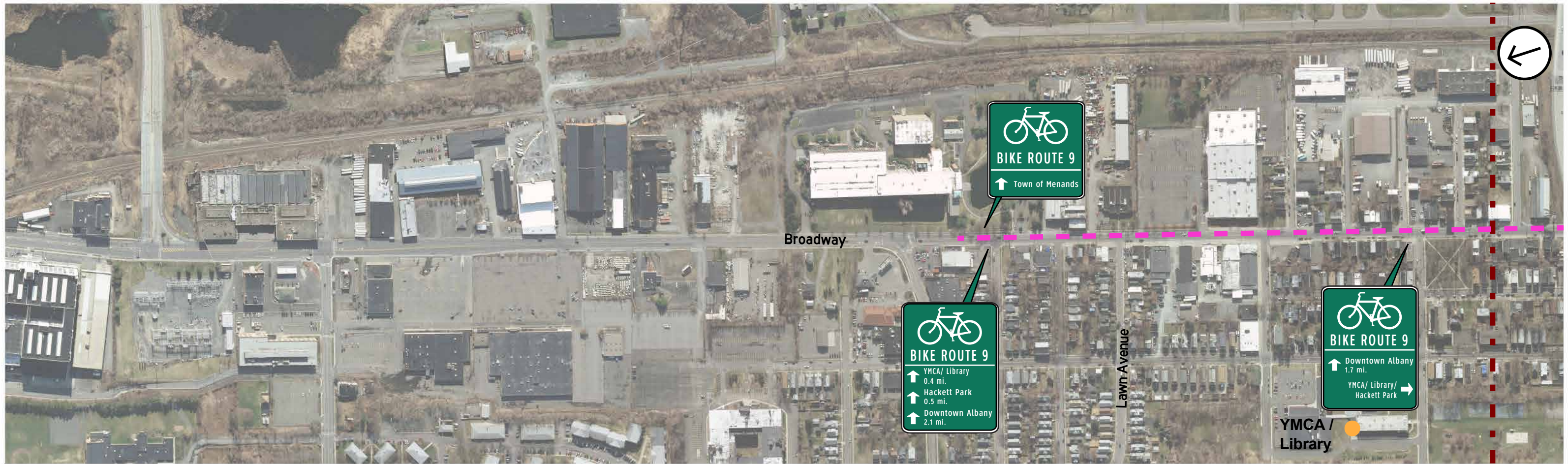
Route 2: Washington Avenue



Route 2 (con't): Washington Avenue



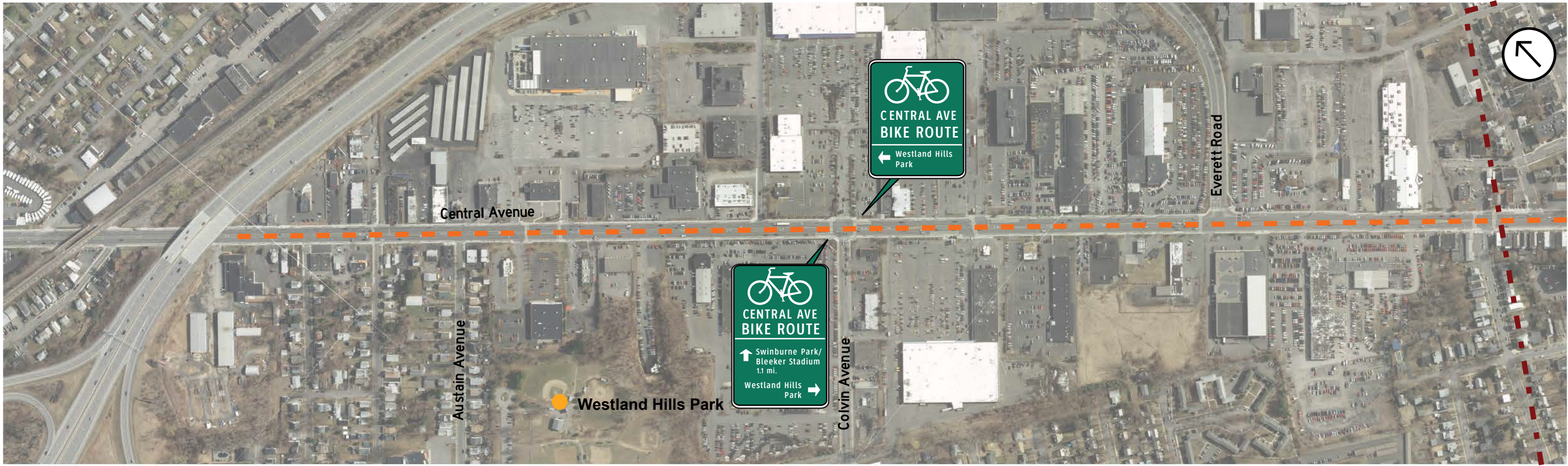
Route 3: Western Ave.



Route 4: Broadway



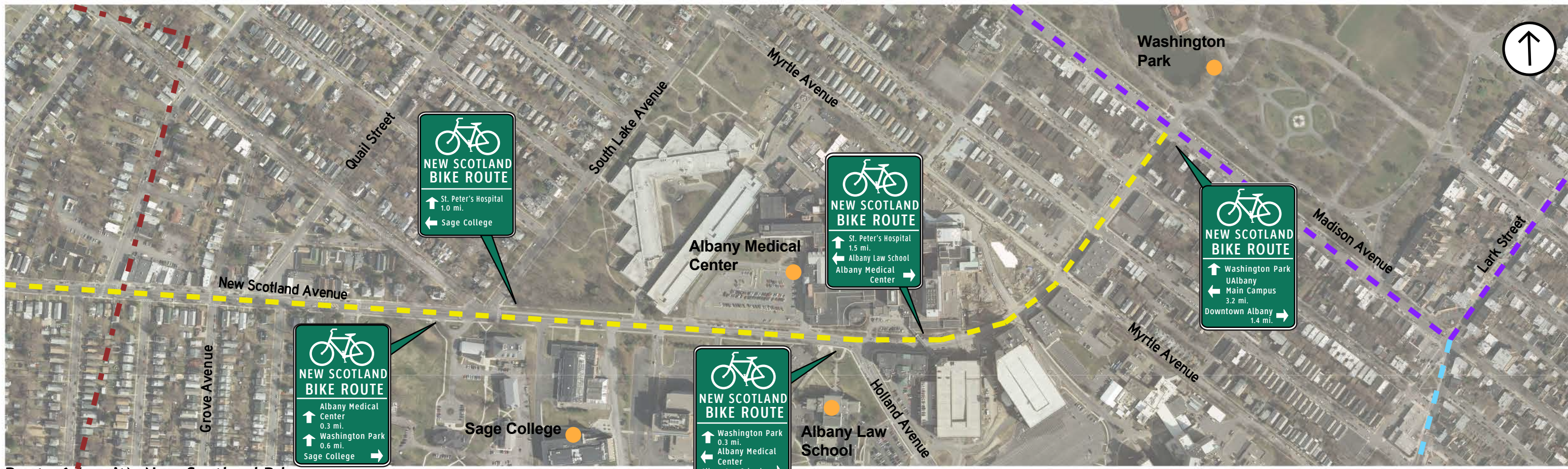
Route 4 (con't): Broadway



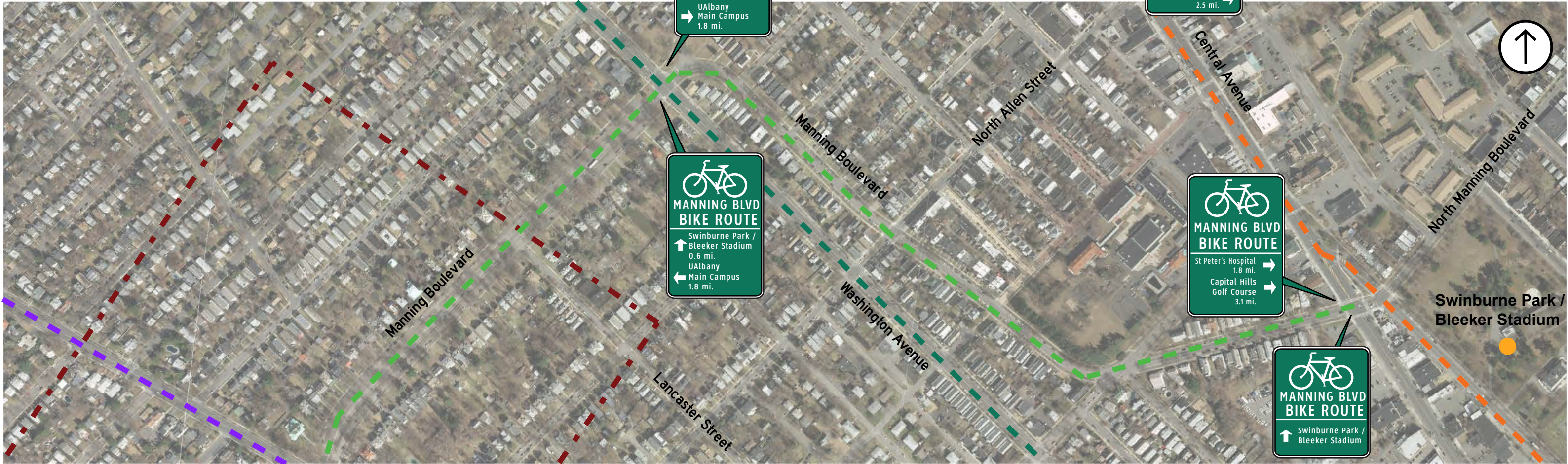
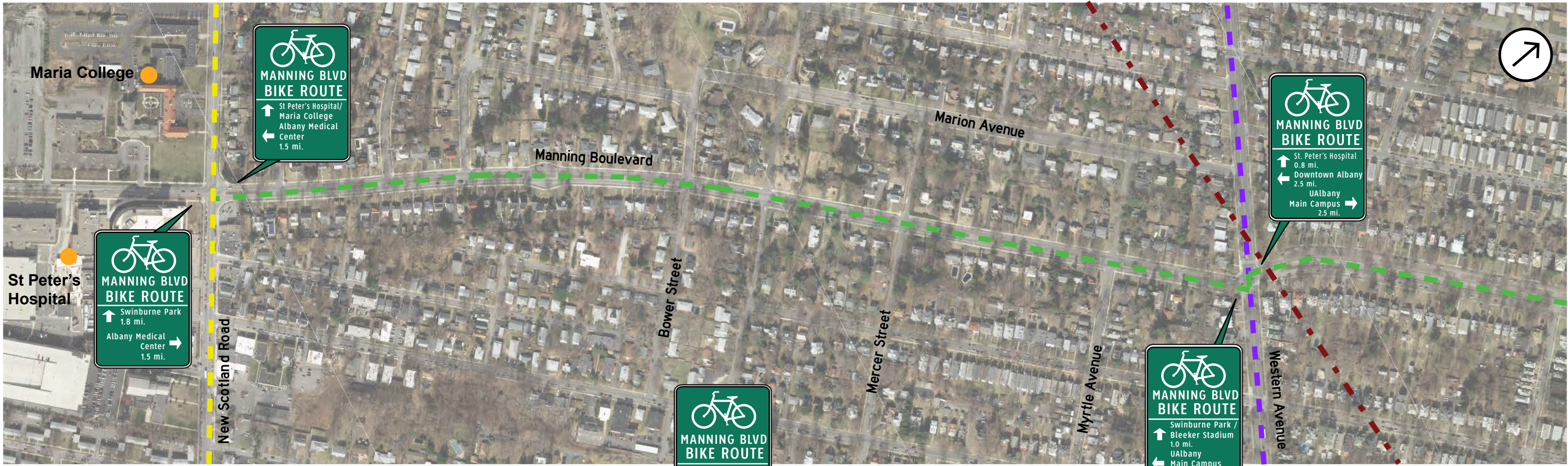
Route 5: Cental Ave. and Route 8: Clinton Ave.



Route 6: New Scotland Rd.



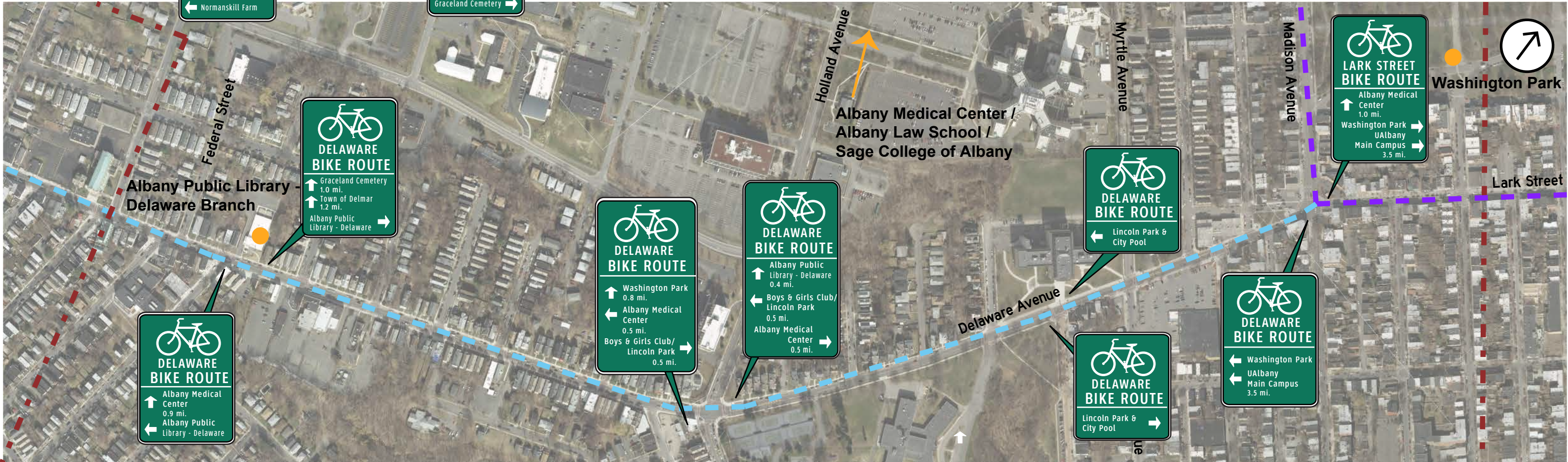
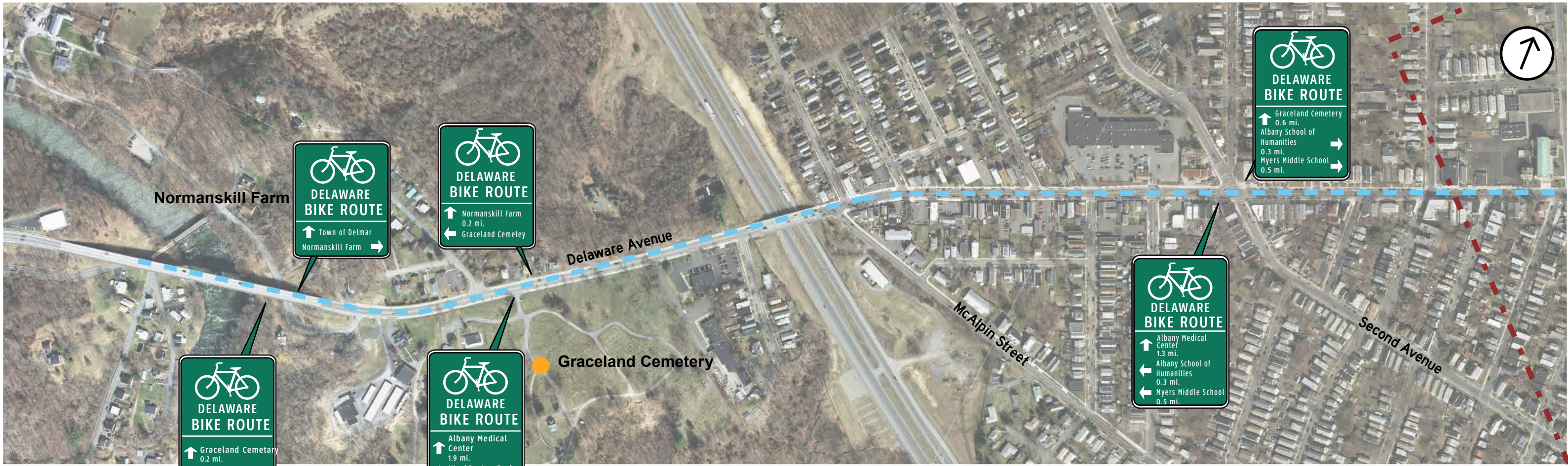
Route 6 (con't): New Scotland Rd.



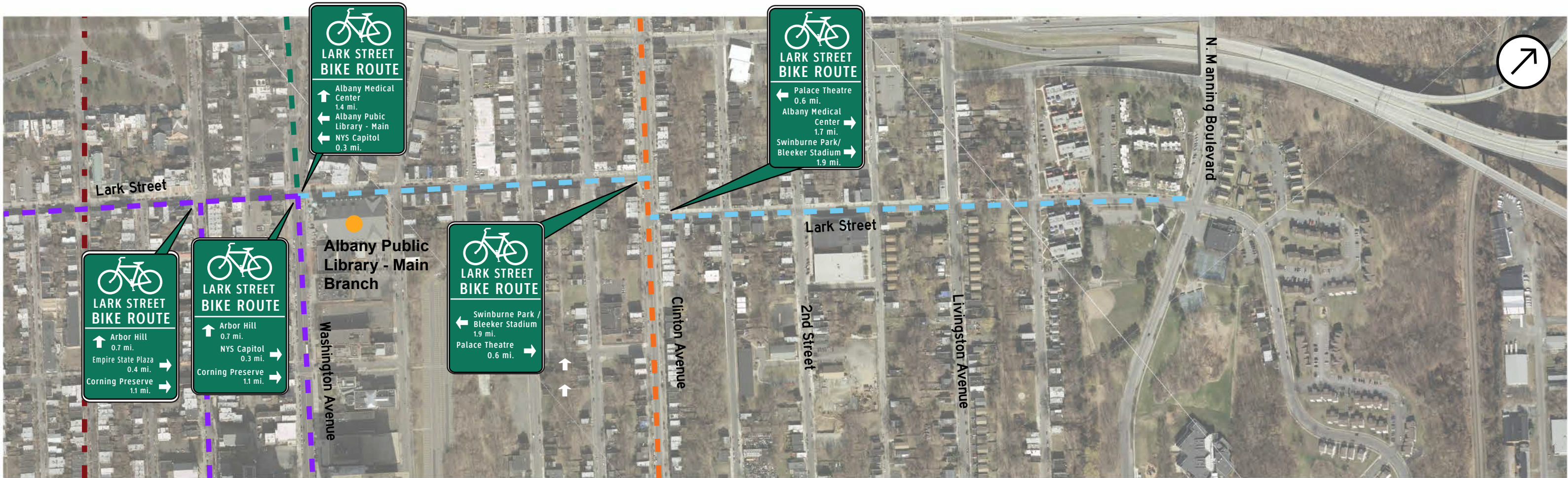
Route 7: Manning Blvd.



Route 8 (con't): Clinton Ave.



Route 9: Delaware Ave. and Route 10: Lark St.



Route 10 (con't): Lark St.



Route 11: South Pearl St.