



Bicycle Action Plan

Newburgh, NY

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A VISION FOR ACTIVE MOBILITY IN NEWBURGH

The City of Newburgh is poised to become a major bike hub for local residents and a world class bicycle destination for visitors. With a dense city grid, scenic vistas overlooking the Hudson River, access to Metro North (via the Newburgh-Beacon Bridge Shared Use path), proximity to Beacon – an existing destination for tourism in the Hudson Valley – historic sites and a vibrant commercial landscape, the City of Newburgh has many features which represent ideal opportunities for bicycle access.

Improving bicycle infrastructure and encouraging broader usage as a mode of transportation represents a significant opportunity to enhance equitable mobility for Newburgh residents, many of whom have limited access to cars. By bolstering the viability of bicycling as a safe and reliable mode of transportation, and empowering usage, the city would not only enhance connectivity but provide easier access to jobs, education, commuting, recreation and other opportunities.

While elevation, roadway surface conditions and a lack of safe bicycling infrastructure present challenges for current and would be cyclists, Newburgh is also home to a burgeoning bike community and a variety of recreational, commercial, tourism and transportation assets that make it a prime location for biking.

The purpose of this Bicycle Action Plan is to provide a preliminary roadmap for catalyzing a bicycle network including the development of routes, data collection strategies, essential amenities and innovative mobility opportunities.

GOALS & APPROACH

STUDY GOALS

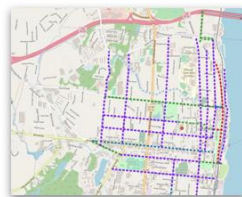
- 1 Inventory Existing Research Data & Initiatives



- 3 Identify Essential Data Points, Systems & Evaluation Frequency



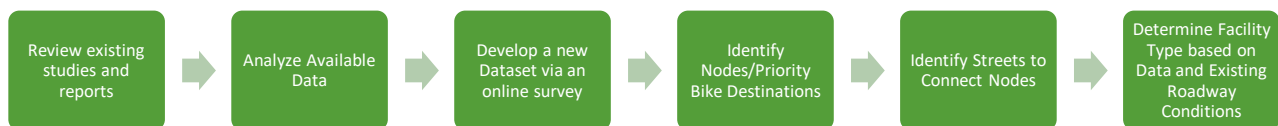
- 2 Establish Preliminary Network Plan & Implementation Framework



- 4 Develop Additional Recommendations to Enhance Cycling



APPROACH



BUILDING ON PREVIOUS WORK

Building a better bike network in Newburgh is not a new idea. Numerous planning initiatives and studies have addressed elements of cycling in the city. The following section provides a selection and summary of relevant work as it relates to bicycle mobility.

WALK, BIKE, RIDE, HIKE ORANGE COUNTY

In 2012, The Orange County Department of Planning Developed “Walk, Bike, Ride, Hike Orange County: A Framework for Non-Motorized Transportation in the Newburgh Area.” The purpose of this report was to serve as a foundation for a larger scale planning effort to facilitate walking, biking and hiking across the county. The report outlines community engagement outcomes and best practices with a focus on the Newburgh area. The study lays out a set of five goals including:

- Encouraging the increase of non motorized activity within the county
- Improved safety for bicyclists, pedestrians and trail users
- Develop integrated bicycle, pedestrian and trail networks in order to link users to major destinations
- Collaborate with local officials and citizens to participate in the planning process
- Identify funding sources for non motorized projects.

Bicycle mobility was an important topic for many participants who provided specific input on roadways that bicyclists use and avoid. Riding in roadway shoulders emerged as a popular practice and potential strategy for expanding accessible bike routes. Bicycle parking was another important topic with many participants indicating an inadequate quantity of bike parking in most communities represented. Lastly participants identified a need for more regular data collection on cycling. Additional topics included a need for more education around bicycle safety and a safe routes to school program as well as a mandate requiring developers to include bicycle facilities in their plans. The study also identifies bicycle facilities in the Newburgh Area and provides an assessment of their condition. This is mostly focused on state bike routes. The study includes specific recommendations for streets in Newburgh that could support bicycling.

ORANGE COUNTY'S LONG RANGE TRANSPORTATION PLAN (LRTP) 2045

The Orange County Transportation Council's 2019 Long Range Transportation Plan (LRTP) recognizes potential of bike/ped projects to enhance equity and quality of life. The plan refers to Newburgh as part of “priority growth area,” which - among many other transportation improvements - prioritizes complete street criteria and specifically includes bike lanes. The LRTP also prioritize opportunities for intermodal connections between transit systems.

The LRTP charges local municipalities with the goal of increasing the number and integrity of “protected bicycle facilities, and trails in areas where walking and biking trips could replace driving trips, facilitate connections to mass transit services, or otherwise enhance access to destinations within cities, villages, hamlets, and crossroads communities.”

As part of the plan's transit enhancement strategy, the LRTP recommends exploring the possibility of building multimodal transportation centers which would integrate transit trips with bicycle parking and accessibility enhancements for both bicyclists and pedestrians. The plan goes on to specifically recommend an exploration of a multimodal transportation hub in the city of Newburgh that facilitates bicycle and pedestrian access

Public workshops were held as part of the plan development. Safety for pedestrians and bicyclists was identified as an area of interest, as well as bike lanes.

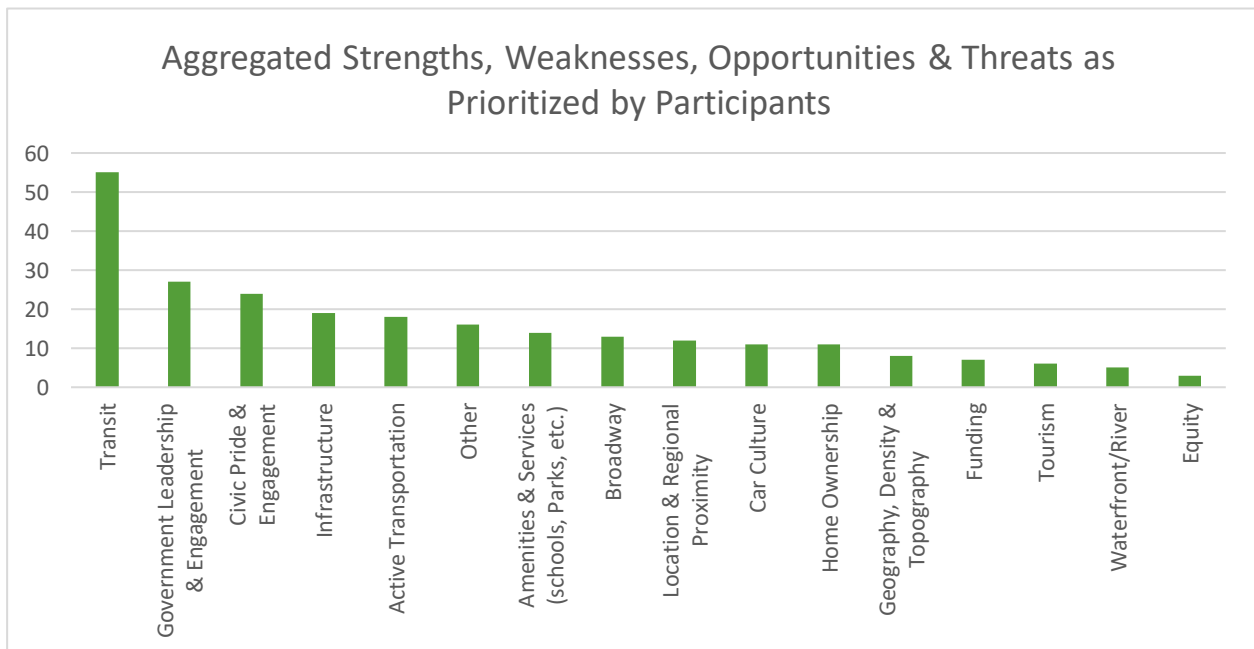
COMPLETE STREET WORKSHOP

On Wednesday, June 12 2019, stakeholders from the City of Newburgh came together for a full-day workshop on Complete Streets. This training – offered by the Urban Cycling Solutions with support from the New York State Department of Health (NYSDOH) and New York State Energy Research and Development Authority (NYSERDA) – is offered for free to educate community planning boards, engineers, policy makers, elected officials and engaged key stakeholders on fundamental Complete Streets and active transportation concepts. Course modules included Complete Street Infrastructure, Complete Street Policy Development, Implementing Complete Streets and Data Collection Strategies. In addition to lecture-based course material, the workshop included extensive discussion and hands-on activities including a community walk audit. The purpose of this walk audit was to expose participants to street conditions from a pedestrian’s perspective, and to apply critical thinking about roadway conditions that may not typically receive more than passing attention. Participants were guided on a predetermined walking route throughout the community across a variety of land uses and transitions. Participants stopped at several locations and were asked to rate different conditions at specific intersections or along whole corridors.

Workshop participants also engaged in a group visioning exercise to establish transportation “complete street success moments” for Newburgh. These included 1) Increasing the reliability and scope of transit service with specific goals of increasing ridership, reducing bus no-shows and increasing the number of stops; 2) Reduction in the percentage of bicycle, pedestrian and automobile crashes; 3) Build Safe, accessible sidewalks for every street; and 4) Increase the state of good repair on Newburgh’s streets and sidewalks by 30%. Finally, workshop participants conducted a detailed assessment of transportation strengths, weaknesses, opportunities and threats (SWOT). Once factors were identified in each category, participants were asked to perform a prioritization exercise where they independently rated various SWOT factors. The aggregated ratings provided a clear indicator of community priorities and served as the foundation for the development of Complete Streets tactics in this plan.



Figure 1. Word cloud featuring SWOT outcomes as prioritized by workshop participants.



GETTING TO KNOW NEWBURGH

The purpose of this section is to provide some basic demographic and transportation information about the City of Newburgh. This data provides insight into the community context and enables the development of more focused solutions.

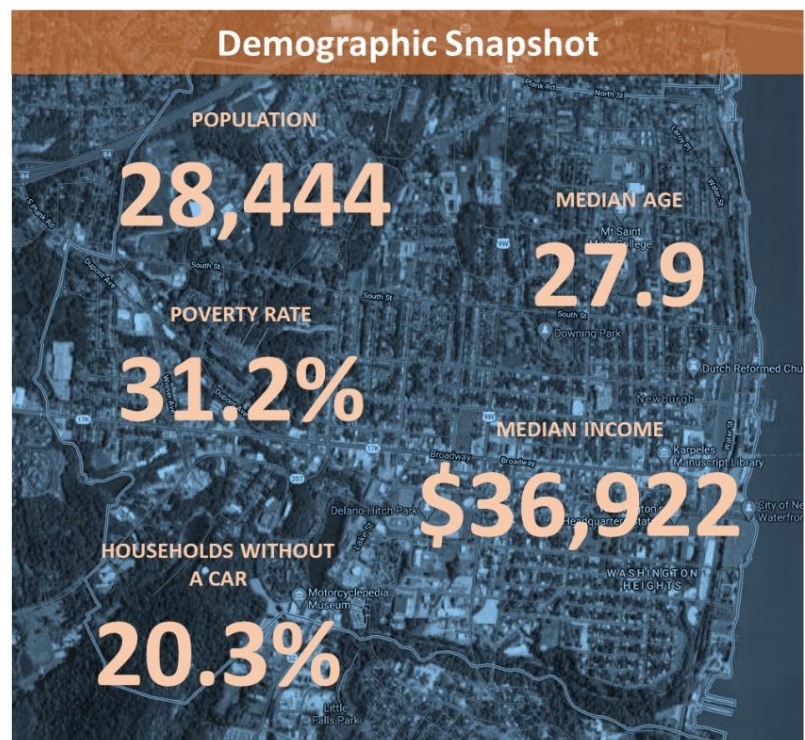
TRANSPORTATION

The City of Newburgh is located on the West Side of the Hudson River in Orange County. The city occupies 3.8 square miles. The Beacon Newburgh Bridge – located just north of the city’s boarder with the Town of Newburgh, provides vehicular access to and from Beacon on the opposite side of the river. The bridge also supports bicycle and pedestrian traffic (during daylight hours only). A commuter ferry provides access to the Beacon Metro North commuter rail station across the river (during peak commuting hours only). Newburgh also has a local bus transit service, Orange Transit owned and operated by Orange County. It is available Monday through Saturday providing service on four lines from Newburgh’s Northside & Southside, to Downtown Newburgh.¹ The Shortline Bus Station sits just outside the city of Newburgh servicing greyhound and Adirondack Trailways routes.

DEMOGRAPHICS

The information below is based on 2017 data from the US Census Bureau’s American Community Survey (ACS). Conducted periodically by the US Census Bureau in between the Decennial census, the ACS gathers a variety of data points which provide key inputs to planners and decision-makers. Age, race, income and household travel information paint picture of how resource distribution can impact various populations and help target both policy and capital interventions. In the context of this study, ACS data, helps us understand mobility outcomes – specifically, how bicycle infrastructure would impact the community based on social and economic conditions. According to 2017 ACS Data:

- Newburgh has a population under 30,000;
- The poverty rate is 31.2% more than 150% higher than the national average;
- Median income
- Car Ownership is lower than most communities in the US;
- Has a younger population with a median age of 27.9;



¹ <https://leprechaunlines.com/newburgh-local-transit-bus-service/>

THE CASE FOR BIKING IN NEWBURGH

OVERVIEW

There are four major factors catalyzing bicycle growth in Newburgh including (1) Upcoming roadway surfacing improvements; (2) A Predisposed population that stands to benefit from access to cycling; (3) A need for enhanced street safety; (4) a downtown scaled for short distanced bicycle access and (5) Grassroots momentum.

ROADWAY RESURFACING

Since 2015, the City has been working to repave roadways through its municipally controlled street grid. The city's current repavement schedule includes resurfacing projects through 2024. This represents an opportunity to identify roadways slated for paving which can support cycling, and develop enhanced designs that support cycling. By simply changing the pavement markings in such a way that enables shared use or provides separate delineation for cyclists – via a bike lane or other on-road facility – the city can start to develop a network of bicycle infrastructure without additional implementation cost. In addition, the multi-year schedule enables the city to engage the community with prospective roadway designs that will be implemented in future projects.

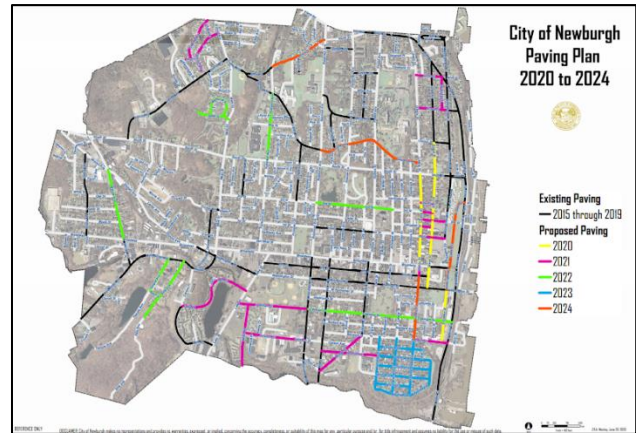


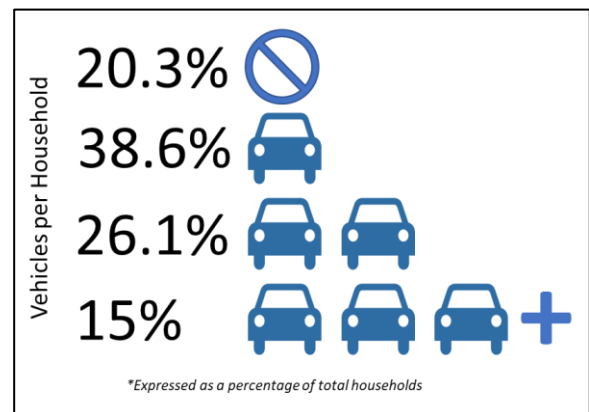
Figure 2. Repavement schedule/map for the city of Newburgh.

PREDISPOSED POPULATION

According to AAA, the annual cost of owning and operating a car is \$8,558 (using 2015 data) including gas, insurance, depreciation, maintenance and other factors. This represents a significant mobility barrier in Newburgh where the median household income is less than \$37,000.

The city of Newburgh is home to a relatively young population with an average age of 27.9. Though studies indicate a marginal difference, younger populations do tend to bike more for transportation purposes; the relatively young population in Newburgh is an indicator that residents could be more likely to accept bicycling a viable mode of transportation.²

Nearly 60% of households in the City of Newburgh own one car or less; more than double the national average (24.91%), meaning that car ownership is significantly lower in Newburgh than it is nationally.



STREET SAFETY

There is a clear need to enhance street safety in Newburgh for all roadway users. Since 2012 more than 450 vehicular crashes have occurred each year, with a peak over 700 in 2016. Despite decreasing numbers of crashes since 2016,

² <https://trec.pdx.edu/blog/are-millennials-really-generation-bikes>

the proportion of crashes resulting in an injury or fatality (in relation to total number of crashes) has grown significantly in that same time period. Bicycle infrastructure has the potential to enhance street safety by slowing down traffic speeds, and alerting drivers to other roadway uses.

Total Crashes vs Killed or Seriously Injured in the City of Newburgh 2012-2019

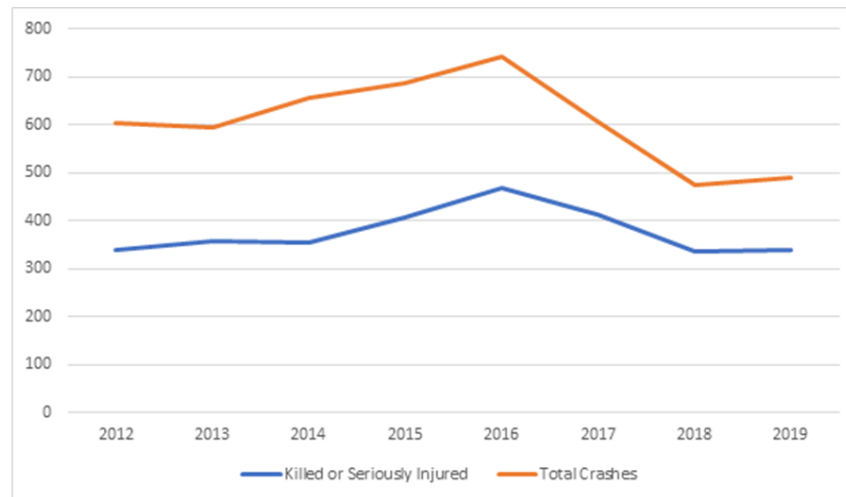


Figure 3. Total Crashes vs Killed or Seriously Injured in the City of Newburgh

SACLED DOWNTOWN

The City of Newburgh encompasses 3.8 square miles of land area.³ While topography – particularly steep elevation changes – may impact individual rider performance, this means the average bike rider can bike from one end of the city to another in 25 miles or less.⁴

GRASSROOTS MOMENTUM

Newburgh is home to a growing “critical mass ride” each month in the spring and summer throughout the city. These are free-form rides open to anyone with no predetermined route or required registration. The purpose of these rides is to advocate for safer inclusive bicycling by riding as a group to increase on-road visibility and call attention to sharing the road with motorists. These rides are also supported by the local police department, which is a notable addition, as many peer critical mass rides in other cities have led to tensions between the police and participants.⁵ In addition to participation in Critical Mass Rides, the local police department has partnered with IMPACT Inc. – A local nonprofit focused on civic engagement and volunteerism to make a positive impact on society – and the local transportation committee by donating 22 abandoned bikes (which would otherwise be thrown out) for refurbishment and distribution to local residents as part of the “Rise to Ride” initiative. The goal of this program is to help Newburgh residents overcome the potential barrier posed by lower car ownership by providing access to

³ <https://www.cityofnewburgh-ny.gov/community-profile>

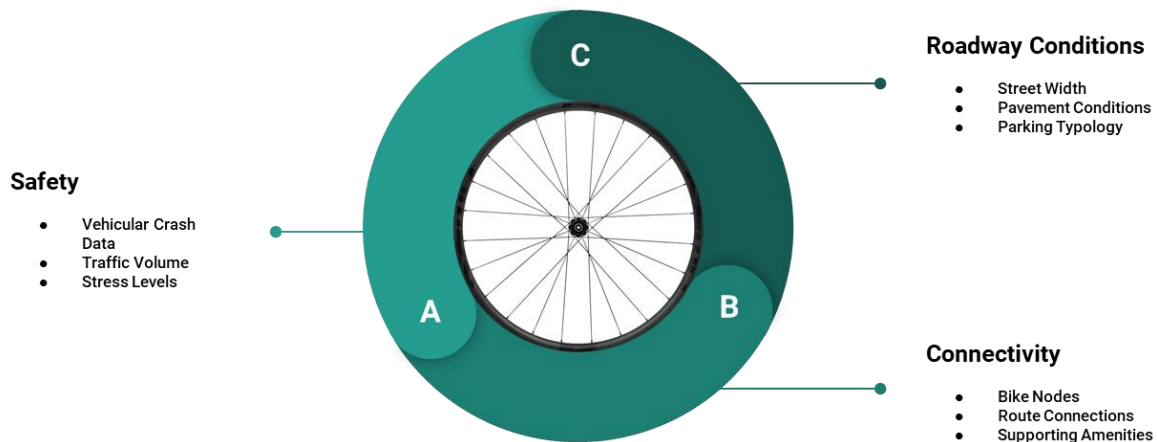
⁴ <https://bicycleuniverse.com/how-long-to-bike-mile/>

⁵ <http://www.timeshudsonvalley.com/mid-hudson-times/stories/critical-mass-bike-rides-promote-safety-in-the-citys-streets,7446>

bicycles.⁶ The City has a number of other grassroots-level bike giveaways, including an annual Youth Bike Giveaway hosted by Blacc Vanilla -a Local Café, and the efforts of Terry Harrigan, a local business owner who refurbishes and recycles used bicycles.⁷

BUILDING THE BIKE NETWORK

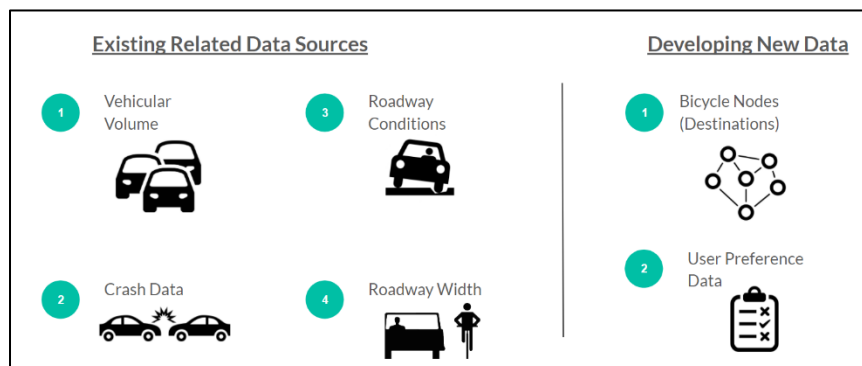
This section provides an overview of new and existing data analysis as well as the application of this information into the development of a bicycle network in Newburgh. To lay the ground work, the process focused on three development priorities including safety, connectivity and current roadway conditions, which – working in tandem – guided data analysis as well as the ultimate location and type of on-road bicycle facilities.



The process began with an analysis of existing datasets, including traffic volume and vehicular crashes and followed with new datasets including key bicycle destinations or “nodes” throughout the city.

NEW VS. EXISTING DATA

Data specifically focused on bicycling in Newburgh is limited. There is no quantitative information specifically focused on bicycling existing information. In the absence of bicycle volume and other relevant information, there are a number of "adjacent" data sets - including traffic volume and general crash data - which paint a picture of roadway conditions and vehicle movement. These include vehicular volume, crashes, roadway surface conditions and roadway width. These factors help formulate a “stress-based”



⁶ <https://www.recordonline.com/story/news/local/newburgh/2020/12/01/newburgh-rise-and-ride-bicycle-donation/6464223002/>

⁷ <https://www.recordonline.com/story/news/2020/03/08/bicycle-movement-growing-in-newburgh/111808938/>

approach to bicycle network development shaping design choices and prioritizing key routes to optimize safety for cyclists.

In addition to these quantitative datasets, UCS worked with community stakeholders – including the local transportation advisory committee – to develop two new datasets including critical biking "nodes" – areas more likely to attract a higher volume of bicycle traffic for a combination of commercial, recreational, commuting, tourism and other purposes – and a qualitative transportation preference database. To establish the most inclusive and expansive dataset possible, UCS developed an online survey tool in consultation with the Orange County Planning Department and Transportation Advisory Committee. This survey was distributed in English and Spanish. In total, the survey garnered 57 responses over a three-week period.

TRAFFIC VOLUME & CRASHES

The New York State Traffic Data Viewer measures traffic volume in Average Annual Daily Traffic (AADT). Streets with the highest traffic volume include Broadway, South Street, Washington Terrace and Water Street/ Martin Luther King Boulevard. Streets with higher vehicular volumes are less likely to comfortably support cyclists, particularly without the presence of a designated bicycle facility such as a bike lane or off-street path.

Similarly, an analysis of bicycle and pedestrian crash data provides a snapshot of specific roadways exhibiting varying degrees of crash volume. When compared paired with traffic volume data, there are clear correlations between roadways supporting more vehicular traffic, and higher numbers of crashes. Roadways exhibiting higher levels of both traffic volume and crashes are more likely to present higher stress interactions between cars and cyclists, and will require bicycle facilities with higher levels of protection. Streets such as Broadway, for example which exhibit high levels of both traffic and crashes, will require a protected bike lane with a buffer as opposed to a bike route or regular bike lane which offer less protection.

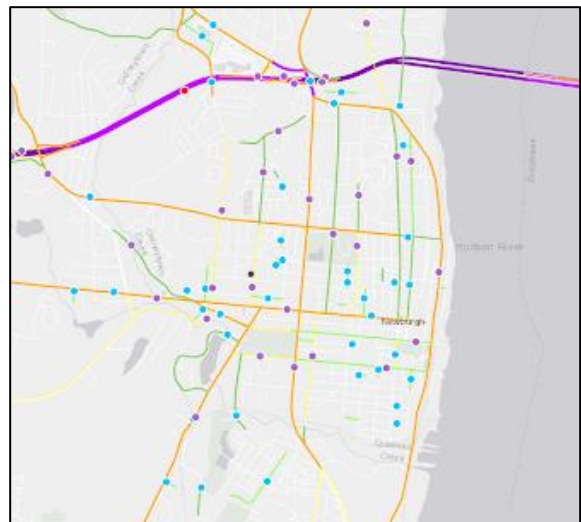


Figure 4. A snapshot of the NYS Department of Transportation’s Traffic Data Viewer illustrating traffic volume on roadways throughout the City of Newburgh.

Bike/Ped Crashes and Vehicular Volume by Street						
Street	Bike/Ped Crash Volume 2015-2018*			Traffic Volume (AADT) 2019**		
	High (9+ Crashes)	Med (4-8 Crashes)	Low (1-3 Crashes)	High (10,000+ AADT)	Med (5,000-9,999 AADT)	Low (0-4,999 AADT)
1 st Street	Med			No Data Available		
3 rd Street	Med			No Data Available		
Broadway	High			High		
Carpenter Avenue	Low			Low		
Fullerton Avenue	Low			Med		
Gidney Avenue	Low			Low		
Grand Street	Low			Low		
Liberty Street	Med			Low		

South Street	High	High
South William Street	Med	Low
Washington Street	Med	Low
Washington Terrace	None Reported	High
Water Street/Reverend MLK Street	Med	High
West Street	Low	Med
William Street	Med	No Data Available

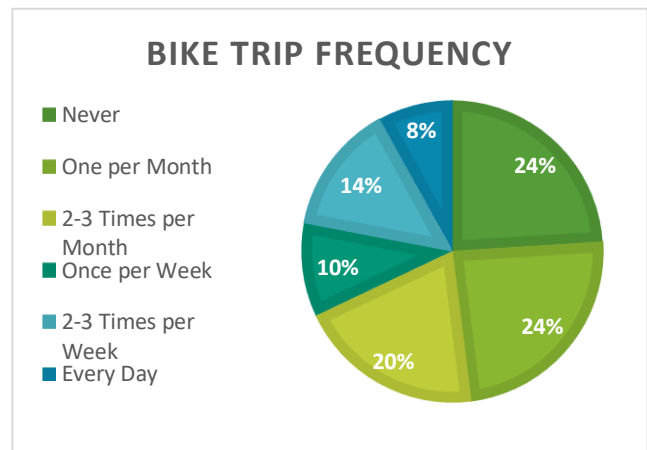
* Crash data provided by the NYS Department of Transportation's Accident Location Information System.
 ** Vehicular volume data is provided by the NYS Department of Transportation's Traffic Data Viewer; Traffic volume data is measured in Annual Average Daily Traffic (AADT).

USER PREFERENCE DATA

The following section outlines data obtained from the online user survey distributed for this study as described on the previous page.

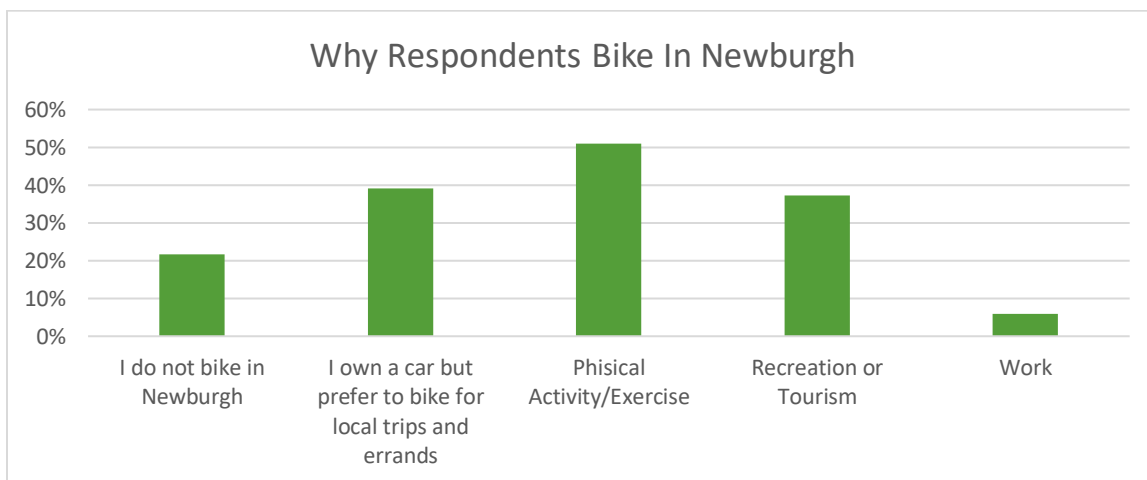
How often are respondents biking in Newburgh:

32% of respondents indicated that they biked at least once per week or more, with 8% biking every day. The majority of survey respondents represent infrequent riders with the 44% indicating that they only biked 1-3 times per month. Nearly a quarter of respondents indicated that they do not bike in the city of Newburgh.



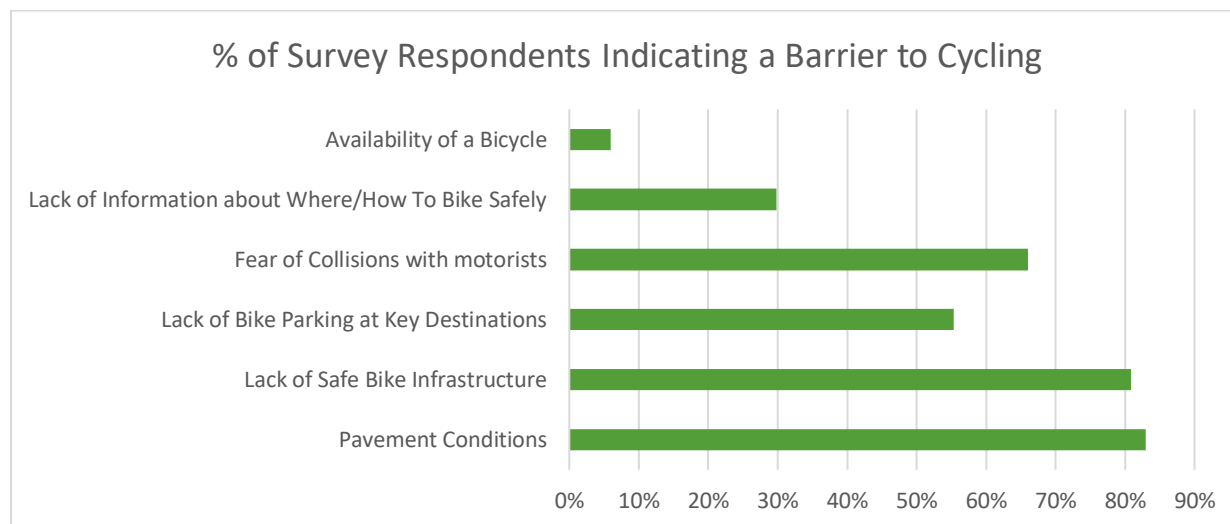
Why Do Respondents Bike in Newburgh?

Respondents were asked if they currently bike in Newburgh, and their primary reasons for doing so. 21% of respondents indicated that they do not typically bike in the city. Despite owning a car nearly 40% of respondents indicated that prefer to bike for local trips and errands.



What are the Biggest Barriers to Biking in Newburgh?

Respondents were asked what factors prevent them from biking in Newburgh. The most commonly identified barriers included poor pavement conditions, lack of bicycle parking at key destinations, fear of collisions with motorists, and lack of information about where/how to ride. Availability of bicycles was also indicated as one factor affecting decisions to ride.



Additional Observations

Respondents were given the opportunity to share additional thoughts as it relates to bicycling in Newburgh. Many indicated a need for more bicycle infrastructure – particularly bike lanes. Bicycle parking was also cited as an important factor in expanding bicycling in the city, as fear of bike theft is a significant barrier. Some respondents specifically indicated that they only bike to locations where bicycles can be brought indoors. Repair stands with air pumps and tools at select locations were cited as another amenity which would serve to facilitate cycling.

BIKE NODES

Twenty-one (21) nodes were identified between the online survey and focused group discussions with transportation stakeholders. These nodes represent key destinations that drive bicycle trips. The initial list of nodes was developed by the project team and vetted by members of the transportation committee. Once finalized, these nodes were presented in the user survey for prioritization. Respondents were asked to rate how likely they would be to bike to each node on a scale of 1 (not very likely) to 5 (very likely). Nodes were scored according using the total sum of all respondent rankings. This data enabled the relative priority of each node. The map below provides a geographic snapshot of the prioritized bicycle nodes. The table and map below provide a breakdown of the top ten highest scoring nodes and the geographic distribution of prioritized nodes respectively.

Top 10 Bicycle Nodes in Newburgh			
Node	Score	Node	Score
Newburgh-Beacon Bridge	235	Washington's Headquarters	197
People's Park on the Waterfront	223	Delano-Hitch Park	193
Downing Park	219	Mount St Mary College	191
Newburgh-Beacon Ferry Landing	213	Post Office on Liberty St	185
Newburgh Free Library	197	Audrey Carey Park	177

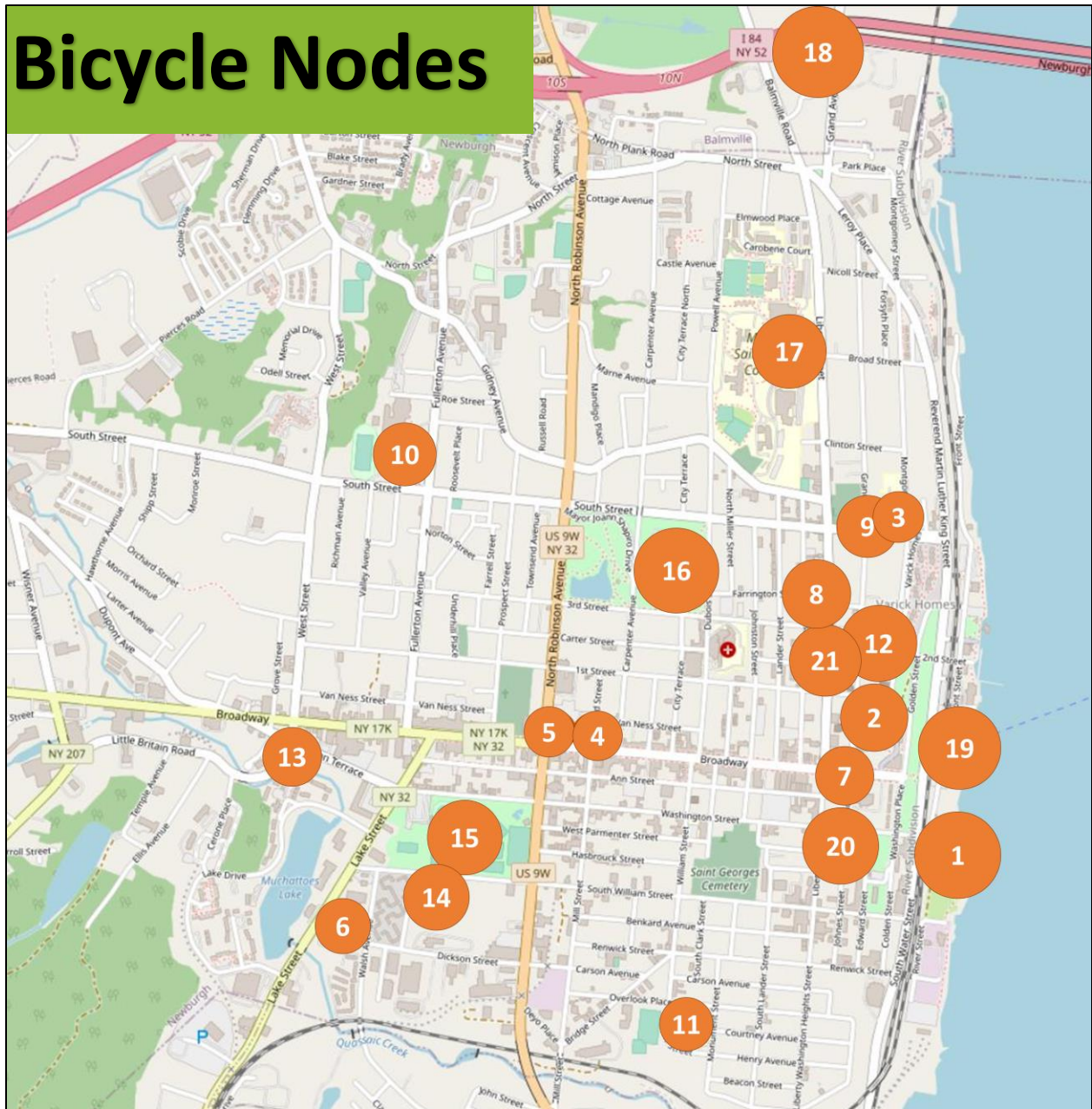
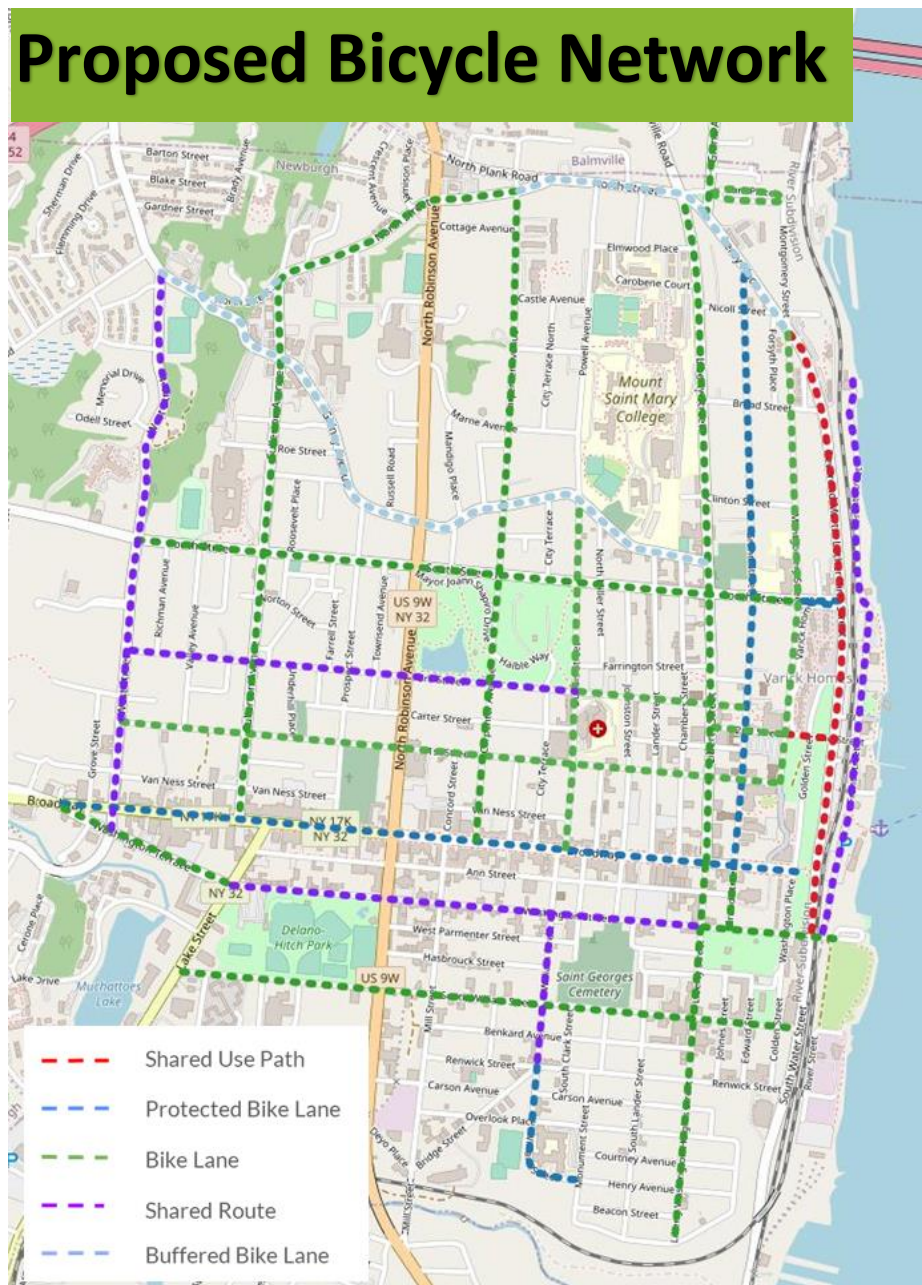


Figure 5. The size of each circle on the map represents the relative importance of a bicycle node as scored by all respondents. Nodes are designated by numbers which correspond to the table in appendix A.

Transportation assets – such as the Newburgh-Beacon Bridge, the ferry – are important biking priorities for respondents. Recreational assets and tourist destinations are also more likely to attract bicyclists. The establishment and prioritization of these nodes enables the development of informed connections throughout the city and provides the foundation for a bike network.

ON-STREET BICYCLE NETWORK

The first step in developing bike routes was to identify streets which connect nodes. These streets were then evaluated for their ability to support cycling – based on prior traffic volume and crash data as well as existing pavement conditions and roadway configurations – to determine the types of on-road bicycle facilities that would be required to ensure safe bicycling within the scope of existing roadway conditions. This proposed plan represents an actionable “first step” toward a more robust on/off-street bicycle network in Newburgh. The abundance of shared routes – as defined below – enables streamlined, cost-effective implementation with minimal design work. More aggressive treatments in some areas – such as the removal of curbside parking on one side of Grand Street – will enable the installation of more robust bicycle facilities along important corridors. The maps below illustrate the full scope of the proposed bike network as well as specific features.



UNDERSTANDING FACILITY TYPOLOGIES



Shared Use Path

- Paved, off-street surfaces that double as walking and bicycling paths.
- Provides the highest level of protection for cyclists.
- Cost can range from \$131-\$218 per linear foot



Protected Bike Lane

- On-street lanes for cyclists that are physically separated from vehicular traffic via bollards or parked vehicles.
- Typically includes a standard five-foot bike lane and a "buffer zone" to prevent dooring from adjacent parked cars.
- Typical cost is \$24.79 per linear foot



Bike Lane

- Painted on-street delineation for cyclists which includes lane lines and bike chevron symbols.
- Bike lanes provide specific space for cyclists, and in turn increase bicycle visibility for drivers without impacting the flow of vehicular traffic.
- Cost can range Range of \$0.83- \$6.35 per linear foot



Shared Route

- Shared lane between cyclists and cars delineated with signage and pavement "sharrows"
- Bicycles are entitled to the full width of the traffic lane.
- Cost can range between \$250-\$339 per sharrow

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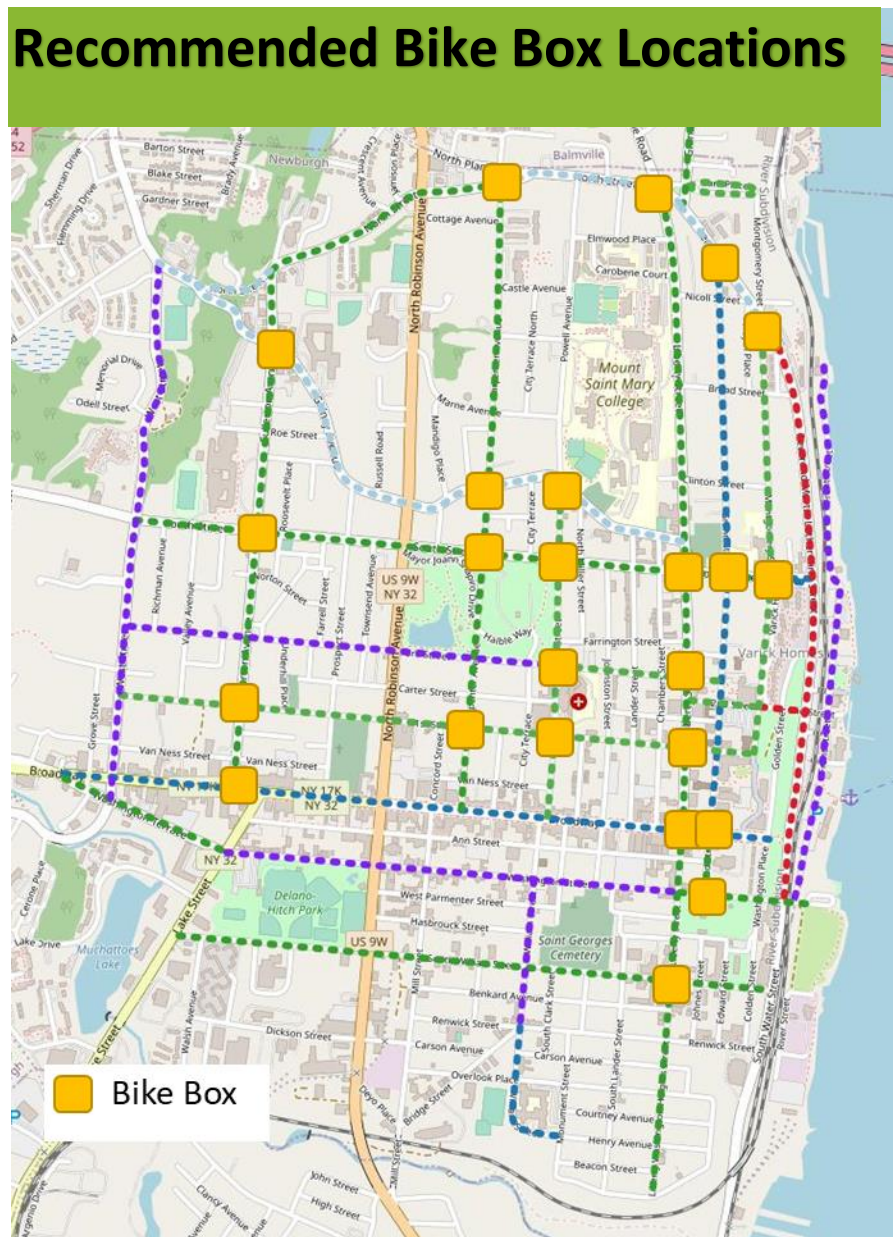
⁸ https://activelivingresearch.org/sites/activelivingresearch.org/files/Dill_Bicycle_Facility_Cost_June2013.pdf

⁹ https://www.ccrpcvt.org/wp-content/uploads/2016/01/20101116_costreport.pdf

In addition to linear bicycle facilities, “bike boxes” are recommended as an additional design feature at intersections supporting perpendicular bike lanes. Bike boxes facilitate turns by giving cyclists a head start in front of vehicular traffic. Specifically bike boxes provide a space for turning cyclists to position themselves ahead of traffic at a stoplight, increasing visibility among motorists traveling in both directions and giving priority to the bicyclist. The exact positioning and quantity of bike boxes at any given intersection in Newburgh will be determined in the design phase; the following map indicates recommended intersections for bike box installation:



Figure 6. A high visibility bike box for turning cyclists.



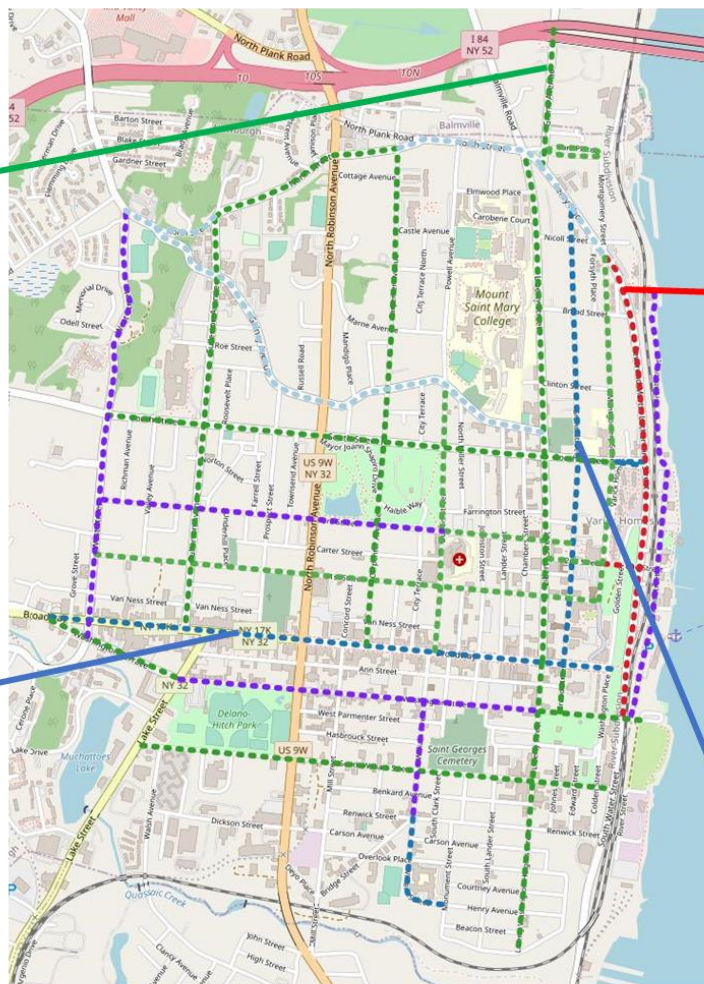
KEY NETWORK FEATURES



While this is technically outside of city limits, the Newburgh-Beacon Bridge is a vital connection for residents and visitors. As such, this plan incorporates on-street bike lanes to and from the bridge.



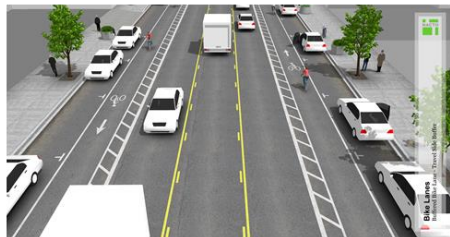
A prime feature of this network is a central bicycle Boulevard on Broadway connecting all of the major North-South Routes. Broadway's high traffic volume and bicycle/pedestrian crash history necessitate a high-level of protection to facilitate more cycling. The wide streetscape provides adequate space to support an on-street parking protected bike lane. By converting existing angled parking to parallel stalls and repositioning it 8-10 feet into the roadway, a bike lane can be placed along the curb along with a buffer to protect cyclists from parked car doors.



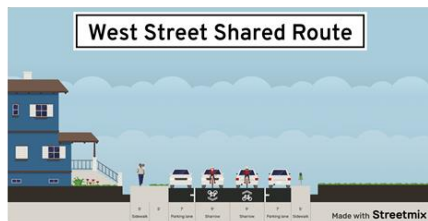
Water Street is a key route connecting the Beacon-Newburgh Bridge bike path with both the Waterfront and downtown city grid. While vehicular speeds and visibility present challenges for cyclists, curb-side parking makes it difficult to support any on-street bicycle facilities with adequate protection for cyclists. Vehicular speed and visibility make. Widening and expansion of the existing sidewalk on the west side of the roadway would provide a safe off-street ROW that can support both bicyclists and pedestrians.



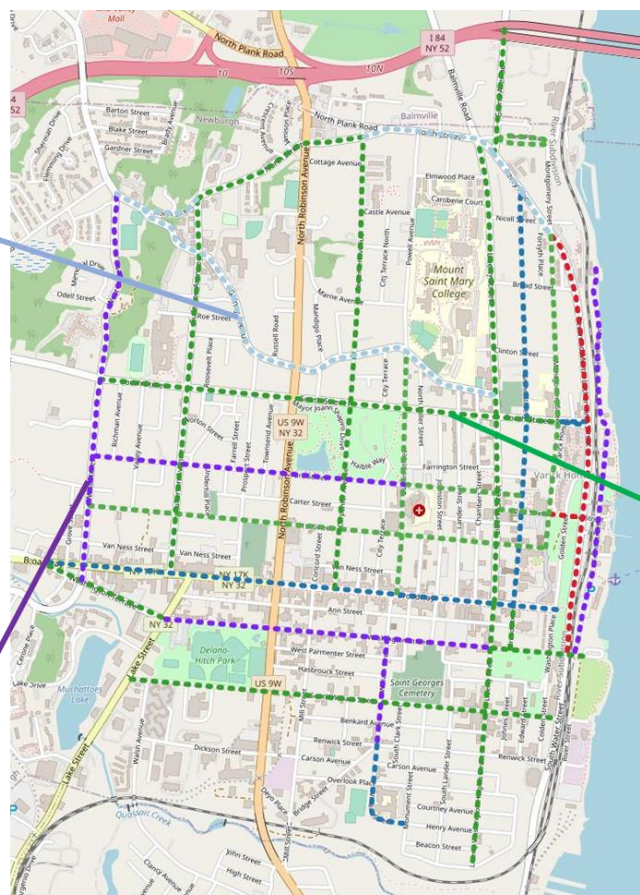
Grand Street is a low-volume roadway which provides a direct connections between the Newburgh-Beacon Bridge and the city's downtown, intersecting many nodes along the way. Another key feature of the proposed bike network is a bidirectional protected bike lane that will provide a convenient, safe route for commuters between the central business district and bridge bike path.



Some moderately high volume streets have adequate width to support a bike lane, but require extra protection. Buffered bike lanes such as that proposed on Gidney Ave offer this protection without a physical barrier.



Street Width limitations prevent the installation of a bike lane on some streets, but low traffic volume enables the designation of a shared route such as this example on West Street.*



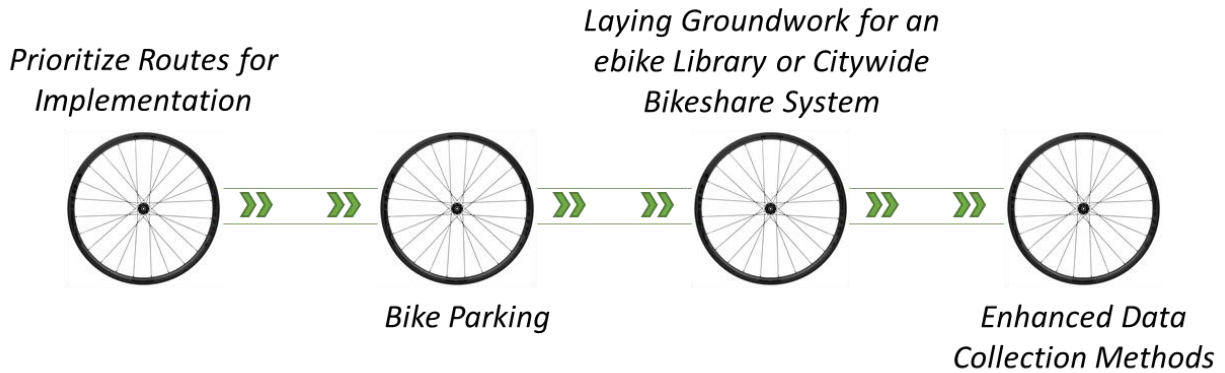
**Actual street widths may vary from cross section depiction as measurements were obtained from aerial observation. This may impact final design.*



Third Street transitions from one way to a bidirectional street requiring a transition to include eastbound travel and bike lanes at Dubois St.

ADDITIONAL RECOMMENDATIONS

In addition to the development of specific on-road facilities, this bicycle action plan proposes several additional recommendations as outlined below. These include the following categories:



PRIORITIZING ROUTES FOR IMPLEMENTATION

Connecting Downtown with the Bridge

The Newburgh-Beacon Bridge’s bicycle and pedestrian path is an important transportation asset, providing connections to the neighboring City of Beacon and the Metro North train station. Building safe, comfortable bicycle connections with the bridge should be a priority, as it would enable more visitors to use bicycles to connect with rail transit to NYC and elsewhere in the Hudson Valley. The proposed Grand Street bicycle facility – a protected bidirectional bike lane – would provide a direct pathway between Broadway and the bridge. As a protected bike lane, this on-road facility would provide optimal protection for cyclists of all skill-levels. As an alternative design, the buffer can be removed to increase bicycle lane width to five feet in either direction. The implementation of this design would require the removal of curbside parking on the east side of Grand Street per the cross section below.



Capitalizing on Roadway Resurfacing

The City's repavement program represents a prime opportunity to expedite the implementation of several of the proposed bicycle routes. In addition to repaving the road surface, this will require the addition of new street markings. Including bicycle markings into the updated roadway designs not only streamlines implementation of bicycle infrastructure, but reduces taxpayer expense by integrating them into an approved capital project. The City of Newburgh would benefit from prioritizing recommended bike routes and approving street designs with bicycle facilities on the following streets:

Street	Scheduled Repavement	Facility type	Design Scope
William Street	2021/2022	Bike Route	Painted Sharrows
Liberty Street	2020/2022	Bike Route	Painted lane lines
Gidney Ave	2024	Buffered Bike Lane	Painted lane lines & buffer
Fullerton Ave	2022	Bike Route	Painted Sharrows
3 rd Street	2022	Bike Route/Bike Lane	Painted Sharrows/Lane Boarders

In each case, the scope of repavement is either scheduled in sections over multiple years, or does not include the entire roadway. Though the proposed bike network includes street area outside of the repavement schedule, the city should develop complete roadway designs for each street with a bicycle facility. This will enable bicycle facilities to be approved for implementation as funding becomes available outside of the pavement program.

BIKE PARKING AND AMENITIES

Bicycle parking was a key factor influencing bicycle behavior according to the online survey. Ensuring adequate parking at key nodes throughout the city is essential to supporting bicycle mobility, and facilitating ridership to local businesses as well as other destinations. There are many ways to approach bicycle parking; the following approaches would help the City achieve a better bike parking framework:

Ensure nodes have bike racks freely available and easily accessible.

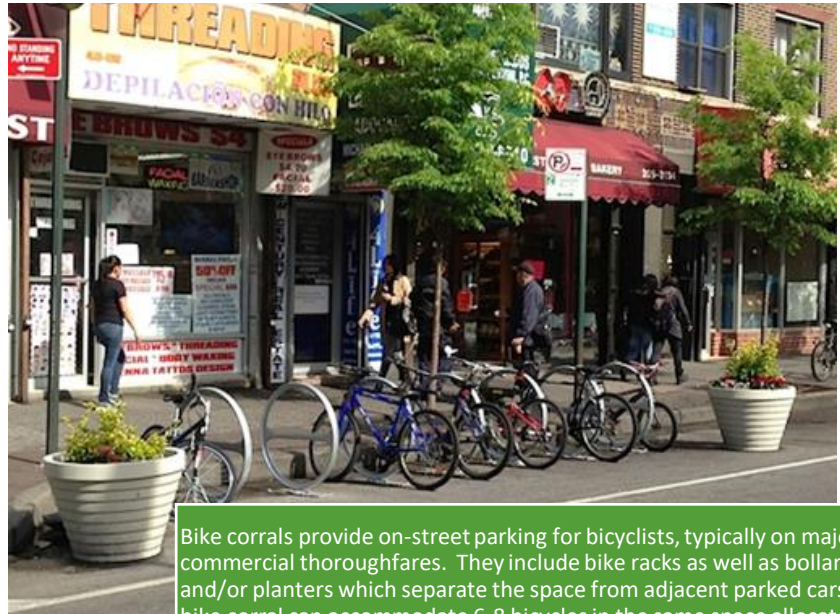
The highest priority bike nodes included commuter facilities, tourist destinations and recreational assets such as parks. Providing bike racks at these destinations that are free for public use are essential to providing would-be riders with confidence. Racks should be placed in locations that are easily visible to enhance passive safety and increase accessibility.

Bicycle Amenities by Highest Volume Bike Nodes			
Node ID #	Location	Bike Racks	Repair Station
18	Newburgh-Beacon Bridge	No	Yes
1	People's Park on the Waterfront	Yes	No
16	Downing Park		No
19	Newburgh-Beacon Ferry Landing		No
12	Newburgh Free Library	Yes	No
20	Washington's Headquarters	No	No
15	Delano-Hitch Park		No
17	Mount St Mary College		No
21	Post Office on Liberty St	No	No
8	Audrey Carey Park	No	No

Establish a Pilot bike Corral Pilot program in collaboration with local businesses.

With a number of vibrant commercial corridors, the City of Newburgh would benefit from experimenting with bike corrals in strategic locations along Broadway and/or Liberty Street. Bike corrals are reclaimed car parking stalls that is used for bike parking. A pilot would enable the city to test the concept before considering broader implementation. Bike corrals are most successful when paired with nongovernmental “maintenance partners” or abutting businesses that monitor and upkeep the space. This includes trash pickup, seeping, plant care and reporting any major capital issues to the city. These maintenance partners are typically businesses – such as cafes bars, restaurants and grocery stores – or office spaces that attract large numbers of consumers/workers. A successful pilot should be structured as follows:

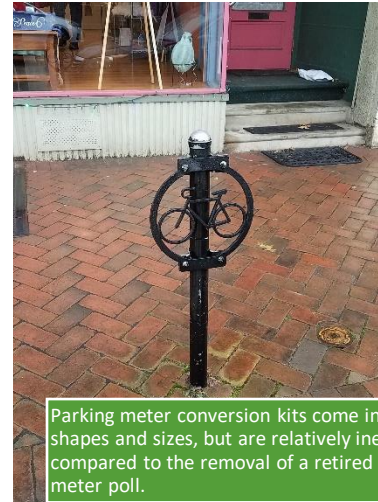
1. Identify a local business willing to provide maintenance services;
2. Design the corral; specifically determine the size of the space and how many bike racks are appropriate. Designs should ensure that bike racks are secure even if they are not permanently affixed to the asphalt or concrete surface.
3. Develop signage that explaining how the bike corral benefits the community and soliciting feedback via an online survey.
4. Implement the design and signage over a three-month period during spring/summer months and work with the maintenance partner as well as other grassroots stakeholders to promote the corral.
5. Evaluate the results of the pilot.



Bike corrals provide on-street parking for bicyclists, typically on major commercial thoroughfares. They include bike racks as well as bollards and/or planters which separate the space from adjacent parked cars. A bike corral can accommodate 6-8 bicycles in the same space allocated for a single occupancy vehicle.

Adaptive Reuse of Parking Meters For Bicycles.

As the City of begins to replace coin-operated parking meters with Muni Meters, there is an opportunity to expand Newburgh’s bike Parking capacity. The expense of removing coin-operated meters is often prohibitive, leaving public works professionals with the option of keeping and capping the metal support polls. Converting them into bike parking not only mitigates the unsightly nature of these abandoned polls, but also gives them new utility and helps create a more inviting and unique sense of place. The typical cost for a single conversion unit or “Meter Hitch” can range from \$100 - \$500 depending on the rack design.



Parking meter conversion kits come in many shapes and sizes, but are relatively inexpensive compared to the removal of a retired parking meter poll.

LAY GROUNDWORK FOR THE FORMATION OF AN ELECTRIC BIKE LIBRARY PROGRAM OR BIKESHARE PROGRAM

Newburgh is a prime community for an electric bicycle library or a full-scale bikeshare system. Distinct from a municipal bike share systems, bicycle libraries are grassroots-driven programs with stationary hubs where different types of bicycles are made available to the public. While programmatic structures vary between volunteer-based membership and paid rentals, these systems enable a wide range of individuals to try biking in a variety of context, and provide vital access to alternative transportation systems. The geography of Newburgh is particularly suited for ebikes as challenging hills – particularly those separating the waterfront from the rest of the city – represent a significant barrier to biking for many potential cyclists in the face of geographic challenges such as hills.

In the summer of 2020, Uber donated a large fleet of electric bikes to Buffalo-based Shared Mobility Inc. The company intends to distribute a portion of this fleet to communities to build out bicycle libraries.¹⁰ As a prime location for such a library, the city can further position itself as a candidate for receiving these bikes by addressing a key regulatory question and developing some preliminary operational details. These include:

1. Clarify local regulation of ebikes -New York's 2020 statewide adoption of a three-tiered classification system for different types of ebikes leaves specific regulation to local jurisdictions. Class 1 electric assist ebikes should be officially authorized to operate within the city of Newburgh by local ordinance.
2. Identify grassroots stakeholders to facilitate program - A key tenant if successful bike libraries is a strong grassroots foundation of volunteers and community engagement. This is often organized around a central organization or coalition of partners sharing in operational and promotional requirements.
3. Identify Locations -The size and scope of the bike library will depend largely on the size of the bicycle fleet, and capacity of community partners. Absent of specific details it is recommended that a citywide bike library include at least two centrally located distribution hubs. Based off of the findings of this report optimal locations for these jobs may include the Newburgh Public Library; the Waterfront, and/or Delano Hitch Park.

¹⁰ https://buffalonews.com/news/local/hundreds-of-free-uber-e-bikes-coming-to-wny-for-proposed-transportation-libraries/article_39ed9318-ba22-11ea-837a-13ba39fa4bc9.html

These actions would also serve the launch of a citywide bikeshare program. Bike share programs combine the concepts of public transit with bicycle mobility by deploying a fleet of publicly accessible bicycles for shared use across a municipality. A dockless bikeshare fleet – one with free floating bikes instead of designated docking locations – would provide the City of Newburgh with maximum spatial flexibility. If the city were to pursue a bikeshare system, in addition to the recommendations above, it would be beneficial to identify potential spaces – both on and off-street – for informal bike share parking to help manage bike distribution and user behavior. The city should also consider developing and releasing an RFP from reputable bikeshare vendors to identify the best operator for the city.



Figure 7. A dockless bikeshare parking stall on the sidewalk in the City of Seattle.















DATA DEVELOPMENT RECOMMENDATIONS














The lack of quantitative data related specifically to cycling in Newburgh is a barrier to effective decision-making and potential grant funding for active mobility projects. The city of Newburgh should consider the collection of several key data points to benchmark the current state of cycling and provide a regular analysis of changing dynamics over time. The following data points are recommended:
















Data Point	Description	Unit	Frequency
Travel Pattern Metrics			
Newburgh-Beacon Bridge Crossings	The Newburgh-Beacon Bridge is both a key gateway for both tourism and commuting as it provides access to Beacon and the Metro North Train Station. Understanding travel patterns across the bridge – through regular and consistent user counts – will provide a snapshot of behavior across seasons.	Number of Cyclists	Daily (via automatic counter)
Screen line Counts on major Bicycle Thoroughfares	Screen line counts are stationary observations of the total number of cyclist crossing a particular location. These are typically conducted at intersections or bottlenecks of major corridors and can be achieved with manual observation, automatic counters or video analytics.	Number of Cyclists	Seasonally (via manual counts or video analytics)
Bicycles onboard the Beacon Newburgh Commuter Ferry	Bicycles are allowed onboard the Newburgh-Beacon Commuter ferry for a \$1 surcharge. This is an indicator of commuter behavior as it relates to multimodal integration.	Number of Bicycle Passes Issued	Daily (via bicycle surcharge ticket sales)
Bicycle Parking utilization at key bike nodes	Bike parking utilization is a direct indicator of the volume of bike trips to a specific destination.	Percentage of bike rack Occupancy	Seasonally (via manual counts or video analytics)
Students Biking to School	The safety and success of a bicycle network can be judged by its most vulnerable users. The more students [and their parents] feel comfortable with bicycling to school, the higher the level of	# of students biking to school	Seasonally (via manual counts)

	confidence and comfort with the bicycle network. This metric can be measured by manual observation or counts of parked bicycles at school facilities.		
Implementation Metrics			
Bike Network Mileage	As the bicycle network grows with new on and off road facilities, the amount of linear mileage will provide a snapshot of the scope of the bike network.	Miles	Annual
Dollars spent on Bicycle Network Development Projects	The amount of money allocated for bicycle projects is a clear indicator of municipal priority, and a key factor in the design and implementation of bike facilities.	Dollars	Annual
Number of Bike Racks Installed	Bike racks are equally important as on -street bicycle facilities to the development of the bicycle network. The number of bike racks -in tandem with bike network mileage – provide a complete picture of network growth.	Number	Annual
Other Metrics			
Sales Tax Receipts for businesses abutting new bicycle facilities	Sales tax is revenue represents the volume of commercial activity in a given community. At the corridor level, data is an indicator of the city's economic vitality an potential impacts from adjacent bicycle facility or parking installations.	Dollars	Annually
Cyclist Satisfaction	User preferences and attitudes are an important factor in prioritizing bicycle facilities. Periodic surveys of existing cyclists and the broader community can help identify barriers that prevent people from cycling and/or identify specific locations or issues that affect decisions to ride.	Multiple	Biannually (Via Online Survey)

APPENDIX A: BICYCLE NODE TABLE

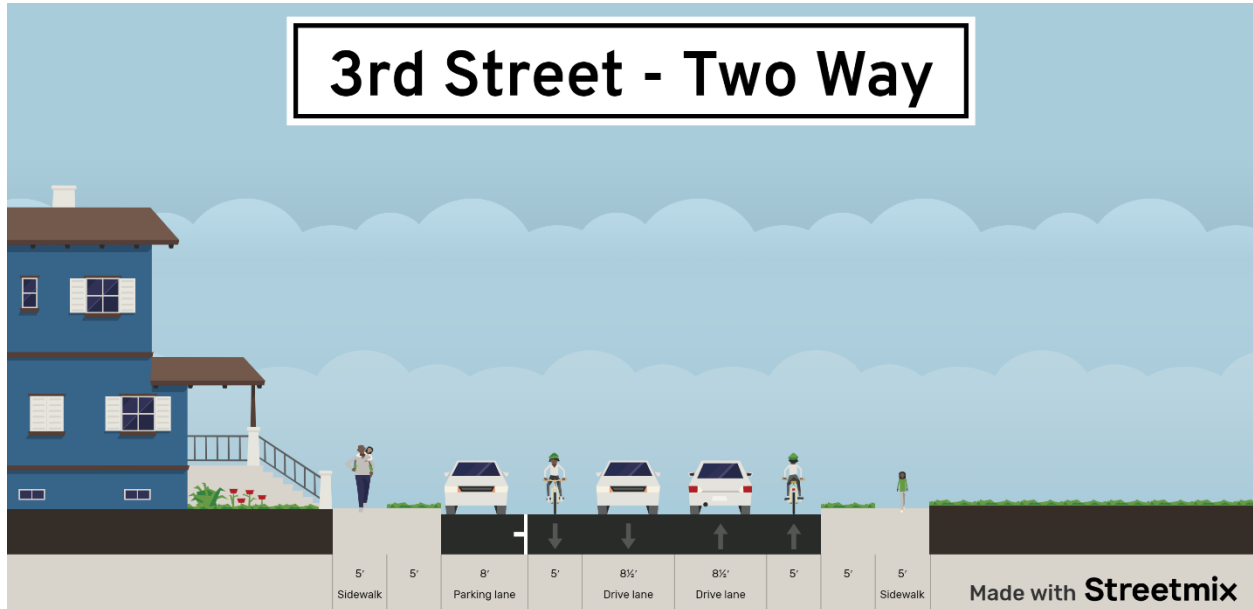
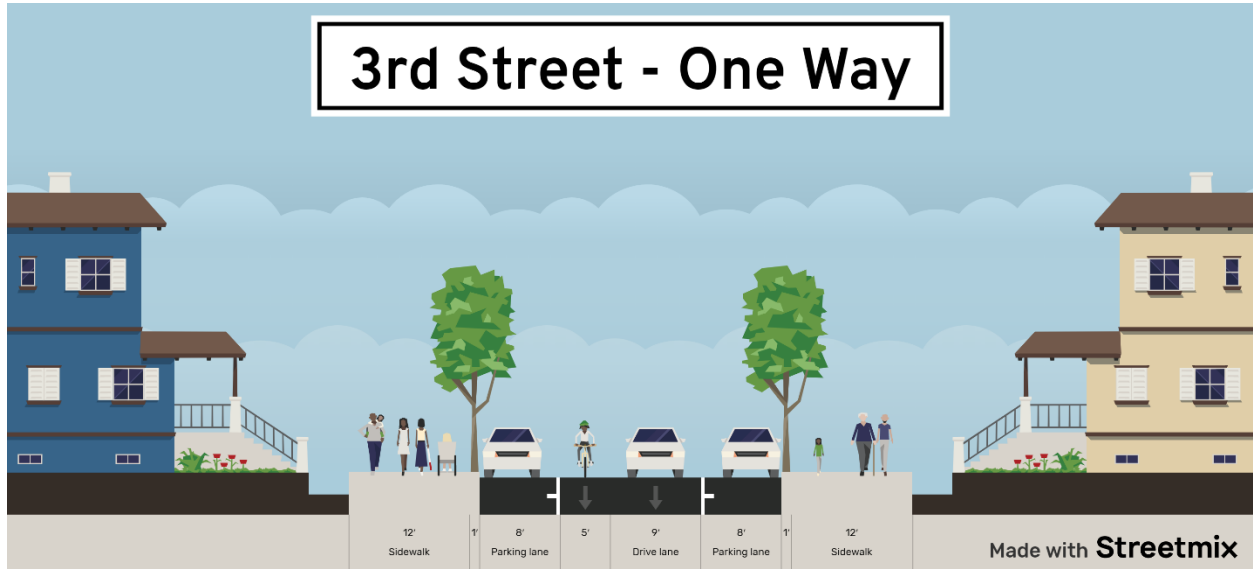
Newburgh Bicycle Nodes and Classification (by Potential Use)			
<p>Key:</p> <p> = Commute  = Recreation  = Tourism</p> <p> = Education  = Commercial  = Public Institution/Service</p>			
Map ID #	Location	GPS Coordinates	Use Category
1	People's Park on the Waterfront	41°29'52.28"N 74° 0'19.60"W	 
2	Orange County Community College	41°30'3.16"N 74° 0'33.54"W	
3	Horizons on the Hudson School	41°30'25.51"N 74° 0'27.89"W	
4	280 Broadway Social Services	41°30'3.86"N 74° 1'11.36"W	
5	Court House	41°30'3.98"N 74° 1'14.94"W	
6	Cornerstone Health Center	41°29'43.58"N 74° 1'45.04"W	
7	Newburgh City Hall	41°29'59.17"N 74° 0'36.22"W	

8	Audrey Carey Park	41°30'16.90"N 74° 0'39.64"W	
9	Tyrone Crabb Memorial Park	41°30'25.23"N 74° 0'30.70"W	
10	Newburgh Free Academy	41°30'33.78"N 74° 1'35.06"W	
11	South Middle School	41°29'33.16"N 74° 1'0.53"W	
12	Newburgh Library	41°30'14.24"N 74° 0'30.84"W	
13	Schleiermacher Park	41°29'59.70"N 74° 1'50.46"W	
14	Armory Unity Center	41°29'48.14"N 74° 1'30.51"W	
15	Delano-Hitch Park	41°29'52.45"N 74° 1'28.86"W	
16	Downing Park	41°30'21.93"N 74° 1'3.97"W	
17	Mount St Mary College	41°30'41.91"N 74° 0'49.84"W	
18	Newburgh-Beacon Bridge	41°31'14.09"N 74° 0'37.36"W	  

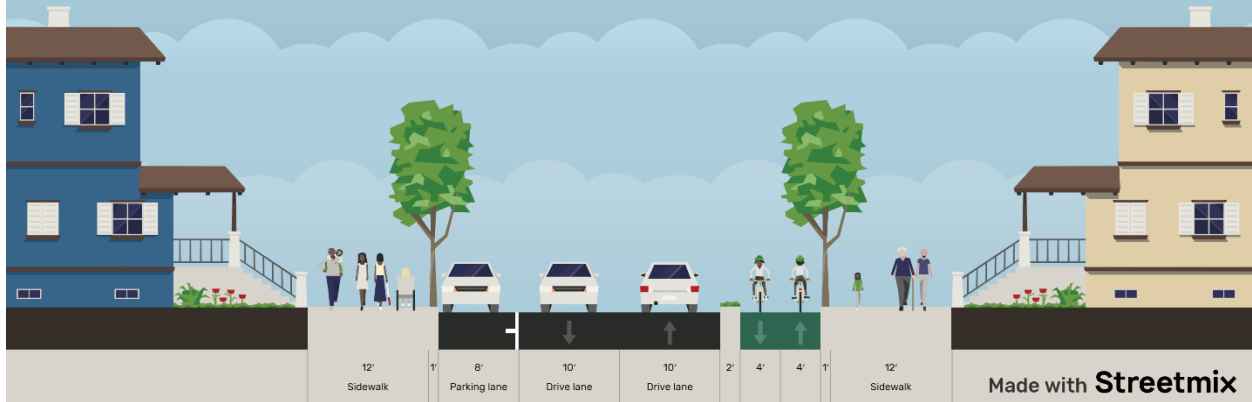
19	Beacon-Newburgh Ferry Landing	41°30'3.11"N 74° 0'18.98"W	
20	Washington's Headquarters	41°29'51.78"N 74° 0'35.73"W	 
#	Liberty Street	[Corridor]	 
#	William Street	[Corridor]	 
#	Lower (Clark Street To Waterfront) Broadway	[Corridor]	 
#	Newburgh Waterfront	[Corridor]	 
#	River Road in Balmville to the Danskammer site		 
#	Great Britain Road South Street	Corridor	
21	Post Office	destination	

APPENDIX B: STREET CROSS SECTIONS

All street cross sections represent conceptual designs. Actual street widths may vary from cross section depiction as measurements were obtained from arial observation. This may impact final design.



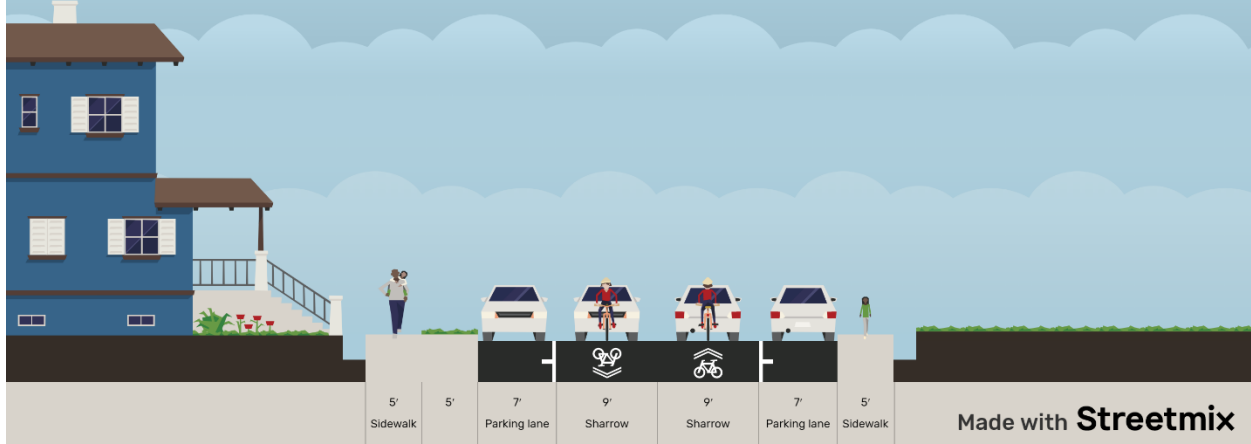
Grand Street Protected Bike Lane



Liberty Street Bike Lane - Newburgh



West Street Shared Route



APPENDIX C: SWOT RESULTS

Category	Strengths	Participant Score
Infrastructure	Street Grid	3
Amenities & Services (schools, Parks, etc.)	Colleges	6
Location & Regional Proximity	Hudson Valley Location	5
Geography, Density & Topography	Population Density	1
Transit	airport proximity	1
Civic Pride & Engagement	Community Engagement	2
Active Transportation	Walkability	12
Geography, Density & Topography	View	2
Transit	Ferry	7
Civic Pride & Engagement	History	5
Waterfront/River	Riverfront	3
Infrastructure	Majority Ownership of Streets	2
Civic Pride & Engagement	Population Diversity	4
	Metro North and New Jersey	
Transit	Transit	8
Amenities & Services (schools, Parks, etc.)	School District	3
Amenities & Services (schools, Parks, etc.)	Parks	2
Government Leadership & Engagement	Engaged Leadership	2
Broadway	Broadway	2
Tourism	Tourism	2
Amenities & Services (schools, Parks, etc.)	Public Services	3
Civic Pride & Engagement	Civic Pride	3
Infrastructure	Steetscape	3
Transit	Local Bus Service	6

Weakness		Participant Score
Category	Weakness	
Home Ownership	Vacant Buildings	3
Funding	High Taxes	3
Equity	Economic Disparity	2
Equity	Lack of jobs/Industry	1
	Poor Condition of	
Infrastructure	Infrastructure	11
Transit	Local Transit	3
Funding	Lack of funding	4
Government Leadership & Engagement	Lack of state/County Support	2
Car Culture	Free Parking	3
Government Leadership & Engagement	Poor Regional Coordination	6
Civic Pride & Engagement	Lack of communication	2
	Lack of Data	3
Geography, Density & Topography	Hilly Terrain	2
Broadway	Broadway Width	11
Active Transportation	Lack of Bike Infrastructure	3
Transit	Limited Ferry Hours	6
Waterfront	Poor Waterfront Connection	2

Opportunities		Participant Score
Category	Opportunities	
Transit	Metro North	6
Location	Becon Proximity	3
Transit	Airport Proximity	6
Transit	Transit Orange	6
Government Leadership & Engagement	RFPs for Development	2
Tourism	Regional Tourism	4
	State Focus on	
Active Transportation	Trails	3
	Water	
Transit	Transportation	6
Location	Proximity to NYC	4
Other	Sustainability	6
Other	County Land Trust	2

Category	Threats	Participant Score
Government Leadership & Engagement	County Government	5
Car Culture	Air Quality	2
Government Leadership & Engagement	Cooperation with Neighboring Municipalities	
Geography, Density & Topography	Sprawl	4
Home Ownership	Absentee Landlords	8
Civic Pride & Engagement	Perceptions of Newburgh	7
Civic Pride & Engagement	Gentrification	1
Car Culture	Car Culture	6
Other	CSX/Freight Rail	5
Government Leadership & Engagement	NYS DOT	9