

PLAN NYACK



Blueprint for the Future

Transportation, Infrastructure and Utilities Public Workshop

February 24, 2016



Agenda

1. Welcome (7:00 – 7:10)

2. Presentation (7:10 – 7:45)

- Introduction, Status Update, Timeline
- Regional Transportation Issues
- Local Transportation Issues
- Broadway TAP Grant
- Infrastructure and Utilities

3. Coffee Break (7:45 – 8:00)

4. Roundtable Discussion (8:00 – 9:00)

- Transportation
- Infrastructure and Utilities



Introductions

Steering Committee

Jen Laird White, Mayor

Doug Foster, Trustee

JC Brotherhood

Bill Batson

Roger Cohen

Elijah Reichlin Melnick

Paul Curley

Rodger Stevens

Jack Dunnigan, Alternate

Village Staff

Jim Politi, Village Administrator

Bob Galvin, Village Planner

Marcy Denker, Sustainability Coordinator

Don Yacopino, Building Inspector

Consultant Team

BFJ Planning

Perkins Eastman

James Lima Planning + Development

Sherwood Design Engineers

Turner Miller Associates

COWI Engineers

Appleseed

Introductions

BFJ Planning

Frank Fish, FAICP

Georges Jacquemart, PE, AICP

Susan Favate, AICP, PP

Simon Kates, AICP, LEED AP

Lauren Rennée

Sherwood Design Engineers

Jason Loiselle, PE

McClaren Engineers

Steve Grogg, PE

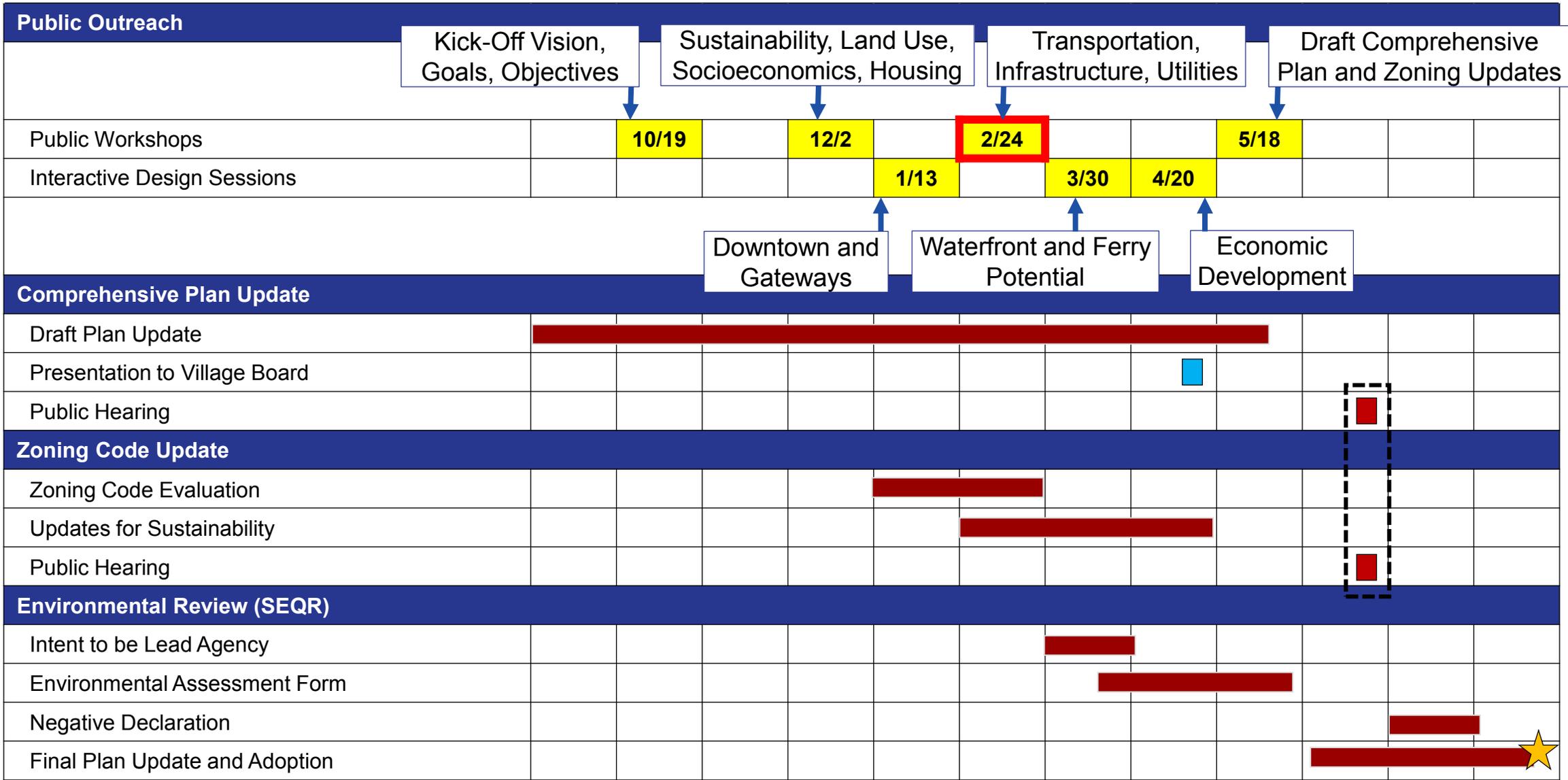
Comprehensive Plan Status Update

- Tonight is the fourth public workshop out of seven
- Nyack Comprehensive Plan Survey is open until March 7
 - ~800 responses so far
- Team is working on DRAFT comprehensive plan chapters and the Village is posting them online as they are completed.
- DRAFT chapters will be revised based on input at public workshops as the team develops recommendations
- A full DRAFT plan will be completed in late spring/early summer for review by the public

Comprehensive Plan Chapters

- 1. Introduction and Vision**
2. Regional Context and History
3. Socioeconomic Trends and Housing
4. Land Use and Zoning
- 5. Infrastructure and Utilities**
- 6. Transportation**
- 7. Environmental, Historic, Cultural, and Municipal Resources**
- 8. Parks, Open Space, and Recreation**
- 9. Economic Development**
- 10. Future Land Use Plan and Implementation**

* Drafts Online



- Stakeholder Workshop
- Public Hearing
- ★ Plan Adoption

Public Outreach

Public Workshops

- | | |
|---|--------------------------|
| 1. Vision, Goals and Objectives | October 19, 2015 |
| 2. Sustainability, Land Use, and Socioeconomic Trends/Housing | December 2, 2015 |
| 3. Downtown and Gateways | January 13, 2016 |
| 4. Transportation, Infrastructure, and Utilities | February 24, 2016 |
| 5. Waterfront Development and Ferry Potential | March 30, 2016 |
| 6. Economic Development | April 20, 2016 |
| 7. Draft Comprehensive Plan and Zoning Code Updates | May 18, 2016 |

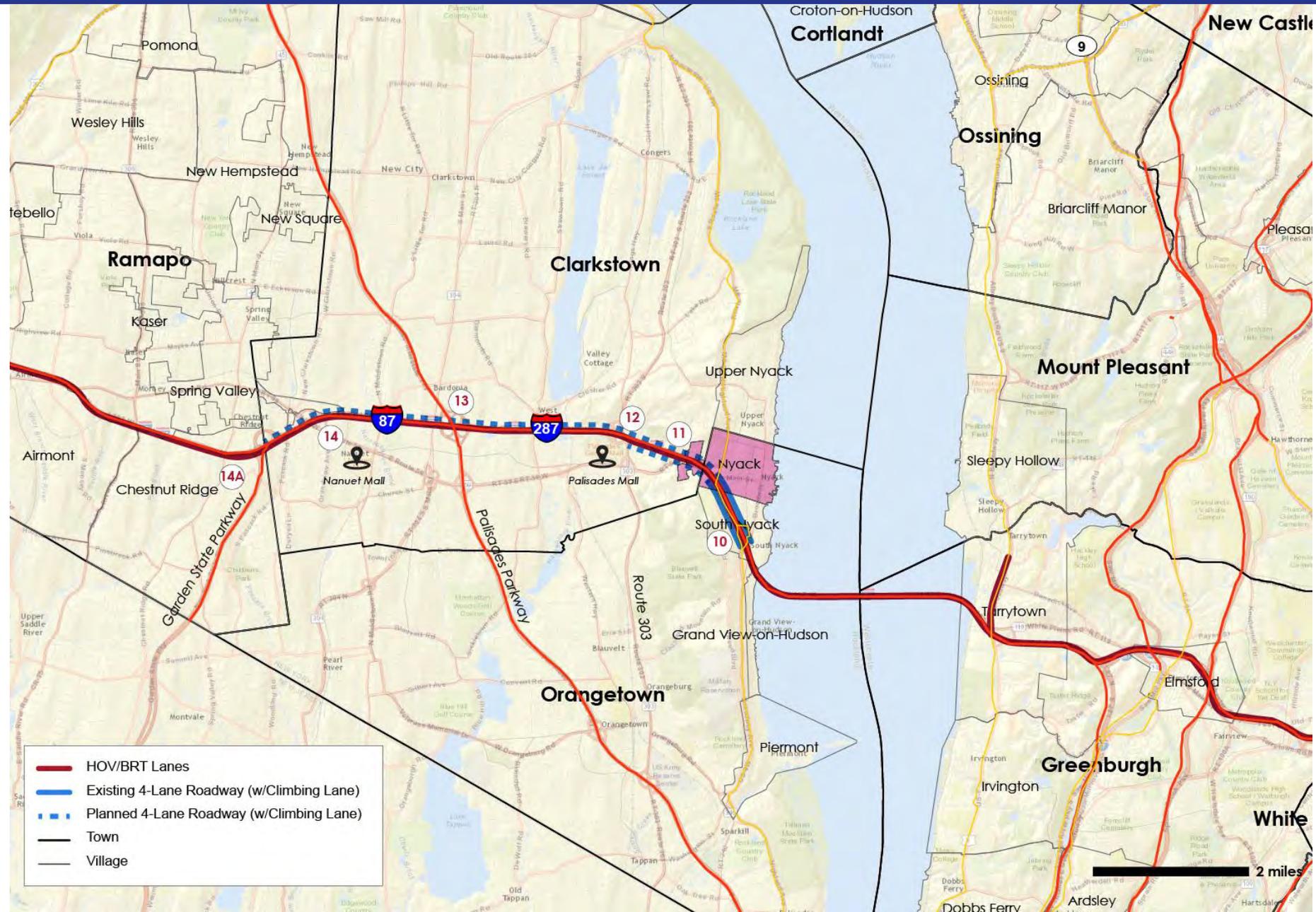
Regional Transportation Issues

- I-287 Corridor
- BRT Proposal
- Pedestrian/Bike Options (Exit 10)
- Ferry Possibilities



I-287 Corridor

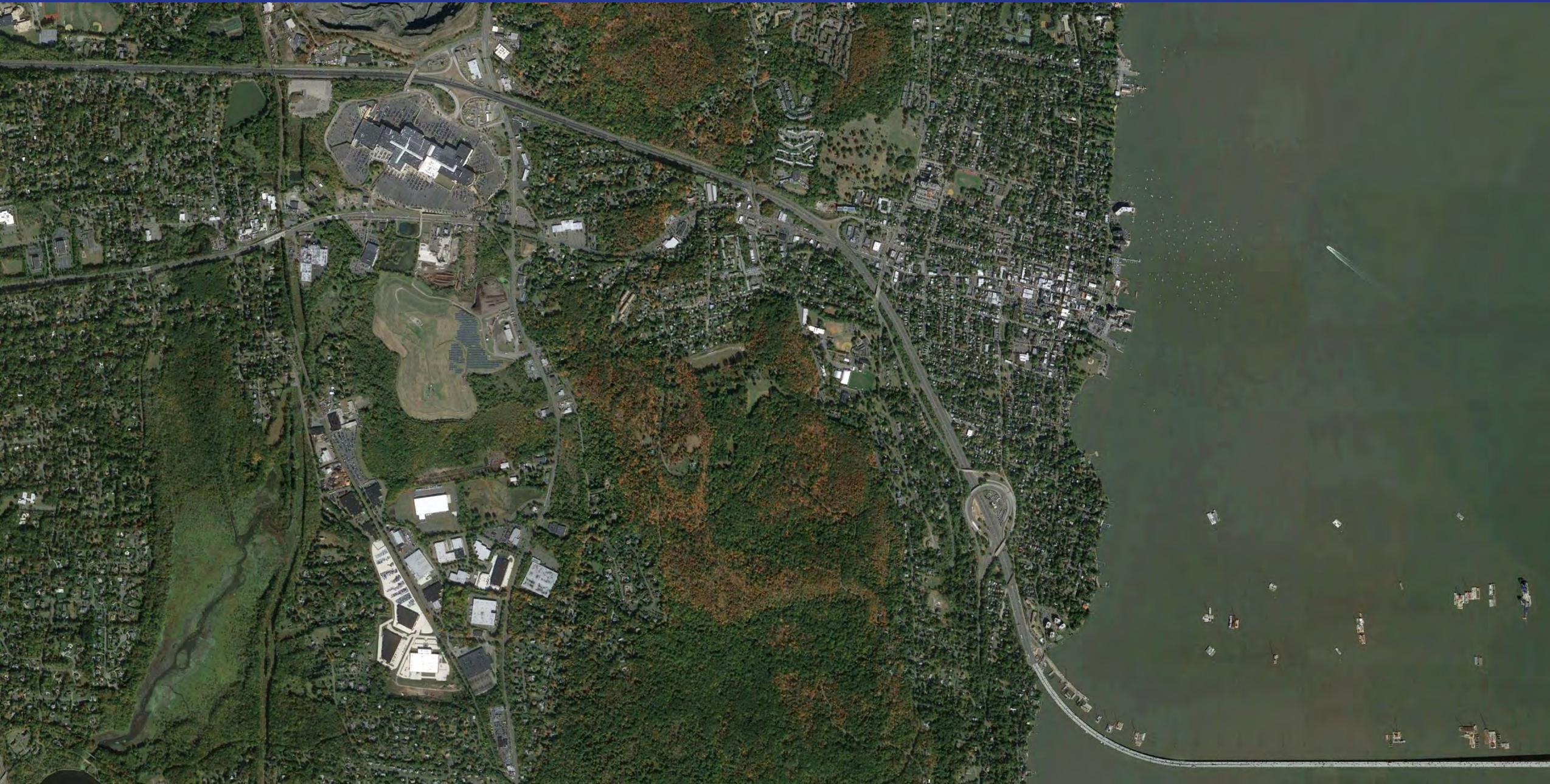
- Safety and emergency vehicle access
- Cost of congestion in lost dollars
- Air quality impacts
- Added traffic on local Nyack Roads



Tappan Zee Bridge, Exit 9



Tappan Zee Bridge, Exit 10

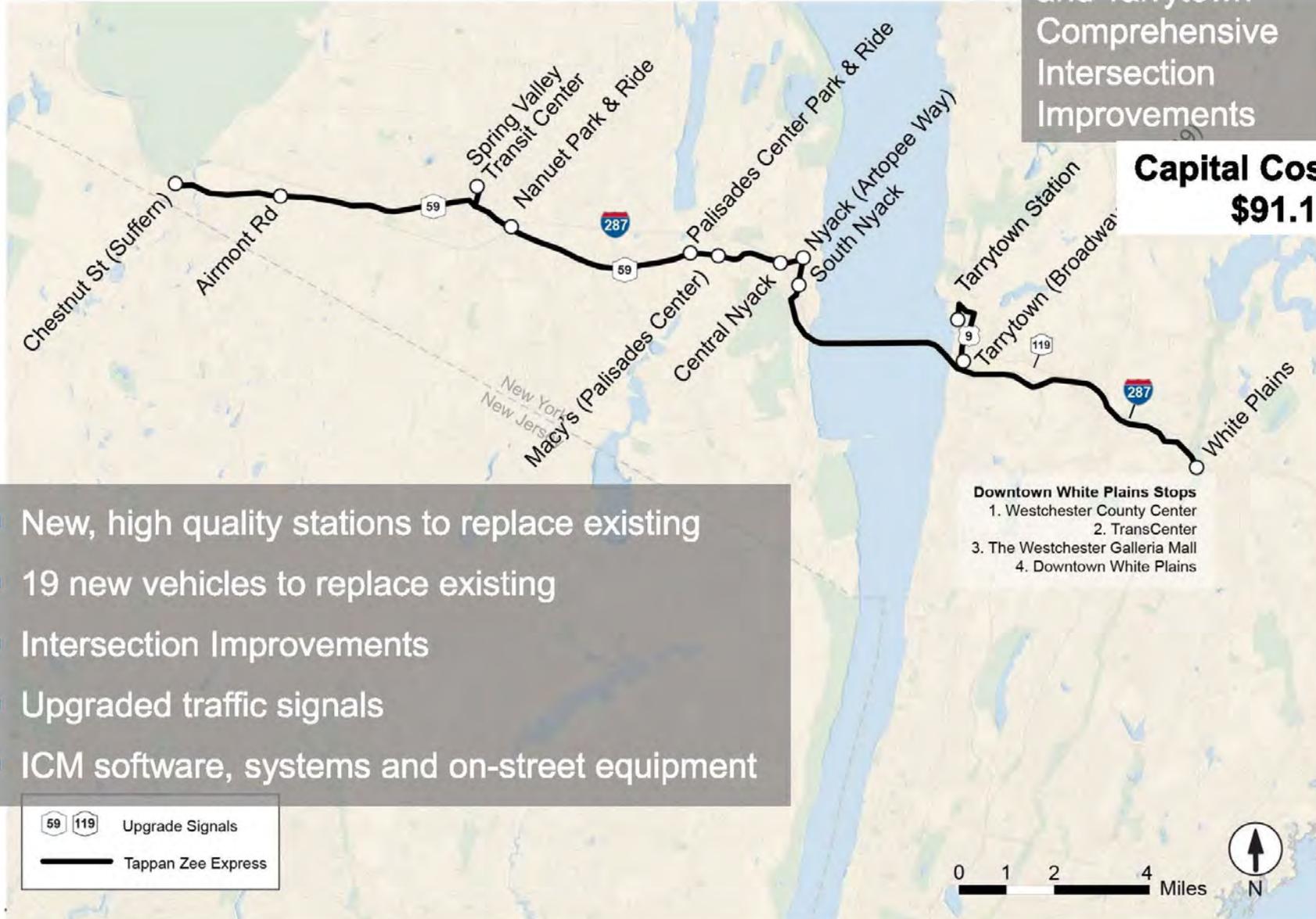


I-87/287—Proposed Express Bus Route

The Link Mainline

Nanuet Park & Ride and Tarrytown Comprehensive Intersection Improvements

Capital Cost:
\$91.1m



- New, high quality stations to replace existing
- 19 new vehicles to replace existing
- Intersection Improvements
- Upgraded traffic signals
- ICM software, systems and on-street equipment

- Downtown White Plains Stops**
1. Westchester County Center
 2. TransCenter
 3. The Westchester Galleria Mall
 4. Downtown White Plains

New NY Bridge Lane Configuration



Exit 10 Shared-Use Path Parking Options

Concept E

Parking/comfort station at Interchange 10 adjacent to S Franklin St

Connection to Shared-Use Path via underpass under S. Broadway Bridge and pedestrian bridge over on-ramp

No change to local traffic patterns



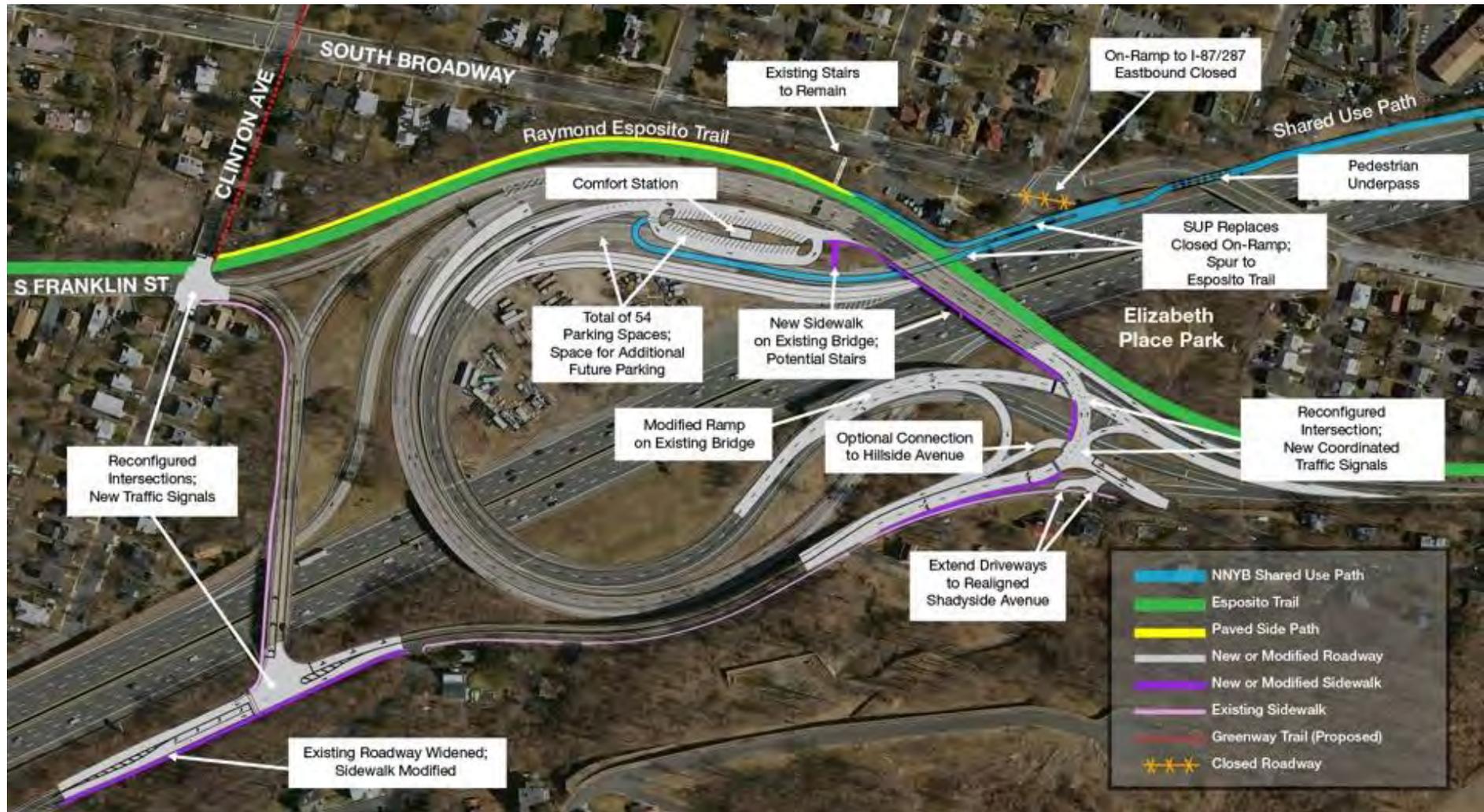
Exit 10 Shared-Use Path Parking Options

Concept F

Parking/comfort station within Interchange 10

Connection to Shared-Use Path via underpass under S. Broadway Bridge and closed on-ramp to I-87/287 Eastbound

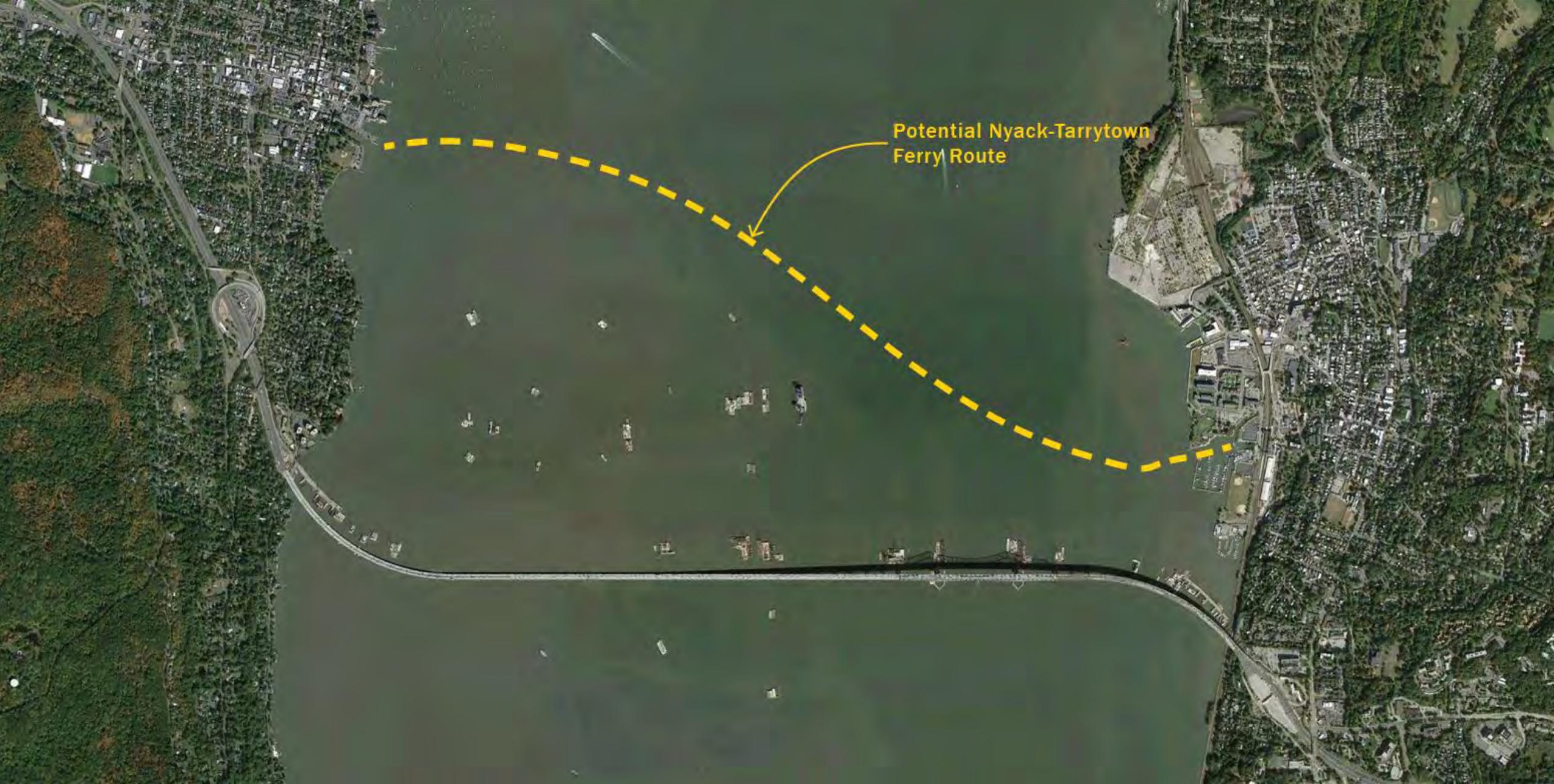
On-ramp from South Broadway to I-87/287 will be closed



Ferry Alternatives: Option 1—Seasonal Recreation/Tourism

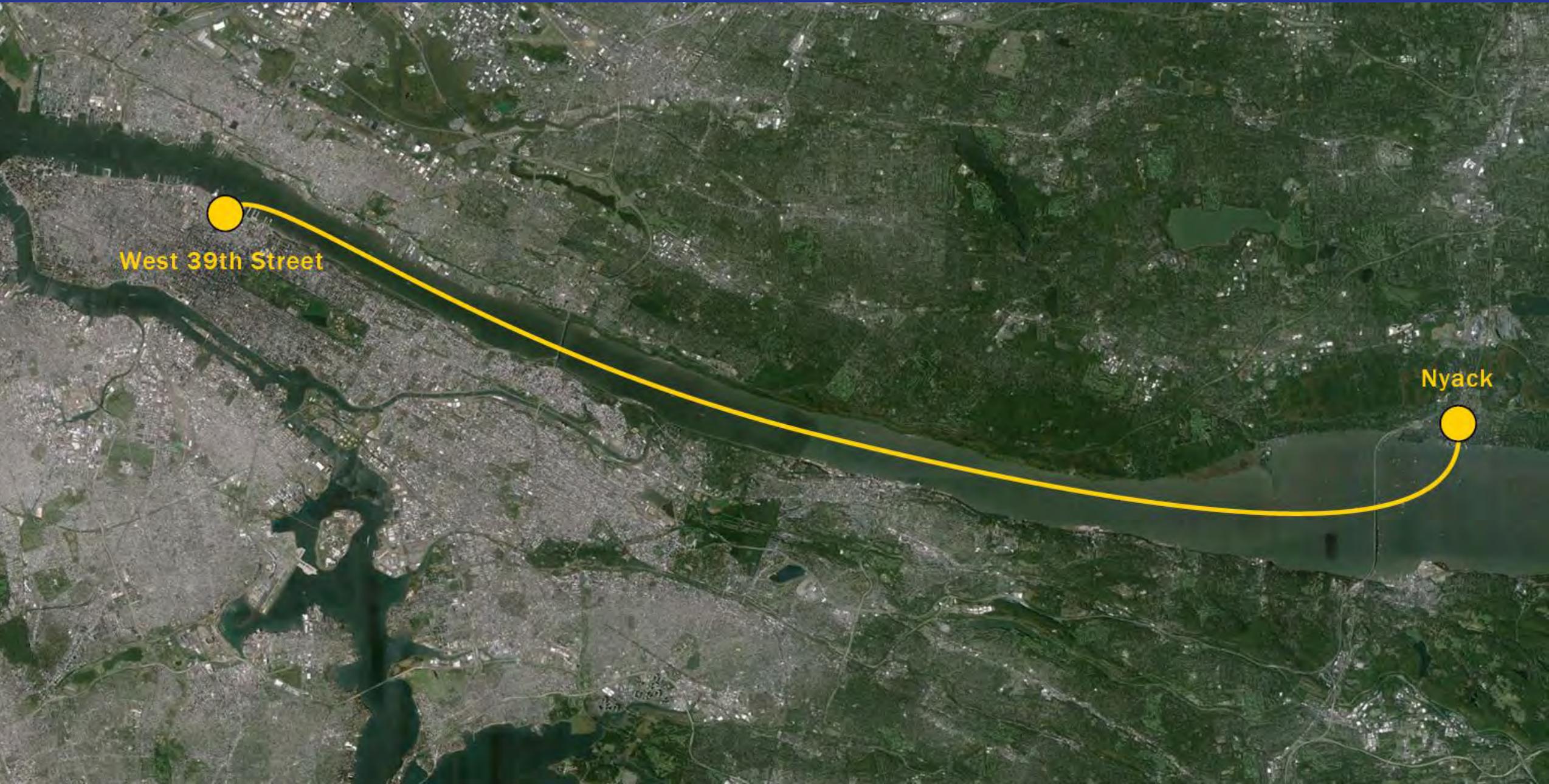


Ferry Alternatives: Option 2—Commuter Nyack-Tarrytown



Potential Nyack-Tarrytown Ferry Route

Ferry Alternatives: Option 3—Commuter Nyack-Midtown Manhattan



West 39th Street

Nyack

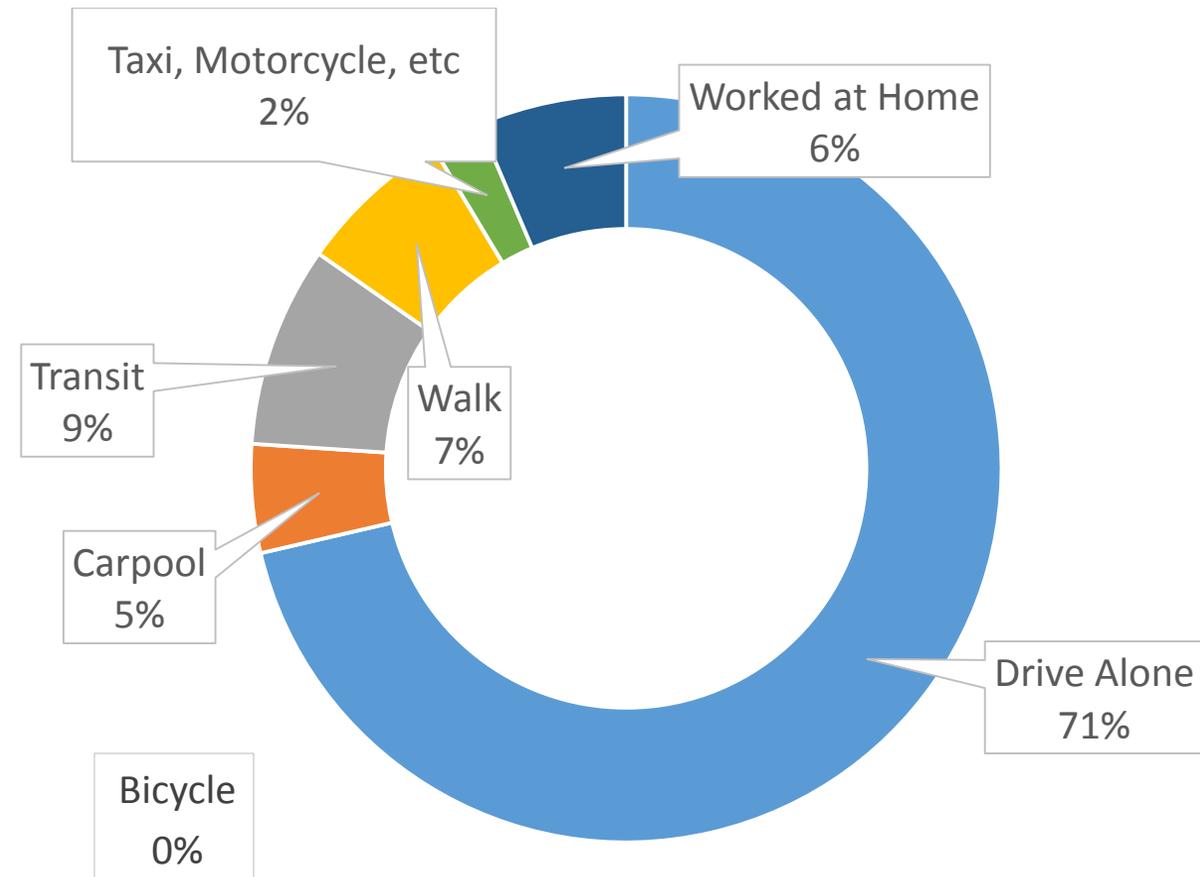
Commutation Patterns

Major Work Destinations (2013)

2,761 Employed Residents

Destination	Count	Share
Nyack Village	289	10.5%
Rockland County (ex Nyack Village)	886	32%
Manhattan, NY	459	17%
Westchester County	336	12%
Bergen County	256	9%
Brooklyn, NY	96	3.5%
All Other Locations	438	16%

Means of Transportation to Work (2014)



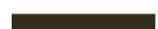
Vehicular Circulation

Areas of Focus

- Congestion Locations?
 - Highland/Route 59
 - Main/Broadway
- Gateways
 - High Avenue
 - Route 59
 - South Broadway

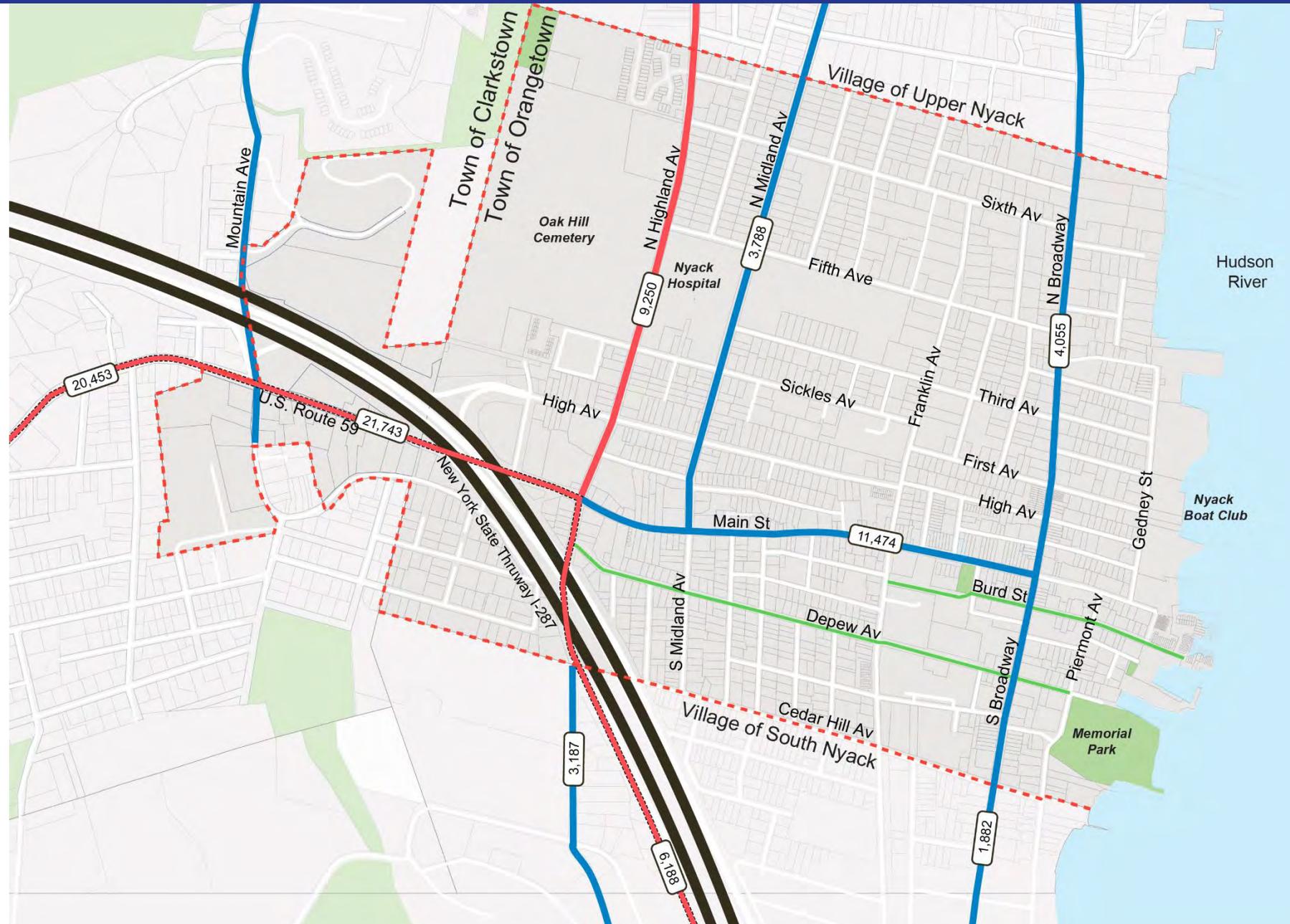
Functional Classification With Avg Daily Traffic

New York State

-  Interstate - NYSTA
-  Principal Arterial - NYSDOT
-  Minor Arterial - NYSDOT
-  Major Collector - Village

Village of Nyack

-  "Main Arterial of Travel"



Safety

Areas of Focus

- Identification of High Crash Intersections
- Improvements at High Crash Intersections
- Traffic calming along High Speed Corridors

Motor Vehicle Crashes

May 1, 2012 - April 30, 2015 (1,054 Total)

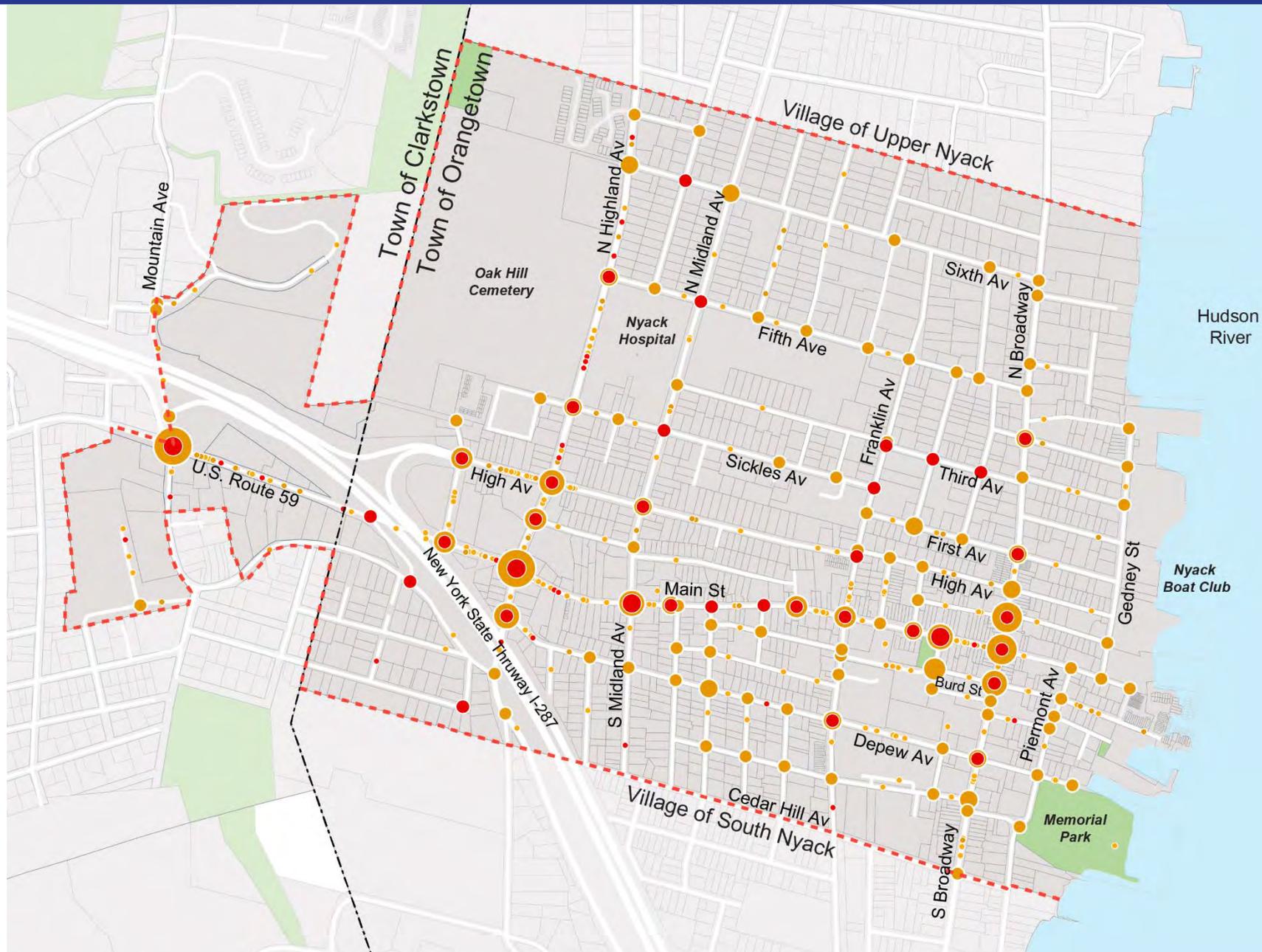
Source: NYSDOT

Crash Severity

Fatality (0)

● Injury (131)

● Property Damage and Non-Reportable (923)



Safety

Areas of Focus

- Pedestrian and Bicycle Crashes
- Complete Streets Policy

Bike and Ped Crashes

May 1, 2012 - April 30, 2015 (32 Total)

Source: NYSDOT

-  Pedestrian Injury (26)
-  Bicycle Injury (6)



Public Transit

Areas of Focus

- Quality of Service
 - Rockland County Local, Regional, and Express Services
 - Jitney and Paratransit Services for Seniors and Disabled
- Future Bus Rapid Transit Service

Public Transit

Community Routes

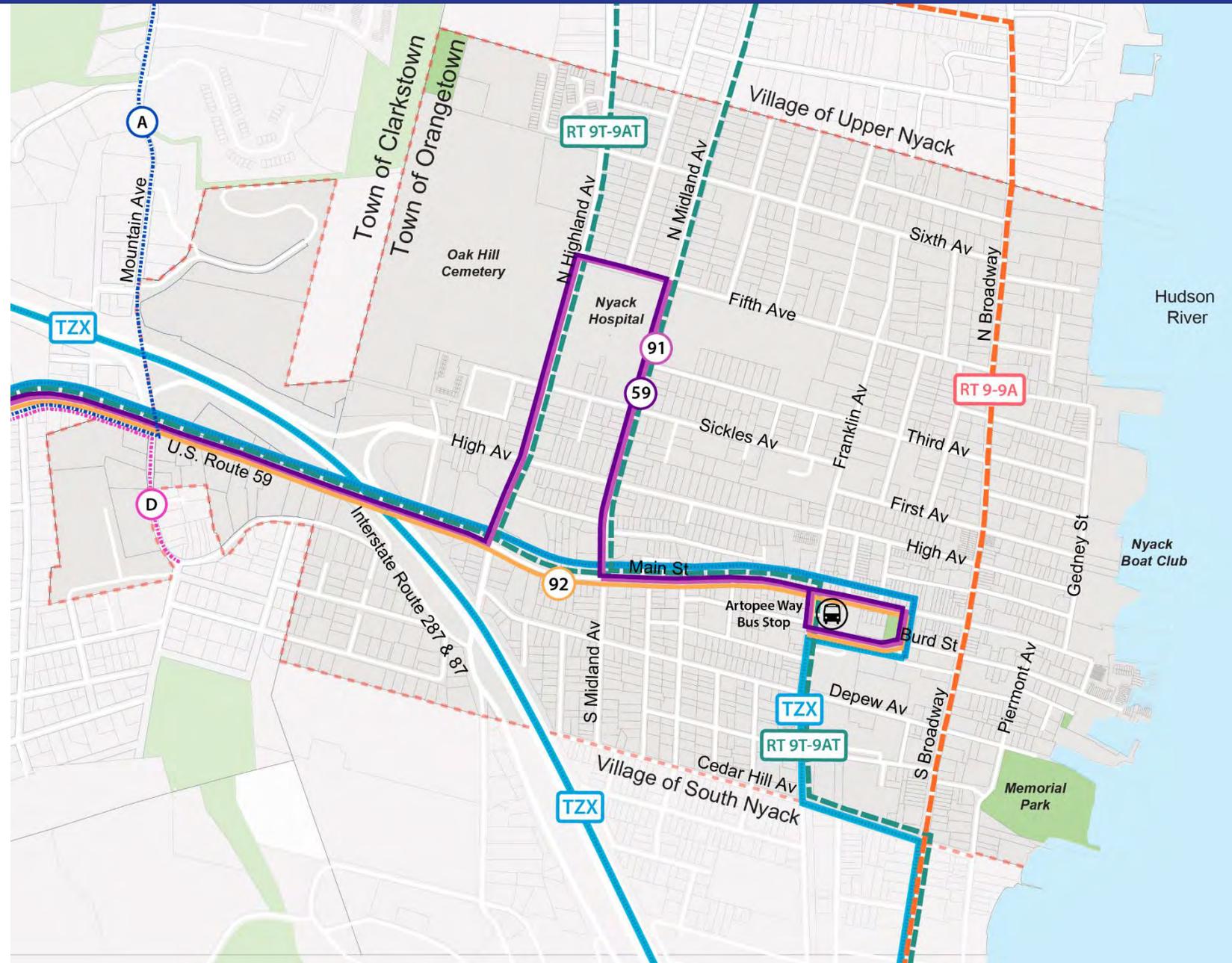
-  Clarkstown Mini-Trans
-  Clarkstown Mini-Trans

Local Bus Routes

-  TOR Bus Routes
-  TOR Bus Routes

Express Bus Routes

-  Coach USA (Red and Tan Lines)
-  Coach USA (Red and Tan Lines)
-  Tappan Zee Express (TZX)



Bicycles

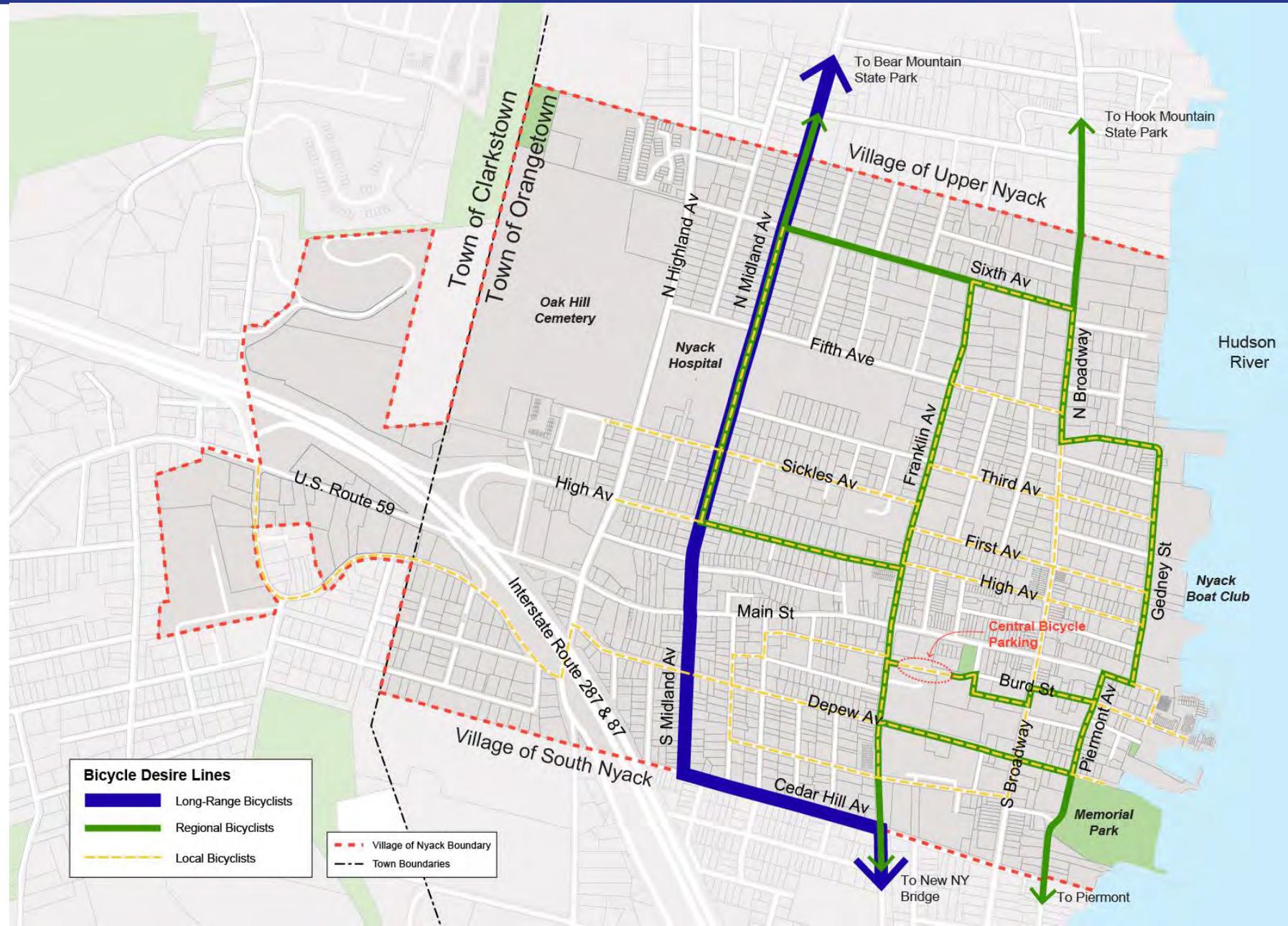
Areas of Focus

- Bicycle Desire Lines
- User Groups
- Bicycle Count Data (2014)
 - ~1,500 Cyclists counted in South Nyack on a Saturday in August

 Long-Range Bicyclists

 Regional Bicyclists

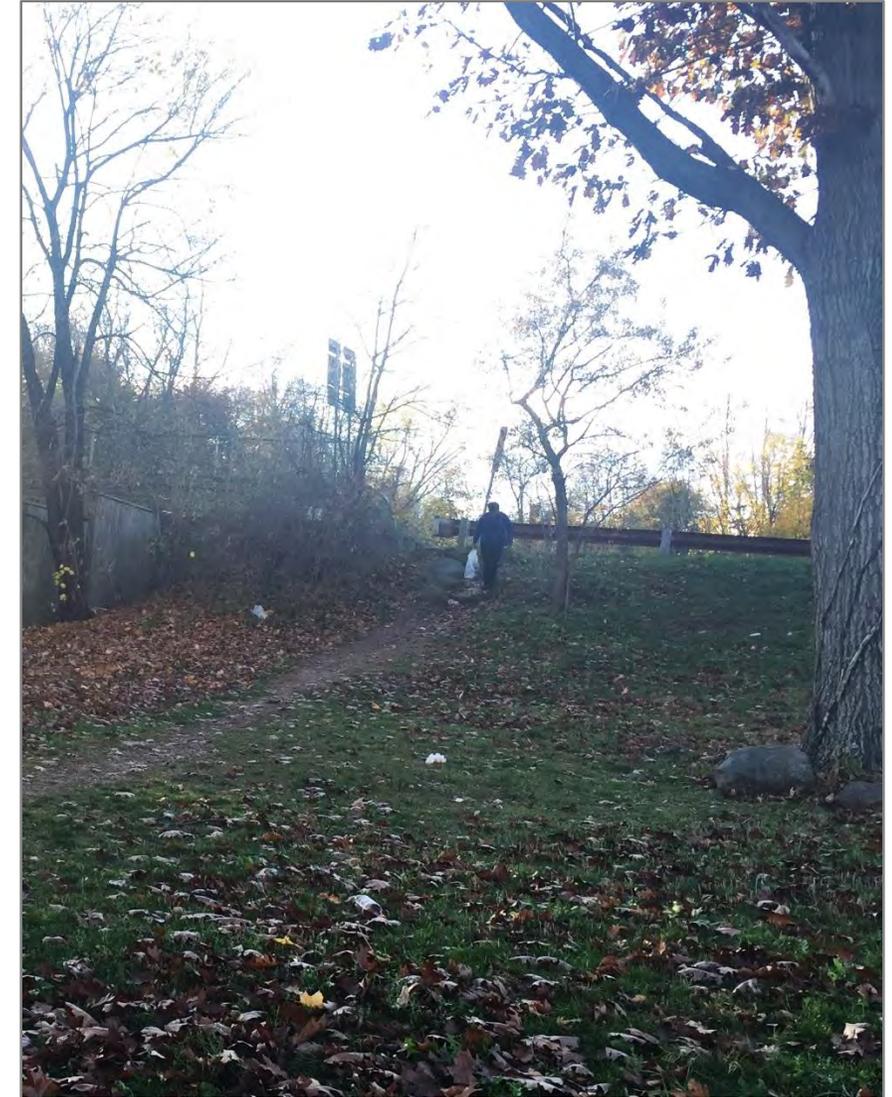
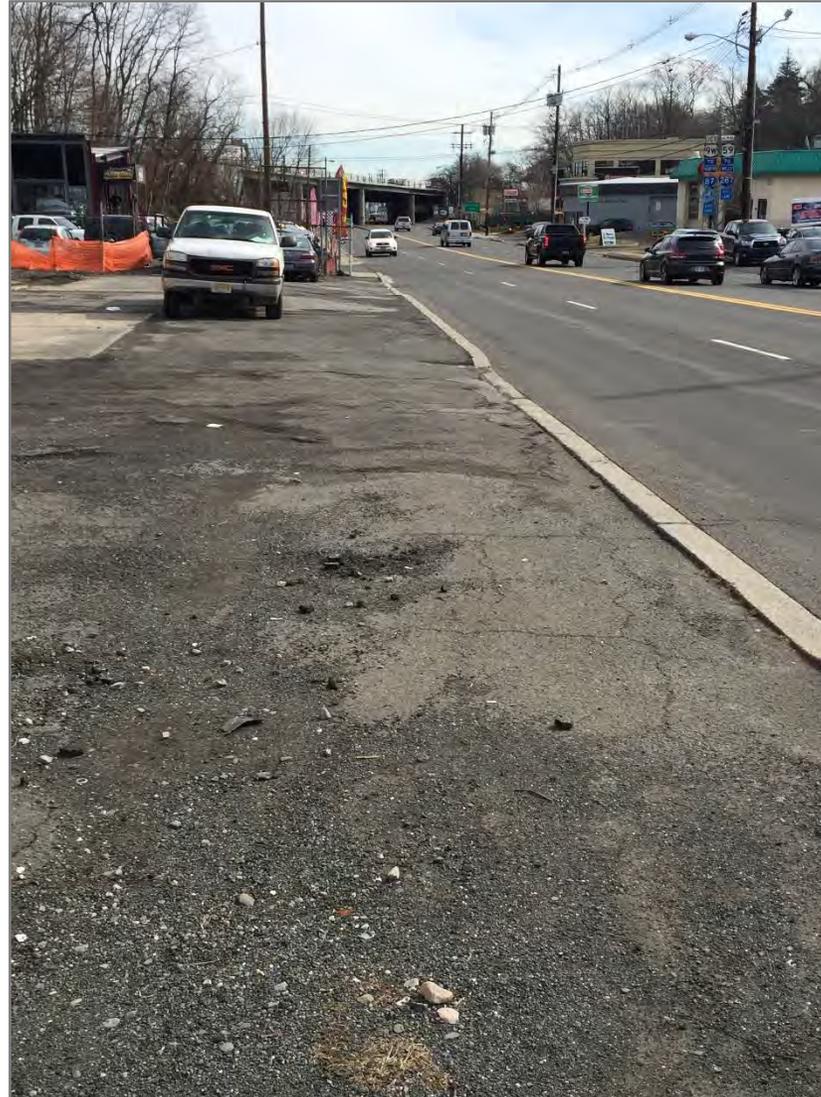
 Local Bicyclists



Pedestrian

Areas of Focus

- Gaps in the Pedestrian Network
- Safety Improvements at Crossings
- ADA Compliant Curb Cuts



Parking

Areas of Focus

- Parking Management
- User Experience
- Encouraging Park and Walk

Average Parking Occupancy Observed in 2007 (Meter and Permit Parking)

Parking Lot	Wednesday	Saturday
Main Street and Artopee Way Lots	56%	76%
Catherine Street Lot	64%	48%
Spear Street Lot	30%	28%



Village of Nyack

TAP New Connectivities For Nyack



Project Area



TAP NEW CONNECTIVITIES FOR NYACK

Provide improvements to make the Village a walkable and bikeable environment for Village Residents and Visitors.



Enhance Pedestrian Experience



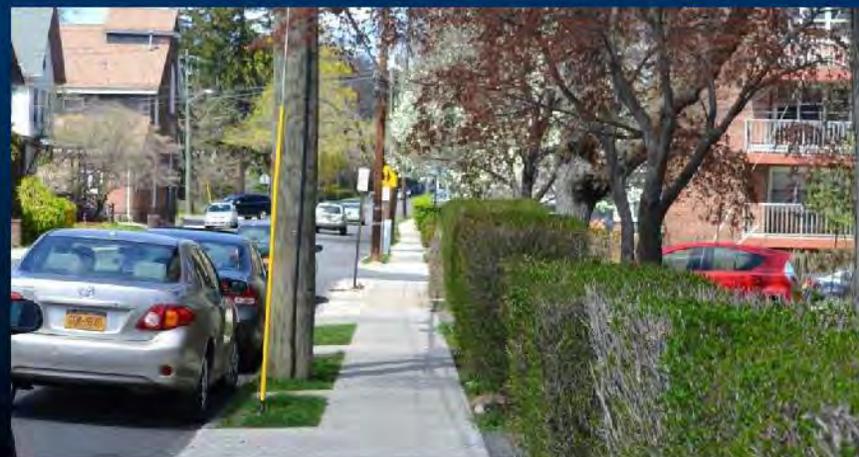
Recognize many uses of the Village



Improve safety for Village Residences and Visitors

PRIORITIES

1. Pedestrian Safety/Accessibility
2. Parking (Maintain Ex.)
3. Biking Racks
4. Franklin Street Bicycle Connection to Esposito Trail
5. Sidewalk/Streetscape
6. Sustainability



WATER SYSTEM

DRIVERS

WATER SCARCITY

AGING INFRASTRUCTURE

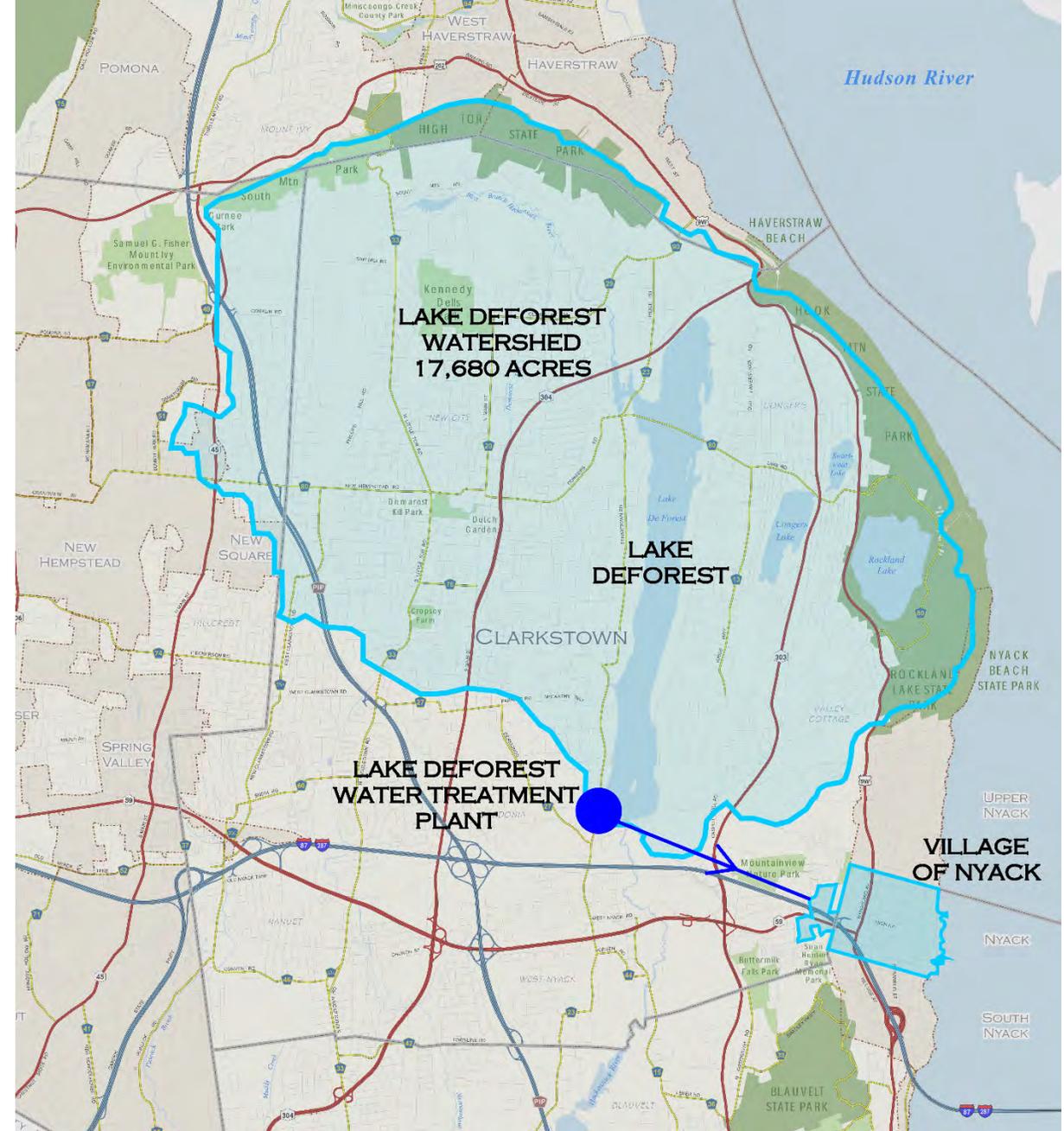
GROWING POPULATIONS

SOLUTIONS

WATER REUSE

GROUNDWATER RECHARGE

DEMAND REDUCTION



SEWER SYSTEM

DRIVERS

DEC CONSENT ORDER

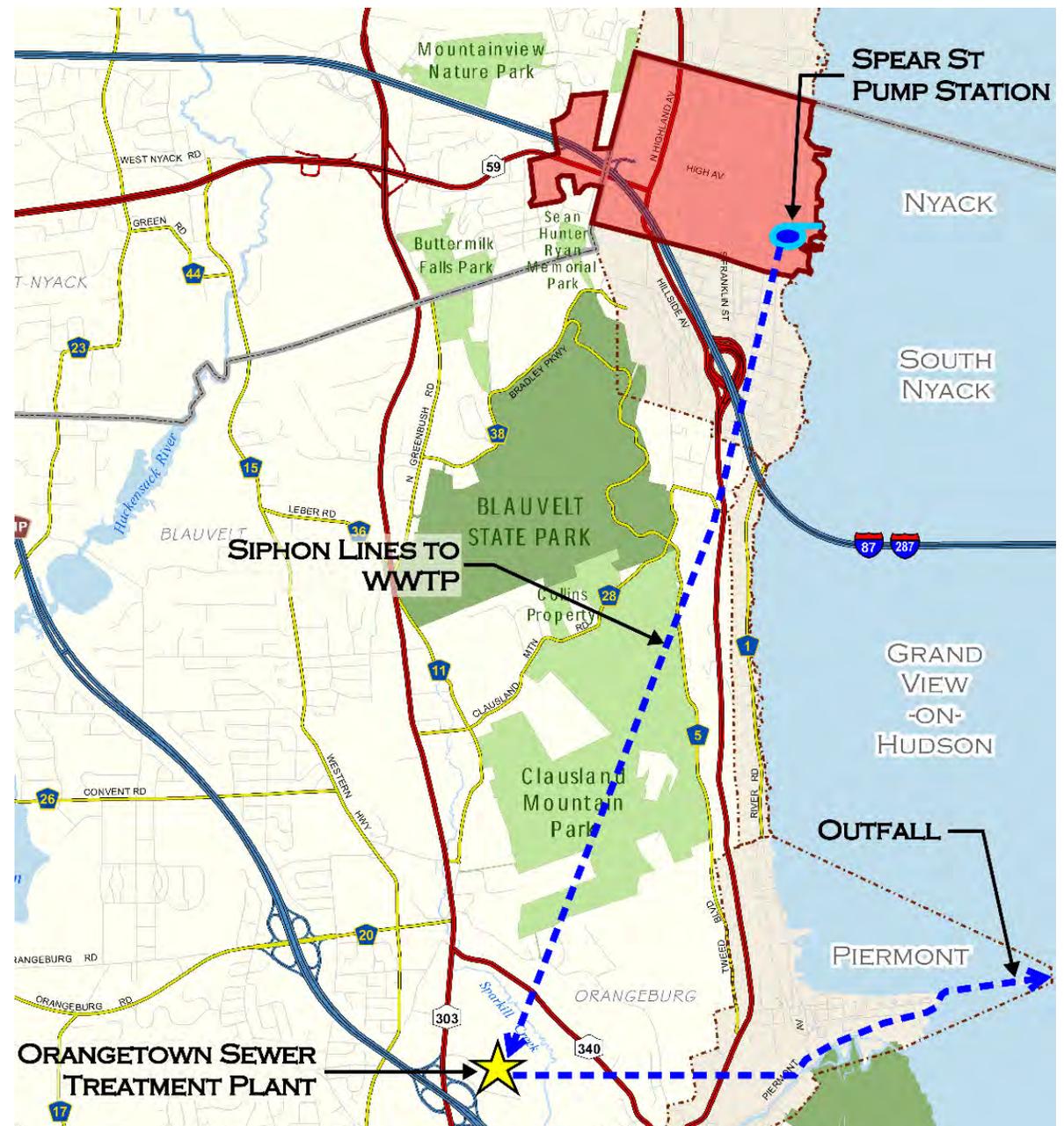
AGING INFRASTRUCTURE

SOLUTIONS

INFLOW AND INFILTRATION STUDIES

COLLECTION SYSTEM REHABILITATION

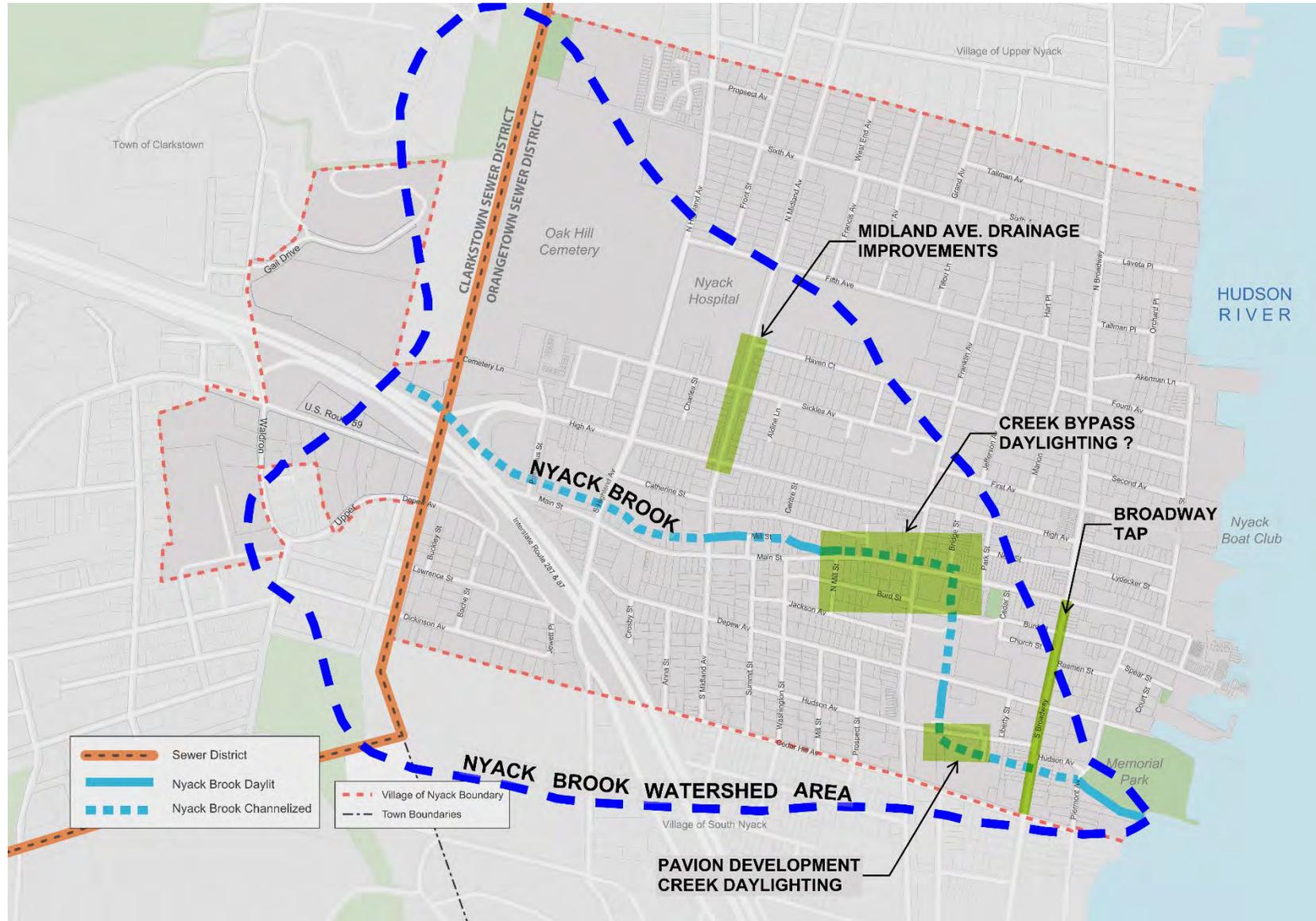
ELIMINATE ILLEGAL CONNECTIONS



STORMWATER

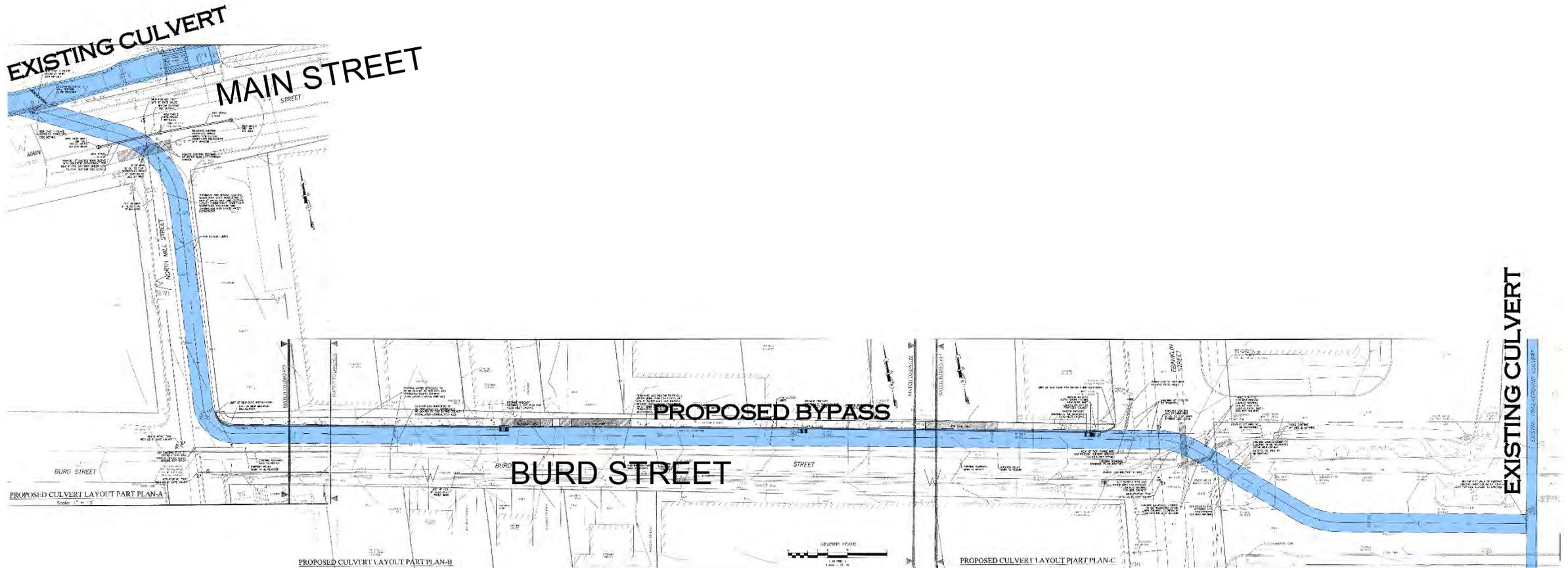


STORMWATER



STORMWATER

NYACK BROOK PROJECT 'BIG DIG'



TREES

Bioretention Phytoremediation Transevaporation Carbon binding Temperature control Aesthetics

INFO

Adding trees to landscaping is easy, attractive, and has many stormwater benefits. A single mature tree with a 30 foot crown can intercept over 700 gallons of rainfall annually. Evergreen trees will capture more rainwater in winter months than deciduous trees. Trees capture and hold rainfall in leaves and branches. They slow runoff flow and can decrease stormwater volume by 35% or more for small storms.

Trees improve water quality by filtering rainwater and holding soils in place, which is especially important along stream banks. Their shade reduces pavement heat, which in turn lowers runoff temperature. Tree wells can provide additional benefits by accepting runoff from sidewalks or other paved areas.

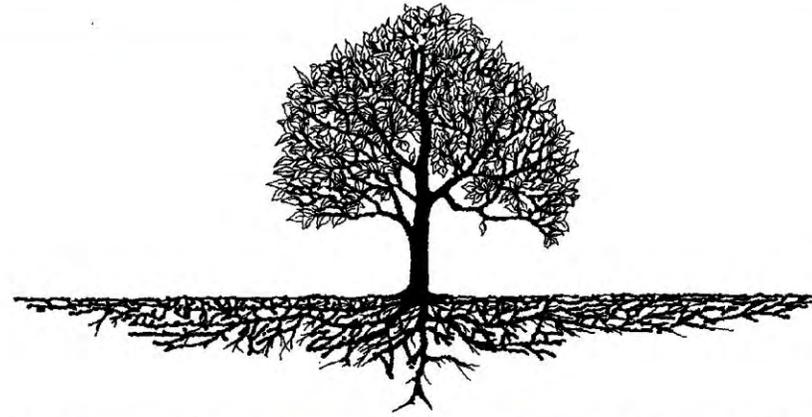
If the water and soil equation is correct, trees will grow well. If designed correctly these are dry environments most of the times in most climates. Species needs to be chosen accordingly.

The soil volume required to treat 1½ usually provides sufficient soil volumes for a large tree.

Trees will grow better in unscreened soil with less sand. Drainage rate at 2-3"/hour at installation is a great rate for water treatment and trees.

Trees should be planted slightly mounded to keep the sensitive neck of the root out of the water as much as possible.

(Source: Webinar 130724: Using trees and soils in urban storm water, James Urban and <http://www.portlandoregon.gov/bes/article/127471>)



TREES

Bioretention Phytoremediation Transevaporation Carbon binding Temperature control Aesthetics

Interception

Interception is the amount of rainfall temporarily held on tree leaves and stem surfaces. This rain then drips from leaf surfaces and flows down the stem surface to the ground or evaporates.

Interception is not typically included in stormwater calculations but can nonetheless provide additional stormwater benefits beyond stormwater storage in the soil.

The volume of rain intercepted depends on the duration and rate of the rainfall event, tree architecture (e.g. leaf and stem surface area, roughness, visual density of the crown, tree size, and foliage period), and other meteorological factors.

Since larger trees have more leaves to intercept rain, they intercept significantly more rain than small trees, with interception increasing at a faster rate than tree age. For example, a model of a hackberry tree in the Midwest estimates that interception will increase as follows with tree age:

- a 5 year old hackberry intercepts 0.5 m³ (133 GAL) rainfall per year
- a 20 year old hackberry intercepts 5.3 m³ (1,394 GAL) rainfall per year
- a 40 year old hackberry intercepts 20.4 m³ (5,387 GAL) rainfall per year

Evapotranspiration

Evapotranspiration (ET) is the sum of water evaporated from soil and plant surfaces and the water lost as a result of transpiration, a process in which trees absorb water through their roots and transfer it up to the leaves, where it evaporates into the environment through leaf pore transpiration. Evapotranspiration continues to reduce stormwater volume stored in the soil long after a rainfall event ends.

Transpiration rate is influenced by factors such as tree species, size, soil moisture, increasing sunlight (duration and intensity), air temperature, wind speed and decreasing relative humidity.

Potential evapotranspiration (PET) exceeds precipitation during the growing season in much of the US. Even tree transpiration can exceed precipitation where it is sustained by irrigation (Grimmond and Oke 1999). A study by Sinclair et al (2005) showed that:

“Transpiration was unaffected by soil drying until the initial estimated transpirable soil water fraction had decreased to between 0.23 and 0.32 of that at field capacity. Beyond this point, transpiration rate declined linearly with available soil water fraction until reaching one fifth the rate observed in well watered plants. With further soil drying, the relative transpiration rates remained between 10 and 20% of that observed in well watered plants.”

Transpiration uses heat from the air to change the water in the vegetation into water vapor, so in addition to providing stormwater benefits, transpiration also decreases ambient air temperature and reduces the urban heat island effect. Trees in a parking lot in Davis, CA, for example, reduced asphalt temperatures by as much as 20° C (36° F), and car interior temperatures by over 26° C (47° F) (Scott et al 1999).

It is the responsibility of designers to create conditions that are favorable to trees and the sustainable processes that they enable to occur in the built environment. Hopefully this outline of their incredible benefits will help professionals to make sure sites that the sites they design continue to support these ecological principles.

(Source: <http://www.deeproot.com/blog/blog-entries/stormwater-quantity-and-rate-control-benefits-of-trees-in-uncompacted-soil>)



Evaporation + Transpiration =
EvapoTranspiration (ETo)



TREES

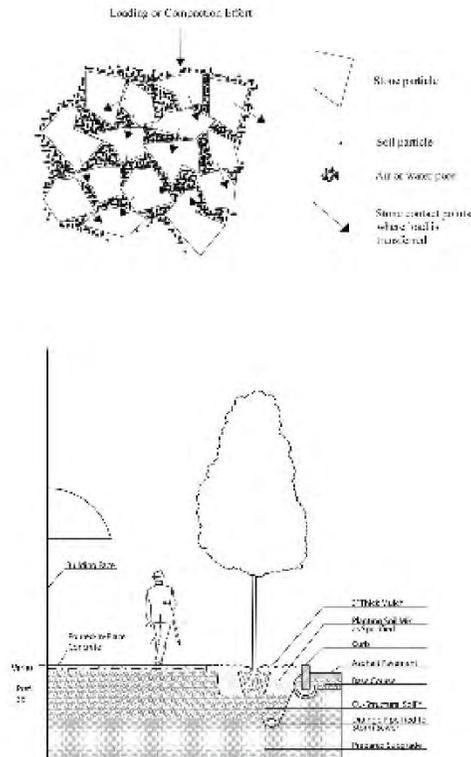
Bioretention Phytoremediation Transevaporation Carbon binding Temperature control Aesthetics

Structural soils

The use of structural soil greatly increases the ability to give the trees the soil volume they need.

CU-structural soils are the mostly common used but there are other types of structural soils using larger sized rock material for larger soil pockets.

<http://www.hort.cornell.edu/uhi/outreach/csc/graphics.html>

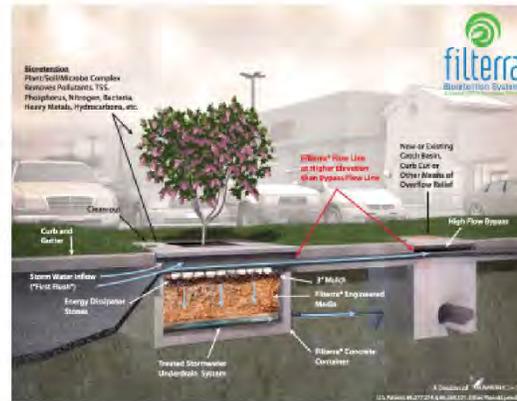


Filterra

The Filterra Cubes are a prefabricated product that assist in stormwater management through filtering and detention. The system is connected to the stormdrain or cistern for water reuse.

The product allows a tree or shrub to be part of the LID These systems allow for high flow treatment but are not approved for stormwater treatment in all counties.

<http://www.filterra.com/index.php/product/>



Silva cells

Polypropelene and steel structures that allow a large amount of the soil volume underground to be used by trees and for storm water detention and retention.

<http://www.deeproot.com/products/silva-cell/silva-cell-overview.html>



FLOWTHROUGH PLANTERS

INFO

Definition:

Flowthrough Planters are narrow, flat-bottomed, often rectangular, landscape areas used to treat stormwater runoff. Their most distinguishing feature is that the natural side slopes typically used in raingardens and swales are replaced with vertical, often concrete, side walls. This allows for more storage volume in less space.

Synonyms:

Flowthrough planters are structures or containers with impervious bottoms or placed on impervious surfaces. They do not infiltrate into the ground. They can be placed in or above the ground level. Flow-through planters are filled with gravel, soil, and vegetation and are typically waterproofed. They temporarily store stormwater runoff on top of the soil and filter sediment and pollutants as water slowly infiltrates down through the planter. Excess water collects in a perforated pipe at the bottom of the planter and drains to a destination point or conveyance system. Flow-through planters come in many sizes and shapes, and are made of stone, concrete, brick, plastic lumber or wood.

Because flow-through planters can be built immediately next to buildings, they are ideal for constrained sites with setback limitations, poorly draining soils, steep slopes, or contaminated areas. Flow-through planters reduce stormwater flow rates, volume, and temperature, and improve water quality. They can also provide shading and energy benefits when sited against building walls. They can be an attractive landscape feature and provide wildlife habitat.

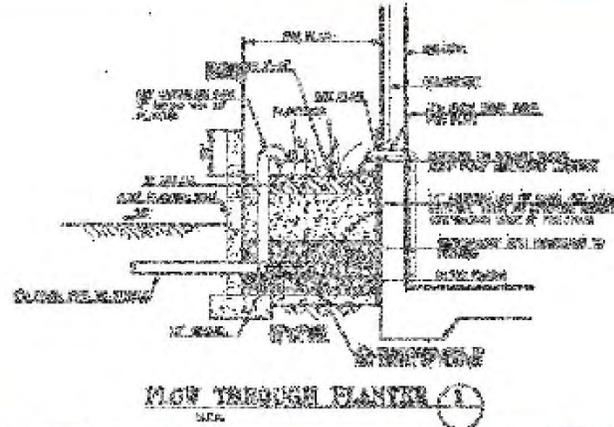
Flow-through planters can contain a variety of shrubs, small trees, and other plants appropriate for seasonally moist and dry soil conditions. Summer irrigation and weed pulling may be required. Minimize the need for permanent irrigation as much as possible by using native and well-adapted plants. Because planters have no side slopes and are contained by vertical curbs, it is best to use plants that will grow at least as tall as the planter's walls in order to help "soften" the edges.

Stormwater planters are easily incorporated into retrofit conditions and in places where space is limited. they can be built to fit between driveways, utilities, trees and other existing site elements. Planters can be used in both relatively flat conditions and in steep conditions if they are appropriately terraced.

(Source: San Mateo County Sustainable Green Streets and Parking Lots Guidebook And portlandoregon.gov/bes)



DETAILS



Vegetated Stormwater Solutions - Toolkit

RAINGARDENS

Bioretention Phytoremediation Detention Transevaporation Groundwater recharge Carbon binding Aesthetics

INFO

Definition:

Raingardens are shallow landscape areas that can collect, slow, filter and absorb large volumes of water, delaying discharge into the watershed system.

Synonyms:

Infiltration Planter, Bioretention garden, Bioretention area

Raingardens are large, shallow, vegetated depressions in the landscape. They can be any size or shape, and are often molded to fit in “leftover” spaces in parking lots, along street frontages, and in situations where streets intersect at odd angles. They are also typically designed to be flat-bottomed without any longitudinal slope in order to maximize storage potential for stormwater.

Raingardens retain stormwater, thereby attenuating peak flows and overall volume. They can also allow for infiltration, depending on the capacity of the native soil. Although rain gardens can share certain characteristics with swales and planters (they can be designed with vertical curbs or side slopes), they differ from swales in that their primary function is the maximum storage of runoff, not conveyance.

The primary advantage of rain gardens is their versatility in size and shape. Because rain gardens are larger in size, they can potentially cost more than other stormwater facility options, but they also manage correspondingly larger volumes of stormwater. Hence, they can offer a good value. Simple rain garden applications that do not use extensive hardscape or pipe infrastructure and thus, can be very cost effective to install.

It is best if raingardens allow for natural infiltration. However, if infiltration is not possible, rain gardens can also be designed as a flow-through system with an underdrain.

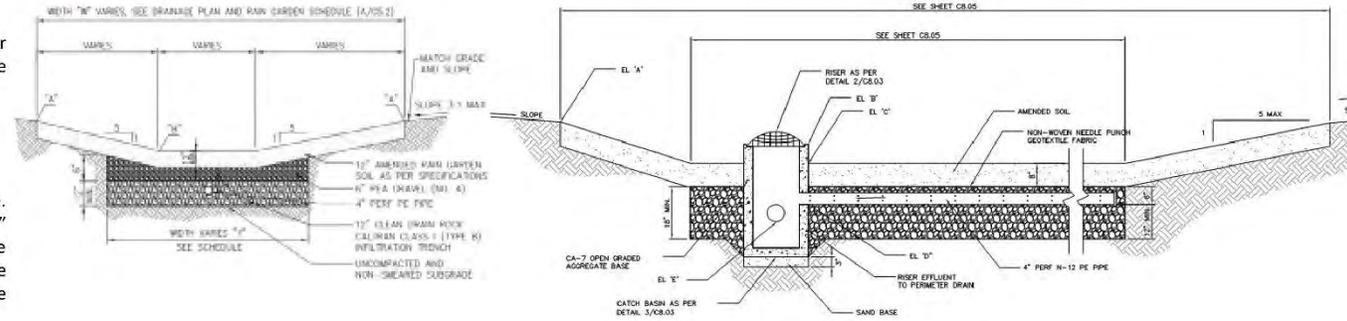
Raingardens can be planted with a variety of trees, shrubs, grasses, and groundcovers, depending on the site context and conditions.

Generally, locations with soil infiltration rates that exceed or meet the accepted standard of 0.5”/hr are suitable for using infiltrative rain gardens.

(Source: San Mateo County Sustainable Green Streets and Parking Lots Guidebook)



DETAILS



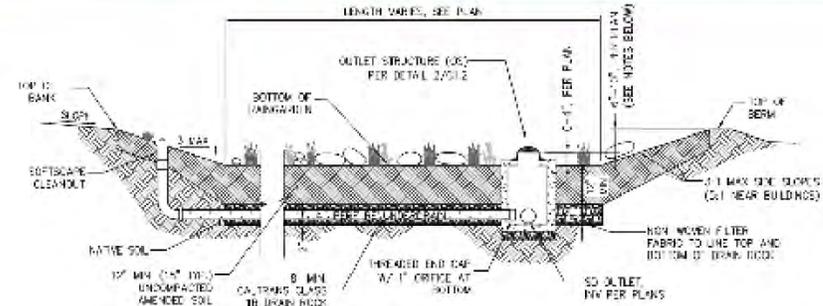
Vegetated Stormwater Solutions - Toolkit

RAINGARDENS

Bioretention Phytoremediation Detention Transevaporation Groundwater recharge Carbon binding Aesthetics

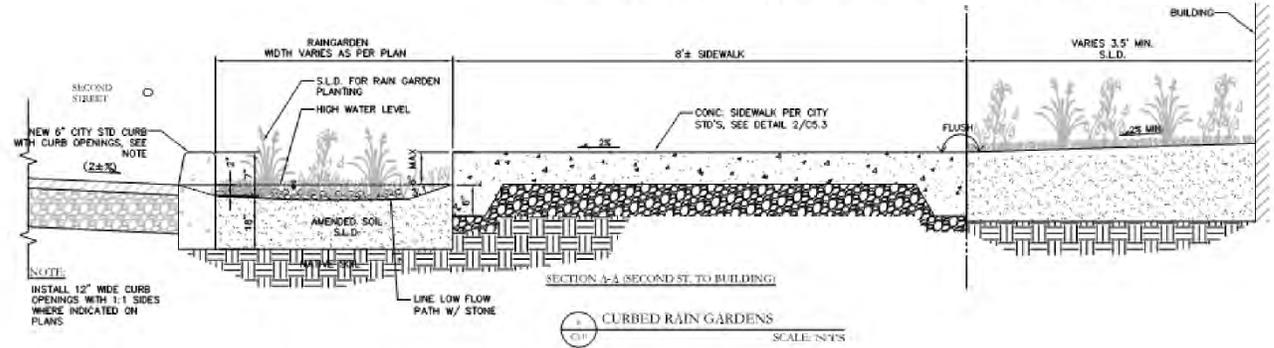
Saint Joseph

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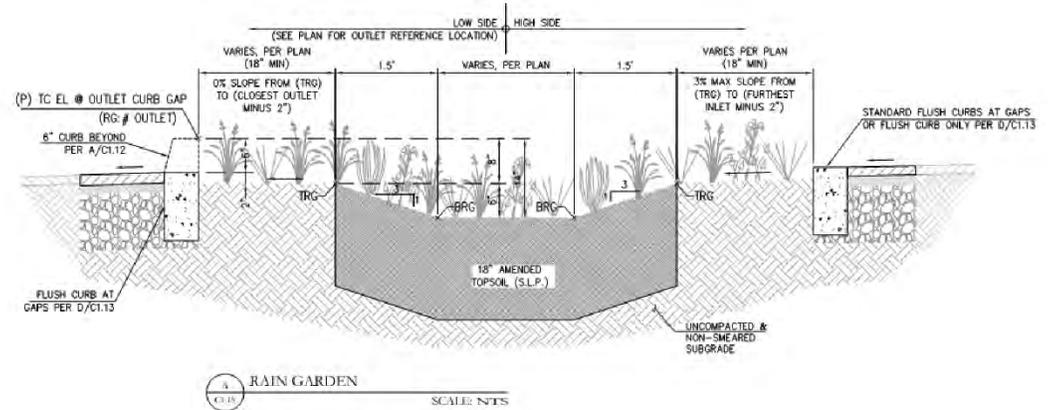
Packard 2nd street

[P:\2007\07-823_Packard_Second_St](#)



San Antonio Streetscape

[P:\2008\08-834_San_Antonio_Streetscape](#)



Links: R:\02 CAD-Standards\02 Details\02 Standard\Storm Drainage
 R:\02 CAD-Standards\02 Details\02 Standard\Storm Drainage
<http://www.portlandoregon.gov/bes/article/127474>



VEGETATED SWALES

Bioretention Phytoremediation Conveyance Transepiration Groundwater recharge Carbon binding Aesthetics

INFO

Definition:

Vegetated Swales are shallow landscaped areas designed to capture, convey, and potentially infiltrate storm water runoff as it moves downstream.

Synonyms:

Bioswale, Bioretention swale, treatment swale

Vegetated swales are long, narrow landscaped depressions, with a slight longitudinal slope. They are primarily used to convey stormwater runoff on the land's surface while also providing water quality treatment. As water flows through a vegetated swale, it is slowed by the interaction with plants and soil, allowing sediments and associated pollutants to settle out. Some water soaks into the soil and is taken up by plants, and some may infiltrate further if native soils are well drained. The remaining water that continues to flow downstream travels more slowly than it would through pipes in a traditional stormwater conveyance system. Vegetated swales are typically built very shallow and contain runoff that is only a few of inches deep.

Parking lots and certain street conditions that have a long, continuous space to support a functioning landscape system are excellent candidate sites for vegetated swales. The longer a vegetated swale is, the greater the residence time for slowing and filtering of stormwater runoff.

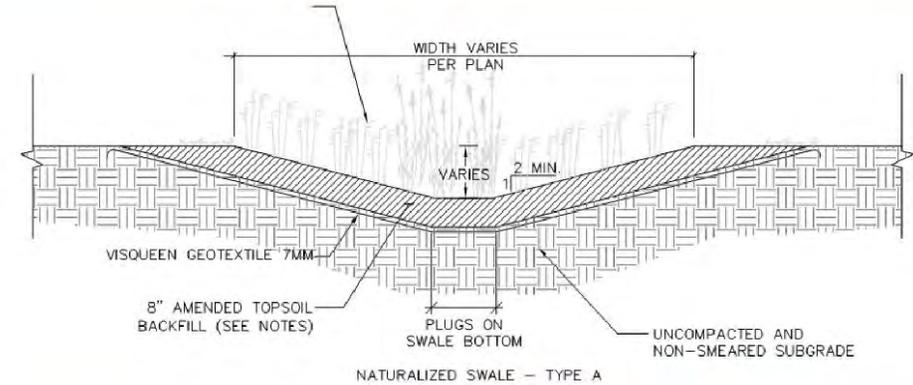
Vegetated swales are relatively low-cost, simple to construct, and widely accepted as a stormwater management strategy.

Vegetated swales can be planted in a variety of ways ranging from mown grass to a diverse palate of grasses, sedges, rushes, shrubs, groundcovers and trees.

For green street and parking lot applications, vegetated swales can be used in both relatively flat conditions or steeper conditions up to a 5% longitudinal slope. For swales above a 2% slope, check dams or terraces should be used to help slow the flow of water.

(Source: San Mateo County Sustainable Green Streets and Parking Lots Guidebook)

DETAILS



VEGETATED SWALES

Bioretention Phytoremediation Conveyance Transevaporation Groundwater recharge Carbon binding Aesthetics

Orange County Great Park

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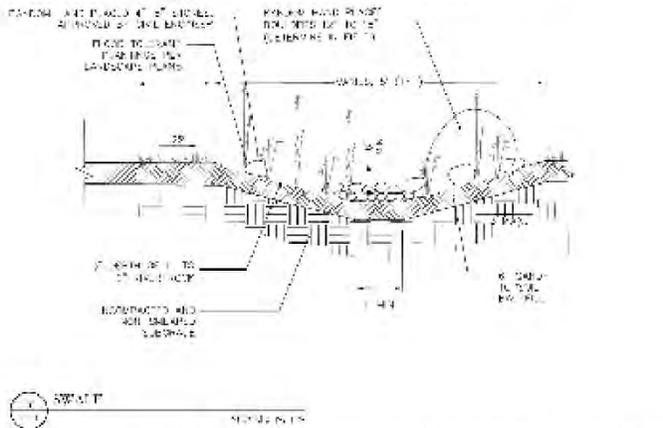
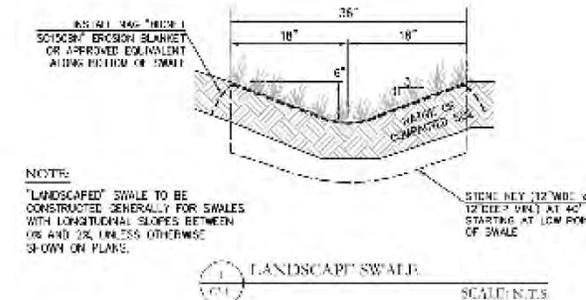
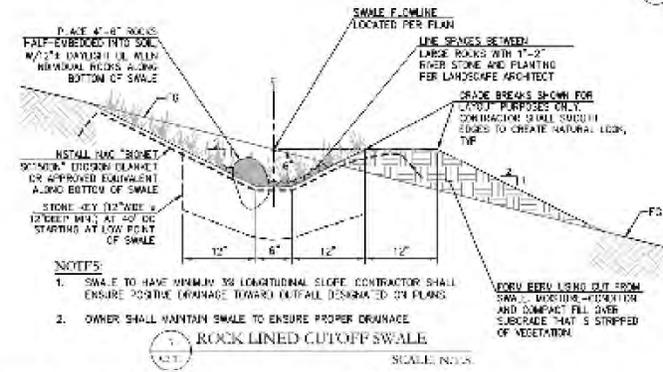
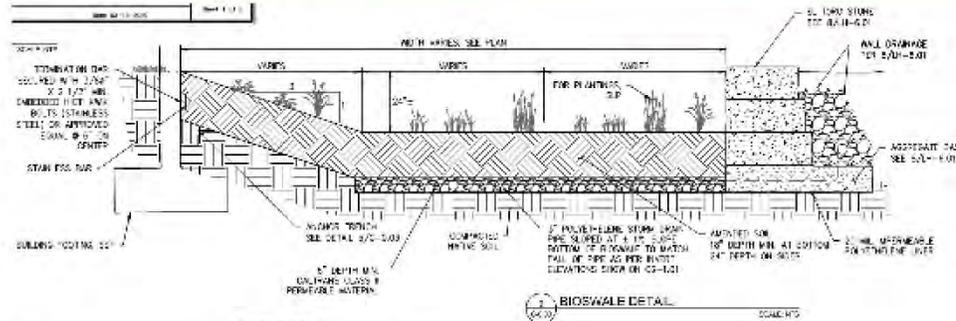
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Mike Hastings

Russell Schlesinger

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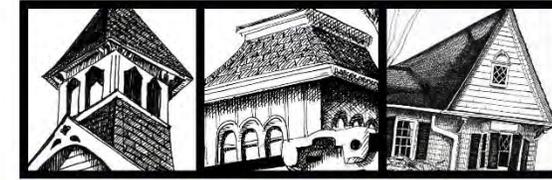


Vegetated Stormwater Solutions - Toolkit

Next Steps

1. Continue to work on draft chapters based on public input and data analysis
2. Complete the public survey and evaluate responses
3. Prepare for upcoming Public Workshops and Interactive Design Sessions

PLAN NYACK



Blueprint for the Future

Public Workshops: Save the Dates

Updating the Village of Nyack Comprehensive Plan

The Village of Nyack is updating its **Comprehensive Plan** with a multi-disciplinary consultant team led by BFJ Planning and funding support from the New York State Energy Research and Development Authority (NYSERDA).

The Comprehensive Plan serves as the guiding document of the Village's land use decisions and will cover a broad array of topics, including:

- Nyack's place within the region
- Socioeconomic trends and housing
- Land use, zoning and development
- Infrastructure and utilities
- Environmental, historic, cultural and municipal resources
- Parks, open space and recreation
- Economic development
- Transportation
- Sustainability

The year-long Comprehensive Plan update process is guided by a Steering Committee made up of representatives from the Village and the community. The project incorporates a robust outreach process to identify and understand the vision for the future the Village. This process includes four public workshops and three more focused, interactive design sessions on selected topics.

Public Workshops and Interactive Design Sessions

OCTOBER 19
Kick-Off, Vision, Goals and Objectives



DECEMBER 2
Sustainability, Land Use, Socioeconomics and Housing



JANUARY 13
Downtown and Gateways



FEBRUARY 24
Transportation, Infrastructure and Utilities



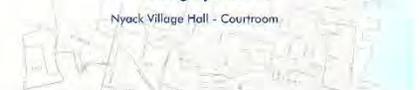
MARCH 30
Waterfront Development and Ferry Potential



APRIL 20
Economic Development



MAY 18
Draft Comprehensive Plan and Zoning Updates



For more info, visit:

<http://nyack-ny.gov/project/2015-comprehensive-plan-update/>

Overview of Roundtable Discussions

Roundtable Discussion Topics

- Transportation (three tables)
- Infrastructure and Utilities

Facilitators have questions to prompt discussion about key issues

Large-scale maps on the tables can be used for reference and to mark-up with comments, issues, potential recommendations

Columbia University Students will take notes at each station

Need one volunteer to report back at the end of the session. Volunteers will report summarize major concepts/themes that were discussed at their station



For More Information:

Sign in to get on the email list

Take the Nyack Comprehensive Plan Survey!

<http://nyack-ny.gov/nyack-comprehensive-plan-survey/>

Visit the Village of Nyack website for updates:

<http://nyack-ny.gov/project/2015-comprehensive-plan-update/>

Attend future public workshops

The next workshop will be held on March 30 at the Nyack Center

Email questions and comments to:

dougfooster@nyack-ny.gov