



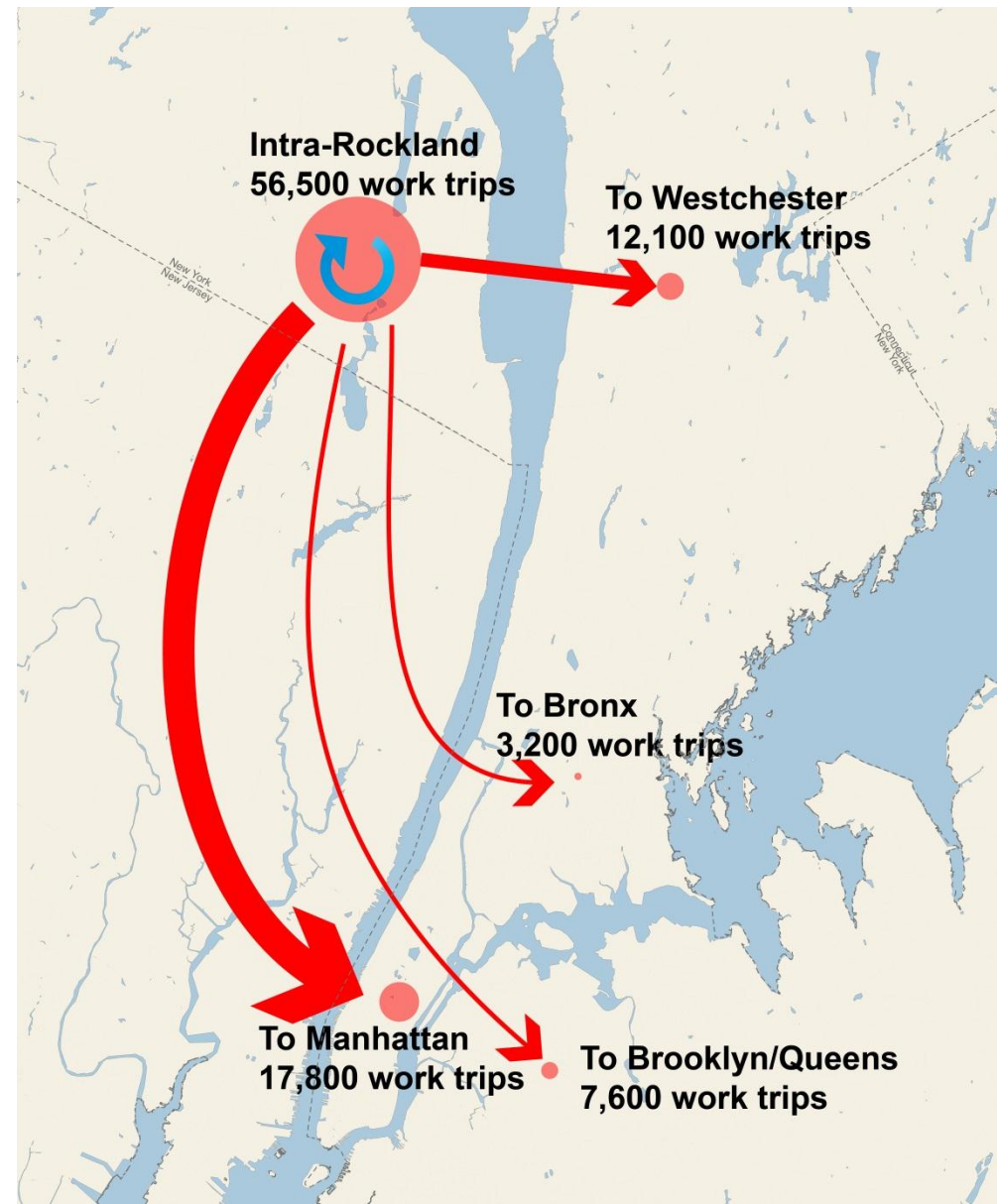
Short-term Transit Concepts



Rockland County

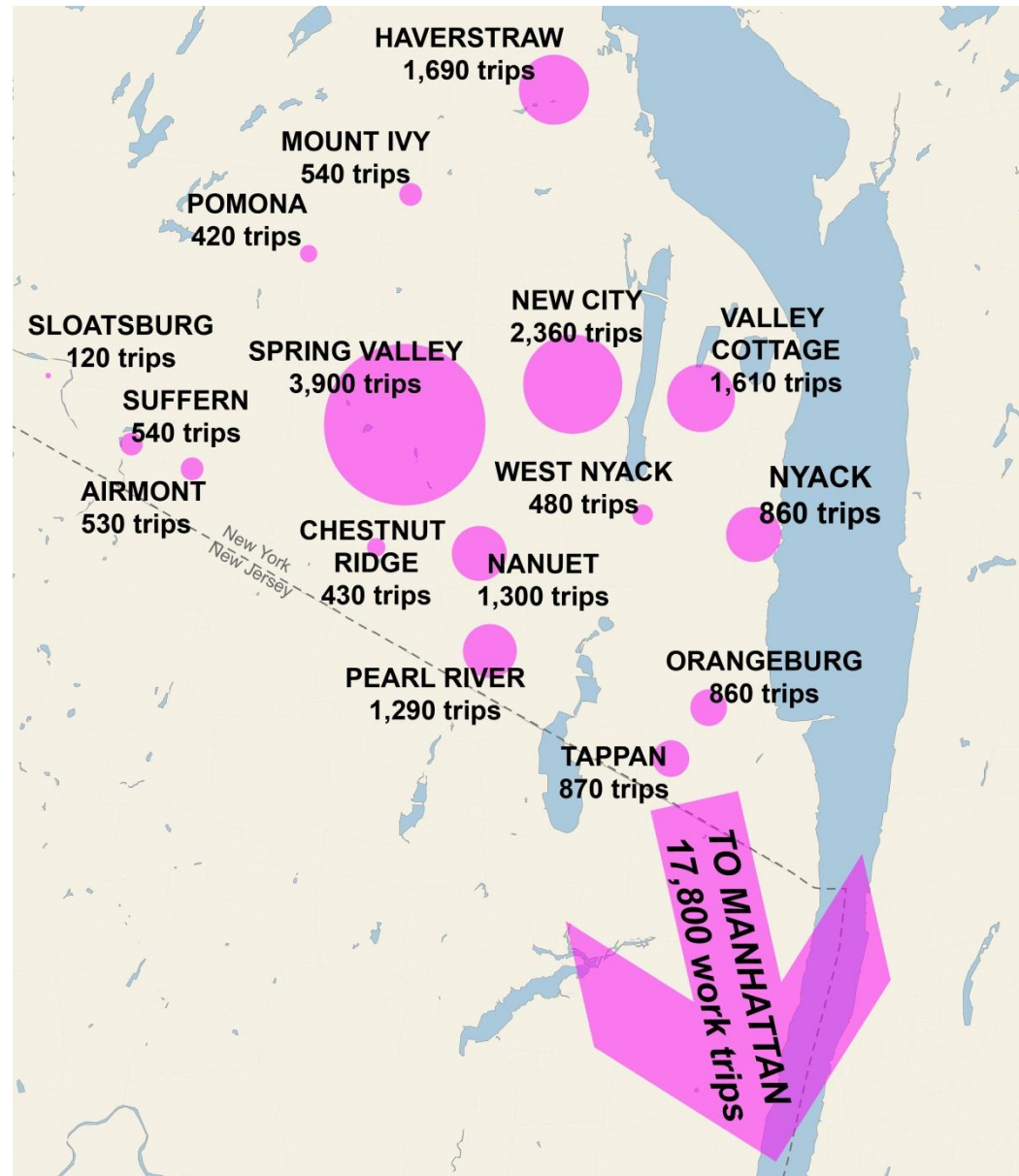
Key Travel Markets – Rockland

Rockland Work Trips



Key Travel Markets – Rockland

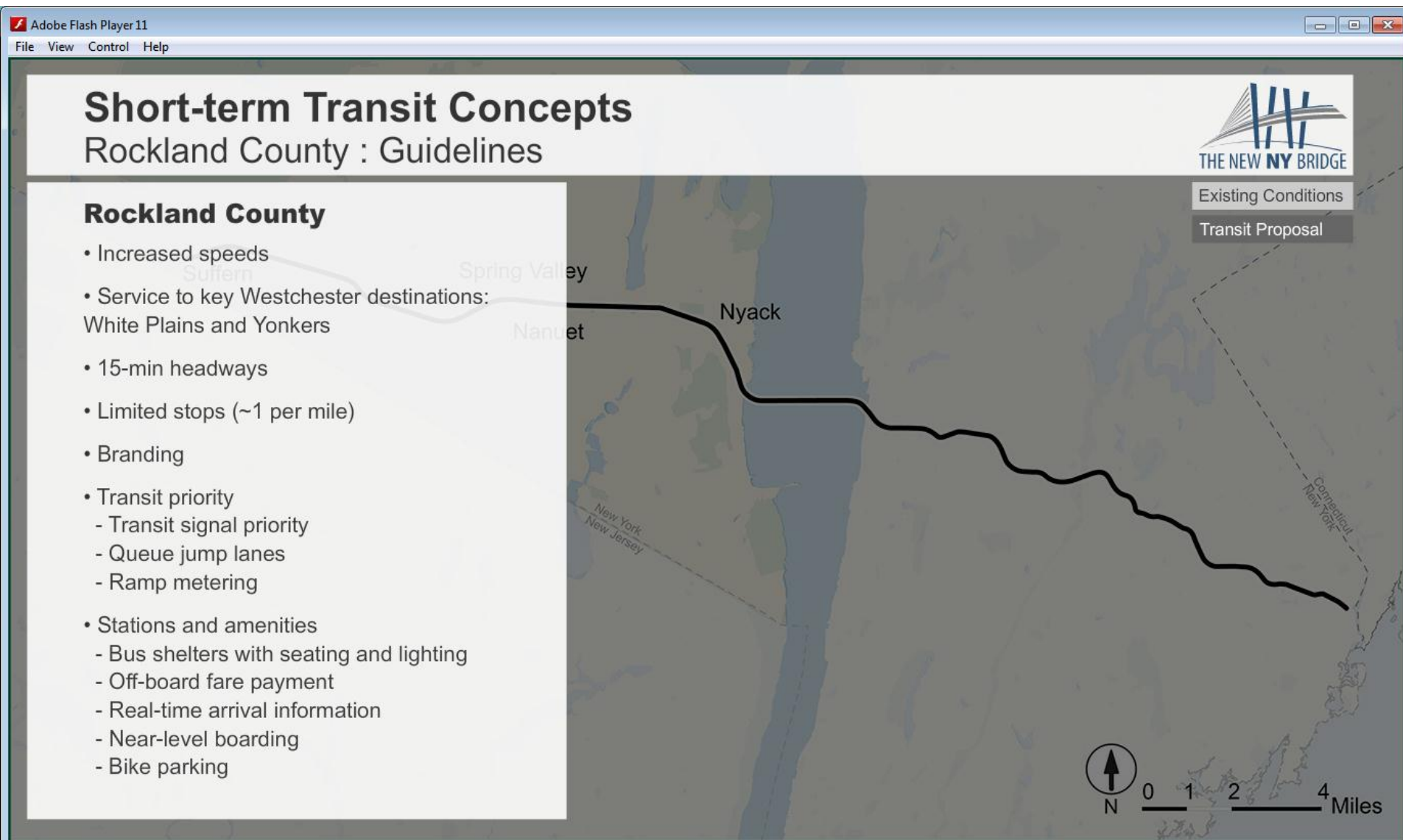
Work Trips to Manhattan



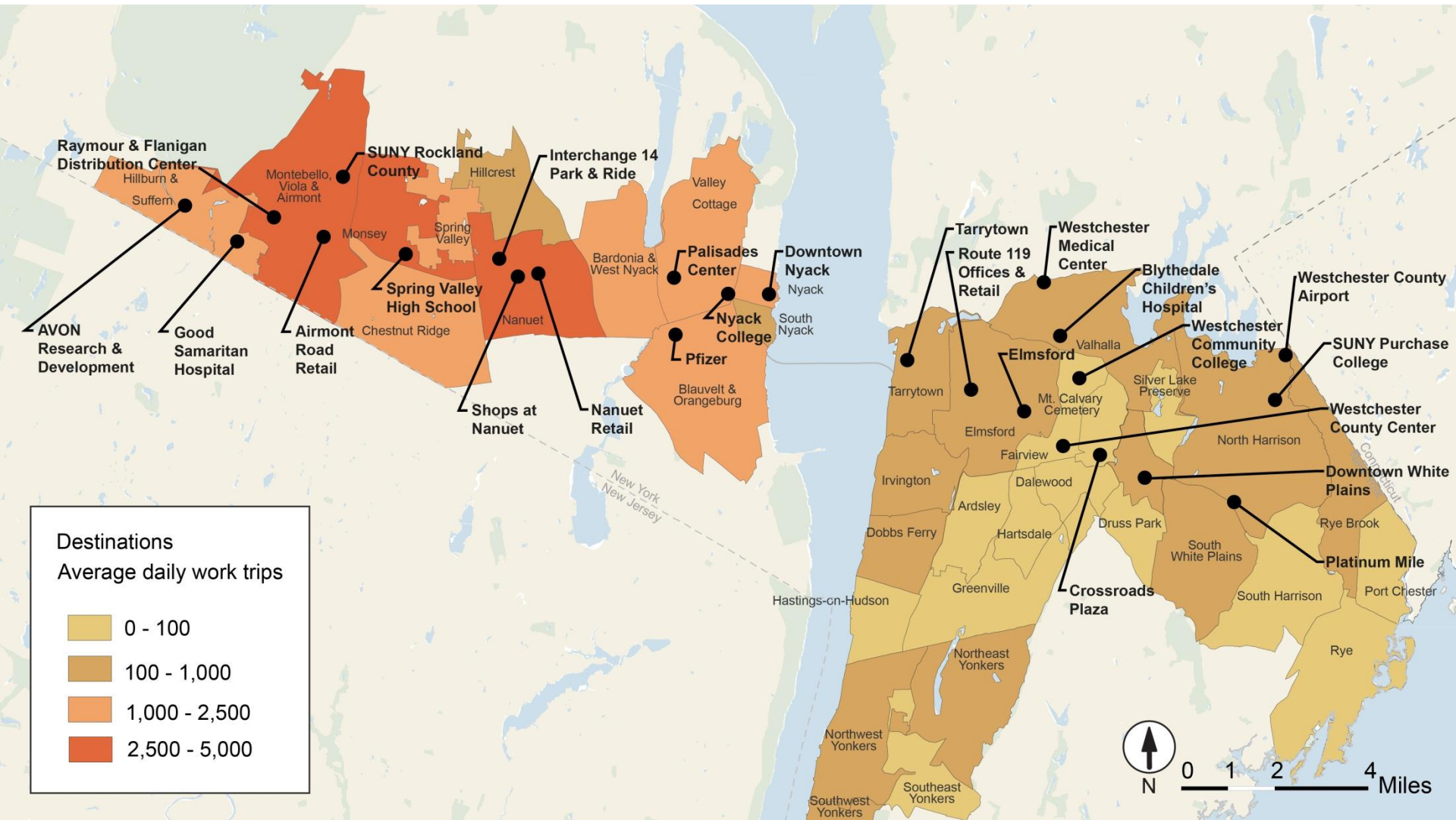
Key Travel Markets – Rockland



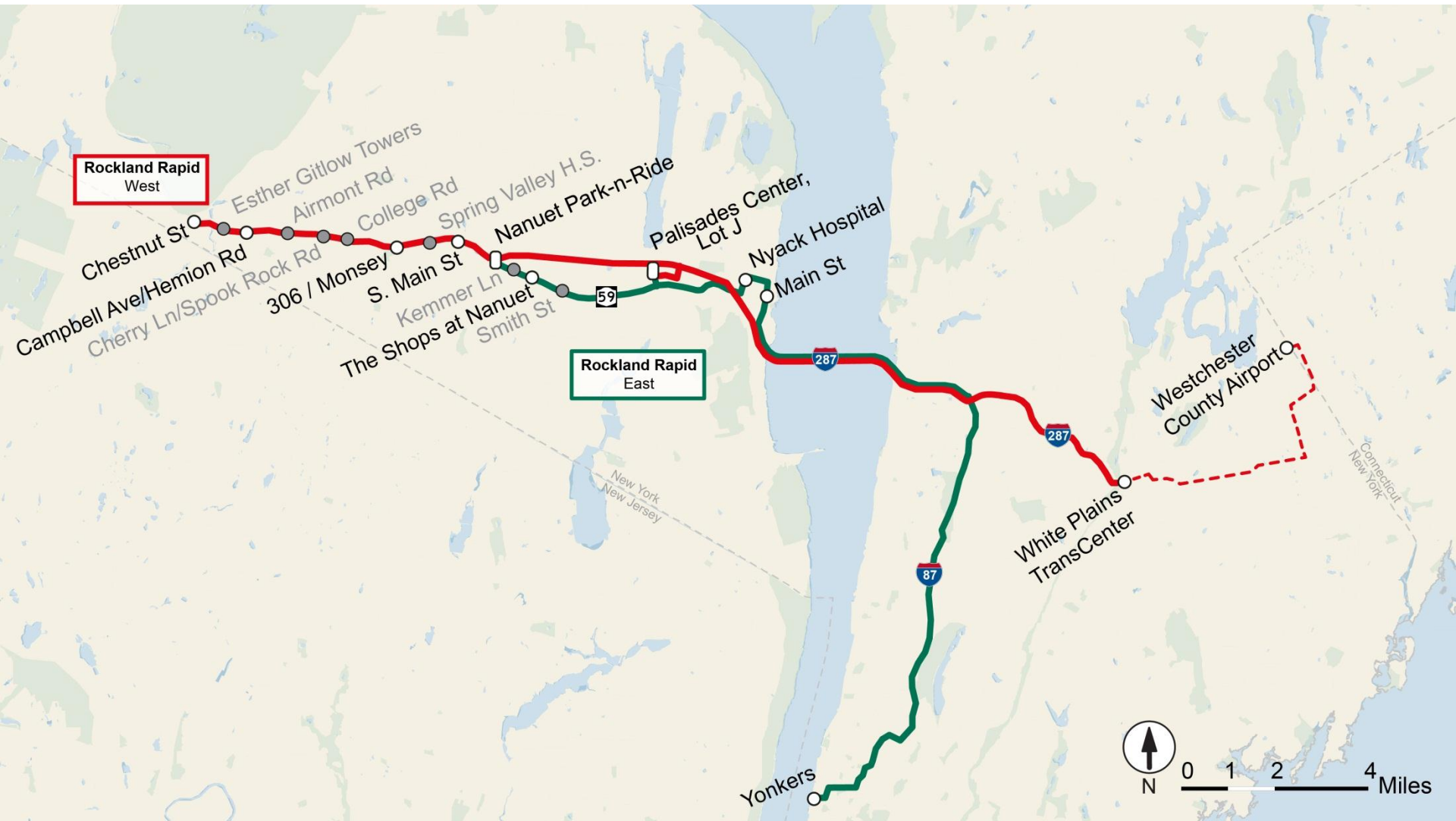
Design Guidelines – Rockland



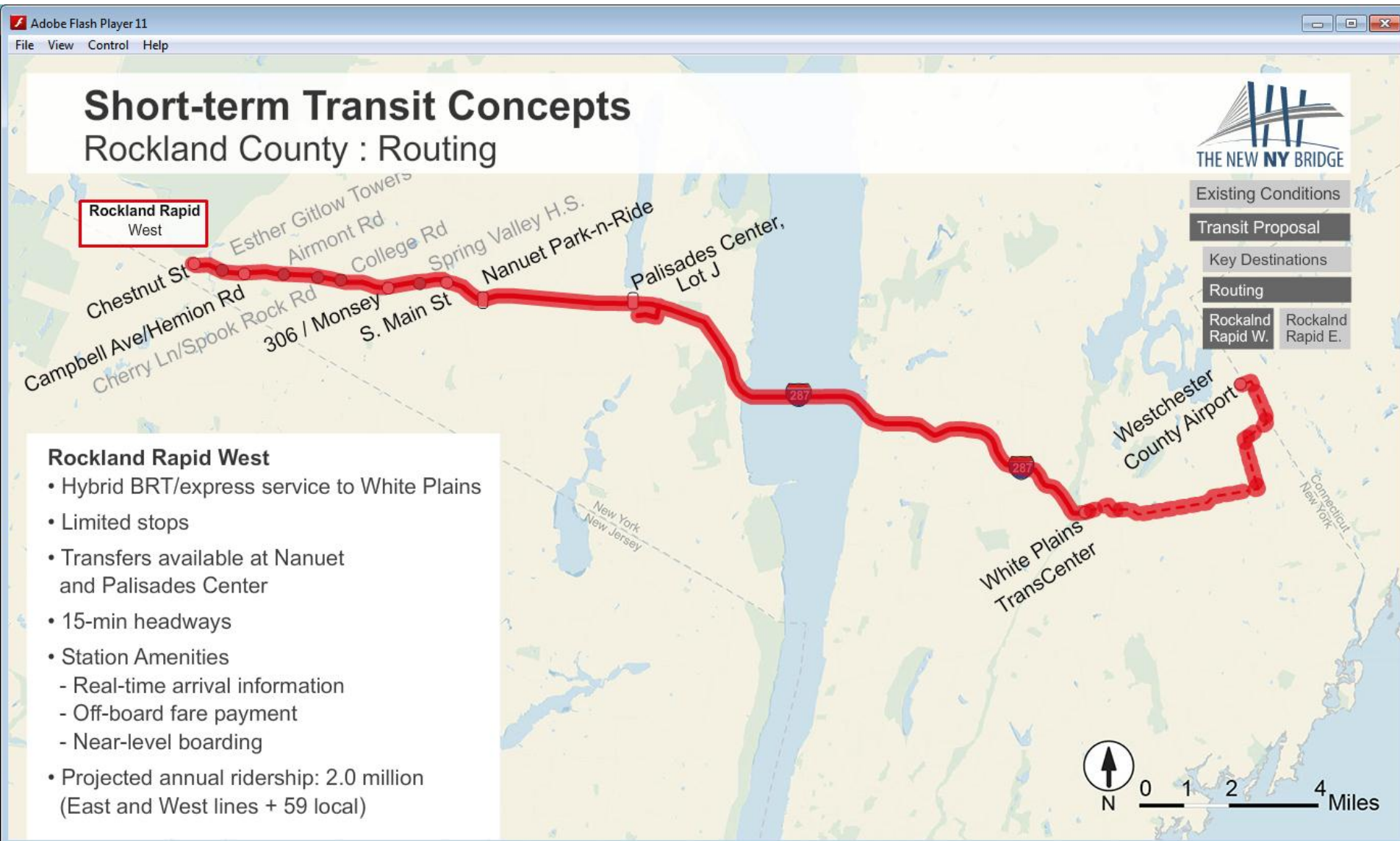
Key Destinations – Rockland



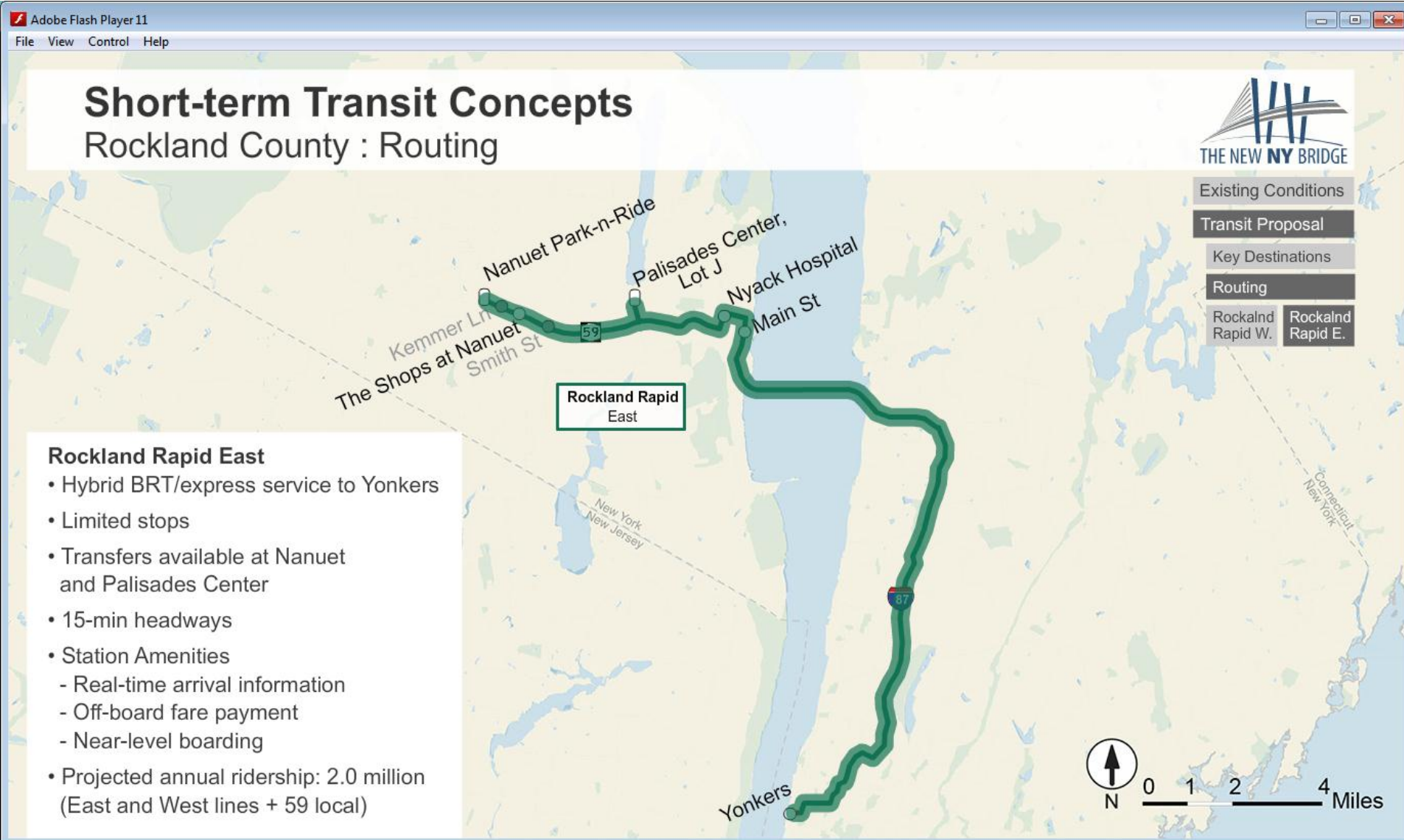
Proposed Transit Routes – Rockland



Proposed Transit Routes – Rockland



Proposed Transit Routes – Rockland



Station Amenities

Short-term Transit Concepts Rockland County : Routing

Real-Time Arrival Information

- **Description:** Technology that displays real-time transit information in order to better inform riders. Transit information displayed may include time until the next arriving bus or train, service disruptions, vehicle location, alternate route options, or other public announcements.
- **Benefits:** Provides enhanced customer satisfaction, reduces anxiety, and allows riders to make informed decisions regarding travel times, modes and routes.
- **Precedents:** MTA, NYC; BusPlus, Albany; Tri-Met, Portland; Muni, San Francisco.
- **Applications:** Dynamic signs at stops or stations, web-based information, mobile apps.



Existing Conditions

Transit Proposal

Key Destinations

Routing

Rockland Rapid W. Rockland Rapid E.

close

next



Station Amenities

Short-term Transit Concepts Rockland County : Routing

Off-Board Fare Payment

- **Description:** Systems that require passengers to purchase fare before off-board the transit vehicle and retain a proof-of-purchase. Fare is typically purchased at a kiosk at transit shelters or station platforms.
- **Benefits:** Allows boarding from multiple doors; decreases dwell time at stop or station, increasing reliability of the transit service; reduces system operating and maintenance costs.
- **Precedents:** Select Bus Service, NYC; Portland Streetcar; Las Vegas; Muni, San Francisco; Lynx, Charlotte.
- **Applications:** Stations and stops; typically used in LRT, BRT and streetcar systems.



Existing Conditions

Transit Proposal

Key Destinations

Routing

Rockland Rapid W. Rockland Rapid E.

close prev. next



Station Amenities

Short-term Transit Concepts Rockland County : Routing

Near Level Boarding

- **Description:** Aligning the bus floor with the bus station or platform level, improving the ease of boarding and alighting for the elderly, disabled and people with luggage or strollers. Level boarding can be achieved with raised platforms or low-floor buses.
- **Benefits:** Reduces amount of time required for boarding and alighting, improving travel times and reliability.
- **Precedents:** Select Bus Service, NYC MTA (low-floor buses); BRT, Rio de Janeiro, Brazil (raised platform); Swift BRT, Snohomish County, Washington (low-floor buses and raised curbs).
- **Applications:** BRT stations.



Existing Conditions

Transit Proposal

Key Destinations

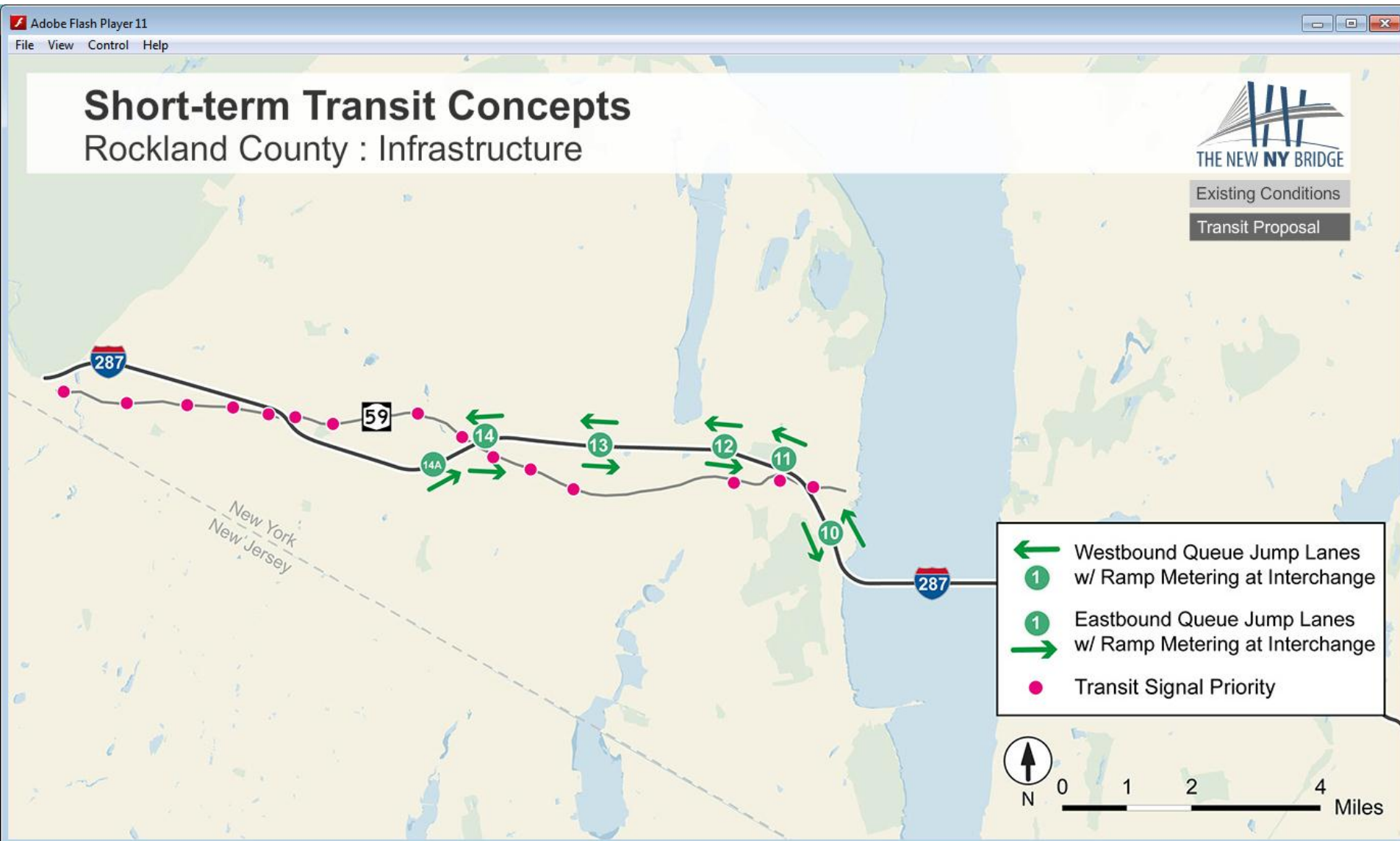
Routing

Rockland Rapid W. Rockland Rapid E.

close prev.

0 1 2 4 Miles

Proposed Infrastructure – Rockland

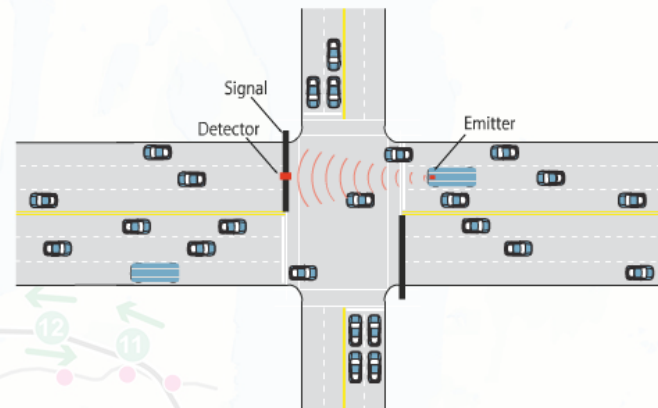


Proposed Infrastructure – Rockland

Short-term Transit Concepts Rockland County : Infrastructure

Transit Signal Priority

- **Description:** Dynamic signals that are activated when a transit vehicle is detected at an intersection approach, giving priority to transit vehicles.
- **Benefits:** Reduces travel time, improves efficiency, improves reliability; may reduce costs by improving travel times and reducing the number of fleet needed to achieve the same service level.
- **Precedents:** MTA, NYC; PACE buses, Chicago.
- **Applications:** Intersections along transit routes that are susceptible to congestion and delay.



Existing Conditions

Transit Proposal

close

next

- ← Westbound Queue Jump Lanes w/ Ramp Metering at Interchange
- Eastbound Queue Jump Lanes w/ Ramp Metering at Interchange
- Transit Signal Priority



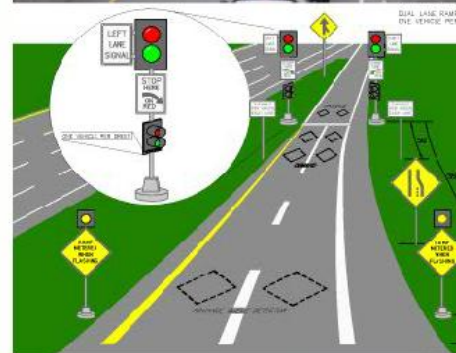
0 1 2 4 Miles

Proposed Infrastructure – Rockland

Short-term Transit Concepts Rockland County : Infrastructure

Ramp Metering

- **Description:** Signals on freeway entrance ramps that regulate the volume and spacing of traffic on a freeway. Ramp meters may be fixed or dynamic, responding to local traffic conditions.
- **Benefits:** Increases efficiency, reduces congestion, reduces travel times, enhances safety.
- **Precedents:** Minneapolis-St. Paul; California.
- **Applications:** Highway entrance ramps.



Existing Conditions

Transit Proposal

close prev. next

Westbound Queue Jump Lanes
w/ Ramp Metering at Interchange

Eastbound Queue Jump Lanes
w/ Ramp Metering at Interchange

Transit Signal Priority

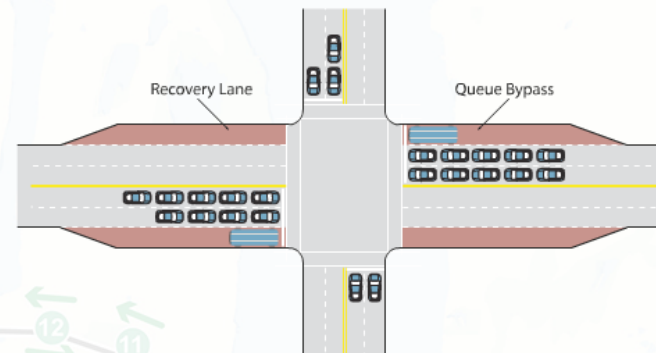
0 1 2 4 Miles

Proposed Infrastructure – Rockland

Short-term Transit Concepts Rockland County : Infrastructure

Queue Jump Lanes

- **Description:** A special lane at an intersection approach that provides transit priority, giving transit vehicles a head start and reducing transit delay at intersections. Queue jump lanes are often combined with transit signal priority and/or advanced stop bars.
- **Benefits:** Reduces vulnerability to congestion, reduces travel time, enhances efficiency, increases system reliability.
- **Precedents:** BusPlus, Albany; Swift BRT, Snohomish County, Washington.
- **Applications:** At approaches to intersections, particularly along routes that experience frequent congestion.



Existing Conditions

Transit Proposal

close prev.

- ← 1 Westbound Queue Jump Lanes w/ Ramp Metering at Interchange
- 1 Eastbound Queue Jump Lanes w/ Ramp Metering at Interchange
- Transit Signal Priority



0 1 2 4 Miles

Transit Signal Priority – Rockland



Transit Signal Priority (TSP) Locations

West to East:

- Washington Ave, Suffern
- Campbell Ave/Hemion Rd
- Airmont Rd
- Cherry Ln/Spook Rock Rd
- New County Rd/College Rd
- Remsen Ave
- Route 306
- S. Main St, Spring Valley
- Forman Dr/Interchange 14
- Grandview Ave/Interchange 14
- Main St, Nanuet
- Route 304
- Route 303
- Waldron Ave/Interchange 11
- Highland Ave

Ramp Metering with Queue Jump Lanes

Interchange 14A

- EB only



Interchange 14

- EB, WB



Ramp Metering with Queue Jump Lanes

Interchange 13

- EB, WB



Interchange 12

- EB, WB



Ramp Metering with Queue Jump Lanes

Interchange 11

- WB only



Interchange 10

- EB, WB



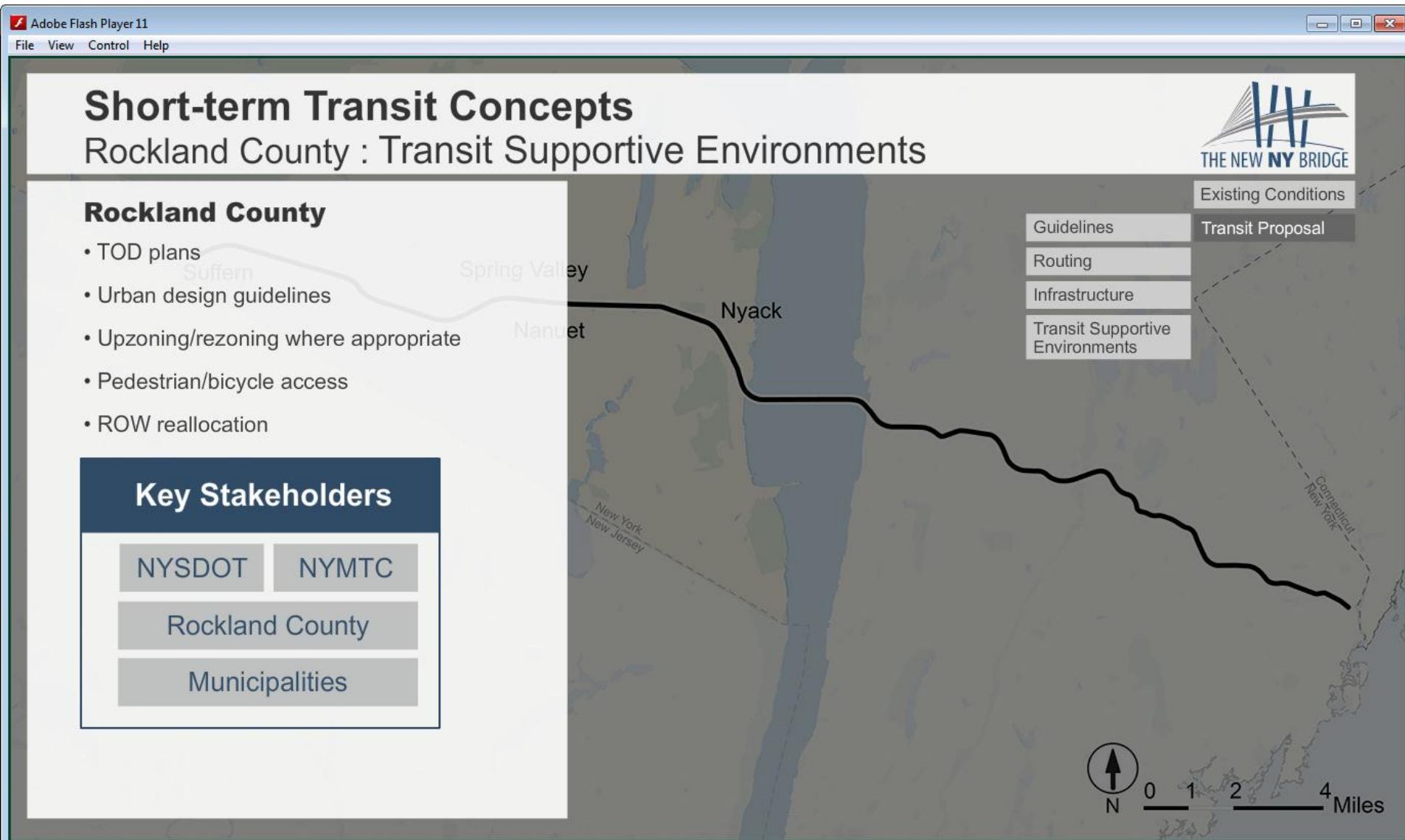
Service Comparison – Rockland



Metric	Existing Service			Proposed Service		
	Existing 59	TZx - Suffern	TZx - Spring Valley/Palisades Center	59 Local	Rockland Rapid West	Rockland Rapid East
Routing	Suffern to Nyack	Suffern to White Plains (stops vary)	Spring Valley to Tarrytown (stops vary)	Suffern to Nyack	Suffern-Nanuet-Palisades-White Plains	Nanuet-Palisades-Nyack-Yonkers
Headway	20 min (peak) 30 min (off-peak)	2 trips (peak) 1 trip (off-peak)	6 trips (peak) 1 trip (off-peak)	20 min (peak) 30 min (off-peak)	15 min (all day) 30 min (59 local)	15 min (all day) 30 min (59 local)
One-way running time	75 min	75 min	51 min	75 min	60 min	60 min
Cycle time	160 min	160 min	110 min	160 min	120 min	120 min
Equipment	6 buses	3 buses	14 buses	6 buses	8 buses *	8 buses
Stops per mile	NA	NA	NA	NA	NA	NA
Annual Ridership	1.6 Million			2.0 Million total (+25%)		

* One additional bus required to serve Westchester County Airport from the White Plains TransCenter.

Transit Supportive Environments – Rockland

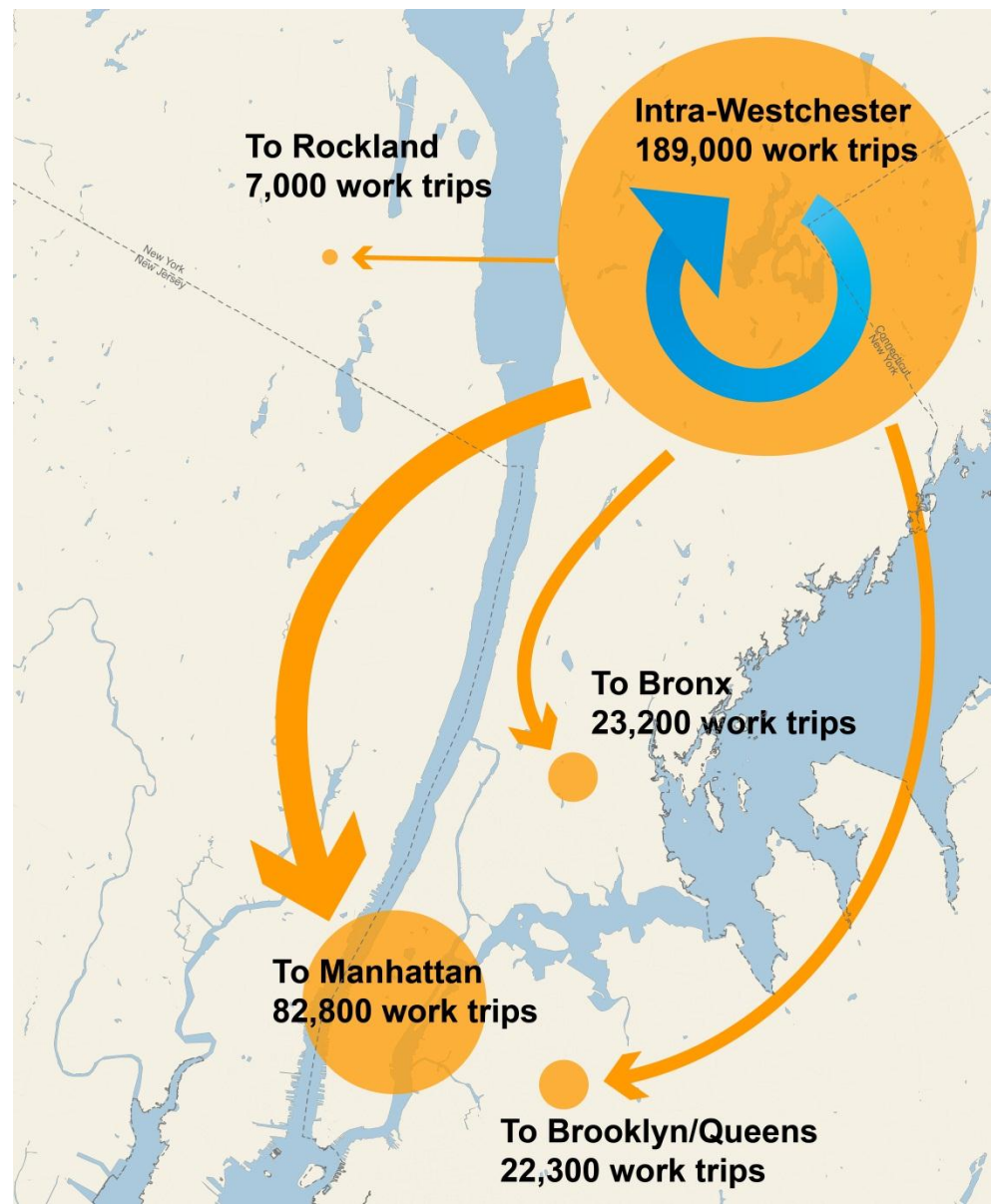




Westchester County

Key Travel Markets – Westchester

Westchester Work Trips



Key Travel Markets – Westchester

Northbound Work Trips




Design Guidelines – Westchester



Adobe Flash Player 11

File View Control Help

Short-term Transit Concepts Westchester County : Guidelines

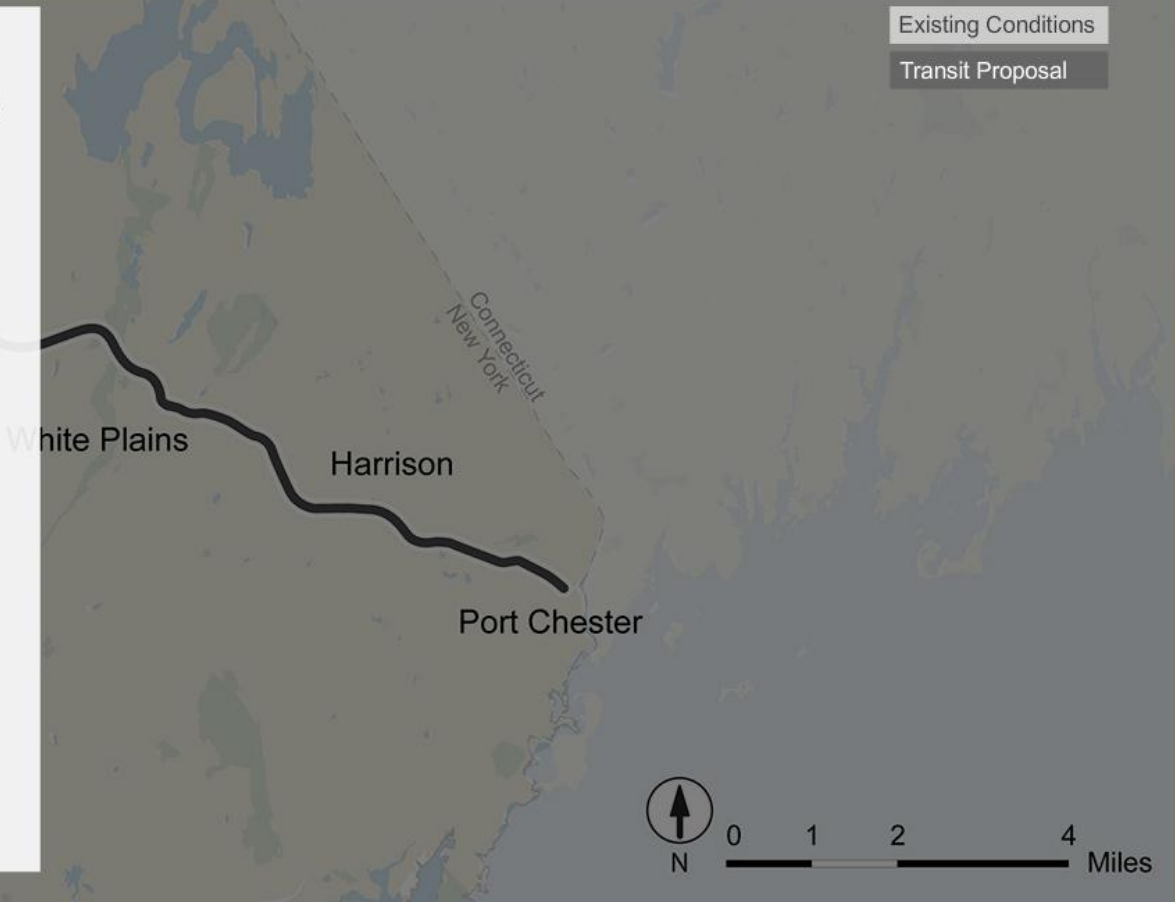


Existing Conditions

Transit Proposal

Westchester County

- Enhanced service along the 13 and 20 routes
- Improved connectivity to White Plains
- Extended service to Valhalla
- 15-min headways
- Limited stops (~1 per mile)
- Branding
- Transit priority
 - Transit signal priority
 - Queue jump lanes
 - Ramp metering
- Stations and amenities
 - Bus shelters with seating and lighting
 - Off-board fare payment
 - Real-time arrival information
 - Near-level boarding
 - Bike parking

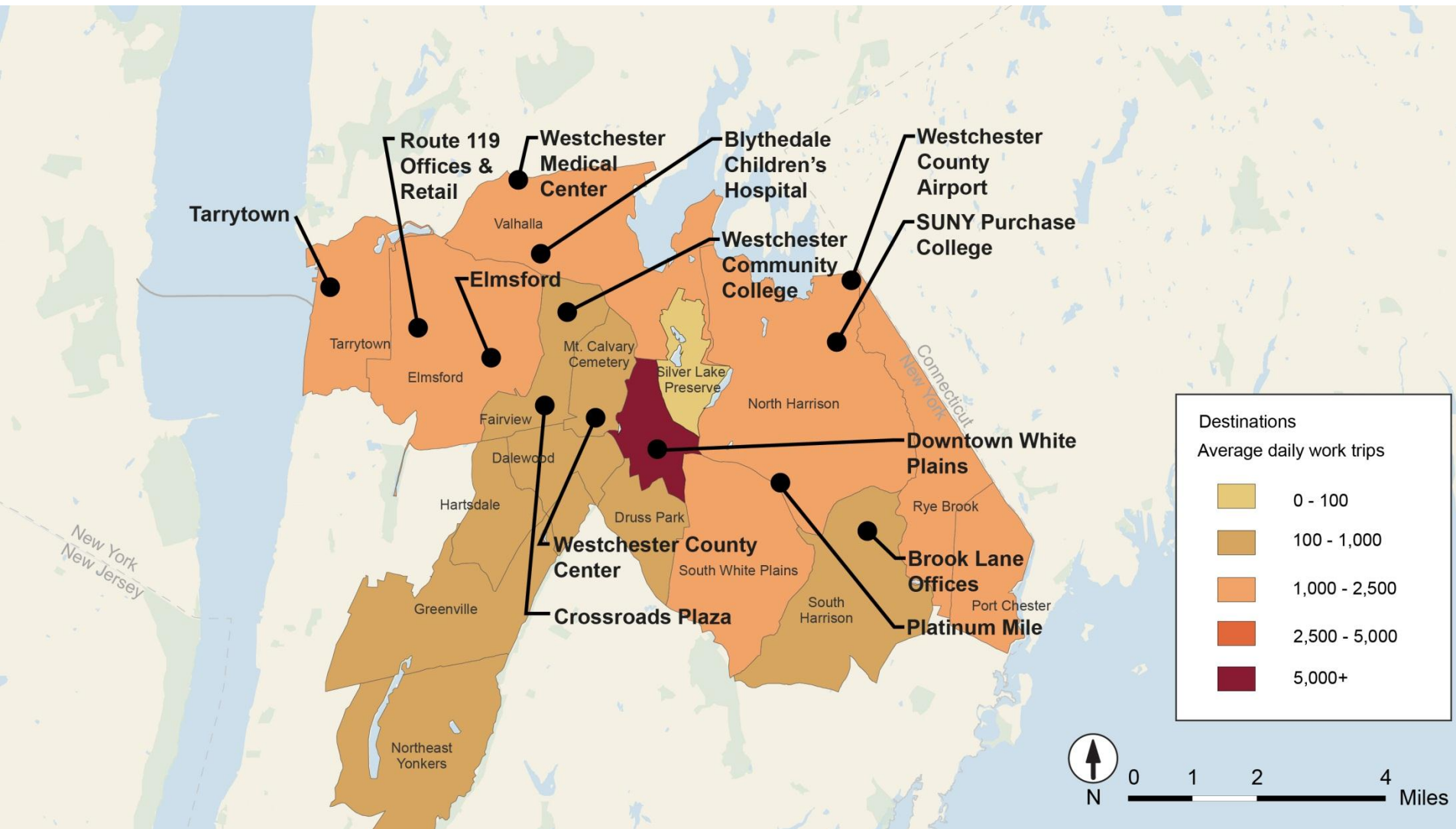


White Plains Harrison Port Chester

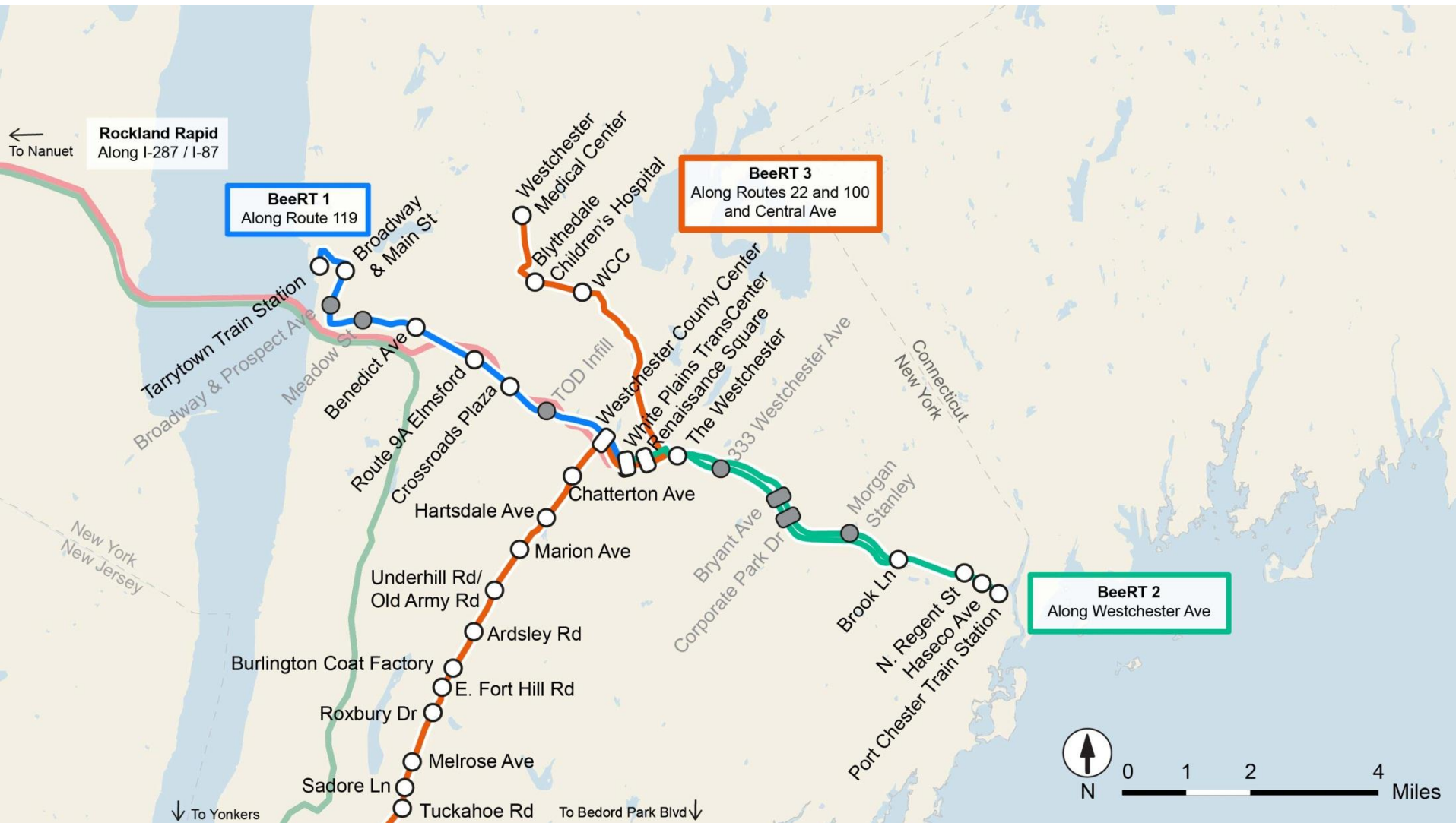
Connecticut New York

N 0 1 2 4 Miles

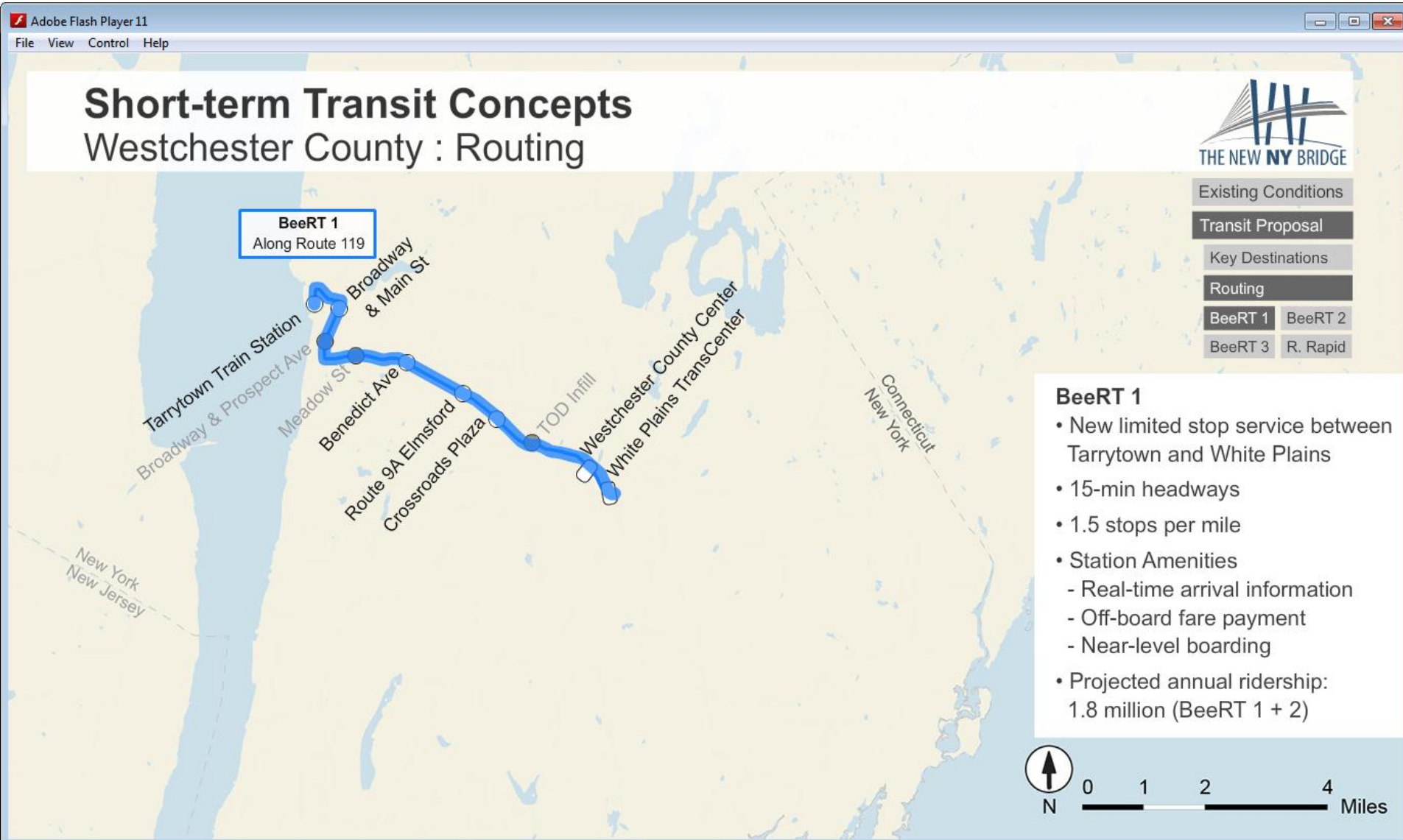
Key Destinations – Westchester



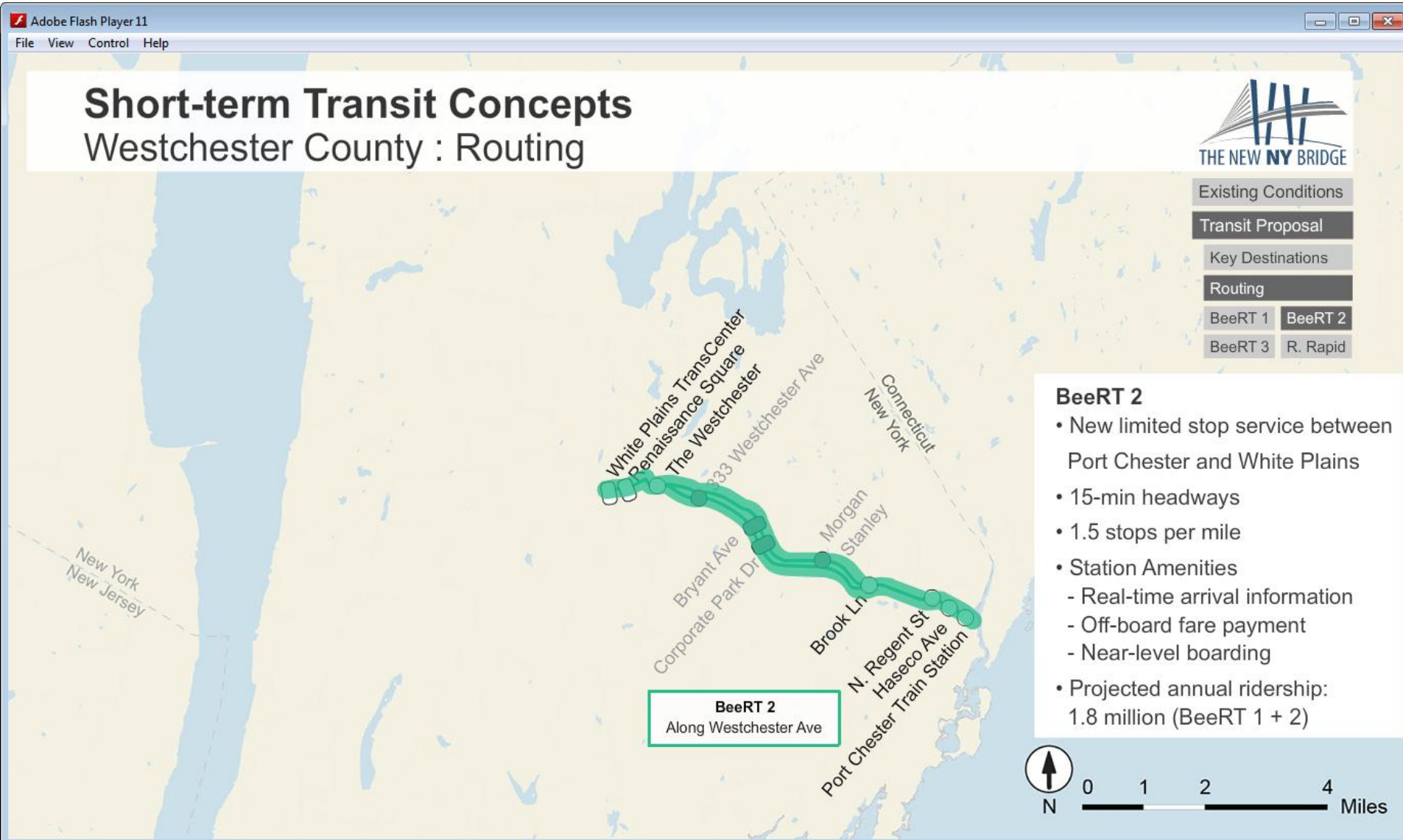
Proposed Transit Routes – Westchester



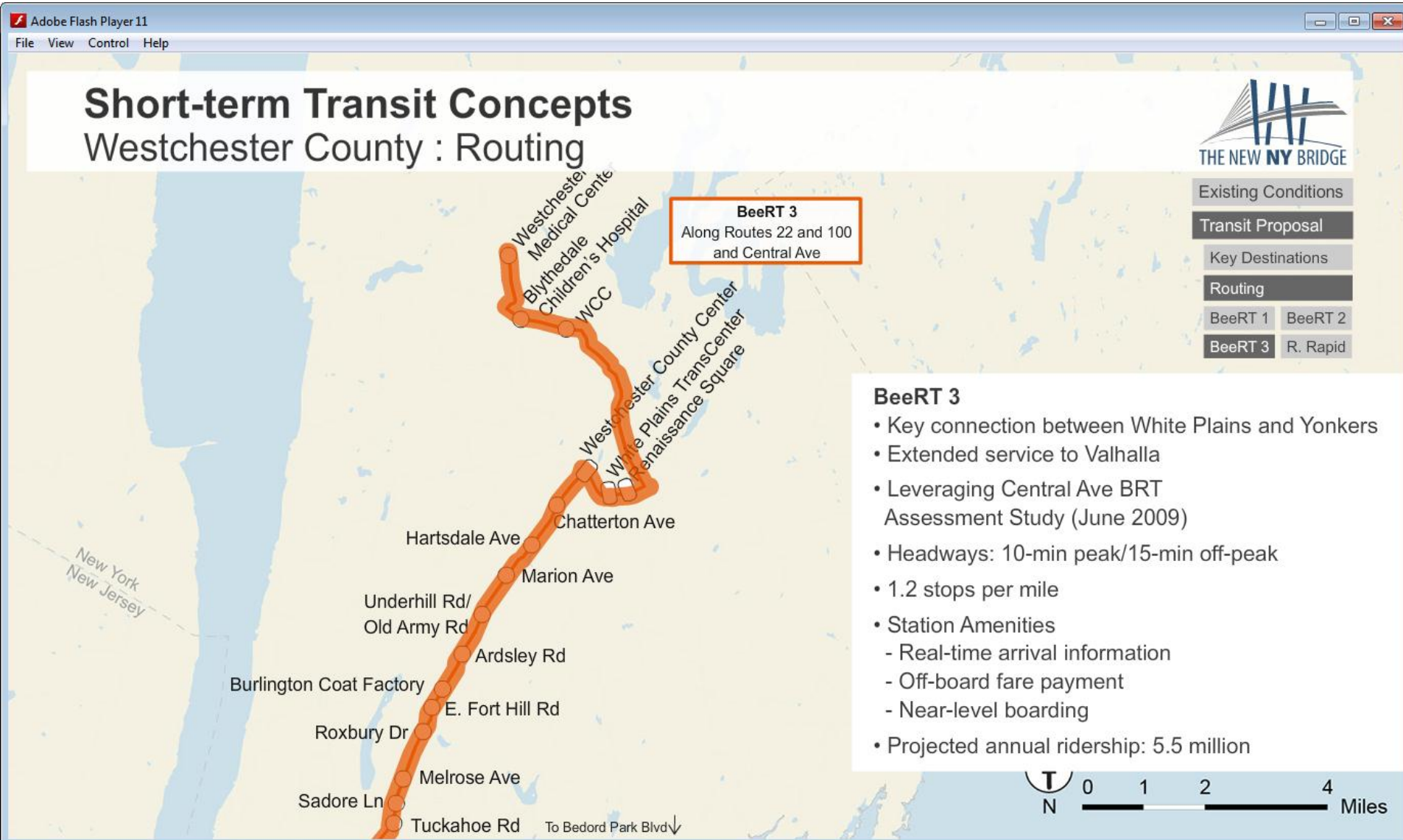
Proposed Transit Routes – Westchester



Proposed Transit Routes – Westchester



Proposed Transit Routes – Westchester



Station Amenities

Short-term Transit Concepts Westchester County : Routing

Real-Time Arrival Information

- **Description:** Technology that displays real-time transit information in order to better inform riders. Transit information displayed may include time until the next arriving bus or train, service disruptions, vehicle location, alternate route options, or other public announcements.
- **Benefits:** Provides enhanced customer satisfaction, reduces anxiety, and allows riders to make informed decisions regarding travel times, modes and routes.
- **Precedents:** MTA, NYC; BusPlus, Albany; Tri-Met, Portland; Muni, San Francisco.
- **Applications:** Dynamic signs at stops or stations, web-based information, mobile apps.



Existing Conditions

Transit Proposal

Key Destinations

Routing

BeeRT 1

BeeRT 2

BeeRT 3

R. Rapid

close

next



0 1 2 4 Miles

Station Amenities

Short-term Transit Concepts Westchester County : Routing

Off-Board Fare Payment

- **Description:** Systems that require passengers to purchase fare before off-board the transit vehicle and retain a proof-of-purchase. Fare is typically purchased at a kiosk at transit shelters or station platforms.
- **Benefits:** Allows boarding from multiple doors; decreases dwell time at stop or station, increasing reliability of the transit service; reduces system operating and maintenance costs.
- **Precedents:** Select Bus Service, NYC; Portland Streetcar; Las Vegas; Muni, San Francisco; Lynx, Charlotte.
- **Applications:** Stations and stops; typically used in LRT, BRT and streetcar systems.



Station Amenities

Short-term Transit Concepts Westchester County : Routing

Near Level Boarding

- **Description:** Aligning the bus floor with the bus station or platform level, improving the ease of boarding and alighting for the elderly, disabled and people with luggage or strollers. Level boarding can be achieved with raised platforms or low-floor buses.
- **Benefits:** Reduces amount of time required for boarding and alighting, improving travel times and reliability.
- **Precedents:** Select Bus Service, NYC MTA (low-floor buses); BRT, Rio de Janeiro, Brazil (raised platform); Swift BRT, Snohomish County, Washington (low-floor buses and raised curbs).
- **Applications:** BRT stations.



Existing Conditions

Transit Proposal

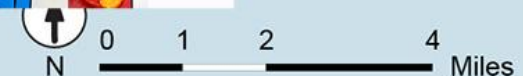
Key Destinations

Routing

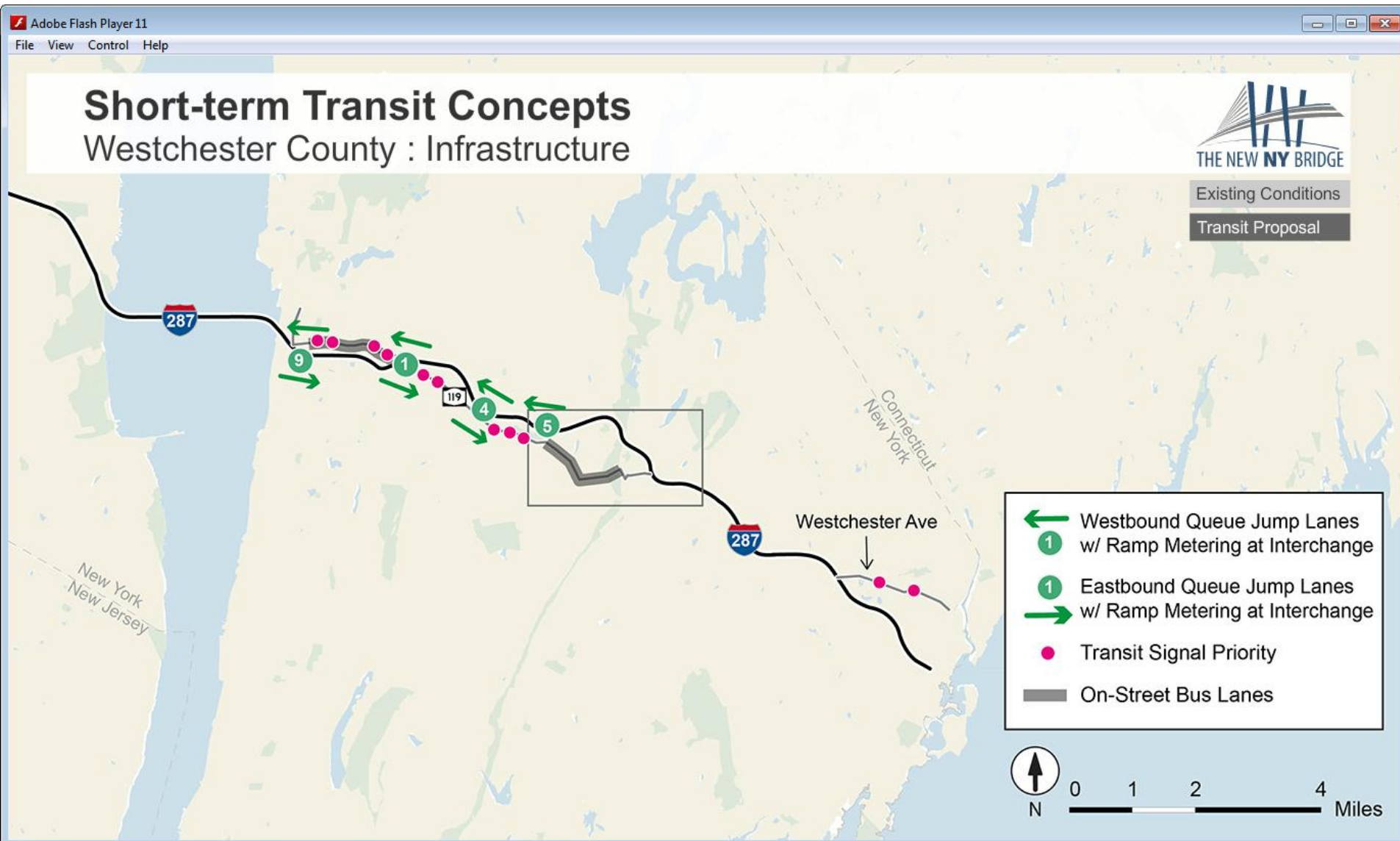
BeeRT 1 BeeRT 2

BeeRT 3 R. Rapid

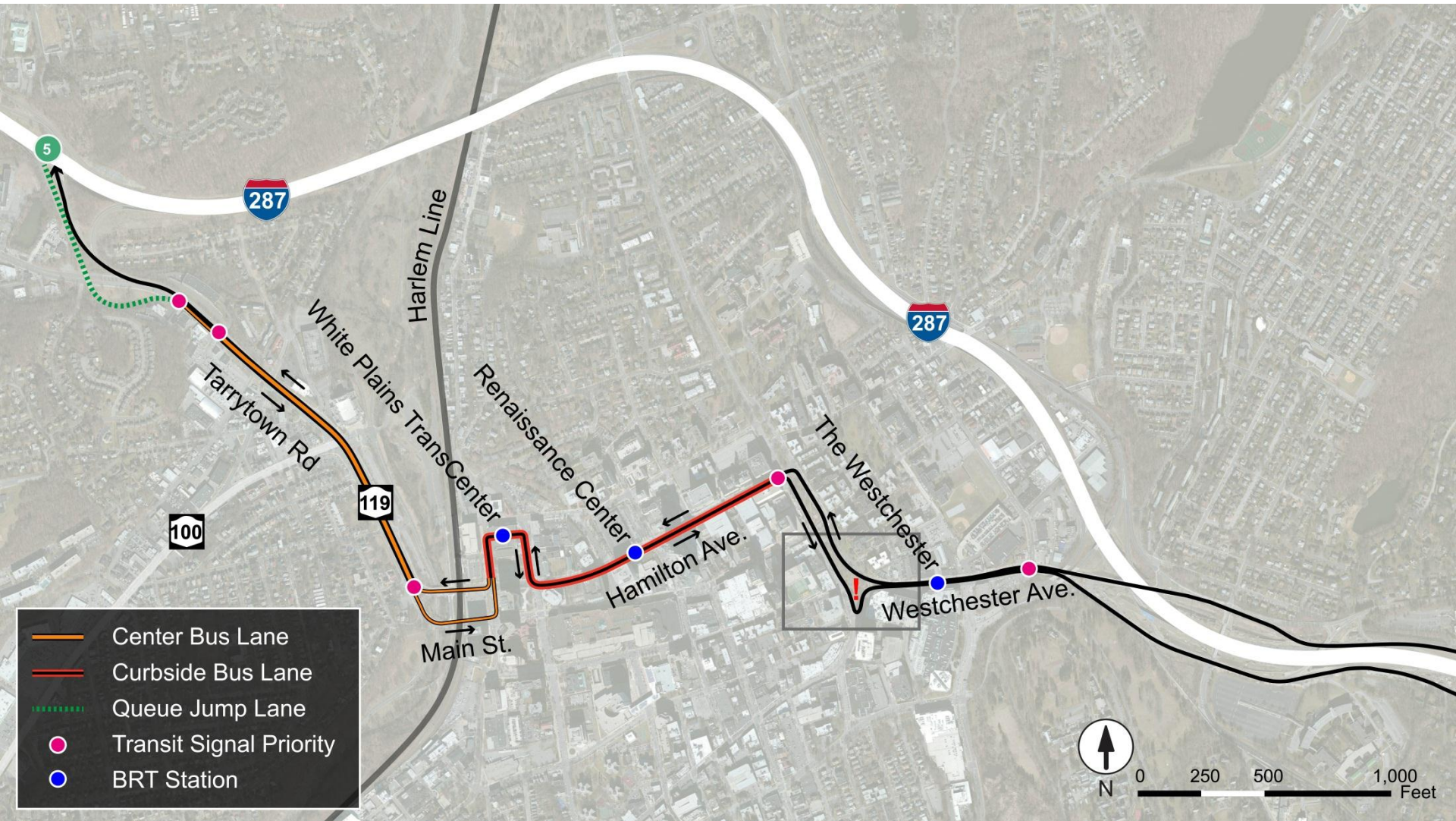
close prev.



Proposed Infrastructure – Westchester



Infrastructure – Downtown White Plains



Proposed Infrastructure – Westchester

Short-term Transit Concepts Westchester County : Infrastructure

On-Street Bus Lanes

- **Description:** Special lanes designated for transit vehicles only, designated with signage, pavement markings, and/or paint color.
- **Benefits:** Reduces travel time, improves safety by reducing automobile/bus conflicts.
- **Precedents:** MTA Select Bus Service, NYC.
- **Applications:** Arterials with heavy transit use or with BRT routes.



Existing Conditions

Transit Proposal

close

Westbound Queue Jump Lanes
Ramp Metering at Interchange
Westbound Queue Jump Lanes
Ramp Metering at Interchange
Transit Signal Priority
On-Street Bus Lanes



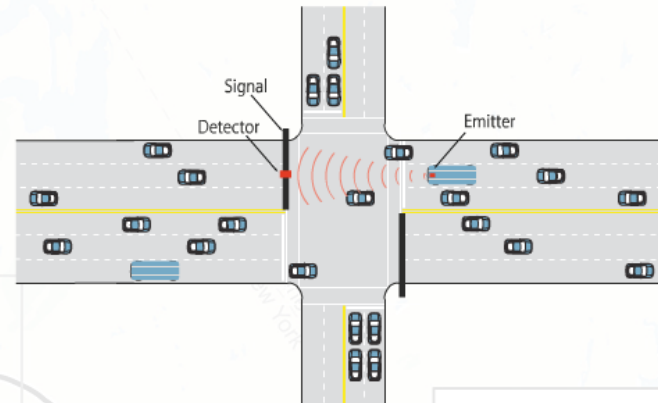
0 1 2 4 Miles

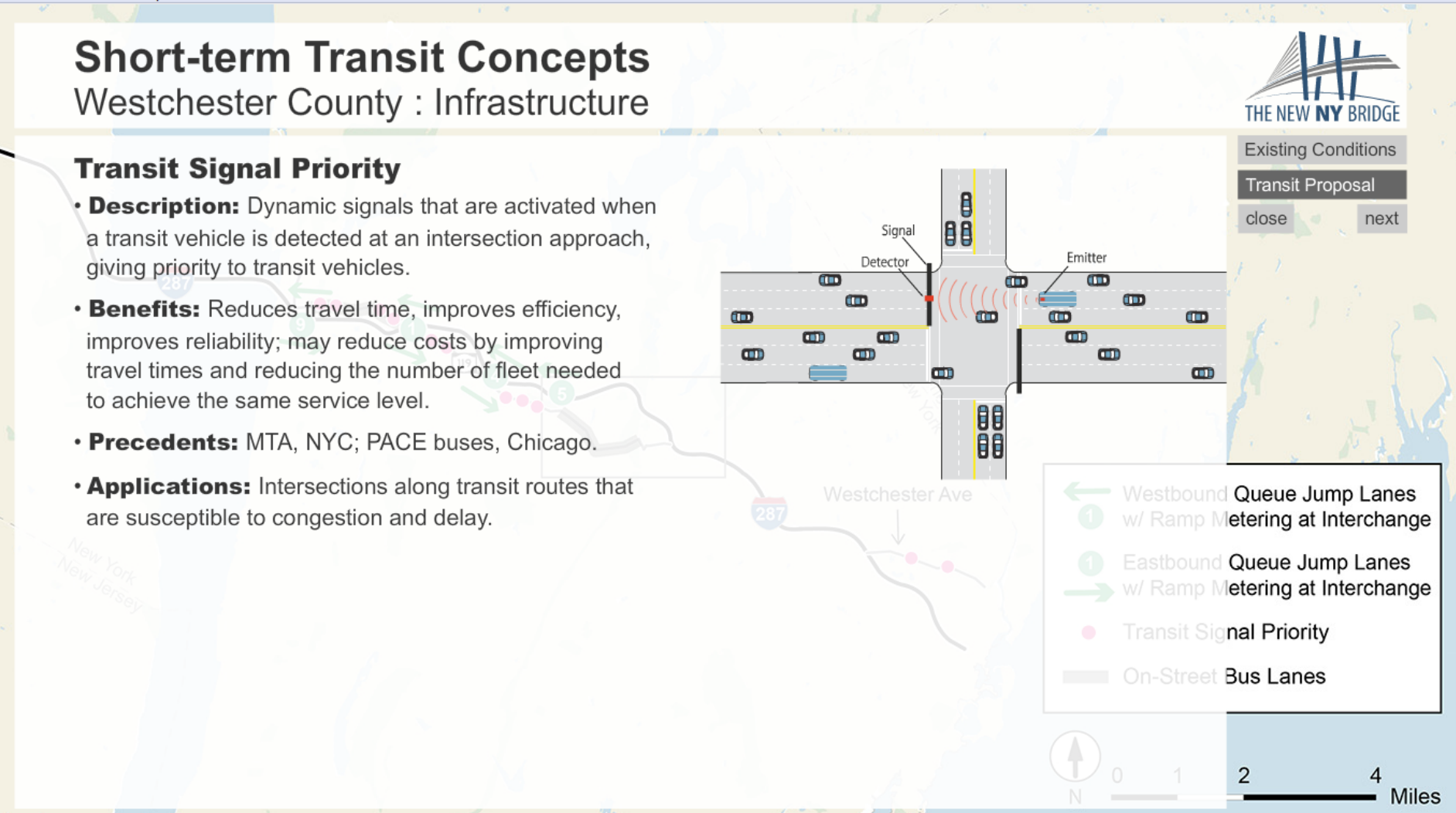
Proposed Infrastructure – Westchester

Short-term Transit Concepts Westchester County : Infrastructure

Transit Signal Priority

- **Description:** Dynamic signals that are activated when a transit vehicle is detected at an intersection approach, giving priority to transit vehicles.
- **Benefits:** Reduces travel time, improves efficiency, improves reliability; may reduce costs by improving travel times and reducing the number of fleet needed to achieve the same service level.
- **Precedents:** MTA, NYC; PACE buses, Chicago.
- **Applications:** Intersections along transit routes that are susceptible to congestion and delay.



- 
- The map shows Westchester County, New York, with the New York/New Jersey border to the west. A major road, Westchester Ave, is highlighted. A legend on the right side of the map indicates: 'Westbound Queue Jump Lanes w/ Ramp Metering at Interchange' (green arrow with '1'), 'Eastbound Queue Jump Lanes w/ Ramp Metering at Interchange' (green arrow with '1'), 'Transit Signal Priority' (pink dot), and 'On-Street Bus Lanes' (grey box). A scale bar at the bottom right shows distances from 0 to 4 miles. A north arrow is also present.
- ← 1 Westbound Queue Jump Lanes w/ Ramp Metering at Interchange
 - 1 Eastbound Queue Jump Lanes w/ Ramp Metering at Interchange
 - Transit Signal Priority
 - On-Street Bus Lanes



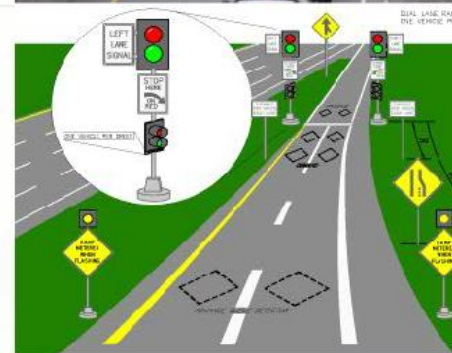
0 1 2 4 Miles

Proposed Infrastructure – Westchester

Short-term Transit Concepts Westchester County : Infrastructure

Ramp Metering

- **Description:** Signals on freeway entrance ramps that regulate the volume and spacing of traffic on a freeway. Ramp meters may be fixed or dynamic, responding to local traffic conditions.
- **Benefits:** Increases efficiency, reduces congestion, reduces travel times, enhances safety.
- **Precedents:** Minneapolis-St. Paul; California.
- **Applications:** Highway entrance ramps.



Existing Conditions

Transit Proposal

close prev. next

Westbound Queue Jump Lanes
w/ Ramp Metering at Interchange

Eastbound Queue Jump Lanes
w/ Ramp Metering at Interchange

Transit Signal Priority

On-Street Bus Lanes

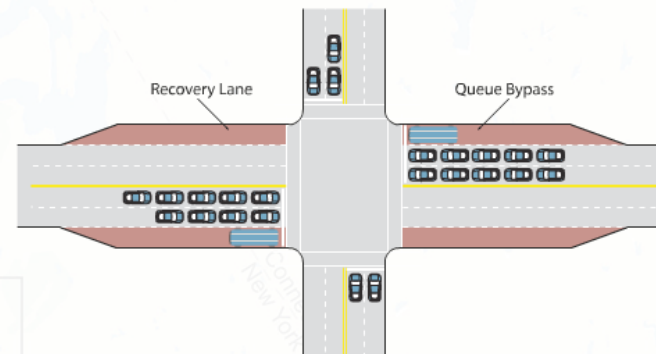
0 1 2 4 Miles

Proposed Infrastructure – Westchester

Short-term Transit Concepts Westchester County : Infrastructure

Queue Jump Lanes

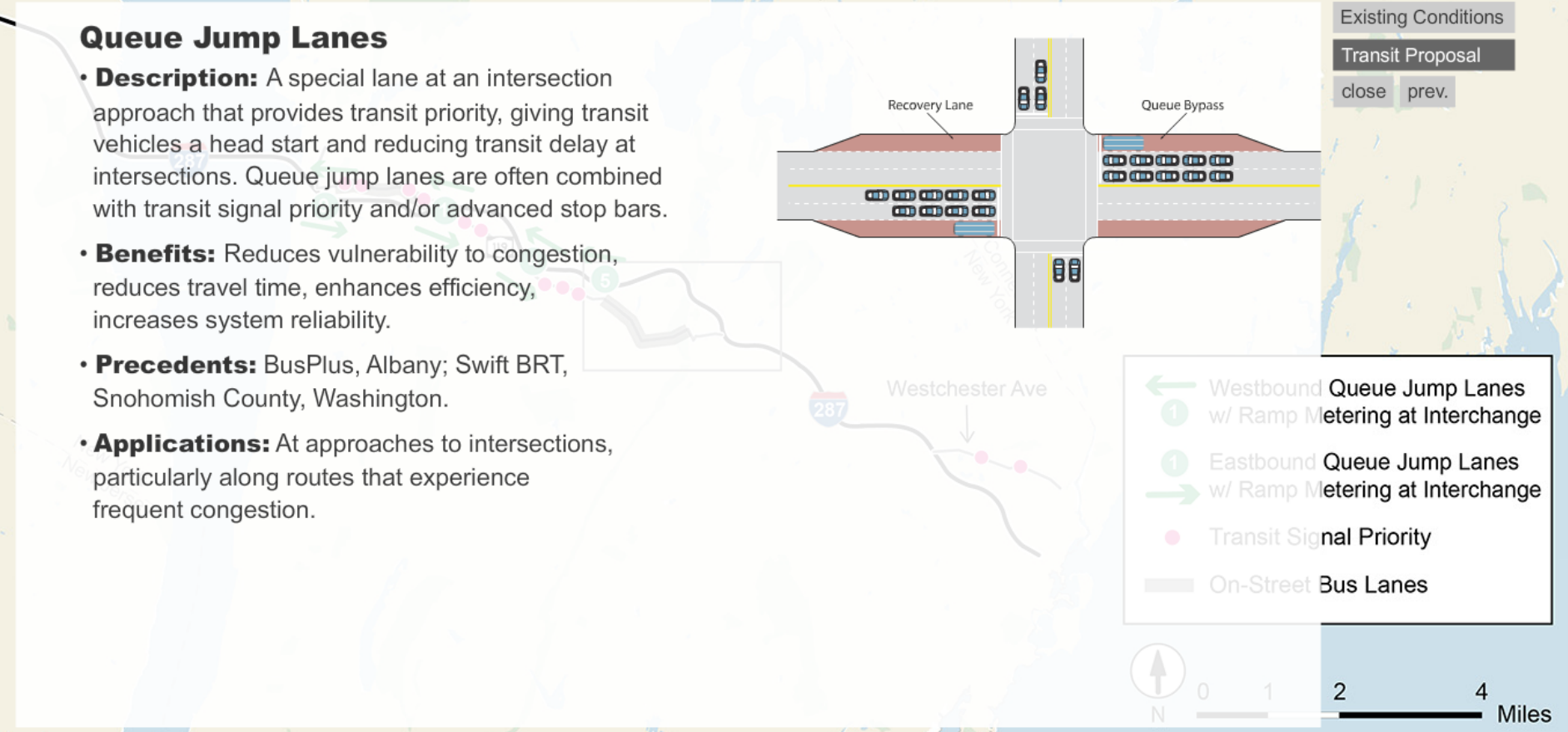
- **Description:** A special lane at an intersection approach that provides transit priority, giving transit vehicles a head start and reducing transit delay at intersections. Queue jump lanes are often combined with transit signal priority and/or advanced stop bars.
- **Benefits:** Reduces vulnerability to congestion, reduces travel time, enhances efficiency, increases system reliability.
- **Precedents:** BusPlus, Albany; Swift BRT, Snohomish County, Washington.
- **Applications:** At approaches to intersections, particularly along routes that experience frequent congestion.



Existing Conditions

Transit Proposal

close prev.

- 
- ← 1 Westbound Queue Jump Lanes w/ Ramp Metering at Interchange
 - 1 Eastbound Queue Jump Lanes w/ Ramp Metering at Interchange
 - Transit Signal Priority
 - On-Street Bus Lanes



0 1 2 4 Miles

Transit Signal Priority – Westchester



Transit Signal Priority (TSP) Locations

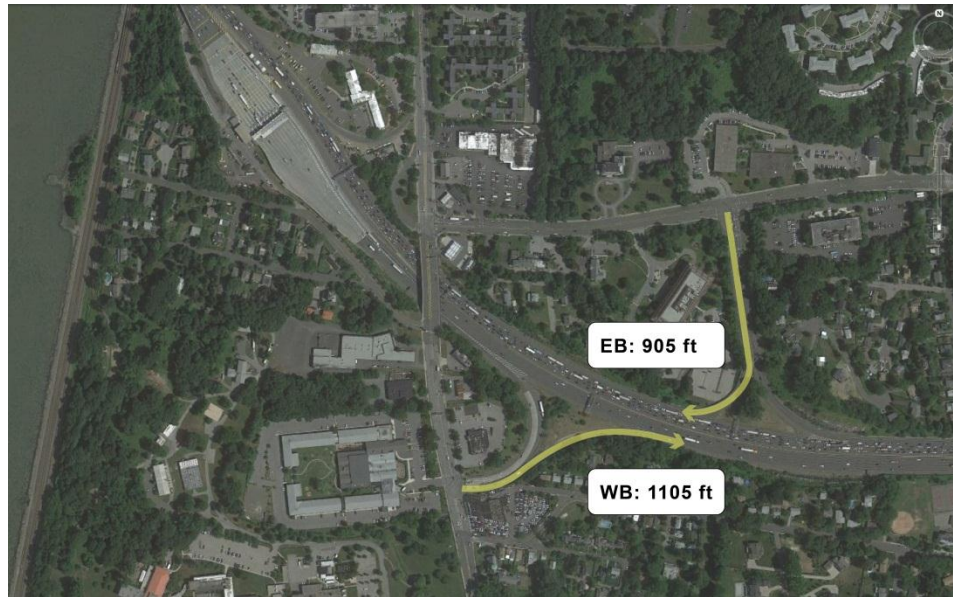
West to East:

- Sleepy Hollow Rd/Meadow St
- Sleepy Hollow Rd/Crescent St
- Benedict Ave
- Old White Plains Rd
- Nob Hill Dr
- Route 9A, Elmsford
- Crossroads Plaza West
- Crossroads Plaza East
- Dobbs Ferry Rd/Route 100B
- Ridge St
- Regent St

Ramp Metering with Queue Jump Lanes

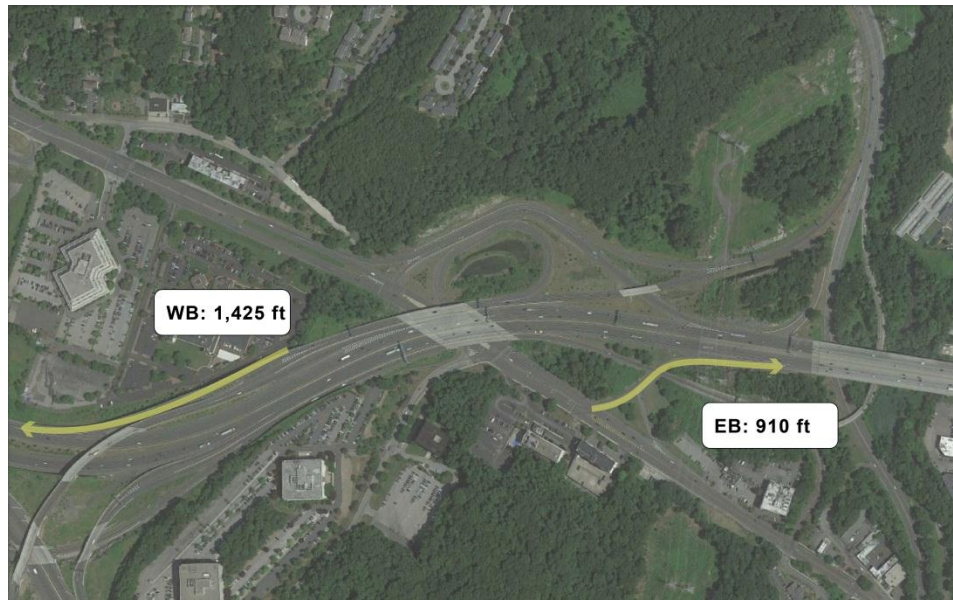
Interchange 9

- EB, WB



Interchange 1

- EB, WB



Ramp Metering with Queue Jump Lanes

Interchange 4

- EB, WB



Interchange 5

- WB only



Service Comparison – Westchester



Metric	Existing 13	Proposed BeeRT 1	Proposed BeeRT 2
Routing	(Ossining) to Port Chester	Tarrytown to White Plains TC	White Plains TC to Port Chester
Headway	20 min (peak) 30 min (off-peak)	15 min 30 min (13 local)	15 min 30 min (13 local)
One-way running time	69 min (Tarrytown to Port Chester)	25 min	25 min
Cycle time	150 min	50 min	50 min
Equipment	5 buses	Local buses remain at 5 4 buses for BeeRT (+4 increase)	Local buses remain at 5 4 buses for BeeRT (+4 increase)
Stops per mile	4.5	1.5	1.5
Annual Ridership	1.5 Million	1.8 Million Total (+20%)	

Metric	Existing 20/21	Proposed BeeRT 3
Routing	White Plains to Bronx	Valhalla to Bronx
Headway	12-14 min (peak) 20 min (off-peak)	10 min (peak) / 15 min (off-peak) 20 min (20 local)
One-way running time	83 min	60 min
Cycle time	180 min	120 min
Equipment	9 buses	Local buses remain at 9 8 buses for BeeRT (+8 increase)
Stops per mile	4.3	1.2
Annual Ridership	4.7 Million	5.5 Million (+17%)

Transit Supportive Environments

– Westchester



Adobe Flash Player 11

File View Control Help

Short-term Transit Concepts

Westchester County : Transit Supportive Environments



Existing Conditions

Transit Proposal

Westchester County

- TOD plans
- Urban design guidelines
- Upzoning/rezoning where appropriate
- Pedestrian/bicycle access
- ROW reallocation

Key Stakeholders

NYSDOT

NYMTC

Westchester County

City of White Plains

Municipalities

