Bus Rapid Transit Design & Planning in Suffolk County

NYMTC Regional Trends Brown Bag Series
New York, NY
January 17, 2019
Connect Long Island

CONNECT LONG ISLAND
A Regional Transportation and Development Plan

**Route 110**

**Nicolls Rd**

**Huntington**
**Heartland**
**Ronkonkoma Hub**
**Riverhead**
**Riverside**

**Bus Rapid Transit**
An express bus service offering the high-quality amenities of rail service at a fraction of the cost. But Rapid Transit (BRT) is faster and more reliable than local bus service and features amenities such as more attractive station shelters, real-time service updates, and dedicated bus service infrastructure to keep people moving despite intense traffic.

**Transit Oriented Development**
A development concentrated around a main transportation hub such as a LIRR train station. Transit Oriented Development (TOD) is a walkable downtown that balances urban and suburban living, and features amenities such as attractive and varied housing options, high-quality public spaces, and retail and transit all in close proximity.

**Regional Asset**
1. Cold Spring Harbor Laboratory
2. Farmingdale State University
3. SCCC - Brentwood Campus
4. MacArthur Airport
5. SCCC - Ammerman Campus
6. Stony Brook University
7. Stony Brook Hospital
8. Brookhaven National Lab
9. Enterprise Park at Calverton
10. Hampton's Business District
11. Gabreski Airport

**LIRR Double Track**
Construction of a second track between Farmingdale and Ronkonkoma to reduce crowding, prevent delays and boost the local economy by:
- Increasing Reverse Peak service
- Expanding Off Peak service in both directions
- Creating better connections to MacArthur Airport

**LIRR Electrification**
Conversion of diesel train service to electrified third rail service increasing the frequency and cost savings of existing rail service. Electrification also decreases the need to transfer trains, providing longer one-seat ride service and to from New York City.

**Scale Comparison**
Nicolls Road 14 Miles
Manhattan 13 Miles
Connect Long Island - a regional transportation and development plan to create sustainable economic growth through investments in housing, transportation and innovation.

Connect Long Island Goals

• Align land-use and transportation plans.
• Make transit investments to connect existing and proposed developments.
• Develop public transit connections to increase mobility.
• Connect educational and research institutions and identify innovation zones.
• Connect new and existing recreational assets and downtowns.
Innovation Zone (I-Zone) – part of the larger Connect Long Island initiative, I-Zone is a comprehensive plan to construct a major innovation and transportation hub along the Nicolls Road corridor.

I-Zone Components

- A multimodal corridor complete with Bus Rapid Transit (BRT) and an extensive hiking and biking trail network.
- The completion of the Ronkonkoma Hub adjacent to the Ronkonkoma LIRR station.
- A “train to plane” connection to the Long Island MacArthur Airport
- Relocation of the underutilized Yaphank LIRR station to Brookhaven National Laboratory a few miles east
Long Island Innovation Zone (Izone)
2014 Suffolk County BRT Feasibility Study

Explored 35 possible routes. Three potential projects were recommended:
- Nicolls Road
- Route 110
- Sagtikos Parkway

Nicolls Road Alternatives Analysis

This analysis resulted in the drafting of a Locally Preferred Alternative (LPA) that proposes:
- Bus Rapid Transit (BRT) as the mode of travel
- Two recommended routes
- Hiking/biking trail
- Connectivity to LIRR, SC Transit, SBU Transit
- Road alignment options
- Station locations
- BRT service levels

The LPA will be moved through National Environmental Policy Act (NEPA) review and Preliminary Engineering in compliance with US Department of Transportation procedures.

Ongoing Work

- Begin Environmental Studies
- Assess effectiveness and consequences of recommendations
- Inform the public and incorporate feedback into alternatives
- Refine LPA and progress into Final Design

Deliverables

- Environmental studies including: Noise Analysis, Air Quality, Water Quality
- Preliminary Plans and Construction Cost Estimate
- Design Report / Environmental Assessment
- Public Hearings
What is Bus Rapid Transit (BRT)

Bus Rapid Transit (BRT) is an innovative public transportation solution that provides fast, reliable, comfortable and convenient service. BRT will significantly improve our County's mobility and overall quality of life by helping to ease road congestion, reduce stress and increase productivity. With BRT, commuters can easily access major points of interest and transportation hubs, experience improved north/south travel, and move easily within and between counties. Some of the unique features of a BRT system are:

- **User-Friendly**
  - Vehicles equipped with Wi-Fi, multiple doors and level boarding make riding comfortable, enjoyable and fast
  - Modern, well-lit, safe and comfortable Stations
  - Bypass traffic in Designated Travel Lanes

- **Faster Service**
  - More Frequent Service with Fewer Stops
  - Traffic Signal Priority and Queue Jumps put BRT first
  - Pre-paid and Electronic Passes speed you on your way

- **Options for Enhanced Bus Interiors for Customer Comfort and Convenience**
BRT Shoulder Running

Repurposing (i.e., reconstructing and widening) the existing shoulder on Nicolls Road to be a dedicated BRT lane in each direction.

**Typical Section**

[Diagram showing the typical section of the BRT shoulder running with labels for grass, buffer, shoulder, travel lane, etc.]

[Map of the proposed alignment with a red box highlighting the area of interest.]

[Image of the BRT lane in Los Angeles, CA.]
Route Modification from the Feasibility Study to Now

Feasibility Study

Patchogue-Stony Brook (via Nicolls Road)
Stony Brook
University Hospital

Current Alignment

Long Island Rail Road Station
Suffolk Transit Bus Routes
SIRI Transit Bus Routes
Government Offices
Other Development Sites
Major Shopping Centers
Regionally Significant Projects
School
Technology Parks/Laboratories
Hospital
Airport

Source: New York State GIS Clearinghouse, Suffolk County

Map: Suffolk County Community College (W Road Traffic Circle)
Alternatives: Routing Alignments & Roadway Elements

LPA Route 1

Route 1 BRT Alignment: Stony Brook - Patchogue
- HOV Lane
- BRT Shoulder-Running
- Mixed Traffic

Proposed TSP and Queue Jumps:
- TSP
- TSP with Queue Jump (one-way)
- TSP with Queue Jump (two-way)

Proposed BRT Stations
- LHRR Stations
- Town Boundary

LPA Route 2

Route 2 BRT Alignment: Stony Brook - Ronkonkoma - Patchogue
- HOV Lane
- BRT Shoulder-Running
- Mixed Traffic

Proposed TSP and Queue Jumps:
- TSP
- TSP with Queue Jump (one-way)
- TSP with Queue Jump (two-way)

Proposed BRT Stations
- LHRR Stations
- Town Boundary
- Village Boundary
PE Study Items

- Exclusive BRT Lane >> Median/Shared HOV Lane
- Hiking-Biking Trail Relocation
- Examining HOV Operation Impacts
- Prepared preliminary plans for Nicolls Road from CR 19 to Furrows Road
- Draft Coordination Plan
PE Study Items

- Existing conditions and Future No-Build analyses for: Level of Service, Noise, Air Quality
- Public Information Meeting
- Development of BRT Route Alignment
- Ridership Forecast using STOPS model
- BRT Station Conceptual Layout
Proposed Station at Greenbelt Pkwy
PE Study Challenges & Opportunities

- Last Mile-First Mile Corridor Access
- BRT Station Siting/Proposed in-line Station
- Developing ridership numbers for new transit corridor
- Nicolls Rd layout and Land Use
- Leasing Property for BRT Parking
Nicolls PE Study Next Steps

- Public Hearing – Prep, Advertising, Meeting
- Public Hearing – Analyze Comments, modify DAD
- Complete Final Design Approval Document
- Complete Small Starts Application
- NEPA Determination/Design Approval/Project Completion
Nicolls BRT Corridor Highlights

**Summary of Study Recommendations**

- **19** Number of stations serving existing and future points of interest
- **45%** Percentage increase in weekday transit ridership by 2040
- **53%** Percentage of BRT trips that are projected to replace automobile trips
- **19.4** Miles of dedicated lanes to bypass traffic congestion
- **2,240** Weekday BRT rides in 2040 (1,790 new transit boardings, compared to no-build condition)

**Proposed BRT Operations**

<table>
<thead>
<tr>
<th>Service Frequency on Each Route (More Frequent Service on Overlapping Segments)</th>
<th>Weekday Peak</th>
<th>Weekday Off-Peak</th>
<th>Weekends</th>
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<tbody>
<tr>
<td></td>
<td>Every 10 minutes</td>
<td>Every 15 minutes</td>
<td>Every 20 minutes</td>
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A multi-modal Nicolls Road Corridor would provide connectivity between points of interest in the I-Zone. The addition of a hiking/biking trail would offer another travel option and healthy alternative to reduce automobile usage.
Route 110 – Suffolk County’s “High Tech Main Street”

- Major north-south employment corridor, located in the Towns of Babylon and Huntington, just east of the Nassau/Suffolk border
- Running from Route 27A (Montauk Highway) in Amityville to Halesite in Huntington
- Home to corporate headquarters, office complexes, retail centers, educational institutions, and research facilities
10.3-mile corridor between Amityville LIRR Station and Walt Whitman Shops

Extends east to Wellwood Avenue and west to Farmingdale State College campus and Walt Whitman Road
Transportation Issues

- Constrained travel choices
- Inadequate multi-modal connectivity
- Existing and projected future traffic congestion
- Bus travel times are not competitive (disincentive for transit use)
- Existing auto-centric land use and building development patterns
- Limited walkability
Key Transportation Opportunities

- Large employers as a source of existing/potential future transit ridership
- Relatively high existing bus ridership; opportunities to integrate with multiple service providers (Suffolk County Transit, NICE, HART)
- Multiple branches of the LIRR
- Multiple travel markets to be served
- Potential reopening of LIRR Republic station and East Farmingdale redevelopment (Connect Long Island)
- LIRR Double Track & East Side Access
Route 110 BRT Stations

- 11 BRT stops between Amityville LIRR Station and Walt Whitman Shops
- Limited stop service as an overlay to the existing Suffolk County Transit local S1 service
- How did we identify station locations?
  - Serve existing and future activity centers
  - Maximize transfer opportunities to other transit services (LIRR, Suffolk County Transit, NICE, HART)
Improving Transit Access to and from Major Activity Centers

Residential communities
- Country Pointe in Melville
- Millennium Hills
- Avalon Court
- The Villas

Major employers
- Nikon
- Canon
- Huntington Quadrangle
- Estee Lauder
- Bank of America
Feeder Route Service

- Smaller vehicles with timed connections to BRT and LIRR
- Serving major employment centers and residential communities beyond a reasonable walking distance from Route 110
- Improving transit access to locations between Conklin Street and Pinelawn/Sweet Hollow Road

Source: Parsons Brinckerhoff
Shuttle bus feeder routes circulate from select BRT stations to serve destinations located off Route 110.
Alternative D Feeder Routes

One-way feeder route to serve Farmingdale State College
Alternative E Feeder Routes

- Shuttle bus feeder routes circulate from two new transit centers on Route 110 to serve destinations located off Route 110
  - One-way feeder route to serve Farmingdale State College
  - Two-way feeder route to serve Walt Whitman Road
  - Two-way feeder route to serve New Highway/Republic Road, Ruland Road, Baylis Road, Maxess Road, Corporate Center Drive, and Pinelawn Road
### Proposed BRT Operations

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<thead>
<tr>
<th></th>
<th>Span of Service</th>
<th>Service Frequency</th>
<th>Fleet Requirement</th>
<th>Travel Time &amp; Average Speed</th>
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<tr>
<td></td>
<td>Monday - Thursday</td>
<td>530 am - 1000 pm</td>
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<td>Northbound</td>
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<tr>
<td></td>
<td>Friday - Saturday</td>
<td>530 am - 1200 am</td>
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<td>26 minutes (24.2 mph)</td>
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<td></td>
<td>Sunday</td>
<td>600 am - 1000 pm</td>
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<td>Southbound</td>
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<td>Peak Period, including 20% spare</td>
<td>20 minutes (31.5 mph)</td>
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<td>9 BRT Vehicles</td>
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<td>Weekday Peak</td>
<td>Every 10 minutes</td>
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Route 110 Next Steps

- Application to enter FTA Project Development
- Environmental Review (NEPA & SEQR)
- Finalize feeder routes to complement Route 110 BRT trunk route
- Detailed Design & Construction
Questions?