Momentum

Nolan Hicks - NYU Marron

Momentum's core findings:

Electrification means speed.

Speed matters.

Speed is capacity.

Case study: British Rail's West Coast Main Line

- London to Manchester, Liverpool
- Electrification sped service 25%-plus
- Ridership jumped 27%-58%
- Meanwhile, non-electric ridership fell 8%

Illustration courtesy of John Greene/British Railways

Case study: Metroliners and NECIP success

- DC-NYC ridership doubled in just six years
- From 470k passengers in 1968 by 1m in 1974
- Rescued and revived Northeast Corridor
- Followed French and Japanese HSR efforts

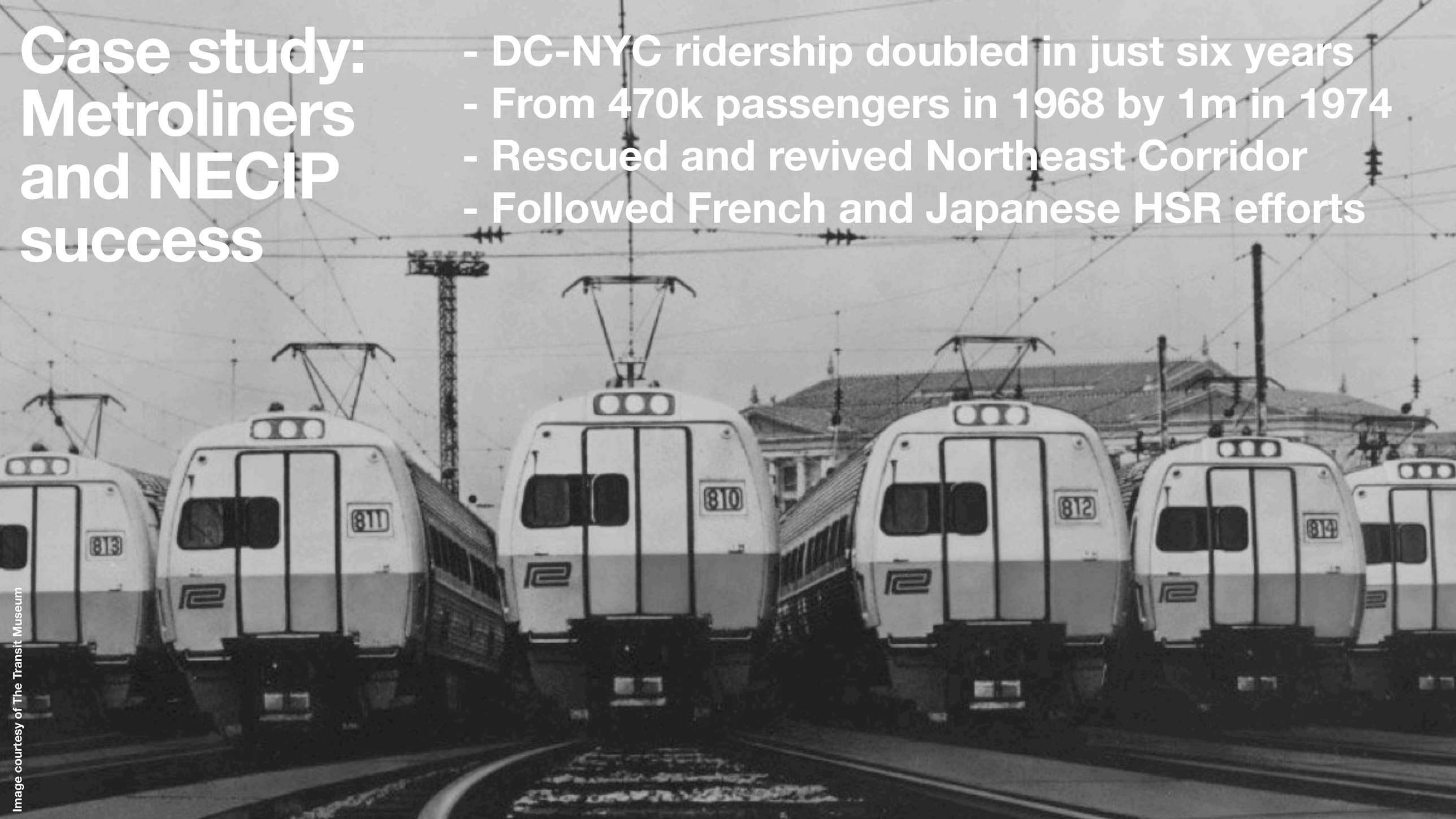
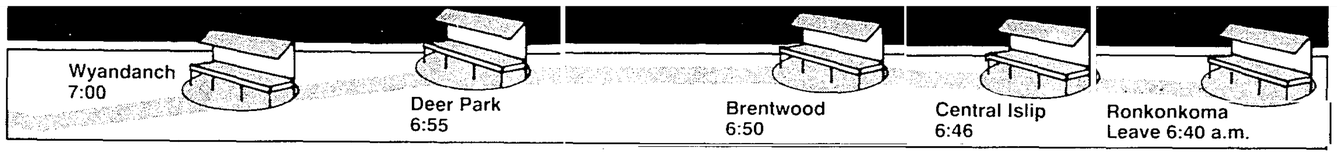


Image courtesy of The Transit Museum

NY/MTA electrification success stories:

- **LIRR extensions:**
  - Mainline to Hicksville
  - Hicksville to Ronkonkoma
    - See Newsday coverage (right)
- **Metro-North extension:**
  - White Plains to N'Brewster



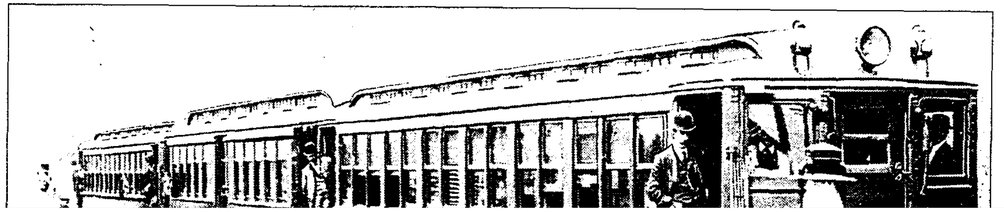
The Big Electric Switch

Trip 1 on Ronkonkoma's 3rd rail: 21 minutes faster

By Bill Bleyer

When the clean silver Long Island Rail Road cars pulled out of Ronkonkoma at 6:40 a.m. yesterday, there was no familiar call of "Change at Jamaica."

Instead, the New York-bound commuters heard conductor Benny Prince announce: "Good morning, ladies and gentlemen. Welcome to the first electric



Electrifying Success

Ridership on Ronkonkoma line escalates

By Bill Bleyer

The unexpected success of the Long Island Rail Road's electrified service to Ronkonkoma has left commuters and officials alike scrambling to find seats on rush-hour trains.

The service became fully operational only a week ago, but it already has attracted 2,000 additional riders per weekday to the line and officials are adding extra cars and planning schedule changes to handle the press.

"We had expected the ridership to creep up," LIRR President Bruce McIver said yesterday. "It has grown much faster than expected. So there are trains leaving Ronkonkoma with standees. We are going to make some schedule changes fairly quickly."

crowding was on the 6:40 a.m. train, which had 1,590 passengers and only 1,200 seats. On Thursday, two cars were added to what had been a 10-car train, providing 1,440 seats.

George Marquardt, a commuter who boards the

Please see **TRAINS** on Page 12

Case study: Caltrain's electrification success

- Ridership up: 75% June 2025 vs June 2024
- Service up 25% with same size fleet
- Fuel costs down despite more service

Riders reward tangible upgrades to service

- Momentum delivers **tangible upgrades through faster trips**
  - Existing ridership provides a built-in constituency for projects
  - Lower costs and shorter timelines than traditional mega-projects
- Proven reward: Improving trip times **induces ridership**
  - UK research shows 1% time savings nets ~1% ridership increase
  - More ridership means more revenue
- More transit trips **reduces traffic and pollution**

How do we maximize these gains?

We started by zeroing in on where we lose time.

Image courtesy of Jason Rabinowitz

Fix No. 1: Electrification and high-performance trains

High performance electric trains (EMUs) can get to 80mph in ~60 seconds. Diesel-hauled trains take 120-180 seconds.

That means **less time between stops** and **higher overall speeds.**

Image from The Daily Gazette

Fix No. 2: High-level boarding and wide doors

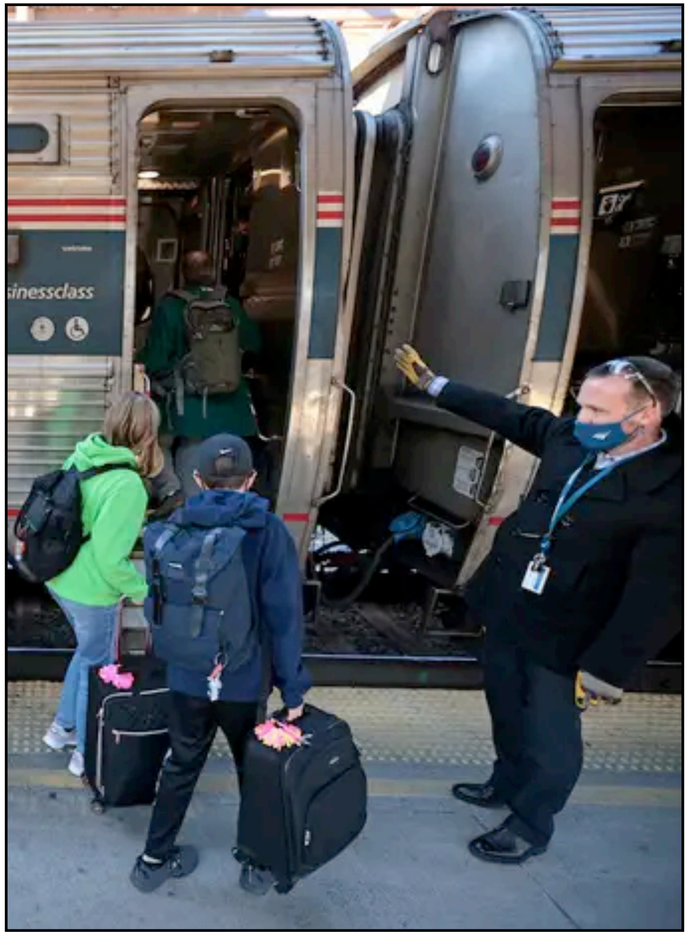
Low platforms require riders to use stairs to board and exit because there is a **40-inch gap** between the platform and train.

This causes lines and slows down service significantly, **e.g. Amtrak's Hudson station**

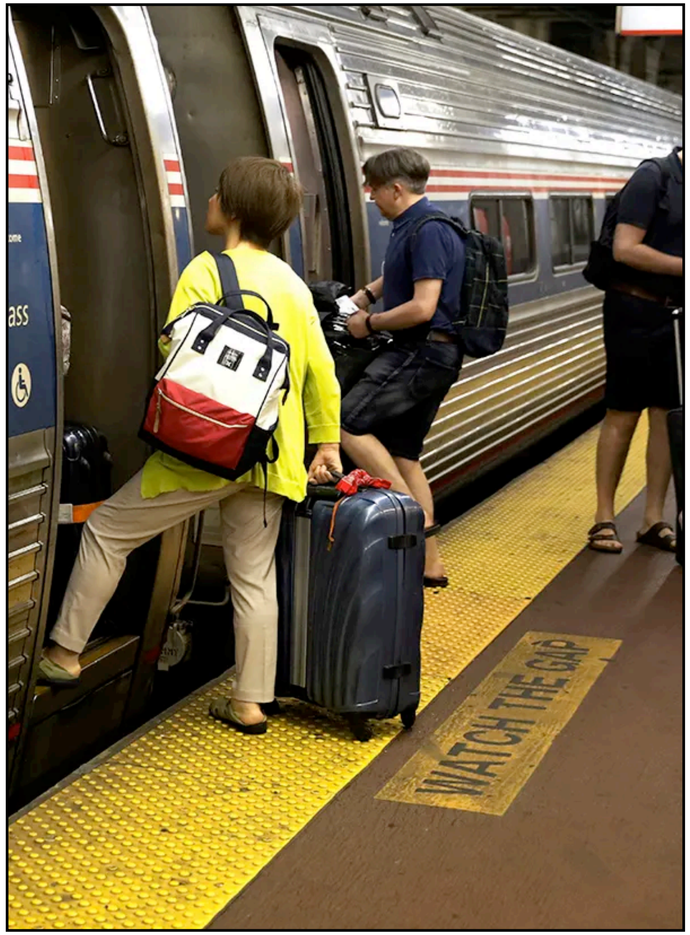
Fix No 2: Level boarding and wide doors (con’t)

Universal high platforms and 50” doors cut dwells to <1 minute

Low platforms, stairs: 5+ min.



High platforms, narrow doors: 2 min.



Wide doors: 30sec-1 min.

Momentum's framework:

Delivering speed through electrification.

Delivering speed through efficient design.

Electrification, station platforms, high-performance trains (EMUs).

Momentum modernizes the MTA ‘Metropolitan’ framework

William Ronan (left) and Gov. Nelson Rockefeller

Photo from The New York Times

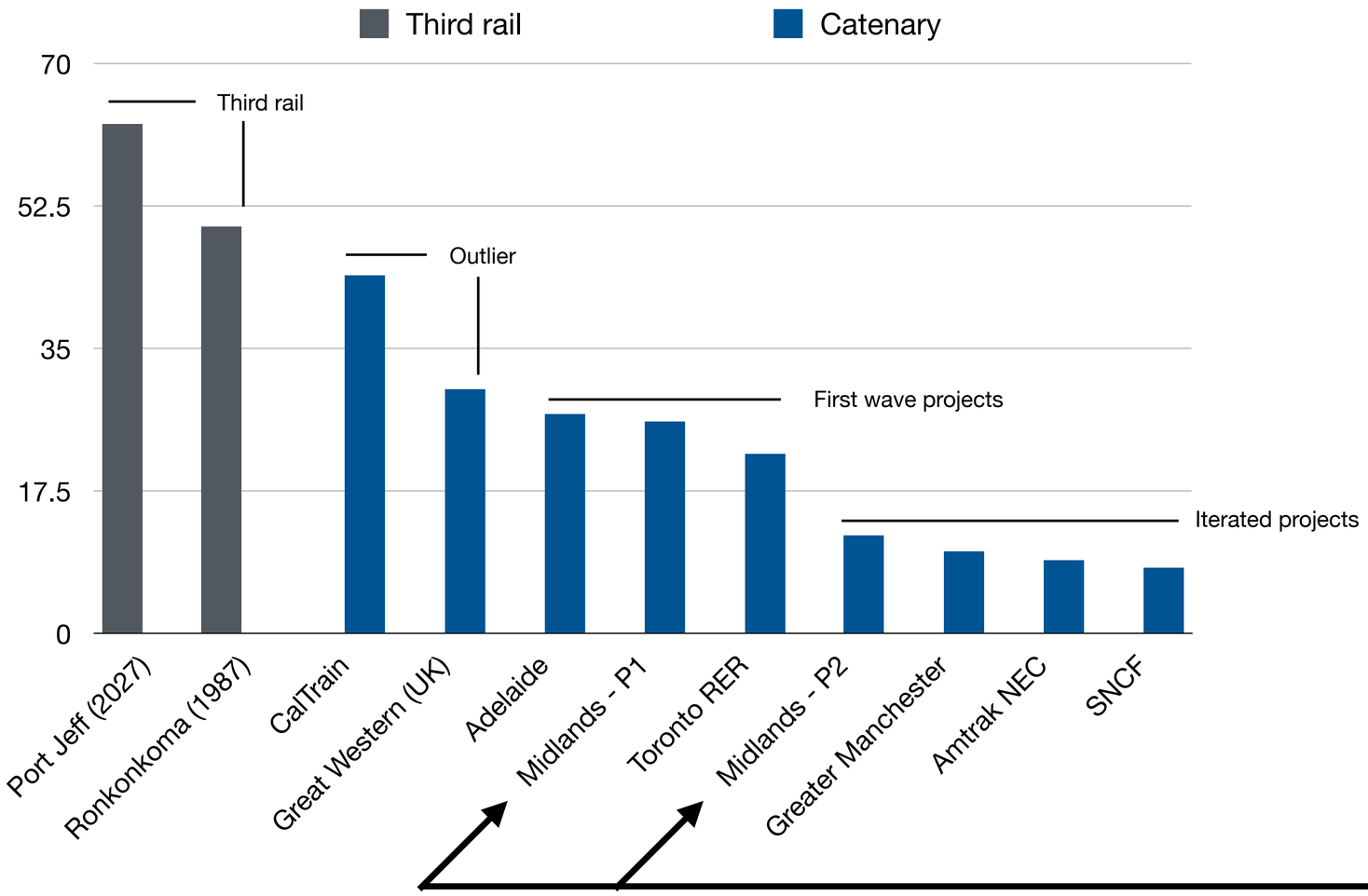
The update: Catenary can support both intercity and commuter rail

Modern catenary power **supports speeds of 165+mph** compared to just 80-90 mph for third rail.

Higher speeds, lower costs are why **catenary is the global rail power standard.**

Catenary brings lower costs, more capability

Britain banned new third rail because of expense, poor performance



Third rail electrification costs 2-4x catenary, analysis showed.

Third rail power costs $49-62m/mile. Overhead catenary projects run $11-$27m/mile.

Lower costs can come with experience, like with **the Midlands.**

Solution:

Link together new catenary with existing third rail system

New Haven Line combines catenary and third rail for **‘dual electrification’.**

Trains run on catenary for the newly electrified segments, then utilize the legacy third rail network.

Case study: Thameslink's 'dual electrification'

- Links together overhead and third-rail network, just like the New Haven Line
- Service is one of the busiest regional railways in London, runs from Brighton to Bedford

Credit: THR Rail Photography
Via Flickr

Image courtesy of Network Rail

More benefits: Catenary more efficient, cuts energy costs

Catenary **reduces energy consumption by 16%** due to reduced transmission losses.

It also makes **track maintenance simpler,** avoiding third rail disassembly. This reduces labor hours needed by 20%.

Catenary: A game-changer for electrification

‘Dual electrification’ saves $6-9 billion compared to third rail

- MTA network modernization would cost **$21-$25 billion using third rail**
- Electrifying and modernizing entire LIRR/MNR network with overhead catenary would cut cost to **$14.6-$16 billion**
  - This is a high-end estimate, assuming $22-27m/per mile
  - **Costs can go down**: Amtrak’s New Haven to Boston was $11m/per mile
  - Most expensive project ever was CalTrain at $44m/per mile, which suffered from massive delays
    - That’s still cheaper than the cheapest third rail estimate

Making rail competitive:

Momentum upgrades our routes into a network of NECs, revolutionizing intercity travel.

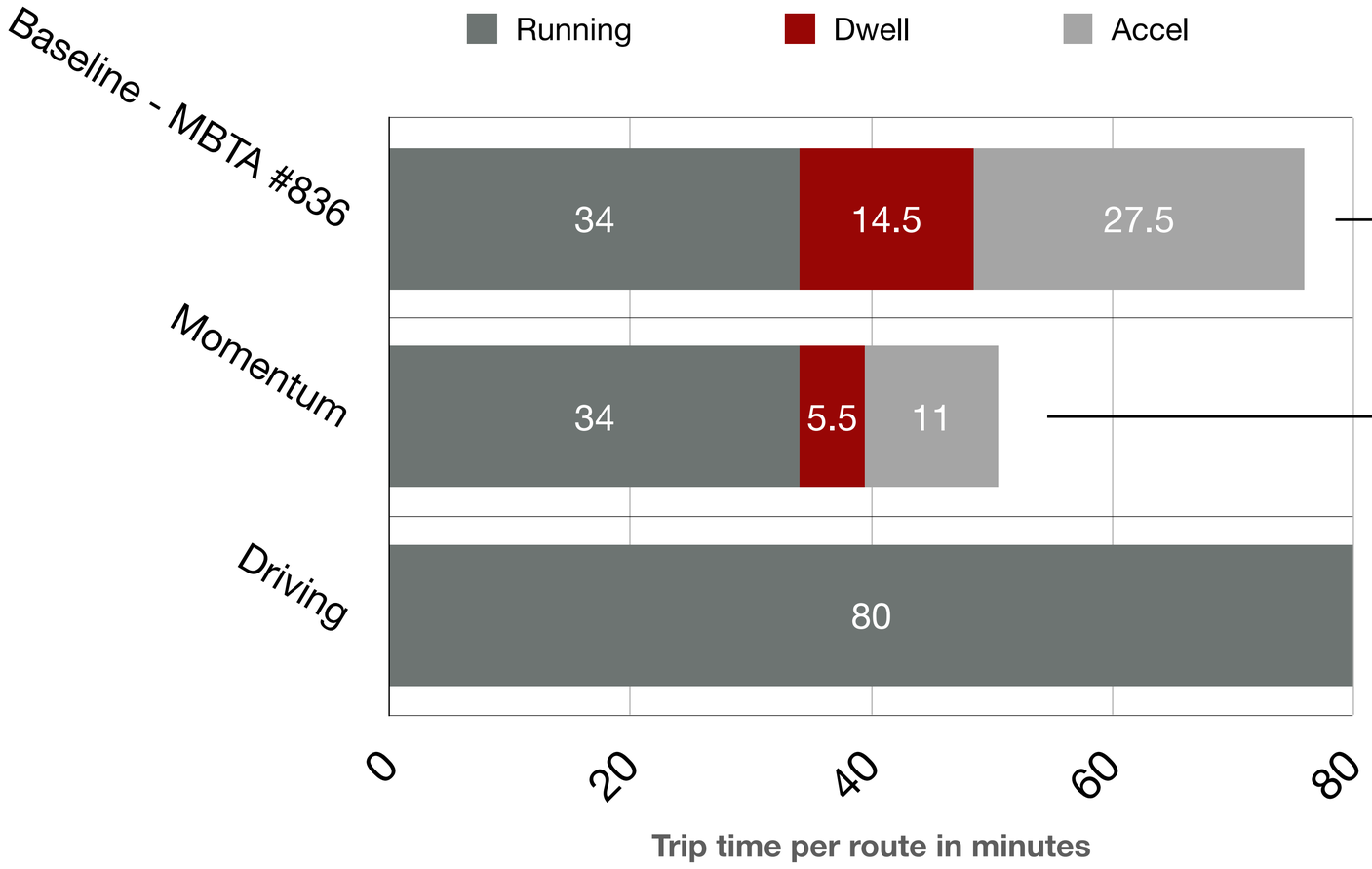
Image courtesy of The Sun-Chronicle

Case study: Boston's Providence Line

- Diesel locomotive (despite electric wires)
- Seven low-level platforms
- Stairs for alighting
- Slowest possible combination

Providence-Boston becomes 25m faster

Time savings come entirely from dwells, maximizing acceleration



Half of trip (42 min) is ‘dead’ time

Momentum cuts ‘dead’ time to 17 min

Train is now 30 min quicker than driving

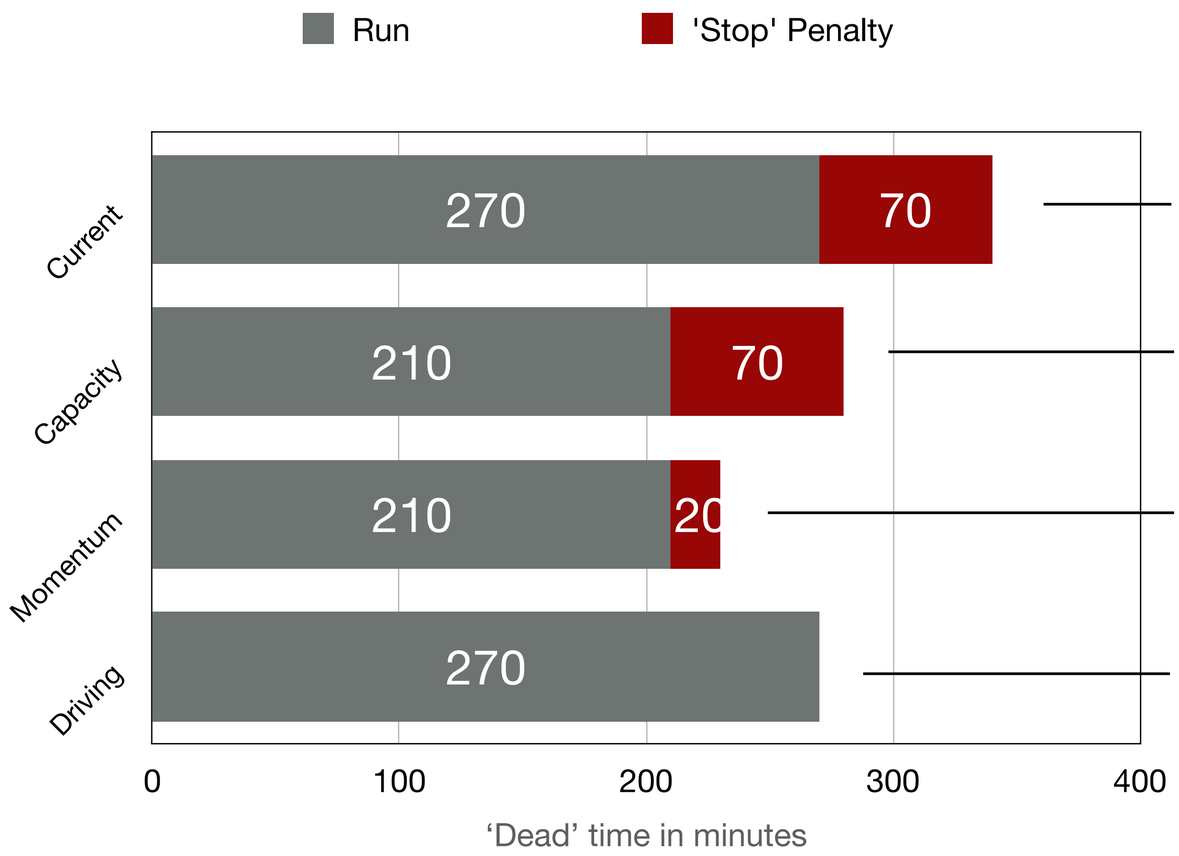
Image courtesy Peyton Shipp via Flickr

Case study: Amtrak's Wolverine (CHI-DET)

- Diesel locomotive
- Low-level platforms
- Stairs for alighting
- Major congestion issues into Chicago

Illustrated compounding benefits: CHI-DET

Capacity + electrification + level boarding nets 3h33m-3h50m trips



Train is the slowest option by 1hr

Chicago Capacity saves 1hr

Momentum saves another 50 min

Train is now 40m faster than driving

Case Study

Hudson Line & Empire Service

Croton-Harmon

Peekskill

Beacon

Poughkeepsie

Hudson

Albany

Schenectady

Utica

Syracuse

Rochester

Buffalo

‘Water Level’ is well-traveled — and famed

Cary Grant lights **Eve Marie Saint’s** cigarette, aboard the 20th Century Limited in ***‘North by Northwest’.***

Credit: The Museum of Modern Art (MoMA)

Studies: Hudson/Empire extremely capable

Modeling indicates locomotion, not geometry constrains speeds

- **From a 1994 NYSERDA study:**
  - Simulation used a non-tilt French TGV
  - Assumed existing ROW as baseline
- **Empire South max speeds:**
  - NYP - Tarrytown: 109 mph
  - Tarrytown - P'keespie: 122 mph
  - P'keepsie - Albany: 143 mph

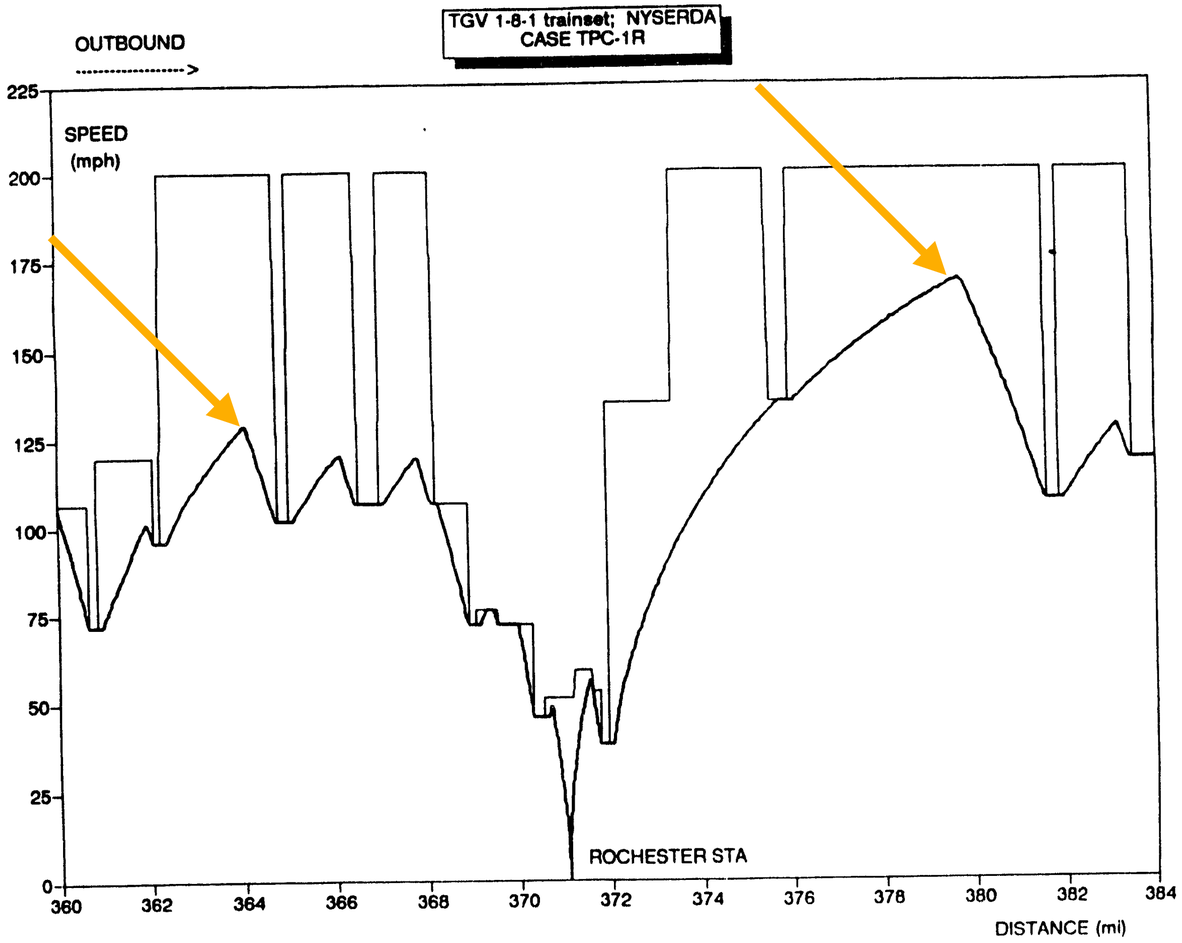
VHSR (CONRAIL/AMTRAK/METRO-NORTH ALIGNMENT):

TPC-1 BASELINE

STATIONS	ELAPSED DISTANCE (MILES)	STATION TO STATION RUNNING TIME (MIN)	RUNNING SPEED (MPH)	MAXIMUM SPEED (MPH)
PENN STATION NYC				
TARRYTOWN	24.70	23:23	63.4	109.9
POUGHKEEPSIE	72.65	40:18	71.4	122.3
ALBANY	141.24	45:39	90.1	143.3
SCHENECTADY	158.90	14:49	71.5	165.5
UTICA	236.60	51:31	90.5	131.0
SYRACUSE	290.64	31:23	103.3	161.3
ROCHESTER	370.14	48:19	98.7	171.9
BUFFALO	437.42	31:31	128.1	200.0
NIAGARA FALLS	464.40	24:14	66.8	129.3

High speeds achievable on Empire West, too

NYSERDA: 130mph reachable in all segments, 170-200mph in places



- **Max speeds by segment:**
  - Albany - Schenectady: 165 mph
  - Schenectady - Utica: 131 mph
  - Utica - Syracuse: 161 mph
  - Syracuse-Rochester: 171 mph (see chart, left)
  - Rochester-Buffalo: ***200 mph***

Turboliner program affirmed HSR model

- Trains hit 125 mph in testing between Hudson and Albany
- However, ‘90s rebuild program was abandoned because of reliability issues

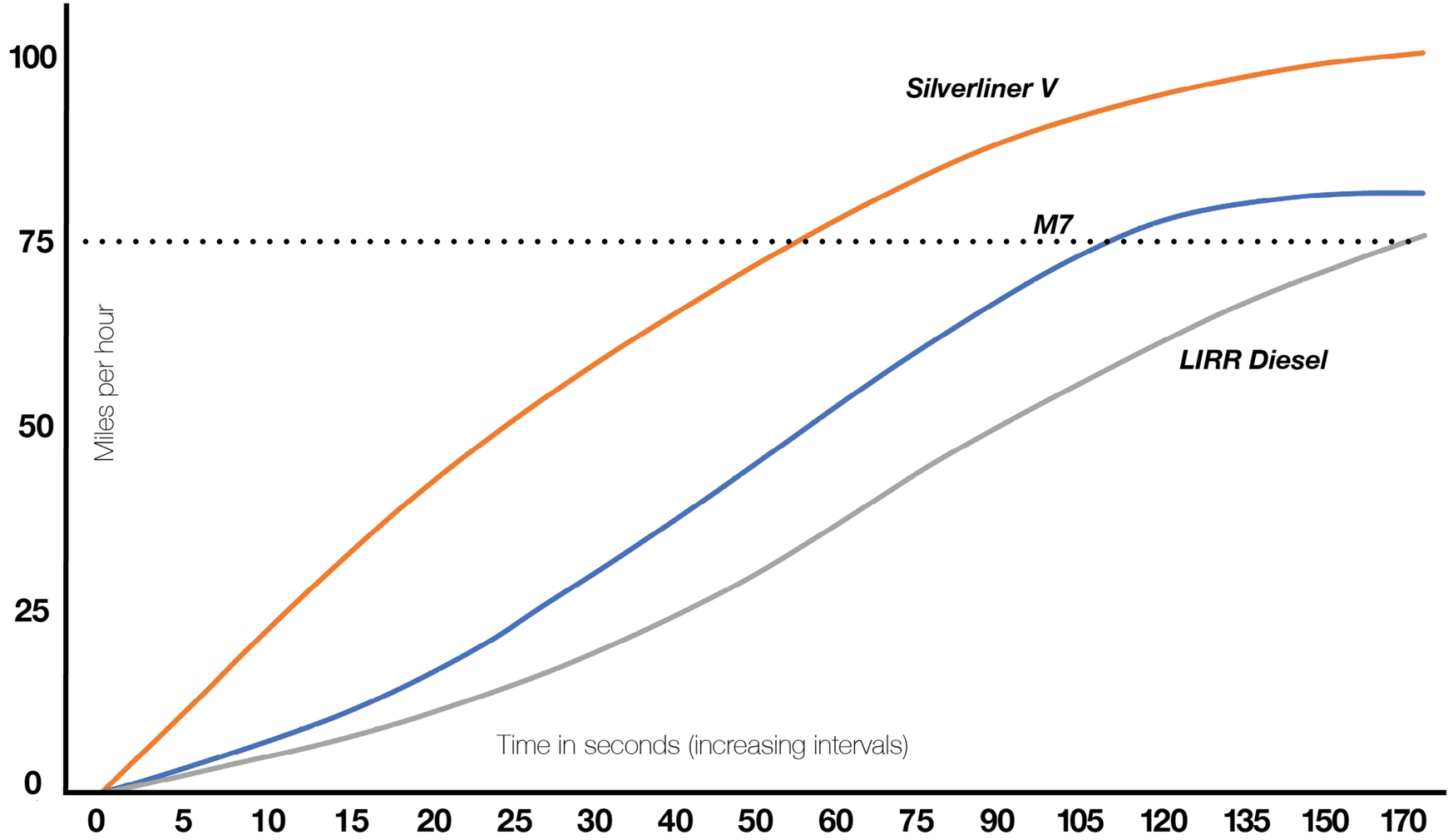
Why do we go so slowly on such a fast route?

Momentum's analysis identified poor diesel and third rail performance

Findings:

1) Metro-North limited the M7's acceleration because the third rail can't drive enough power

2) Poor diesel acceleration limits top speeds north of Croton-Harmon.



Proposed upgrades undershoot route capabilities

Speed capacities ID'd in 1990s aren’t included in most recent EIS

NEW YORK STATE
HIGH-SPEED SURFACE TRANSPORTATION STUDY

Final Report

Prepared for

THE NEW YORK STATE
ENERGY RESEARCH AND DEVELOPMENT AUTHORITY

Project Manager
Richard L. Drake, P.E.

Prepared by

PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC.
in association with

Charles River Associates
URS Consultants, Inc.
Arthur D. Little, Inc.
Harris Miller Miller and Hanson, Inc.
Grumman Aerospace Corporation

1742-EEED-IEA-92

Energy Authority
Report 94-12

August 1994

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NYSERDA - 1994

National Railroad Passenger Corporation (Amtrak)
Canadian Pacific Railway
CSX Transportation
MTA Metro-North Railroad
New York State Department of Transportation

Hudson Line Railroad Corridor Transportation Plan

Final Report
(Document No. M40801-11/9518/STU-137)

November 2005

Prepared by:
SYSTRA ENGINEERING

In association with:
ZETA-TECH Associates, Inc.
Rensselaer Polytechnic Institute

MTA/CSX/NYS-DOT/Amtrak - 2005

Executive Summary

State Senate Task Force - 2006

EMPIRE CORRIDOR
NEW YORK STATE DEPARTMENT OF TRANSPORTATION
HIGH SPEED RAIL • TIER 1 EIS

High Speed Rail
Empire Corridor

Tier 1 Final Environmental
Impact Statement
Volume 1

NEW YORK STATE OF OPPORTUNITY. Department of Transportation

U.S. Department of Transportation
Federal Railroad Administration

Prepared by:
HNTB New York Engineering
and Architecture, PC

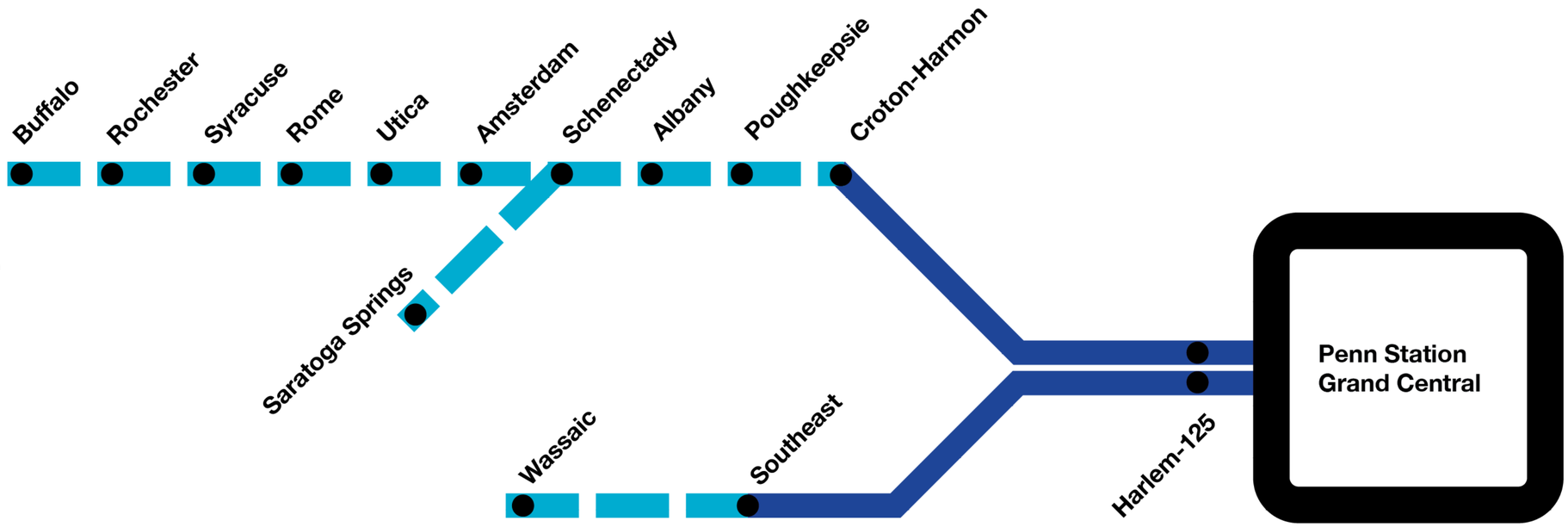
In association with:
Clough, Harbour & Associates, LLP
Louis T. Klauder & Associates
AKRF, Inc.
Pinyon Environmental, Inc.

NYS-DOT/FRA - 2014/2023

Network West

Upgrading **the Hudson Line** into the backbone of a rapid electric statewide system, **Network West.**

NYC-Albany **in 2hrs,**
Syracuse **in 4hrs;**
Buffalo **in under 6.**



Upper Hudson Line

- Poughkeepsie
- New Hamburg
- Beacon
- Cold Spring
- Garrison
- Peekskill
- Cortlandt

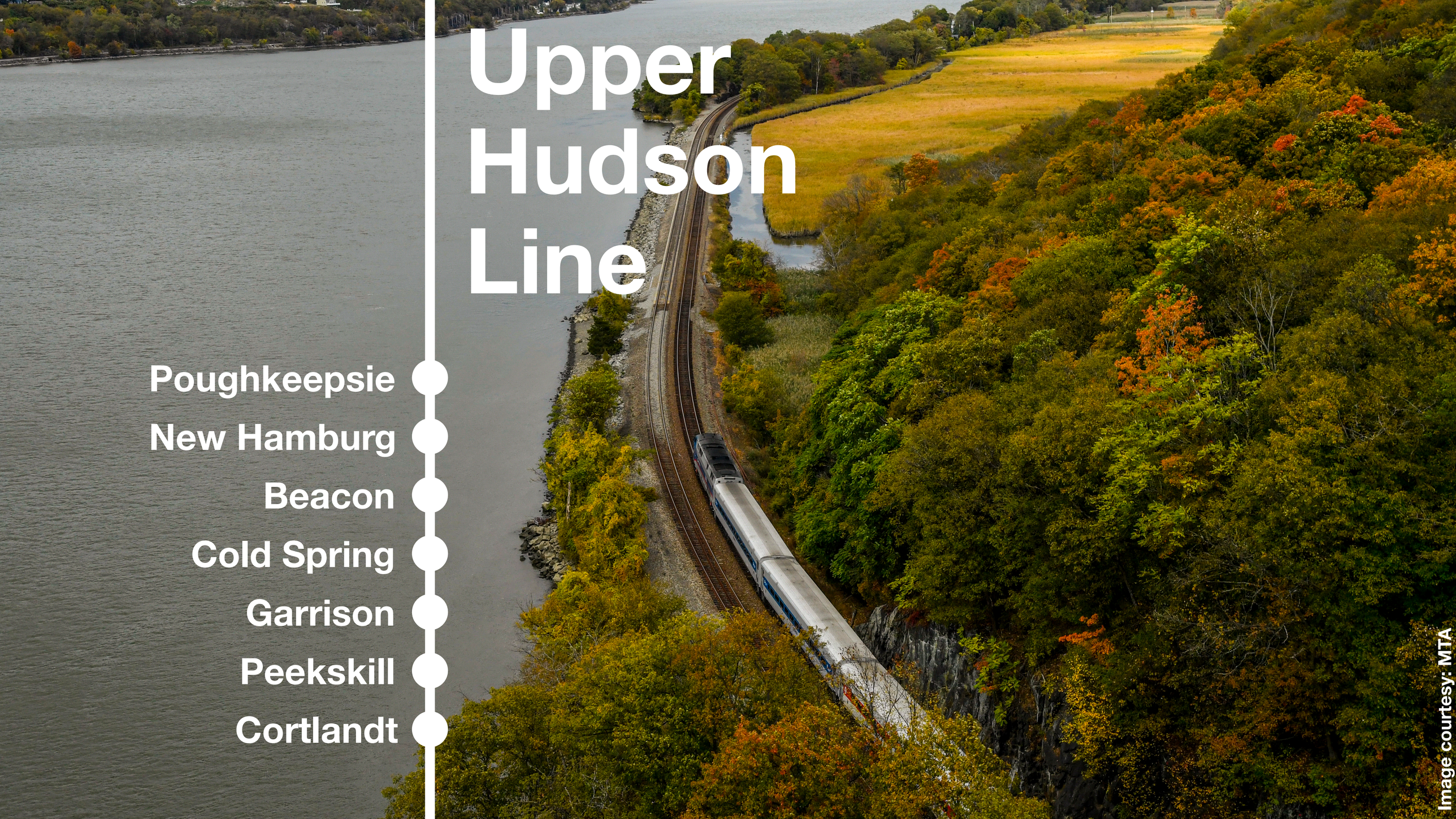


Image courtesy: MTA

Upper Hudson prime case for electrification

Route provides key linkage between NYC-Albany and beyond

- Electrification would significantly speed up service on the Hudson Line:
  - Local: NYC - Beacon in **75 minutes** (15 minutes faster)
  - Local: NYC - Poughkeepsie in **88 minutes** (18 minutes faster)
  - This segment is the first step to **two-hour Albany service**
- Potential ridership boost of **519,000 new trips annually (+15%)**
- Sub-90 minute train service to Poughkeepsie will bolster Hudson Valley economy


Empire
Service
Saratoga Springs
Schenectady
Albany
Hudson
Rhinecliff

New York City to Albany in about two hours

Fast electric service will bolster Capital District's economy revival

- Electrification drops trip times to **2h5m** for trains making all Amtrak stops
- All services and stops along the route would see improvements:
  - Amtrak: NYC-Poughkeepsie **in 75-82 minutes** (8-13 minutes faster)
  - Rhinecliff: **87-94 minutes** (1h27-1h34m; 11-16 minutes faster)
  - Hudson: **104-112 minutes** (1h44-1h52m; 12-18 minutes faster)
- Builds on **Gov. Hochul's $400m investment** in downtown Albany revitalization
  - **Trip times of 1h54m** are possible with upgrades Lower Hudson power system

Catenary unlocks potential of Hudson Line

Trips 20%+ faster; region-changing benefits in $1.5-3b packages

NYC - P’keepsie: 1h28 (local) ***23 minutes faster***

Cost: $1.3-1.5 billion

NYC - Albany: 2h *Via Poughkeepsie* ***31-36 minutes faster***

Cost: $2.1-$2.4 billion

NYC - Saratoga: 2h50m *Via Albany and Schenectady* ***45 minutes faster***

Cost: $2.7-$3 billion

The Momentum strategy:

New rapid networks, built package by package

Each project delivers a set of stand-alone benefits that ensure riders and taxpayers see value at every step.

But each package builds towards an end result: new Northeast Corridor caliber rail networks spanning NY.

New York to Syracuse in 4hrs; Buffalo in 5h40

Bringing the Mohawk Valley as close to New York City as BOS/DC

- **New York to Syracuse in 3h42m-3h55m** (117-141min faster)
  - That's as fast as a NE Regional to D.C. (3h37m-3h43m)
- Delivers benefits directly to Amsterdam, Utica and Rome downtowns
  - **Utica would now be just 3 hours** (3h4m-3h18m) from New York
- New York-Rochester trip times would be slashed to **4h49-4h56m**
- New York-Buffalo (Exchange) trip times would be cut to **5h32m-5h47m**

Challenge: Navigating heavy freight usage

Solve: Borrowing Chicago's idea to restore Water Level's quad track

- **40-60 daily freight trains Buffalo-Hoffman's cutover (east of Amsterdam)**
  - Higher speed operation would cause scheduling conflicts with CSX freight
- **Solution: Restore corridor to quad-track configuration**
  - Reinstalls two dedicated freight tracks on northern portion of right-of-way
  - Segregates passenger service on the two upgraded southern tracks
  - Borrowed from Chicago Capacity project; also suggested in NYSERDA study
- **CSX selling point: Separation of passenger/freight service**
  - Would require CSX to accept normal track-spacing requirements

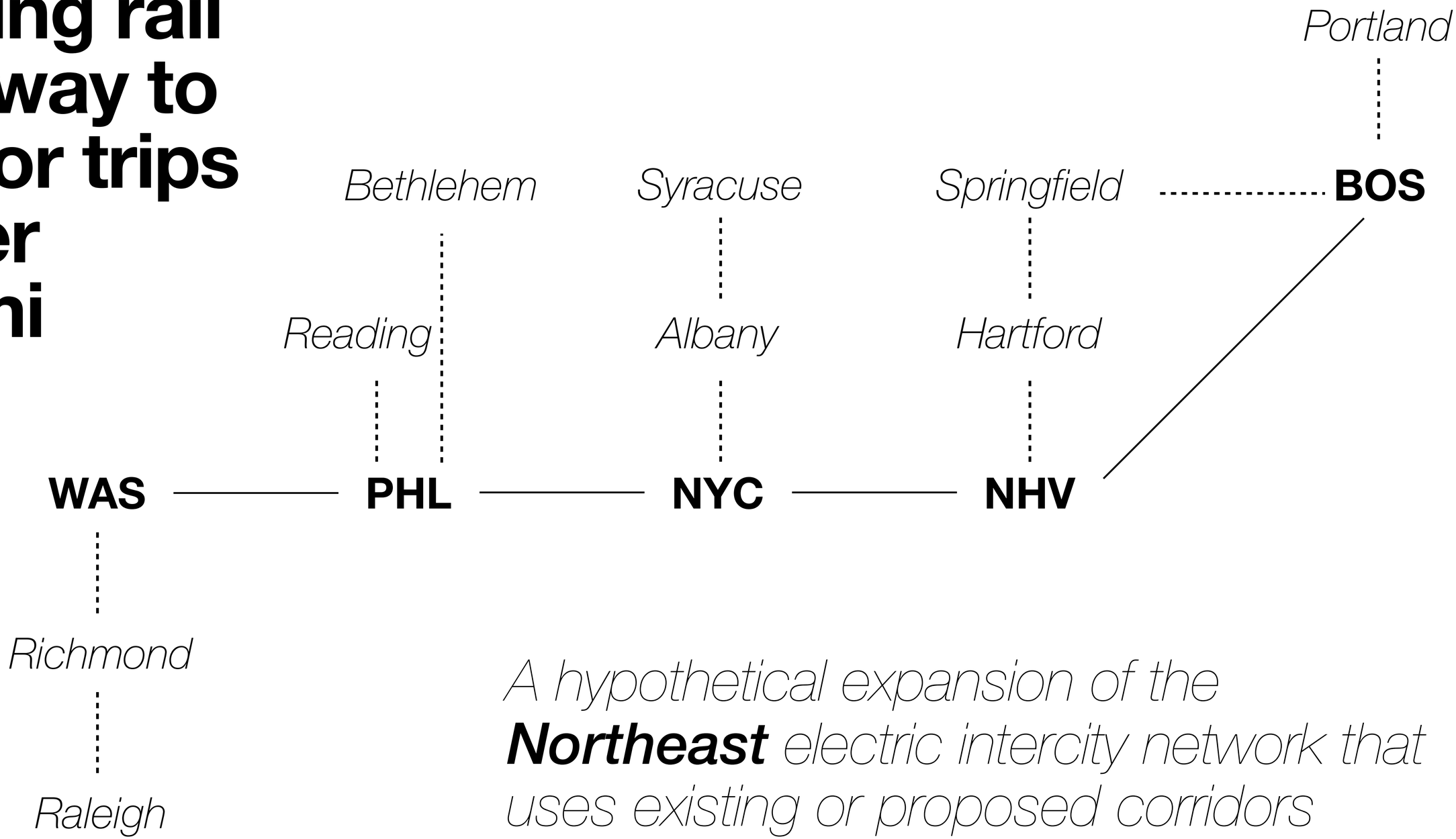
Substantial costs but significant benefits

Would slash travel times and dramatically expand transportation capacity across NYS.

- Syracuse: $13.5b
- Buffalo: $14.5b

This is roughly the budget of the LGA and JFK rebuilds combined (adjusted for inflation).

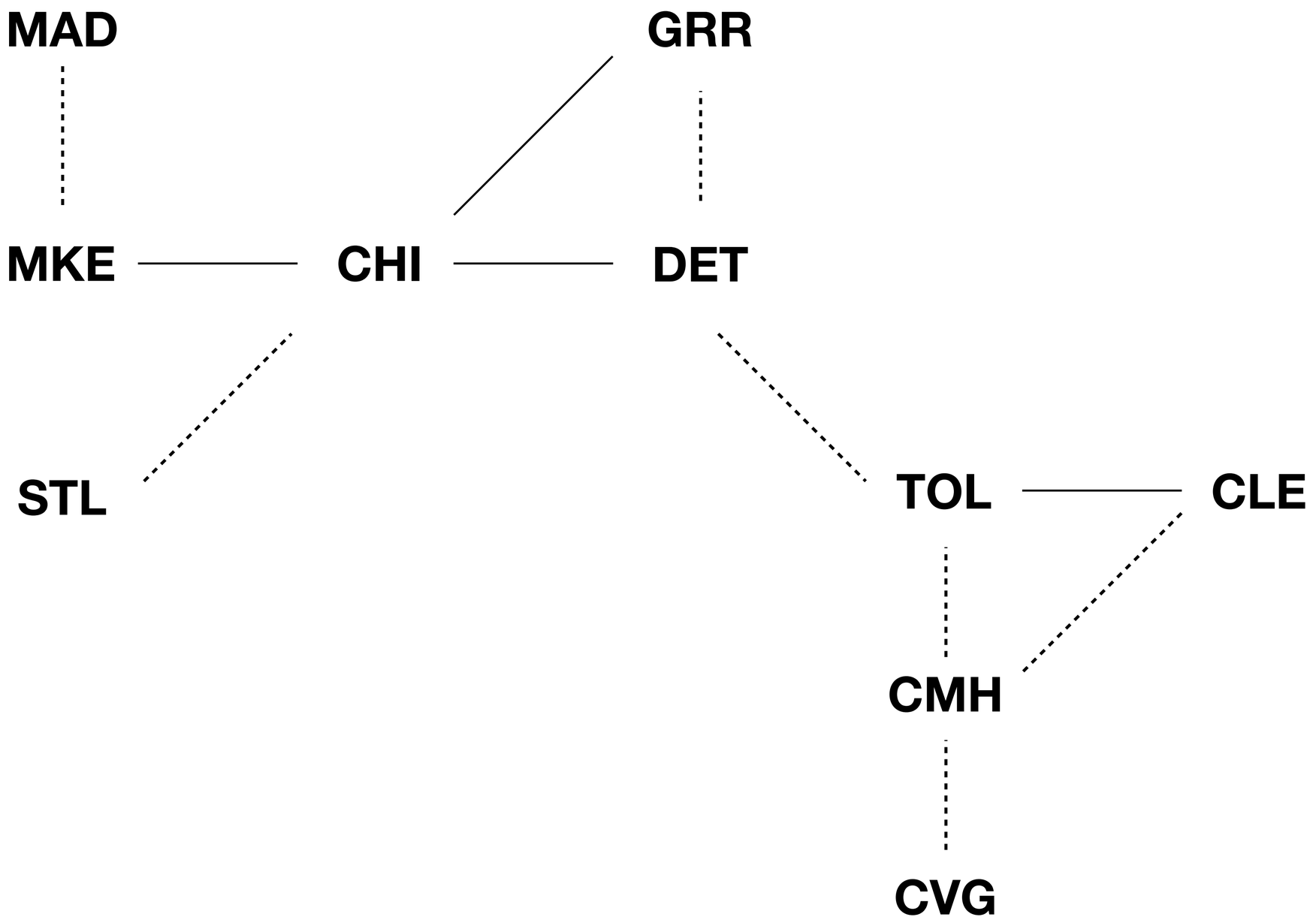
Making rail the ‘way to go’ for trips under 300mi



*A hypothetical expansion of the **Northeast** electric intercity network that uses existing or proposed corridors*

Making rail the ‘way to go’ for trips under 300mi

A hypothetical ***Midwest*** *electric intercity network that uses existing or proposed corridors*



The stall-out:

24-year gap between Northend and Caltrain electrifications

Image courtesy of Raiders of the Lost Ark

Momentum: Case study in knowledge loss to $$ cuts

- Pennsy/NYCentral slashed R&D post-WWII;
- Feds took over in the 1960s, but budgets were slashed in the 1980s;
- Work was lost — or shelved and forgotten…
- …Including planning/engineering we're relying on

Hudson Line shows how cuts hurt:

Splintered knowledge base of corridor/capabilities.

▼

No single entity is tasked with vision, upgrades.

▼

Widespread myths about the line's capability: *'It's too curvy', 'it's too congested', 'it's too old.'*

▼

Activists & politicians then push for a new line or experimental tech, putting planning **in a cul-de-sac.**

Brain drain ‘feedback loop’ for planning:

No R&D to see what improvements riders value most.

▼

Freights have expertise, but very different objectives.

▼

Freight bias for trackage bleeds into passenger planning.

▼

Resulting projects don’t deliver tangible benefit for price tag.

‘Brain drain’ ➡ misconceptions:

Freight trains can’t fit beneath overhead wires.

Freight trains will be blocked by high-level platforms.


Can Momentum work on our existing routes?


Yes.

Credit: Bill Stephens via TrainsPro Newsletter

Freight mergers are major opportunity

Two major avenues for states/transit agencies:

- **Buy:** Railroads will be looking to divest assets to finance deals.
- **Regulatory:** Seek access concessions for rail as part of approval

Momentum as ‘Standards Manual’:

Framework for fast, efficient, electric service

Establishes knowledge base for specs/scope

Reduces risk, minimize costs at the front-end

Empowers agencies as they negotiate with freights for right-of-way access

Network East

Improving the economics of electrification lets the LIRR **rethink the ‘Main Line’ strategy** and deliver service directly to communities.

A review of **each line’s potential** with Momentum.

LIRR's 'Main Line' focus dates to 1980s

High costs pushed MTA to focus electrification on central corridor

- LIRR has focused investments on 'central' corridor, anchored by park-and-rides
  - 1983: Opts for Ronkonkoma over Port Jeff
- This strategy is predicated on three assumptions:
  - Electrification is extremely expensive;
  - Car access on Long Island is universal
  - Commuters are willing to drive for electric service
- LI's population is equally distributed along North, Mid and South axes

The New York Times

Metropolitan Report

New York, New Jersey, Connecticut

5 Accused of Fencing Gems Stolen in Mafia Operations

By ARNOLD H. LUBASCH

Spring Flower Show Augurs the Coming Season

L.I.R.R. Plans 25 More Miles Of Electric Rail

Project Would Convert Stretch of Main Line

By JAMES BARRON

Rangel Enjoying New Sway in House

By JANE PERLEZ

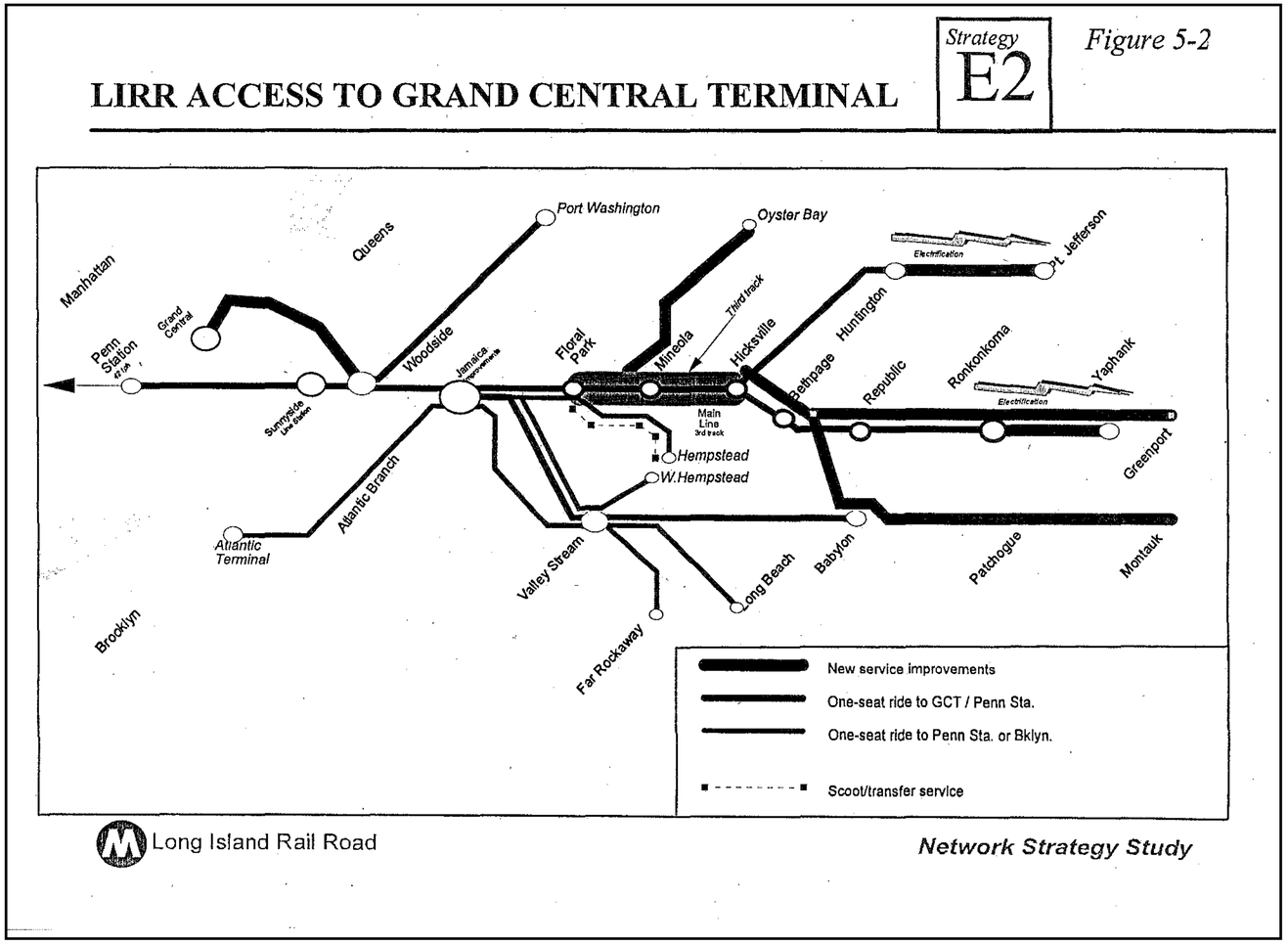
News Summary

Arts/Entertainment

Quotation of the Day

Review: LIRR's 1994 'Main Line' doctrine

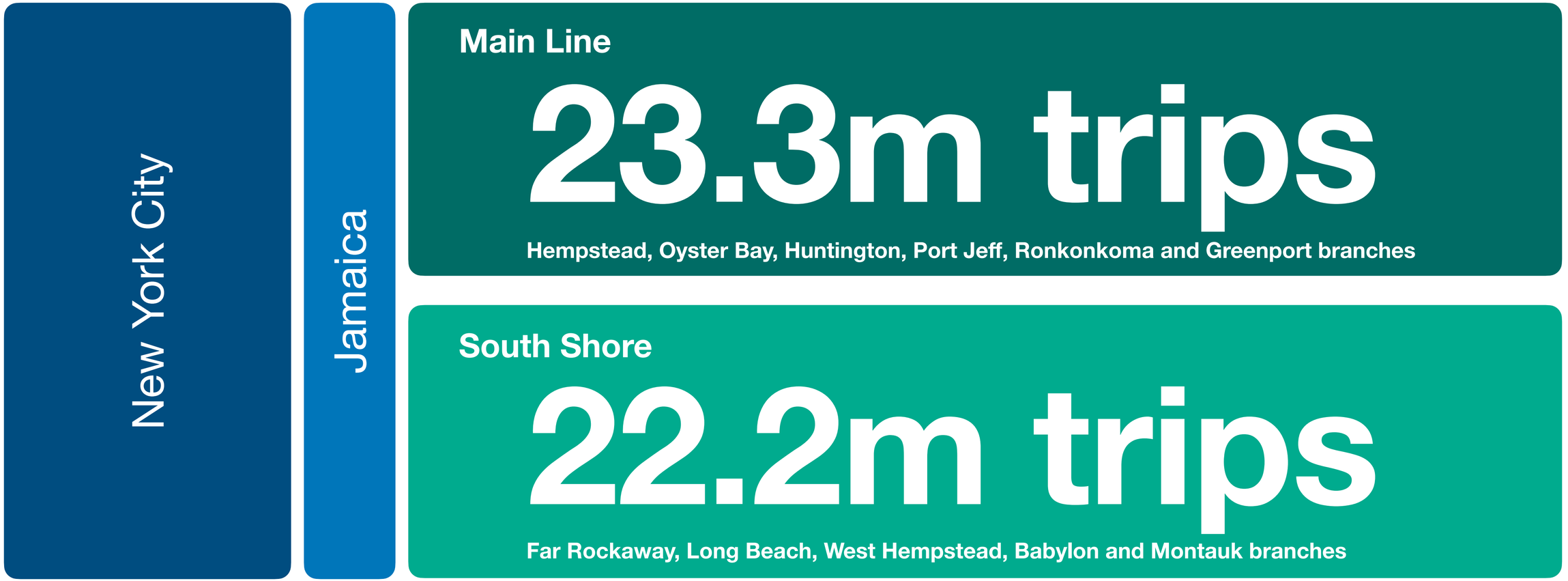
Document drives $4.4 billion in capital to Main Line over 20 years



- Ronkonkoma Double Track
  - Expansion of 1994 plan
- Third track the 'Main Line' to Hicksville
- Electrification expansion to Port Jefferson and Yaphank
  - *Only major pieces not built*
- Little investment for South Shore or other diesel branches

Finding: LIRR has two main lines, not one

South Shore branches carry as many riders as Main Line branches



‘Main Line’ strategy runs contra LI densities

Focuses LIRR capital on just 11/45 top stations by population density

Hempstead Station	19,753.5	Hempstead
Long Beach Station	15,842.4	Long Beach
Gibson Station	13,163.3	Far Rockaway
Freeport Station	12,783.8	Bablyon
Bellerose Station	12,672.9	Hempstead
Lawrence Station	12,602.0	Far Rockaway
Mineola Station	11,791.8	Main Line - East
Floral Park Station	11,633.9	Main Line - East
Westbury Station	11,388.2	Main Line - East
Cedarhurst Station	11,299.6	Far Rockaway
Belmont Park Station	11,190.4	Main Line - East
Copiague Station	11,160.3	Bablyon
Westwood Station	11,144.6	WestH
New Hyde Park Station	11,142.7	Main Line - East
Glen Street Station	10,512.9	Oyster Bay

Centre Ave Station	10,426.0	Long Beach
Hempstead Gardens Station	10,304.5	WestH
Valley Stream Station	10,197.6	Long Beach
Island Park Station	10,195.2	Long Beach
Huntington Station	9,834.3	Huntington
West Hempstead Station	9,762.3	WestH
Stewart Manor Station	9,688.3	Hempstead
Woodmere Station	9,564.3	Far Rockaway
East Rockaway Station	9,527.4	Long Beach
Malverne Station	9,407.2	WestH
East Williston Station	9,375.6	Oyster Bay
Lynbrook Station	9,180.6	Long Beach
Stony Brook Station	9,020.7	Jefferson
Oceanside Station	8,831.0	Long Beach
Farmingdale Station	8,771.9	Ronkonkoma

Carle Place Station	8,673.0	Main Line - East
Country Life Press Station	8,539.5	Hempstead
Lakeview Station	8,356.3	WestH
Sea Cliff Station	8,274.4	Oyster Bay
Hewlett Station	8,236.4	Far Rockaway
Oyster Bay Station	8,209.6	Oyster Bay
Central Islip Station	7,958.6	Ronkonkoma
Baldwin Station	7,914.3	Bablyon
Rockville Centre Station	7,900.7	Bablyon
Bethpage Station	7,730.9	Ronkonkoma
Albertson Station	7,608.6	Oyster Bay
Bay Shore Station	7,603.5	Speonk
Brentwood Station	7,449.0	Ronkonkoma
Wyandanch Station	7,324.1	Ronkonkoma
Glen Cove Station	7,192.6	Oyster Bay

Main Line station are white; Off-Main Line branch stations are sherbet; South Shore stations remain teal

Finding: Diminishing returns to ‘Main Line’

NYU-Marron review of LIRR ridership and LI population patterns shows:

- South Shore ridership on par with Main Line, despite lower speeds and more frequent stops:
    - And even though bulk of investments have gone to Main Line/Ronkonkoma branch
- However, ridership patterns are reflective of the larger population density trends
    - 22/45 stations with top surrounding densities are along the South Shore
- Indicates **rider preference for service delivered to their closest station** over park-and-ride
    - Driving to station **exacerbates parking shortages**, and LI’s **traffic crisis**

How we evaluated diesel LIRR branches

- Each branch was ranked ridership and potential initial ridership gain
- Evaluated nearby population densities
- Reviewed news clippings, literature to determine existing and unmet need

Model affirms case for Port Jeff electrification

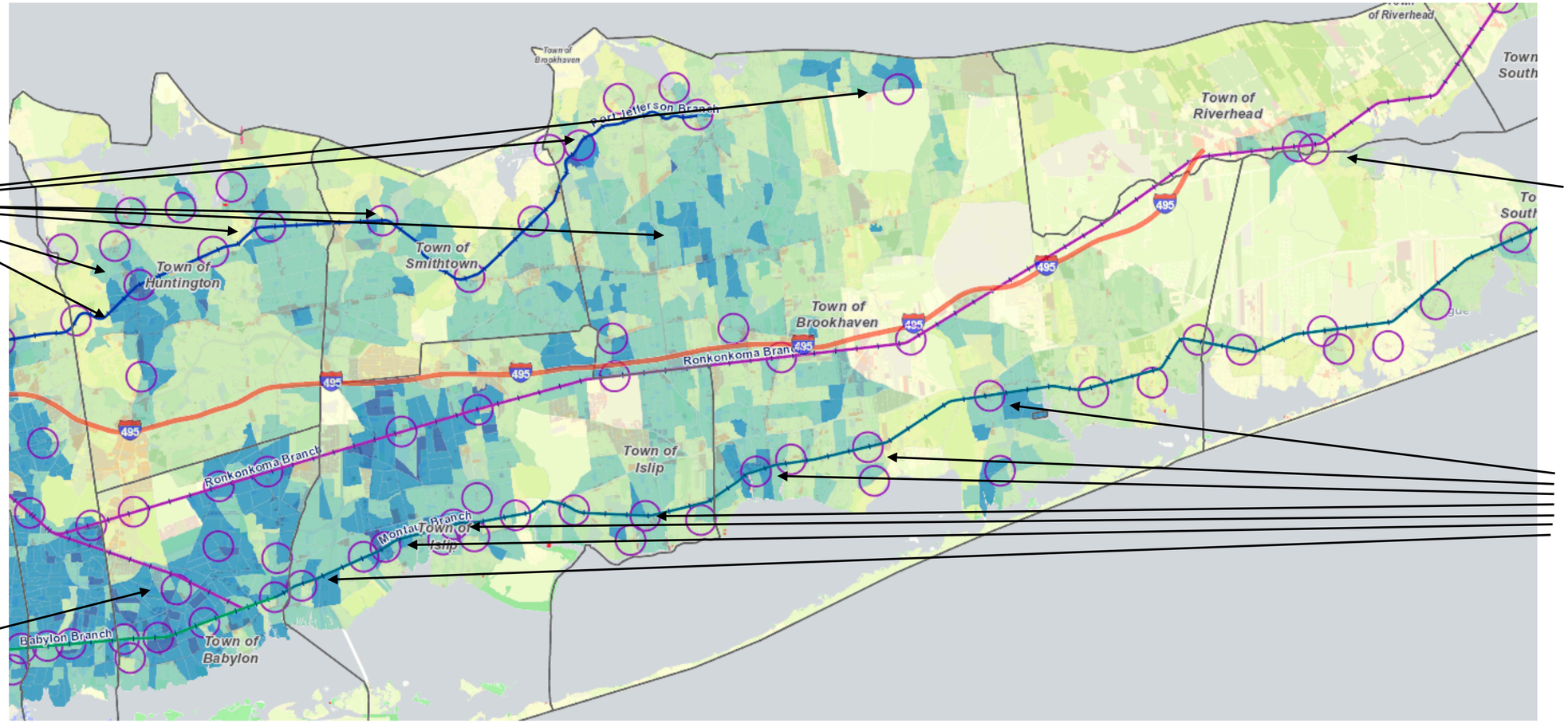
Ranked first in likely ridership; model boosts Montauk/Oyster Bay

Segment	Time Savings	Trip Gain	Mode Shift	Total Trips
Port Jefferson	-15%	218,000	65,000	1,900,000
Speonk	-15.2%	186,000	56,000	1,600,000
Oyster Bay	-24.7%	232,000	70,000	1,300,000
Montauk	-21.0%	160,000	48,000	1,000,000
Greenport	-15.7%	11,000	3,000	85,000
Riverhead	-11.7%	5,200	1,600	54,000

Initial rankings fit with eastern LI densities

Population in Suffolk is anchored by North/South Shores

Dense pockets of population along the Port Jefferson Branch, particularly at Stony Brook



There is little population density along the Greenport Branch except for Riverhead and Greenport (not shown)

Dense pockets of population along the Central Branch provide potential for infill development

The Montauk Branch's Speonk segment benefits significantly from the dense town center that line the route all the way to the Hamptons

The darker the shade of blue, the greater the population density

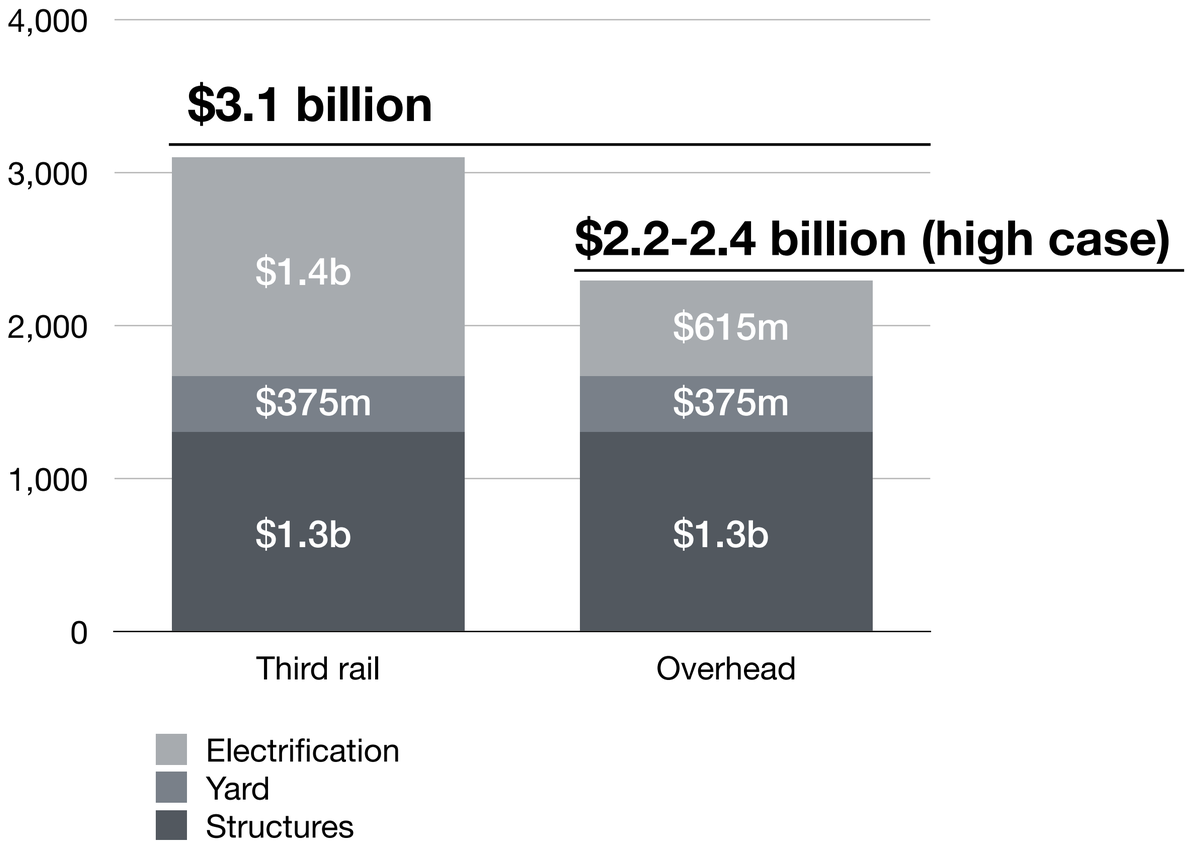
Case Study

Port Jefferson

- Greenlawn
- Northport
- Kings Park
- Smithtown
- Saint James
- Stony Brook
- Port Jefferson

‘Momentum’ boosts Port Jefferson proposal

Catenary cuts capital cost by $700-$900m; doesn’t count OpEx savings



- **Cuts 20 minutes** off NYC-Port Jefferson
- **Helps relieve parking crunch** along outer Ronkonkoma Branch
- **Expands access to Stony Brook University** from NYC and JFK Airport
- Would build all other MTA proposed improvements

Momentum's suggested LIRR program

Lines were ranked by ridership and nearby population densities

1. **Port Jefferson** ✓

   Likely to be the most ridden LIRR diesel line, the most-studied and likely the easiest to get into federal review

2. **Speonk (Inner Montauk)**

   Second by total ridership, helps attack South Shore capacity/traffic crunches; zoning capacity for more housing.

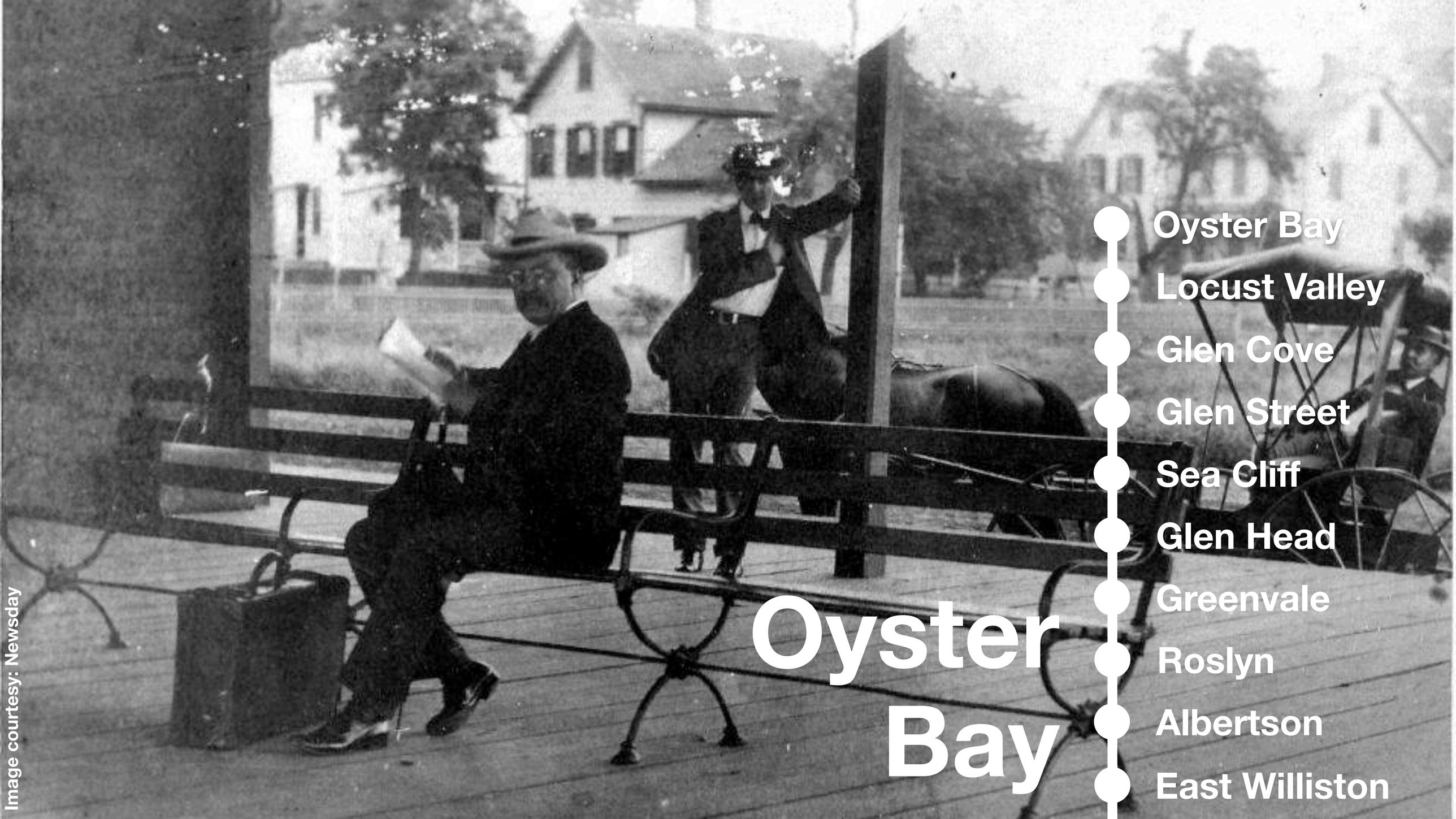
3. **Oyster Bay**

   Would see the biggest ridership boost and help relieve crowding along inner Main Line. Third most ridden overall.

4. **Montauk (Outer Montauk)**

   Speed and capacity gains along the entire line allow for residents to commute, tackle East End traffic crisis head-on

These results deviate from 'The Main Line' strategy



Oyster Bay

- Oyster Bay
- Locust Valley
- Glen Cove
- Glen Street
- Sea Cliff
- Glen Head
- Greenvale
- Roslyn
- Albertson
- East Williston

Image courtesy: Newsday

Oyster Bay result fits LI population analysis

Half of the Oyster Bay stops rank in the top 45 station/pop densities

Hempstead Station	19,753.5	Hempstead
Long Beach Station	15,842.4	Long Beach
Gibson Station	13,163.3	Far Rockaway
Freeport Station	12,783.8	Bablyon
Bellerose Station	12,672.9	Hempstead
Lawrence Station	12,602.0	Far Rockaway
Mineola Station	11,791.8	Main Line - East
Floral Park Station	11,633.9	Main Line - East
Westbury Station	11,388.2	Main Line - East
Cedarhurst Station	11,299.6	Far Rockaway
Belmont Park Station	11,190.4	Main Line - East
Copiague Station	11,160.3	Bablyon
Westwood Station	11,144.6	WestH
New Hyde Park Station	11,142.7	Main Line - East
Glen Street Station	10,512.9	Oyster Bay
Centre Ave Station	10,426.0	Long Beach
Hempstead Gardens Station	10,304.5	WestH
Valley Stream Station	10,197.6	Long Beach
Island Park Station	10,195.2	Long Beach
Huntington Station	9,834.3	Huntington
West Hempstead Station	9,762.3	WestH
Stewart Manor Station	9,688.3	Hempstead
Woodmere Station	9,564.3	Far Rockaway
East Rockaway Station	9,527.4	Long Beach
Malverne Station	9,407.2	WestH
East Williston Station	9,375.6	Oyster Bay
Lynbrook Station	9,180.6	Long Beach
Stony Brook Station	9,020.7	Jefferson
Oceanside Station	8,831.0	Long Beach
Farmingdale Station	8,771.9	Ronkonkoma
Carle Place Station	8,673.0	Main Line - East
Country Life Press Station	8,539.5	Hempstead
Lakeview Station	8,356.3	WestH
Sea Cliff Station	8,274.4	Oyster Bay
Hewlett Station	8,236.4	Far Rockaway
Oyster Bay Station	8,209.6	Oyster Bay
Central Islip Station	7,958.6	Ronkonkoma
Baldwin Station	7,914.3	Bablyon
Rockville Centre Station	7,900.7	Bablyon
Bethpage Station	7,730.9	Ronkonkoma
Albertson Station	7,608.6	Oyster Bay
Bay Shore Station	7,603.5	Speonk
Brentwood Station	7,449.0	Ronkonkoma
Wyandanch Station	7,324.1	Ronkonkoma
Glen Cove Station	7,192.6	Oyster Bay

Stops highlighted in lime green are on the Oyster Bay branch.

- Calls for Oyster Bay electrification date back to the 1920s;
- Was to be one of the first lines electrified post-WWII

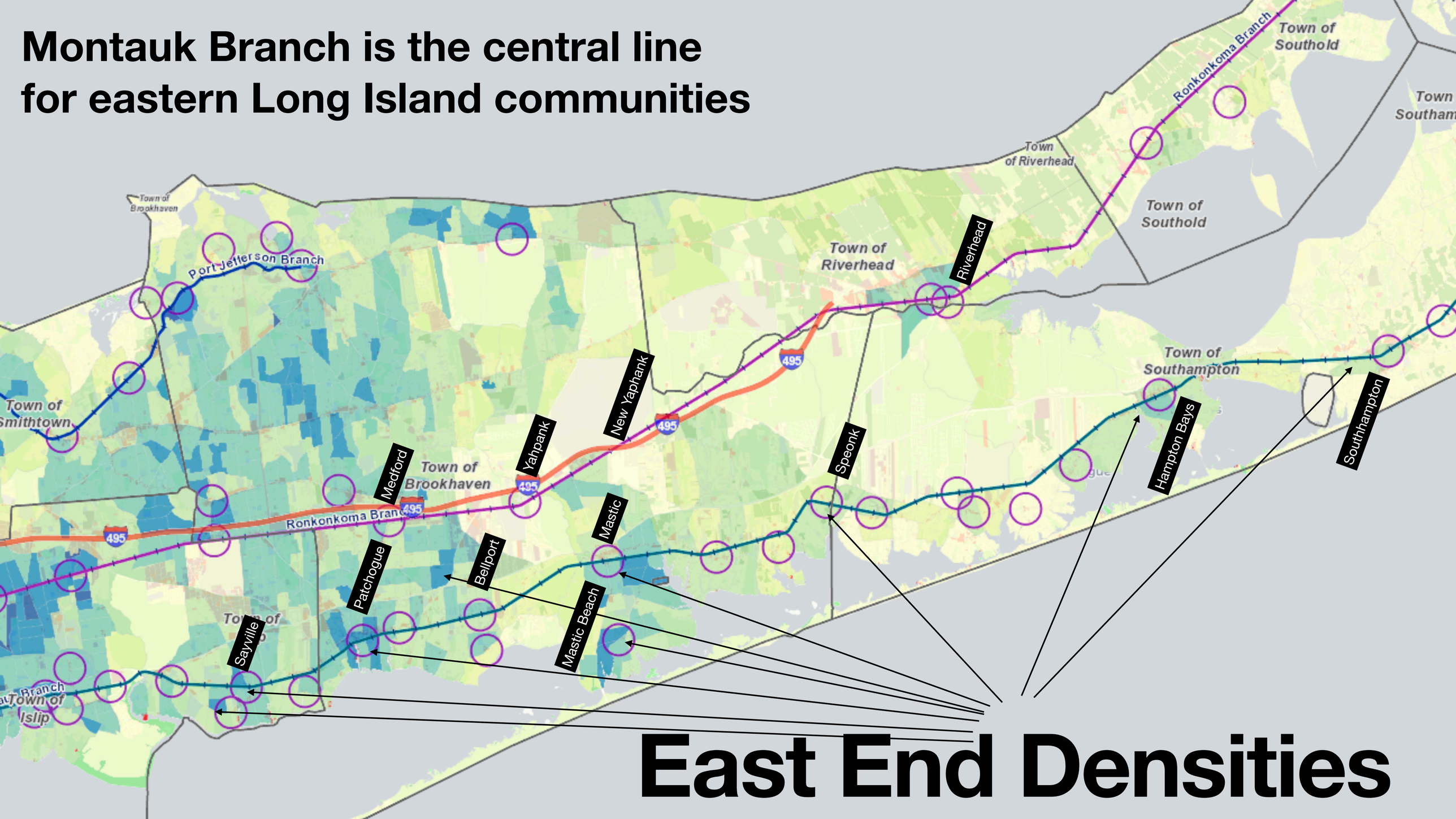
Oyster Bay sees biggest ridership increases

Close station spacings mean electrification delivers major benefit

- Trip times **decrease by 25%** from the end-of line;
- Direct service to Manhattan **would take 58 minutes**
  - That's **20 minutes faster** than the current 78 minutes
- Substantial **density along route**, particularly at the Glen stations
- Would **relieve parking crunch** at Inner Main Line stations, like Mineola;
- Estimated cost: $1.2 billion
  - Local share: ~$600 million

South Shore vs. Main Line

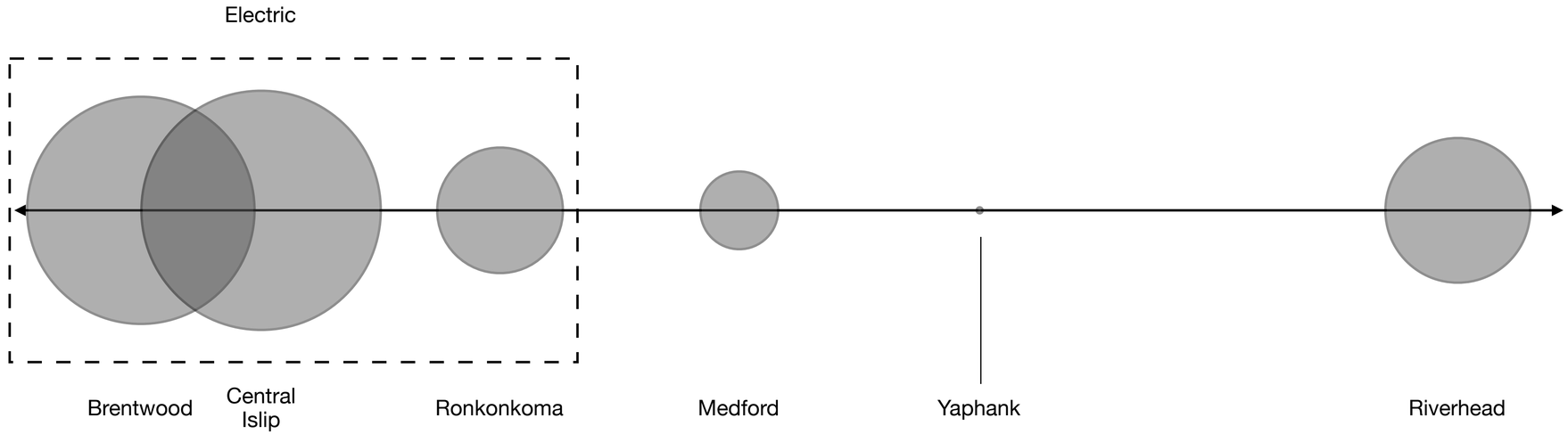
Montauk Branch is the central line for eastern Long Island communities



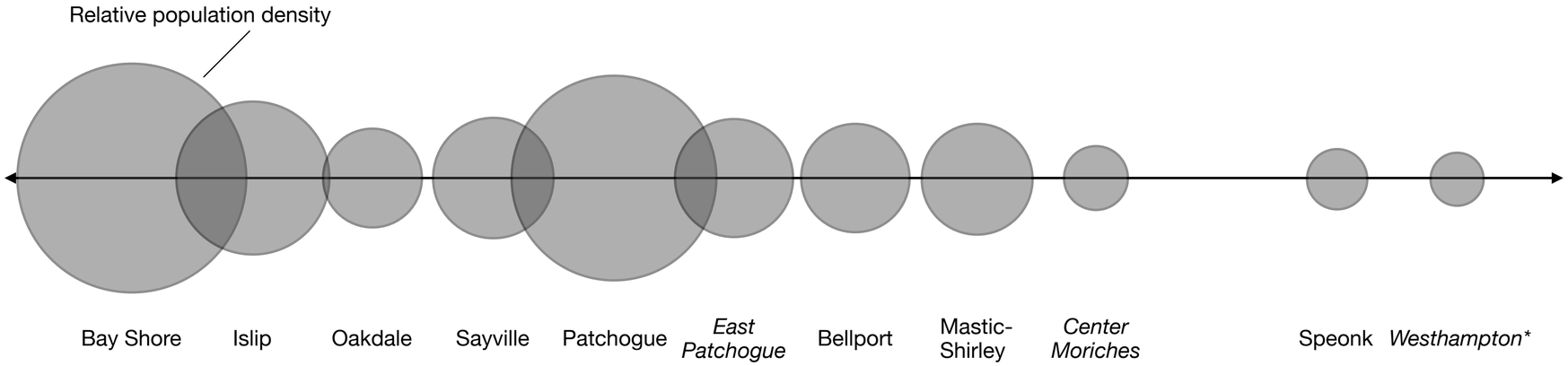
East End Densities

Montauk upgrades directly benefit population

Likely far more potential demand where there are existing communities



Main Line: Very little population beyond Medford until Riverhead. Ridership would come from park-and-rides



Montauk: A large number of towns with relative density spread across the line. Conducive to generating ridership.

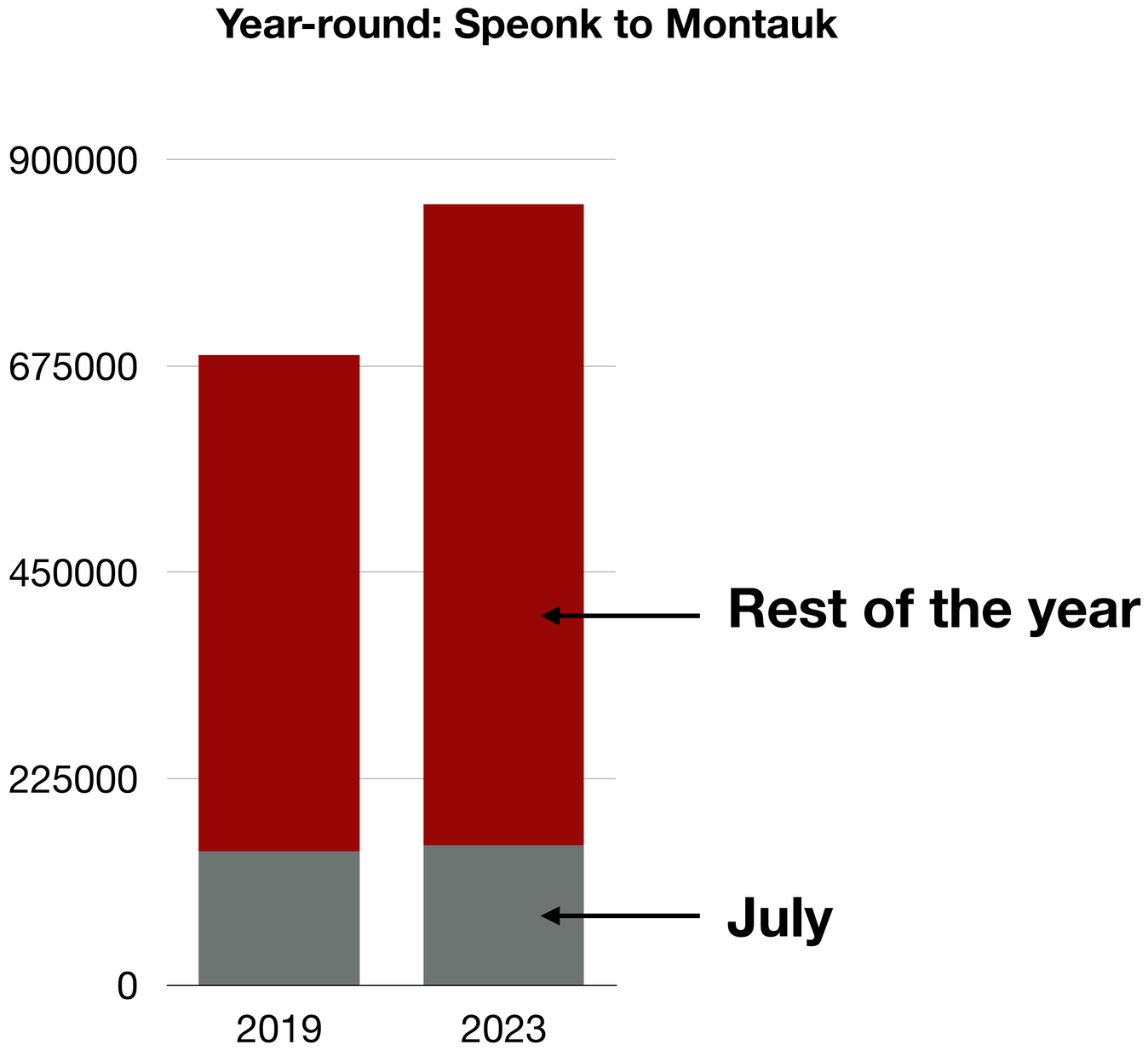
Upgraded line attacks capacity crunch head-on

An overcrowded diesel (in 2015)

…and in 2019

…and in 2024

- Estimate: **20,000 seats peak-direction needed** for Inner/Outer Montauk during summer
- LIRR capable of **only delivering 16,000 seats, just ~8,000 to Montauk**
- Evidence of demand/shortage: Packed **jitneys**; horrific **traffic**; $100+ Uber fares



East End summertime struggle now year-round

- Year-round demand up 24% post-COVID due to work-from-home shift
- Growth comes as summer ticket sales remain flat
  - Likely constrained by capacity crunch
- Year-round traffic on East End growing worse

Boosted line helps housing, congestion crises

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TOP STORIES

COMMUTE, COSTS ARE DRIVING AWAY EAST END TEACHERS

Area includes 7 LI districts with greatest turnover

BY JOIE TYRRELL AND MICHAEL R. EBERT
joie.tyrrell@newsday.com
michael.ebert@newsday.com

WHAT TO KNOW

- **A Newsday analysis of teacher turnover** across Long Island found seven of the top 10 districts with the highest turnover rate for teachers in 2022 were located on the East End.
- **A long commute and increasing cost of living** in eastern Suffolk County, including the Hamptons and Montauk, have contributed to the issue, educators said.
- **Housing prices have hit records on Long Island's** East End, far outpacing the $600,000 median price of a home in Suffolk County.

ONLY IN NEWSDAY

Turnover among teachers remains a challenge for school districts on Long Island's East End, where skyrocketing home prices and a lengthy commute has some district officials concerned about the future.

A Newsday analysis of teacher turnover data of Long Island's 124 public school districts, pulled from a state Education Department database, found that seven of the 10 districts with the highest percentage of teacher turnover were on the East End. Those districts were: New Suffolk, Amagansett, Montauk, Springs, Tuckahoe, Bridgehampton and Greenport.

The data covered the 2021-22 school year with the small North Fork district of New Suffolk, which enrolls roughly 10 pre-K to sixth grade students, at the top of the list at 29%. The other top 10 districts had rates ranging from 17% to 25%.

"I do worry about young people starting their [education] careers and wanting to carve out a living," Montauk Superintendent Joshua Odom said, referring to the high cost of living on Long Island.

East End housing prices have soared since the COVID-19 pandemic hit in 2020, mainly because of a tight market and New York City residents moving there. East End prices have far outpaced the $600,000 median price of a home in Suffolk County. In the Hamptons, homes have reached a median price of $1.4 million and hit nearly $1 million on the North Fork for the first quarter of 2023.

In 2019, the median sale on the North Fork went for $629,000, Newsday reported.

"The further east you get — the cost of housing goes up and it becomes less and less likely for teachers to live in or near their districts," said David Wicks, superintendent of Eastern Suffolk BOCES.

Elementary teachers on Long Island earn a median wage of $106,232, according to 2023 figures from the State Department of Labor. Those who work in secondary education earn about $131,024.

Odom said the housing situation presents a "very difficult dynamic."

"Housing prices have skyrocketed right now and with current mortgage rates — it's a high bar to hurdle to purchase a home for a new teacher," he said.

Odom, who has worked as an administrator in Springs and Montauk, said educators often cite the commute in exit interviews as the main reason for leaving. East End school officials have said some teachers work there to gain experience and then move to a district closer to their homes.

Getting to work, especially on the South Fork, presents challenges.

A trip from Hampton Bays to Southampton — a distance of about six miles — can sometimes take more than an hour in the morning traffic, said Lars Clemensen, superintendent in Hampton Bays. Traffic along the mostly two-lane Montauk Highway that runs along the South Fork appears to have gotten worse over the years, com-

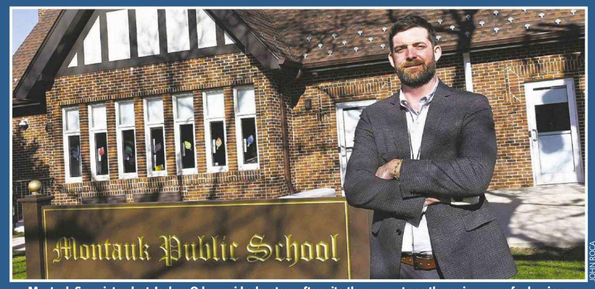
> **The further east you get — the cost of housing goes up and it becomes less and less likely for teachers to live in or near their districts.'**
>
> — David Wicks, superintendent of Eastern Suffolk BOCES

ONLY IN NEWSDAY

CAN'T AFFORD TO TEACH ON EAST END

Data shows turnover highest in those districts amid soaring housing costs, long commutes

A2-3 | UPDATES AT NEWSDAY.COM



JOHN ROCA

Montauk Superintendent Joshua Odom said educators often cite the commute as the main reason for leaving.

DONATE ITEMS FOR KIDS EXPLORE LI

TOP STORIES

STILL PAYING TOP DOLLAR

Buyer interest high, but housing stock remains low

BY JONATHAN LAMANTIA
jonathan.lamantia@newsday.com

Long Island home prices hovered near records in the fourth quarter of 2023 as the highest mortgage rates in more than 20 years did little to dissuade homebuyers.

The median sale on Long Island, excluding the East End, went for $635,000 in the October-to-December period, which was up 7.6% compared with the same period in 2022, according to new data from real estate brokerage Douglas Elliman and Manhattan appraisal firm Miller Samuel.

The record for the region was $640,000 during the third quarter of last year.

The Hamptons shattered its previous price record, with the median sale at $1.85 million — a 45% increase compared with the fourth quarter of 2022 — because deals worth more than $5 million made up a greater share of sales than usual.

The median price on the North Fork fell 2.1% from the fourth quarter of 2022 to $974,250.

Despite the record prices, Long Island's housing market has been in a rut with an unusually low number of houses changing hands. The number of sales on Long Island, excluding the East End, fell 13.5% in the fourth quarter compared with the same period in 2022 to about 5,500.

That has been driven by an imbalance between demand and the supply of sellers putting their homes on the market. About 53% of all sales in the fourth quarter sold for above asking price, a sign that there were multiple bidders making offers, said Jonathan Miller, CEO of Miller Samuel.

"When a little more than 1 in every 2 sales results in a bidding war, it's not normal," Miller said. "This is a distortion that's driving prices higher, and the lack of inventory is the most important housing metric of the day."

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A Dumpling Feast

Hicksville eatery's showstoppers for Lunar New Year

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LI HOUSING MARKET

'IT'S NOT NORMAL'

Bidding wars continue despite high rates, prices because so few homes are available, data shows

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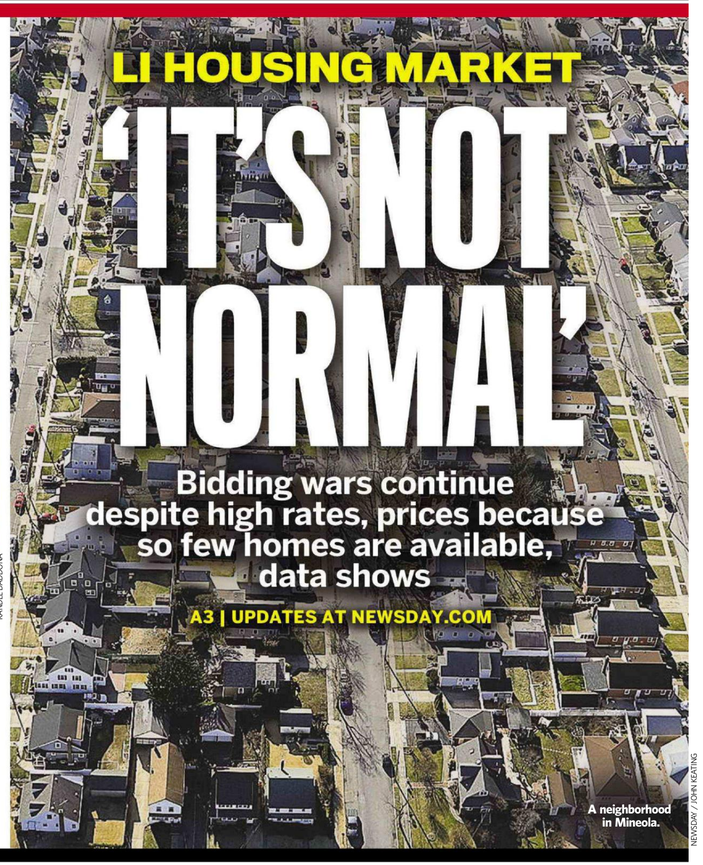


A neighborhood in Mineola.

NEWSDAY / JOHN KEATING

DEVELOPER AGREES TO BUY OUT PARTNER IN SUNRISE WIND

Value of Yaphank extension appears limited

Ridership models, population data indicate little local demand

- **Exact details of new proposal have not been released:**
  - Analysis of past MTA/LIRR projects puts price tag **at $1.6 billion-$2 billion**
  - Assumes third-rail electrification and double-tracking to the new Yaphank station
- **1994: Three reasons for project**
  - Provide service for Manhattan commuters in fast-growing eastern Suffolk County
  - Relieve parking strain at Ronkonkoma
  - Park-and-rides provide allay need to electrify South Shore/East End
- **2025: Development, park-and-ride rationales cited again internally**

Review: MTA docs cast doubt on Park & Ride

Yaphank P&R pitched as solution to East End traffic in ‘94 report

Park & Rides for East End (pg. 5-11):

To fully take advantage of increased LIRR capacity and opportunities for one-seat rides to Grand Central, the long range strategy for the LIRR includes the recommendation for extension of electrification from Huntington to Port Jefferson and on the Main Line to Yaphank. Major park-and-ride facilities on the Main Line stations between Ronkonkoma and Yaphank would be able to serve effectively many of the customers along the eastern portion of the Montauk Branch, making further electrification of the Montauk Branch unnecessary.

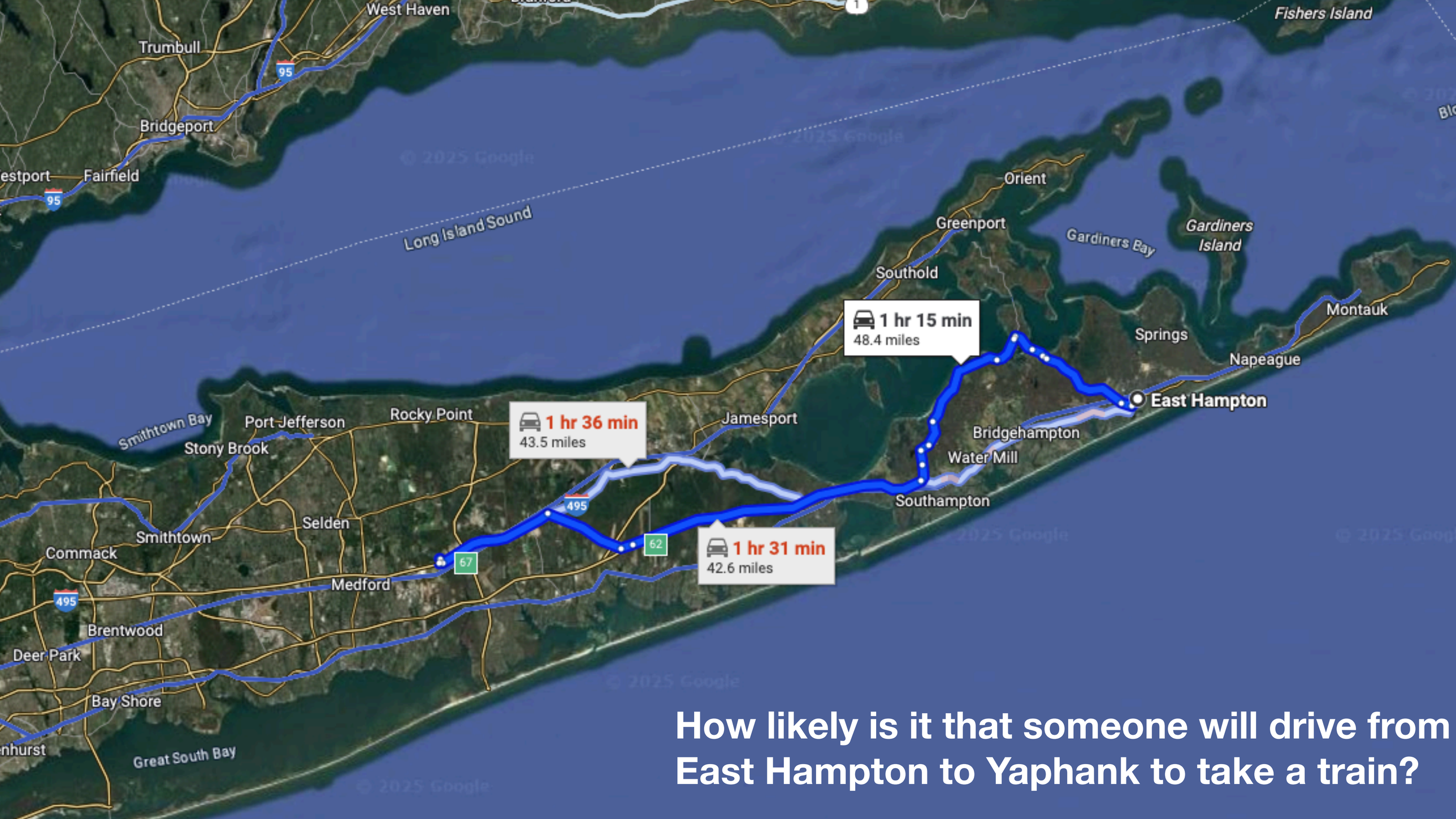
Supporting table casts down on proposal:

MTK	44	47	42	48
PAT	2,980	3,059	2,704	3,081
SPK	330	366	313	369

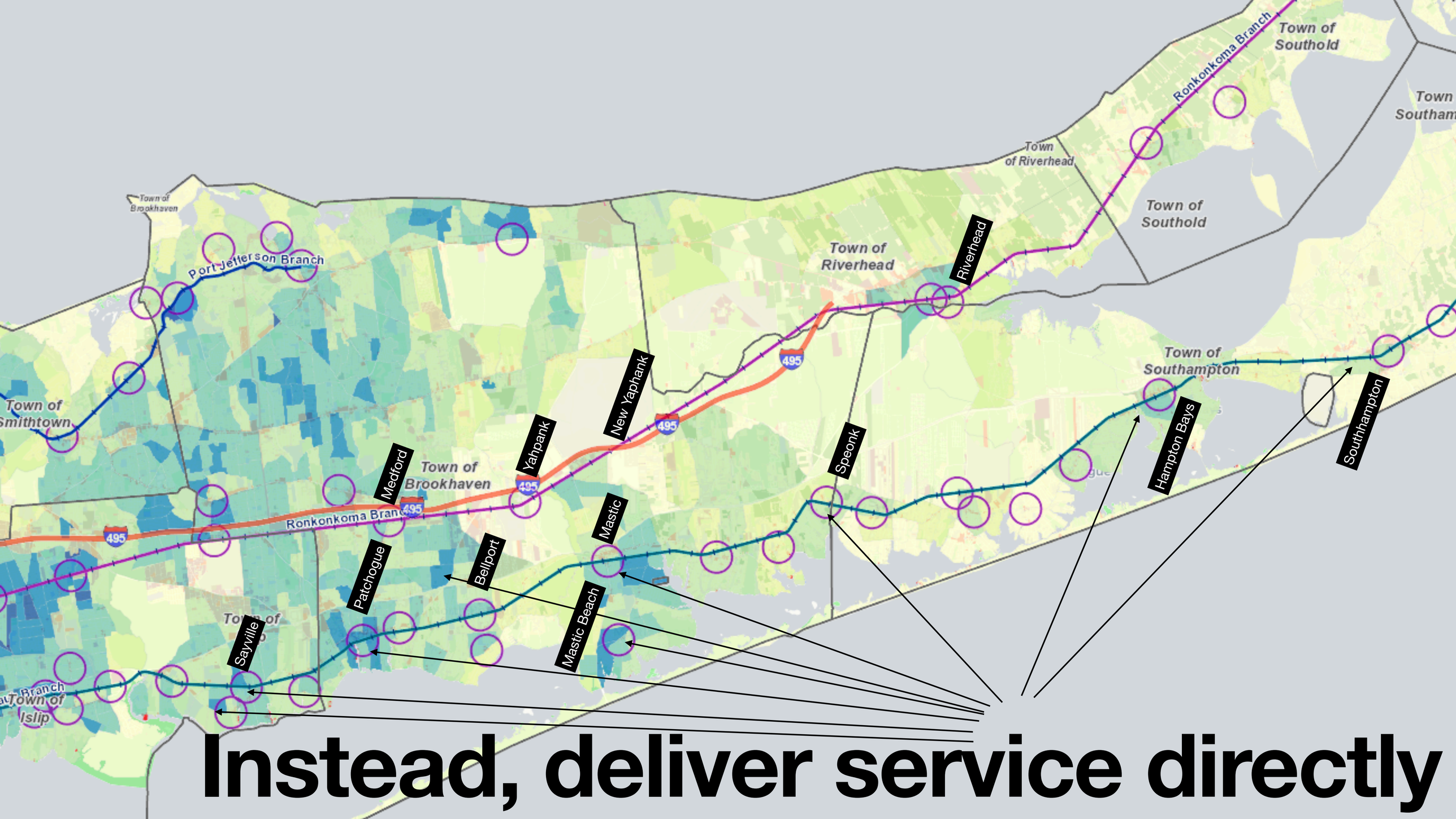
GPT	80	100	85	158
REP	921	956	876	1,097
RONK	7,645	8,142	7,400	8,449
YAP	1,209	*1,450*	1,218	*1,453*

A supporting table quietly included in the 1994 LIRR strategy review shows **limited appeal of Main Line park-and-rides**.

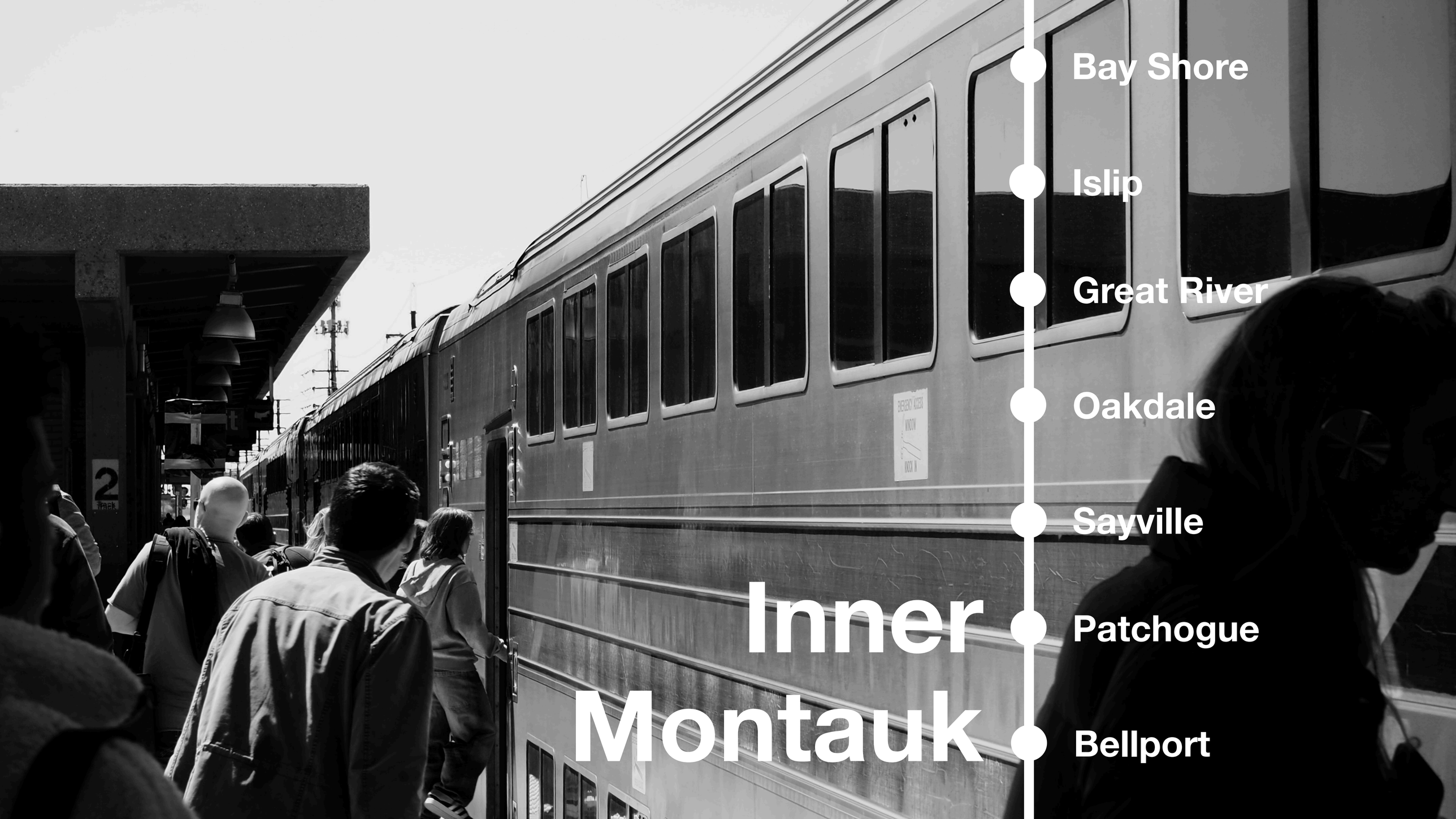
It shows **Patchogue** (slow diesel) was projected to still get 2-3x as many riders as **Yaphank** (fast electric).



How likely is it that someone will drive from East Hampton to Yaphank to take a train?



Instead, deliver service directly



Inner Montauk

- Bay Shore
- Islip
- Great River
- Oakdale
- Sayville
- Patchogue
- Bellport

What can ~$2B buy: South Shore v. Yaphank

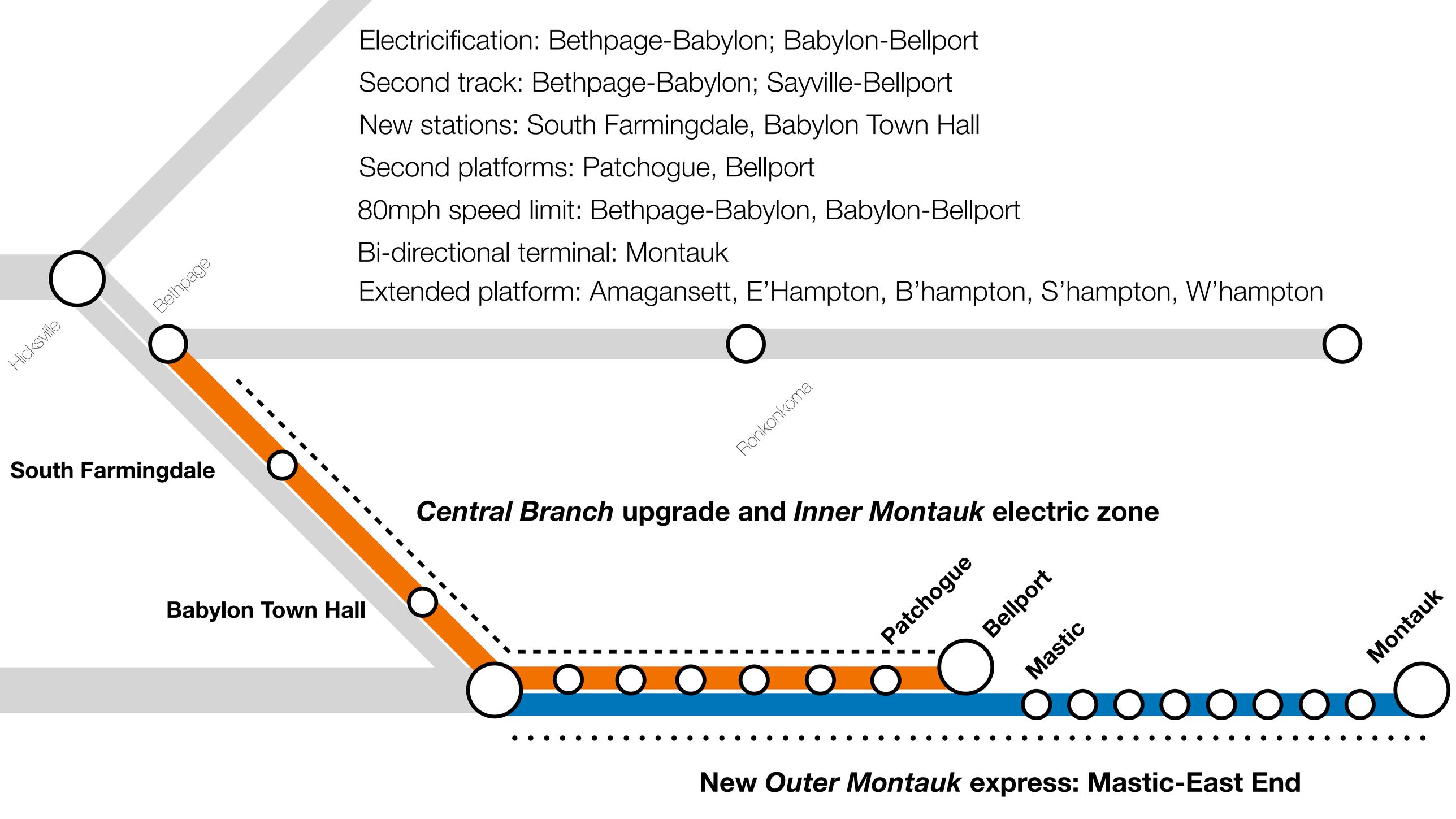
Trimming Momentum's unconstrained South Shore modernization

- Extension of electrification from Babylon-Bellport, creating new inner service zone:
  - NYC-Patchogue is **71-74 minutes**, 16m quicker
- Ridership up by **159,000 annually** between Bay Shore and Bellport
- Major components would include:
  - New catenary electric system from Babylon to Bellport;
  - Second track extension to Bellport; bidirectional platforms at Patchogue, Bellport
  - Transformation of Central Branch into electric link between South Shore/Third Track
    - Electrification, second track Bethpage-Bablyon

What can ~$2B buy: South Shore v. Yaphank

Downsized program cuts cost to $2.4B from $3.8-$4.1B

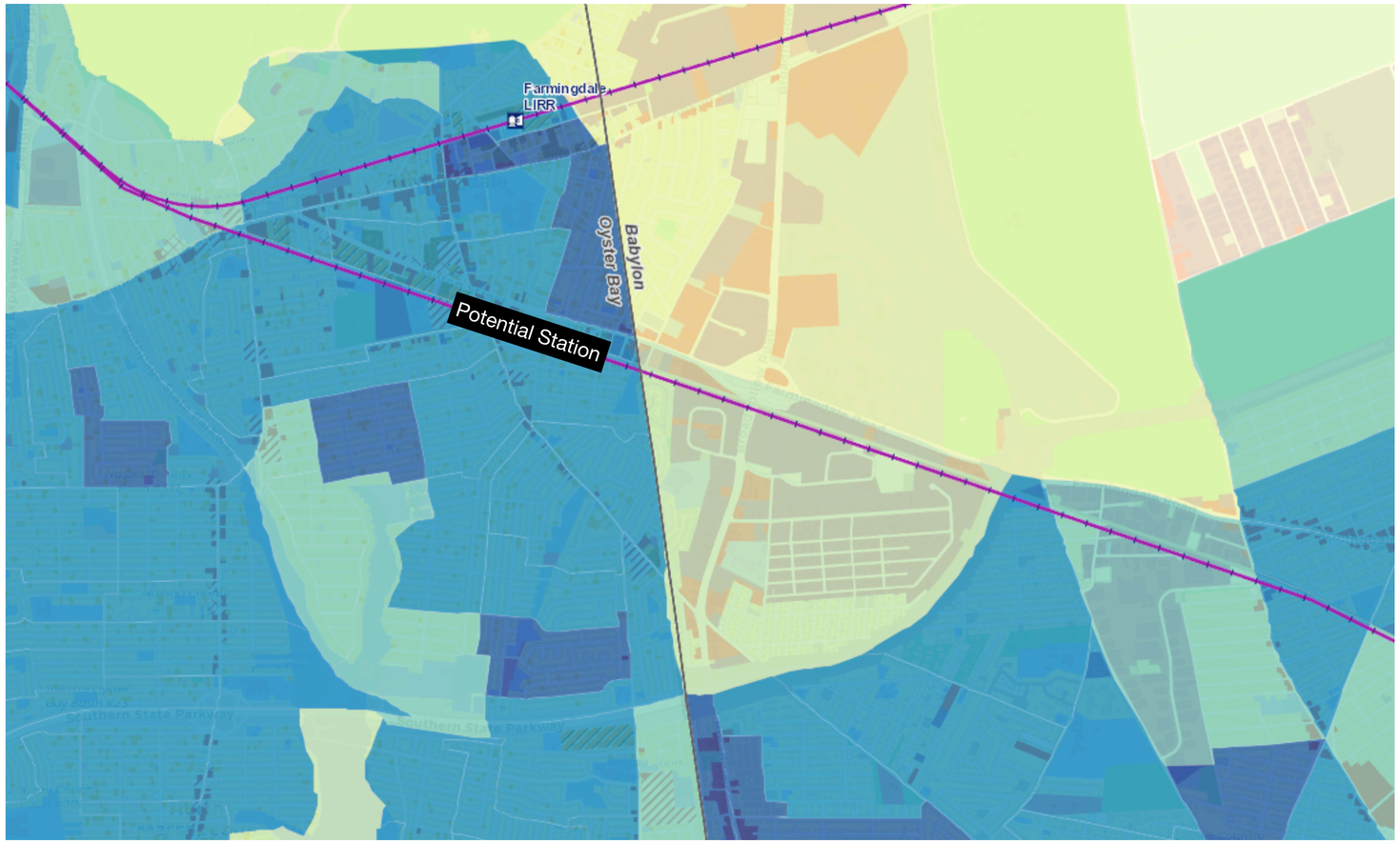
- Other components include:
  - Separates half the grade crossings along the route
  - New electric yard near Bellport station
  - New goal of 80mph speed limit from Bethpage-Babylon; Babylon-Bellport
- Inner Montauk program benefits Outer Montauk (Mastic to Montauk) segment:
  - Creates new dedicated express outer zone for diesel territories, reducing crowding
  - New express zone cuts ~15-20 minutes off trip times for local trains
  - Improvements at Montauk terminal, East End station platforms to prevent delays


Electricification: Bethpage-Babylon; Babylon-Bellport
Second track: Bethpage-Babylon; Sayville-Bellport
New stations: South Farmingdale, Babylon Town Hall
Second platforms: Patchogue, Bellport
80mph speed limit: Bethpage-Babylon, Babylon-Bellport
Bi-directional terminal: Montauk
Extended platform: Amagansett, E'Hampton, B'hampton, S'hampton, W'hampton
Hicksville
Bethpage
Ronkonkoma
South Farmingdale
Babylon Town Hall
Central Branch upgrade and Inner Montauk electric zone
Patchogue
Bellport
Mastic
Montauk
New Outer Montauk express: Mastic-East End

Central Branch: Opportunity for rethink, reuse

Denser neighborhoods line right-of-way but receive little benefit

Proposed South Farmingdale



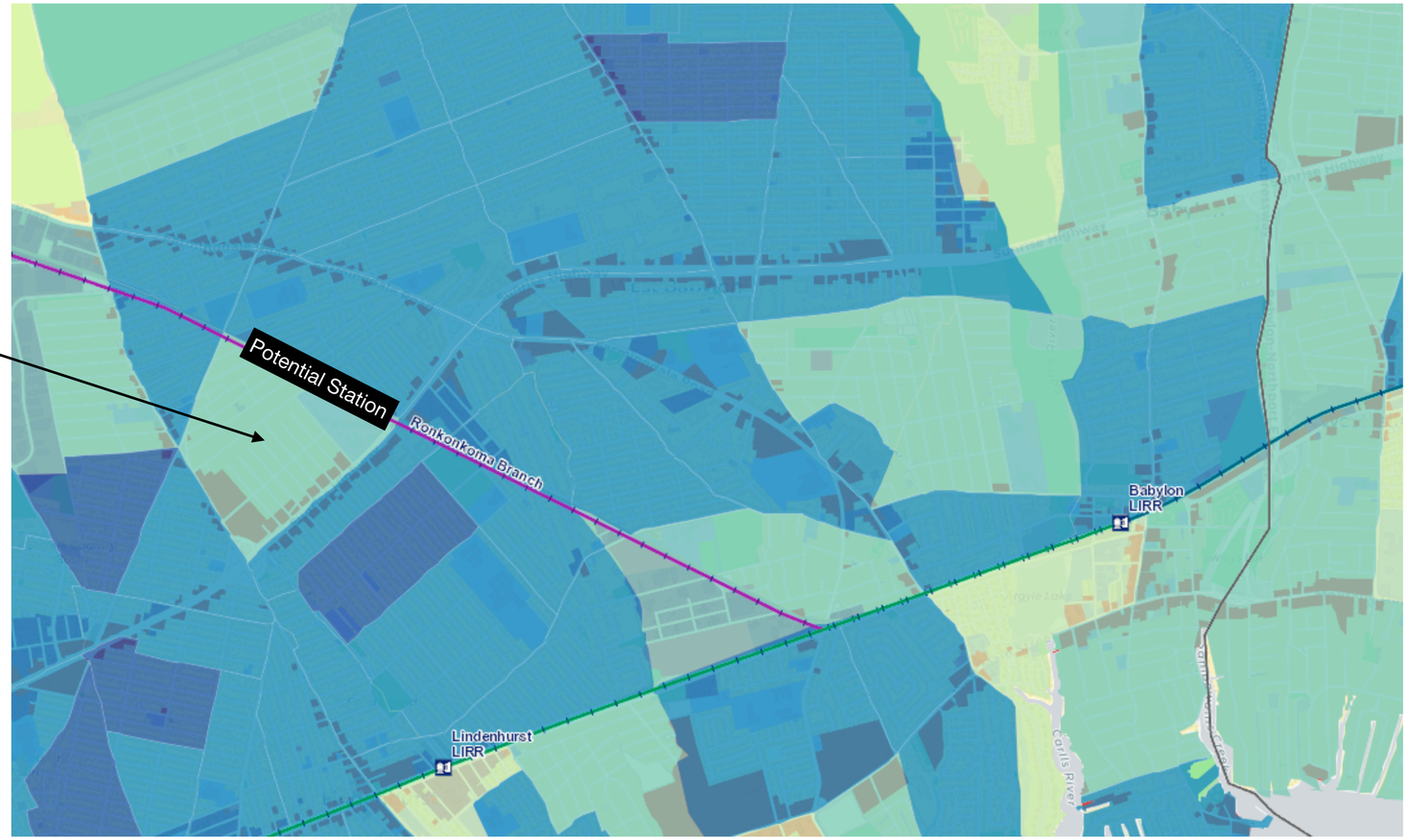
The darker the blue, the denser the population

- Dense pockets of population south/west of Republic Airport
  - Puts LIRR in walking distance these neighborhoods
- Allows for first Mid-Island service between the South Shore and Main Line
- Relieves strain at Farmingdale

Central Branch: Opportunity for rethink, reuse

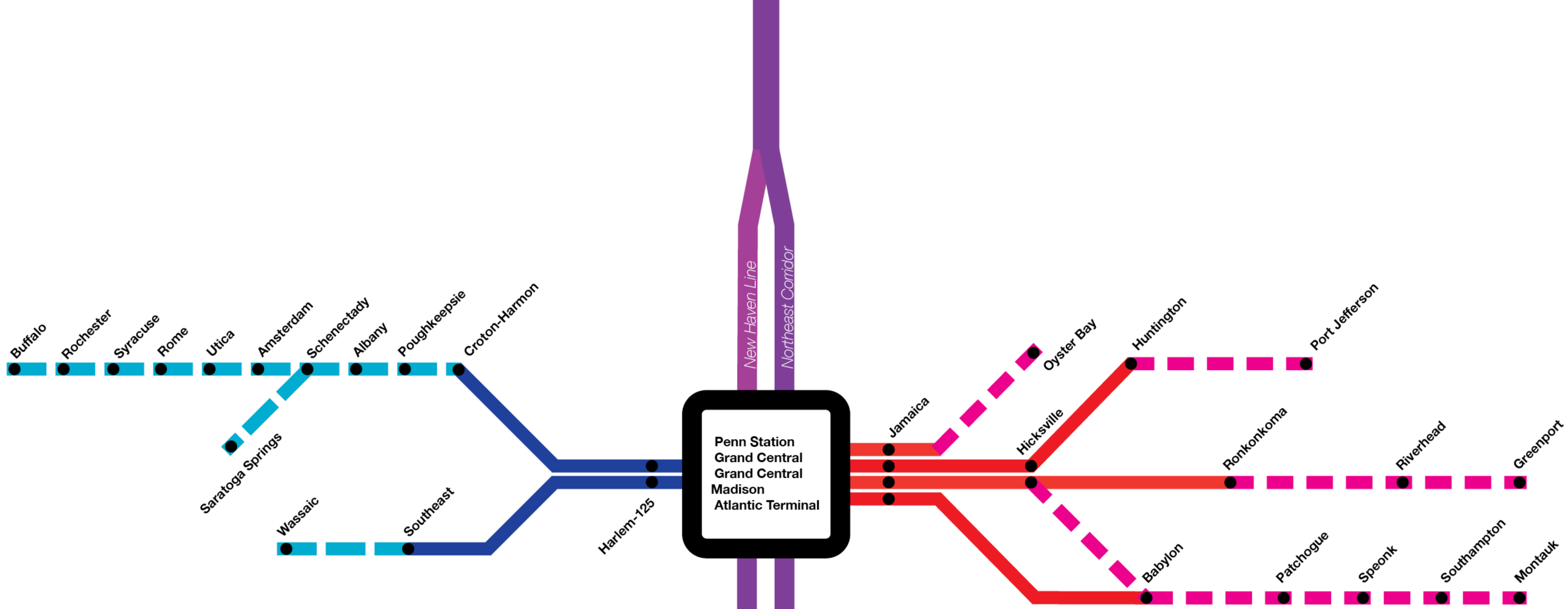
A second stop, potential relief for Babylon/Lindenhurst stations

Proposed Upper Babylon/Babylon Town Hall



The darker the blue, the denser the population

- Allows for first Mid-Island stops between the South Shore and Main Line
- Provide easy rail access to Babylon Town Hall
- Puts LIRR in walking distance for dense neighborhoods
- Alternative to Babylon and Lindenhurst stations



Transformed economics deliver:

Electric ‘Empire’