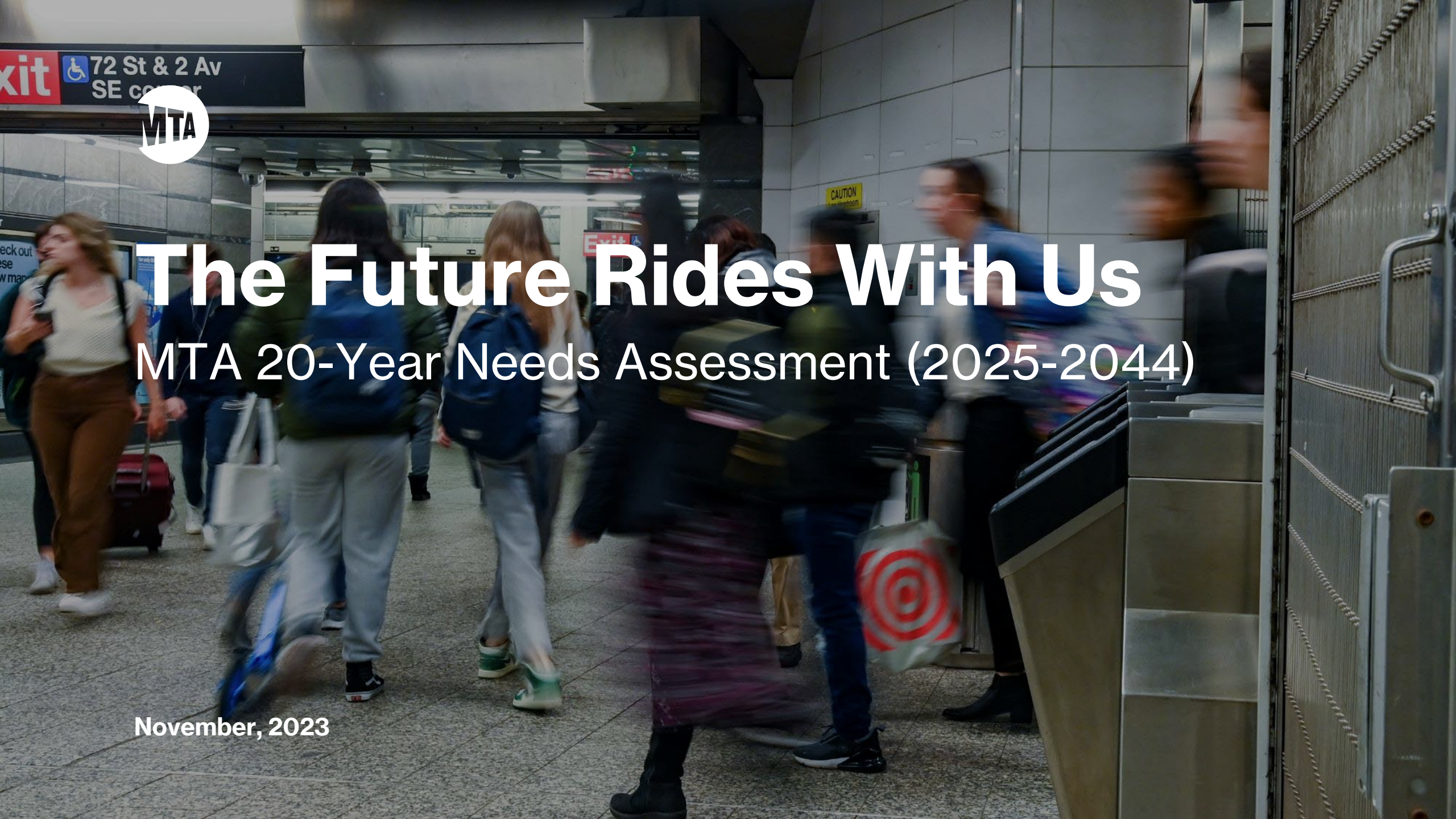




Exit 72 St & 2 Av SE corner



The Future Rides With Us

MTA 20-Year Needs Assessment (2025-2044)

November, 2023

What is the 20-Year Needs Assessment?



A broad,
comprehensive blueprint that
outlines the MTA's capital
needs for the next generation

We face existential threats

Aging Infrastructure



Changing Climate



Evolving Rider Needs



Three sets of priorities

1 **Rebuild**
the foundations
of the system to
ensure its survival.



2 **Improve**
our network
to meet 21st century
needs.



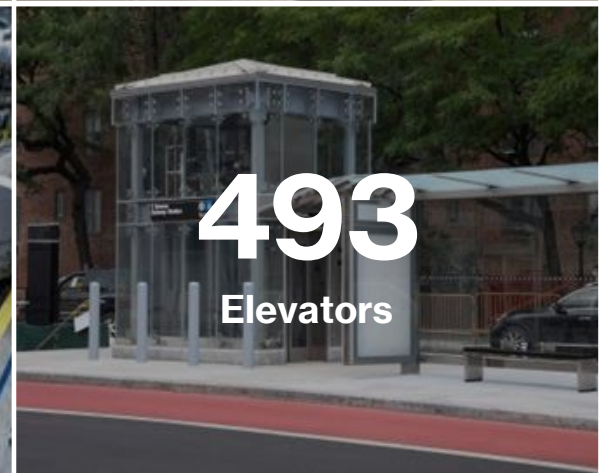
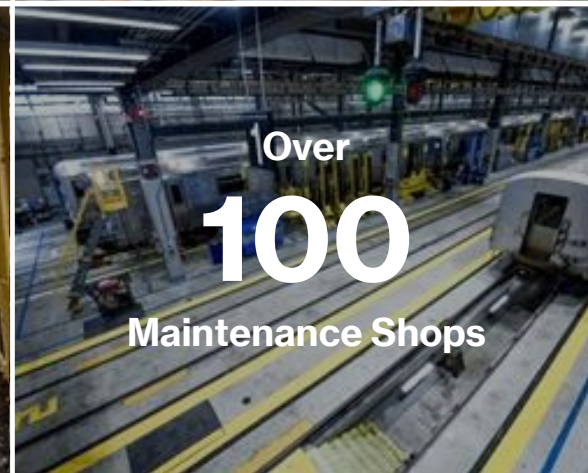
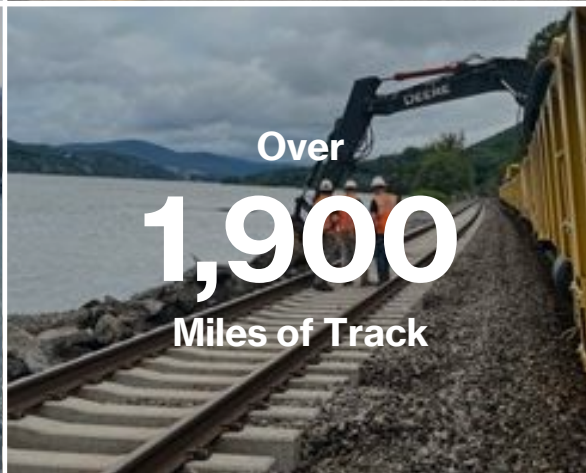
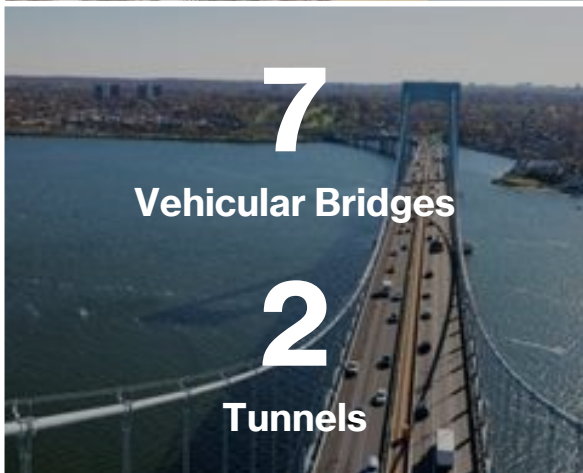
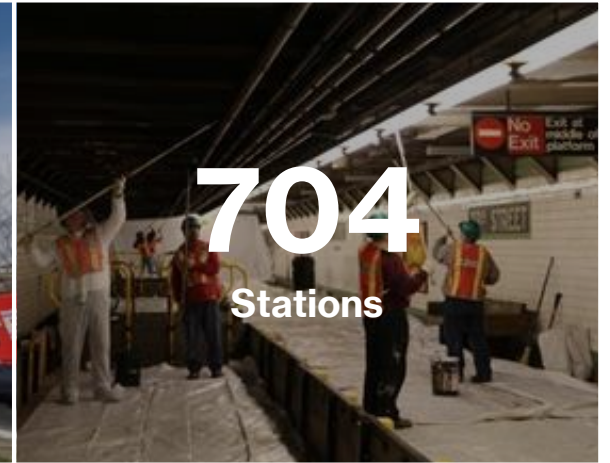
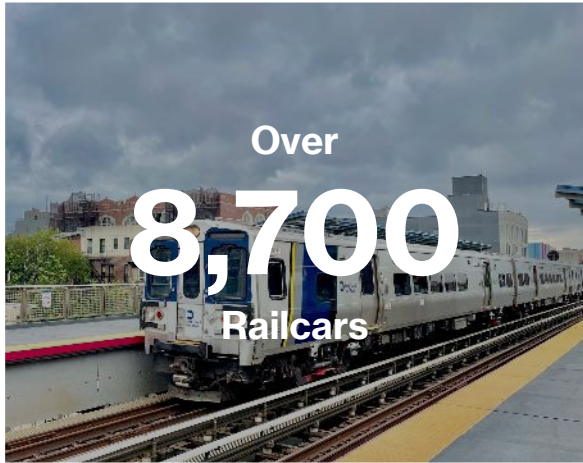
3 **Expand**
to support future
growth.



Rebuild 01



Nearly 6 million assets



Examined the condition of all assets

-  **1** **Poor (Deteriorated):** Critically damaged or in need of immediate repair, well past useful life.
-  **2** **Marginal (Deficient):** Deteriorated, in need of replacement, and may have exceeded useful life.
-  **3** **Adequate (Acceptable):** Moderately deteriorated, but has not exceeded its useful life.
-  **4** **Good:** No longer new, but in good condition and still within its useful life.
-  **5** **Excellent (Modernized):** No visible defects, new or near new condition and may still be under warranty (if applicable).

Inventory and status		
Asset	Total	Percent in Poor/Marginal Condition
Undergrade Bridge	181	46%
Undergrade Culvert	189	65%
Overhead Bridge	313	23%
Retaining Wall	707	27%
Tunnels	9	11%

Sample Condition Table



Station Platforms



 **1/2**

Poor or Marginal



 **3**

Adequate



 **4/5**

Good or Excellent



New York City
Transit

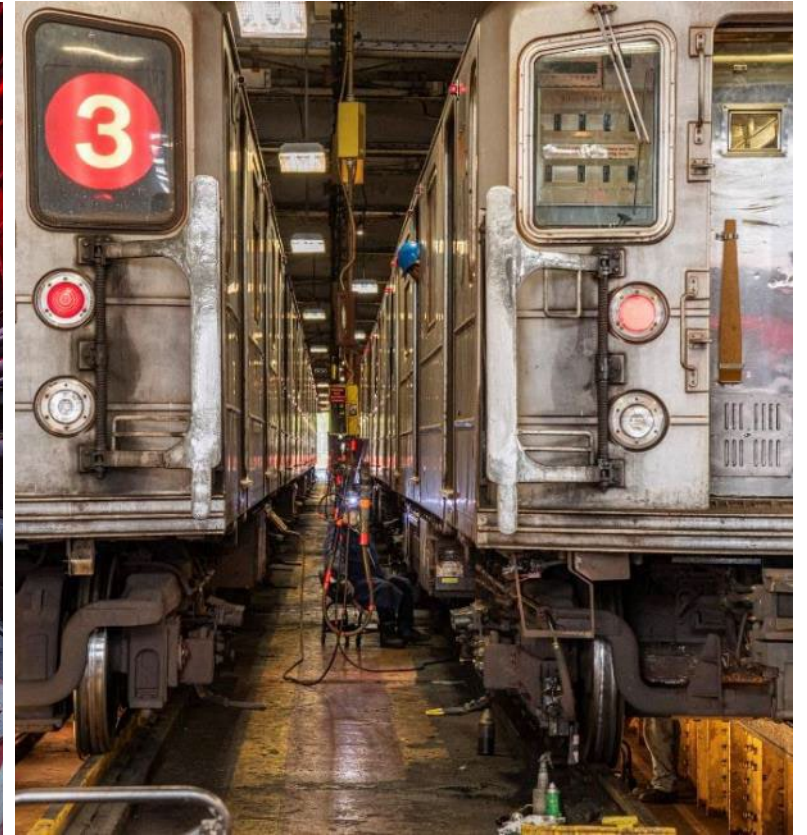
Power



Signals



Shops and Yards



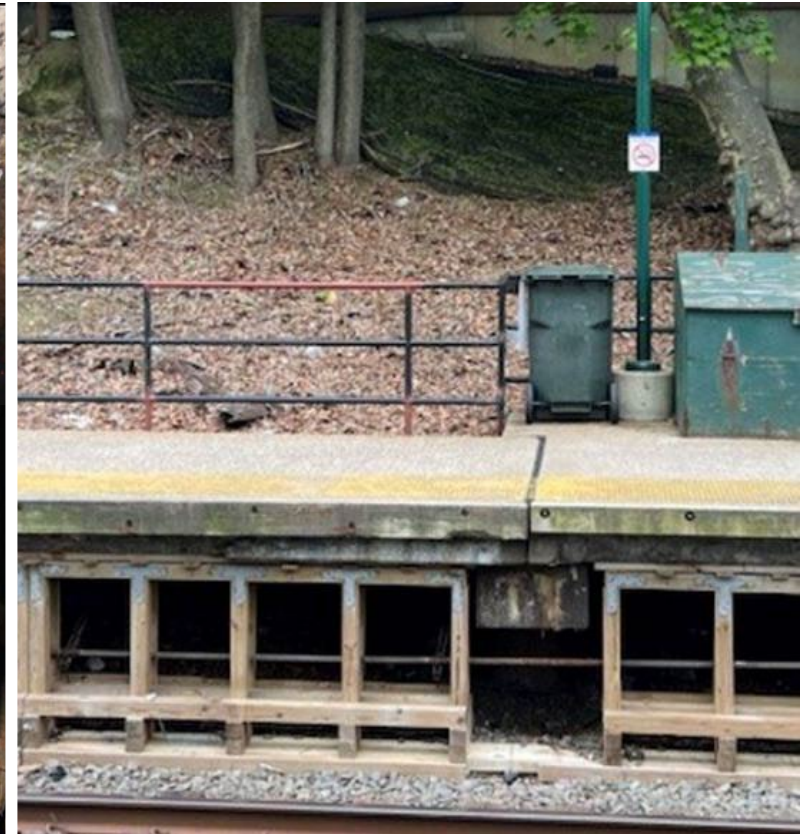


**Metro-North
Railroad**

Grand Central Artery



Stations



Structures



Signals





**New York City
Transit**



**Metro-North
Railroad**



**Long Island
Rail Road**

Fleet Renewal



NYCT R68

Avg. age: 36 years old



Metro-North M3

Avg. age: 39 years old



LIRR Diesel Locomotives

Avg. age: 25 years old

Deck Replacement & Cable Preservation



Improve 02



Accessibility by 2045

90% of riders served on Subways



95% of full-time stations on Railroads



MTA transit is a climate solution

Growing ridership



Reducing MTA emissions 85%

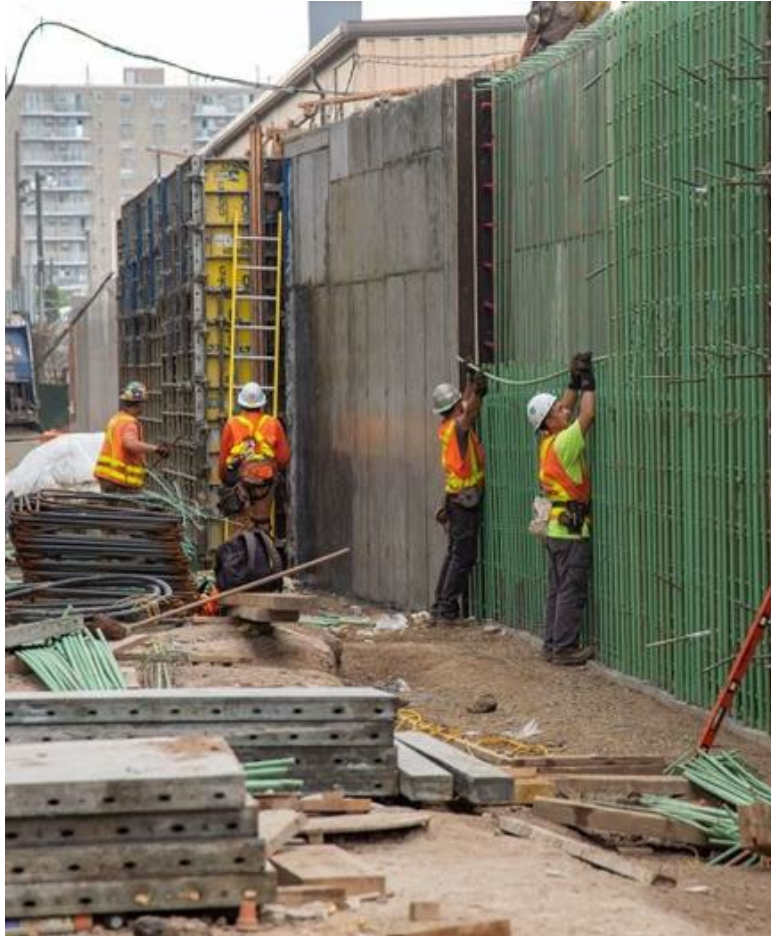


Climate resilience protects our future

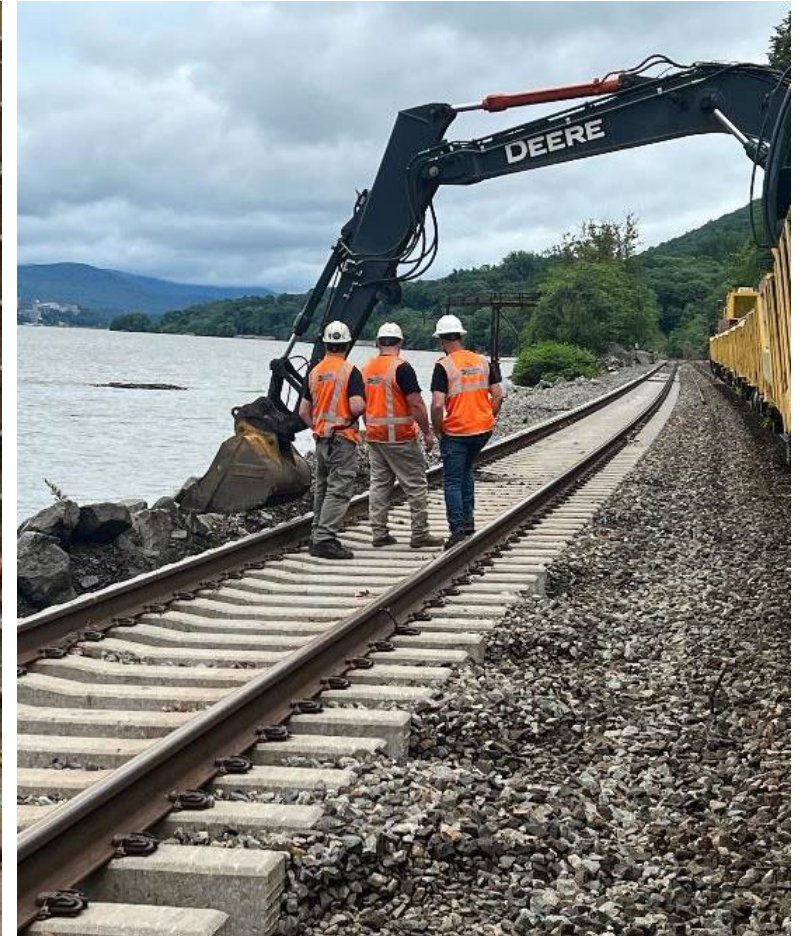
Flash Flooding



Coastal Storms



Sea Level Rise



We will continue to innovate

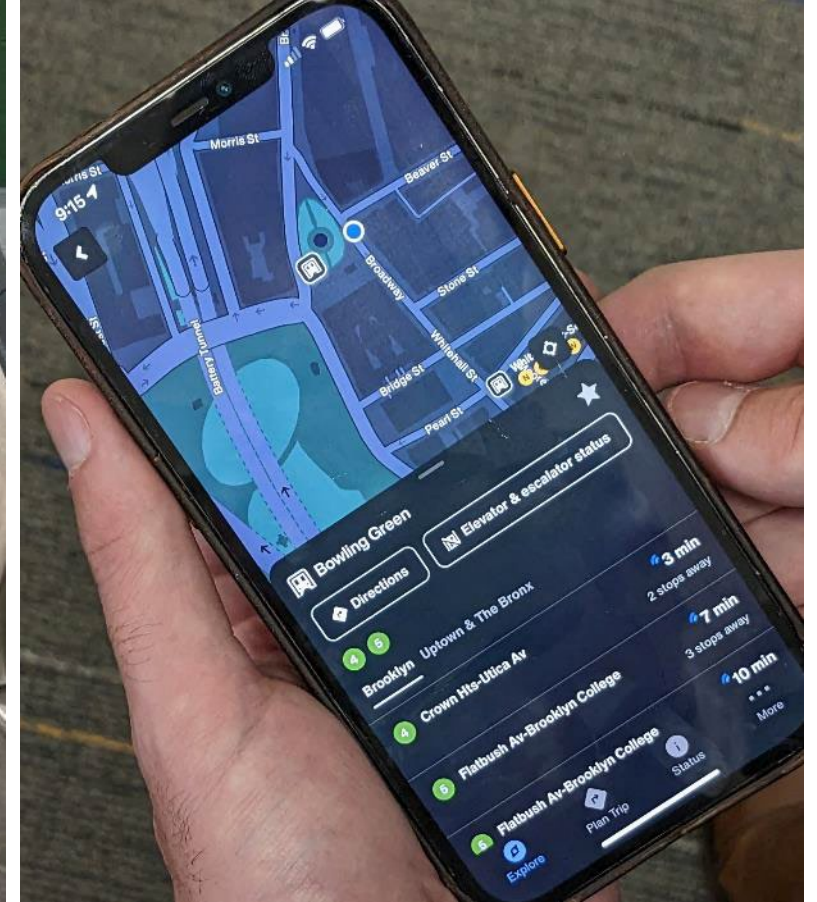
Fare Payment



Fare Gates



Apps



Expand 03



The transit network was designed for traditional commutes

but rider needs are changing.

- Emergence of business districts around the region, resulting in more inter & intra borough travel as well as reverse commuting.
- Continued growth of industries associated with “non-traditional” travel patterns.
- Increase in discretionary travel, predominantly in the off-peak.



Many potential investments

- Danbury-Southeast Connection
- Elmhurst Station (LIRR)
- Harlem Line Capacity Improvements
- Hudson Line to Penn Station
- Inner New Haven Line Yard
- Interborough Express (IBX)
- Lower Montauk Branch Reactivation
- New Lots Ave No 3 Line to Flatlands
- Port Jefferson Branch Capacity Improvements
- Port Jervis Line Capacity Improvements
- Ridgewood Busway
- Rockaway Beach Branch
- Second Avenue Subway South to Houston
- Second Avenue Subway West to 125th & Bwy
- Speonk-Montauk Capacity Improvements
- Staten Island North Shore Bus Rapid Transit (BRT)
- Staten Island West Shore Bus Rapid Transit (BRT)
- Stewart Airport Commuter Rail
- Sunnyside Station
- Tenth Ave Station on the No 7 Line
- Utica Ave Transit Improvements
- W Line to Red Hook

These projects have not been selected or funded but will be comparatively evaluated for consideration on a level-playing field for future Capital Programs.

More information at: future.mta.info

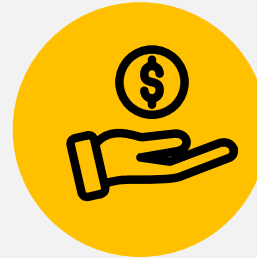
We performed a 'Comparative Evaluation' to evaluate expansion and enhancement projects

- **Comparative evaluation objectively evaluates projects by comparing their relative benefits and costs.**
 - Indicates how well a project meets the needs of the service area.
 - Shows the value a project brings to customers and the region.
 - Uses metrics using standard regional travel models and costs.
- **Selected metrics align with industry best practices.**

Evaluation Criteria



Ridership



Cost



Travel Time



Capacity



Geographic Distribution



Equity



Resiliency & Sustainability



Network Leverage

We performed a 'Comparative Evaluation' to evaluate expansion and enhancement projects

The RTFM underpins many of these metrics

The MTA uses a Regional Transit Forecasting Model (RTFM) to predict future travel patterns in the New York area by considering factors like population growth and emerging job trends. It runs simulations of future trips to help anticipate where people will go and how they will get there, helping us to better plan for future transportation needs.

Evaluation Criteria



Ridership



Cost



Travel Time



Capacity



**Geographic
Distribution**



Equity



**Resiliency &
Sustainability**



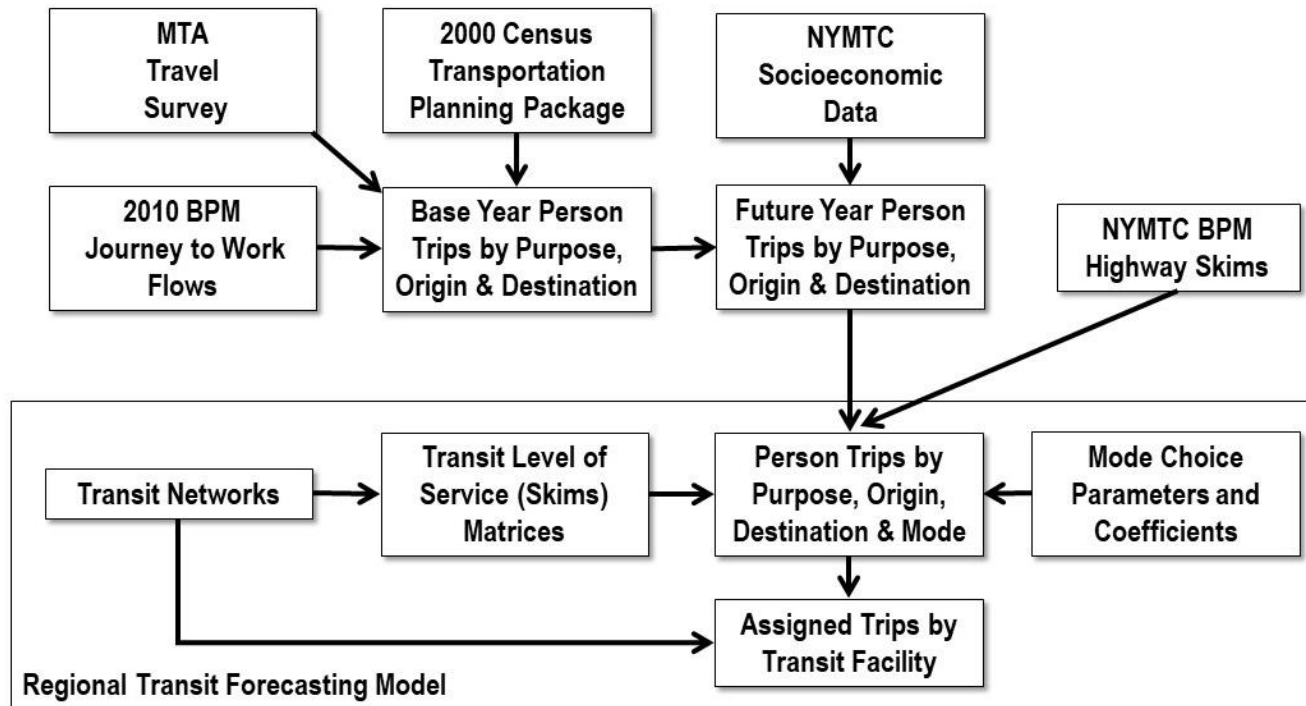
**Network
Leverage**

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E



G
D

We perform a 'Comparative Evaluation' to evaluate expansion and enhancement projects

Daily Ridership on the Project in 2045

- How many people will use the project.
- New riders are those shifting from other modes, usually automobiles.

Evaluation Criteria



Ridership



Cost



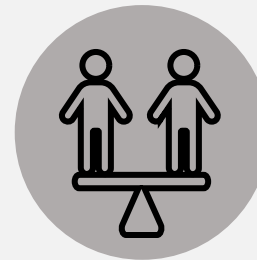
Travel Time



Capacity



Geographic Distribution



Equity



Resiliency & Sustainability



Network Leverage

- Uses metrics using standard regional travel models and costs.

- Selected metrics align with industry best practices.
- Promising projects will be advanced for further study and possible inclusion in next Capital Plan.

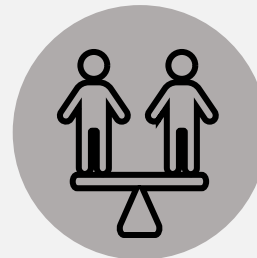
COMPARATIVE EVALUATION

Cost

- Upfront Capital cost as well as ongoing Operation and Maintenance costs were developed using consistent assumptions including common analysis year (2027).
- Capital costs were developed using standard FTA cost categories and consistent assumptions across multiple projects.
- Costs and other metrics such as ridership or time saved have been combined to express cost effectiveness.

advanced for further study and possible inclusion in next Capital Plan.

Comparative Evaluation' to evaluate expansion and

Evaluation Criteria**Ridership****Cost****Travel Time****Capacity****Geographic Distribution****Equity****Resiliency & Sustainability****Network Leverage**

Door to Door Travel Time Savings in 2045

- The amount of time saved by users of the new project - it includes the time for travel to and from the transit stations or stops.
- Travel time savings can be expressed in aggregate for the region or for individuals.

- **Comparative evaluation objectively evaluates projects by comparing their relative benefits and costs.**
 - Indicates how well a project meets the needs of the service area.
 - Shows the value a project brings to customers and the region.
 - Uses metrics using standard regional travel models and costs.
- **Selected metrics align with industry best practices.**
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Evaluation Criteria



Ridership



Cost



Travel Time



Capacity



Geographic Distribution



Equity



Resiliency & Sustainability



Network Leverage

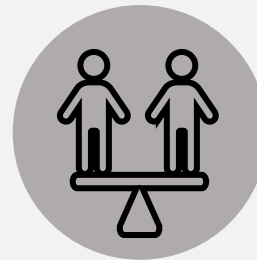
COMPARATIVE EVALUATION

We perform a 'Comparative evaluation' project

- **Comparative evaluation objectively evaluates projects by comparing their relative benefits and costs.**
 - Indicates how well a project meets the needs of the service area.
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Change in Network Capacity in 2045

- Indicates whether a project makes any part of the network more, or less, crowded.
- Measures the number of passenger hours in crowded conditions systemwide.

**Ridership****Cost****Travel Time****Capacity****Geographic Distribution****Equity****Resiliency & Sustainability****Network Leverage**

We perform a 'Comparative Evaluation' to evaluate expansion and

Additional Jobs Accessible in 2045

- The change in number of jobs that can be reached in 45 minutes or less is a measure of how well a project connects people to jobs.
- Projects that connect to locations with many jobs will rank high in this metric

Regional Accessibility in 2045

- Change in transit travel time from anywhere to anywhere in the region.
- Measures how a project connects different areas of the region by transit.

- Promising projects will be advanced for further study and possible inclusion in next Capital Plan.

Evaluation Criteria



Ridership



Cost



Travel Time



Capacity



Geographic Distribution



Equity



Resiliency & Sustainability



Network Leverage

We perform a 'Comparative Evaluation' to evaluate expansion and enhancement projects

Trips from Equity Areas (EAs) in 2045

- The number of project riders who live in Equity Areas indicates how well a project addresses needs of people who live in Equity Areas (EAs).
- EAs are defined as having a high concentration of minority, low income, and transit dependent residents in the MTA service area.
- EAs build upon Title VI indicators to include factors such as auto ownership, language & access to transit, in addition to race and income.

Evaluation Criteria



Ridership



Cost



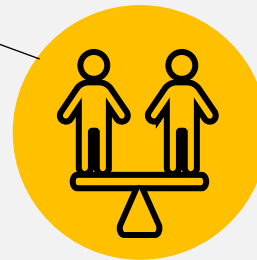
Travel Time



Capacity



**Geographic
Distribution**



Equity



**Resiliency &
Sustainability**



**Network
Leverage**

We perform a 'Comparative Evaluation' to evaluate expansion and

**Connections to Other Rail Within
½ Mile of Stations in NYC or 5
Miles in Suburbs**

- Reflects the project's ability to provide alternate paths of travel in case of disruptions (resiliency).

**Change in Vehicle Miles Traveled
(VMT) in 2045**

- The change in auto miles traveled. This number reflects both the number of people changing from automobiles to transit and the traveled distance (sustainability).

Evaluation Criteria



Ridership



Cost



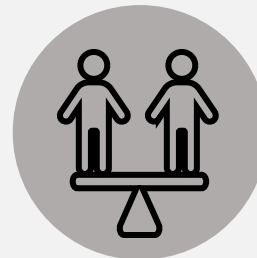
Travel Time



Capacity



**Geographic
Distribution**



Equity



**Resiliency &
Sustainability**



**Network
Leverage**

Promising projects will be advanced for further study and possible inclusion in next Capital Plan.

We perform a 'Comparative Evaluation' to evaluate expansion and enhancement projects

Project Right-of-Way on MTA, Public or Private Land

- Measures how each project utilizes the existing MTA-owned infrastructure and right-of-way.
- Shows how MTA is getting the most out of what it already has.
- A proxy for project control during construction and operation.

- Uses metrics using standard regional travel models and costs.

- Selected metrics align with industry best practices.
- Promising projects will be advanced for further study and possible inclusion in next Capital Plan.

Evaluation Criteria



Ridership



Cost



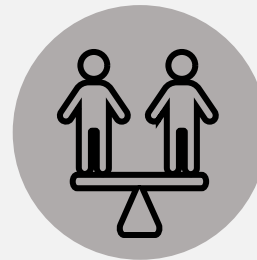
Travel Time



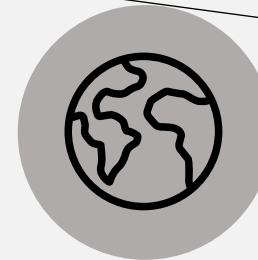
Capacity



Geographic Distribution



Equity



Resiliency & Sustainability



Network Leverage

COMPARATIVE EVALUATION

Evaluation Criteria

Each project is evaluated against the following criteria, with inputs based on robust regional travel demand modeling and high-level cost estimates.

**Ridership****Cost****Travel Time****Capacity****Geographic Distribution****Equity****Resiliency & Sustainability****Network Leverage****Cost per time savings**

Capital + 30-year O&M costs per 30-year time savings (minutes saved on door-to-door transit commute across all riders)

Passenger hours with less crowding
during AM peak period

Improved **regional accessibility**

Riders served from **Equity Areas**

Reductions in vehicle miles

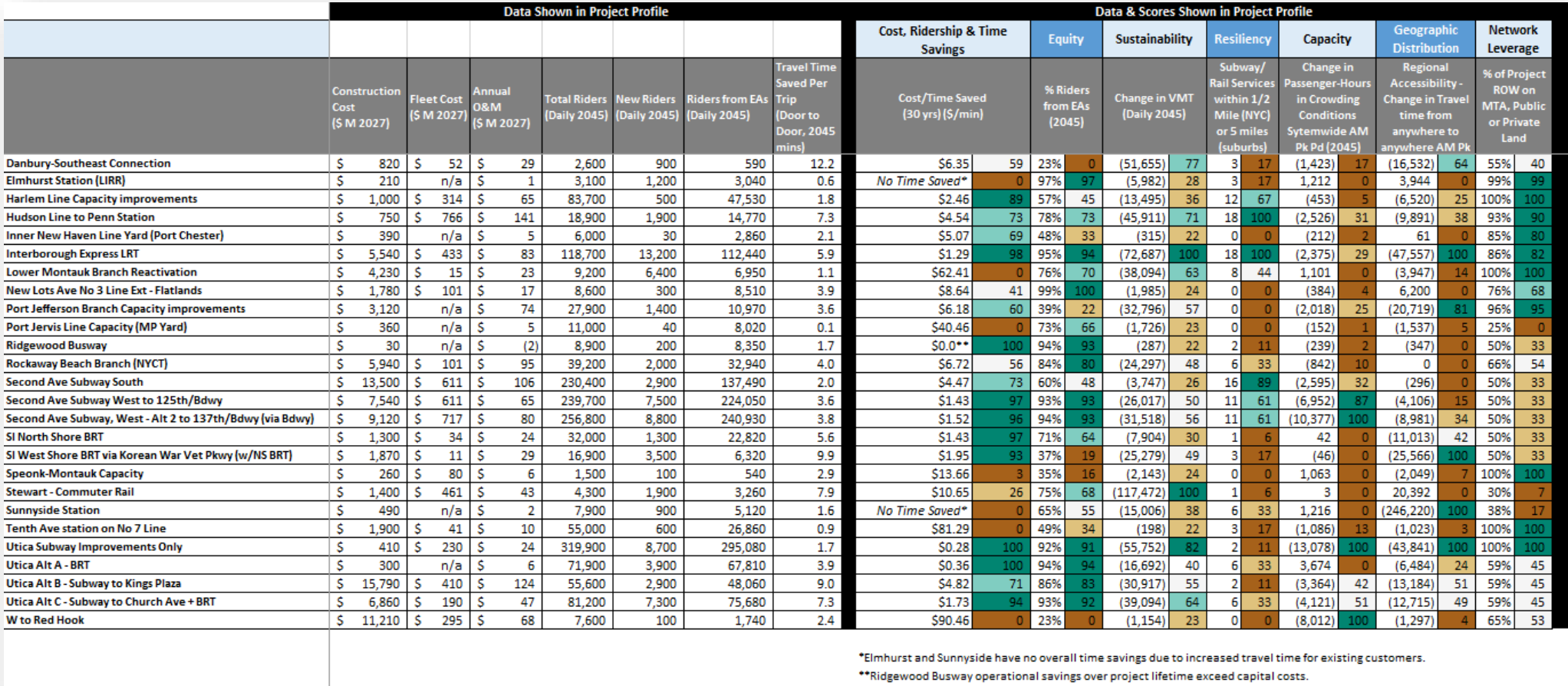
Redundant subway or rail
within 0.5 miles

Proportion of project on **existing MTA right-of-way** or public land



COMPARATIVE EVALUATION

Project	Total Riders (D)	New Riders (C)	Riders from (B)	Travel Time (min)	Capital + O&M (30)	Travel Time (min)	% on MTA ROW	% on Public	% on Private (30 yrs)	Score (\$/min)	% Riders from Equity	Score Change in Value	Sustainability	Subway/Resilient	Change in Passengers	Capacity Score	Regional Access	Geographic	% of Project	Network Level			
Danbury-Southeast Connection	2,600	900	590	12.2	\$1,603	253	40%	0%	60%	\$6.35	59	23%	0	(51,655)	77	3	17	(1,423)	17	(16,532)	64	55%	40
Elmhurst Station (LIRR)	3,100	1,200	3,040	0.6	\$241	(194)	98%	2%	0%	No Time Saved*	0	97%	97	(5,982)	28	3	17	1,212	0	3,944	0	99%	99
Harlem Line Capacity Improvements	83,700	500	47,530	1.8	\$2,957	1,202	100%	0%	0%	\$2.46	89	57%	45	(13,495)	36	12	67	(453)	5	(6,520)	25	100%	100
Hudson Line to Penn Station	18,900	1,900	14,770	7.3	\$5,040	1,111	85%	15%	0%	\$4.54	73	78%	73	(45,911)	71	18	100	(2,526)	31	(9,891)	38	93%	90
Inner New Haven Line Yard (Port Chester)	6,000	30	2,860	2.1	\$521	103	80%	0%	20%	\$5.07	69	48%	33	(315)	22	0	0	(212)	2	61	0	85%	80
Interborough Express LRT	118,700	13,200	112,440	5.9	\$7,917	6,116	80%	5%	15%	\$1.29	98	95%	94	(72,687)	100	18	100	(2,375)	29	(47,557)	100	86%	82
Lower Montauk Branch Reactivation	9,200	6,400	6,950	1.1	\$4,831	77	100%	0%	0%	\$62.41	0	76%	70	(38,094)	63	8	44	1,101	0	(3,947)	14	100%	100
New Lots Ave No 3 Line Ext - Flatlands	8,600	300	8,510	3.9	\$2,303	267	47%	0%	53%	\$8.64	41	99%	100	(1,985)	24	0	0	(384)	4	6,200	0	76%	68
New Lots Ave No 3 Line Ext - Spring Creek/Gateway Mall	9,800	400	9,510	3.6	\$3,275	279	68%	0%	32%	\$11.74	17	97%	97	(3,235)	25	0	0	648	0	2,519	0	60%	47
Port Jefferson Branch Capacity improvements	27,900	1,400	10,970	3.6	\$4,968	803	95%	0%	5%	\$6.18	60	39%	22	(32,796)	57	0	0	(2,018)	25	(20,719)	81	96%	95
Port Jervis Line Capacity (MP Yard)	11,000	40	8,020	0.1	\$478	12	0%	0%	100%	\$40.46	0	73%	66	(1,726)	23	0	0	(152)	1	(1,537)	5	25%	0
Ridgewood Busway	8,900	200	8,350	1.7	-\$11	118	0%	100%	0%	\$0.0**	100	94%	93	(287)	22	2	11	(239)	2	(347)	0	50%	33
Rockaway Beach Branch (NYCT)	39,200	2,000	32,940	4.0	\$8,431	1,255	31%	69%	0%	\$6.72	56	84%	80	(24,297)	48	6	33	(842)	10	0	0	66%	54
Second Ave Subway South	230,400	2,900	137,490	2.0	\$16,775	3,754	0%	100%	0%	\$4.47	73	60%	48	(3,747)	26	16	89	(2,595)	32	(296)	0	50%	33
Second Ave Subway West to 125th/Bdwy	239,700	7,500	224,050	3.6	\$9,787	6,864	0%	100%	0%	\$1.43	97	93%	93	(26,017)	50	11	61	(6,952)	87	(4,106)	15	50%	33
Second Ave Subway, West - Alt 2 to 137th/Bdwy (via Bdwy)	256,800	8,800	240,930	3.8	\$11,844	7,781	0%	100%	0%	\$1.52	96	94%	93	(31,518)	56	11	61	(10,377)	100	(8,981)	34	50%	33
SI North Shore BRT	32,000	1,300	22,820	5.6	\$1,988	1,390	0%	100%	0%	\$1.43	97	71%	64	(7,904)	30	1	6	42	0	(11,013)	42	50%	33
SI West Shore BRT via Korean War Vet Pkwy (w/NS BRT)	16,900	3,500	6,320	9.9	\$2,625	1,345	0%	100%	0%	\$1.95	93	37%	19	(25,279)	49	3	17	(46)	0	(25,566)	100	50%	33
SI West Shore BRT via West Shore Expy	8,200	2,200	2,440	12.8	\$2,799	1,200	0%	100%	0%	\$3.34	82	30%	9	(16,545)	39	1	6	(47)	0	(10,613)	41	50%	33
Speonk-Montauk Capacity	1,500	100	540	2.9	\$495	36	100%	0%	0%	\$13.66	3	35%	16	(2,143)	24	0	0	1,063	0	(2,049)	7	100%	100
Stewart - Commuter Rail	4,300	1,900	3,260	7.9	\$2,936	276	0%	20%	80%	\$10.65	26	75%	68	(117,472)	100	1	6	3	0	20,392	0	30%	7
Sunnyside Station	7,900	900	5,120	1.6	\$541	(113)	0%	50%	50%	No Time Saved*	0	65%	55	(15,006)	38	6	33	1,216	0	(246,220)	100	38%	17
Tenth Ave station on No 7 Line	55,000	600	26,860	0.9	\$2,191	27	100%	0%	0%	\$81.29	0	49%	34	(198)	22	3	17	(1,086)	13	(1,023)	3	100%	100
Utica Subway Improvements Only	319,900	8,700	295,080	1.7	\$1,242	4,480	100%	0%	0%	\$0.28	100	92%	91	(55,752)	82	2	11	(13,078)	100	(43,841)	100	100%	100
Utica Alt A - BRT	71,900	3,900	67,810	3.9	\$803	2,263	17%	83%	0%	\$0.36	100	94%	94	(16,692)	40	6	33	3,674	0	(6,484)	24	59%	45
Utica Alt B - Subway to Kings Plaza	55,600	2,900	48,060	9.0	\$19,293	4,004	17%	83%	0%	\$4.82	71	86%	83	(30,917)	55	2	11	(3,364)	42	(13,184)	51	59%	45
Utica Alt C - Subway to Church Ave + BRT	81,200	7,300	75,680	7.3	\$8,231	4,754	17%	83%	0%	\$1.73	94	93%	92	(39,094)	64	6	33	(4,121)	51	(12,715)	49	59%	45
W to Red Hook	7,600	100	1,740	2.4	\$13,203	146	30%	70%	0%	\$90.46	0	23%	0	(1,154)	23	0	0	(8,012)	100	(1,297)	4	65%	53



Value	Icon
<20	
20-39	
40-59	
60-79	
>=80	

	CE Summary Table (as shown in report)									Total Riders (Daily 2045)		Construction Cost (\$ M 2027)
	Cost Effectiveness	Ridership	Equity		Geographic Distribution	Sustainability	Resiliency	Capacity	Network Leverage			
	Cost/Time Saved (30 yrs) (\$/min)	Total Riders	Total Riders from EAs	% Riders from EAs	Regional Accessibility - Change in Travel time from anywhere to anywhere (2045 aggregate hours)	Change in VMT (Daily 2045)	Subway/ Rail Services within 1/2 Mile (NYC) or 5 miles (suburbs)	Change in Passenger-Hours in Crowded Conditions Systemwide AM Pk Pd (2045)	% of Project ROW on MTA, Public or Private Land			
Danbury-Southeast Connection	\$6.35									2,600		\$820
Elmhurst Station (LIRR)	No Time Saved*									3,100		\$210
Harlem Line Capacity improvements	\$2.46									83,700		\$1,000
Hudson Line to Penn Station	\$4.54									18,900		\$750
Inner New Haven Line Yard (Port Chester)	\$5.07									6,000		\$390
Interborough Express LRT	\$1.29									118,700		\$5,390
Lower Montauk Branch Reactivation	\$62.41									9,200		\$4,230
New Lots Ave No 3 Line Ext - Flatlands	\$8.64									8,600		\$1,780
Port Jefferson Branch Capacity improvements	\$6.18									27,900		\$3,120
Port Jervis Line Capacity (MP Yard)	\$40.46									11,000		\$360
Ridgewood Busway	\$0.0**									8,900		\$30
Rockaway Beach Branch (NYCT)	\$6.72									39,200		\$5,940
Second Ave Subway South	\$4.47									230,400		\$13,500
Second Ave Subway West to 125th/Bdwy	\$1.43									239,700		\$7,540
Second Ave Subway, West - Alt 2 to 137th/Bdwy (via Bdwy)	\$1.52									256,800		\$9,120
SI North Shore BRT	\$1.43									32,000		\$1,300
SI West Shore BRT via Korean War Vet Pkwy (w/NS BRT)	\$1.95									16,900		\$1,870
Speonk-Montauk Capacity	\$13.66									1,500		\$260
Stewart - Commuter Rail	\$10.65									4,300		\$1,400
Sunnyside Station	No Time Saved*									7,900		\$490
Tenth Ave station on No 7 Line	\$81.29									55,000		\$1,900
Utica Subway Improvements Only	\$0.28									319,900		\$410
Utica Alt A - BRT	\$0.36									71,900		\$300
Utica Alt B - Subway to Kings Plaza	\$4.82									55,600		\$15,790
Utica Alt C - Subway to Church Ave + BRT	\$1.73									81,200		\$6,860
W to Red Hook	\$90.46									7,600		\$11,210

Many potential investments

- Danbury-Southeast Connection
- Elmhurst Station (LIRR)
- Harlem Line Capacity Improvements
- Hudson Line to Penn Station
- Inner New Haven Line Yard
- Interborough Express (IBX)
- Lower Montauk Branch Reactivation
- New Lots Ave No 3 Line to Flatlands
- Port Jefferson Branch Capacity Improvements
- Port Jervis Line Capacity Improvements
- Ridgewood Busway
- Rockaway Beach Branch
- Second Avenue Subway South to Houston
- Second Avenue Subway West to 125th & Bwy
- Speonk-Montauk Capacity Improvements
- Staten Island North Shore Bus Rapid Transit (BRT)
- Staten Island West Shore Bus Rapid Transit (BRT)
- Stewart Airport Commuter Rail
- Sunnyside Station
- Tenth Ave Station on the No 7 Line
- Utica Ave Transit Improvements
- W Line to Red Hook

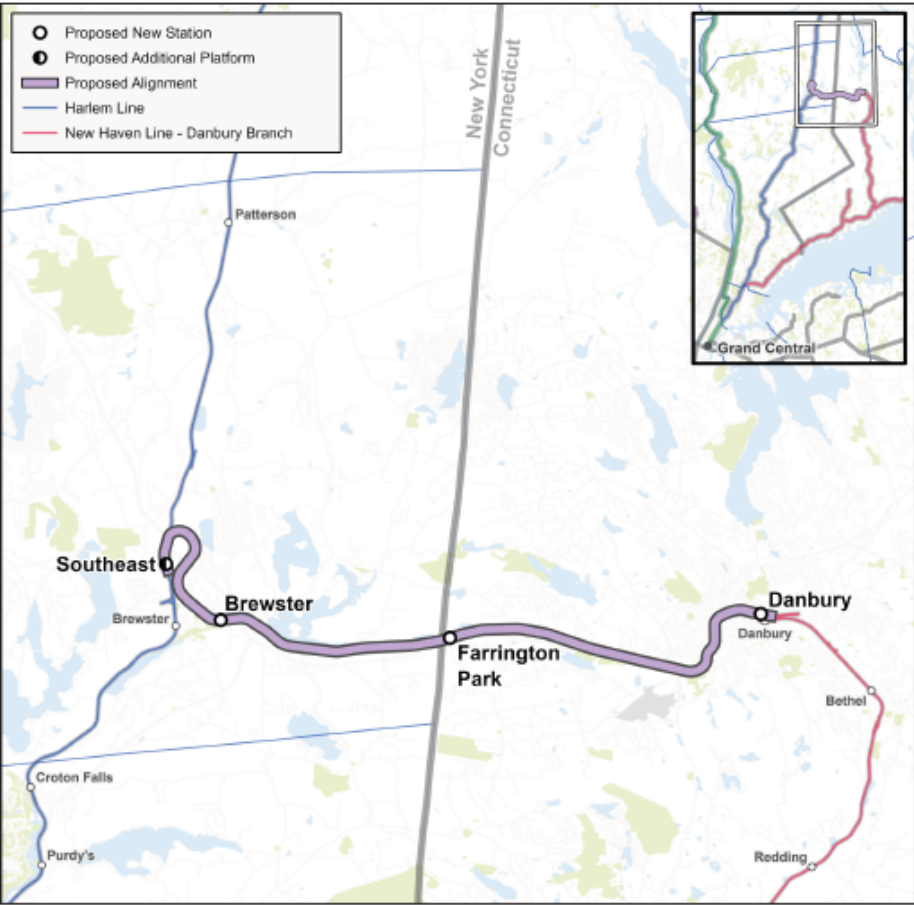
These projects have not been selected or funded but will be comparatively evaluated for consideration on a level-playing field for future Capital Programs.

More information at: future.mta.info

Danbury-Southeast Connection

Description: Reactivation of a 11-mile portion of the Beacon Line between Southeast New York and Danbury, CT, for passenger service.

Project objectives: Provide a rail connection from Danbury, CT, to the Metro-North Railroad Harlem Line for improved travel time and eased parking demands at Harlem Line stations and I-84/I-684 congestion.



Evaluation results

Construction Cost (2027): \$820 million

Fleet Cost (2027): \$52 million

Annual O&M Cost (2027): \$29 million

Daily Ridership (2045): 2,600

New Daily Riders (2045): 900

Riders from Equity Areas (2045): 590

Travel Time Saved Per Trip (minutes): 12.2

Special Considerations:

Connecting to Harlem Line at Southeast Station requires construction through wetland areas.

Construction of a new, second station at Danbury is required because of the existing track geometry.

Housatonic Railroad owns corridor in Connecticut.



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$6.35/min	59
Equity	Percent of riders from Equity Areas	23%	0
Sustainability	Change in daily vehicle miles traveled	-51,655	77
Resiliency	Rail connections within ½ mile (NYC) or 5 miles (suburbs)	3	17
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	-1,423 hours	17
Geographic Distribution	Change in regional accessibility	-16,653 hours	64
Network Leverage	Weighted sum of MTA, Public and Private ROW	55%	40

Findings

While this project would have a significant time savings for those who ride it, it would serve a very small number of riders in relation to the capital and operating costs.

Reactivating the Beacon Line between Danbury, Connecticut and Southeast, New York would result in significant travel time savings, but for a small number of riders and at a high cost (\$800+M), relative to the benefits. Although it would expand regional access by connecting two Metro-North lines and generate sustainability benefits as a result of reduced vehicle travel, it does not benefit equity areas or reduce crowding capacity significantly on the system. Further, the right-of-way is only partially owned by MTA, with the portion in Connecticut owned by Housatonic Railroad, which results in a midrange score for network leverage.

Elmhurst Station (LIRR)

Description: Restoration of Long Island Rail Road service at the former Elmhurst Station on the Port Washington Branch in Queens.

Project objectives: Provide additional access to employment and commercial centers near station.



Evaluation results

Construction Cost (2027): \$210 million
Fleet Cost (2027): N/A
Annual O&M Cost (2027): \$1 million
Daily Ridership (2045): 3,100
New Daily Riders (2045): 1,200
Riders from Equity Areas (2045): 3,040
Travel Time Saved Per Trip (minutes): 0.6

Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	No Time Saved*	0
Equity	Percent of riders from Equity Areas	97%	97
Sustainability	Change in daily vehicle miles traveled	-5,982	28
Resiliency	Rail connections within ½ mile (NYC) or 5 miles (suburbs)	3	17
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	+1,212 hours	0
Geographic Distribution	Change in regional accessibility	+3,944 hours	0
Network Leverage	Weighted sum of MTA, Public and Private ROW	99%	99

* No overall time savings due to increased travel time for existing users.

Findings

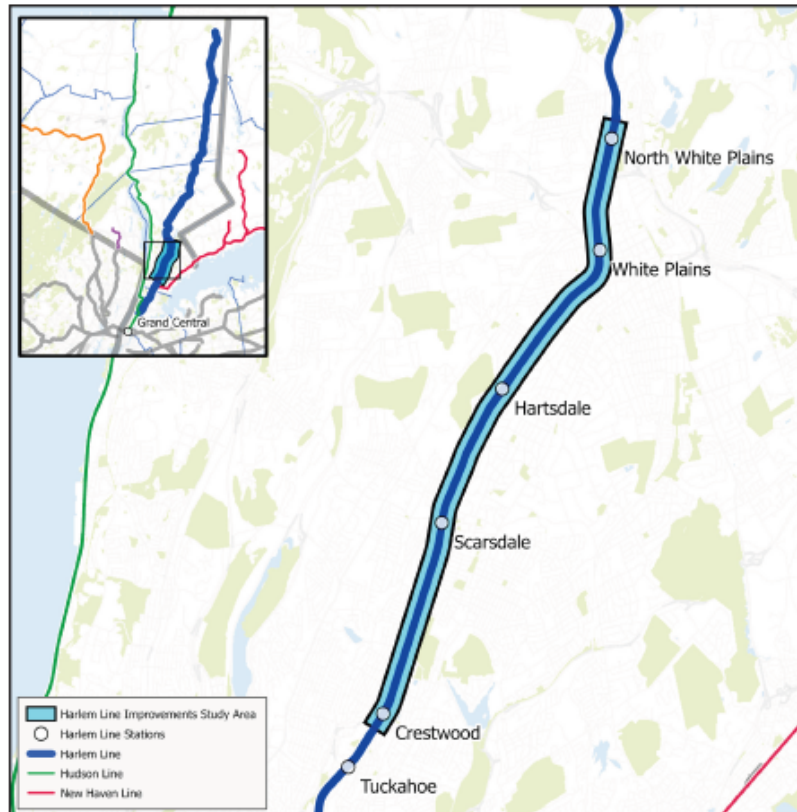
This project provides marginal benefits in an area already well served by transit. It would save travel time for new riders but create additional travel time for existing LIRR customers, resulting in no net time savings.

Despite its low-cost relative to other projects, reopening the Elmhurst station on LIRR scores poorly because of low ridership and no net travel time savings due to added travel time for existing customers going through the station. This project would not increase capacity, nor would it improve regional access, since the area is already well served by transit. The station does well in serving a high percentage of riders from equity areas and in leveraging an MTA asset since the new station would be built in the same location as the old station.

Harlem Line Capacity Improvements

Description: Construction of a third mainline track on the Metro-North Railroad Harlem Line between Crestwood and North White Plains, along with capital investments in power, signals, and communications, and capacity improvements and associated investments at Brewster Yard.

Project objectives: Provide more service during peak periods to accommodate future growth and reduces crowding, improves operational flexibility and service reliability, enhances opportunity for improved reverse peak service, allows for track maintenance without reducing capacity or limiting reverse peak service, and adds additional train service at Scarsdale, Hartsdale, and White Plains.



A-380

Above, Harlem Line Capacity Improvements

Evaluation results

Construction Cost (2027): \$1 billion

Fleet Cost (2027): \$330 million

Annual O&M Cost (2027): \$65 million

Daily Ridership (2045): 83,700

New Daily Riders (2045): 500

Riders from Equity Areas (2045): 47,530

Travel Time Saved Per Trip (minutes): 1.8

Special Considerations:

Requires prior investments of:

- A new North Yard at Brewster/Southeast within the original parking facility location, and reconfiguration and upgrade of the existing South Yard.
- New substations, station improvements and communication/signal upgrades.



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$2.46 /min	89
Equity	Percent of riders from Equity Areas	57%	45
Sustainability	Change in daily vehicle miles traveled	-13,500	36
Resiliency	Rail connections within ½ mile (NYC) or 5 miles (suburbs)	12	67
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	-453 hours	5
Geographic Distribution	Change in regional accessibility	-6,520 hours	25
Network Leverage	Weighted sum of MTA, Public and Private ROW	100%	100

Findings

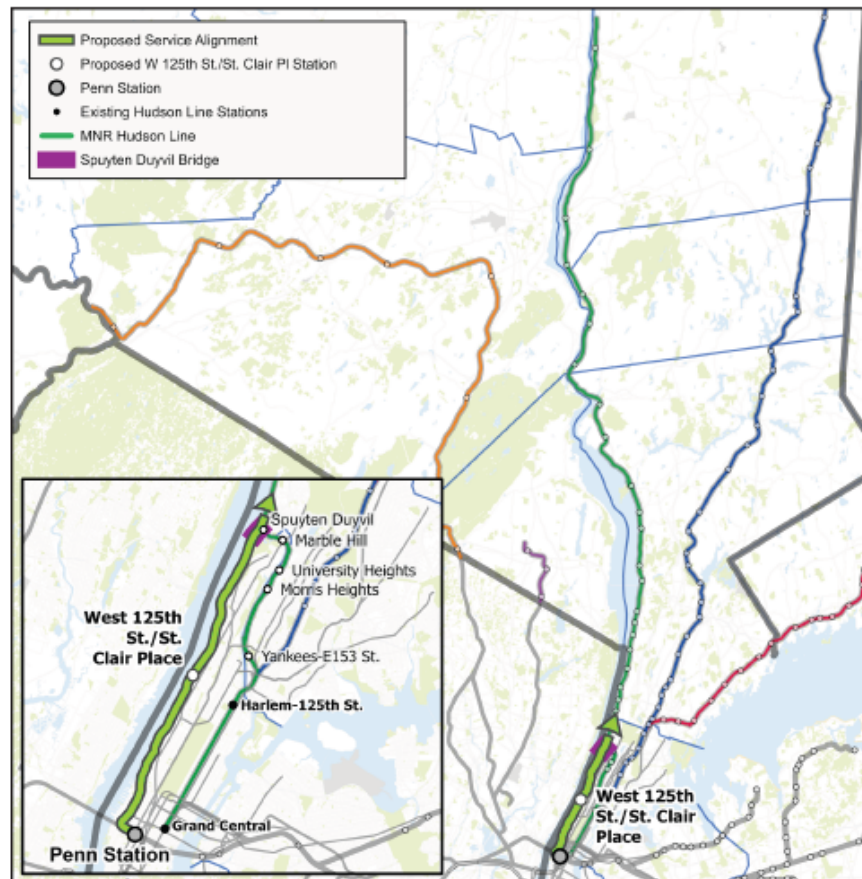
This project would enable additional passenger service and increase operational efficiency and flexibility. It is cost effective due to reduced travel times for many riders.

Providing a third mainline track between Crestwood and North White Plains is cost-effective because it would reduce travel time for a large number of riders for a relative low cost, in relation to other projects. It also scores well in resiliency, with many other rail connections nearby, and in network leverage, as it is on Metro-North's existing right-of-way. It reduces vehicle usage, but that reduction is low in relation to other projects, so it does not score well in sustainability. The additional passenger service as a result of this project reduces crowding slightly and improves regional access, but the improvements are small in relation to other projects and it does not score well in capacity or geographic distribution.

Hudson Line to Penn Station

Description: Provision of Metro-North Railroad Hudson Line commuter rail service between Poughkeepsie and Penn Station via Amtrak's Empire Connection, with one potential new station in Harlem (125th Street and Broadway) and additional fleet storage in Poughkeepsie.

Project objectives: Provide additional transit options and one-seat rides for commuters traveling to/from Manhattan's West Side.



Above, Hudson Line to Penn Station

Evaluation results

Construction Cost (2027): \$750 million

Fleet Cost (2027): \$766 million

Annual O&M Cost (2027): \$141 million

Daily Ridership (2045): 18,900

New Daily Riders (2045): 1,900

Riders from Equity Areas (2045): 14,770

Travel Time Saved Per Trip (minutes): 7.3

Special Considerations:

Will require negotiations with Amtrak regarding Metro-North operations on the Amtrak Empire Line, and the reassignment of trains on Penn Station platforms to accommodate Hudson Line trains.



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$4.54/min	73
Equity	Percent of riders from Equity Areas	78%	73
Sustainability	Change in daily vehicle miles traveled	-45,911	71
Resiliency	Rail connections within ½ mile (NYC) or 5 miles (suburbs)	18	100
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	-2,526 hours	31
Geographic Distribution	Change in regional accessibility	-9,891 hours	38
Network Leverage	Weighted sum of MTA, Public and Private ROW	93%	90

Findings

This project would provide time savings for a modest number of riders and at a high cost. It would increase resiliency by providing an alternative direct service to Penn Station for Hudson Line customers.

Providing service to Penn Station on the Hudson line scores above average in cost effectiveness because of the significant travel time savings it provides, albeit at a high cost and to a relatively low number of riders. It also does well in equity since many of the riders are from equity areas. It does well in sustainability and resiliency by reducing vehicle usage and providing many alternative rail connections. It also scores well in network leverage since it uses Metro-North's existing rail right-of-way for most of the alignment. Even though it does improve capacity and geographic distribution, it does not score as well relative to other projects.

Inner New Haven Line Yard (Port Chester)

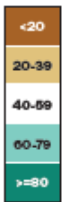
Description: Construction of a new fleet storage yard located between the Rye and Port Chester Stations on the Metro-North Railroad New Haven Line in New York.

Project objectives: Support the storage needs for additional fleet needed to meet ridership demand and increased service levels on the Inner New Haven Line. Improve operational efficiency, flexibility, and service reliability, and provide opportunity for enhanced reverse peak service.



Evaluation results

Construction Cost (2027): \$390 million
Fleet Cost (2027): N/A
Annual O&M Cost (2027): \$5 million
Daily Ridership (2045): 6,000
New Daily Riders (2045): 30
Riders from Equity Areas (2045): 2,860
Travel Time Saved Per Trip (minutes): 21
Special Considerations:
 Requires coordination with CTDOT and local utility providers for yard power needs.



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$5.07/min	69
Equity	Percent of riders from Equity Areas	48%	33
Sustainability	Change in daily vehicle miles traveled	-315	22
Resiliency	Rail connections within 1/2 mile (NYC) or 5 miles (suburbs)	0	0
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	-212 hours	2
Geographic Distribution	Change in regional accessibility	+61 hours	0
Network Leverage	Weighted sum of MTA, Public and Private ROW	85%	80

Findings

This project would enable some additional service at the Rye station, but its main benefit is operational efficiency and flexibility. Relatively low ridership, as well as cost, result in average cost effectiveness.

A new rail storage yard for the New Haven Line in New York State receives an above average cost effectiveness score since it saves some time for riders at a relatively low cost. It does not have a big impact on ridership because the only difference in the service plan is an additional stop at Rye station for some trains, but no increase in frequency. It does not perform well in equity since it does not have a large share of its riders from equity areas. Similarly, it does not score well in resiliency and sustainability because it does not reduce vehicle usage significantly or provide any new rail connections. The project performs poorly in geographic distribution since a new yard does not improve regional access. The capacity score is low because of how capacity is measured: by reduction in crowding systemwide. However, it would increase capacity in the operational sense of providing more space to store additional trains on the New Haven Line. The project scores well in network leverage since it would be constructed mainly within existing Metro-North right-of-way.

Interborough Express Light Rail Transit

Description: A new transit line between Queens and Brooklyn along an existing freight corridor, connecting to 17 subway lines (2, 3, 5, 7, A, C, D, E, F, J, L, M, N, R, Q, Z), and the Long Island Rail Road (LIRR), serving areas of Brooklyn and Queens.

Project objectives: Reduce travel times on transit between Brooklyn and Queens and divert trips from overburdened Manhattan-bound subway lines.



A-386

Above, Interborough Express LRT (IBX)

Evaluation results

Construction Cost (2027): \$5.5 billion
Fleet Cost (2027): \$432 million
Annual O&M Cost (2027): \$83 million
Daily Ridership (2045): 118,700
New Daily Riders (2045): 13,200
Riders from Equity Areas (2045): 112,440
Travel Time Saved Per Trip (minutes): 5.9

Special Considerations:

Light Rail Transit (LRT) would be a new and stand-alone mode for MTA.
 Street-running required (<1 mile) in Middle Village, Queens.

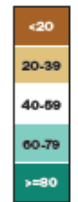
Requires coordination and concurrence with the following entities:

- CSX, which owns northern three miles of right-of-way
- PANYNJ for the Cross Harbor Freight Program (CHFP)
- EDC and City Hall, for the maintenance & storage facility (MSF) and terminal station at Brooklyn Army Terminal.

Findings

This project scores well in many metrics, including cost effectiveness. It serves a large number of new and total riders, especially from equity areas, and provides connections to many other transit lines, using an existing right-of-way.

The Interborough Express scores well in almost all metrics. High ridership and significant time savings make it cost effective. It does well in equity because it serves a large number of riders from equity areas. Similarly, it scores well in resiliency and sustainability by greatly reducing vehicle usage and providing multiple connections to the subway (up to 17 lines) and LIRR. It scores well in geographic distribution by improving regional access and it gets a high score for network leverage with 11 of its 14 route miles owned by the MTA. It does not score as well in capacity in relation to other projects because it acts as a feeder to existing subway lines, increasing crowding on some that are at, or close to, capacity (i.e. Queens Blvd Line).



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$129/min	98
Equity	Percent of riders from Equity Areas	95%	94
Sustainability	Change in daily vehicle miles traveled	-72,687	100
Resiliency	Rail connections within ½ mile (NYC) or 5 miles (suburbs)	18	100
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	-2,375 hours	29
Geographic Distribution	Change in regional accessibility	-47,557 hours	100
Network Leverage	Weighted sum of MTA, Public and Private ROW	86%	82

A-387

Lower Montauk Branch Reactivation

Description: Reactivation of an approximately nine-mile segment of the Long Island Rail Road Lower Montauk Branch between Jamaica and Long Island City, with new stations at Greenpoint Avenue, Haberman, Grand Avenue, Fresh Pond, Metro Mall, 80th St, Woodhaven Blvd, and Richmond Hill.

Project objectives: Increase transit options for underserved communities and improve network connections for intra- and inter-borough travelers; provide opportunities for development and growth near stations; utilize/leverage existing right-of-way.



A-388

Above, Lower Montauk Branch Reactivation

Evaluation results

Construction Cost (2027): \$4.2 billion

Fleet Cost (2027): \$15 million

Annual O&M Cost (2027): \$23 million

Daily Ridership (2045): 9,200

New Daily Riders (2045): 6,400

Riders from Equity Areas (2045): 6,950

Travel Time Saved Per Trip (minutes): 1.1

Special Considerations:

Coordination and additional studies needed to evaluate right-of-way constraints, as well as impacts to the LIRR and existing freight operations.



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$62.41 /min	0
Equity	Percent of riders from Equity Areas	76%	70
Sustainability	Change in daily vehicle miles traveled	-38,094	63
Resiliency	Rail connections within ½ mile (NYC) or 5 miles (suburbs)	8	44
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	+1,101 hours	0
Geographic Distribution	Change in regional accessibility	-3,947 hours	14
Network Leverage	Weighted sum of MTA, Public and Private ROW	100%	100

Findings

This project performs poorly as it provides low time savings in relation to cost. Although the project would provide rail service to equity areas and make use of an existing MTA right-of-way, there are challenges of sharing the use of the corridor with growing freight operations.

Reactivating this section of the LIRR does not score well in cost effectiveness because costs are high, and ridership and time savings are low. It gets above average scores in equity since a large share of its riders are from equity areas, and it does well in resiliency and sustainability, since it takes many trips away from vehicles and provides new connections to rail. It does not improve capacity, making the system more crowded by adding riders to LIRR services. It improves regional access slightly but gets a lower score relative to other projects. Although it scores well in network leverage because MTA owns the right-of-way, it is narrow with adjacent buildings and roadways, making shared use with growing freight operations challenging and costly.

New Lots Avenue 3 Line Extension Flatlands

Description: Extension of the New Lots Avenue 3 line on an elevated structure southeast past Livonia Yard to a new terminal at Flatlands Avenue and Linwood Street/Elton Street.

Project objectives: Reduce travel times and increase reliability for residents and workers in underserved communities; provide better connectivity to existing subway network.



A-390

Above, New Lots Ave 3 line to Flatlands

Evaluation results

Construction Cost (2027): \$1.8 billion

Fleet Cost (2027): \$101 million

Annual O&M Cost (2027): \$17 million

Daily Ridership (2045): 8,600

New Daily Riders (2045): 300

Riders from Equity Areas (2045): 8,510

Travel Time Saved Per Trip (minutes): 3.9

Special Considerations:

Livonia Yard is planned for re-construction and an extension of the 3 line could provide synergies with yard construction, but coordination is needed with the Livonia redesign to not preclude extension.

A potential separation of passenger service tracks from yard lead tracks could have an impact on yard operations.



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$8.64/min	41
Equity	Percent of riders from Equity Areas	99%	100
Sustainability	Change in daily vehicle miles traveled	-1,985	24
Resiliency	Rail connections within 1/2 mile (NYC) or 5 miles (suburbs)	0	0
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	-384 hours	4
Geographic Distribution	Change in regional accessibility	+6,200 hours	0
Network Leverage	Weighted sum of MTA, Public and Private ROW	76%	68

Findings

This project is not cost effective due to the high cost to extend the line with a small increase in ridership and time savings. Its primary benefit is serving equity areas.

Extending the New Lots Ave 3 line to Flatlands Avenue performs poorly due to its high cost and relatively low ridership and time savings. It scores well in equity since the majority of its riders are from equity areas. Although it reduces auto usage slightly, it is small compared to other projects and it does not score well in sustainability. It scores poorly in resiliency because it does not provide any new connections to rail. It does not provide benefits in capacity and actually increases crowding by adding riders to the existing line. Similarly, it does not score well in geographic distribution because it does not improve regional access significantly. It gets an average score in network leverage since a portion of the right-of-way is owned by MTA.

A-391

New Lots Avenue 3 Line Extension

Alternative Considered: Spring Creek

Alternative Considered: Extension of the New Lots Avenue 3 line on an elevated structure southeast past Livonia Yard to a new terminal in the vicinity of Spring Creek and Gateway Center Mall.



Above, New Lots Ave 3 line to Spring Creek

Evaluation results

Construction Cost (2027): \$2.5 billion

Fleet Cost (2027): \$101 million

Annual O&M Cost (2027): \$26 million

Daily Ridership (2045): 9,800

New Daily Riders (2045): 400

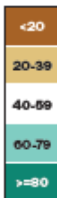
Riders from Equity Areas (2045): 9,510

Travel Time Saved Per Trip (minutes): 3.6

Special Considerations:

Livonia Yard is planned for re-construction and an extension of the 3 line could provide synergies with yard construction, but coordination is needed with the Livonia redesign to not preclude extension.

A potential separation of passenger service tracks from yard lead tracks could have an impact on yard operations.



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$11.74/min	17
Equity	Percent of riders from Equity Areas	97%	97
Sustainability	Change in daily vehicle miles traveled	-3,235	25
Resiliency	Rail connections within 1/2 mile (NYC) or 5 miles (suburbs)	0	0
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	+648 hours	0
Geographic Distribution	Change in regional accessibility	+2,519 hours	0
Network Leverage	Weighted sum of MTA, Public and Private ROW	60%	47

Findings

This alternative is less cost effective than the alternative selected for analysis, with significantly higher construction costs without a corresponding increase in ridership.

Port Jefferson Branch Capacity Improvements

Description: Improvements of the Long Island Rail Road Port Jefferson Branch, including electrification, double tracking, stations, storage yard, and associated infrastructure.

Project objectives: Increase travel speeds and frequency while providing a one-seat ride to Penn Station and Grand Central Madison; reduce demand on the Ronkonkoma Branch.



Evaluation results

Construction Cost (2027): \$3.1 billion

Fleet Cost (2027): N/A

Annual O&M Cost (2027): \$74 million

Daily Ridership (2045): 27,900

New Daily Riders (2045): 1,400

Riders from Equity Areas (2045): 10,970

Travel Time Saved Per Trip (minutes): 3.6

Special Considerations:

Electrification of the line requires additional capital improvements to be in place.

Space for a new terminal electric train yard needs to be identified.

Additional studies will need to be conducted to determine right-of-way and fleet needs.

Currently exploring former Lawrence Aviation site in partnership with Suffolk County.



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$618 /min	60
Equity	Percent of riders from Equity Areas	39%	22
Sustainability	Change in daily vehicle miles traveled	-32,796	57
Resiliency	Rail connections within ½ mile (NYC) or 5 miles (suburbs)	0	0
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	-2,018 hours	25
Geographic Distribution	Change in regional accessibility	-20,719 hours	81
Network Leverage	Weighted sum of MTA, Public and Private ROW	96%	95

Findings

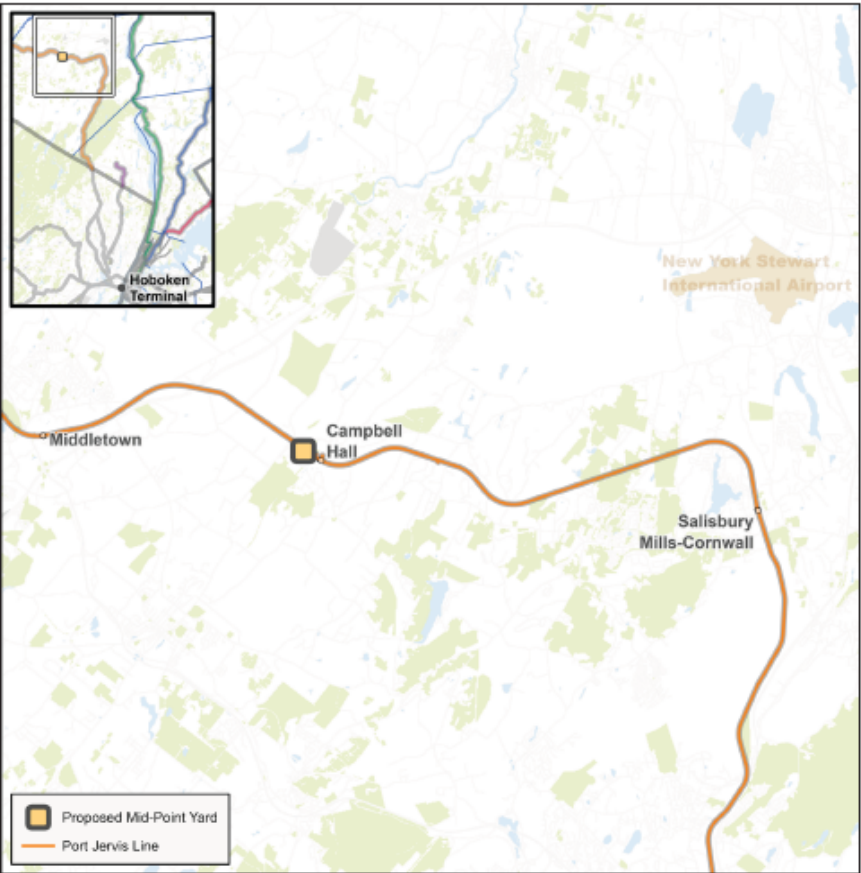
This project has some benefits, but its high cost, coupled with relatively low ridership and time savings, results in an average cost effectiveness.

Improvements on the Port Jefferson Branch get an average cost effectiveness score, mainly due to the high cost and relatively low ridership. Less than half of the riders are from equity areas and so it gets a low score for equity. It does reduce auto usage a fair amount and gets an average score for sustainability, though it does not provide any new rail connections and scores poorly in resiliency. While the project is intended to relieve local crowding in the AM peak, it does not reduce crowding systemwide as much as most other projects. This project gets high scores in geographic distribution, since it improves regional access significantly, as well as network leverage, since it's almost entirely on MTA right-of-way.

Port Jervis Line Capacity Improvements (Midpoint Yard)

Description: Construction of a new rail yard at Metro-North Railroad Campbell Hall station capitalizing on new Port Jervis line track infrastructure.

Project objectives: Improve operational efficiency, flexibility, and service reliability, and introduce reverse peak service.



Above, Port Jervis Line Capacity (Midpoint Yard)

Evaluation results

Construction Cost (2027): \$360 million

Fleet Cost (2027): N/A

Annual O&M Cost (2027): \$5 million

Daily Ridership (2045): 11,000

New Daily Riders (2045): 40

Riders from Equity Areas (2045): 8,020

Travel Time Saved Per Trip (minutes): 0.1

Special Considerations:

Full benefits only realized with direct Manhattan Service via Secaucus Loop, Gateway Program, Penn Station Expansion, and other NJ improvements.

Requires coordination and agreement with Norfolk Southern and New Jersey Transit.

Additional investments on the Port Jervis Line needed including replacement of bridges, viaducts, construction of passing sidings and more fleet.



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$40,46/ min	0
Equity	Percent of riders from Equity Areas	73%	66
Sustainability	Change in daily vehicle miles traveled	-1,726	23
Resiliency	Rail connections within ½ mile (NYC) or 5 miles (suburbs)	0	0
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	-152 hours	1
Geographic Distribution	Change in regional accessibility (efficiency of travel time from anywhere to anywhere by transit)	-1,537 hours	5
Network Leverage	Weighted sum of MTA, Public and Private ROW	25%	0

Findings

This project would attract relatively few riders at a high cost, and is dependent on additional long-term, high cost regional investments.

Construction of a Mid-Point Yard at Campbell Hall on the Port Jervis Line does not score well in most metrics. Although a new Mid-Point Yard would provide operational flexibility and service improvements, it is not a cost-effective project mainly due to low ridership and negligible increase in travel times savings, capacity and geographic distribution. Network leverage also gets a low score since MTA does not own the property for the construction of the yard. It does scores above average in equity since many of its riders are from equity areas and it reduces vehicle usage significantly, largely because it provides an alternative to bus or driving.

Ridgewood Busway

Description: Conversion of an existing MTA-owned right-of-way into an exclusive busway running approximately half a mile from Palmetto Street near Onderdonk Avenue to Fresh Pond Road. This project has previously been referred to as Myrtle Avenue Busway, as it runs under the Myrtle Avenue line. Since the actual area of the project is not at Myrtle Avenue, however, the project has been renamed.

Project objectives: Improve operations by eliminating difficult turns and traffic issues. Increase bus speeds and service reliability.



Above, Ridgewood Busway

Evaluation results

Construction Cost (2027): \$30 million

Fleet Cost (2027): N/A

Annual O&M Cost (2027): -\$2 million

Daily Ridership (2045): 8,900

New Daily Riders (2045): 200

Riders from Equity Areas (2045): 8,350

Travel Time Saved Per Trip (minutes): 1.7

Special Considerations:

Significant operational cost savings. Additional benefits not captured in metrics:

- Service Improvements to riders on multiple bus routes; these improvements would extend beyond project area and include improvements such as increased reliability to entire bus routes.
- Street Safety improvements and decrease number of buses on local street network.



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$0/min*	100
Equity	Percent of riders from Equity Areas	94%	93
Sustainability	Change in daily vehicle miles traveled	-287	22
Resiliency	Rail connections within 1/2 mile (NYC) or 5 miles (suburbs)	2	11
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	-239 hours	2
Geographic Distribution	Change in regional accessibility	-347 hours	0
Network Leverage	Weighted sum of MTA, Public and Private ROW	50%	33

*Operation and maintenance savings exceed capital costs over project lifetime.

Findings

This project performs well in cost effectiveness due to operational savings and a relatively low cost to implement. This is a small project, but its positive impacts go beyond the immediate geographic region of the project and benefit riders on multiple bus routes that would become more reliable and operationally efficient.

Converting this MTA-owned right-of-way into a busway scores exceptionally well in cost effectiveness since it saves money operationally. It also does well in equity, with most of its riders being from equity areas. However, it does not score well in resiliency and sustainability, nor does it improve systemwide capacity or regional accessibility significantly enough, relative to other projects. Network leverage gets an average score since MTA owns a portion of the proposed busway under the elevated subway line.

Rockaway Beach Branch Reactivation

New York City Transit

Description: Reactivation of 6-mile alignment along former Long Island Rail Road right-of-way serving Central Queens with up to four new stations and connections at Aqueduct and Howard Beach. Alternatives included Long Island Rail Road and New York City Transit subway as the modes.

Project objectives: Provide service to underserved communities; increase transit options, reduce auto dependence, and improve network connections for intra- and inter-borough travelers; add opportunities for development and growth near stations.



A-400

Above, Rockaway Beach Branch Reactivation (NYCT)

Evaluation results

Construction Cost (2027): \$5.9 billion

Fleet Cost (2027): \$101 million

Annual O&M Cost (2027): \$95 million

Daily Ridership (2045): 39,200

New Daily Riders (2045): 2,000

Riders from Equity Areas (2045): 32,940

Travel Time Saved Per Trip (minutes): 4.0

Special Considerations:

New York City-owned right-of-way: plans for a linear park along portions of the corridor, creating a challenge for any future transit alternatives. NYCT option would require tunneling underneath existing buildings north of LIRR right-of-way.



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$6.72/min	56
Equity	Percent of riders from Equity Areas	84%	80
Sustainability	Change in daily vehicle miles traveled	-24,297	48
Resiliency	Rail connections within ½ mile (NYC) or 5 miles (suburbs)	6	33
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	-842 hours	10
Geographic Distribution	Change in regional accessibility	0 hours	0
Network Leverage	Weighted sum of MTA, Public and Private ROW	66%	54

Findings

This project does not score well in most metrics.

Reactivating the Rockaway Beach Branch with NYCT service has a high cost and serves a relatively modest number of riders. This project would reduce auto usage and provide additional rail connections, but compared to other projects, the benefits are average for sustainability and resiliency. There is minimal crowding reduction since some Queens Blvd Line subway service would be moved to serve this new line, and there is no improvement in geographic distribution, resulting in low scores for both. Additionally, a portion of the right-of-way is currently proposed to be a pedestrian and bicycle greenway corridor by New York City, which would compete with a transit alignment along this corridor.

A-401

Rockaway Beach Branch Reactivation

Alternative Considered: Long Island Rail Road



Above, Rockaway Beach Branch Reactivation (LIRR)

Evaluation results

Construction Cost (2027): \$4.1 billion

Fleet Cost (2027): \$169 million

Annual O&M Cost (2027): \$22 million

Daily Ridership (2045): 14,500

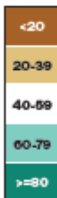
New Daily Riders (2045): 300

Riders from Equity Areas (2045): 9,430

Travel Time Saved Per Trip (minutes): 0.2

Special Considerations:

New York City-owned right-of-way: plans for a linear park along portions of the corridor, creating a challenge for any future transit alternatives. LIRR option would require reducing service on the main LIRR branch to accommodate services on this new branch.



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$262.26/min	0
Equity	Percent of riders from Equity Areas	65%	56
Sustainability	Change in daily vehicle miles traveled	+19,891	0
Resiliency	Rail connections within ½ mile (NYC) or 5 miles (suburbs)	4	22
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	+4,040 hours	0
Geographic Distribution	Change in regional accessibility	+5,280 hours	0
Network Leverage	Weighted sum of MTA, Public and Private ROW	51%	34

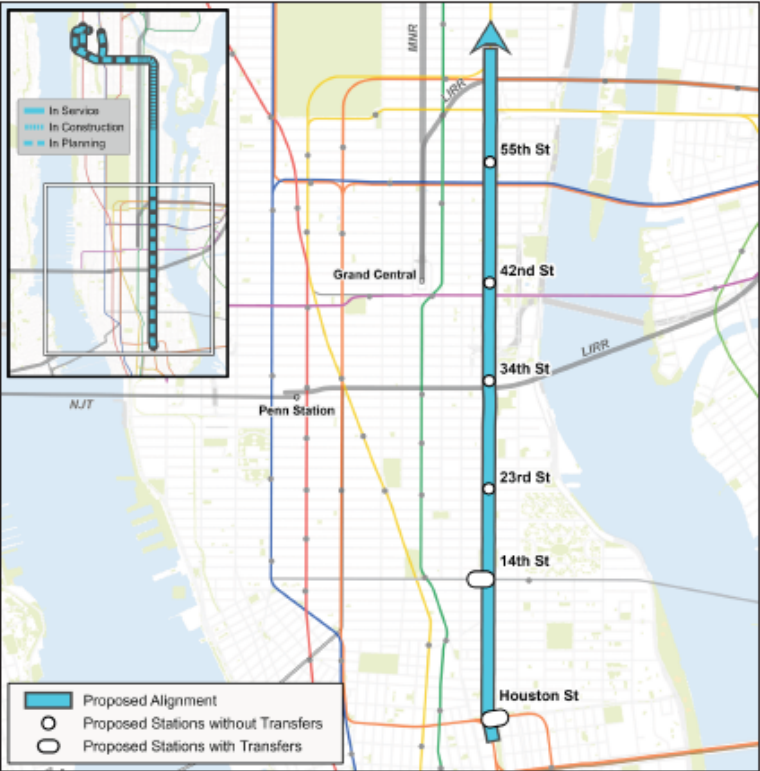
Findings

The LIRR alternative has a slightly lower cost but would serve dramatically fewer riders and would increase travel time to riders on the main LIRR branch, making it even less cost-effective than the NYCT alternative.

Second Avenue Subway South to Houston

Description: Extending the Second Avenue Subway south by three miles, from 72nd Street to Houston Street, including the construction of six new subway stations at 55th, 42nd, 34th, 23rd, 14th St, and Houston Streets.

Project objectives: Provide service to underserved communities; enhance transit options and improve network connectivity by providing transfer opportunities; increase subway service frequency between 72nd St and 125th St with the addition of new 1 line service; reduce travel times for customers east of 2nd Avenue; reduce demand on the Lexington Avenue Line; and support opportunities for development and growth near stations.



Above, Second Ave Subway South to Houston

Evaluation results

Construction Cost (2027): \$13.5 billion

Fleet Cost (2027): \$611 million

Annual O&M Cost (2027): \$106 million

Daily Ridership (2045): 230,400

New Daily Riders (2045): 2,900

Riders from Equity Areas (2045): 137,500

Travel Time Saved Per Trip (minutes): 2.0



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$4.47/min	73
Equity	Percent of riders from Equity Areas	60%	48
Sustainability	Change in daily vehicle miles traveled	-3,747	26
Resiliency	Rail connections within ½ mile (NYC) or 5 miles (suburbs)	16	89
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	-2,595 hours	32
Geographic Distribution	Change in regional accessibility	-296 hours	0
Network Leverage	Weighted sum of MTA, Public and Private ROW	50%	33

Findings

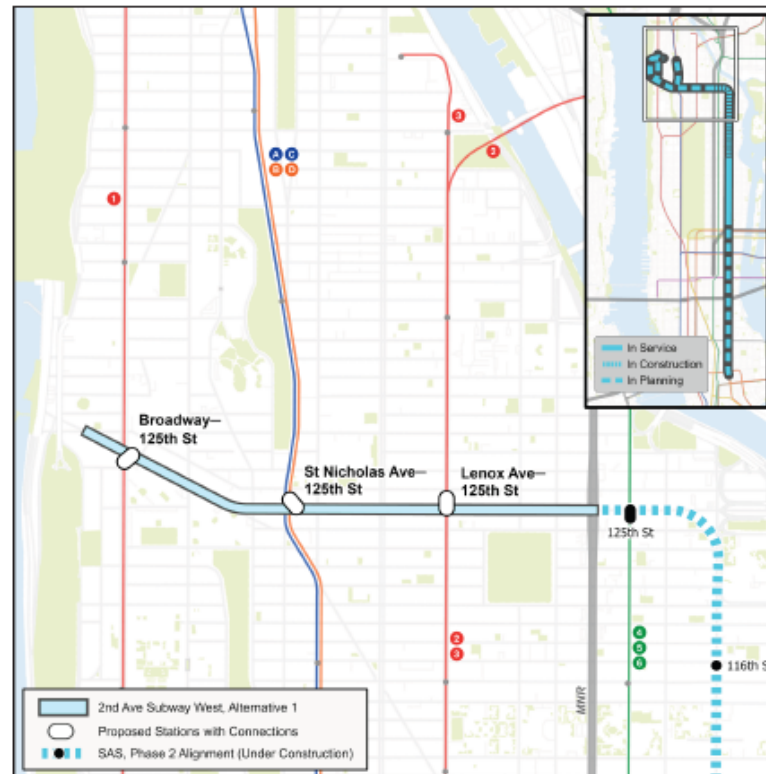
The high cost of this project is partially offset by the high ridership and moderate travel time savings.

Extending the Second Avenue Subway south to Houston St scores above average in cost effectiveness because of very high ridership and moderate time savings, which offset the project's the high cost. A little more than half of the total riders are from equity areas, resulting in an average score in equity. It reduces auto use only slightly and does not score as well in sustainability compared to other projects. However, it provides new rail connections to many subway lines, and gets a very high resiliency score. While it does reduce crowding, it scores below average in capacity compared to other projects. It does not really improve regional accessibility and scores poorly in geographic distribution. It scores below average in network leverage because it would require tunneling under New York City-owned streets.

Second Avenue Subway West Extension 125th Street/Broadway

Description: Extension of the Second Avenue Subway west along 125th Street, terminating at Broadway-125th St, with three new subway stations.

Project objectives: Improve mobility and connections between West and East sides of Manhattan; provide customers with accessibility to East Side job centers via Second Avenue Subway; add opportunities for development and growth near stations; reduce congestion on bus routes along 125th Street.



A-406

Above, Second Ave Subway West to 125th St/Broadway

Evaluation results

Construction Cost (2027): \$7.5 billion

Fleet Cost (2027): \$611 million

Annual O&M Cost (2027): \$65 million

Daily Ridership (2045): 239,700

New Daily Riders (2045): 7,500

Riders from Equity Areas (2045): 224,050

Travel Time Saved Per Trip (minutes): 3.6

Special Considerations:

Prerequisite to this project is the completion of Second Avenue Subway Phase 2.



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$1.43/min	97
Equity	Percent of riders from Equity Areas	93%	93
Sustainability	Change in daily vehicle miles traveled	-26,017	50
Resiliency	Rail connections within ½ mile (NYC) or 5 miles (suburbs)	11	61
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	-6,952 hours	87
Geographic Distribution	Change in regional accessibility	-4,106 hours	15
Network Leverage	Weighted sum of MTA, Public and Private ROW	50%	33

Findings

Despite the high cost, this project is cost effective with very high ridership and moderate travel time savings.

Extending the Second Avenue Subway west along 125th Street gets a high score in cost effectiveness because it provides a new east-west connection across Manhattan, saves travel time and serves a great deal of riders, most of which are in equity areas. It reduces car usage by a fair amount and connects with numerous other rail lines, resulting in average sustainability and high resiliency scores. It scores well on capacity since it reduces crowding, mainly on west side subway lines. Though it improves regional accessibility slightly, the score is low relative to other projects. It scores below average in network leverage because it would require tunneling under New York City-owned streets.

A-407

Many potential investments

MTA is evaluating a range of potential investments to improve the transit system. These investments include:

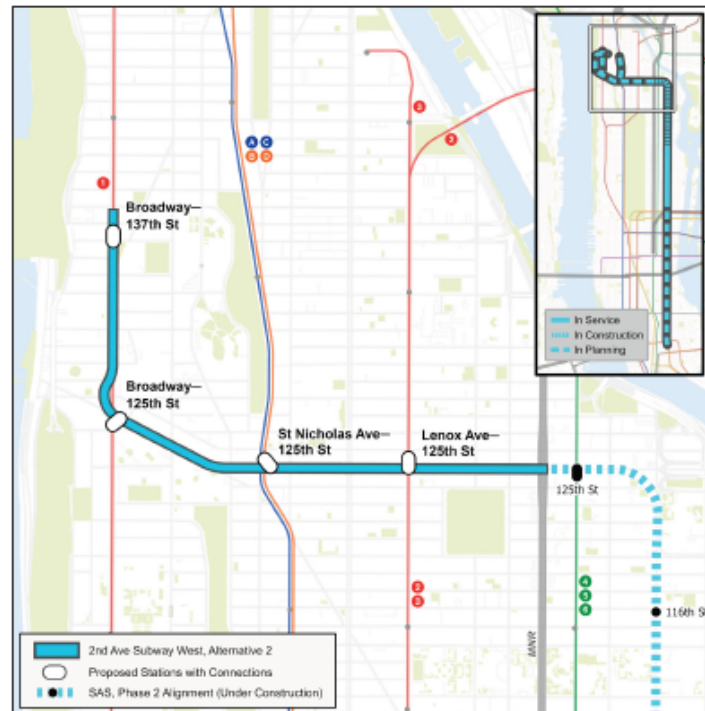
- Second Avenue Subway Phase 2
- Second Avenue Subway West Extension
- Third Avenue Subway
- Fourth Avenue Subway
- Fifth Avenue Subway
- Sixth Avenue Subway
- Seventh Avenue Subway
- Eighth Avenue Subway
- Ninth Avenue Subway
- Tenth Avenue Subway
- Eleventh Avenue Subway
- Twelfth Avenue Subway
- Thirteenth Avenue Subway
- Fourteenth Avenue Subway
- Fifteenth Avenue Subway
- Sixteenth Avenue Subway
- Seventeenth Avenue Subway
- Eighteenth Avenue Subway
- Nineteenth Avenue Subway
- Twentieth Avenue Subway

 More information at: www.mta.info/transportation-planning

Second Avenue Subway West Extension

Alternative Considered: 137th Street/Broadway via Broadway

Description: Extension of the Second Avenue Subway west along 125th Street then turning north along Broadway, terminating at Broadway-137th St, with up to four new subway stations.



Above, Second Ave Subway West to 137th St/Broadway via Broadway

Evaluation results

Construction Cost (2027): \$9.1 billion

Fleet Cost (2027): \$717 million

Annual O&M Cost (2027): \$80 million

Daily Ridership (2045): 256,800

New Daily Riders (2045): 8,800

Riders from Equity Areas (2045): 240,930

Travel Time Saved Per Trip (minutes): 3.8

Special Considerations:

Prerequisite to this project is the completion of Second Avenue Subway Phase 2.

Involves tunneling under existing 1 line requiring stabilization.



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$1.62/min	96
Equity	Percent of riders from Equity Areas	94%	93
Sustainability	Change in daily vehicle miles traveled	-31,518	56
Resiliency	Rail connections within ½ mile (NYC) or 5 miles (suburbs)	11	61
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	-10,377 hours	100
Geographic Distribution	Change in regional accessibility	-8,981 hours	34
Network Leverage	Weighted sum of MTA, Public and Private ROW	50%	33

Findings

This alternative is less cost effective than the 125th Street/Broadway alternative selected for analysis, with a higher cost without a correspondingly higher ridership or time savings benefit. As a result, preliminary analysis indicates that the 125th Street/Broadway alternative is the most promising westward configuration for Second Avenue Subway.

Feasibility of Other Alternatives:

Second Avenue Subway West to 137 Street/Broadway via Riverside

- This alternative was also considered as an alternate underground configuration to reach 137 St and Broadway. Cost modeling showed it would be more expensive and so it was not included in the final analysis at this time.

Second Avenue Subway West via St Nicholas Ave

- In further analyzing this alternative, significant operational problems were identified, especially related to capacity on the A B C D lines. As a result, this alternative was not selected for analysis at this time.

Speonk-Montauk Capacity Improvements

Description: Improvements of the Long Island Rail Road Montauk Branch between Speonk and Montauk, including signal upgrades and associated infrastructure work.

Project objectives: Improve operational flexibility and ability to add service westbound during the PM.



Evaluation results

Construction Cost (2027): \$260 million

Fleet Cost (2027): \$80 million

Annual O&M Cost (2027): \$6 million

Daily Ridership (2045): 1,500

New Daily Riders (2045): 100

Riders from Equity Areas (2045): 540

Travel Time Saved Per Trip (minutes): 2.9

Special Considerations:

Full investment package required to take full advantage of benefits, including provision of South Fork Commuter Connection service on summer Fridays in the PM peak.

Studies needed to assess fleet needs and right-of-way requirements.



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$13.66 /min	3
Equity	Percent of riders from Equity Areas	35%	16
Sustainability	Change in daily vehicle miles traveled	-2,143	24
Resiliency	Rail connections within ½ mile (NYC) or 5 miles (suburbs)	0	0
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	+1,063 hours	0
Geographic Distribution	Change in regional accessibility	-2,049 hours	7
Network Leverage	Weighted sum of MTA, Public and Private ROW	100%	100

Findings

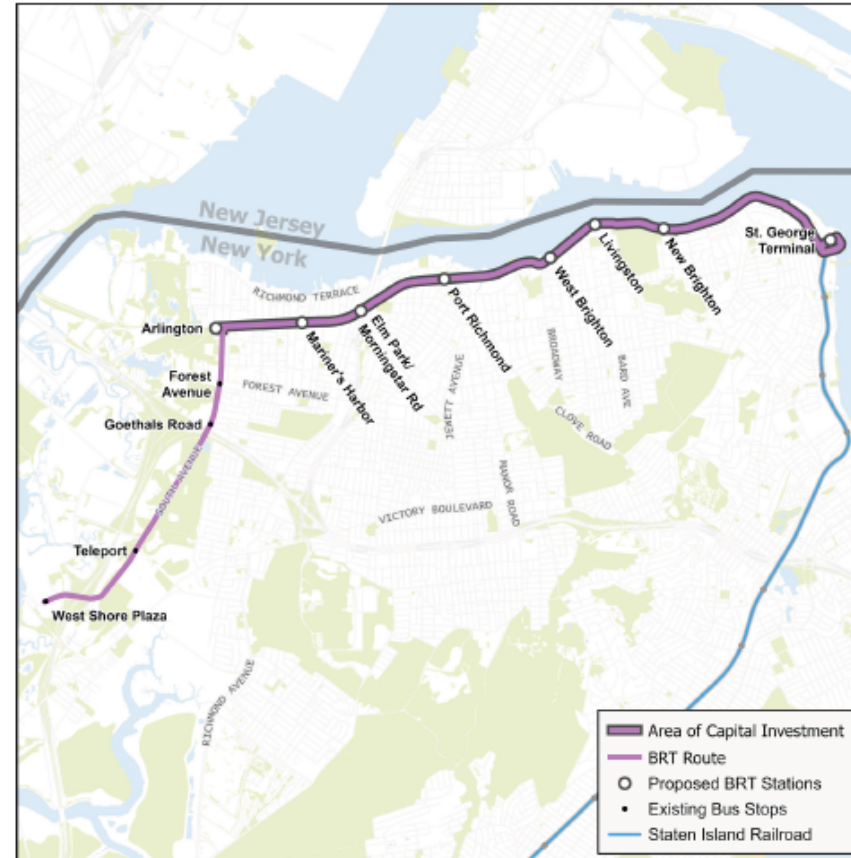
This project would not attract many riders and, despite its relatively low cost, it is not cost effective. It would not significantly address highway congestion concerns to/from the South Fork.

Improvements to the LIRR's Montauk Branch are not cost effective with very low ridership and moderate time savings. It would not serve many riders from equity areas. While it reduces vehicle usage slightly, it is below average compared to other projects and does not score well in sustainability. It does not provide any new rail connections and scores poorly in resiliency. It gets a low score for capacity as well, since it actually increases crowding and adds more riders to existing LIRR trains. It improves regional accessibility slightly but scores low in geographic distribution relative to other projects. Since it is entirely on MTA's right-of-way, it scores well in network leverage.

Staten Island North Shore Bus Rapid Transit

Description: Implementation of a new 8-mile Bus Rapid Transit (BRT) service along 4.8 miles of the former North Shore Railroad right-of-way and 3.2 miles on City streets; operating on an exclusive bus lane along Richmond Terrace (0.5 mi) and in mixed traffic along South Avenue (2.7 mi).

Project objectives: Improve connections between neighborhoods and existing North and West Shore activity centers, industries, employment centers, and the Staten Island Railway; enhance transit reliability.



A-412

Above, Staten Island North Shore Bus Rapid Transit

Evaluation results

Construction Cost (2027): \$1.3 billion

Fleet Cost (2027): \$34 million

Annual O&M Cost (2027): \$24 million

Daily Ridership (2045): 32,000

New Daily Riders (2045): 1,300

Riders from Equity Areas (2045): 22,820

Travel Time Saved Per Trip (minutes): 5.6

Special Considerations:

Competing transportation demands along portions of former North Shore railroad right-of-way and along Richmond Terrace, including potential impact to significant number of on-street parking spaces and NYPD parking.

Parkland alienation and historic preservation concerns at Snug Harbor.

Preserving active maritime business uses at Atlantic Salt and Caddell Dry Dock with a land exchange.



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$1,43/min	97
Equity	Percent of riders from Equity Areas	71%	64
Sustainability	Change in daily vehicle miles traveled	-7,904	30
Resiliency	Rail connections within ½ mile (NYC) or 5 miles (suburbs)	1	6
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	+42 hours	0
Geographic Distribution	Change in regional accessibility	-11,013 hours	42
Network Leverage	Weighted sum of MTA, Public and Private ROW	50%	33

Findings

This project improves reliability and efficiency, resulting in the travel time savings for a significant number of riders and a high cost effectiveness score.

A new BRT route along Staten Island's North Shore receives a high cost effectiveness score due to reduced travel times for a significant number of riders. It scores above average in equity since many of those riders are from equity areas. Although it reduces vehicle usage, it is below average compared to other projects and receives a fair score in sustainability. It scores poorly in resiliency since it only provides one new rail connection. It scores poorly in capacity as well since it increases crowding by adding riders to subway lines in lower Manhattan. It improves regional accessibility and receives an average score in geographic distribution relative to other projects. For network leverage, it scores below average since its alignment is along New York City-owned right-of-way.

A-413

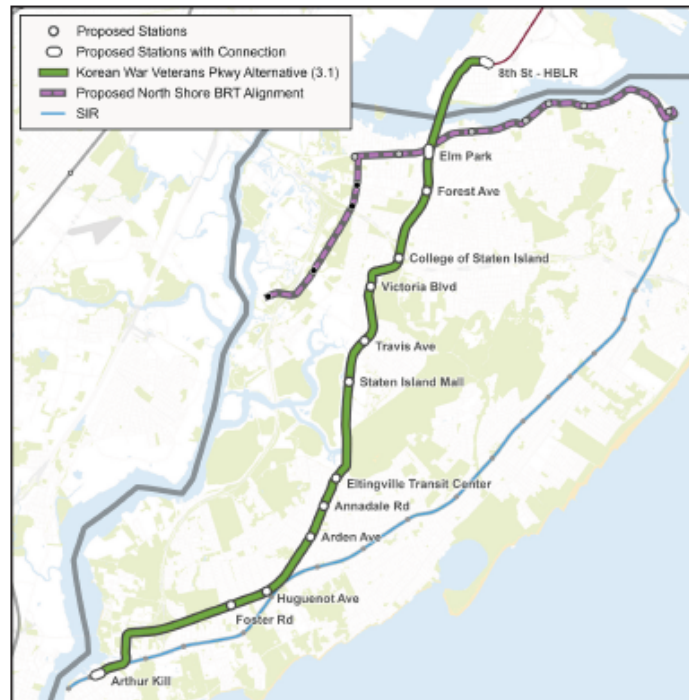
Staten Island West Shore Bus Rapid Transit

Korean War Veterans Pkwy

Description: Improvements to transit connectivity and access within, to, and from the West Shore of Staten Island.

The best performing alternative considered is Bus Rapid Transit along Korean War Veterans Pkwy and Richmond Avenue from Tottenville to Bayonne

Project Objectives: Provide more reliable transit service on Staten Island's West Shore. Improve connections between neighborhoods, activity, and employment centers, and add opportunities for development and growth near stations.



A-414

Above, Staten Island West Shore BRT via Korean War Veterans Pkwy

Evaluation results

Construction Cost (2027): \$1.9 billion

Fleet Cost (2027): \$11 million

Annual O&M Cost (2027): \$29 million

Daily Ridership (2045): 16,900

New Daily Riders (2045): 3,500

Riders from Equity Areas (2045): 6,320

Travel Time Saved Per Trip (minutes): 9.9

Special Considerations:

The North Shore BRT project is part of the baseline for the West Shore Transit Improvements. Therefore, the West Shore Transit improvements could not occur until after North Shore BRT is operational.

Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$1.95/min	93
Equity	Percent of riders from Equity Areas	37%	19
Sustainability	Change in daily vehicle miles traveled	-25,279	49
Resiliency	Rail connections within ½ mile (NYC) or 5 miles (suburbs)	3	17
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	-46 hours	0
Geographic Distribution	Change in regional accessibility	-25,566 hours	100
Network Leverage	Weighted sum of MTA, Public and Private ROW	50%	33

Findings

This project would provide better connections and reliability, resulting in significant travel time savings, but for a relatively small number of riders.

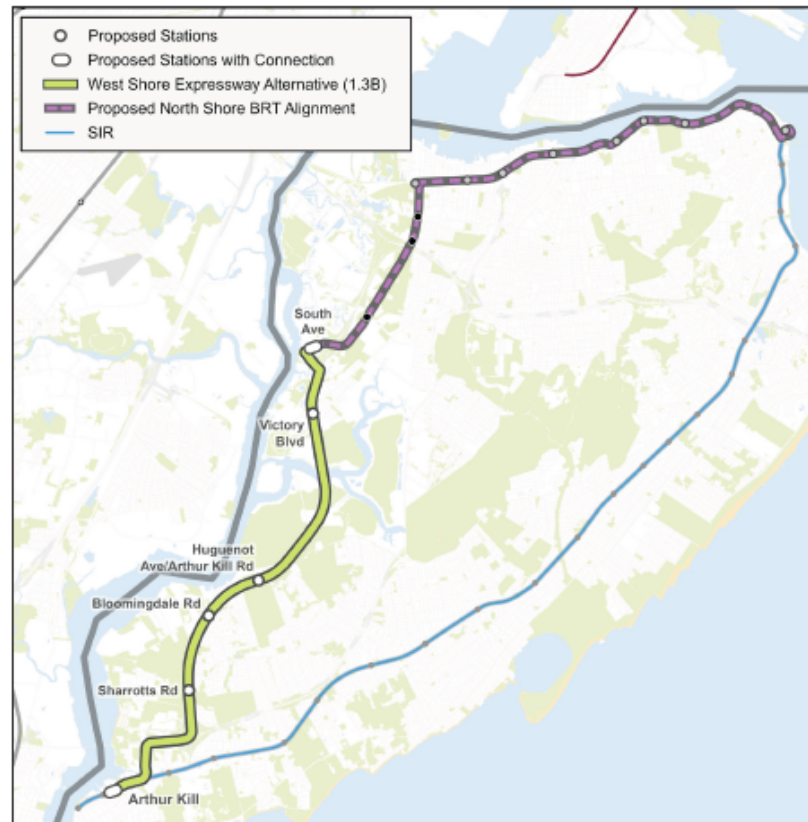
A new BRT route along Staten Island's Korean War Veterans parkway receives a high cost effectiveness score since it provides a significant reduction in travel time for project riders. It improves regional accessibility and receives a high score geographic distribution. It receives a low score in equity since about a third of riders are from equity areas. The reduction in vehicle usage is moderate and it receives an average score in sustainability. Resiliency is below average compared to other projects, but it would provide connections to three rail lines, one of which is NJ Transit LRT at Bayonne. It scores poorly in capacity since it does not meaningfully reduce crowding. For network leverage, it scores below average since its alignment is along City-owned right-of-way.

A-415

Staten Island West Shore Bus Rapid Transit

Alternative Considered: West Shore Expressway

Description: Bus Rapid Transit along West Shore Expwy from Tottenville to North Shore.



A-416

Above, Staten Island West Shore BRT via West Shore Expressway

Evaluation results

Construction Cost (2027): \$2.1 billion

Fleet Cost (2027): \$16 million

Annual O&M Cost (2027): \$24 million

Daily Ridership (2045): 8,200

New Daily Riders (2045): 2,200

Riders from Equity Areas (2045): 2,440

Travel Time Saved Per Trip (minutes): 12.8

Special Considerations:

The North Shore BRT project is part of the baseline for the West Shore Transit Improvements. Therefore, the West Shore Transit improvements could not occur until after North Shore BRT is operational.



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$3.34/min	82
Equity	Percent of riders from Equity Areas	30%	9
Sustainability	Change in daily vehicle miles traveled	-16,545	39
Resiliency	Rail connections within ½ mile (NYC) or 5 miles (suburbs)	1	6
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	-47 hours	0
Geographic Distribution	Change in regional accessibility	-10,613 hours	41
Network Leverage	Weighted sum of MTA, Public and Private ROW	50%	33

Findings

Routing the West Shore BRT via the West Shore Expressway is less cost effective than via the Korean War Veterans Parkway, as its ridership is lower while its cost is higher.

A-417

Stewart Airport Commuter Rail

Description: Implementation of new or improved transit service to Stewart International Airport (SWF). Several alternatives were analyzed, as listed below, although the Evaluation results on this page correspond to the Commuter Rail option.

- Bus from Beacon Station on the Metro-North Hudson Line
- Direct bus service from NYC
- Commuter rail extension from Salisbury Mill on the Port Jervis Line*
- Bus Rapid Transit from Salisbury Mills

Project objectives: Improve mobility and transit access between Orange County, Stewart International Airport and surrounding regions, Lower Hudson Valley, and New York City and reduce traffic and vehicle emissions to/from the airport.



Evaluation results

Construction Cost (2027): \$1.4 billion

Fleet Cost (2027): \$461 million

Annual O&M Cost (2027): \$43 million

Daily Ridership (2045): 4,300

New Daily Riders (2045): 1,900

Riders from Equity Areas (2045): 3,260

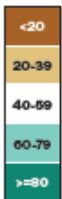
Travel Time Saved Per Trip (minutes): 7.9

Special Considerations:

Commuter rail extension from Salisbury Mills Station on the Port Jervis Line (PJL) to SWF would be the only alternative that MTA Metro-North would operate.

Direct Manhattan Service via Secaucus Loop, Gateway Program, Penn Station Expansion, other NJ improvements, and PJL improvements are a prerequisite.

Requires coordination with the PANYNJ, NYS DOT, and the Town of New Windsor.



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$10,65/ min	26
Equity	Percent of riders from Equity Areas	75%	68
Sustainability	Change in daily vehicle miles traveled	-117,470	100
Resiliency	Rail connections within ½ mile (NYC) or 5 miles (suburbs)	1	6
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	+3 hours	0
Geographic Distribution	Change in regional accessibility	+20,390 hours	0
Network Leverage	Weighted sum of MTA, Public and Private ROW	30%	7

Findings

This project would attract relatively few riders at a high cost, and is dependent on additional long-term, high cost regional investments.

Construction of a commuter rail extension from the Port Jervis Line to Stewart Airport does not score well in most metrics. Cost effectiveness gets a low score mainly due to low ridership and the high cost. It does score above average in equity since many of its riders are from equity areas. Also, it reduces vehicle usage significantly, largely because it provides an alternative to driving to Stewart Airport therefore getting a high score in sustainability. It would only provide one new rail connection, resulting in a low resiliency score. It does not improve capacity or geographic distribution, both of which receive low scores. Network leverage gets a low score since MTA does not own the right-of-way along the proposed alignment.

Sunnyside Station (LIRR)

Description: Construction of a new Long Island Rail Road station in Sunnyside/Long Island City area.

Project objectives: Improve connectivity for Sunnyside and Long Island City neighborhoods to the existing network.



Above, Sunnyside Station (LIRR)

Evaluation results

Construction Cost (2027): \$490 million

Fleet Cost (2027): N/A

Annual O&M Cost (2027): \$2 million

Daily Ridership (2045): 7,900

New Daily Riders (2045): 900

Riders from Equity Areas (2045): 5,120

Travel Time Saved Per Trip (minutes): 1.6

Special Considerations:

Unique and complex station location at Harold Interlocking.

Coordination required with Amtrak, which owns the right-of-way.

Adds travel time for existing LIRR customers.



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	No Time Saved*	0
Equity	Percent of riders from Equity Areas	65%	55
Sustainability	Change in daily vehicle miles traveled	-15,006	38
Resiliency	Rail connections within ½ mile (NYC) or 5 miles (suburbs)	6	33
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	+1,216 hours	0
Geographic Distribution	Change in regional accessibility	-246,220 hours	100
Network Leverage	Weighted sum of MTA, Public and Private ROW	38%	17

* No overall time savings due to increased travel for existing users.

Findings

This project saves travel time for new riders but creates additional travel time for existing LIRR customers, resulting in no net time savings. Despite the relatively low cost, there are marginal benefits in an area already well served by transit.

A new LIRR station in Sunnyside/Long Island City is not cost effective even though it saves time for new riders, because it creates additional travel time for existing LIRR customers, resulting in no net time savings. It receives an average score for equity since more than half of the riders are from equity areas. It provides new connections to rail lines and scores average in resiliency, but the reduction in vehicle usage is lower than other projects and it receives a fair score in sustainability. The network leverage score is below average because MTA does not own the land required for this station.

Feasibility of Other Alternatives:

In addition to creating a stop for LIRR service, creating a stop for Metro-North Penn Access Service at the proposed Sunnyside station was explored. Metro-North and Amtrak trains from the Hell Gate Line (connecting from points north) will follow the newly constructed Westbound Bypass through the busy Harold Interlocking to avoid interference with LIRR inbound services. Since the Westbound Bypass is climbing a grade from a tunnel at the location of the proposed Sunnyside Station, it is not physically possible to stop trains using the bypass at the Sunnyside platforms (which are already locationally constrained due to track geometry).

Tenth Av Station on the 7 Line

Description: Construction of a new subway station at 41 Street and 10 Avenue on the 7.

Project objectives: Shorten commute times to developing areas of Hudson Yards.



Above, 10th Ave Station on the Flushing 7 Line

Evaluation results

Construction Cost (2027): \$1.9 billion

Fleet Cost (2027): \$41 million

Annual O&M Cost (2027): \$10 million

Daily Ridership (2045): 55,000

New Daily Riders (2045): 600

Riders from Equity Areas (2045): 26,860

Travel Time Saved Per Trip (minutes): 0.9

Special Considerations:

Easement needed in CUNY building to lead to a 40th St station house; additional ventilation building has not been obtained.

Coordination with PANYNJ needed to ensure new bus terminal does not encroach on station envelope, minimizes elements that would prevent the station from being built via cut and cover, and to understand potential connections between new bus terminal and station.



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$81.29/min	0
Equity	Percent of riders from Equity Areas	49%	34
Sustainability	Change in daily vehicle miles traveled	-198	22
Resiliency	Rail connections within ½ mile (NYC) or 5 miles (suburbs)	3	17
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	-1,086 hours	13
Geographic Distribution	Change in regional accessibility	-1,023 hours	3
Network Leverage	Weighted sum of MTA, Public and Private ROW	100%	100

Findings

This project has a high cost in relation to the benefits that it provides. While it would shorten travel times slightly for a small number of new riders, it would add travel time for existing riders to or from 34th St.

An infill station on the 7 line would shorten commute times for some customers traveling to and from emerging areas of Hell's Kitchen and Hudson Yards, but the project would have a significant construction cost and would not substantially decrease crowding or expand accessibility regionally, since it serves an area already served by other transit lines. The project would reduce the travel times for those using the station by 1 minute, but it would increase the travel times of those traveling through the station by 1 minute as well, resulting in small overall time savings in relation to the cost of the project. The project does not perform well in serving riders from equity areas in relation to other projects. It scores well in network leverage since it's within the MTA's right-of-way.

Utica Nostrand Junction Capacity Improvements

Description: Construction of subway improvements, including three new crossovers at the Brooklyn IRT (numbered lines) terminals and extended storage tracks south of Crown Heights-Utica Av to alleviate the Nostrand Junction chokepoint and improve service.

Project objectives: Boost service reliability and capacity by mitigating congestion issues at Nostrand Junction. Addresses major bottlenecks, enhance operations, and reliability. Increase service capacity for existing customers of the 2 3 4 5 lines not just in Brooklyn, but also in Manhattan and the Bronx.



Evaluation results

Construction Cost (2027): \$410 million

Fleet Cost (2027): \$230 million

Annual O&M Cost (2027): \$24 million

Daily Ridership (2045): 319,900

New Daily Riders (2045): 8,700

Riders from Equity Areas (2045): 295,080

Travel Time Saved Per Trip (minutes): 1.7

Special Considerations:

Subway improvements are required to add capacity and remove Nostrand Junction bottlenecks; this is a separate project and is assumed as a baseline condition for for Utica Avenue transit improvements.

Branch to Flatbush Av-Brooklyn College loses direct service requires cross-platform transfer to Lexington Av line weekdays

Service Plan:

2 3 lines to/from Flatbush Av-Brooklyn College

4 5 lines to/from Crown Heights-Utica Av and New Lots Av

A new 6 line to/from New Lots Av with local stops at Nostrand Av and Kingston Av

Findings

This project alleviates a major chokepoint at Nostrand Junction, resulting in significant benefits for customers along the entirety of some of the busiest subway lines, and increases service on 2 3. It reduces travel times for thousands of riders, many of them from equity areas.

The Utica Nostrand Junction Capacity Improvements scores very well in most metrics, with a low cost for total time saved, high ridership, high number of riders from equity areas. The subway improvements scores very well in reducing passenger hours of crowding, improves regional accessibility and scores highly in equity. The project reduces crowding on the 3 4 5 lines.



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$0.28/min	100
Equity	Percent of riders from Equity Areas	92%	91
Sustainability	Change in daily vehicle miles traveled	-55,752	82
Resiliency	Rail connections within ½ mile (NYC) or 5 miles (suburbs)	2	11
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	-13,078 hours	100
Geographic Distribution	Change in regional accessibility	-43,841 hours	100
Network Leverage	Weighted sum of MTA, Public and Private ROW	100%	100

Utica Alt A: BRT (Kings Plaza to Woodhull Hospital)

Description: Implementation of enhanced transit services along the Utica Avenue Corridor in southeast Brooklyn by considering several options, with subway improvements as part of the baseline. Alternative A consists of a Bus Rapid Transit (BRT) route between Kings Plaza and Woodhull Hospital, with center running BRT lanes and stations.

Project objectives: Improve travel options for intra- and inter-borough travelers in underserved communities to activity centers; provides opportunities for development and growth near stations; address major bottlenecks and enhances service for existing customers of the 2 3 4 5 lines as well as the B46 local and B46-SBS bus customers, one of the city's busiest bus corridors.



Above, Utica Alt A: BRT (Kings Plaza to Woodhull Hospital)

Evaluation results

Construction Cost (2027): \$300 million

Fleet Cost (2027): N/A

Annual O&M Cost (2027): \$6 million

Daily Ridership (2045): 71,900

New Daily Riders (2045): 3,900

Riders from Equity Areas (2045): 67,810

Travel Time Saved Per Trip (minutes): 3.9

Service Plan:

2 3 lines to/from Flatbush Av-Brooklyn College

4 line to/from New Lots Av and Crown Heights-Utica Av

5 to New Lots Av and Crown Heights-Utica Av

8 to New Lots Av

BRT (Alt A): BRT replaces B46 local/SBS between Woodhull Hospital and Kings Plaza



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$0.36/min	100
Equity	Percent of riders from Equity Areas	94%	94
Sustainability	Change in daily vehicle miles traveled	-16,692	40
Resiliency	Rail connections within 1/2 mile (NYC) or 5 miles (suburbs)	6	33
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	+3,674 hours	0
Geographic Distribution	Change in regional accessibility	-6,484 hours	24
Network Leverage	Weighted sum of MTA, Public and Private ROW	59%	45

Findings

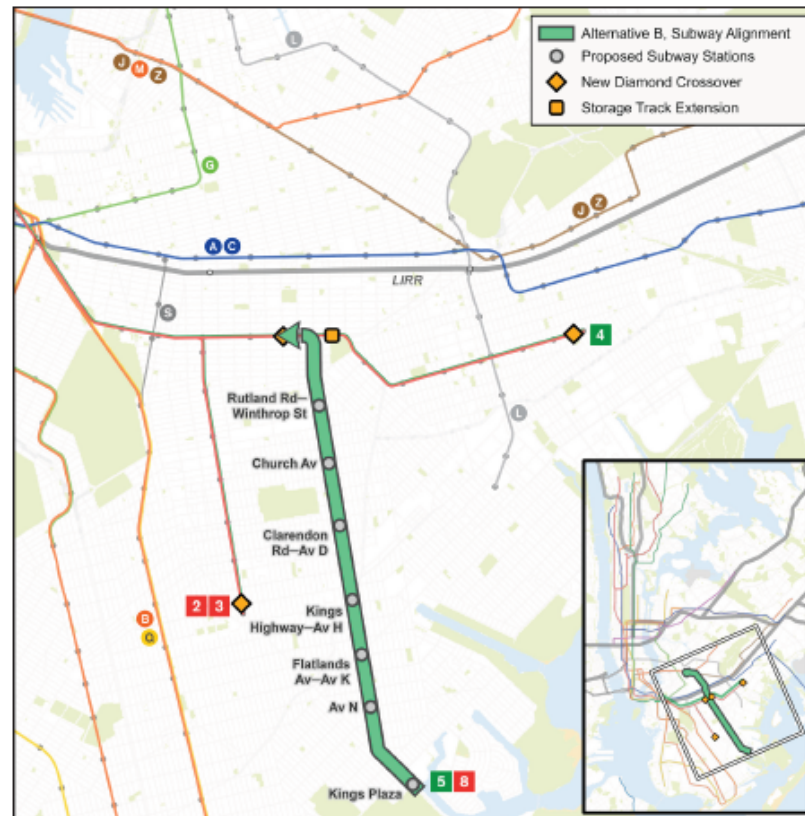
Utica Alt A BRT does very well in cost effectiveness and equity.

A BRT route between Kings Plaza-Woodhull Hospital receives a high cost effectiveness score due to its relatively low cost, high ridership and moderate time savings. It also scores highly in equity with most of its riders from equity areas. Since the BRT would extend north of Utica Avenue, it would provide rail connections to the A C J M, as well as the 4 5 at Utica Avenue, resulting in an average resiliency score. The reduction in vehicle usage is moderate in relation to other projects and it receives average scores in sustainability. This BRT option scores poorly in capacity since it would result in a net increase in crowding due to transfers to the subway, increasing it on others that are at or near capacity already. Regional accessibility is improved but is relatively low compared to other projects and scores below average. Since most of the BRT alignment is on New York City-owned streets and not on MTA property, it gets an average network leverage score.

Utica Alt B: Subway to Kings Plaza

Description: Implementation of enhanced transit services along the Utica Avenue Corridor in southeast Brooklyn by considering several options, with subway improvements as part of the baseline. Alternative B consists of a subway extension to Kings Plaza.

Project objectives: Improve travel options for intra- and inter-borough travelers in underserved communities to activity centers; provides opportunities for development and growth near stations; address major bottlenecks and enhances service for existing customers of the 2 3 4 5 lines as well as the B46 local and B46-SBS bus customers, one of the city's busiest bus corridors.



Evaluation results

Construction Cost (2027): \$15.8 billion

Fleet Cost (2027): \$410 million

Annual O&M Cost (2027): \$124 million

Daily Ridership (2045): 55,600

New Daily Riders (2045): 2,900

Riders from Equity Areas (2045): 48,060

Travel Time Saved Per Trip (minutes): 9.0

Service Plan:

2 3 lines to/from Flatbush Av-Brooklyn College

4 line to/from New Lots Av

5 line to/from Kings Plaza

3 line to/from Kings Plaza with local stops at Nostrand Av and Kingston Av



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$4.82/min	71
Equity	Percent of riders from Equity Areas	86%	83
Sustainability	Change in daily vehicle miles traveled	-30,917	55
Resiliency	Rail connections within ½ mile (NYC) or 5 miles (suburbs)	2	11
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	-3,364 hours	42
Geographic Distribution	Change in regional accessibility	-13,184 hours	51
Network Leverage	Weighted sum of MTA, Public and Private ROW	59%	45

Findings

Utica Alt B is in the middle when it comes to cost effectiveness, mainly because of travel time savings and high ridership. However, cost is extremely high, especially in comparison to the Utica Alt A BRT, which also delivers significant benefits for a fraction of the cost.

A full subway extension to Kings Plaza along Utica Avenue (Alt B) receives an above average cost effectiveness score mainly due to the travel time savings it provides project riders, though it is very expensive. It scores well in equity with the majority of its riders from equity areas. With only two new rail connections, it receives a low score in resiliency, because, unlike the BRT, the subway extension would not provide new connections to the A C D M north Utica Avenue. It would reduce vehicle usage enough that it receives an average score in sustainability. This subway extension has the potential to reduce crowding systemwide and gets a average score for capacity. Similarly, it would improve regional accessibility somewhat, and gets an average score for geographic distribution. Since most of the subway alignment is on New York City-owned streets and not on MTA property, it gets an average network leverage score.

Utica Alt C: Subway to Church Avenue and BRT

Description: Implementation of enhanced transit services along the Utica Avenue Corridor in southeast Brooklyn by considering several options, with subway improvements as part of the baseline. Alternative C consists of a subway extension to Church Avenue and a Bus Rapid Transit route between Kings Plaza and Woodhull Hospital.

Project objectives: Improve travel options for intra- and inter-borough travelers in underserved communities to activity centers; provides opportunities for development and growth near stations; address major bottlenecks and enhances service for existing customers of the 2 3 4 5 lines as well as the B46 local and B46-SBS bus customers, one of the city's busiest bus corridors.



A-430

Above, Utica Ave Alt C: Subway to Church Ave and BRT

Evaluation results

Construction Cost (2027): \$6.9 billion

Fleet Cost (2027): \$190 million

Annual O&M Cost (2027): \$47 million

Daily Ridership (2045): 81,200

New Daily Riders (2045): 7,300

Riders from Equity Areas (2045): 75,680

Travel Time Saved Per Trip (minutes): 7.3

Service Plan:

2 3 lines to/from Flatbush Av-Brooklyn College

4 line to/from New Lots Av

5 line to/from Church Av

8 line to/from Church Av with local stops at Nosstrand Av and Kingston Av



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$1.73/min	95
Equity	Percent of riders from Equity Areas	93%	92
Sustainability	Change in daily vehicle miles traveled	-39,094	64
Resiliency	Rail connections within ½ mile (NYC) or 5 miles (suburbs)	6	33
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	-4,121 hours	51
Geographic Distribution	Change in regional accessibility	-12,715 hours	49
Network Leverage	Weighted sum of MTA, Public and Private ROW	59%	45

Findings

Utica Alt C is in the middle when it comes to cost effectiveness, mainly because of travel time savings and high ridership. However, the cost is extremely high, especially in comparison to the Utica Alt A BRT, which also delivers significant benefits for a fraction of the cost.

A partial subway extension to Church Avenue along Utica Avenue (Alt C) receives an above average cost effectiveness score mainly due to the travel time savings for a significant number of riders in a dense portion of Brooklyn, though it is still quite expensive. It scores well in equity with the majority of its riders from equity areas. It provides six new rail connections and receives an average score in resiliency, and an above average score in sustainability due to a significant reduction in vehicle usage. This partial subway extension gets average scores in capacity and geographic distribution since it does result in some crowding reductions and improves regional accessibility. Since most of the alignment is on New York City-owned streets and not on MTA property, it gets an average network leverage score.

A-431

W to Red Hook

Description: Extension of the W line from Whitehall Street in Manhattan through the Montague Street Tunnel to Red Hook, Brooklyn with three additional new stations at Columbia St, Atlantic Basin, and Red Hook.

Project objectives: Increase service and transit options for communities in Red Hook; reduce travel times between Red Hook and Lower Manhattan; and provide opportunities for development and growth near stations.



A-432

Above, W to Red Hook

Evaluation results

Construction Cost (2027): \$11.2 billion

Fleet Cost (2027): \$295 million

Annual O&M Cost (2027): \$68 million

Daily Ridership (2045): 7,600

New Daily Riders (2045): 100

Riders from Equity Areas (2045): 1,740

Travel Time Saved Per Trip (minutes): 2.4

Special Considerations:

Significant project risks include:

- Breaking through Montague Tube's cast-iron lining.
- Constructing a grade separated turnout under Furman Street.
- Avoiding potential conflicts with BQE triple cantilever reconstruction and the Red Hook Interceptor Sewer.



Scorecard			
Criteria	Metrics	Result	Score (0-100)
Cost, Ridership & Time Savings	Cost/Time saved (30 years)	\$90.46 /min	0
Equity	Percent of riders from Equity Areas	23%	0
Sustainability	Change in daily vehicle miles traveled	-1,154	23
Resiliency	Rail connections within ½ mile (NYC) or 5 miles (suburbs)	0	0
Capacity	Change in passenger hours of crowding systemwide (AM peak period)	-8,012 hours	100
Geographic Distribution	Change in regional accessibility	-1,297 hours	4
Network Leverage	Weighted average of MTA, Public and Private ROW	65%	53

Findings

The project performs poorly due to its high cost in relation to its benefits. Despite reducing crowding, the project would attract relatively few riders, while providing no significant improvements in time savings, geographic distribution, or percentage of equity riders.

Extending the W line to Red Hook gets a low score in cost effectiveness due to its high cost and low ridership. It does not score well in equity with less than a quarter of its riders from equity areas. It reduces vehicle usage slightly, but in comparison to other projects, it gets a below average score in sustainability. Only one new rail connection is provided resulting in a low score in resiliency. This project scores very well in capacity since it reduces crowding on existing subway lines by providing an alternative to the 4 5 2 3 6 N lines serving Brooklyn, and improves crowding on the 6 by providing additional service on the parallel W. Geographic distribution receives a low score, relative to other projects, since the regional accessibility improvement is small. The network leverage score is average because only about a third of the alignment is on MTA owned right-of-way.

A-433

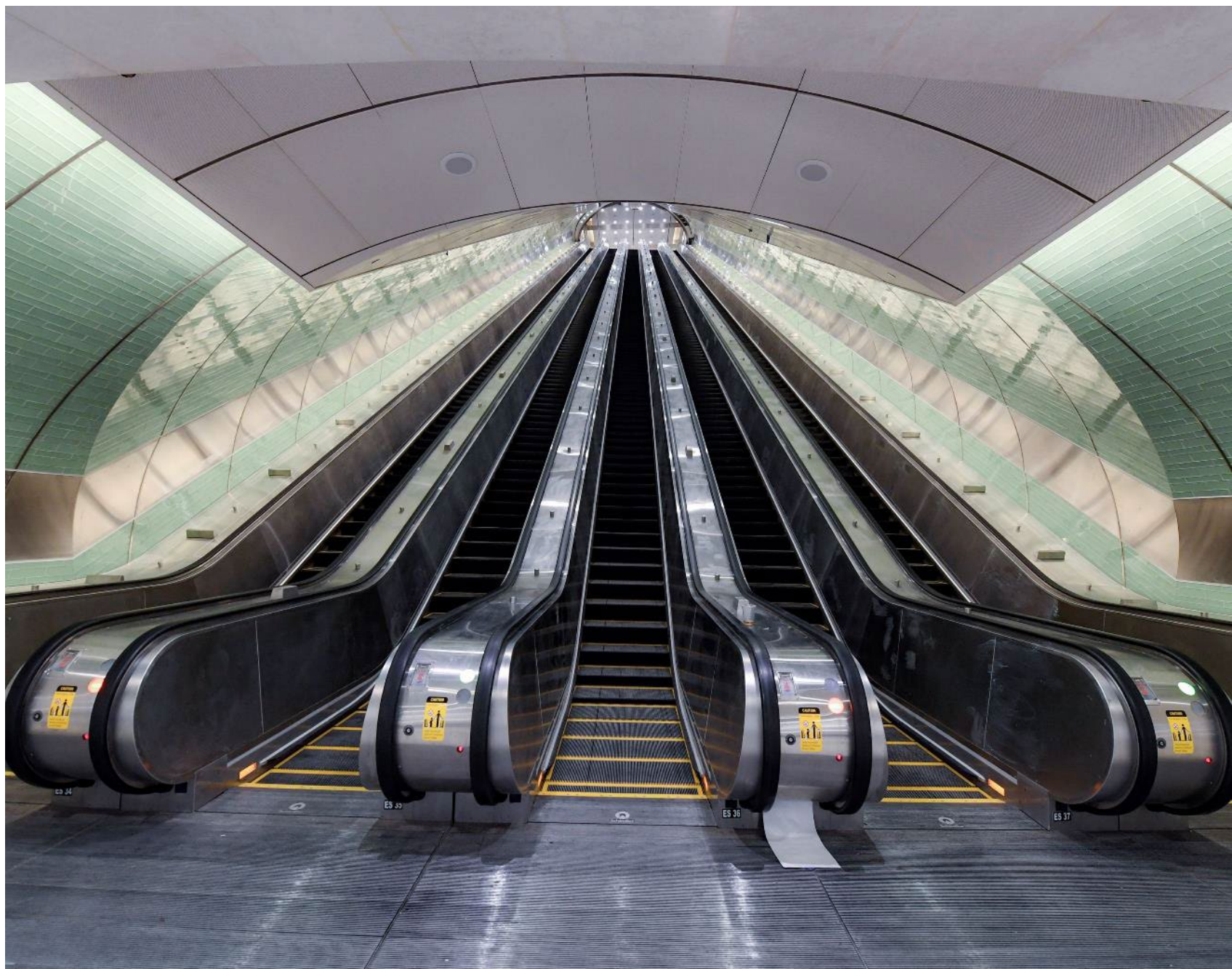
Many potential investments

- Danbury-Southeast Connection
- Elmhurst Station (LIRR)
- Harlem Line Capacity Improvements
- Hudson Line to Penn Station
- Inner New Haven Line Yard
- Interborough Express (IBX)
- Lower Montauk Branch Reactivation
- New Lots Ave No 3 Line to Flatlands
- Port Jefferson Branch Capacity Improvements
- Port Jervis Line Capacity Improvements
- Ridgewood Busway
- Rockaway Beach Branch
- Second Avenue Subway South to Houston
- Second Avenue Subway West to 125th & Bwy
- Speonk-Montauk Capacity Improvements
- Staten Island North Shore Bus Rapid Transit (BRT)
- Staten Island West Shore Bus Rapid Transit (BRT)
- Stewart Airport Commuter Rail
- Sunnyside Station
- Tenth Ave Station on the No 7 Line
- Utica Ave Transit Improvements
- W Line to Red Hook

These projects have not been selected or funded but will be comparatively evaluated for consideration on a level-playing field for future Capital Programs.

More information at: future.mta.info

Next Steps



We've made a commitment to run full service

The historic leadership of Governor Hochul and the State Legislature in averting the fiscal cliff on the operating budget

That investment is essential, but it's just half the equation – keeping service running requires capital investment, too



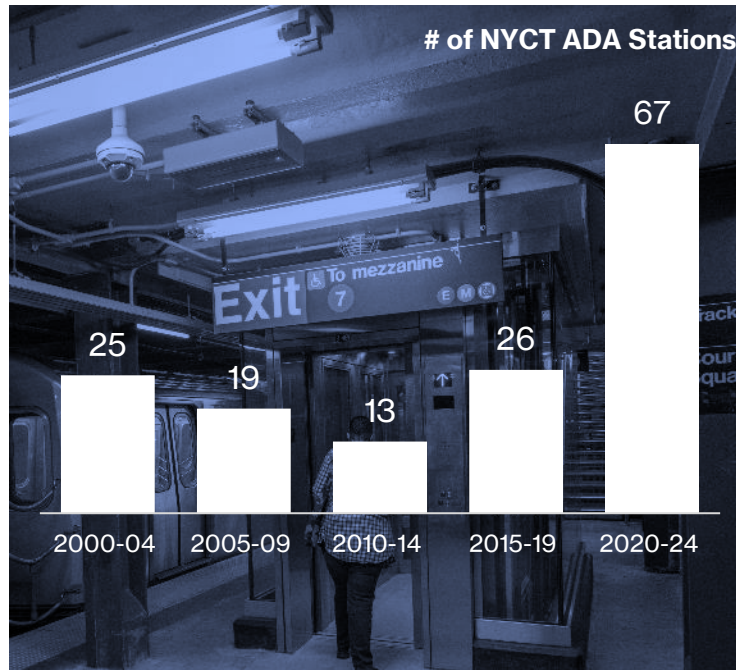
Governor Kathy Hochul chats with riders following the historic budget announcement

We have been building at a historic pace – and more cost effectively



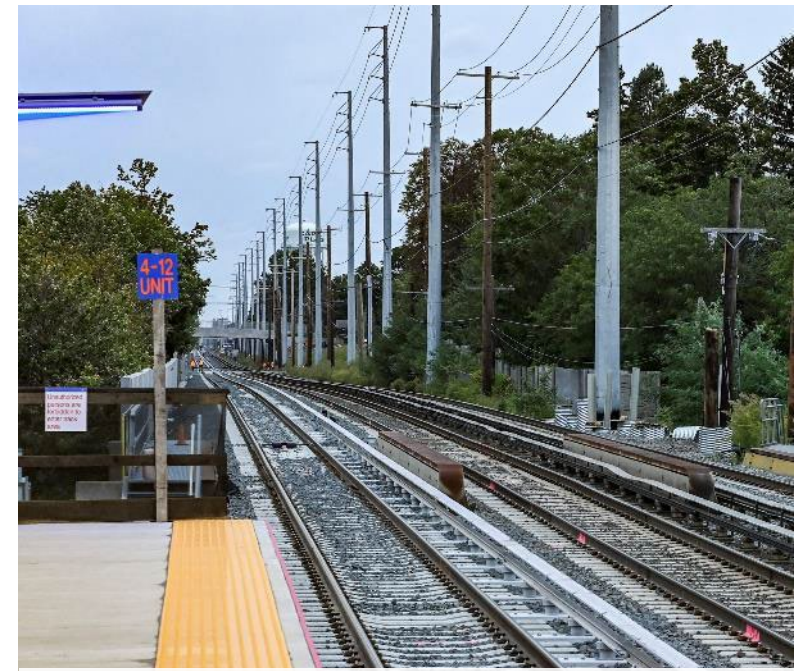
Better

From Third Track to Canarsie Tube to LIRR Concourse, major projects completed on time and budget.



Faster

Faster pace and faster projects – including 2x the number of ADA projects in this capital program.



Cheaper

Projects came in \$345 million under estimate in 2022.

The MTA is ready to meet this moment

Secure historic commitment to the operating budget



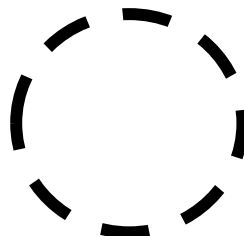
Overhaul Capital Program: more efficient and seeing results



Complete Needs Assessment



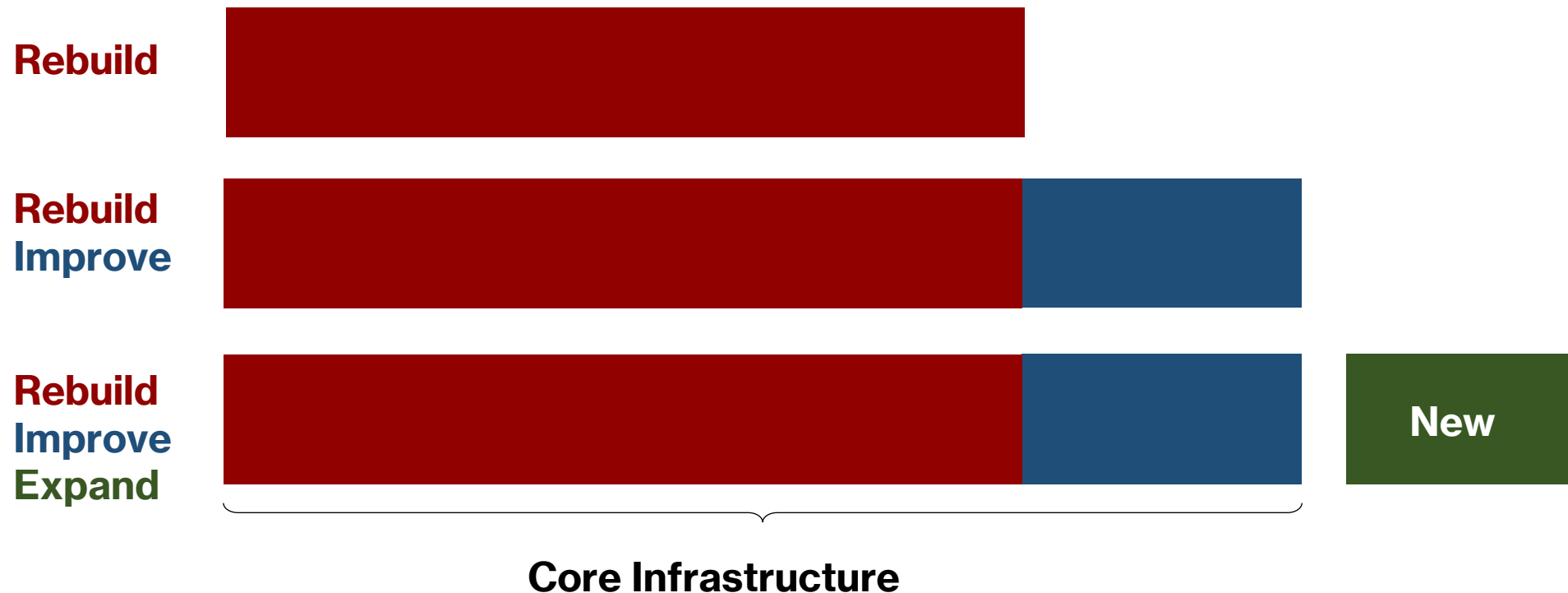
Secure Next Capital Program (2025-2029)



What we get done will be shaped by the resources allocated

The next step will be to translate the need into a proposed 5-year capital program. Different funding levels will mean different outcomes for the riding public. We will also need strong partnerships with government and stakeholders.

Three Parts to the Capital Program



To see the full plan, visit
future.mta.info

