

Nashua-Manchester (Capitol Corridor) Project Development Phase

Public Information Meeting

November 17, 2021



Zoom Webinar Format and Instructions

Zoom Webinar automatically mutes all attendees

- Only the meeting host can give attendees access to unmute themselves during the Q&A session
- You will not be able to turn your video on during this meeting

Raise your hand to speak

- Moderator will take questions and comments following the presentation
- Attendees will be called on to speak and asked to unmute themselves

Zoom Webinar Format and Instructions

If dialing into the Zoom Webinar via phone:

- Press *9 to raise hand
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Submit a question or a comment in the Q&A button

- Moderator will read questions and comments from the Q&A button following the presentation
- Moderator will alternate calling on people in-person and virtually to speak
- If you have technical difficulties, please submit a comment in the Q&A button
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Zoom Webinar Functions

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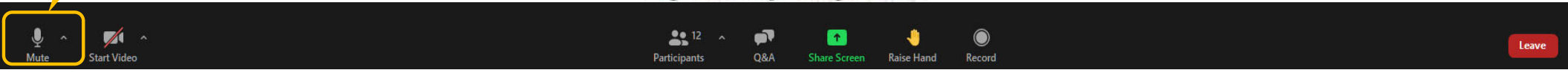


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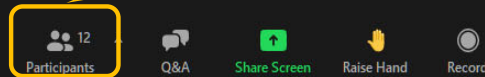


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Public Information Meeting

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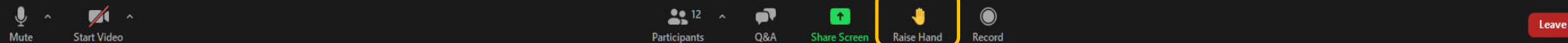
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Public Information Meeting

November 17, 2021

**Raise your Hand to
Speak**

Department of Transportation



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Type in a Question or a
Comment



Agenda

- Project purpose and background
- Environmental Assessment
- Proposed infrastructure
- Operating plan and ridership
- Costs and revenues
- Financial Plan
- Next steps

Purpose

The purpose of the Nashua-Manchester project is to *diversify mobility options* that *connect the Southern New Hampshire region* with the population, employment, and commercial centers in the *Greater Boston area*, reduce congestion, emissions, and travel time, and *provide mobility options that promote equity and support demographic trends and travel preferences* in the project corridor.

Background

- Provide alternative to congestion on I-93/Rt3 by extending the MBTA Lowell Commuter Rail Line to serve southern New Hampshire
- Improve bi-directional access to jobs & housing
- Includes upgraded track and infrastructure, four new stations, and a layover facility
- Locally Preferred Alternative builds upon the 2014 findings and recommendations

The current phase of work includes:

- Environmental Assessment under Federal Transit Administration (FTA) process
- 30% design for 30-mile extension of Lowell Line and related infrastructure;
- A detailed and sustainable Financial Plan

Project Benefits

Transportation and Mobility: Leverage the existing transportation network to improve access and mobility within the corridor and throughout the region

- Alternative to congested roadway travel
- Increased travel network capacity

System Integration: Invest in transportation improvements that complement the existing multi-modal transportation network

- Increases modal connectivity
- Nashua and Manchester RTAs, and MHT

Economic Development & Land Use:

Support the vision for growth laid out in local/regional development plans

- Supports Transit Oriented Development (TOD)
- Attracts and retains workforce in southern NH

Sustainability: Support

transportation investments that contribute to an environmentally, economically, and socially sustainable community

- Leverages existing transportation infrastructure
- Supports sustainable development patterns

Environmental Assessment

- Federally-required document under the National Environmental Protection Act (NEPA)
- Federal Transit Administration (FTA) is lead Federal agency
- Identifies natural and man-made resources within project area
- Identifies project-related impacts to natural resources and people living in the project area
- Identifies measures to avoid, minimize or mitigate potential impacts

Environmental Assessment

Reviews wide range of potential impacts, including:

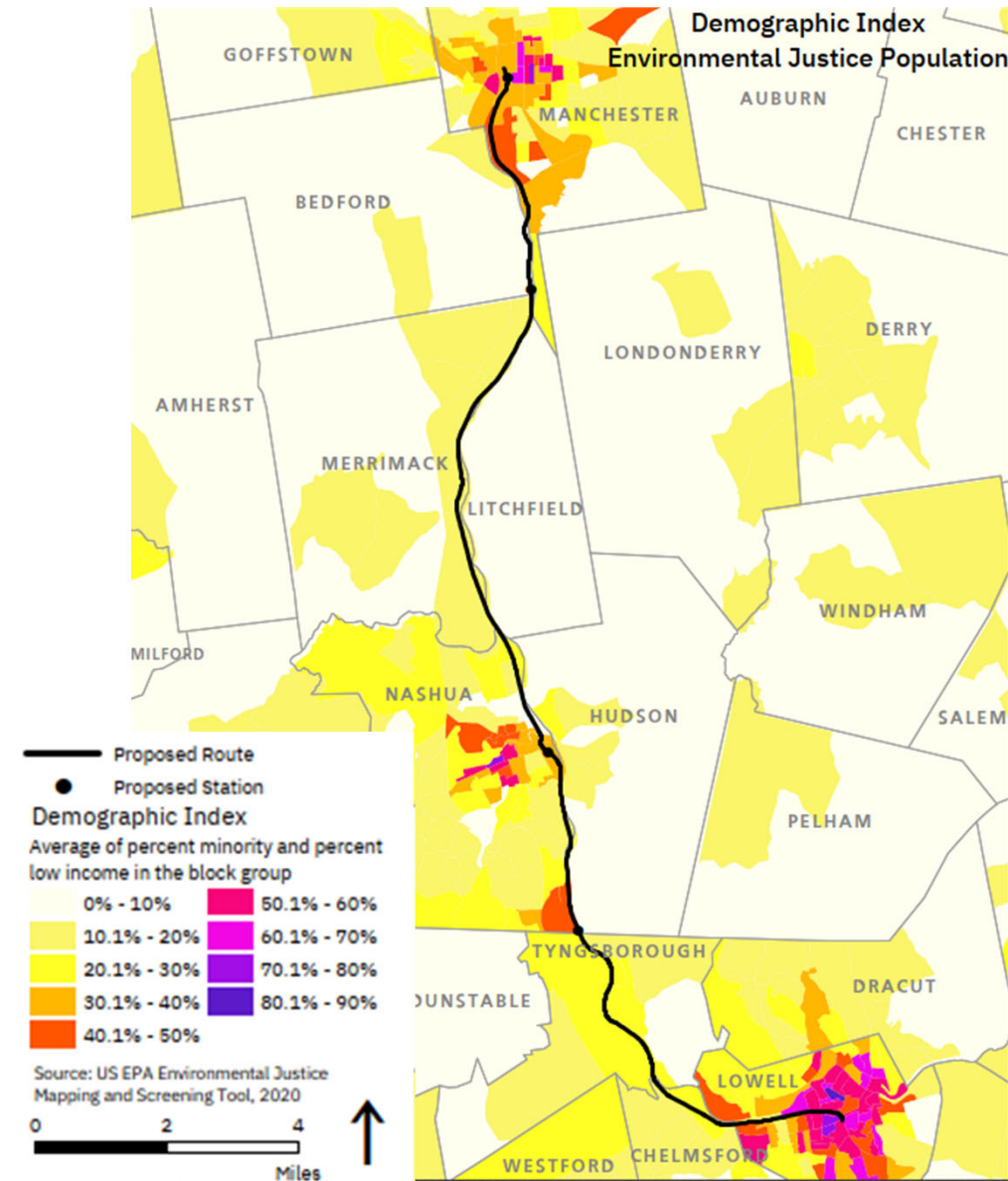
- Wetland and water resources
- Rare species habitat
- Public open space
- Historic and archaeological resources
- Noise and air quality
- Economic/socioeconomic
- Hazardous materials
- Traffic

Environmental Justice Considerations

Environmental Justice:

- Project cannot have a disproportionately negative effect on disadvantaged populations within the study area
- Identifies areas with higher-than-average minority, low-income and limited English proficiency populations
- Identifies transit-dependent populations (zero-vehicle households)
- Project will endeavor to provide benefits to Environmental Justice populations

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Track and Related Infrastructure

- Upgrade 30 route miles of track between Lowell, MA and Manchester, NH
 - Improve existing track to FRA Class 4 to support commuter rail speeds
 - Restore second track in key segments to support operating plan
- Provide modern signal system
- Upgrade existing bridges to support proposed service
- Improve existing at-grade crossings with new warning systems
- Repair/replace culverts, switches, and sidings as needed



NH Mainline Existing Conditions

- Track
 - Class 2 (25mph Freight, 30mph Passenger)
 - Running rail is jointed circa 1944
 - Deficient tie and ballast condition
- Signal System & Grade Crossings
 - Signals Decommissioned in 2016
 - Many grade crossings without gates/warning systems
- Right-of-Way
 - Overgrown – cut back to improve sight distances
 - Isolated drainage, embankment and ditch issues
- Bridges and Culverts:
 - Generally, in fair to good condition
 - One bridge to replace, along w/ several decks, heavy vegetation around abutments



Highlights of Proposed Work

- Fix Erosion Problems at select culvert headwalls
- Extend culverts and Rebuild headwalls for 2nd Track



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Highlights of Proposed Work

New warning system/gates needed at several unprotected private grade crossings



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Highlights of Proposed Work

- Replace poor condition wooden bridge decks
- Replace Lock St. undergrade bridge in Nashua



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Station Design Criteria

Operational Requirements

- Manchester is the primary terminus station
- Separate station track desirable to avoid freight conflicts
- MBTA is assumed operator

Design Criteria

- Design pursuant to MBTA and federal standards (CFR Title 49 vol. 1 §37.41-37.43)



Stations Locations

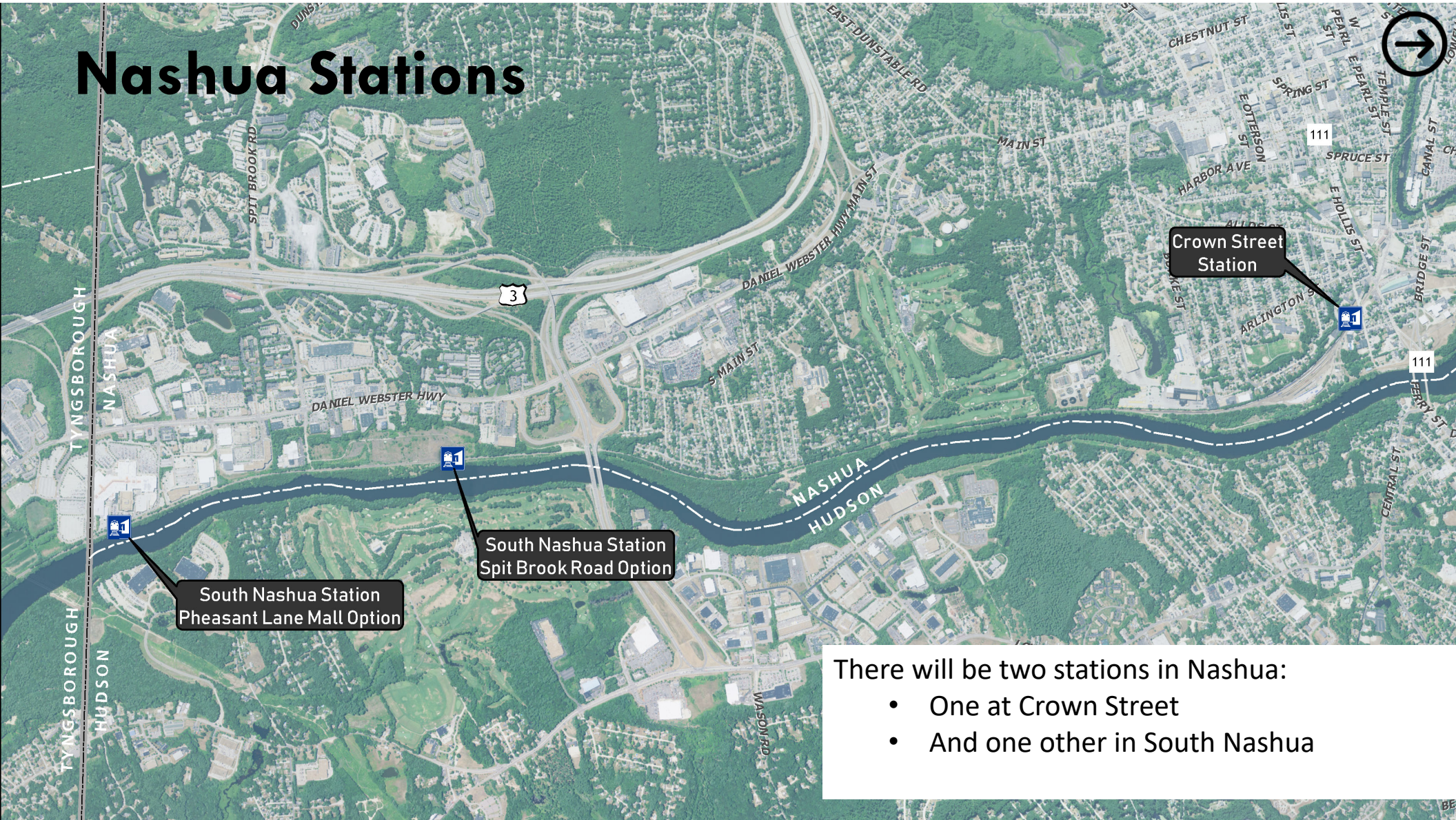
The project will include 4 stops, including:

- South Nashua
- Nashua – Crown Street
- Bedford/MHT
- Manchester

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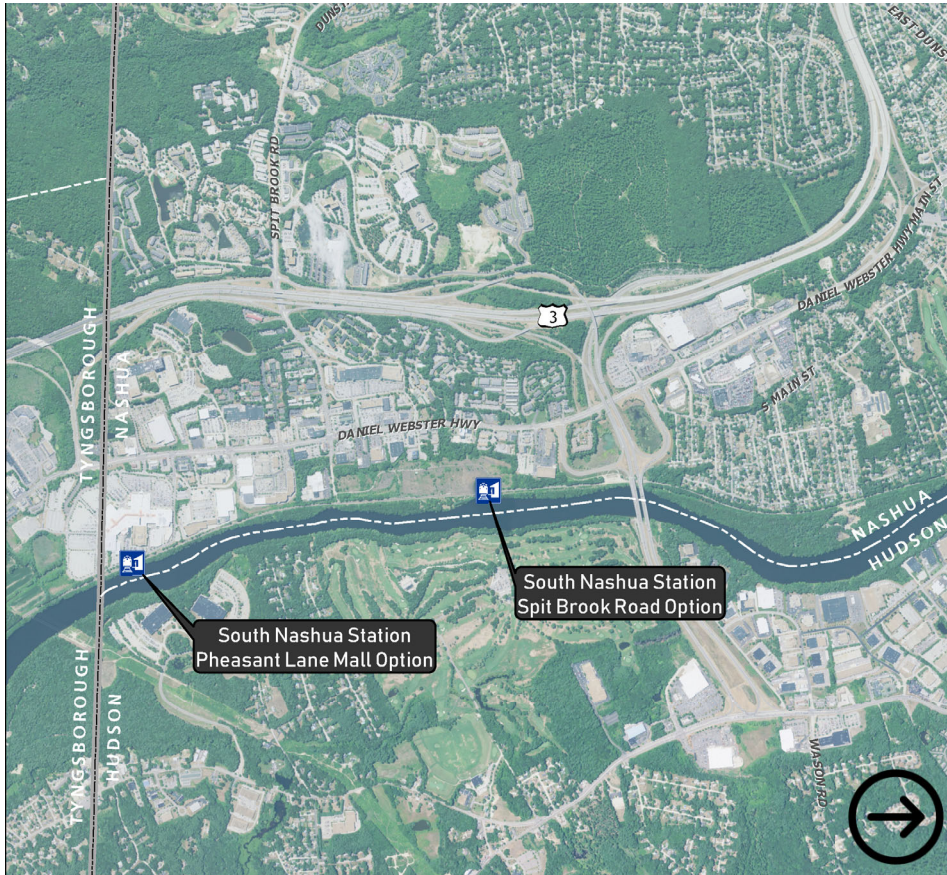
Nashua Stations



There will be two stations in Nashua:

- One at Crown Street
- And one other in South Nashua

South Nashua Station Options



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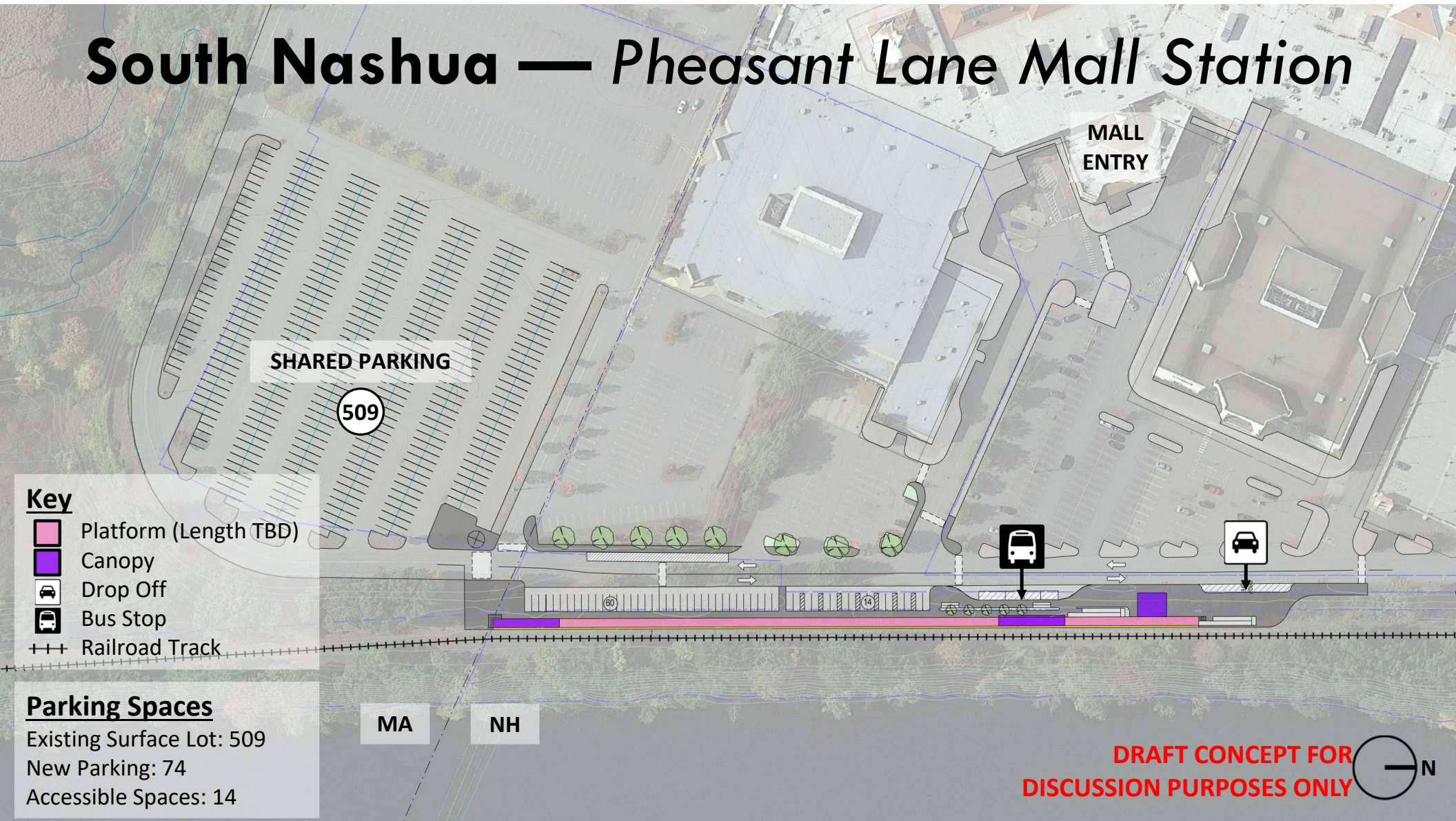
Two options were evaluated for a South Nashua Station:

- Pheasant Lane Mall
- Spit Brook Road

The Pheasant Lane Mall Option is preferred:

- Greater TOD potential
- Leverages existing infrastructure
- Fewer environmental impacts

South Nashua — Pheasant Lane Mall Station



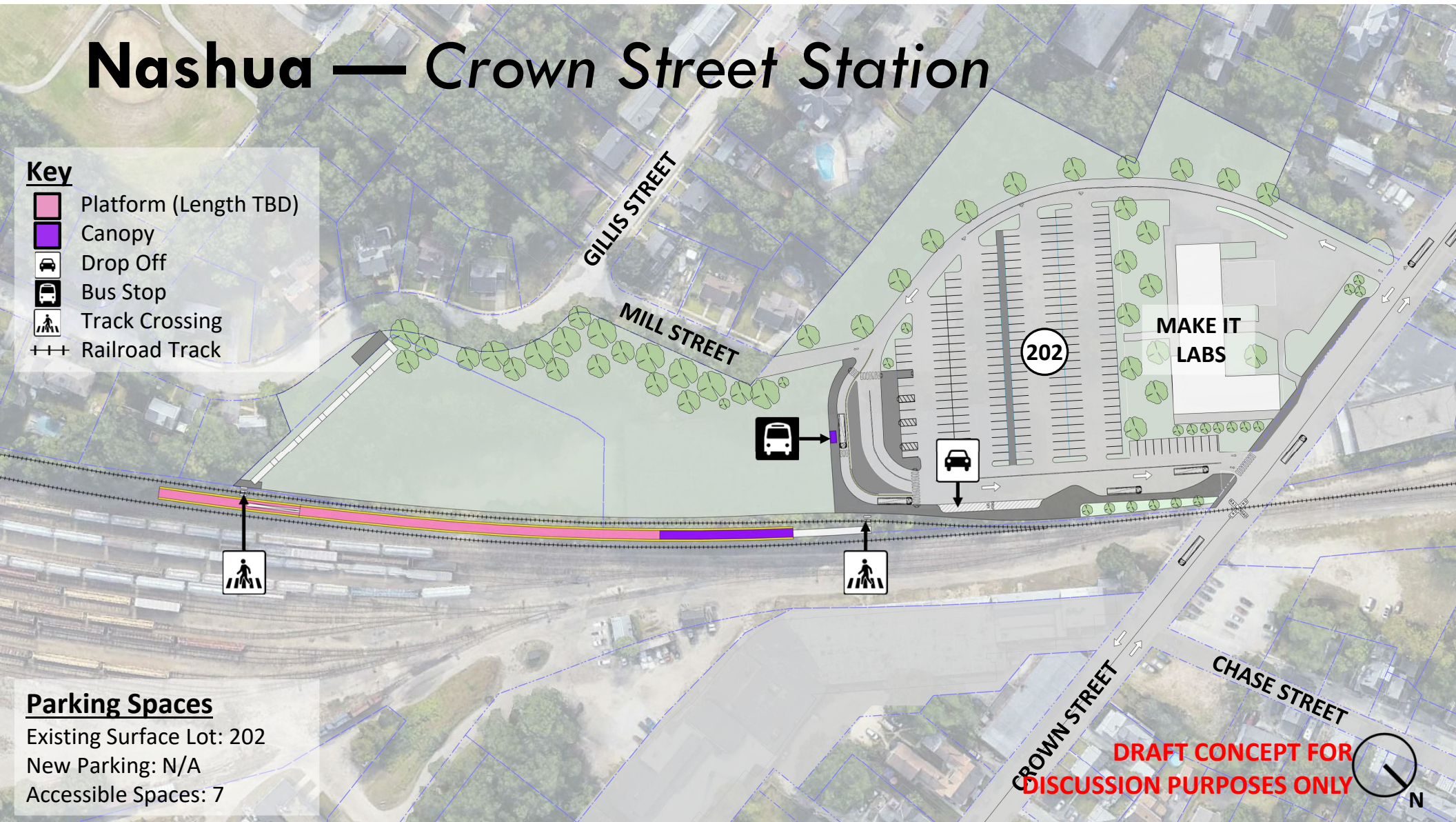
Nashua — Crown Street Station

Key

-  Platform (Length TBD)
-  Canopy
-  Drop Off
-  Bus Stop
-  Track Crossing
-  Railroad Track

Parking Spaces

Existing Surface Lot: 202
New Parking: N/A
Accessible Spaces: 7



DRAFT CONCEPT FOR DISCUSSION PURPOSES ONLY

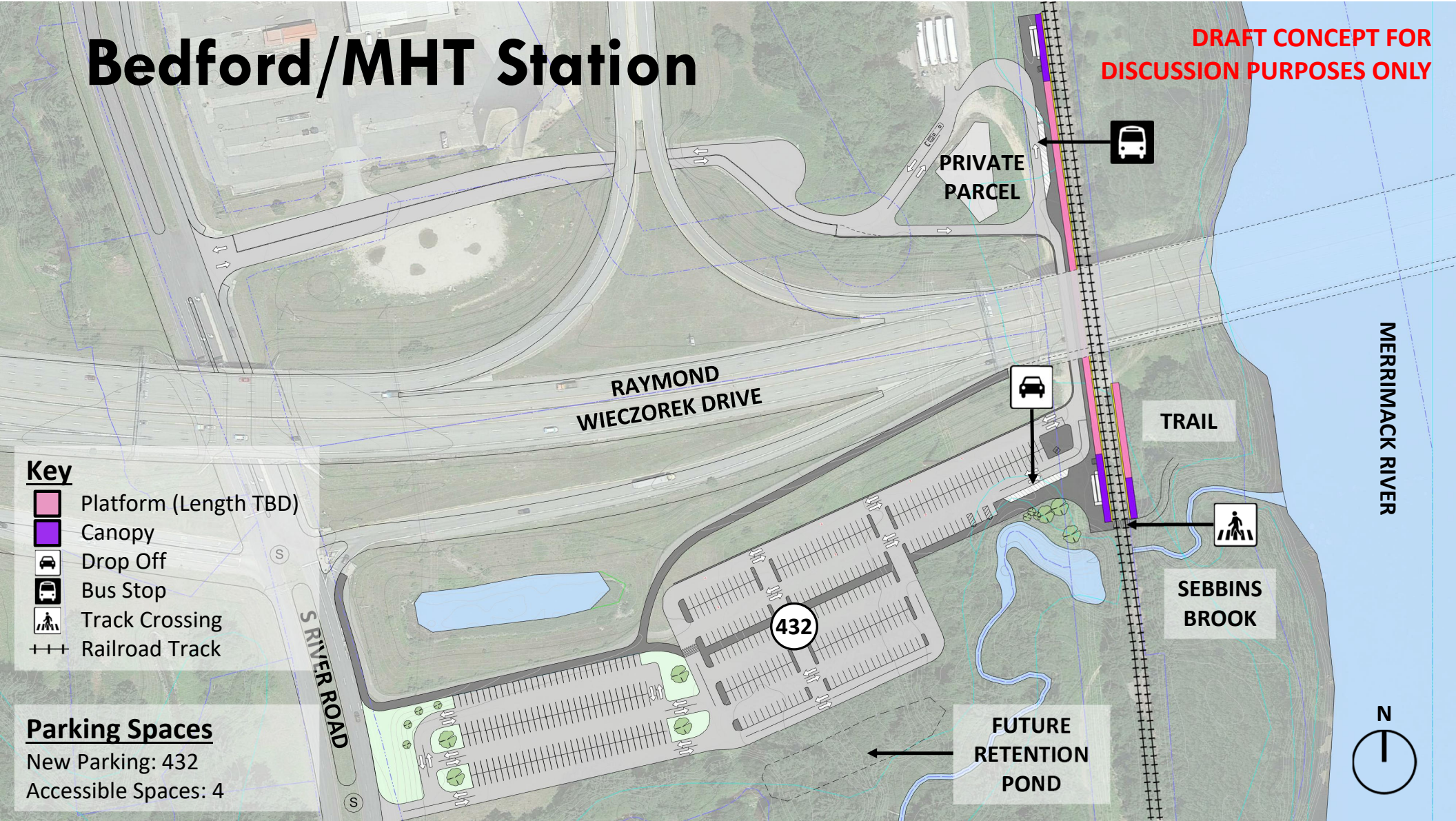


Bedford/MHT Station

DRAFT CONCEPT FOR DISCUSSION PURPOSES ONLY

- Key**
- Platform (Length TBD)
 - Canopy
 - Drop Off
 - Bus Stop
 - Track Crossing
 - Railroad Track

Parking Spaces
New Parking: 432
Accessible Spaces: 4



PRIVATE PARCEL

RAYMOND WICZOREK DRIVE

TRAIL

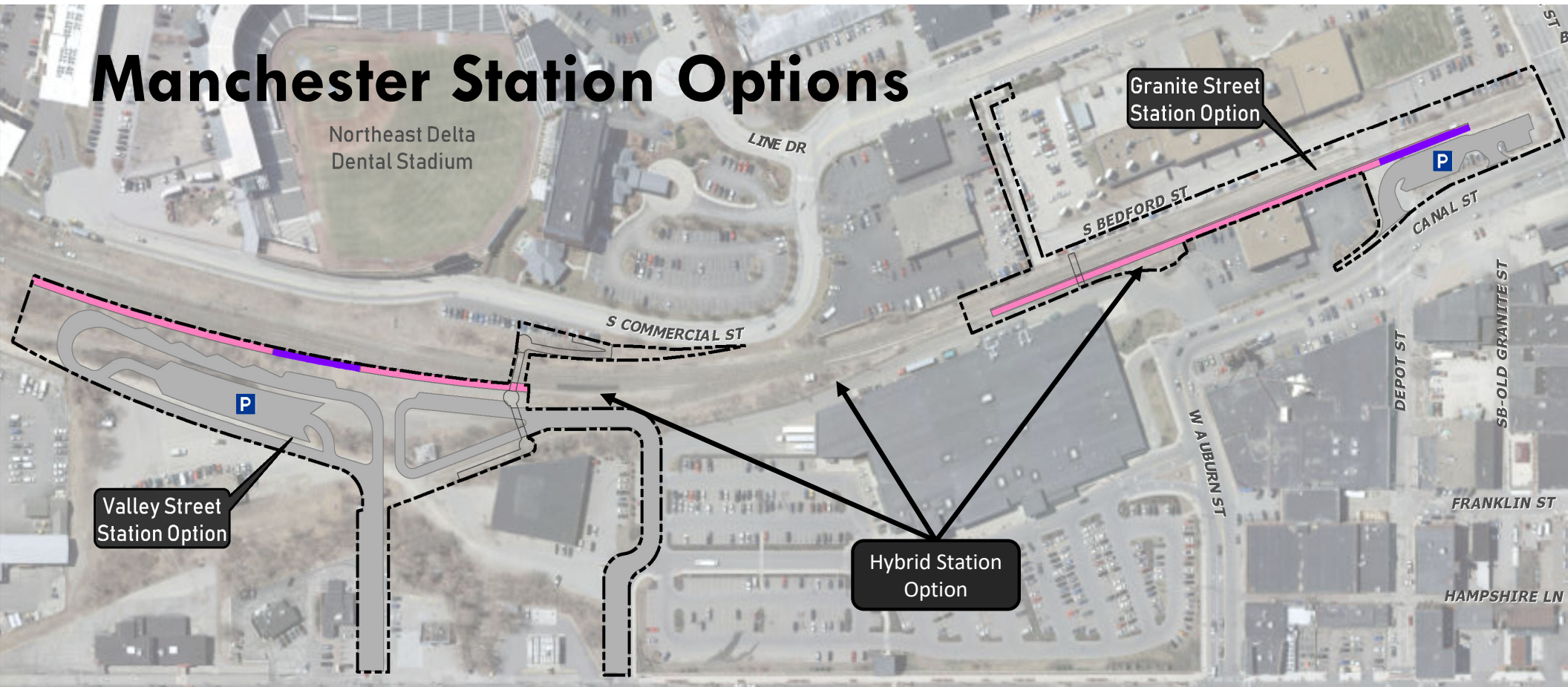
SEBBINS BROOK

FUTURE RETENTION POND

MERRIMACK RIVER



Manchester Station Options



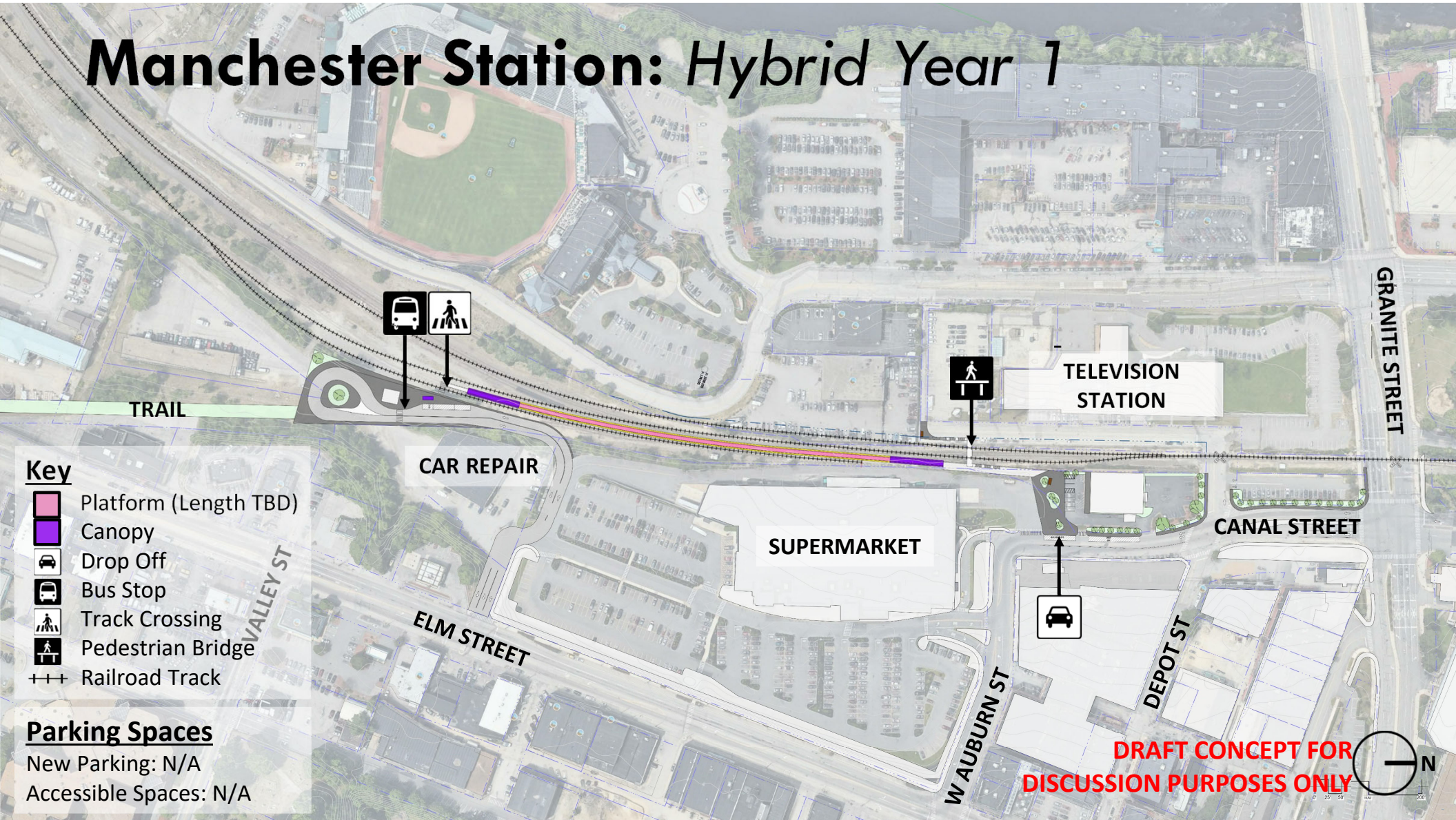
Three station options were investigated for Manchester:

- Valley Street (originally noted by the TOD plan)
- Granite Street (originally noted by 2014 work)
- Hybrid Station (created to address operational constraints)

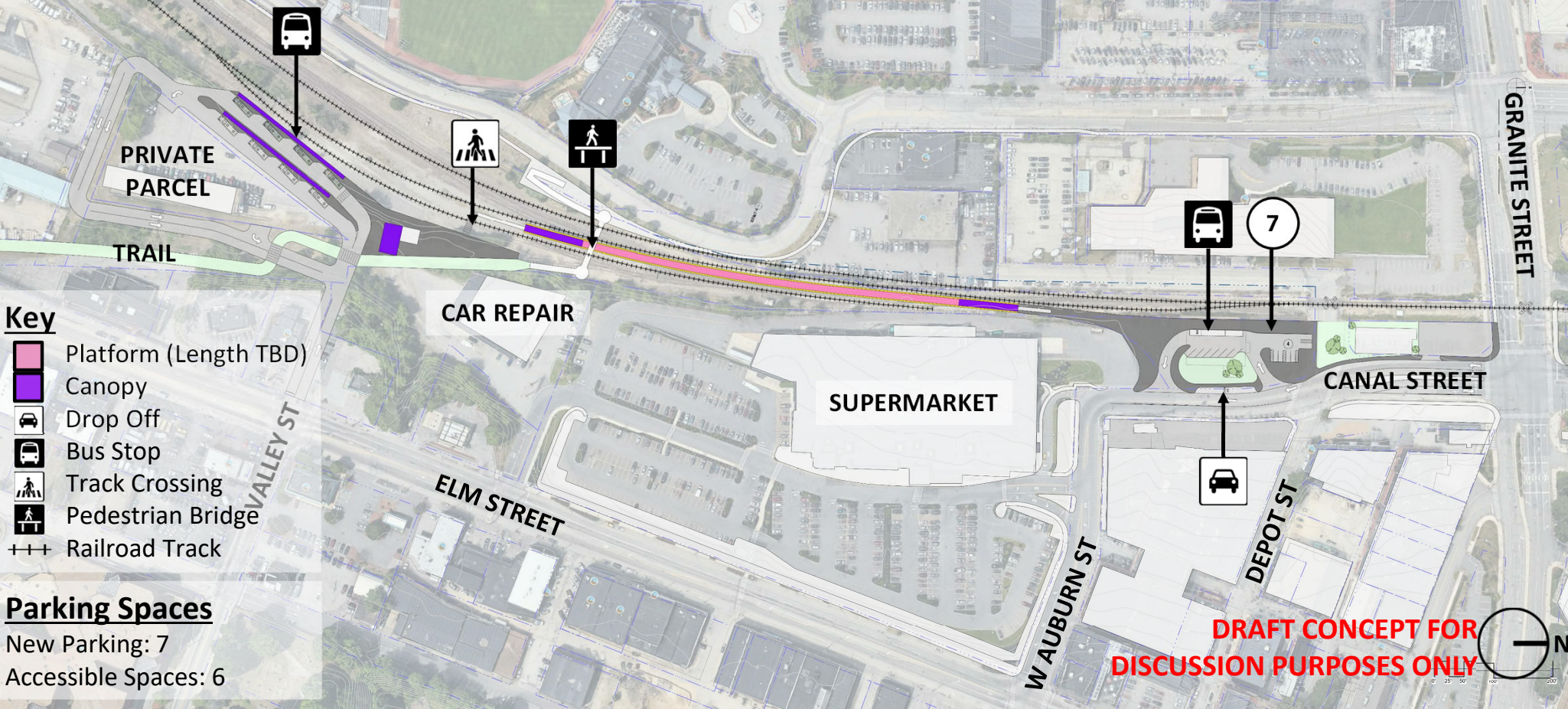
Both the Valley Street and Granite Street Options were dismissed in favor of the Hybrid Option which more effectively addresses considerations, including:

- Ease of access, land impacts, further growth

Manchester Station: *Hybrid Year 1*



Manchester Station: Hybrid Year 10



Layover Facility Overview

- A layover facility is required for the operation of the extended rail service to prevent lengthy deadheads
- A layover facility will provide for
 - Overnight train storage in yard
 - Plug-in power enables engine shutdown
 - Mid-day trains layover at station
 - Storage for 4-5 train sets (900 to 1,000 feet/train)



The MBTA's Greenbush Line layover facility



Typical MBTA Layover facility staff/crew building (View of two sides)

Layover Site: *Design Considerations*

- Compatibility of surrounding land uses
- Existing conditions of the site
- Potential noise impacts and mitigation:
 - Noise analysis modeling to determine location, height, and configuration of sound walls and/or berms
- Utilities, roadway access, earthwork



Typical noise mitigation wall adjacent to Readville rail yard



Alternative noise wall materials

Layover Scoring Matrix: Scoring Summary

The summary table sums results of detailed evaluation criteria for the Cemetery South and Pan Am South candidate sites.

- = Best meets criteria = 3 points
- ◐ = Partially meets criteria = 2 points
- = Does not meet criteria = 1 points

	Cemetery South	Pan Am South
All Indicators	28	42

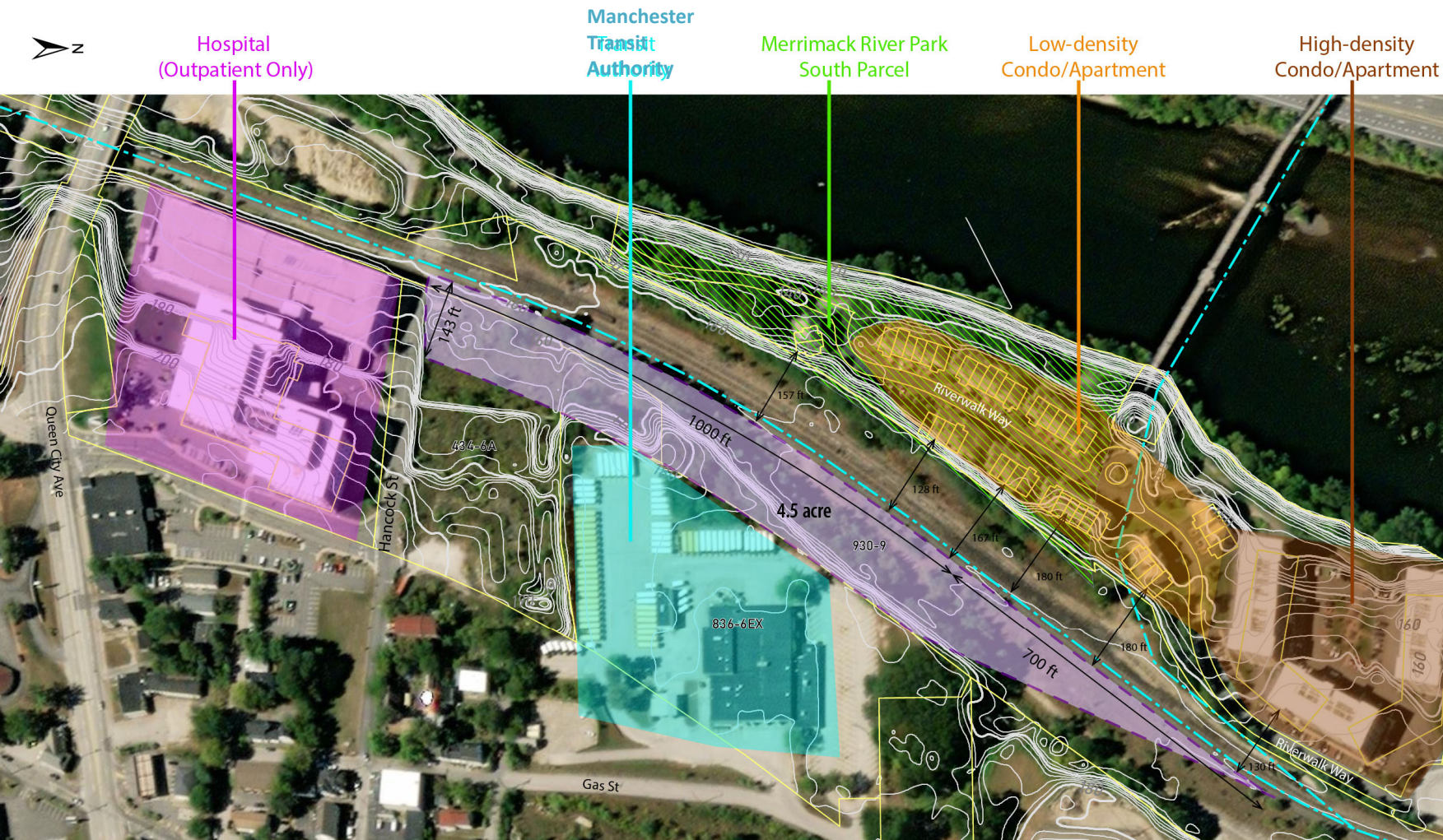
The Pan Am South site scores higher because:

- It is the **L**east **E**nvironmentally **D**amaging **P**racticable **A**lternative
- Relatively level site previously used as rail yard
- Proximity to existing utilities and access roads
- Closest to terminus station
- Fewer environmental impacts

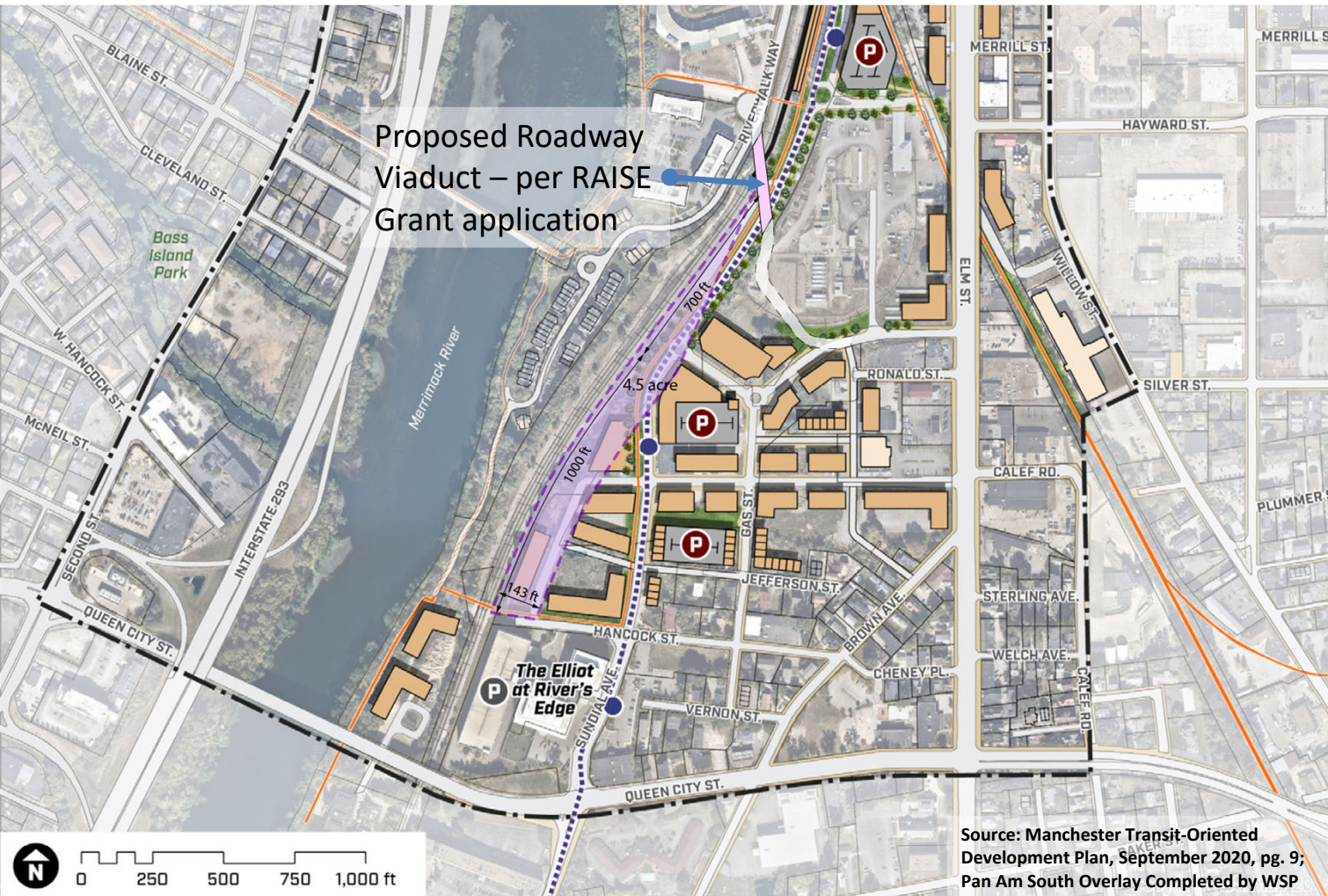
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Layover Site Option: Pan Am South

**DRAFT CONCEPT FOR
DISCUSSION PURPOSES ONLY**




Pan Am South & Future TOD Street Grid



- Proposed layover yard would be adjacent to existing active rail line
- Site is on land previously disturbed and used for railroad purposes
- No impact on E-W connectivity and the N-S connectivity can be mitigated
- Minimal impact on future development parcels

Legend

 Approximate footprint of layover site

Source: Manchester Transit-Oriented Development Plan, September 2020, pg. 9; Pan Am South Overlay Completed by WSP

Operating Plan – 3F.1 V3.4

- Builds upon MBTA April 5, 2021 “Forging Ahead” Lowell timetable
- 44 Weekday trains for Lowell, 32 weekday trains serving all four NH stations

MONDAY THROUGH FRIDAY																						
SOUTHBOUND		A	B	C	D	E	B	A	D	A	E	A	D	A	E	A	D	B	D	A	D	B
TURN	MAN	MAN	MAN	MAN	0:51	0:10	0:24	0:40	0:26	0:10	0:56	0:10	0:56	MAN	0:26	0:21	0:21	0:24	0:10	0:55	0:10	0:56
	300	302	304	306	308	310	312	314	316	318	320	322	324	326	328	330	332	334	336	338	340	342
Manchester NH	4:55	5:55	6:25	6:55	7:25		8:28		10:28		12:28		14:28	15:28	15:58	16:58	17:58	18:28		20:58		22:58
MHT Bedford	5:02	6:02	6:32	7:02	7:32		8:35		10:35		12:35		14:35	15:35	16:05	17:05	18:05	18:35		21:05		23:05
Nashua Crown St	5:13	6:13	6:43	7:13	7:43		8:46		10:46		12:46		14:46	15:46	16:16	17:16	18:16	18:46		21:16		23:16
Nashua Spitbrook	5:20	6:20	6:50	7:20	7:50		8:52		10:52		12:52		14:52	15:52	16:22	17:22	18:22	18:52		21:22		23:22
Lowell	5:35	6:35	7:05	7:35	8:05	8:35	9:05	10:05	11:05	12:05	13:05	14:05	15:05	16:05	16:35	17:35	18:35	19:05	20:35	21:35	22:35	23:35
North Billerica	5:43	6:43	7:13	7:43	8:13	8:43	9:13	10:13	11:13	12:13	13:13	14:13	15:13	16:13	16:43	17:43	18:43	19:13	20:43	21:43	22:43	23:43
Wilmington	5:50	6:50	7:20	7:50	8:20	8:50	9:20	10:20	11:20	12:20	13:20	14:20	15:20	16:20	16:50	17:50	18:50	19:20	20:50	21:50	22:50	23:50
Anderson/Wobum	5:57	6:57	7:27	7:57	8:27	8:57	9:26	10:26	11:26	12:26	13:26	14:26	15:26	16:26	16:56	17:56	18:56	19:26	20:56	21:56	22:56	23:56
Winchester	6:04	7:04	7:34	8:04	8:34	9:04	9:33	10:33	11:33	12:33	13:33	14:33	15:33	16:33	17:03	18:03	19:03	19:33	21:03	22:03	23:03	0:03
Wedgemere	6:07	7:07	7:37	8:07	8:37	9:07	9:35	10:35	11:35	12:35	13:35	14:35	15:35	16:35	17:05	18:05	19:05	19:35	21:05	22:05	23:05	0:05
West Medford	6:11	7:11	7:41	8:11	8:41	9:11	9:39	10:39	11:39	12:39	13:39	14:39	15:39	16:39	17:09	18:09	19:09	19:39	21:09	22:09	23:09	0:09
North Station	6:24	7:24	7:54	8:24	8:54	9:24	9:52	10:52	11:52	12:52	13:52	14:52	15:52	16:52	17:22	18:22	19:22	19:52	21:22	22:22	23:22	0:22
RUN TIME	1:29	1:29	1:29	1:29	1:29	0:49	1:24	0:47	1:24	0:47	1:24	0:47	1:24	1:24	1:24	1:24	1:24	1:24	0:47	1:24	0:47	1:24
BET																						
TURN	BET	0:14	0:14	0:14	0:14	0:14	0:16	0:16	0:16	0:16	0:16	0:16	0:16	0:14	HH	0:14	0:14	0:14	0:16	0:46	0:16	0:16
NORTHBOUND		E	A	B	C	D	E	A	D	A	E	A	D	A	B	E	A	D	B	D	A	D
	301	303	305	307	309	311	313	315	317	319	321	323	325	327	329	331	333	335	337	339	341	343
North Station	5:09	6:38	7:38	8:08	8:38	9:08	10:08	11:08	12:08	13:08	14:08	15:08	16:06	16:36	17:06	17:36	18:36	19:38	20:38	21:38	22:38	23:38
West Medford	5:22	6:51	7:51	8:21	8:51	9:21	10:21	11:21	12:21	13:21	14:21	15:21	16:19	16:49	17:19	17:49	18:49	19:51	20:51	21:51	22:51	23:51
Wedgemere	5:25	6:54	7:54	8:24	8:54	9:24	10:24	11:24	12:24	13:24	14:24	15:24	16:22	16:52	17:22	17:52	18:52	19:54	20:54	21:54	22:54	23:54
Winchester	5:27	6:56	7:56	8:26	8:56	9:26	10:26	11:26	12:26	13:26	14:26	15:26	16:25	16:55	17:25	17:55	18:55	19:56	20:56	21:56	22:56	23:56
Anderson/Wobum	5:34	7:03	8:03	8:33	9:03	9:33	10:33	11:33	12:33	13:33	14:33	15:33	16:32	17:02	17:32	18:02	19:02	20:03	21:03	22:03	23:03	0:03
Wilmington	5:39	7:08	8:08	8:38	9:08	9:38	10:38	11:38	12:38	13:38	14:38	15:38	16:38	17:08	17:38	18:08	19:08	20:08	21:08	22:08	23:08	0:08
North Billerica	5:47	7:16	8:16	8:46	9:16	9:46	10:46	11:46	12:46	13:46	14:46	15:46	16:46	17:16	17:46	18:16	19:16	20:16	21:16	22:16	23:16	0:16
Lowell	5:56	7:25	8:25	8:55	9:25	9:55	10:55	11:55	12:55	13:55	14:55	15:55	16:55	17:25	17:55	18:25	19:25	20:25	21:25	22:25	23:25	0:25
Nashua Spitbrook	6:07	7:36		9:05	9:35		11:05		13:05		15:05	16:05	17:07	17:37	18:07	18:37	19:36		21:35		23:35	0:35
Nashua Crown St	6:13	7:43		9:11	9:41		11:11		13:11		15:11	16:16	17:16	17:43	18:16	18:46	19:42		21:41		23:41	0:41
MHT Bedford	6:24	7:54		9:22	9:52		11:22		13:22		15:22	16:27	17:27	17:54	18:27	18:57	19:53		21:52		23:52	0:52
Manchester NH	6:34	8:04		9:32	10:02		11:32		13:32		15:32	16:37	17:37	18:04	18:37	19:07	20:03		22:02		0:02	1:02
RUN TIME	1:25	1:26	0:47	1:24	1:24	0:47	1:24	0:47	1:24	0:47	1:24	1:29	1:31	1:28	1:31	1:31	1:27	0:47	1:24	0:47	1:24	1:24
TURN	0:51	0:24	0:10	MAN	0:26	0:10	0:56	0:10	0:56	15:28	0:10	1:21	0:21	0:24	MAN	MAN	0:55	0:10	0:56	0:10	MAN	MAN

Ridership Forecast

- Forecast is based on the operating plan and regional population and employment forecasts
- 2040 No-Build and Build forecasts are unconstrained by potential long-term changes in travel behavior post-COVID
- Three post-COVID scenarios were identified (Low, Medium, and High Impact) with associated ridership
- Scenarios will be updated as new data emerges

	MBTA Observed (2018)	No-Build Forecast (2040)	Build Forecast (2040)	Low Impact (2040)	Medium Impact (2040)	High Impact (2040)
Massachusetts Inner Stations*	2,722	3,308	3,401	2,900	2,700	1,900
Massachusetts Outer Stations	3,028	3,823	3,959	3,400	3,100	2,200
Massachusetts Total	5,750	7,131	7,360	6,300	5,800	4,100
South Nashua			934	800	700	500
Nashua Crown Street			705	600	500	400
MHT Bedford			764	700	600	400
Downtown Manchester			464	400	400	300
New Hampshire Total			2,866	2,500	2,200	1,600
Lowell Line Total (excluding North Station)	5,750	7,131	10,226	8,800	8,000	5,700

Costs and Revenues

- Capital Costs
 - 2014 capital cost estimate was \$246M
 - Unit cost inflation and increased unit quantities
 - Estimating is ongoing as engineering progresses
- Operations and Maintenance (O&M) Costs
 - Includes transportation, maintenance of equipment, and maintenance of way
 - Unit costs consistent with MBTA Commuter Rail and its system operator Keolis
 - Estimating is ongoing in tandem with capital costing
- Revenue
 - Uses methodology from the 2014 study updated with the today's higher fares
 - Average revenue per boarding will be based on mix of fares typically purchased in each zone

Financial Plan

- Objective of financial plan
- Financial planning approach
- Funding approach
 - Federal funding sources
 - Non-Federal funding sources

Objective of Financial Plan

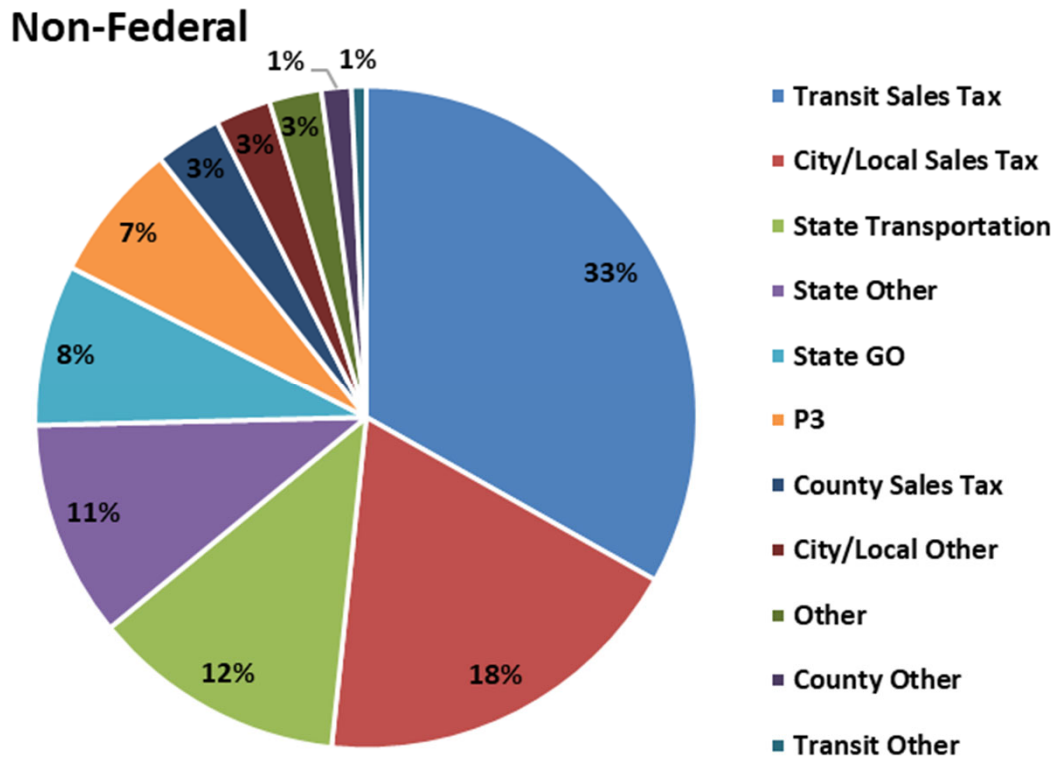
- Meet demanding requirements of the US Federal Transit Admin
 - Limited availability of Federal discretionary grants
 - Project selection results in a Full Funding Grant Agreement with FTA which commits both parties:
 - FTA will fund a specific \$ amount, but cannot guarantee the schedule of funding
 - Grantee will implement the project on-time and on-budget and will operate the project as planned
- Reach consensus with NHDOT and stakeholders regarding the magnitude of non-Federal share required and potential sources

Criteria for Evaluating Potential Non-Federal Funding Sources

- Public sources
 - Feasibility:
 - Equity: impact on low-income households
 - Administrative: collection mechanism already in place, difficulty
 - Legal: action required by state legislature, by local government, by voter approval
 - Yield: annual revenue, stability
- Private sources
 - Value capture potential

Non-Federal Funding Sources Applied for FTA Capital Investment Program Projects

35 Projects Reported to Congress in 2016



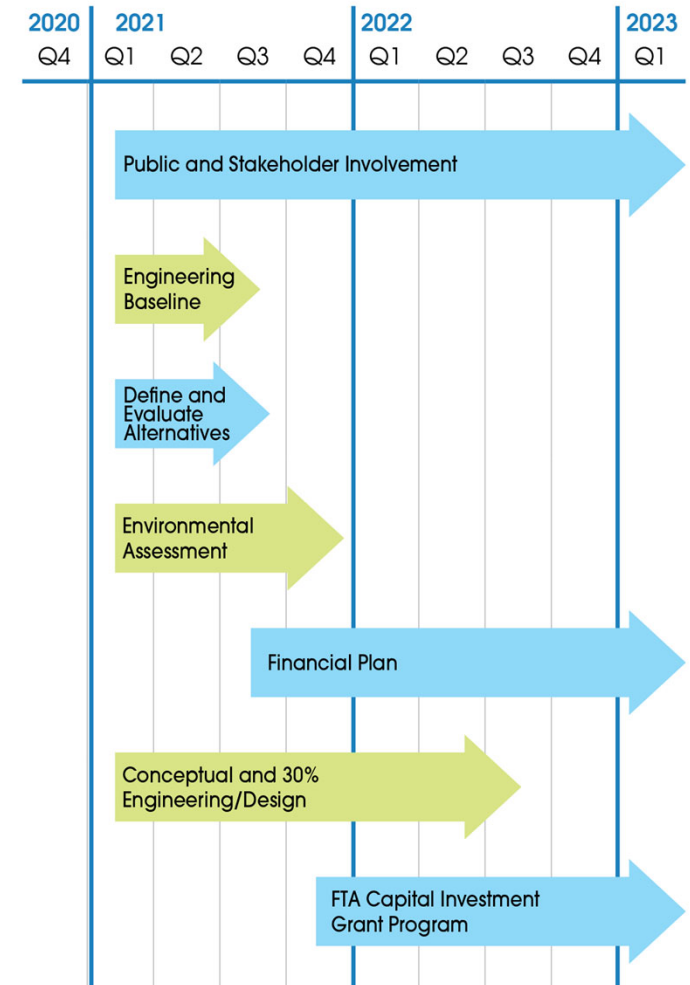
Non-Federal Source	% of Total
Transit Sales Tax	26.97%
City Sales Tax	18.33%
State TTF	11.92%
Transit Sales Tax TIFIA Loan	6.10%
State GO Bonds	6.09%
Concessionaire	4.24%
State Avail Pymnts TIFIA Loan	3.83%
County Sales Tax	3.25%
Concessionaire Financing	2.56%
State Lottery	1.96%
State Prop 1B GO Bonds	1.78%
State Gen Fund	1.60%
State Gas Tax	1.50%
County Property Tax	0.87%
Local Agency	0.68%
State New Starts Match	0.55%
Employer-Paid Head Tax Bonds	0.52%
Transit Loan	0.47%
In-Kind	0.46%
State Mobility	0.45%
Private Equity	0.43%
City GO Bond & PAYGO	0.39%
State Reg Trans Improve Pgm	0.36%
State HSR Sales Tax	0.32%
County Gen Fund	0.32%
MPO & County	0.31%
County	0.28%
Local Bonds	0.25%

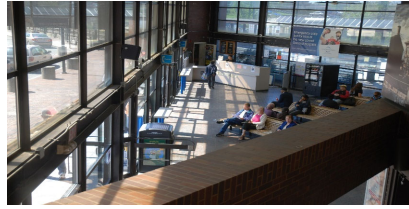
Non-Federal Source (Cont'd)	% of Total
State Trunkline Pgm	0.25%
Toll Revenue	0.24%
Lease Rev	0.23%
Local Sales Tax	0.19%
Donated ROW, Local Cash	0.18%
Transit Parking Tax	0.13%
Spec Assess Dist	0.11%
City Infra Funds	0.09%
Transit Sales Tax COPs	0.09%
Transit Gas & Sales Tax	0.08%
State Traffic Cong Relief Pgm	0.07%
City In-Kind	0.07%
City Land Sale	0.07%
City Cash and Land	0.06%
Transit Cash	0.04%
State Hwy Ops & Protect Pgm	0.04%
Dev Impact Fees	0.03%
State Prop 1A GO Bonds	0.03%
Downtown Dev Auth	0.03%
State DOT	0.03%
MPO	0.02%
State March	0.02%
State Reg Mob Grant	0.02%
State Loan	0.01%
State CMP Match	0.01%
State	0.01%
MPO Grant	0.00%
Local FAX Capital Match	0.00%

Nashua-Manchester (Capitol Corridor) Project Development Phase

Next Steps

- Continue to coordinate with federal, state, and local stakeholders
- Complete the Environmental Review (NEPA EA)
- Advance the engineering of the Locally Preferred Alternative (Track, Signals, Stations, Layover)
- Complete the cost (capital and O&M) and revenue estimates
- Advance the Financial Plan and identify sources of non-federal funding





Discussion and Q&A

Thank You!

