



# Nashua-Manchester (Capitol Corridor) Project Development Phase

## Manchester Layover Facility Options — Briefing Packet

September 23, 2021



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# Layover Facility: Operational Requirements

- Overnight train storage in yard
- Plug-in power enables engine shutdown
- Mid-day trains layover at station
- Commuter rail schedule:
  - Storage for 4-5 train sets
  - 900 to 1,000 feet/train
- Regional rail schedule may require fewer/shorter train sets



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

# Preferred Alternative Pan Am South Location

# Layover Site Option: Pan Am South



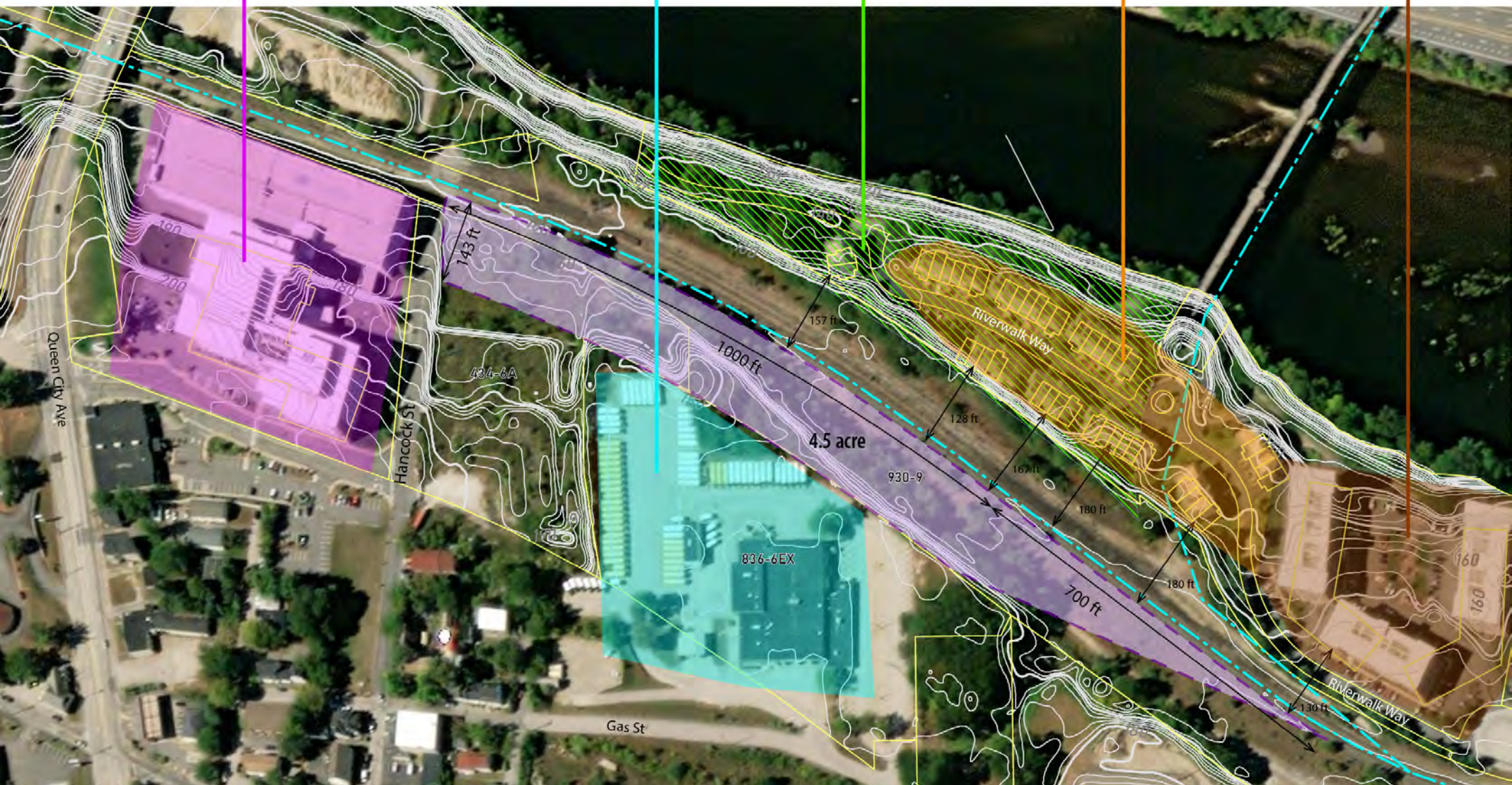
Hospital (Outpatient Only)

Transit Authority

Merrimack River Park South Parcel

Low-density Condo/Apartment

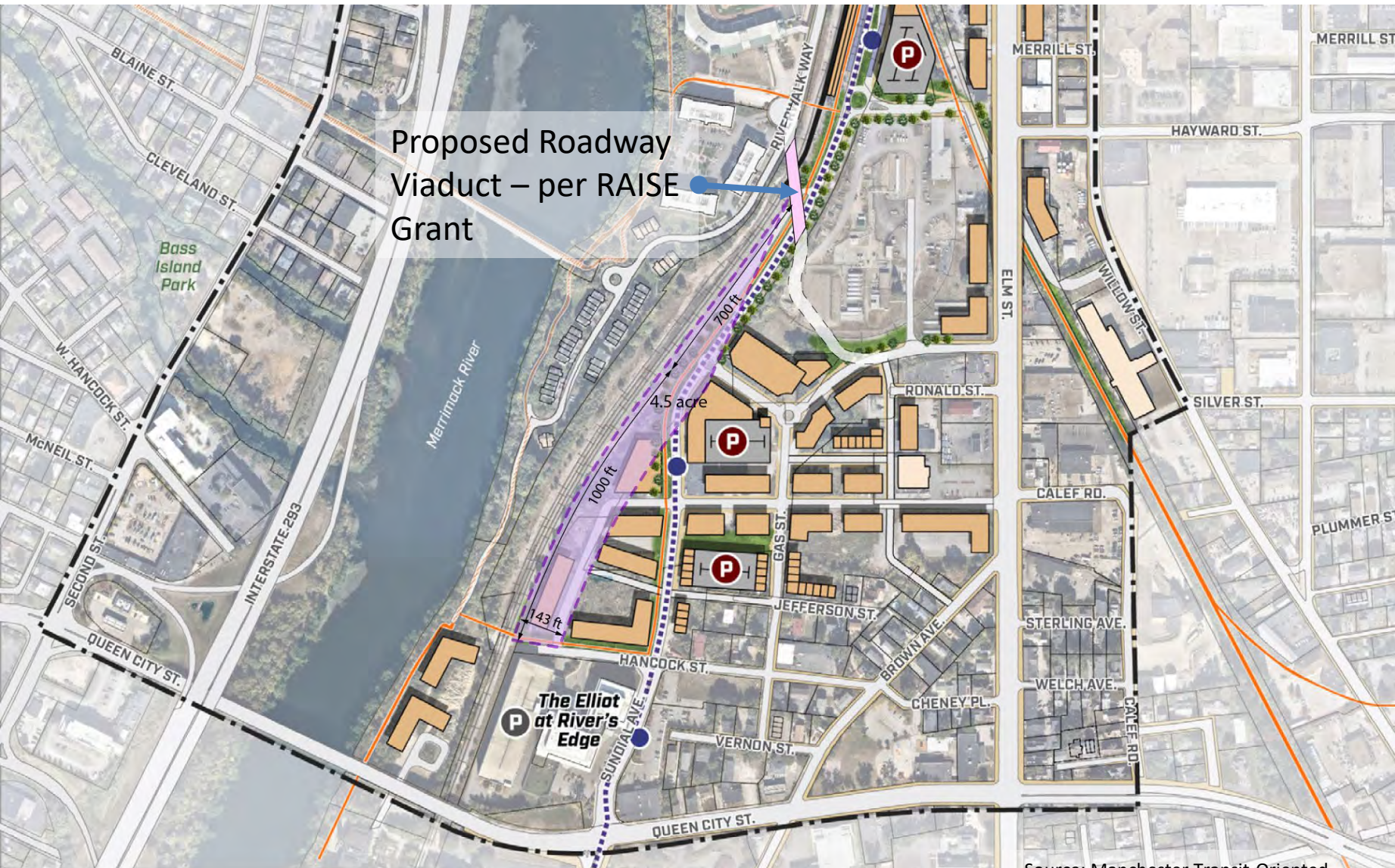
High-density Condo/Apartment



### Legend

 Approximate footprint of layover site

# Overlay: Pan Am South & TOD Street Grid



Proposed Roadway Viaduct – per RAISE Grant

- 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 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

# Addressing City of Manchester Concerns



# Impacts to Potential TOD

- The total footprint of the layover site is 4.5 acres or 1.8% of the total TOD district, which is about 250 acres\*.
- Most impact is within the Pan Am parcel boundaries with limited encroachment on the TOD future street grid and development parcels.
- There are opportunities to coordinate the plans with minor shifts in the alignment of future Sundial Avenue in area of the existing Manchester Transit Authority facility

# Connectivity Concerns

- Proposed layover was adjusted to avoid conflict with the roadway viaduct that is part of the City's pending RAISE grant application.
- For pedestrians and bikes the proposed Hybrid Station would include a ped/bike overhead bridge connection across the station and Pan Am mainline.
- Impact on the proposed north/south Sundial Avenue can be mitigated by shifting its alignment slightly to the east.
- The proposed layover tracks would terminate north of Hancock Street and would have no impact on existing or future at-grade ped/bike crossing of the mainline track at the west end of Hancock Street.

# Alternative Sites

Several other sites (Pan Am South and Cemetery South) were considered as part of the planning process but were screened out due to operational and physical constraints.

- **Pan Am North:** The Pan Am North site is the location considered in the 2014 study and is no longer feasible because it would directly conflict with the proposed Hybrid Station layout, and impact on development parcels in that area.
- **Bedford U-Haul:** The Bedford U-Haul site is too far south from the planned terminus station at Manchester (5+ miles) and would significantly increase the “deadhead” (non-revenue) movement of trainsets, which increases operating costs and increases emissions and noise from trains compared to having layover close to the terminus station.

# Layover Scoring Matrix

# Layover Scoring Matrix

- = Best meets criteria
- ◐ = Partially meets criteria
- = Does not meet criteria

Comparative Criterion	Cemetery South	Pan Am South
Land acquisition and ownership	◐	◐
	4.5 acres (3 Parcels) 1 PAR – 0.6 acres; 2 City-Owned; 1 Cemetery Dept. – 3.2 acres (465-1); 1 Parks & Recreation – 0.7 acres (687-1)	4.5 acres (2 Parcels) 1 PAR – 3.3 acres (930-9); 1 Private – 1.2 acres (434-6A)
Compatible with adjacent land uses	◐	◐
	Adjacent to unoccupied woodlands; near a park and some single-family homes	Adjacent to industrial uses to the east and multi-family residential to the west
Not proximate to residences	◐	○
	3 single-family homes located 120 to 190 feet to the northwest	Two multi-family residential complexes directly abutting to the west
Minimizes wooded land to be cleared	○	◐
	Entire wooded site to be cleared (4.5 acres); given age and nature of use, trees assumed to be comparatively more mature	Limited wooded area to be cleared (3.1 acres, of which 2.6 at PAR and 0.5 Private); trees assumed to be comparatively less mature, with a smaller diameter
Minimizes earthwork to level the site	◐	◐
	Site is sloped and needs to be graded in order to be level	Most of site is former rail yard, but some steep slopes run diagonally through the site requiring cuts

# Layover Scoring Matrix

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- ◐ = Partially meets criteria
- = Does not meet criteria

Comparative Criterion	Cemetery South	Pan Am South
Has existing access to public street or road	○	●
	No existing public road. New access road to a public street required.	Access to station by Valley Street (or other access) will provide access to layover facility
Existing utilities nearby to serve facility	○	●
	Utilities to be brought in from public streets. Possible need for new 13.8kV feed for power	Utilities in nearby public streets
Operations: Minimizes deadheading distance between layover facility and Manchester station	○	●
	> 1 mi each way	Very close to station
Grade Crossings: Minimizes grade crossings passed during deadhead moves	◐	●
	3 grade crossings	0 grade crossings
Minimizes wetland impacts	◐	●
	Existing stream needs to be put in a culvert; GIS-identified resource lies adjacent and west of tracks (PFO1A - NHFWT700060803-001)	No GIS-identified resources proximate to site
Minimizes proximity to Historic Resources	●	●
	NO LISTED historic structures or districts Smith's Ferry Heritage Park across tracks	NO LISTED historic structures or districts Legacy switch tower nearby

# Layover Scoring Matrix

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- = Does not meet criteria

Comparative Criterion	Cemetery South	Pan Am South
Minimizes impacts to listed species, rare plants, and/or natural communities of concern (GM2 Report)	○	●
	Coordination with NH Fish & Game recommended; adjacent wetland area functions as rare natural community (semi-rich oak-sugar maple forest); there are also records of bald eagle nests and two rare plants in adjacent areas	No listed species, rare plants, or natural communities of concern
Minimizes impacts to conservation parcels	○	●
	Would require acquisition of conservation lands (portion of Pine Grove Cemetery Backland); would create impacts to adjacent lands located across tracks (Smith's Ferry Heritage Park)	Adjacent conservation lands (Merrimack River Park South) already developed as multi-family residential
Minimizes impacts to EJ Communities	◐	●
	Higher EJ (11 / 11) and Demographic (4 / 6) Index Ratings based on EPA's EJSCREEN Tool	Lower EJ (0 / 11) and Demographic (2 / 6) Index Ratings

# Layover Scoring Matrix

- = Best meets criteria
- ◐ = Partially meets criteria
- = Does not meet criteria

Comparative Criterion	Cemetery South	Pan Am South
Minimizes likelihood of encountering contaminated or hazardous materials	●	○
	Woodlands, unlikely to have hazardous materials on site; cemetery had no GIS- identified NHDES USTs or Remediation sites within vicinity	Previously disturbed, former railyard and industrial land; these types of land uses have been known to have contaminated and/or hazardous materials on site
Minimizes difficulty of construction	○	●
	Wooded and sloped site requires clearing and grading to level site; stream needs to be put in culvert	Mostly unwooded site with minimal clearing and some grading to level site.
Minimize relative construction costs	○	◐
	Higher cost due to disposal of excess soil, longer access road, and longer runs for utility services.	Lower cost due to proximity of utilities, less soil disposal, and shorter access road; cost considerations include potential for management of contaminated soil, higher mitigation costs.



# Layover Scoring Matrix: Scoring Summary

Summary table sums scoring icons with a higher score indicating increased favorability. The maximum available points to a given site is 51.

- = 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

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# Layover Site Option: Cemetery South



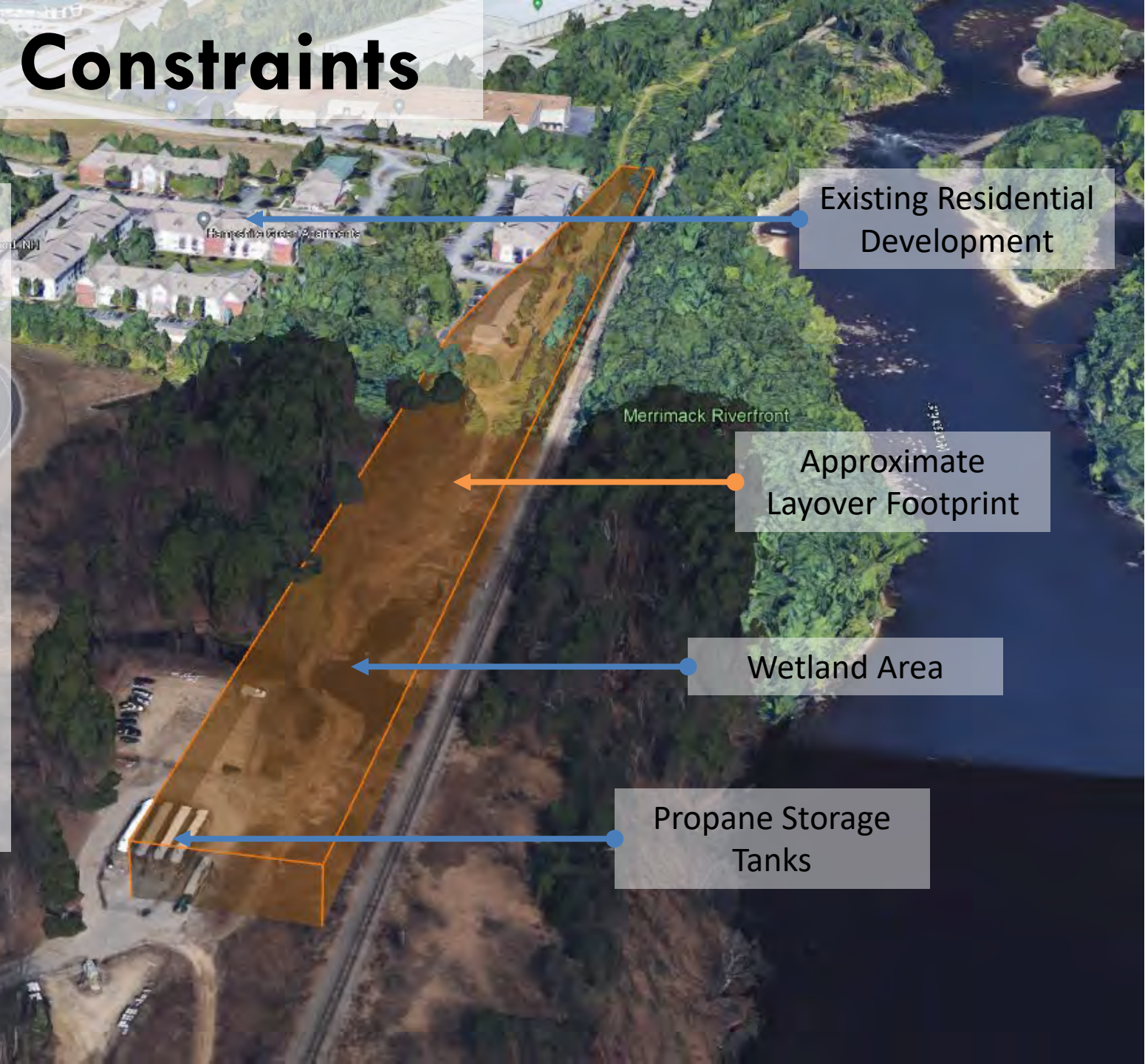
- Located approx. 2 miles south of proposed Manchester station
- There are 3 grade crossings leading to the terminus station (2 public, 1 private)

### Legend

Approximate footprint of layover site

# Bedford U-Haul Site: Constraints

- The site is 5+ miles south of the terminus station in Manchester
- A layover site here would directly abut/overlay an existing residential development
- There are identified wetlands within the footprint as well as a .2% annual chance flood hazard area
- There is no existing 480v – 3 phase power (required for the locomotives)
- The layover location potentially conflicts with future expanded parking area for the Bedford/MHT Station



Existing Residential Development

Approximate Layover Footprint

Wetland Area

Propane Storage Tanks

# MBTA Greenbush Layover Facility

Distance to Terminus Station: 0 Miles



Residential  
Development

# MBTA Bradford Layover Facility

Distance to Terminus Station: 0.7 Miles



Residential  
Development

# MBTA Kingston Layover Facility

Distance to Terminus Station: 0 Miles



# MBTA Needham Heights Layover Facility

Distance to Terminus Station: 0 Miles



Residential  
Development



# MBTA Newburyport Layover Facility

Distance to Terminus Station: 0 Miles



# MBTA Rockport Layover Facility

Distance to Terminus Station: 0 Miles



Residential  
Development

# MBTA Commuter Rail Maintenance Facility



Ongoing TOD  
Development