



# Track Improvement Program Update

March 28, 2024

- Ryan Jordan, Deputy Chief, Construction Field Services
- Kat Benesh, Chief of Operations Planning, Scheduling & Strategy



# Track Improvement Program 2023-2024 | Timeline

Alternative Service Limits	Speed Restrictions	Modeled Time Savings (mins)	Diversion Duration (days)	2023		2024													
				NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC		
A	Harvard to Central	<input checked="" type="checkbox"/>	1	1.7	Wknd														
B	JFK/UMass to Park St	<input checked="" type="checkbox"/>	6	2.7	EA/Wknd														
A	Oak Grove to North Station	<input checked="" type="checkbox"/>	2	1.9	EA/Wknd														
A	North Station to Kenmore, Heath, Babcock	<input checked="" type="checkbox"/>	10	4.3	9														
B	Riverside to Kenmore	<input checked="" type="checkbox"/>	20	9.2	10														
1	North Station to Lechmere		2	1.8	14														
2	North Station to Kenmore, Heath, Babcock	<input checked="" type="checkbox"/>	15	8.7	21														
3	Copley to St. Mary's, Babcock, Brookline Hills	<input checked="" type="checkbox"/>	9	4.2	18														
4	Boston College to Kenmore		7	1.7	10														
5	Cleveland Circle to St. Mary's		1	0.1	6														
1	Oak Grove to North Station		13	1.7	6														
2	Wellington to North Station		5	4.3	9														
3	Sullivan to Back Bay		6	2.3	10														
4	Haymarket to Jackson Sq	<input checked="" type="checkbox"/>	2	1.3	4														
5	Back Bay to Forest Hills		15	4.8	11														
1	Alewife to Harvard	<input checked="" type="checkbox"/>	9	6.5	9														
2	Alewife to Kendall		9	4.0	16														
3	Harvard to Park		3	0.8	6														
4	Kendall/MIT to Broadway		8	3.7	6														
5	Park to JFK/UMass		8	2.6	8														
6	Broadway to North Quincy		4	2.7	6														
7	JFK/UMass to Braintree		22	9.1	16														
1	Airport to Wonderland		12	5.3	12														
2	Bowdoin to Airport		2	0.7	Night Orders														

191 restrictions Lifted  
86.1 minutes saved  
207 days of work

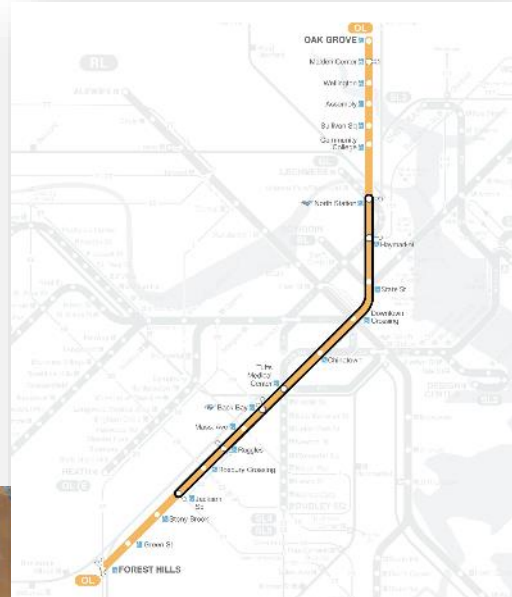
Today Mar 28

Data as of March 22, 2024



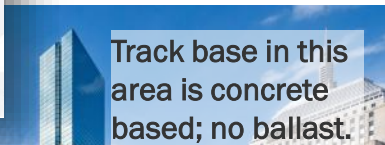
# Track Improvement Program | *Completed Work*

OL North Station to Jackson Square, Mar 18-21, 2024

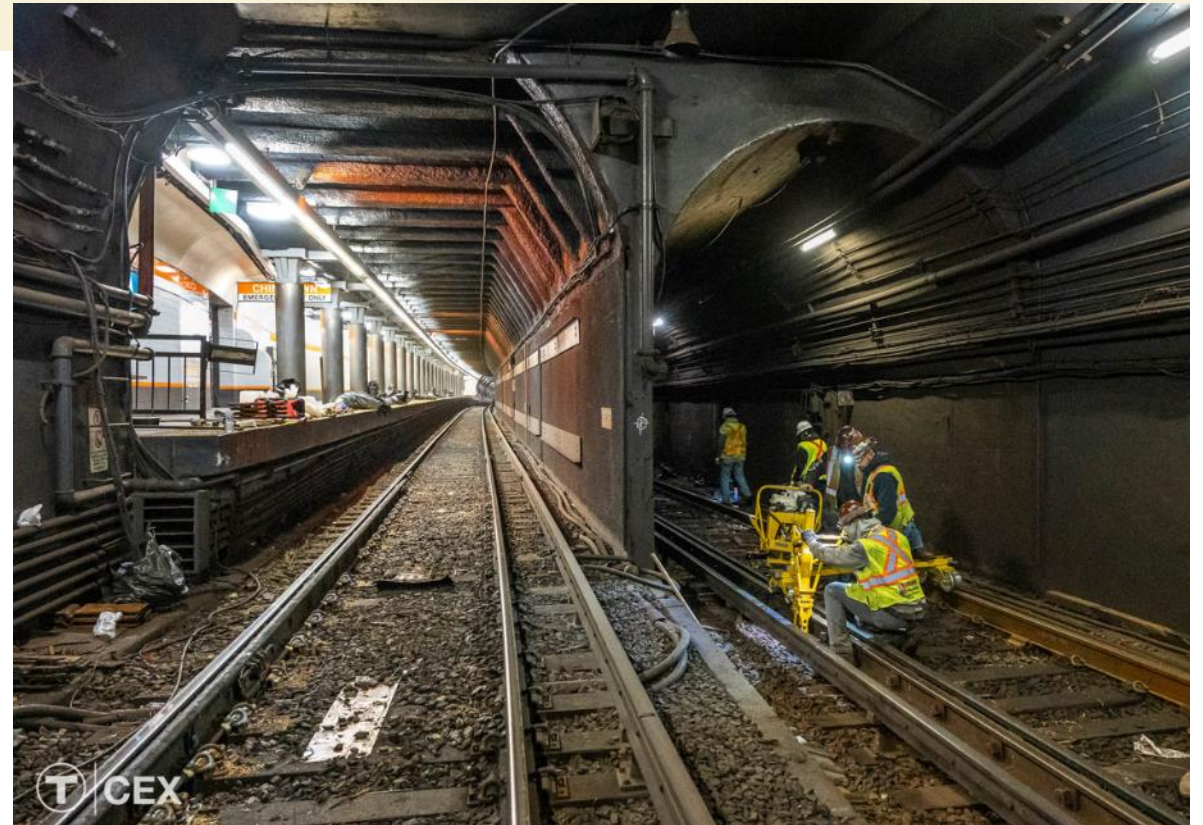


## Track Work

- 7 speed restrictions lifted.
- 5160 ft rail replaced.
- 27 cologne eggs replaced.
- 63 shoulders cored.
- 259 plates installed.
- 500 ft of stringer cable replaced.
- 2 direct fixation concrete pads installed. 1 weld completed.



- 2.2 min. (RT) improved time.



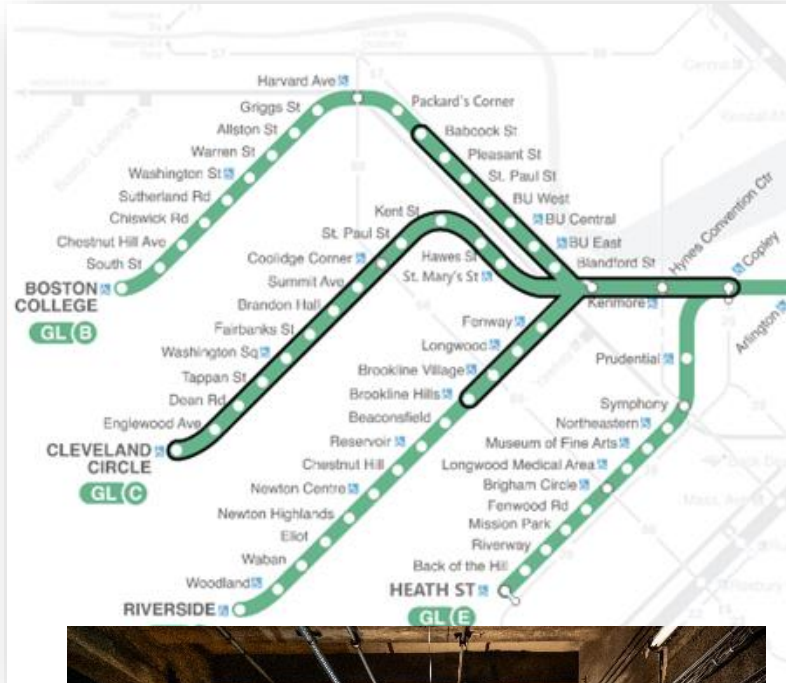
## Station Work

- Maintenance and repairs: painting, concrete repairs, floor/wall repairs, stair tread repairs/replacements, waste receptacle replacement, plumbing and HVAC repairs / maintenance, spider map replacements, new American flags installed.
- South Cove pump room clean out. Evaluated piping, electrical wiring and control valves for future upgrades.



# Track Improvement Program | Completed Work

GL Copley to Babcock, Cleveland Circle and Brookline Hills, Feb. 20 – Mar 8, 2024

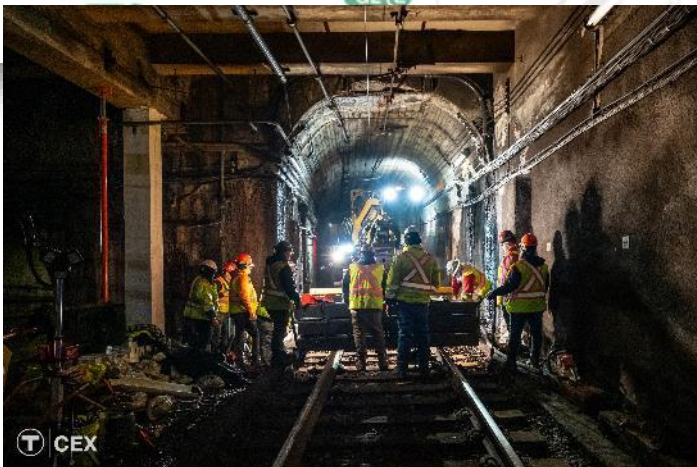
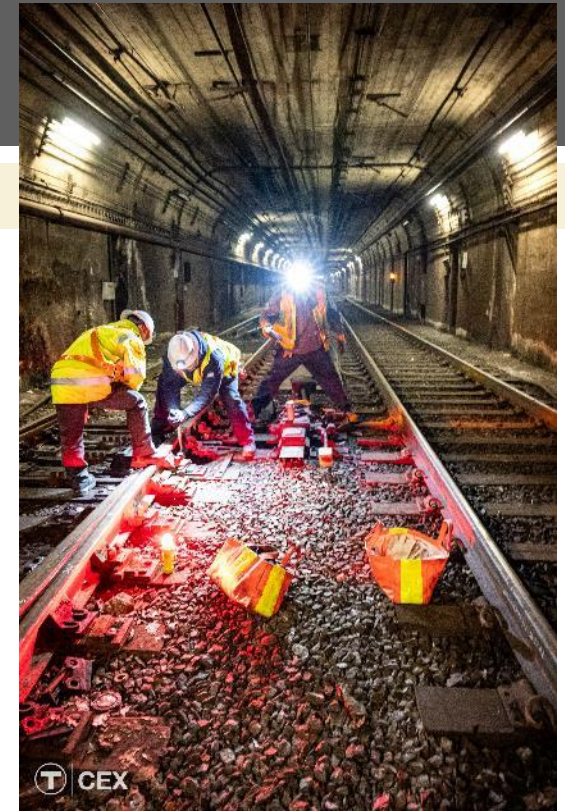


## Metrics

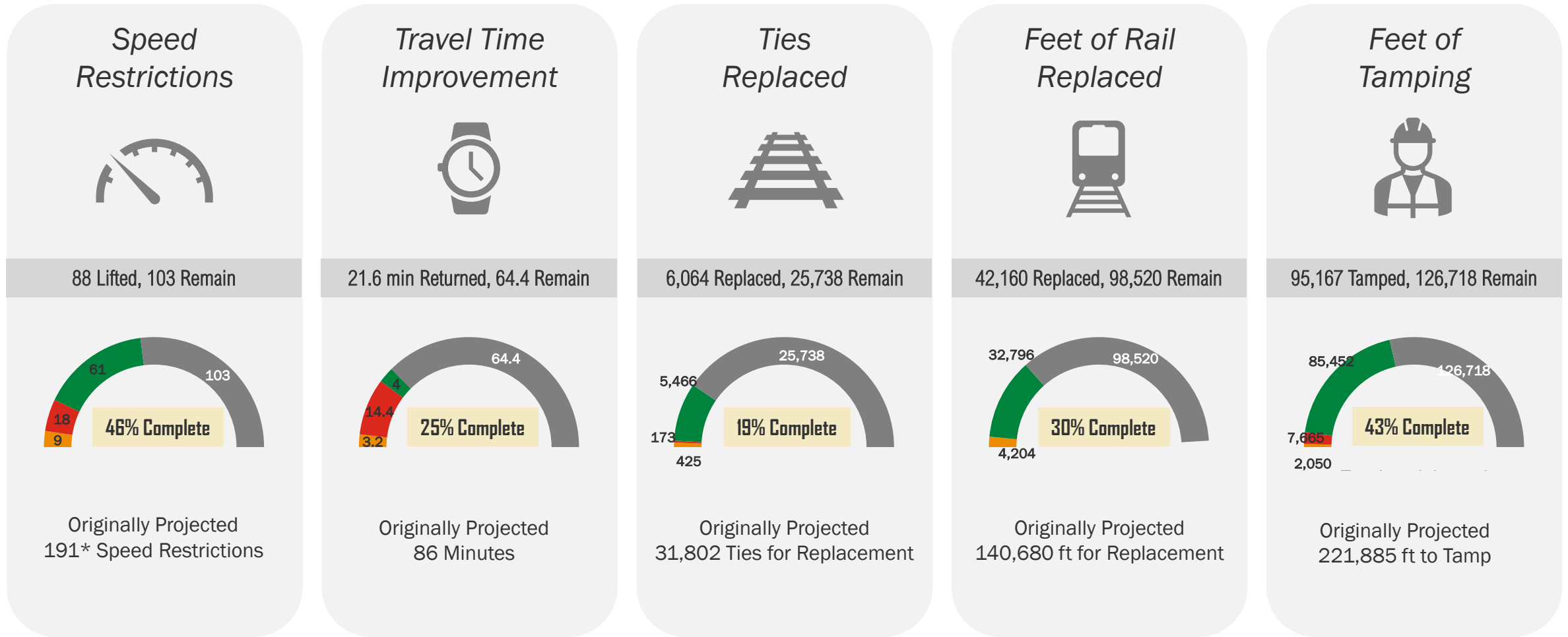
- ✓ 11 speed restrictions lifted.
- ✓ 1331 ties replaced.
- ✓ 13,429 ft rail replaced, inc. 1,200 by MOW
- ✓ 21,000 ft track resurfaced/tamped.
- ✓ 2 switches replaced/rehabbed
- ✓ 93 rail welds
- ✓ 1424 ft full depth track repairs

## Piggyback Work

- Stations: maintenance and repairs such as paint, bench repairs, concrete, floor repairs, stair tread replacement, hand-rail replacement, ceiling panel removals, waste receptacle replacement, plumbing & HVAC maintenance and inspection activities.
- E-Ink sign poles & solar panels installed - various locations C & B branches.
- Completed hands-on inspection of the GL tunnel near Fenway & Beacon Junction. Leak sealing performed on EB & WB tracks.
- Signals Fiber installed from Fenway Station to Aspinwall street.
- Replaced movable OCR at the Fenway Portal with traditional OCS.



# Progress Metrics



Projections as of Nov. 6, 2023, Track Improvement Plan

■ Orange Line 
 ■ Red Line 
 ■ Blue Line 
 ■ Green Line 
 ■ Remaining



# Track Improvement Program | *Upcoming Work*

*BL (002) Bowdoin to Orient Heights Early Access, Apr 9-11, 2024*



## Proposed Track Work

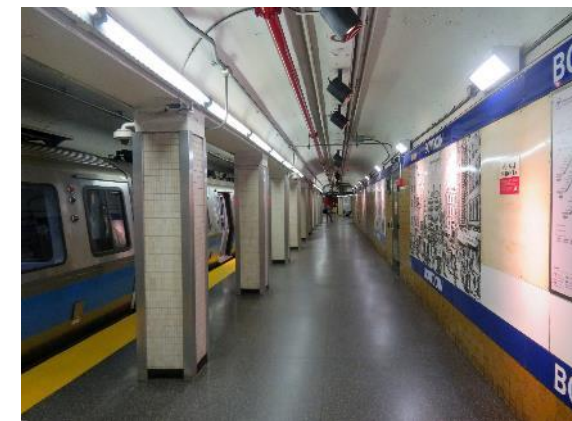
- Address 3 speed restrictions and state of good repair.
- Replace rail.
- Resurface/Tamp track.
- Switch replacements/rehabilitations
- Address 7 plates.

## Proposed Piggyback Work

- Scope is in process.



The SubwayNut



Wikipedia



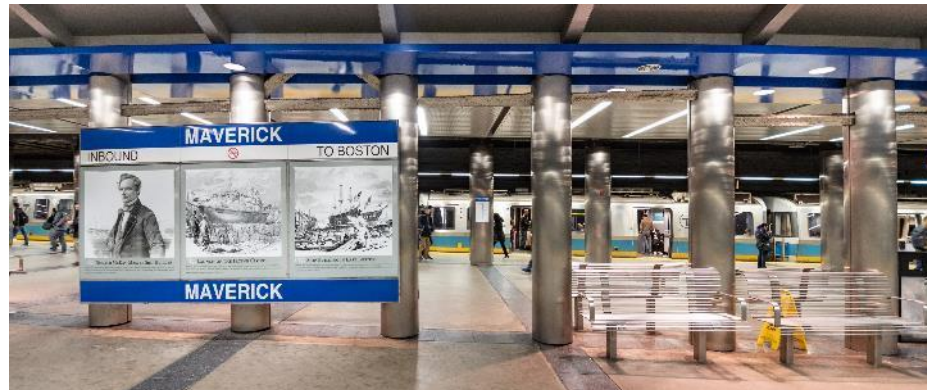
# Track Improvement Program | *Upcoming Work*

BL (001) Maverick to Wonderland, Apr 17-19 | Airport to Wonderland Apr 20-28, 2024



## Proposed Track Work

- Address 12 speed restrictions and state of good repair.
- Replace rail.
- Replace ties
- Address insulating joints
- Resurface/Tamp track.
- Switch replacements/rehabilitations
- Address tie plates.
- Full depth track repairs



## Proposed Piggyback Work

- Scope is in process.







RL OL BL GL ML

## Track Improvement Program 2023-2024

Phil Eng, MBTA GM & CEO  
Sam Zhou, MBTA Chief Engineer

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Draft, for Discussion & Policy Purposes Only

<https://www.mbta.com/trackprogram>

<https://www.mbta.com/performance-metrics/speed-restrictions>

As of 03.25.2024





# Upcoming Community Engagement Events | *Calendar*

## Open Houses

Thu., 1/25, 6 – 7:30pm, Cristo Rey High School

Wed., 2/21, 6:30 – 8pm, Zoom

Thu., 3/7, 6:30 – 8pm, Zoom

Thu., 4/11, 6 – 7:30pm, Boston Public Library

Tue., 5/14, 6 – 7:30pm, Mattapan Public Library

Mon., 8/19, 6 – 7:30pm, English High School

## Station Pop-ups

Fri. 3/08, 5 – 6:30 pm, Ruggles Station

Tue. 4/09, 3 – 4:30pm, Airport Station

Thu., 6/20, 5:00 – 6:30pm, Kenmore

Mon., 6/24, 6 – 6:30pm, Davis Square Station

Thu., 6/27, 5 – 6:30pm, Alewife Station

Thu., 8/08, 6 - 7:30pm, Malden Center Station

Tue., 8/20, 5 - 6:30pm, Quincy Center

Tue., 10/01, 5 - 6:30 pm, Park Street Center

*Interpretation services will be made available in American Sign Language, Haitian Creole, Spanish, Vietnamese, Chinese, and Cape Verdean Creole. Additional languages are available upon request.*



# Alternative service: Increased municipal engagement

- In partnership with the MBTA Advisory Board, we are hosting monthly meetings to update all impacted municipalities, discuss upcoming diversions and review lessons learned.
- Formal retrospectives are conducted after major diversions with municipalities, vendors, and MBTA staff to inform future diversions.
- Increased municipal coordination and engagement, especially with Brookline and Cambridge.





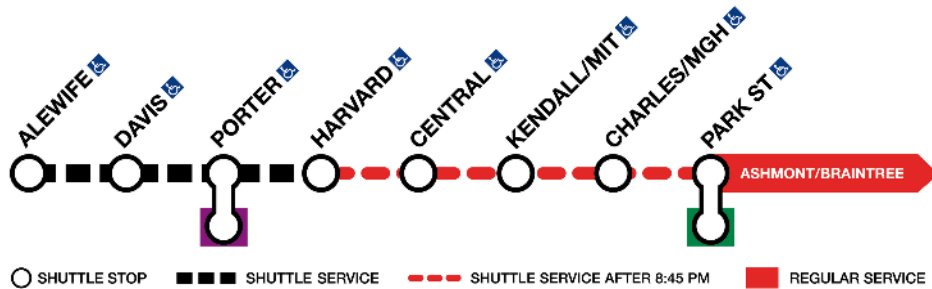
# Alternative service: Accessibility at Back Bay



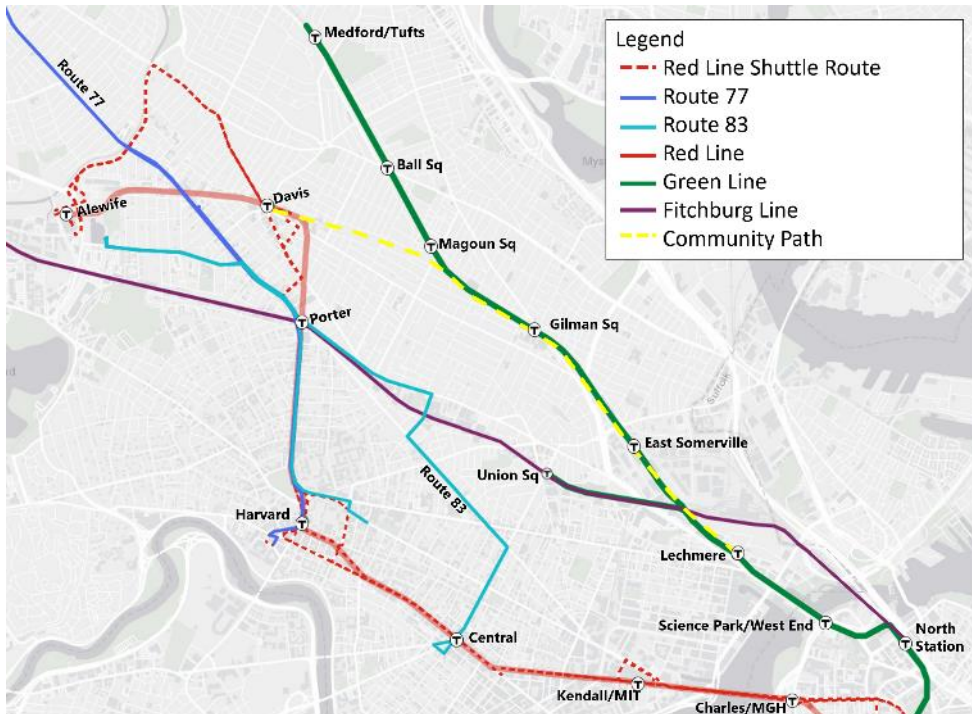
- Green Line shuttles historically terminate at Copley due to ease of using curb space and roadway configuration, requiring customers to walk to/from Back Bay.
- However, path of travel between Back Bay and Copley is a steep grade with poorly designed curb cuts, making it difficult for customers with wheeled mobility devices. The MBTA offers ADA vans to ferry requesting customers between the two stations.
- Working closely with our bus vendors and the City of Boston, we were able to shift shuttle terminus to Back Bay during January Green Line diversion.
  - Required significant coordination due to challenging curb space and roadway configurations, and included eliminating turn lanes for personal vehicles, increased parking restrictions, and hiring police details.



# Alternative service: Dress rehearsal for July



- February Red Line surge (Alewife to Harvard with evening extensions to Park Street) was first major surge to impact Cambridge.
- Studied February surge to identify improvements for July Red Line surge (Alewife to Kendall).
- Lessons learned:
  - Importance of daily field management to deal with targeted issues (e.g. delivery vehicles).
  - Employ real-time operational adjustments to manage congestions and ridership via bypassing Davis on some shuttles.
  - Consider the potential to encourage more riders to Fitchburg line (~600 additional daily trips on Fitchburg Line, which is ~25% of customers who board at Porter Square).
  - Investigating the potential to better utilize existing bus routes (Route 77 and 83 saw largest increase in ridership).





# Continuous improvement: Evaluating total journey

## Feedback received

MBTA can be more transparent about the total additional time a diversion may cause riders.

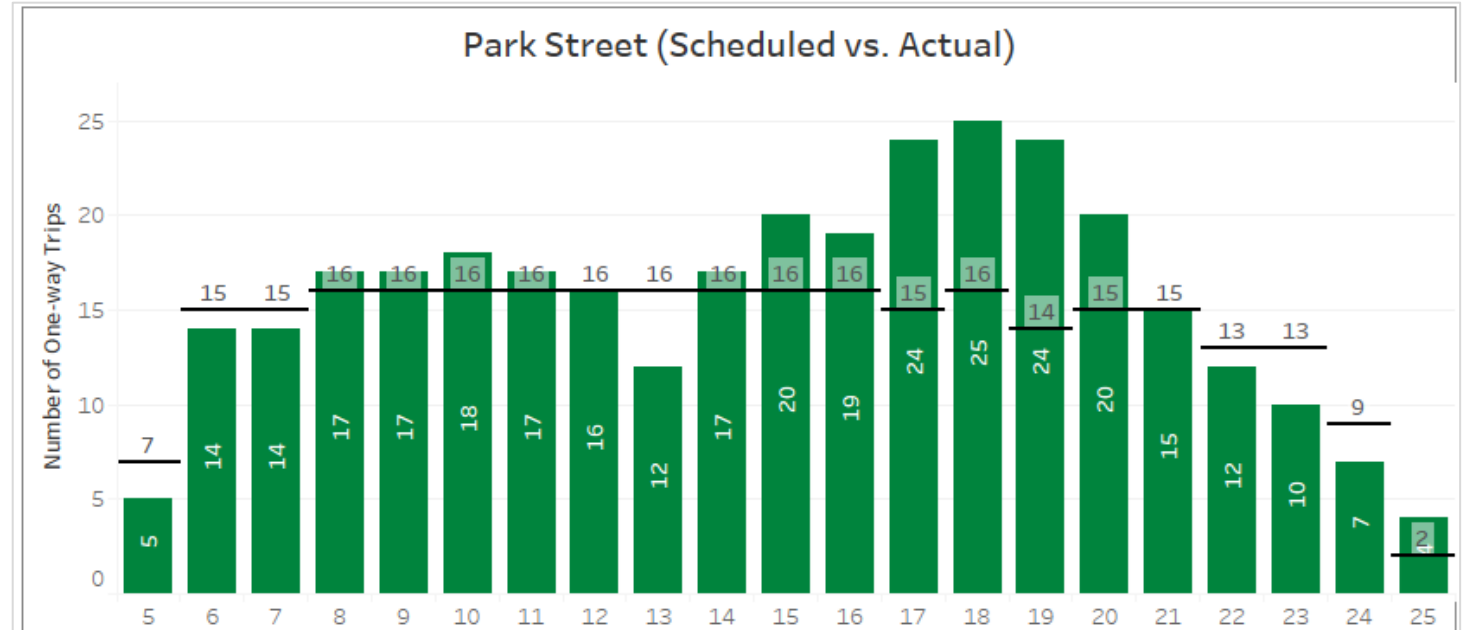
## Improvements made

For Feb/Mar surge, more effectively reviewed impacts of the GL service diversion.

- Identified potential capacity issues.
- Included response in operating plan.
- Included explicit customer impacts in external communications (5–6-min. headways downtown).

Conducted daily reviews of GL performance and identified crowding, resulting in 3 added trains during peak hours.

- First piloted February 21 (day 2 of surge) in PM. Day's performance shows the delta.
- Improved headways from ~7 min. to < 5 min.



# Alternative service: What we're planning next

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- Hiring additional field staff to ensure the service provided meets our standards and our riders' expectations, especially around accessibility. Continuing to identify areas for improvement.
- Reviewing remaining Track Improvement Program to identify overlaps and opportunities between TIP and MBTA Transit Priority Vision.
- Improving our communication about the variety of alternative service options available, such as shuttles, nearby existing bus routes and other active transportation.





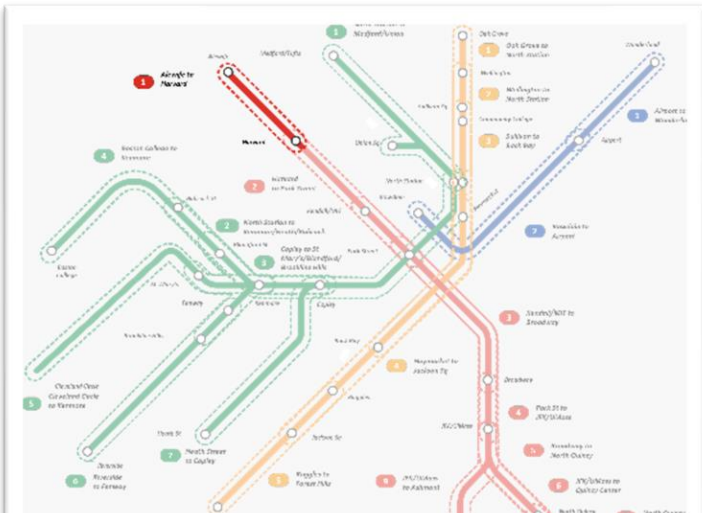
# Questions



# Previous Board TIP Updates



RL Alewife to Harvard, Feb. 5 – 14, 2024



### Metrics:

- ✓ 8 speed restrictions lifted.
- ✓ 27 ties replaced.
- ✓ 2002 ft rail replaced.
- ✓ 1360 ft track resurfaced/tamped.
- ✓ 6 switches replaced/rehabbed
- ✓ 30 thermite welds
- ✓ 28 primary pads & 61 secondary pads replaced (0 ft full depth track repairs)



Repairing concrete slabs

### Piggyback Work:

- ✓ Station enhancements - new flooring and lighting.
- ✓ Replaced dozens of signal bonds, reinstalled ~3,500 ft signal cable.
- ✓ Regauged 3<sup>rd</sup> rail and other rail work at Alewife crossover.
- ✓ Tunnel inspections/repairs along SB track between Harvard and Central stations.
- ✓ Davis station ceiling repairs.
- ✓ Signal modernization work at Alewife, Davis, Porter, Harvard stations.
- ✓ Installed a new standpipe at Kendall/MIT station.
- ✓ Improved security cameras at Alewife, Porter, Davis stations.

Track work on the Red Line

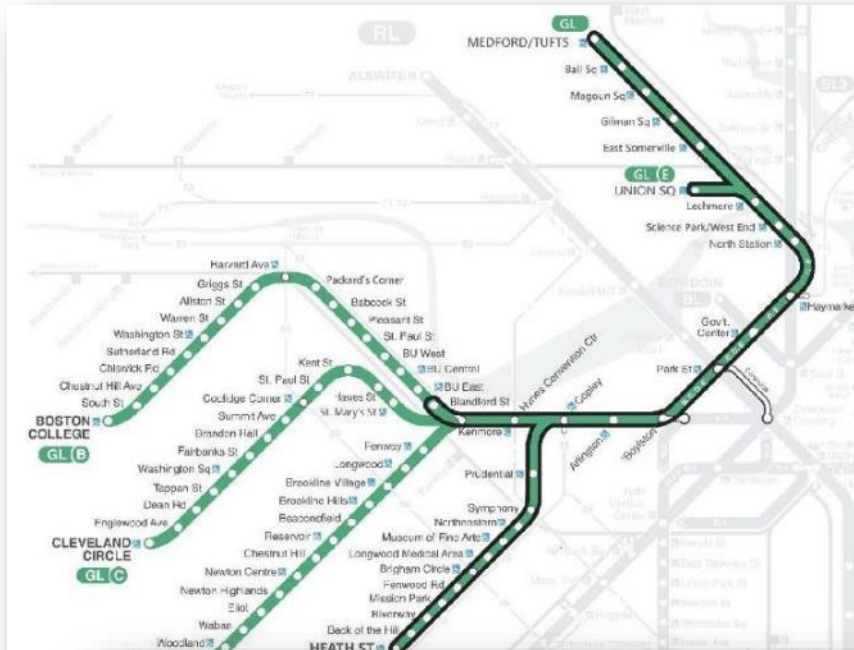




# Track Improvement Program | 2-Phase January Surge, Completed

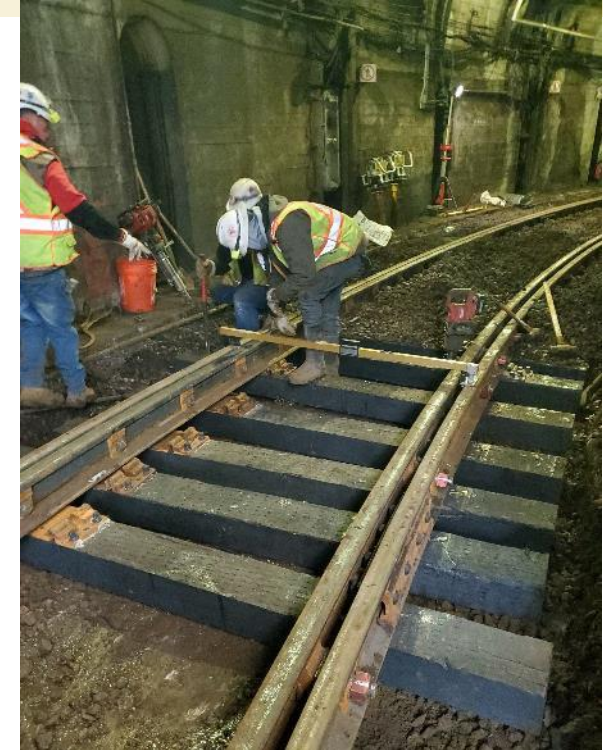
Reported  
02.29.2024

GL Central Tunnel, and B North Stn - Babcock St, E North Stn - Heath St, C & D North Stn - Kenmore Stn, Jan 3-12 & 16-28, 2024



## Metrics

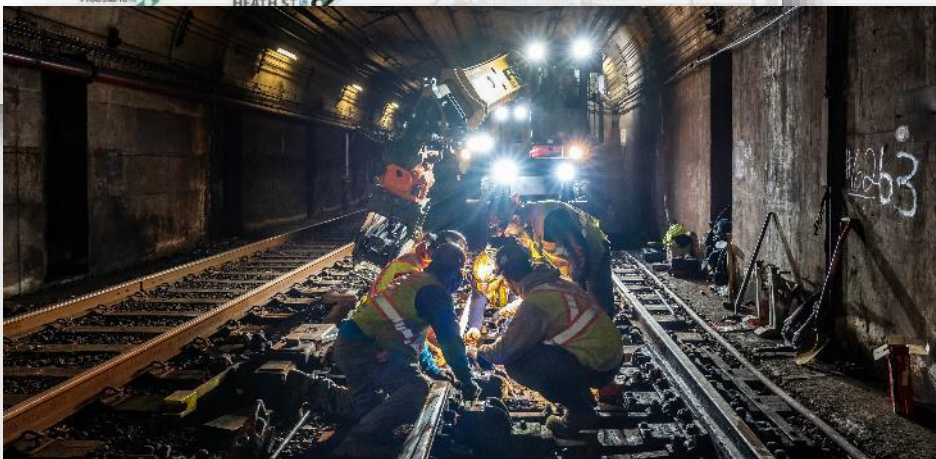
- ✓ 16 Speed Restrictions cleared.
- ✓ 1306 ties replaced.
- ✓ 10,845 ft rail replaced.
- ✓ 1280 ft full depth track repairs
- ✓ 8887 ft track resurfaced & tamped - smoother ride.
- ✓ 12 Switch Replacements/Rehabilitations.
- ✓ 66 thermite welds.



Park St to Gov't Center 01.20.2024

## Piggyback Work

- ✓ ~7,300 ft overhead catenary wire replaced between Haymarket and Boylston stations.
- ✓ Water infiltration repairs completed in Green Line tunnel.
- ✓ Park Street communication room improvements.
- ✓ Copley station, repair work completed 3 in-station columns with additional infrastructure upgrades accomplished



Copley Square  
01.18.2024

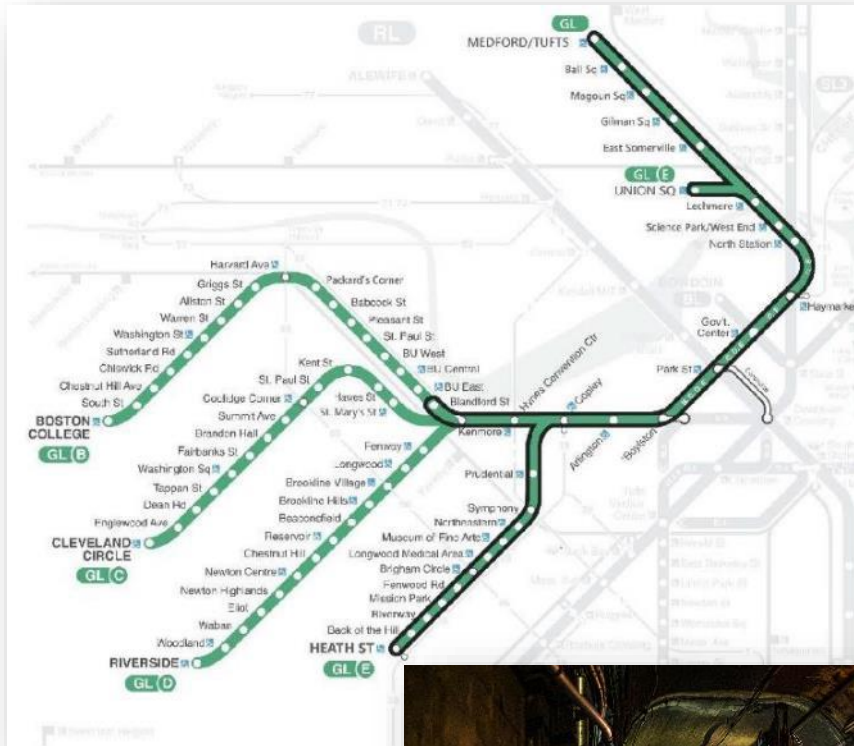




# Track Improvement Program | Completed Work (1<sup>st</sup> portion of January Surge)

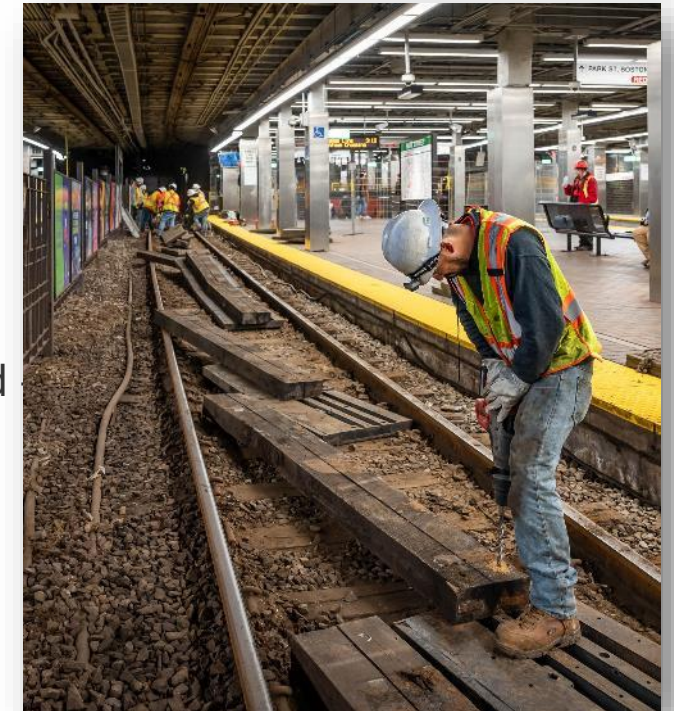
Reported  
01.25.2024

GL Central Tunnel, and B North Stn - Babcock Street, E North Stn - Heath Street, C & D North Stn - Kenmore Stn, Jan 3-12, 2024

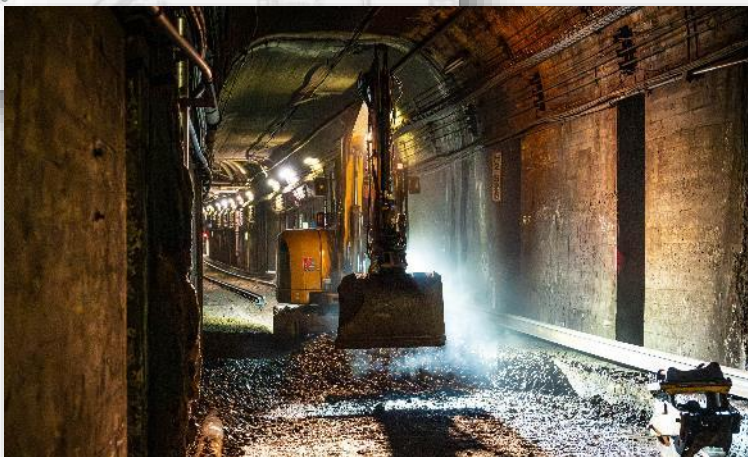


## Metrics

- ✓ 4 Speed Restrictions cleared.
- ✓ NA travel time improved.
- ✓ 387 ties replaced.
- ✓ 3,047 ft rail replaced.
- ✓ 400 ft full depth track repairs
- ✓ 1330 ft track resurfaced & tamped smoother ride.
- ✓ 2 Switch Replacements/Rehabilitations
- ✓ 15 thermite welds.



Boylston to Park 01.03.2024



Boylston to Park 01.04.2024

## Piggyback Work

- ✓ Boylston & Copley roof structural repairs
- ✓ Haymarket to North Stn tunnel inspections
- ✓ Hynes stair repairs and replacements and handrails/benches restored
- ✓ New Arlington elevator sump pump installed





# Track Improvement Program | Completed Work (Surge)

Reported  
01.25.2024

## Green Line: Riverside to Kenmore, Dec. 11-20



### Metrics

- ✓ 22 Speed Restrictions cleared (20 planned).
- ✓ ~4 min travel time improved.
- ✓ 2,767 ties replaced.
- ✓ 4,757 ft rail replaced.
- ✓ 600 ft full depth track repairs
- ✓ 48,840 ft track resurfaced & tamped - smoother ride.
- ✓ 8,918 ft rail thermal adjustment.
- ✓ 36 thermite welds.

### Piggyback Work

- ✓ Removed speed restrictions and resumed line speed on Lechmere Viaduct between Science Park & Lechmere, both directions.
- ✓ Dozens of switch certifications completed, four switch heaters repaired, 11 ground tests performed, 50 track circuits replaced.
- ✓ Catenary EB & WB replaced near Fenway Station.
- ✓ Riverside operators' roof replaced.



GL D Branch 12.12.2023

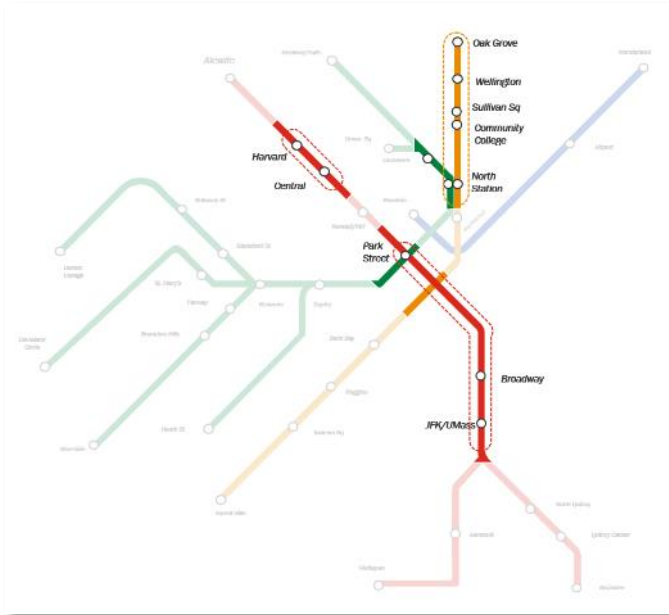






## Red Line & Orange Line Weekend & Early Access

- Harvard to Central: Nov 4 – 5
- Oak Grove to North Station: Nov 7 – 12
- JFK/UMass to Park St: Nov 14 – 19



### Metrics

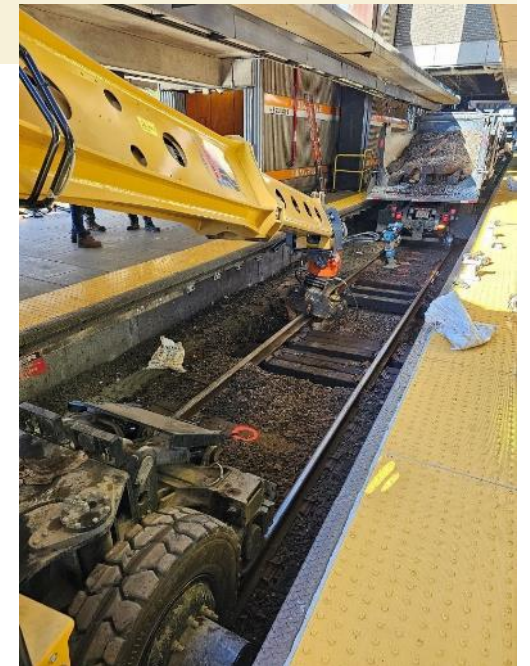
#### Red Line

- ✓ 10 Speed Restrictions cleared (7 planned)
- ✓ ~6 minutes travel time improved
- ✓ 146 ties replaced
- ✓ 2,202 feet rail replaced
- ✓ 6,305 feet of tamping

#### Orange Line

- ✓ 2 Speed Restrictions cleared
- ✓ ~1 minute travel time improved, NB
- ✓ 425 ties replaced
- ✓ 2,050 feet of tamping

OL Oak Grove to North Station



RL Park to JFK/UMass