



Track Improvement Program Update

August 22, 2024

Ryan Jordan

Deputy Chief, Construction Field Services and Track Improvement Program



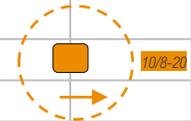
Track Improvement Program 2023-2024 | Timeline

	Alternative Service Limits	Speed Restrictions Act/Adj/Orig	Time Savings Actual/Modeled	Diversion Duration Act/Adj/Orig	2023		2024												
					NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
A	Harvard to Central	✓ 1/1	1.7/1.7	Wknd															
B	JFK/UMass to Park St	✓ 6/6	4.7/1.9	EA/Wknd															
A	Oak Grove to North Station	✓ 2/2	1.0/2.7	EA/Wknd															
A	North Station to Kenmore, Heath, Babcock	✓ 12/10	2.0/4.3	9/9															
B	Riverside to Kenmore	✓ 22/20	3.7/9.2	10/10															
1	Medford/Union to Park St.	2	1.8	/14/14															
2	North Station to Kenmore, Heath, Babcock	✓ 16/15	2.0/8.7	23/23/21															
3	Copley to St. Mary's, Babcock, Brookline Hills	✓ 10/9	0/4.2	18/18/18															
4	Boston College to Babcock	✓ 8/8/7	~1*/1.7	10/10/10															
5	Cleveland Circle to St. Mary's	✓ 1/1	0/0.1	0/0/6															
1	Oak Grove to North Station	13	1.7	/7/6															
2	Wellington to North Station	✓ 6/5	4.0/4.3	9/9/8															
3	Wellington to Back Bay	✓ 9/6	3.3/2.3	10/10/10															
4	North Station to Jackson Sq	✓ 7/2	2.2/1.3	4/4/4															
5	Back Bay to Forest Hills	15	4.8	/13/11															
1	Alewife to Harvard	✓ 8/9	8.4/6.5	9/9/9															
2	Alewife to Kendall	✓ 9/9/7	4.8/4.0	16/16/16															
3	Harvard to Park	3	0.8	/7/6															
4	Kendall/MIT to JFK/UMass	/5/8	3.7	/7/6															
5	Park to JFK/UMass	✓ 11/8	10.2/2.6	9/9/8															
6	Broadway to North Quincy	4	2.7	/6/6															
7	JFK/UMass to Braintree	/22	9.1	/24/16															
1	Airport to Wonderland	✓ 16/12	4.0/3.1	14/14/12															
2	Bowdoin to Orient Heights	✓ 3/2	0/0.7	Early Access															

Shift leverages weekend; minimizes commuter impact

Tamping, tree removal, other work during GL-003

Canceled. Work accomplished during GL-003.



Extended for work to ultimately increase operating line speeds.

Today Aug 22

Many timeline adjustments prioritized leveraging weekends to minimize impact to weekday commuters

191 original restrictions to address
83.9 RT min
/217/207 days of work

*Time savings for GL-004 is based on limited data and may be impacted by surface traffic, signals, etc.

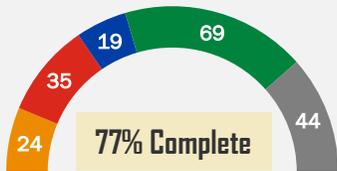
Progress Metrics

Data date: Aug 13, 2024

Speed Restrictions



147 Lifted, 44 Remain

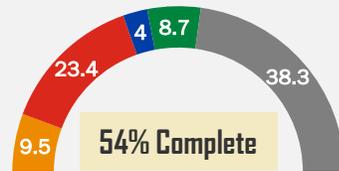


Originally Projected
191* Speed Restrictions

Travel Time Improvement



45.6 min Returned, 38.3 Remain

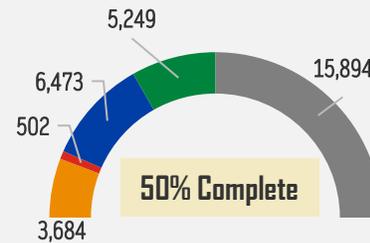


Refined Modeled
84 Minutes

Ties Replaced



15,908 Replaced, 15,894 Remain

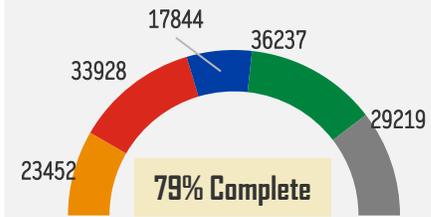


Originally Projected
31,802 Ties for Replacement,
incl SGR

Feet of Rail Replaced



111,461 Replaced, 29,219 Remain

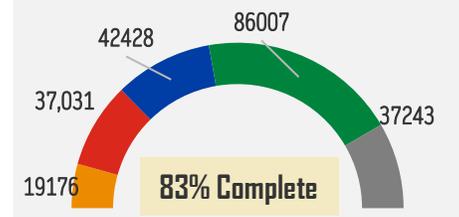


Originally Projected
140,680 ft for Replacement

Feet of Tamping



184,642 Tamped, 37,243 Remain



Originally Projected
221,885 ft to Tamp

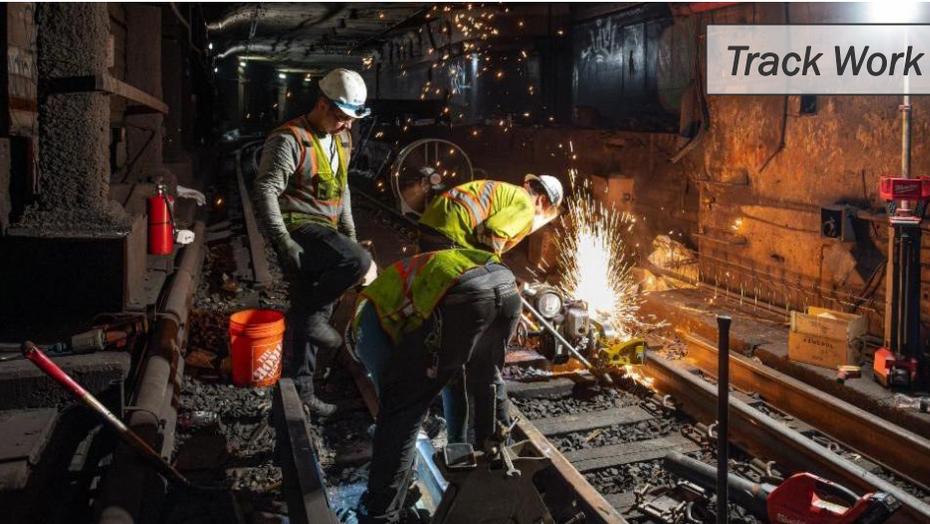
Projections as of Nov. 6, 2023, Track Improvement Program

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

Track Improvement Program | Completed Track Work – Red Line

Alewife to Kendall/MIT July 13-28, Early Access July 12 | Kendall to Park Street Early Access July 15-19, 22-26

Weekend July 20-21 | Alewife to JFK/UMass July 13/14, 27/28 Weekends | (RL-002)



Track Work

- Lifted **9** speed restrictions.
- Replaced **21,725** ft of rail.
- Replaced **1,694** ft of restraining rail.
- Replaced **250** ties.
- Resurfaced & tamped **11,471** ft of track.
- Replaced **2,662** tie plates.
- Replaced **21** primary & add'l **25** secondary floating concrete slabs.
- Removed **~30,000** ft scrap rail from ROW, improving safety and aesthetics.
- Run times from Park Street to Alewife NB decreased by **~3.5** min and **~1.3** min SB.: **~4.8** min total.



Related Track Work

- Replaced **50** WeeZee bonds (part of track circuit).
- Repaired/replaced **16** damaged track bonds.
- Removed/reinstalled **~4,500** ft of balancing cable.
- Replaced/fully tested **~55** individual track circuits.
- Replaced/fully tested **10** track circuit loops.
- Installed cable hanger assemblies NB tunnel for **~13,000** ft - ea assembly is mounted every **~5** ft.
- Replaced **~5,000** ft of roof of Alewife's E. headhouse.
- Gauged **~2,000** ft of track, including curves and at crossovers.

Track Improvement Program | Completed Station Work – Red Line

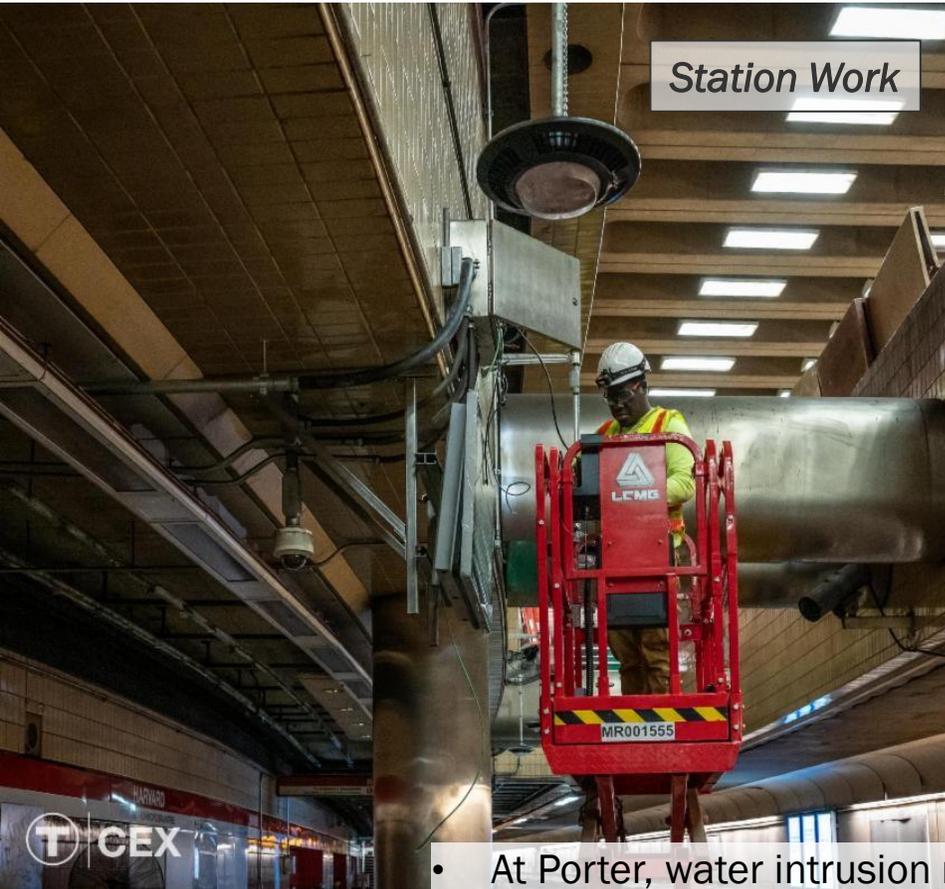
Alewife to Kendall/MIT July 13-28, Early Access July 12 | Kendall to Park Street Early Access July 15-19, 22-26

Weekend July 20-21 | Alewife to JFK/UMass July 13/14, 27/28 Weekends | (RL-002)



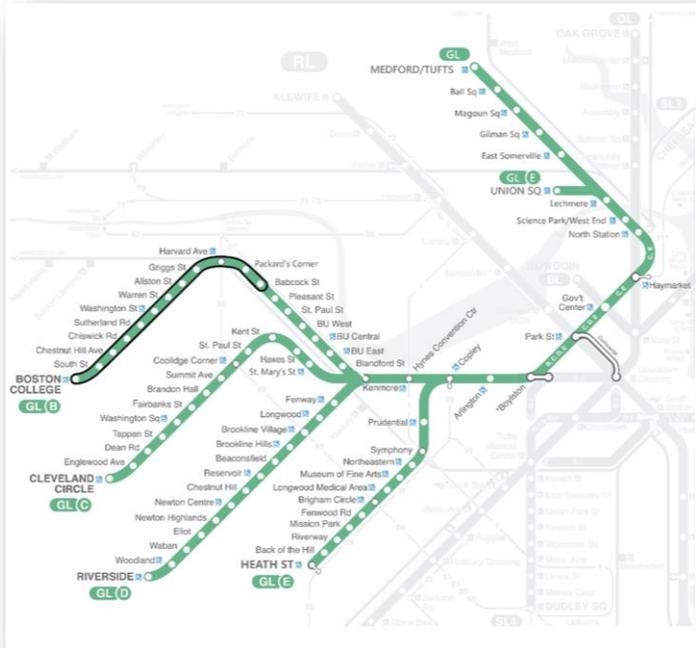
Station Work

- Repaired broken tiles at Alewife.
- Sanded and repaired in-station benches throughout the shutdown stations.
- Stairway repairs were made throughout the shutdown area, including repairs to hand railing, concrete repairs, replacement of anti-slip treads, tile repairs, leveling and resetting, painting, and more.
- Ironworkers made repairs to infrastructure within the right of way area and repaired the bike rack at Davis.
- Annual tunnel inspections performed at Alewife.
- Clear-coated benches, removed graffiti, painted station walls, painted doors, painted standpipe valves, applied nonslip tape on stairs, painted inspector booths, and painted trash receptacles.
- Cleaned and pumped drains, including pumping water out of abandoned tunnels and from under the southbound platform at Harvard.
- Replaced the A/C units in various locations throughout the shutdown area.
- At Porter, water intrusion mitigation efforts were put in place, including diverting water by installing a trough.
- The previous Kendall/MIT outbound head house was demolished and the steel for the new head house erected.



Track Improvement Program | Completed Work – Green Line B

Boston College to Babcock Street, August 2-11, 2024 | (GL-004)



Track Work

- Lifted **8** speed restrictions.
- **4,190** feet of full-depth reconstruction (incl. rail, ties and ballast)
- Replaced **3,319** feet of restraining rail
- Resurfaced & tamped **5,420** ft of track.
- **40** thermite welds.
- Nearly **800 tons** of pavement for Griggs St. ped crossing, Griggs St platforms, Allston St grade crossing, curb ramps, and platforms; and Warren St grade crossing, curb ramps and platforms.
- Installed 2 cast-in-place concrete ductbanks for ITP Ductbank project.
- ~1 min. faster RT (limited data & surface traffic)

Piggyback Station Work

- Security enhancements within the Boston College yard.
- Tree trimming and vegetation removal.
- Power washing stations and cleaning platforms throughout the service suspension area.
- Pressure washing buildings within the Boston College yard.
- Fencing repairs and improvements, inspections, painting, signage replacement.
- Platform repairs.



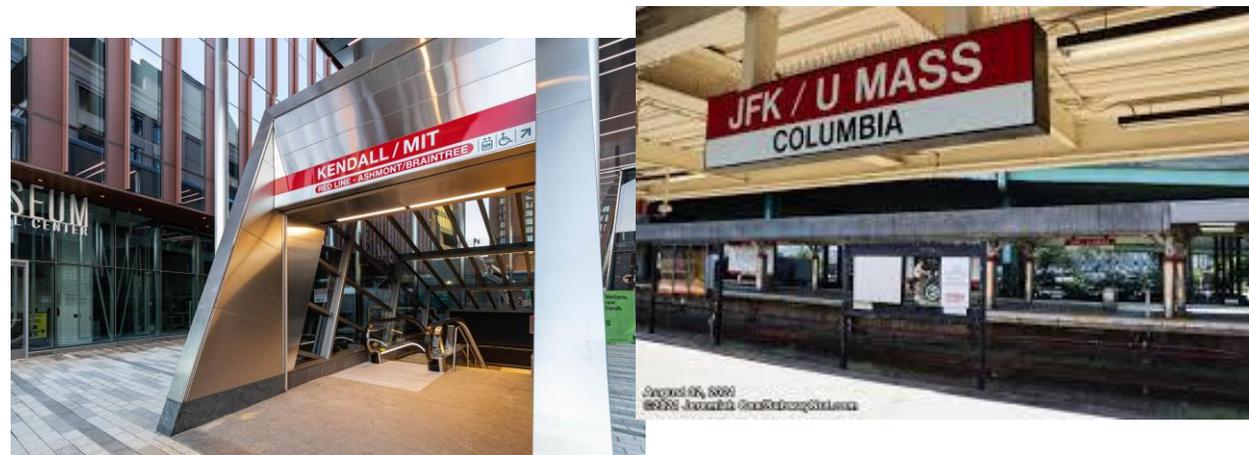
Track Improvement Program | Ongoing Work – Red Line

JFK/UMass to Kendall/MIT, August 19-25, 2024 | (RL-004)



Track and Piggyback Station Work Proposed

- Address 5 Speed Restrictions.
- Perform full-depth reconstruction; replacing rail, ties, plates, third rail, and contact rail insulators; tamping, surfacing, and aligning; and special trackwork.
- At the stations, maintenance and repairs will be performed such as rub rail replacement, paint, bench repairs, concrete repairs, floor repairs, stair tread replacement, handrail replacement, signage repairs, roof replacements, camera upgrades, plumbing & HVAC maintenance and inspection activities.



Track Improvement Program | *Upcoming Work – Red Line*

JFK/UMass to Braintree, September 6-29, 2024 | (RL-007)



Track Work Proposed

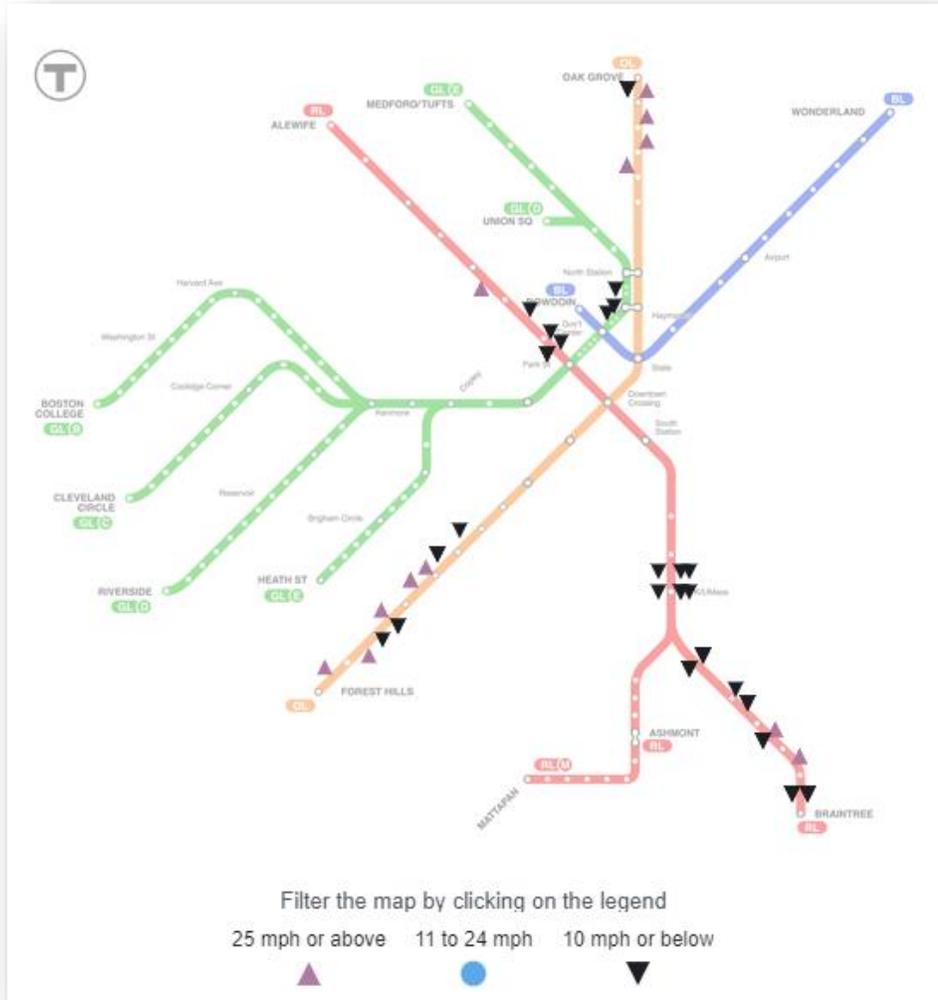
- Address 22 Speed Restrictions.
- Surface, line and tamping.
- Rail replacements.
- Ties and bridge timbers.
- Plates.
- Insulator replacement.
- Full-depth replacement.
- Special switch work.
- Cologne egg replacement.
- Truck pad replacement.
- Welds and Insulated Joints (IJs).



Piggyback Station Work Planned

Crews will maximize the outage by performing signal work and station amenity upgrades, including new lighting, painting, tiling, power washing and more.





As of 08.19.2024

The slide features the MBTA logo (RL, OL, BL, GL, ML) at the top. The main title is "Track Improvement Program 2023-2024". Below the title, it lists "Phil Eng, MBTA GM & CEO" and "Sam Zhou, MBTA Chief Engineer". The slide includes two photographs: one showing workers in a tunnel and another showing tracks under construction. A large "T" logo is in the bottom right corner. The number "1" is in the bottom left corner. A small note at the bottom right says "Draft for Discussion & Policy Purposes Only".

Track Improvement Program 2023-2024

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

1

Draft for Discussion & Policy Purposes Only

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

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



Upcoming Community Engagement Events | *Calendar*

Open Houses

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

Wed., 2/21, 6:30 – 8 p.m., Zoom

Thu., 3/7, 6:30 – 8 p.m., Zoom

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

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

Tue., 10/01, 6 – 8 p.m. Virtual PIM

Station Pop-ups

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

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

Wed., 7/31, GL Boston University Station

Wed., 8/28, 8 – 10 a.m., JFK/UMass

Thu., 10/31, 8 – 10 a.m., Broadway Station

Tue., 12/03, 4 – 6 p.m., Medford/Tufts

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.



Questions



Previous Board TIP Updates



Track Improvement Program | Completed Work

OL Wellington to North Station Jun 22-23, 2024

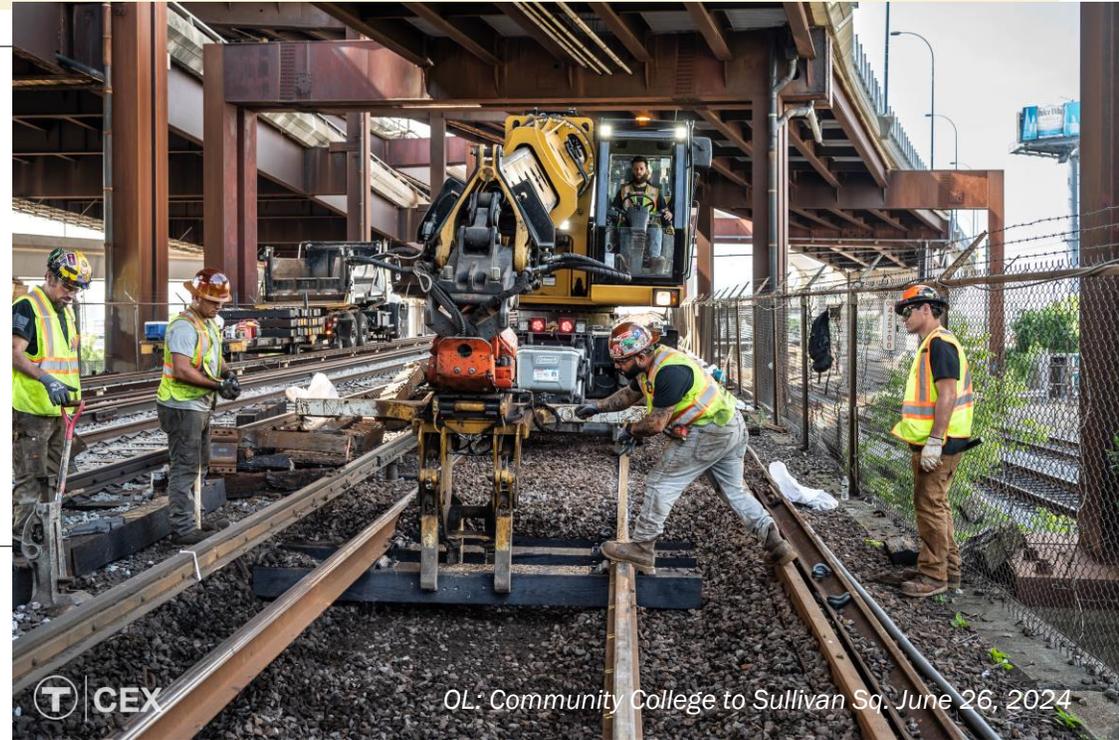
Reported
07.25.2024

Piggybacking on MassDOT Mystic Ave/Maffa Way Bridgework



Track Work

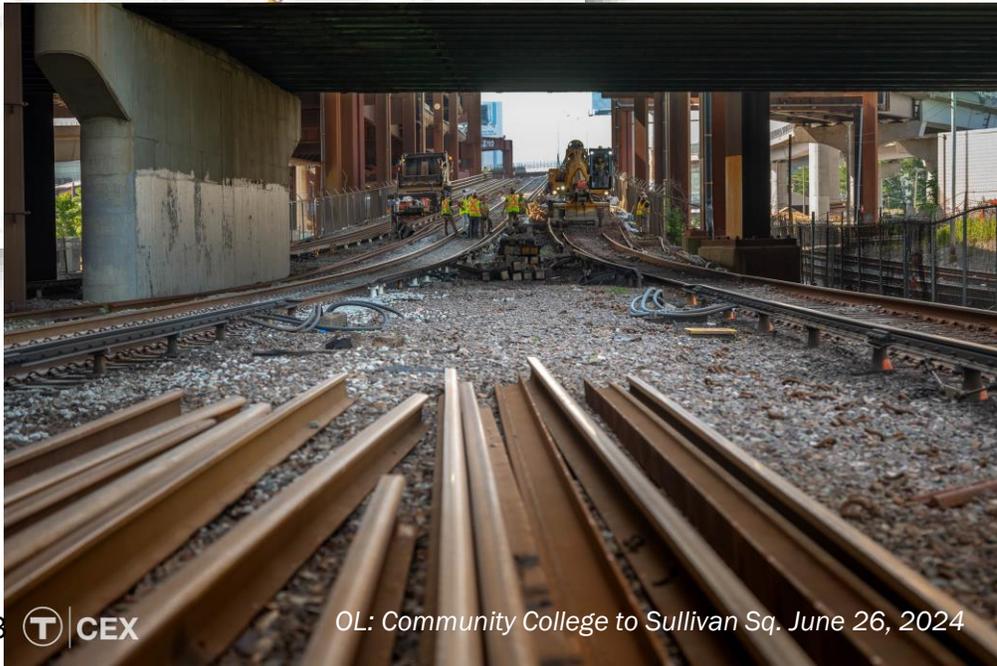
- Lifted 6 Speed Restrictions, 2 more than scoped.
- Replaced 5,701 feet of running rail.
- Replaced 3,261 ties.
- Resurfaced and tamped 11,236 feet of track.
- Performed 657 feet of full-depth track construction.
- Performed critical signal and switch modernization work between Oak Grove and Assembly.
- Improved RT time by 4 min. (1.5 SB & 2.5 NB).



OL: Community College to Sullivan Sq, June 26, 2024

Station Work

- Repaired stairs at Sullivan Square and Community College.
- Upgraded Community College entrance.
- Upgraded security at Assembly.
- Repaired drainage at Sullivan Sq.
- Repaired cables, performed inspections, cleaned and replaced signs throughout the shutdown area.
- Upgraded station lighting. Painted. Improved HVAC. Cleaned.
- Replaced five damaged ROW fence poles at Wellington.
- Repaired station gate at Assembly.
- Cleaned, removed debris and improved HVAC at Community College.
- Replaced system maps at North Station.



OL: Community College to Sullivan Sq, June 26, 2024



Track Improvement Program | Completed Work

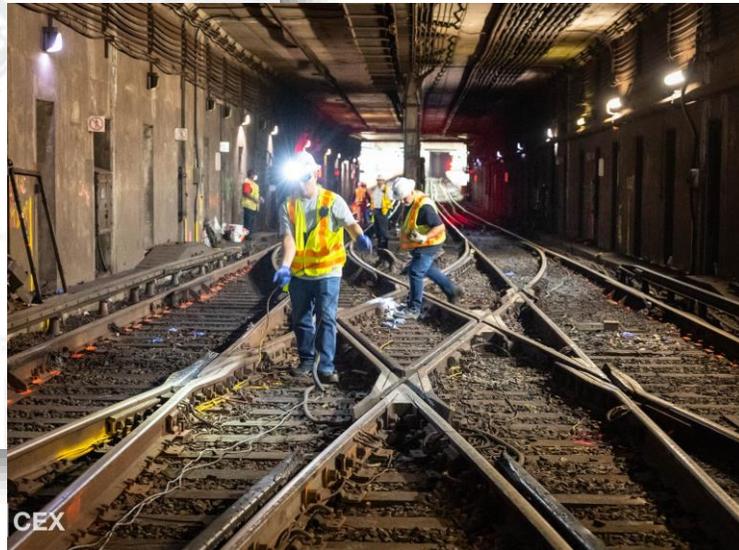
OL-003 Wellington to Back Bay May 28 – Jun 6, 2024



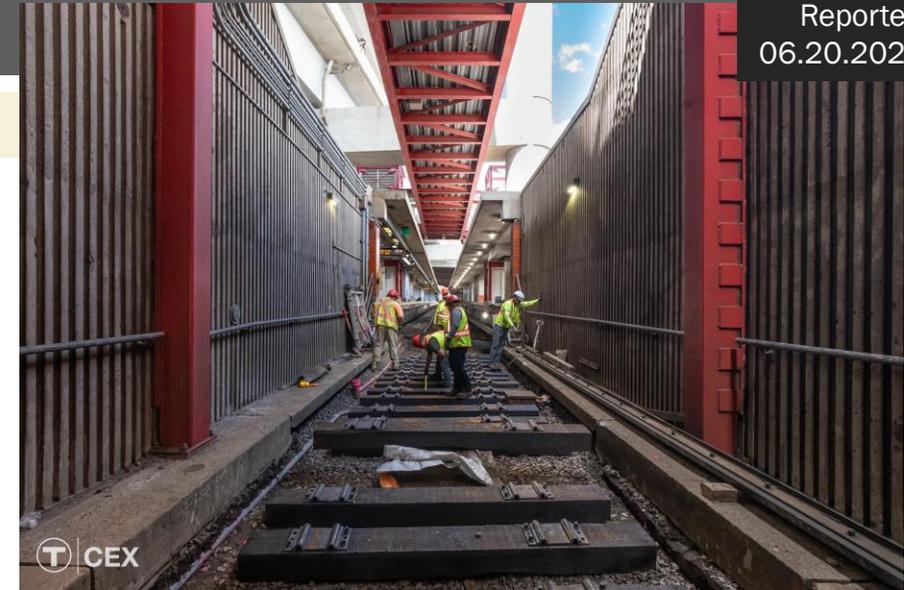
Track Work

- Lifted 10 speed restrictions.
- Replaced 12,591 ft of rail.
- Replaced 388 ties.
- Resurfaced and tamped 7,940 ft of track.
- Replaced 2501 tie plates.
- Replaced 84 cologne eggs.
- 1,130 ft of full-depth track reconstruction.
- ~3.3 min RT decrease (2.4 min SB / 0.9 min NB) between Wellington and Ruggles.

Piggyback Work



- Installed 500 feet of stringer cable at Sullivan Square.
- Performed overhead station inspections of platforms, entrances, and lobbies at Sullivan Square, Community College, and Tufts Medical Center, Haymarket, North Station, and State.
- Inspected tunnels between Tufts Medical Center and North Stn.
- Made security improvements at Chinatown.
- Inspected electrical rooms at Tufts Medical Center to upgrade the station's lighting.
- Upgraded and made accessibility improvements to the Community College entrance - new concrete. Repaired underlying slab.
- Repaired Community College's elevated walkway with new concrete for a smooth walkway surface.
- Installed new cable, power wires, and fiber optic.
- Reinstalled signal equipment from 60 track circuits.
- Performed signal improvement work throughout the diversion areas.



Reported
06.20.2024



Track Improvement Program | Completed Work

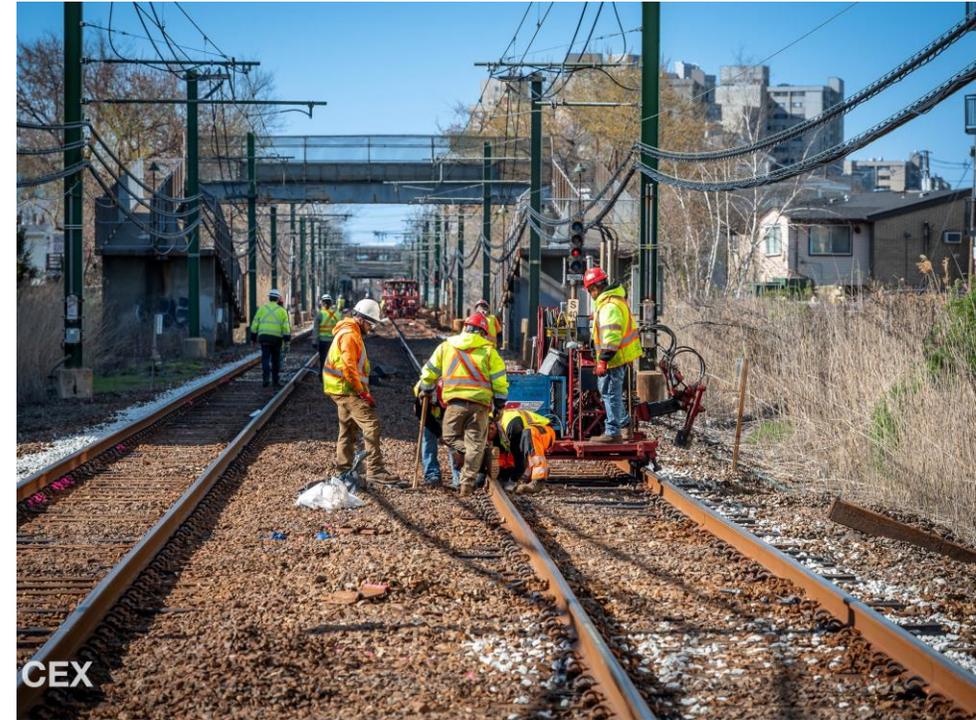
Reported
05.23.2024

BL (001) Maverick to Wonderland, Apr 17-19 | Airport to Wonderland Apr 20-30, 2024



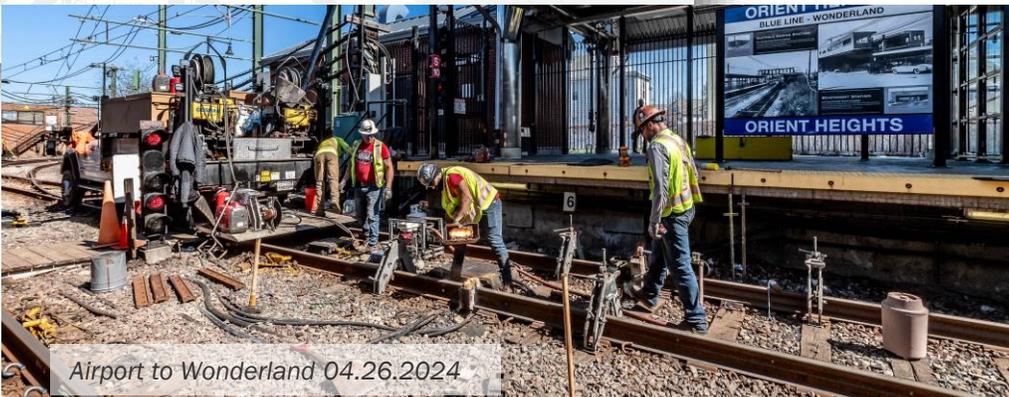
Track Work

- Addressed 16 speed restrictions.
- 4-min RT time improvement (3 EB, 1 WB).
- Replaced 17,844 ft rail.
- Replaced 6,521 ties (incl FFU ties).
- Full depth 808 ft. reconstruction at Beachmont, Orient Heights and Wood Island stations.
- Two truck pad reconstructions: Cambell's Gate, Beachmont.
- Resurfaced and tamped 41,650 ft track.
- Replaced/Rehab 3 switches.



CEX

Airport to Wonderland 04.26.2024



Airport to Wonderland 04.26.2024

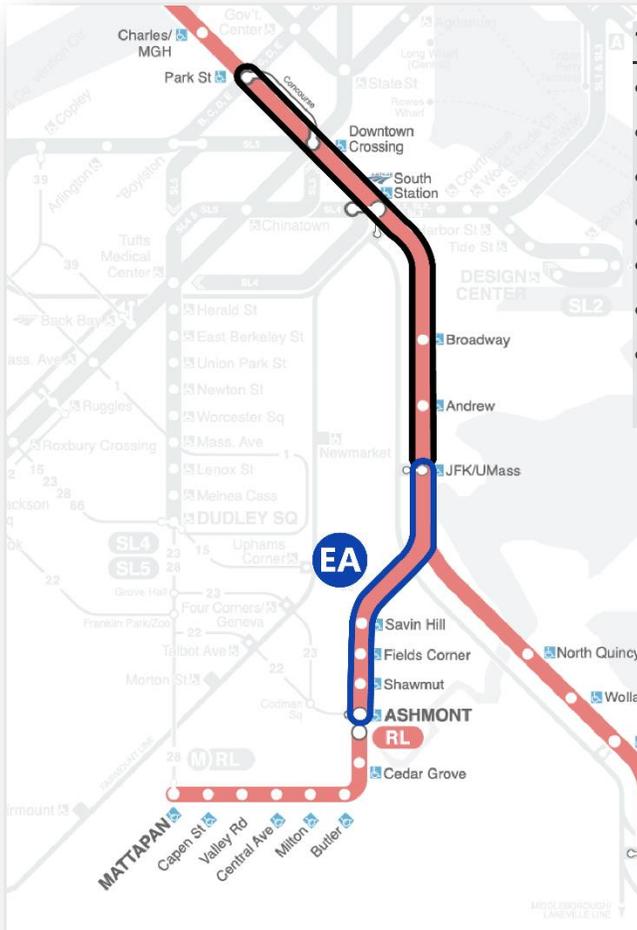
Piggyback Work

- Replaced ~9,000 feet of overhead catenary wire.
- Performed station inspections and standpipe testing.
- Repaired operator's platform in non-passenger area on Wonderland and operator's walkway at Orient Heights.
- Replaced ~500 ft of fencing between Beachmont and Revere Beach.
- Repaired roof canopies at Wood Island, Orient Heights, Suffolk Downs.



Track Improvement Program | Completed Work

RL Park to JFK/UMass May 2-10, 2024

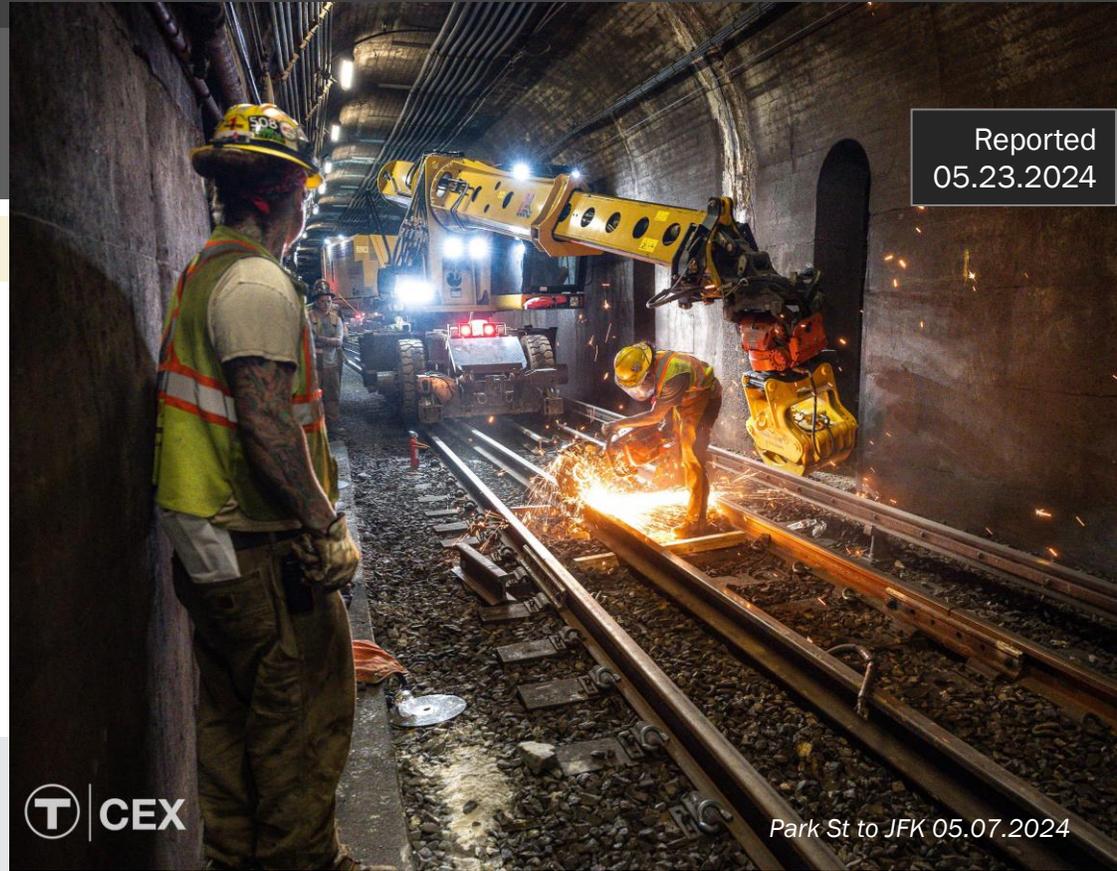


Track Work

- Lifted 13 speed restrictions.
- Improved RT time by 10.2 min.
- Replaced 10,201 ft rail.
- Replaced 225 ties.
- Replaced 3,822 tie plates.
- Surfaced & tamped 24,200 ft.
- Installed 231 contact rail insulators.

Piggyback Work

- Overhead inspections of platform & lobbies.
- Security improvements JFK/UMass.
- Tunnel inspections between Broadway and JFK/UMass.
- Completed critical ceiling repairs.
- Fireproofing work Downtown Crossing. Could not have been done during overnight periods alone.
- Replaced ~180 sq ft glass panels at Ashmont - improves customer experience.



Reported
05.23.2024



Park St to JFK 05.07.2024



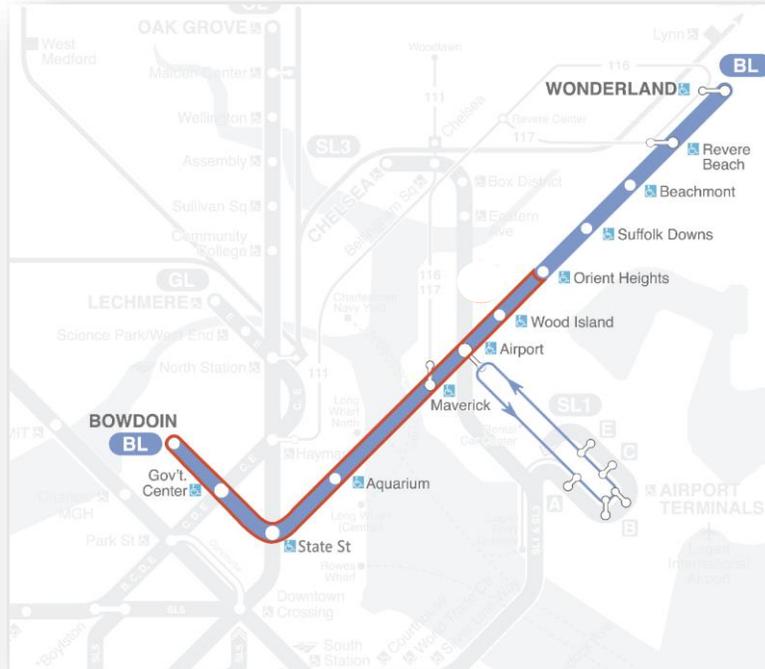
Park St to JFK 05.07.2024



Track Improvement Program | Completed Work

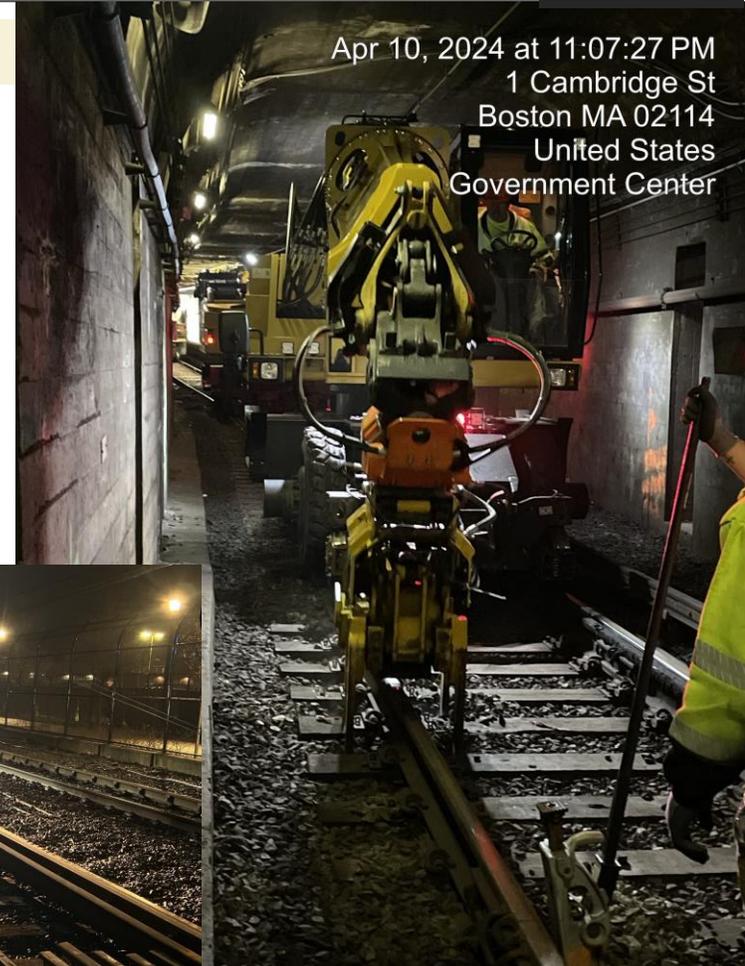
Reported
04.25.2024

BL (002) Bowdoin to Orient Heights Preliminary Work, Apr 9-11, 2024



Track Work

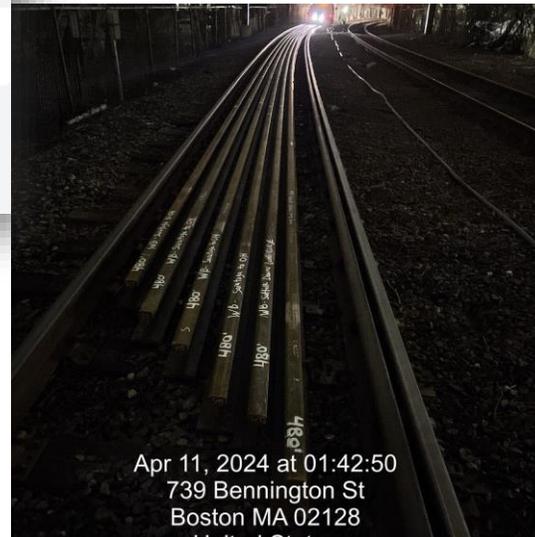
- Removed 3 speed restrictions.
- 778 ft surface tamping and aligning.
- *Prep for EOM April Diversion:*
 - Drilled 96 holes and installed bolts and assemblies on the 115 ft rail.
 - Relocated 24 rail stringers.
 - Staged 432 ties.



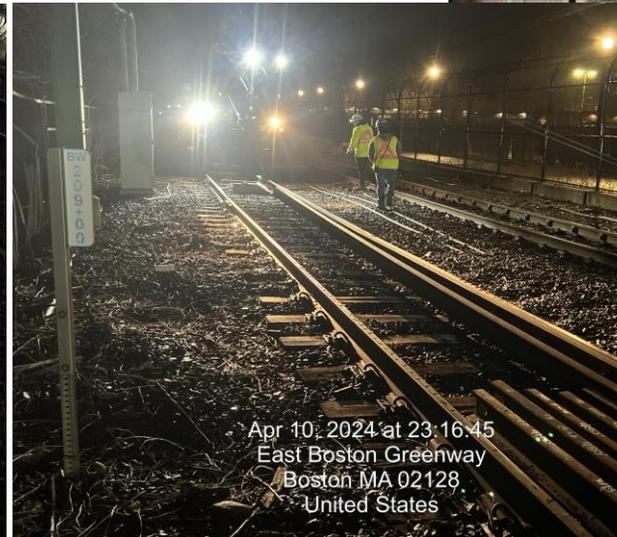
Apr 10, 2024 at 11:07:27 PM
1 Cambridge St
Boston MA 02114
United States
Government Center

Piggyback Work

- Painted Sand boxes at Orient Heights, Wood Island, Airport & Maverick
- Started repair Wonderland operators' platform.
- Standpipe testing at Aquarium.



Apr 11, 2024 at 01:42:50
739 Bennington St
Boston MA 02128
United States



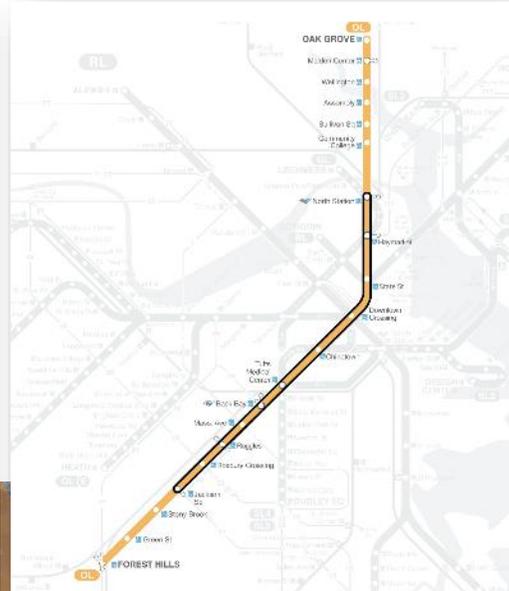
Apr 10, 2024 at 23:16:45
East Boston Greenway
Boston MA 02128
United States



Track Improvement Program | Completed Work

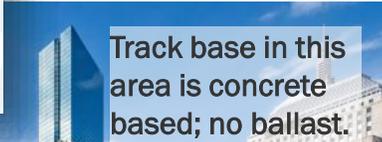
Reported
03.28.2024

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

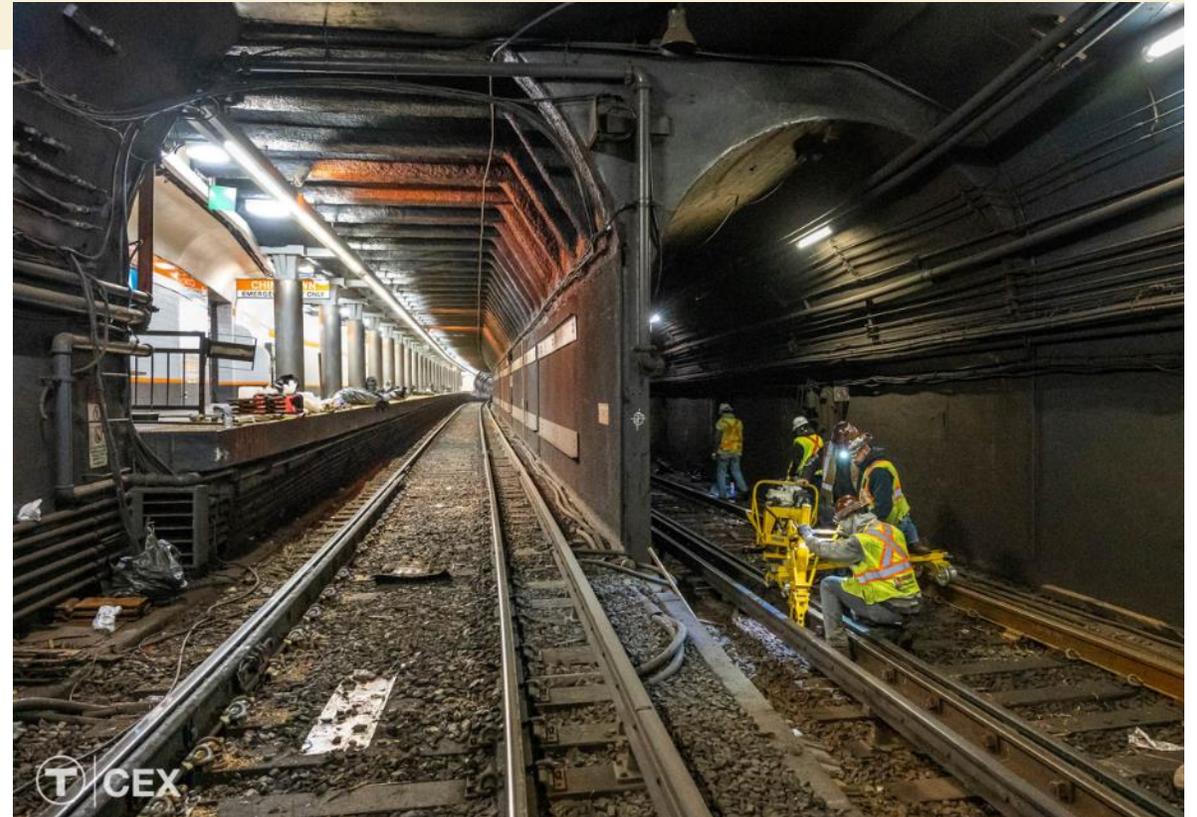


Track Work

- 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

Reported
02.29.2024

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 3rd 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.

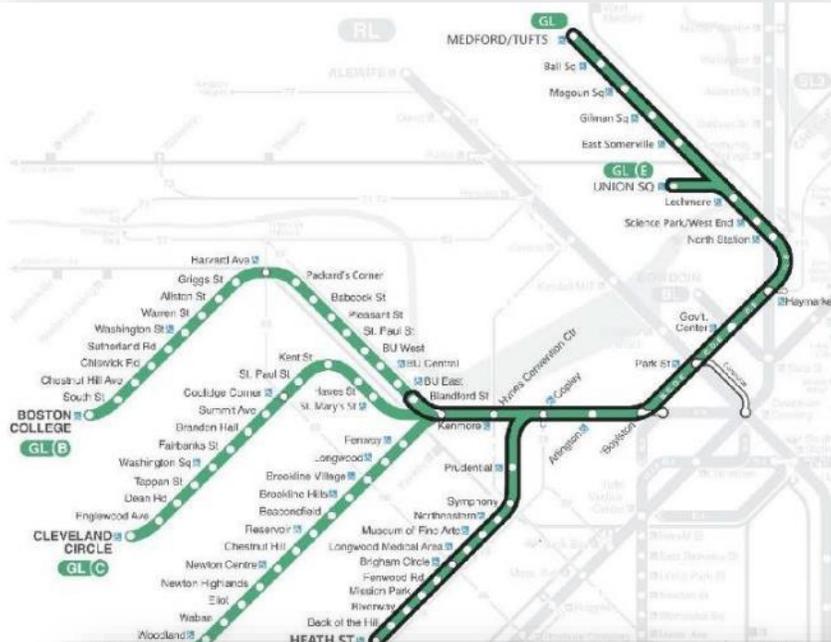
Track work on the Red Line



Track Improvement Program | 2-Phase January Surge, Completed

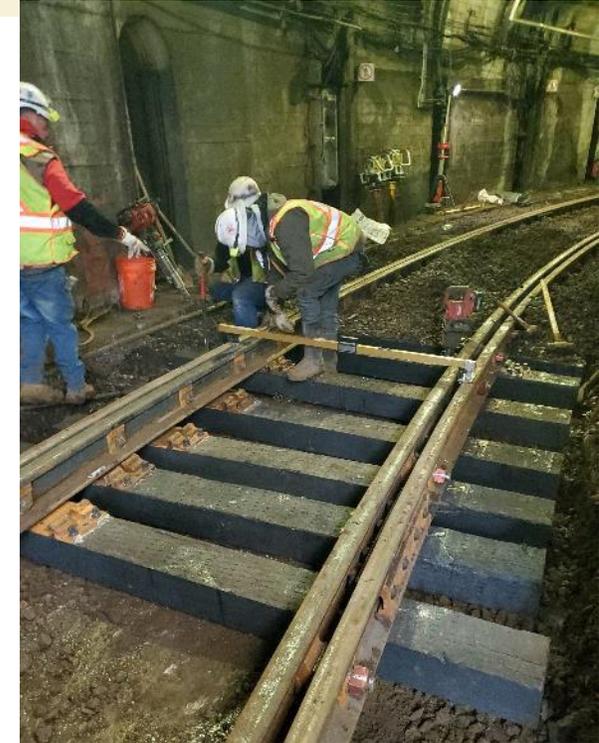
Reported
02.29.2024

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

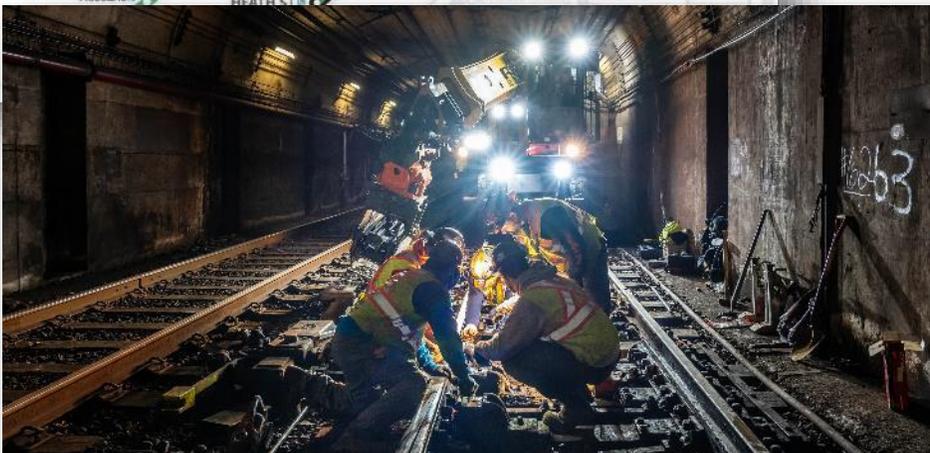
- ✓ 16 Speed Restrictions cleared.
- ✓ 1306 ties replaced.
- ✓ 10,845 ft rail replaced.
- ✓ 1280 ft full depth track repairs
- ✓ 8887 ft track resurfaced & tamped - smoother ride.
- ✓ 12 Switch Replacements/Rehabilitations.
- ✓ 66 thermite welds.



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 (1st portion of January Surge)

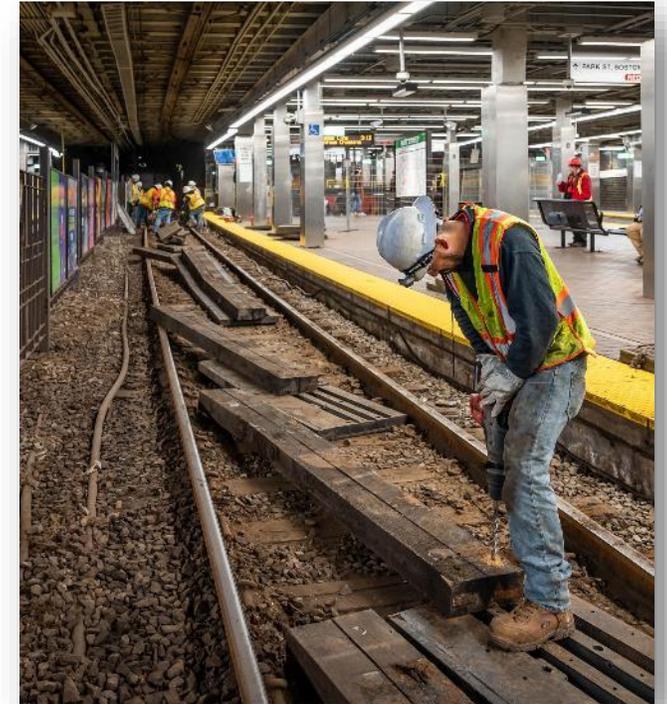
Reported
01.25.2024

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

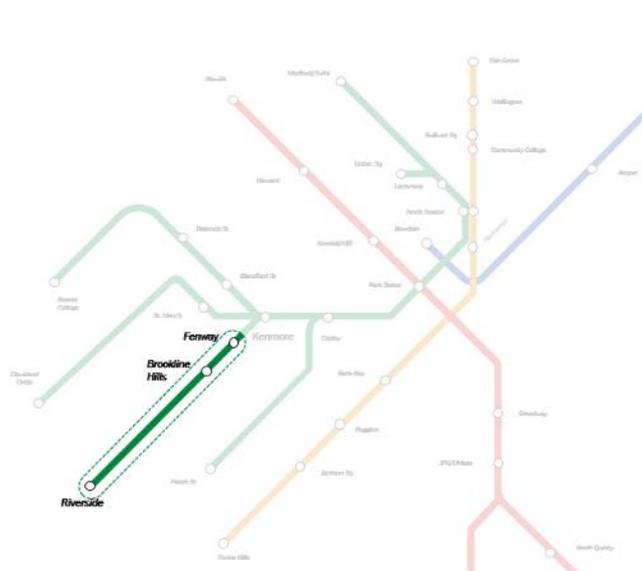
- ✓ Boylston & Copley roof structural repairs
- ✓ Haymarket to North Stn tunnel inspections
- ✓ Hynes stair repairs and replacements and handrails/benches restored
- ✓ New Arlington elevator sump pump installed



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.



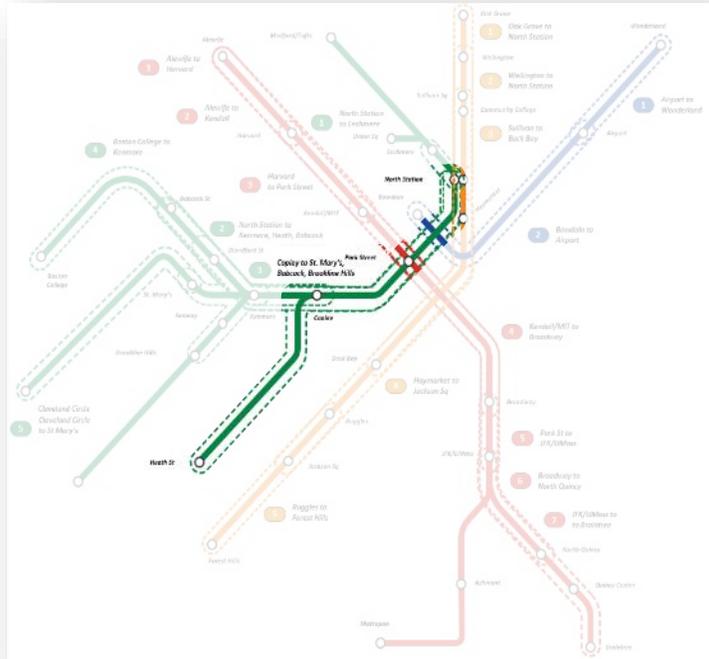
GL D Branch 12.12.2023



Track Improvement Program | Completed Work (Surge)

Reported
12.13.2023

Green Line Surge: North Station to Kenmore, Heath, Babcock, Nov. 27 – Dec.5

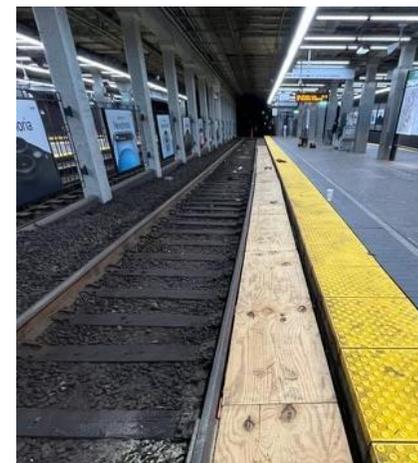


Metrics

- ✓ 12 Speed Restrictions cleared (10 planned)
- ✓ 530 feet full depth track reconstruction
- ✓ 3765 feet rail replaced
- ✓ 6725 feet rail tamping
- ✓ 62 Ties replaced
- ✓ 785 Plates swapped & regauged

Piggyback Work

- Critical tunnel structural repairs
- Hynes floor & stairs repaired
- Replaced some catenary sections
- Installed add'l E-ink signs
- Conducted tunnel inspections
- Inspected station overhead locations and stairs.
- Completed signal system cable, switches & junction boxes work
- Lechmere Viaduct Early Access



Station Upgrades



Track Improvement Program | Completed Work (Weekend and Early Access)

Reported
12.13.2023

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

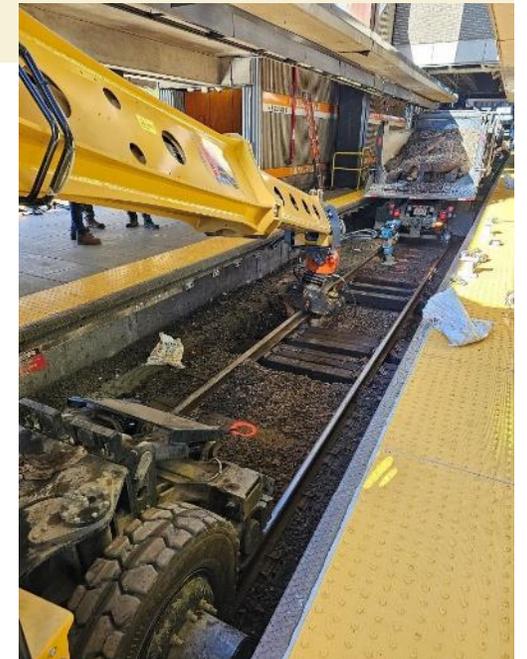
Red Line

- ✓ 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