



BULLETIN

Volume 67, Number 3 | March 2024

Will Select M.T.A. Capital Program Projects Face Delays?

On February 26 the Metropolitan Transportation Authority detailed several projects across the subway system, buses and commuter railroads that are at risk due to the lawsuits against congestion pricing. Anticipated congestion pricing bond proceeds of \$15 billion make up more than 50% of the remaining funds in the MTA's 2020-2024 Capital Program. As a result, the MTA Capital Program must be largely placed on hold, halting advertisement of nearly all new construction contracts and moving forward only with limited, urgent exceptions. Without the funding Congestion Pricing will provide, these projects to make the transit system safer, more reliable, accessible and equitable for the millions of commuters who rely on public transportation every day are at risk.

Investments supported by congestion pricing funds are

essential in advancing projects that would create a more efficient and sustainable transit system that meets the needs of New Yorkers today and in the future. A sample of affected projects follows, by category.

Reliability. Congestion pricing revenue will contribute \$1 billion to purchase new subway cars, new M9A cars for the LIRR and Metro-North and new locomotives for the LIRR. Additionally, vital signal modernization projects on the IND Fulton Street Line in Brooklyn and IND Sixth Avenue Line in Manhattan have already been placed on hold. These projects would benefit more than 1.6 million daily riders and include installation of Communication-Based Train Control (CBTC) and replacement of 70 switches and 17 interlockings dating back to the 1930s.

Continued on page 4



Electric Railroaders Association

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Upcoming Events

May 10-25, 2024: ERA international tour to Belgium, the Netherlands and Luxembourg. Visit <https://erausa.org/international-tours/2024/> for all the details.

September 6-9, 2024: ERA convention in Edmonton and Calgary, Alberta, Canada. Visit <https://erausa.org/conventions/2024/> for all the details.

April 18-21, 2024: Motor Bus Society Spring 2024 Convention in Toronto, Ontario, Canada.

June 7-9, 2024: Hoosier Traction/West Penn Trolley Meet at the Pennsylvania Trolley Museum in Washington, PA. Visit <https://erausa.org/regional-trips/2024/06/07/> for all the details.

Donations

The ERA Board of Directors express their deepest appreciation for these member donations in January 2024.

\$500 to \$999

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Monthly Zoom Meeting

Friday, March 15, 2024 at 7:30 PM.

Presenting This Month: David Wilson

David's presentation is titled **Chicago 101 — A Summary of Chicago's Transit History**. For nearly 200 years, some kind of public transit has operated in and around Chicago. It has been in the form of stage coaches, omnibuses, suburban trains, steam dummies, horsecars, cable cars, electric streetcars, elevated and subway lines, interurbans, and even a freight subway. This presentation will trace the evolution of those services from the first stage coaches through the latest transit projects and developments.

How to Join Our Zoom Meeting

The Zoom registration link for this meeting is: <https://us02web.zoom.us/meeting/register/tZMvdO6qqDssEt-3PN7EWJUp2can9ks6lX3p0>. You can sign in at 7:15 PM. The show begins at 7:30 PM. If you have any problems, email Paul Grether at grether@mindspring.com, or on the night of the meeting, text or call Paul at 404-434-0453.

Cover Photo

Los Angeles Transit Line (LATL) Type H-4 No. 1280 (St. Louis Car, 1923) is on the W Line at the York Boulevard & Avenue 50 terminal in this wonderful scene from December 20, 1954. This car had been converted from a Type H-2 in 1935, when it was part of Los Angeles Railway Company. It passed to LATL in January, 1945. It was scrapped not too long after this picture was taken, in 1955. Alan Weeks photo

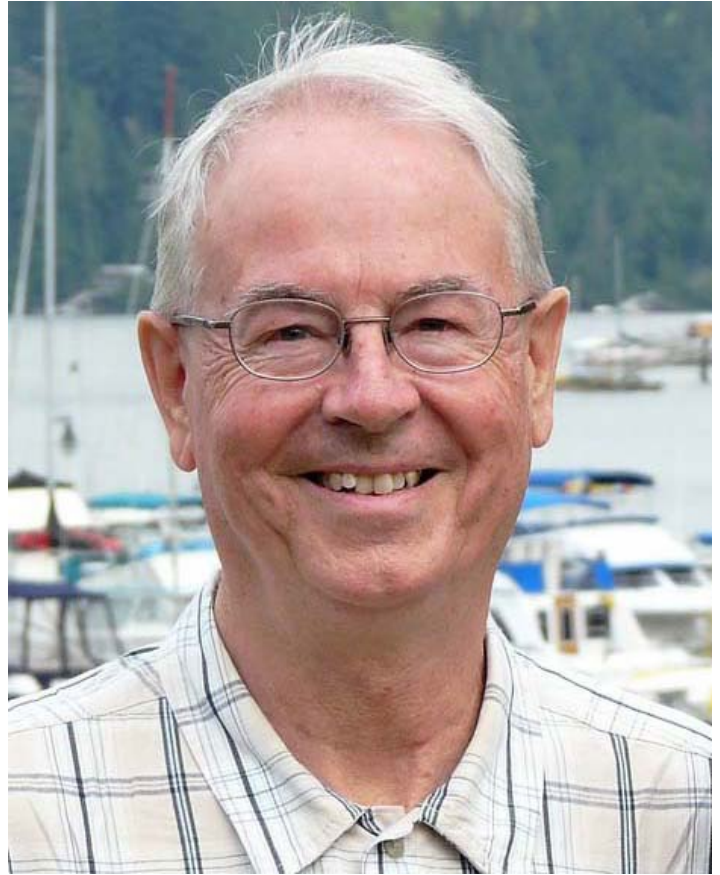
In Memoriam: Edward “Ted” Wickson, 1944-2024, ERA #3218

By Bill Linley (ERA #3603)

Edward Arthur Killaly Wickson was born in Ottawa on March 23, 1944, to Amy (Bowker) Wickson and Arthur Killaly Wickson. Arthur was employed with the National Research Council in Ottawa. Ted’s family moved to accommodate his father’s work. Arthur found employment in Baie d’Urfe, Quebec, Toronto, Michigan and finally in California. Ted lived briefly in Michigan but returned to Hamilton and Toronto in the early 1960s to complete high school and begin his career. His first wife, Andra Valkers, passed away in March 2007 after they had two children, Matthew and Kaitlyn. Ted remarried in 2010 and is survived by Susan (Pimienta), his children, and sister Kathryn Carpenter. Ted passed away peacefully in Toronto on January 21, 2024.

Ted was a past member of the ERA. He was a major contributor to the 1972 book “Fifty Years of Progressive Transit,” by Bromley and May, in particular, many of the included photos. In addition, the June-July 1979 issue of *Headlights* contains several of his images.

His interest in electric traction began in Ottawa as his family resided near McKellar Loop on the Ottawa Electric Railway’s Britannia streetcar line. Ted enjoyed the last days of active CPR steam locomotives while living in Waterdown near Hamilton in the late 1950s. After a brief period with the Royal Bank, he parlayed his enthusiasm for flanged wheel transportation into a job in the advertising department of the Toronto Transit Commission in 1966. Ted retired in 1997 after being their corporate archivist, historian, photographer, and editor of the TTC employee magazine, *The Coupler*.



In this classic Ted Wickson image, TTC PCC streetcars on McCaul Street are blocked by a downed wire in an ice storm in January 1968.



Accessibility and Station Modernization. Since 2020, the MTA has been delivering projects to make stations accessible five times faster. However, this pace is at risk as station accessibility upgrades and station renewals across all five boroughs may be delayed:

- The Bronx: Brook Av **6**, 3 Av-138 St **6**, Kingsbridge Road **4**, 167 St **B D**, Wakefield-241 St **2**
- Brooklyn: Hoyt-Schermerhorn **A C G**, Neptune Av **F**, 18 Av **D**, Nostrand Av **A C**, Jefferson St **L**
- Manhattan: 145 St **A B C D**, 59 St-Lexington Av **4 5 6 N R W**, 42 St-Bryant Park **B D F M 7**, 7 Av **B D E**, 110 St **6**
- Queens: Briarwood **E F**, Parsons Blvd **F**
- Staten Island: Clifton

In addition, station renewals at 7 Av **F G**, East 149 St **6**, 179 St **F**, Briarwood **E F**, 3 Av-138 St **6**, Brook Av **6** and upgrades to the public announcement system at more than 70 stations across the lettered lines are at risk.

Equity and Sustainability. Funds from congestion pricing would enable purchase of more than 250 new electric buses and modifying 11 bus depots across all five boroughs to operate and maintain electric bus fleets:

- East New York Depot
- Eastchester Depot
- Grand Avenue Depot in Maspeth, Queens
- Gun Hill Depot in Baychester, the Bronx
- Jackie Gleason Depot in Sunset Park, Brooklyn
- Jamaica Depot
- Kingsbridge Depot in Inwood, Manhattan
- Mother Clara Hale Depot in Harlem
- Queens Village Depot
- Ulmer Park Depot in southern Brooklyn
- Yukon Depot in New Springville, Staten Island

The electrification plan prioritizes environmental justice communities so bus depots in historically underserved communities will be the first to replace diesel and hybrid buses with electric. Three depots would also receive critical HVAC repairs.

Future contracts to advance Second Avenue Subway Phase 2 rely on funding from congestion pricing. This project, long overdue for the residents and businesses of transit-dependent East Harlem, will create three brand-new accessible stations at 106 St, 116 St, and 125 St and increase transit connectivity at the 125 St Station, with connections to Metro-North trains and M60 Select Bus Service to LaGuardia Airport.

State of Good Repair. Without congestion pricing, the MTA runs the risk of falling behind on repair work necessary to update aging infrastructure and assets critical to the reliability of the system. These assets, often hidden from the public eye, are essential and lack of investment could lead to disruptive outages, including:

- Repairs and overcoating to keep the elevated lines structurally sound
- Substation repairs and renewals to keep power running
- Repairs to emergency exits and fan plants to keep customers safe in an emergency
- Shop and yard repairs across the system as needed to keep facilities running
- Water remediation at LIRR Atlantic Terminal and rehabilitation of Ronkonkoma’s LIRR parking garage

In addition to Metro-North’s state-of-good repair work, efforts to advance West of Hudson investments and the reinstallation of third rail of an approximately 20-mile segment of Track 1 (northbound express) of the Hudson Line south of Croton-Harmon*.

All the projects outlined are not only critical to New Yorkers, but for the thousands of workers and businesses that depend on these projects for their livelihoods. The capital program is estimated to support 57,400 jobs — 23,000 of which are at risk. This has an impact on the economy at every level, especially for minority-owned, women-owned and federally designated disadvantaged businesses as well as businesses owned by veterans disabled in the line of service. Last year, the MTA paid \$833 million across more than 500 different firms in these categories.

[MTA PRESS RELEASE](#), February 26

**(Editor’s Note: This section of Hudson Line “fourth track” lost its third rail in the late fall of 1988. It has impacted flexible operation of the Hudson Line ever since.)*



Worldwide Suburban Electric Railway, Metro and Tramway Openings in February 2024

Date	Country	City	Segment	Distance (miles)	Rail/Metro/Tram
2/17	Russia	Yekaterinburg	Line 9: Ul. Musorskogo to Luchistaya ulitsa	1.1	T
2/24	Turkey	İzmir	Fahrettin Altay to Şehitlik	3.9	M
2/26	Brazil	Rio de Janeiro	Line 1/4: Rodoviária to Terminal Intermodal Gentileza	0.2	T

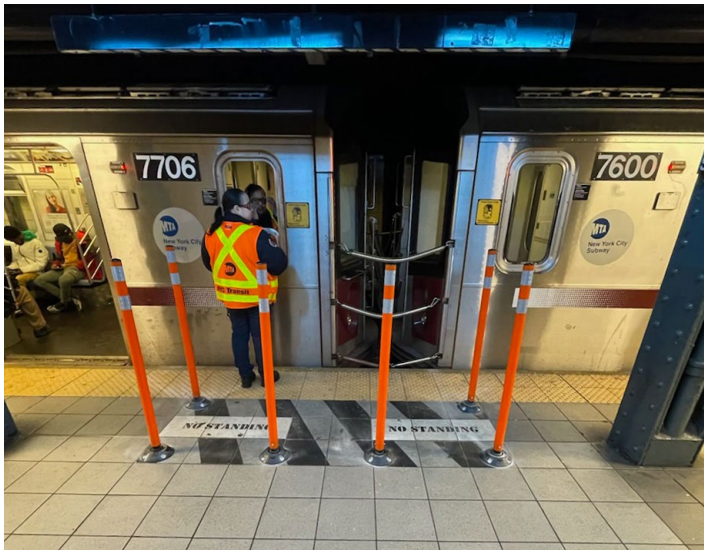
Rail News in Review

New York Metropolitan Area

NEW YORK CITY TRANSIT (NYCT)

Platform No Standing Zones at Conductor Positions

NYCT has enhanced the visibility of a previously announced no-standing zone pilot program designed to enhance the safety and security of subway conductors. During the week of February 19, crews installed high-visibility, four-foot tall vertical stanchions made of flexible rubberized material on the portions of the platform at the 125 Street **4 5 6** that are directly adjacent to the train conductor's cabs. Personnel will observe the stanchions' effectiveness at discouraging passengers from standing in this area and on deterring attacks against subway conductors.



One of the new no-standing zones at 125 Street **4 5 6**. MTA photo

The pilot program will be monitored over the next few months and, once results from the pilot are determined, NYCT may install the stanchions in other stations.

[MTA PRESS RELEASE](#), February 26

R-211T Enters Revenue Service

The first R-211T “open-gangway” train set was unveiled to the press at 207th Street Yard on Thursday, February 1. It was then put into revenue service on the **C**, where it has been operating ever since.

The inaugural ride marked the first time an open gangway train has operated in the modern history of subways in the United States. Many of our older residents and visitors remember riding the BMT’s Type D Triplex cars, which also had “open gangways,” between 1925 and 1965.



The R-211T train set at 207th Street Yard on February 1.

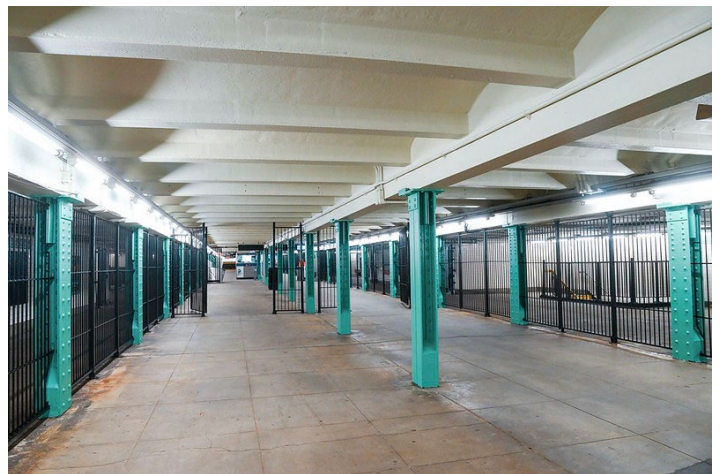
Marc A. Hermann/MTA photo

The open gangway R-211T pilot cars are part of a larger order of R-211 class of conventional 60-foot cars.

[MTA PRESS RELEASE](#), February 1

LED Lighting in Stations

The MTA plans to convert all 150,000 fluorescent light fixtures across the subway system to LED lighting by the middle of 2026. This project will brighten every subway platform and mezzanine, thereby helping to increase safety system-wide and enhance the riding experience. The new LED light fixtures will also enhance illumination for 15,000 security cameras in the subway system, further increasing safety in the transit system.



Lafayette Avenue **A C** mezzanine with new LED lighting on February 20.

Marc A. Hermann/MTA photo

Transit crews have already upgraded the lighting at every station that has been in the Re-NEW-Vation program and

feedback has been overwhelmingly positive.

This project began in late January 2024 at Bergen Street **F G**, followed by Carroll Street **F G** and, most recently, at Lafayette Avenue **A C**, where Transit officials unveiled the new station lighting. The project will also generate an estimated \$5.9 million in annual recurring energy and material cost savings.

[MTA PRESS RELEASE](#), February 20

Tremont Avenue **B D Now Accessible**

Tremont Avenue Station **B D** is now fully accessible to all in accordance with the Americans with Disabilities Act (ADA). The project included the installation of three new elevators, with one taking passengers from the street to the mezzanine, and two from the mezzanine to the platform, as well as two reconstructed and relocated staircases and new ADA platform edges.



The elevator at street level, on the east side of the Grand Concourse, between East Tremont Avenue and Echo Place.

Marc A. Hermann/MTA photo

The installed elevators include a new fire alarm system, smoke and heat detectors and cameras inside the elevator cabs. Each elevator is also equipped with an emergency two-way communication system which gives riders the ability to communicate with dispatchers in the event of an emergency via standard voice communications or visually by answering on-screen questions, which greatly improves communication for riders with hearing or speech disabilities.

There are now 149 fully accessible stations across the subway system. The Tremont Avenue upgrades are part of an ADA improvement package of three subway stations, which also includes 149 Street-Grand Concourse **2 4 5**.

[MTA PRESS RELEASE](#), February 27

LONG ISLAND RAIL ROAD (LIRR)

New Timetables on March 4

The LIRR is instituting service changes beginning Monday,

March 4. The railroad has eliminated some trains with low ridership and their cars are being reallocated to create two new trains from Penn Station after events at Madison Square Garden. These trains supplement the added late-night service implemented in the fall of 2023.

The schedules also include service adjustments to accommodate track work across the system. Among those projects is the next phase of a major reconfiguration of Harold Interlocking in Sunnyside, Queens. Many trains, including during peak hours, will depart Penn Station up to five minutes earlier or later. Stops at Woodside, Forest Hills, Kew Gardens, and St. Albans have also changed. Some of the terminal shifts are due to Amtrak track work.

Babylon Branch

- The 12:37 PM train from Penn Station to Babylon will start in Jamaica;
- The 5:28 PM train from Penn Station to Babylon will leave from Grand Central;
- The 6:12 PM train from Atlantic Terminal to Freeport will no longer run due to low ridership;
- The 6:47 PM train from Grand Central to Wantagh will leave from Atlantic Terminal;
- The 7:32 PM train from Penn Station to Wantagh will no longer run due to low ridership. This equipment will become a new train leaving Penn Station at 10:14 PM, stopping at Jamaica, Rockville Centre and all stops to Babylon. This new train fills the one-hour gap in direct service from Penn Station to Babylon and relieves crowding on the 10:49 p.m. after MSG events.

As the track access phase of ADA work at Amityville, Copiague and Lindenhurst has finished, changes to weekday midday schedules will revert to previous service patterns and direct service to Grand Central will resume from stations east of Massapequa.

Weekend service at Bellmore, Massapequa, and Amityville will be reduced to two trains per hour to improve service reliability and on-time performance.

Far Rockaway and Long Beach Branches

- In response to requests for more through service to Brooklyn, a new train will depart Island Park at 7:48 AM and make all stops to Atlantic Terminal;
- The 7:48 AM train from Far Rockaway to Penn Station will no longer stop at Locust Manor, Laurelton, or Rosedale;
- The 4:46 PM train from Atlantic Terminal to Far Rockaway will no longer stop at Locust Manor, Laurelton, or Rosedale;
- Due to requests and to reduce congestion, the 5:20 PM train from Far Rockaway will run to Atlantic Terminal;
- The 5:34 PM train from Penn Station to Far Rockaway will leave from Grand Central and add stops at Locust Manor, Laurelton and Rosedale;
- The 5:37 PM train from Penn Station to Long Beach will now depart Penn three minutes earlier at 5:34 PM and no longer stop at Locust Manor, Laurelton or Rosedale.



Ronkonkoma Branch (Main Line)

- The 4:21 PM train from Penn Station to Farmingdale will no longer run due to low ridership. Eliminating this train will help reduce congestion on the Main Line. The 4:10 PM train from Penn Station will add stops at New Hyde Park, Merillon Avenue, Mineola, Carle Place and Westbury and the 4:34 PM train from Penn Station will add stops at Bethpage, Farmingdale, Wyandanch and Deer Park;
- The 4:57 PM train from Grand Central to Central Islip will no longer run due to low ridership. The 4:54 PM train from Grand Central to Ronkonkoma will make the combined stops of both trains;
- The 7:14 PM train from Penn Station to Ronkonkoma will no longer run due to low ridership. This equipment will become a new train leaving Penn Station at 10:58 PM, stopping at Jamaica, Mineola, Hicksville and all stops to Ronkonkoma, except Pinelawn, and helps relieve crowding after MSG events.

Buses will replace trains between Ronkonkoma and Greenport from 7 AM to 3:30 PM on weekdays through mid-May due to rail replacement and grade crossing renewal between Ronkonkoma and Riverhead.

West Hempstead Branch

- The 5:36 PM train from Grand Central to West Hempstead will leave from Atlantic Terminal.

On weekdays, midday and evening West Hempstead Branch trains will run to and from Penn Station instead of Atlantic Terminal to improve reliability and relieve any delays that may be caused by multiple track work projects across the system.

Brooklyn Service

- Starting at 9 PM westbound and 10 PM eastbound on weeknights, service between Jamaica and Brooklyn will be reduced to two trains per hour, from three, due to track work between East New York and Atlantic Terminal. The LIRR will provide additional trains after select events at Barclay's Center.

[MTA PRESS RELEASE](#), February 16

METRO-NORTH RAILROAD (MNR)

Purdy's Station Now Accessible

Purdy's Station on the Harlem Line, previously partially-accessible with two elevators, has now been made fully accessible with the opening of a new elevator and connecting sidewalk. The elevator travels between the parking lot and the Purdys Road/Route 116 overpass as well as a sidewalk that is compliant with the Americans with Disabilities Act from the elevator to the existing station entrance.

The station joins two others on the Harlem Line, Hartsdale and Scarsdale, to have accessibility upgrades completed in 2024. Additionally, in the current capital plan, the MTA is moving forward with accessibility upgrades at three Metro-North

stations located in the Bronx. Completely new station platforms, amenities, and two new elevators will be installed at Woodlawn and Williams Bridge. Botanical Garden will be rehabilitated, and the station elevators will be upgraded.

Initial improvements at the Purdy's Station began approximately five years ago when MNR, the New York State Department of Transportation (DOT) and the Town of North Salem agreed to work together to complete upgrades. The Town used grant money to install sidewalks and traffic light controls and DOT built an overpass to carry riders across Route 116 to the stairs that lead to Purdy's Station.

Purdy's takes its name from the family of Daniel Pardieus, who purchased large tracts of land in the area for farming in the late 18th century. His grandson Isaac Hart Purdy made an agreement with the New York & Harlem Railroad to establish a station and cattle yard, with the railroad arriving in the summer of 1847. The railroad paid a dollar for use of the land, in exchange for the guarantee of trains making "regular stops" at Purdy's. This ancient agreement saved train service in the mid-1950s when the New York Central Railroad sought to abandon or reduce service to the stop. Today, 69 trains stop there on weekdays and 50 on weekends.

A second station replacing the original was built between 1890-1910 and a second track was added through Purdy's to Croton Falls by 1907. The station building was demolished in 1974 as Interstate 684 was built between Goldens Bridge and Brewster. [MTA PRESS RELEASE](#), February 22

NEW JERSEY TRANSIT (NJT)

New Maintenance of Way Facility

The Federal Transit Administration (FTA) has awarded a \$75 million grant to NJT for the construction of a new rail maintenance of way (MOW) facility in Clifton. The new facility will replace an obsolete and flood-prone MOW facility in Wood-Ridge. The funds are part of the FTA's Public Transportation Emergency Relief Program.

The current 70-year-old facility, located at 58 Passaic Street in Wood-Ridge, sustained extensive damage during Hurricane Ida in 2021 and continues to be risk prone to destructive weather events. The operations at the site include maintenance of rail maintenance of way equipment that is used to keep the rail infrastructure in a state of good repair systemwide, rebuilding of signal relays, construction of new signal bungalows and crewing of staff that maintains NJT's Main, Bergen County and Pascack Valley Lines. In addition to the risk of flooding, the existing MOW facility's lack of expansion potential, projected future needs for more intensive MOW operations, an aging infrastructure and a need for additional space for parking and vehicle storage has demonstrated a need to relocate the MOW facility to a larger and more up to date facility.

The new facility, currently in the preliminary design phase, will be located on NJT property on Kuller Road in Clifton, which is at higher elevation.

The new facility will be energy-efficient and state of the art, which will allow the maintenance equipment to remain in a state of good repair.

[NJ TRANSIT PRESS RELEASE](#), February 6

PORT AUTHORITY TRANS-HUDSON (PATH)

Modernization of Harrison Station Completed

PATH has completed work on a new \$47.2 million headhouse at the Harrison Station.

The newly built 3,200-square-foot station house opened to the public at 3 PM Wednesday, February 21. It features new amenities such as an elevator, a public plaza with seating, 82 bicycle parking spots along a 17,800-square-foot concourse and a dedicated turnstile that accepts TAPP, PATH's new contactless tap-and-go fare payment. Other turnstiles in the station house continue to accept existing PATH fare payment systems such as SmartLink and MetroCard. The station house replacement project was funded partly by a \$40.7 million Federal Transit Administration (FTA) grant.

The original station house, built in 1936, had become outmoded and outdated by modern transportation needs and was razed to make way for a more modern and accessible replacement. The new facility was built with particular focus on resiliency and sustainability. It was designed with enhanced flood protection from the nearby Passaic River, with the station house's first level located above the flood plain. Water runoff will be collected and stored in water retention tanks for landscape irrigation.



Aerial view of PATH's Harrison Station area. Port Authority photo

The new station house is the latest step forward in the Port Authority's \$256 million transformation of the sprawling PATH Harrison Station complex as a vital transportation hub in the region. The new facility located at the southwest corner of the Harrison station complex provides safe pedestrian access for the Harrison Station without the need to cross the busy Frank E. Rodgers Boulevard. It complements a station house in the northeast section of the complex

completed in 2018, and a second station house that opened in 2019 in the complex's southeast section.

The expansion and modernization of the Harrison Station complex was conceived as the town of Harrison's development and population increased sharply in recent years, driven by quick and easy PATH service to and from New York City. In addition to service on the PATH Newark-World Trade Center line, the station provides connections to NJT buses, vehicle parking for commuters who wish to park and ride, and safe and secure free-to-use bicycle parking. At its peak, the station served 2.6 million passengers in pre-pandemic 2019, and has since rebounded to more than 1.7 million passengers in 2023.

In developing the new station house, PATH retained the original 1936 structure's rich history and legacy by preserving and showcasing the original signage and numerous artifacts from the previous building. These include the installation of an interpretative display and a striking black-and-white aerial map in an area outside the entrance; bronze station signage letters; a Pennsylvania Railroad keystone and a directional mosaic tile sign.

The Port Authority's \$256 million investment at Harrison encompasses extensive renovations, the three new station houses to improve egress, and the construction of a new substation that now powers the entire Harrison Station complex. The new substation, which has been operational for a year, ensures a dedicated power source for the large complex and was built to the agency's sustainability standards.

[PORT AUTHORITY PRESS RELEASE](#), February 21

Other U.S. Systems

BOSTON

Red Line Track Work Completed

The MBTA completed critical track work on the Red Line, which removed eight speed restrictions. Crews accomplished this work due to unencumbered access to track areas while Red Line service was suspended between Alewife and Harvard Stations for 10 days from February 5-14. In the evenings beginning at approximately 8:45 PM during the same period, the Red Line service suspension was extended to Park Street (evening service was suspended between Alewife and Park Street).

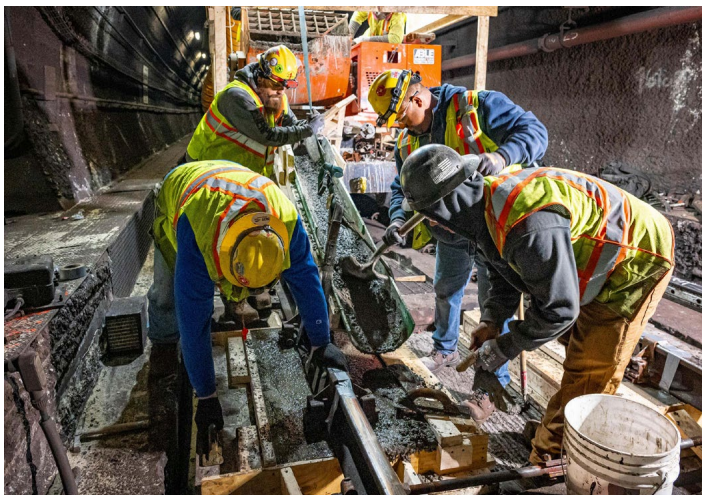
Crews continued to maximize the Red Line shutdown in a number of ways. With unencumbered access to Red Line stations, crews were able to accomplish station enhancements and amenity upgrades like new flooring and lighting. Additionally, the MBTA was able to maximize the shutdown time by having numerous contractor crews and MBTA personnel working side-by-side and collaboratively within the underground Red Line tunnel area.

This work included:

- 2,500 feet of rail was installed
- Successfully removed and replaced dozens of signal bonds,

reinstalled approximately 3,500 feet of signal cable and performed work on many track circuits

- Installed one switch and performed additional rail work
- Regauged the third rail and other rail work at the Alewife crossover
- Performed tunnel inspections along the southbound track between Harvard and Central Stations, making repairs as needed
- Performed repairs to ceiling areas throughout Davis Station
- Performed hands-on inspections of Alewife, Porter and Davis Stations
- Performed signal modernization work at Alewife, Davis, Porter and Harvard Stations
- Installed a new standpipe at Kendall/MIT Station
- Accomplished security camera improvements at Alewife, Porter and Davis Stations



Crews repaired concrete slabs along the Red Line track area between Alewife and Porter Stations. MBTA photo

A variety of other in-station work also took place along the Red Line, including cleaning, sanding and painting wooden station benches; yellow tactile edging repairs to platforms; flooring and tile repairs; concrete repairs; stairway upgrades and repairs, including handrail repairs; waste receptacle replacements; plumbing and HVAC maintenance and installing/replacing station signage.

[MBTA PRESS RELEASE](#), February 16

LOS ANGELES

Subway Cars Ordered

Hyundai Rotem (HR) has beaten rival Stadler to win an order from Los Angeles County Metropolitan Transportation Authority (LACMTA) to supply 182 HR5000 cars for the LA Metro.

The contract value is around \$663.7 million and includes provision for a follow-on order for 50 cars vehicles at an additional and as yet unspecified cost.

HR will deliver two-car sets, each with a capacity of 245



Rendering of HR5000 cars for Los Angeles. Hyundai Rotem

passengers, designed to enable up to three pairs to run in multiple. They will operate on LA Metro's B (Red) Line, which runs for 16.4 miles between downtown LA and northern Hollywood, and the D (Purple) Line, which runs between downtown LA and Koreatown (6.4 miles).

Hyundai Rotem has committed to delivering the new trains ahead of the Los Angeles 2028 Olympics and Paralympics, when passenger numbers are expected to soar.

LACMTA has stressed that the contract was decided on factors in addition to price, including contract fulfillment ability, performance, quality and technology. Stadler questioned this bid assessment methodology, but LACTMA has insisted that Hyundai Rotem, whose bid was the most expensive, had still won.

Last summer LACMTA took delivery of the first of a new fleet of HR4000 trains ordered from CRRC in December 2016 and assembled at the Chinese supplier's plant in Springfield, Massachusetts. The 64 cars, which arrived significantly later than expected, could finally enter service later this year, also on Lines B and D.

The order for the HR4000 trains was the first from a \$647 million framework deal that included options for a further 218 vehicles, which LACMTA has not exercised.

[INTERNATIONAL RAILWAY JOURNAL](#), February 6

PHILADELPHIA

Regional Rail Ticket Offices Closed

Ticket sales at select Regional Rail Sales Offices ended effective Friday, February 2. Most stations will remain open during normal operating hours for registered SEPTA Key cardholders, as well as Senior, Reduced Fare, and CCT cardholders, to access seating, restrooms and other amenities.

A wide variety of purchase options available for passengers, including SEPTA Key cards and on-board payments, has significantly reduced the number of in-person sales at these



locations. The complete list of Sales Offices closing includes:

- St. Martins
- Oreland
- Clifton
- North Hills
- Roslyn
- Cheltenham
- Chestnut Hill East
- Mt. Airy
- Cheltenham
- East Falls
- Carpenter
- Melrose Park
- Wallingford
- Morton

While passengers can pay their fare on board trains using cash or credit, SEPTA encourages those riders to purchase a SEPTA Key card. Registering a Key card protects the fares in the event it is lost or stolen. Riders who register their Key card within 30 days are refunded the \$4.95 purchase price in the Travel Wallet. [SEPTA PRESS RELEASE](#), January 24

SEATTLE

Link 2 Line Service Begins April 27

Sound Transit announced that the initial segment of the Link 2 Line will open to passenger service on April 27.

The 6.5-mile segment of the East Link Extension includes eight new stations in Bellevue and Redmond. This initial segment will terminate at the South Bellevue Station at the west end and the Redmond Technology Station on the east. Two-car trains will run every 10 minutes, 16 hours a day.

The full 2 Line is expected to open in 2025. Completion of the I-90 segment of East Link was delayed by quality issues, which are currently being corrected. When completed, the I-90 segment will add the Mercer Island and Judkins Park Stations to the 2 Line and connect to the 1 Line at the International District/Chinatown Station in downtown Seattle. The Downtown Redmond Link Extension is also scheduled to open in 2025 with the Marymoor Village and Downtown Redmond stations completing the 2 Line.

The 2 Line will serve the following stations:

- South Bellevue
- East Main
- Bellevue Downtown
- Wilburton
- Spring District
- BelRed
- Overlake Village
- Redmond Technology

Service will run from 5:30 AM to 9:30 PM seven days a week and will connect with the regional transit network at South Bellevue, Bellevue Downtown and Redmond Technology Stations. Parking is available at South Bellevue, BelRed and Redmond Technology Stations. Several stations

are accessible from the Eastrail corridor and the regional trail network. Secure bike parking is available at every station.

Everyone is invited to celebrate opening day with Sound Transit and its partners on Saturday, April 27. The festivities will start with a ribbon cutting ceremony at Bellevue Downtown Station at 10 AM. Link service will begin operating after the ribbon cutting at approximately 11 AM.

Following the ribbon cutting and throughout the day, all eight of the new stations will feature different activities, exhibits and entertainment. Anyone who participates in a Discover.Stamp.Win activity and visits all eight stations will be eligible to enter a prize drawing.

People attending the opening day celebrations are encouraged to walk, bike or take transit to connect with the 2 Line. [SOUND TRANSIT PRESS RELEASE](#), February 15

WASHINGTON

Three-Year Capital Construction Plans Announced

Metro has announced plans for major capital construction over the next three years to modernize the Metrorail system, improve safety and reliability and maintain a state of good repair. Planned closures are scheduled between summer 2024 and summer 2026, with additional construction planned over the winter holidays.

Beginning in early June, Glenmont, Wheaton, Forest Glen, Silver Spring and Takoma Stations on the Red Line will be closed. The closure will continue through early September with the possibility of reducing the work zone to allow Takoma Station to reopen prior to the end of construction.

The planned work includes upgrading the signal system, installing communication and train control cables and repairing the interlocking. Detailed service plans, including free express and local shuttle buses, are being developed and will be announced at least one month prior to the start of the closure.

The work is being planned in coordination with the Maryland Transit Administration Purple Line Project to build a new mezzanine on the platform at Metro's Silver Spring Station to provide easier access between Metro and the future MTA Purple Line. The Maryland Purple Line light rail line is not part of the Metrorail system, but building the new connection between the two will require the use of both tracks for an extended period and can't be completed safely and timely with single tracking only.

Additional work includes leak mitigation, automatic train control system replacements, traction power cables installation, drain pumping station replacement, tunnel standpipe replacement and elevator and escalator maintenance.

Improvements in planning and scheduling track work through summer, winter and extended weekend outages instead of extensive single tracking, has also helped reduce the amount of planned service disruptions. In the past seven years, the impact to budgeted service declined by half to just four percent with more weekends free of track work on almost all lines.

[WMATA PRESS RELEASE](#), February 9

International

BRASILIA, BRAZIL

Metro Extension Contract Awarded

The government of Brazil's Federal District announced the winner of a \$US 64.6 million construction contract to extend Brasilia Metro's Orange Line.

The CG–JFJ consortium, formed of CG Construções and JFJ Tecnologia em Instalações Elétricas will build a 3.6–km extension southwest of the existing terminus at Samambaia.

The contract includes the construction of two new stations, plus other fixed installations for the new extension including an electrical substation.



An Alstom Metropolis unit at the current Orange Line western terminal at Samambaia. IRJ photo

Formal approval of the contract is pending the usual standstill period. If no appeals are lodged, approval and contract signing is scheduled for March, with completion due within four years.

Progress on extending the Orange Line follows operator Metro-DF's call last month for expressions of interest in a tender to construct a 2.3–km extension of the Green Line westwards from its current terminus at Ceilandia, with two new stations.

[INTERNATIONAL RAILWAY JOURNAL](#), February 14

BUDAPEST, HUNGARY

S-Bahn Plans Approved

Construction of seven km of additional track and three new stations on the busy Kelenföld to Ferencváros line in Budapest has started following formal approval last month from Hungary's Ministry of Construction and Transport.

An additional track will be added to the double-track section between Kelenföld and the River Danube, where new bridges are already in place. From there to Ferencváros a new pair of tracks will be added to the existing double track.

Two new stations will be built at Nádorkert and Közvágóhíd,

with a third to be added at Népliget beyond Ferencváros.

This European Union-funded Forints 338 billion upgrade of Budapest's Southern Ring line has faced a number of hurdles over the last two years, including sustained challenges from environmental campaigners.



Akin to an S-Bahn, Budapest's "local railway" is the HÉV. In this June 2019 view of EMU 871 (LEW Lokomotivbau-Elektrotechnische Werke, 1971) at the Szigetszentmiklós-Gyártelep stop of the H6 route that runs south to Ráckeve from the Közvágóhíd terminal in Budapest.

Globetrotter19 photo via Wikimedia Commons

The Hungarian government has now classified the project as being a strategic defense development in response to the war in Ukraine, which rules out further challenges. The main contractor is V-Híd and completion is expected in 2027.

S-Bahn-style suburban services are envisaged along the line, which may continue to Kőbánya-Kispest, Rákos and beyond on lines 80a/120a, and to Esztergom and Rákospalota-Újpest and beyond on lines 70/71.

In addition to the new S-Bahn services, the increased capacity on the line is expected to benefit inter-city and cross-border passenger and freight services. As part of the project, three existing bridges that form part of the elevated line passing above the streets of southern Buda will be replaced.

The current double-track line is the main artery between the east and the west of the country and includes Hungary's busiest rail bridge.

[INTERNATIONAL RAILWAY JOURNAL](#), February 16

CZECH REPUBLIC

RegioJet Launches Trial Operation with Sirius EMUs

Czech private operator RegioJet has commenced trial operation of CRRC Zhuzhou-built Sirius EMUs on the Czech railway network.

The trials are expected to last for four months and are taking place on express services between Kolín and Ústí nad Labem via Lisá nad Labem and Mělník, which RegioJet operates under a PSO (Public Service Obligation) contract.

One train — 665 002 — is operating two return services per day on the route. A second set — 665 001 — is not yet in

use but may be used as an alternative.

The class 665 EMUs were originally ordered by fellow Czech private operator Leo Express in 2016. However, delays with delivery, certification and authorization of the three six-car sets prompted Leo Express to cancel the contract in 2022, which included an option for another 30 trains.

Two trains were shipped to Europe and CRRC Zhuzhou has continued to work to obtain the Authorization to Place on the Market (APOM) for the new fleet since the order was canceled. An APOM is required under European Union legislation and is granted by the European Union Agency for Railways.

The CRRC EMUs are currently operating under a temporary permit as the APOM has not yet been granted.



Sirius EMU 665 002. RegioJet photo

The 160 km/h, 111½-meter-long trains have capacity for 266 passengers and are equipped to take traction current at both 3kV DC and 25kV 50Hz AC.

Since arriving in Europe in 2019, the trains have predominantly remained at the Velim test circuit in the Czech Republic, with some testing taking place on the Czech and Slovak networks.

CRRC has so far had limited success in obtaining multiple unit orders from European operators. The Serbian Ministry of Transport confirmed an order for five 200 km/h EMUs from CRRC Changchun to operate on the Belgrade to Budapest line in October 2023. Austrian private operator Westbahn announced plans to lease four six-car double-deck EMUs from CRRC Zhuzhou in 2021. North Macedonia launched operation of six multiple units in 2015. However, the fleet has suffered from reliability problems.

[INTERNATIONAL RAILWAY JOURNAL](#), February 6

DUBLIN

Electric Commuter Network to Grow

During the first quarter of this year, Irish Rail (IÉ) is due to begin tendering for the €1.75 billion DART+ Program, a major investment project which aims to triple the Dublin

Area Rapid Transit (DART) network from its current length of 50 km to 150 km.

This will involve electrifying at 1.5kV DC diesel-operated commuter routes to the west and southwest of the city, extending the current DART route at its northern end from Malahide to Drogheda and carrying out capacity enhancements at its southern end between Bray and Greystones. Passenger capacity will be more than doubled on most lines, and for its expanding DART network IÉ has so far ordered 185 EMU and BEMU cars from Alstom under a framework contract for up to 750, which it describes as the largest single investment ever made in a public transport fleet in Ireland.

The national railway is expecting total passenger traffic to reach 50.5 million passenger-journeys this year, beating the previous record of 50.1 million set in 2019 before the Covid-19 pandemic, and then rise to 53 million in 2025.

To meet rising demand and help achieve its climate change targets, the Irish government has allocated €35 billion to transport from the €165 billion to be invested under the National Development Plan for 2021-2030.



DART EMU 8317-8117 (GEC/Linke-Hofmann-Busch, 1983) leads a train at Seapoint Station on April 17, 2017.

William Murphy photo via Wikimedia Commons

To help deliver its ambitious investment program, IÉ is turning to the supply industry beyond Ireland, conducting market consultation as it refines its procurement strategy through a series of roadshows held in Dublin, Madrid, Lisbon and London. A program briefing held in London on November 13, 2023, hosted by the Railway Industry Association (RIA), attracted over 130 attendees. The interest from potential suppliers in Britain was such that RIA was obliged to move the event to a larger venue.

Four route upgrades

Following the completion of tendering this year, work is due to start in January 2025 on the first phase of the program, DART+ West, which is expected to cost a total of €1.5 billion.

As was explained to the briefing in London, DART+ West will involve electrifying the line from Dublin Connolly Station to

Maynooth, the branch from Clonsilla to M3 Parkway and the section from Glasnevin to a new station at Spencer Dock that will replace IÉ's Docklands Station. Spencer Dock will have four tracks and two island platforms, and will provide interchange with Dublin's Luas light rail network. An interchange between DART+ West and the future MetroLink north-south automated metro is planned at Glasnevin.

A total of 40 km of catenary will be installed, requiring track to be lowered at 16 locations and six overbridges modified to provide sufficient clearance. Electrification work will also include building 12 traction supply substations. Six level crossings will be closed. A new EMU depot will be built on a greenfield site west of Maynooth, covering 138 acres and featuring an eight-road maintenance building as well as 15 stabling tracks.

The new train fleet that it will maintain and infrastructure work to support more frequent services should enable capacity on DART+ West to be increased from six trains and 4,500 passengers per hour per direction to 12 trains and 14,000 passengers per hour per direction when the project is completed in December 2028.

Construction is due to start in April 2025 on the second phase of the project, DART+ South West, which will involve 20 km of electrification, including the 16 km from Dublin Heuston Station to Hazelhatch & Celbridge, and the line from Islandbridge Junction that runs under Phoenix Park to Glasnevin Junction on the DART+ West line. Six new substations will be required, as well as widening a four-km section of the Dublin to Cork main line to four tracks and rebuilding five road overbridges. Slab track will be installed in Phoenix Park Tunnel and a new station is proposed at Heuston West on the line to Glasnevin. When completed in July 2029 at an estimated cost of €one billion, DART+ South West will increase capacity to 23 trains and 20,000 passengers per hour per direction, up from 12 trains and 5,000 passengers now. [INTERNATIONAL RAILWAY JOURNAL](#), February 16

ENGLAND

Fast-Charging Battery Train Starts Trials

A battery-powered train that can recharge in just 3½ minutes has started trial running on the British network. The class 230 train is being tested by FirstGroup-owned operator Great Western Railway (GWR).

The train was originally built by Vivarail using former London Underground (LU) metro cars, but was purchased by GWR, along with the FastCharge charging technology, after Vivarail went into administration in December 2022.

GWR had already planned to test the train and the FastCharge system under real-world conditions on the 3.8-km West Ealing to Greenford branch in west London. However, Vivarail's collapse delayed the start of the trial.

In the meantime, the train has undergone 1,500 hours of testing at the Long Marston Rail Innovation Centre. It will now make trial runs on the national network between Long Marston and Moreton-in-Marsh, before moving on to the



Great Western Class 230 battery multiple-unit. GWR photo

Greenford branch this spring.

Once there it will run a scheduled service, although it will not carry passengers. Charge rails and lineside battery banks have been installed at West Ealing. The FastCharge system uses short charge rails which are fully covered by the train and are only live when the train is charging.

The train charges using retractable shoe gear from the charge rails, which are fed by two trackside battery banks. These are continuously trickle-charged from the national electricity supply network via a 63Amp connection that can deliver up to 2kW.

The class 230 is seen as a potential solution for replacing diesel-powered trains on branch lines. It has a range of up to 100 km between recharging.

[INTERNATIONAL RAILWAY JOURNAL](#), February 11

GERMANY

Ulm Area Electrification Plans

Much of the Regio S-Bahn Donau-Iller network centered on Ulm in southern Germany is set to be electrified under plans revealed by the states of Bavaria and Baden-Württemberg.

The project will support the electrification of main routes on the largely diesel-operated network while new stations and passenger service enhancements are also expected.

A jointly-commissioned cost/benefit analysis has proven to be extremely positive, with the state transport ministers saying that the economic benefits are expected to be significantly higher than the estimated costs. As a result, both states expect funding for network improvements will be available from the federal government via the Municipal Transport Financing Act (GVFG).

Key projects in the Regio S-Bahn Donau-Iller network enhancement program include:

- Electrification of the 72.5-km Ulm to Aalen "Brenzbahn" line. GVFG funding is expected to cover around two-thirds of the €450 million cost. Baden-Württemberg, where most of the line is located, has agreed to fund the remainder, including contributions that would normally have been due from Bavaria, where only around eight km is located.
- Electrification of the 85-km Iller Valley line to Kempten,

southeast of Ulm. Bavaria signed a contract with German Rail (DB) for design and planning work on February 8. The state is providing €41 million towards electrification of the entire line and track doubling on 11 km. This comprises the northernmost part of the route between Neu-Ulm and Senden and a shorter section further south between Kellmünz and Pless to allow trains to pass and frequencies to be increased.

- Electrification of the Senden to Weissenhorn branch. This is owned by Ulm utility company SWU. A planning and financing agreement was signed between Bavaria and SWU Verkehr on February 8.



An example of a current Brenzbahn train, with DB 644 505, in Aalen on February 12, 2018. Keith Fender photo

All electrification will take place at the German standard voltage of 15kV AC.

[INTERNATIONAL RAILWAY JOURNAL](#), February 13

INDUSTRY

Siemens Launches Train Leasing Company

Siemens Mobility has launched a new train leasing company, Smart Train Lease, offering single multiple-units or small multiple-unit fleets on a short-term rental basis to supplement existing fleets.

The package offered by Smart Train Lease, similar to consumer car hire, allows any operator to specify the type of train required and the hire period. The company has access to a pool of Mireo Smart trains comprising conventional EMUs as well as hydrogen and battery variants.

Smart Train Lease says its leasing model, based on an existing pool of trains, provides operators with a cost-effective way of quickly and flexibly expanding train fleets. The service will initially be available only in Germany. However, the company says it is looking to make it available across Europe in the medium term.

While spot hire of locomotives has been available for some time, this is believed to be the first time that multiple-units have been offered for short-notice hire and Smart Train Lease



Rendering of a Mireo Smart in Smart Train Lease design in Cologne. Siemens Mobility

believes it will create a new market for this type of leasing.

Mireo Smart trains have a top speed of 160 km/h and are fitted with ETCS and PZB cab signaling. Standard three-car trains have capacity for 214 passengers and feature bicycle and wheelchair spaces and accessible toilets. They are equipped with air-conditioning, Wi-Fi, in-car CCTV and passenger information systems.

Smart Train Lease says it offers a standard contract with various service options to best fit operator requirements.

Siemens has not yet said how many trains will be made available for Smart Train Lease and has not provided indicative leasing costs.

[INTERNATIONAL RAILWAY JOURNAL](#), February 14

Railpool Orders 250 Locomotives

Leasing company Railpool and Siemens Mobility announced on February 20 the signing of a framework agreement for Siemens to supply up to 250 Vectron electric locomotives.



Railpool Vectron 6193 107. Railpool photo

Railpool has immediately called off a batch of 70 Vectrons, comprising 24 multi-system locomotives for operation on both AC and DC electrified networks, and 46 AC locomotives

intended to operate in the Scandinavian corridor, as well as in the Germany, Austria and Switzerland region.

The order takes the Railpool Vectron fleet to a total of 228 locomotives. The framework agreement includes Vectron variants that can operate in up to 16 countries, equipped with national train protection systems as well as ETCS.

The locomotives for Railpool have an output of 6.4 MW and, depending on the variant, a maximum speed of up to 230 km/h. The Vectron design is currently approved to operate in 20 European countries.

Siemens says that the first call-off from Railpool brings total Vectron sales to over 2,400 locomotives supplied to 96 customers in 17 countries.

[INTERNATIONAL RAILWAY JOURNAL](#), February 20

LONDON

Four Bidders for Elizabeth Line Operator Contract

Transport for London (TfL) has confirmed a shortlist of four bidders to become the next operator of the Elizabeth Line from May 2025.

The shortlisted bidders are:

- Arriva UK Trains
- First Keolis Elizabeth Line, a joint venture between FirstGroup and Keolis
- GTS Rail Operations, a joint venture between Go-Ahead, Sumitomo Corporation and Tokyo Metro
- MTR Corporation UK, the line's existing operator



TfL Rail's 345043 calls at Taplow with a service from London Paddington to Reading. Geof Sheppard photo via Wikimedia Commons

TfL plans to issue a tender in April, with submissions expected in July. The seven-year concession contract will have an option to extend by up to two years. Under the new contract, the mayor of London will continue to be responsible for setting fares, while TfL will market the services as well as specifying the train service. TfL will also retain fares revenue to reinvest in transport network improvements.

The new operator will be required to work closely with TfL,

infrastructure manager Network Rail and HS2 on preparing for the operation of Elizabeth Line services to the new HS2 station at Old Oak Common, which is scheduled to open in 2028–33.

An early market engagement exercise with prospective bidders took place in June 2023.

The central section of the 21-km Elizabeth Line opened in May 2022. The service runs from Heathrow and Reading in the west via the central London section to Shenfield and Abbey Wood.

More than 300 million passengers have used the railway since it opened and it is described as the most significant addition to London's transport network in a generation, operating up to 24 trains per hour at peak times.

TfL is also in the process of selecting the next operator of the Docklands Light Railway (DLR). The shortlisted bidders for this contract, which will commence on April 1 2025, are:

- Keolis Amey Docklands, a joint venture between Keolis and Amey, the current operator
- Connecting Docklands, a joint venture between Go-Ahead and Atkins
- ComfortDelGro

The new eight-year franchise contract is estimated to be worth £2.3 billion.

[INTERNATIONAL RAILWAY JOURNAL](#), February 16

LUXEMBOURG

Two Light Rail Extensions Approved

Luxembourg's Chamber of Deputies unanimously approved two branches to the city's single light rail route on February 1. A total of 3.4 km of new route will be built at a cost of €135 million to serve planned neighborhoods in the city's Hollerich and Kirchberg districts. Both branches could be extended in the future.



Urbos 3 124 (CAF, 2020) at the Alphonse Weicker stop on June 25, 2023. GilPe photo via Wikimedia Commons

The first double-track branch will diverge from the existing line near the Pfaffenthal stop and run 2.3 km to Kirchberg and the future Laangfur neighborhood. The cost of this section, including three new stops, is €106 million.

Construction is due to start next year, with completion expected in 2027. A further extension to the existing

LuxExpo stop via the planned Kuebebiert neighborhood is also under consideration.

The second branch, also double-track, will leave the existing line at the Gare Centrale stop and run 1.1 km to Hollerich. The cost of this section, including two new stops, is €29 million. It is expected to open in 2028 and plans are under consideration for a further extension to Porte de Hollerich and a park and ride facility at Bouillon.

New construction is currently taking place at both ends of the existing light rail line in Luxembourg. At the southern end a 3.9 km extension from Lycée Bouneweg to the Gasperich district, with five stops, is expected to open this summer.

It will be followed in early 2025 by a 3.7-km northern extension, including two stops, from LuxExpo to Luxembourg Airport at Findel.

[INTERNATIONAL RAILWAY JOURNAL](#), February 4

MADRID

Metro Lines 6 and 8 To Be Automated

Madrid Metro's new strategic plan will include the introduction of automatic train operation (ATO) on Lines 6 and 8. ATO will enable headways to be cut to two minutes while saving energy through more uniform rates of acceleration and braking, increasing operational flexibility and cutting journey times.

ATO will enable five times the number of services to be operated on Line 6. Madrid Metro will be able to bring trains into service immediately to respond to peaks in demand, cutting waiting times for passengers and increasing the number of passengers carried per hour.



Series 9000 MT (CAF, 2006-7) train entering the Guzmán el Bueno Station of Line 6 on October 25, 2016.

Draceane photo via Wikimedia Commons

The first line to be converted to ATO will be the 23-km circular Line 6 that serves 28 stations. It is the busiest on the Madrid Metro network and carried 110 million passengers in 2023, an average of 618,000 every working day.

Following its introduction on Line 6, ATO will also be installed on Line 8 that runs from Nuevos Ministerios in the city center to Barajas Airport.

Alongside major infrastructure projects, Madrid Metro is also undertaking what it says is the largest fleet renewal program in the company's history, with 80 new trains due to be delivered between 2026 and 2029.

Half of the new fleet will be small-profile to run on Line 1, while the remainder will be built to Madrid Metro's large-profile loading gauge for Lines 6, 8 and 11. They will include passive provision for ATO.

[INTERNATIONAL RAILWAY JOURNAL](#), February 26

MONTREAL

Blue Line CBTC Contract Awarded

Montreal Transport (STM) has awarded a \$C 217.2 million contract to Thales Ground Transportation Systems Canada to install and maintain CBTC on the Blue Line, including a 6-km extension where early construction is underway.

STM says installing CBTC on the existing 9.7-km Blue Line, as well as the extension, is necessary as the existing track-circuit-based system, which was installed when the line opened in 1986, is outdated and could not be used on the extension.



MPM-10 (Azur) trains at Plamondon Station of the Orange Line (Line 2) on May 24, 2019. Dllu photo via Wikimedia Commons

The project is financed primarily by the government of Quebec with some support from STM.

The extension project will add five new stations to the Blue Line, running east from the existing terminus of Saint-Michel to Anjou. The Blue Line project office is currently evaluating bids for the contract to excavate tunnels and build some of the stations. The preferred bidder is due to be announced this summer.

The line is expected to boost ridership by 15,000 passengers per day and is scheduled for completion in 2030.

[INTERNATIONAL RAILWAY JOURNAL](#), February 19

NAPLES, ITALY

New Metro Fleet for Line 6 Ordered

The city government of Naples has awarded a €200 million framework contract to Hitachi Rail to supply up to 22 new

four-car trains for metro Line 6 as it gears up to relaunch services on the mothballed line this summer.

The city says the contract is divided into multiple phases, with six trains to be manufactured under phase one of the contract, for delivery from 2026. Hitachi will manufacture the trains at its factories in Pistoia and Naples and this initial order is worth €60 million.



Rendering of Hitachi's new metro cars for Naples. Hitachi Rail

A 3.2-km extension of Line 6 is on schedule to open in June, which will lengthen the light metro line to 5.5 km and eight stations. Services have been suspended on the 2.3-km Line 6 since 2013 due to low ridership on the link, which runs from Mostra to Mergellina and offers similar connections to metro Line 2 and the Cumana suburban line.

Construction started on the line in 1980s and the plan was to open it as a light rail line for the 1990 football World Cup. However, failure to complete Mergellina Station meant this never happened, with the line eventually revived as a light metro, opening in 2007.

The extended service will have capacity to transport 7,600 passengers per hour per direction, at a frequency of 4½ minutes using the existing fleet of six 23-meter-long T67 articulated light metro units.

The new 39-meter-long trains will have capacity for 290 passengers and will be used to improve carrying capacity and comfort for Line 6 passengers.

The trains will be equipped with Automatic Train Protection (ATP) and an innovative air-conditioning system.

Ultimately, the trains will operate in multiple to boost capacity to 580 passengers on a double set.

[INTERNATIONAL RAILWAY JOURNAL](#), February 29

NETHERLANDS

New EMUs for Cross-Border Services to Germany

Netherlands Railways (NS) has ordered 10 new variants of the Intercity New Generation (ICNG) high-speed train from Alstom for €150 million, which will be equipped to operate in Germany and take traction current at 15kV 16.7Hz AC.

The 10 eight-car ICNGD EMUs will be based on Alstom's



An ICNGB EMU has been on test at Velim in the Czech Republic since January. Quintus Vosman photo

Coradia Stream platform. They take the total number of ICNG trains ordered by NS to 109, including 49 five-car and 20 eight-car trains for domestic services and 20 ICNGB EMUs equipped to operate in Belgium under 3kV DC electrification.

Two eight-car ICNGB trains have been taken from the production line to become prototypes for the ICNGD, with one train on test at the Velim test circuit in the Czech Republic since last month.

Like the ICNGB, the ICNGD is able to take traction current at three voltages, also including 1.5kV DC and 25kV 50Hz AC. Fitting traction equipment to enable the train to operate under four voltages would however increase the axle load above the maximum limit of 20 tons.

NS is currently developing plans to deploy the ICNGD on a new IC service to Aachen via the Landgraaf/Herzogenrath border crossing and on the existing route into Germany via Venlo/Kaldenkirchen.

[INTERNATIONAL RAILWAY JOURNAL](#), February 26

PARIS

More Métro Cars Ordered

Alstom has secured a €1.1 billion follow-on order for 103 metro trains for the Paris Métro which will be funded by regional transport authority Île-de-France Mobility (IdFM).

The MF19 trains will entirely replace the Line 13 fleet, plus some of the existing trains in service on Lines 8 and 12. In December IdFM announced that Line 13 would be the fourth on the Paris Métro to be converted to automatic train operation (ATO). The steel-wheeled MF19 trains are due to be delivered in the second half of 2027, with full automation of Line 13 at Grade of Automation 4 (GoA4) not expected until 2035.

IdFM says an order to replace the remaining trains on Lines 8 and 12, plus those on Lines 3 and 7 will follow shortly.

The latest order follows the signing of a €2.9 billion framework contract in 2019 for up to 440 trains. The initial order was for 44 trains for Lines 3b, 7b and 10.

In total, eight métro lines (3, 3b, 7, 7b, 8, 10, 12 and 13) will receive MF19 trains, which will replace MF67, MF77 and MF88



Rendering of final design of the MF 19 metro stock.
Île-de-France Mobilités

sets. The first MF19 cars are expected next year, when 14 trains for Line 10 should be delivered, with 30 trains for Lines 3b and 7b due to follow.

IdFM says it wants to accelerate modernization of the Paris métro network, which will have received investment totaling nearly €10 billion by 2035. The latest order will enable Alstom to secure its supply chain while coordinating fleet deliveries with the completion of infrastructure work for automatic operation, including platform works, installation of platform screen doors and signaling upgrades on the lines concerned.

Orders will be called off by Paris Métro operator RATP. IdFM has instructed RATP to do this as soon as possible and ensure that delivery and commissioning schedules are met. [INTERNATIONAL RAILWAY JOURNAL](#), February 9

POLAND

Additional Electrics Ordered

Cargounit, the rail freight subsidiary of Polish rolling stock leasing company Industrial Division, has signed a framework contract with Siemens Mobility for up to 90 Vectron MS locomotives. In an initial order, the Polish locomotive leasing company has drawn down 30 locomotives, which are due for delivery from 2025 onwards.

Separately, Cargounit has signed a second contract with Siemens for 10 Smartron locomotives, which will be delivered to a similar timescale.

The Vectron MS locomotives have a power output of 6.4MW when operating in AC mode and 6.0MW in DC and will be delivered with ETCS Baseline 3 onboard equipment installed.

Cargounit plans to deploy the new Vectron MS locomotives in Poland, Germany, Austria, the Czech Republic, Slovakia, Hungary, the Netherlands, Romania, Slovenia, Croatia, Serbia, Italy, Bulgaria and Belgium. The Smartron locomotives will operate in Germany, Bulgaria and Romania.

This is the latest of several locomotive orders placed by Cargounit with Siemens and will bring the Cargounit fleet to



A pair of current Cargounit Vectron MS units. Siemens Mobility photo

66 Vectrons and 16 Smartrons.

[INTERNATIONAL RAILWAY JOURNAL](#), February 28

SWITZERLAND

More Giruno High-Speed Trains Ordered

Swiss Federal Railways (SBB) has confirmed an order for five additional 250 km/h Giruno high-speed EMUs from Stadler to support expansion of cross-border services to Italy from 2026.

SBB says demand for travel to Italy has risen steadily in recent years and this is encouraging itself and Trenitalia to expand the offer, especially on the Gotthard route.

The SFr 170 million deal is an option on the original contract for 92 trains signed in 2014. SBB ordered an initial 29 trains from this framework agreement, delivery of which was completed in 2021. The fleet operates services from Basel/Zürich to Lugano/Milan as well as to Genoa, Bologna and Venice.



The eleven-section Giruno in Erstfeld after a successful maiden voyage on May 8, 2019. Kecko photo via Wikimedia Commons

The first SFr 250 million option from the contract for seven trains was exercised in June 2022. Delivery of these trains is

expected to begin this year ahead of their entry into service between Switzerland and Germany via Basel in 2026.

The single deck, 11-car Giruno trains will be built at Stadler's plant in Bussnang, Switzerland. The 202-meter-long trains provide a total 810 seats when operating in multiple. They also feature an adjustable low-floor entrance system to match the differing platform heights in Switzerland, Austria and Italy (550 mm) and Germany (760 mm).

Onboard, the trains offer twice the required number of wheelchair spaces as well as accessible toilets. The trains are also equipped with onboard Wi-Fi, power sockets at all seats, large luggage racks, gender-separated toilets and LED lighting. [INTERNATIONAL RAILWAY JOURNAL](#), February 14



Tokyo Metro 02 604 (Kawasaki, 12/1988) and 2014 (Nippon Sharyo, 11/2019) at Yotsuya Station on the Marunouchi Line (Line 4) on November 17, 2020. Maeda Akihiko photo via Wikimedia Commons

TOKYO

Metro Testing 5G CBTC

Tokyo Metro is set to test 5G technology later this summer that will be used to support a Japanese-designed communications-based train control (CBTC) system. It will be the first of its kind in Japan.

Working in partnership with the Railway Technology Research Institute (RTRI), Hitachi, Mitsubishi Electric and NTT Communications, Tokyo Metro aims to test a fully-functional 5G CBTC installation. The trial 3-km section is located on the Marunouchi Line between Shin-otsuka and Korakuen Stations.

The trial is planned to run between August 2024 and March 2025. During this time the project partners will analyze the effectiveness of 5G technology in a rail environment. Specifically, the tests will focus on three areas:

- Examining the radio wave propagation characteristics of public and private 5G networks and dedicated wireless equipment in underground and above-ground spaces
- Verifying whether high-quality communications between trains and trackside equipment can be assured under various conditions
- Conducting control tests and sensor and image transmission tests using railway communications infrastructure

Tokyo Metro says that the results of the tests will be applicable to all types of railways in the region, not only metros, and that the likely resulting prototype system will be designed to be compatible with FRMCS already under development in Europe.

It says it expects to develop DX (digital transformation) for railway systems by utilizing AI technology and sophisticated sensing and analysis technologies.

Tokyo Metro adds that the results of the trial will be used to create a draft set of common specifications for railway communication systems that will be standardized to international specifications, which will lower the barriers to entry on international projects.

It says the benefits of moving to a 5G-based train control system include reduced capital investment, improved operational efficiency and lower workforce requirements,

particularly relating to maintenance, as well as improved levels of safety and system stability.

The trial will be overseen by Tokyo Metro, with RTRI providing research-based inputs relating to railway wireless communications infrastructure.

Hitachi will be responsible for installing and commissioning private 5G network equipment on vehicles and at trackside, while NTT will provide public 5G network configuration and technical support. Mitsubishi will supply trackside equipment and technical support.

[INTERNATIONAL RAILWAY JOURNAL](#), February 6

TORONTO

Ontario Line Tunneling and Stations Contract Awarded

Infrastructure Ontario and Metrolinx have selected the Pape North Connect consortium to deliver the Ontario Line's Pape Tunnel and underground stations contract. The consortium has signed a Development and Master Construction Agreement (DCMA) with Metrolinx under a progressive design-build contract.

The work primarily involves the construction of three kilometers of twin bore tunnels for the new metro line under Pape Avenue between the Gerrard portal and the Don Valley bridge; underpinning of the existing TTC Pape Station on Line 2; and two underground stations at Pape and Cosburn.

The consortium is made up of:

- Applicant leads: Webuild Civil Work, FCC Canada
- Design team: Arcadis Professional Services (Canada), Aecom Canada
- Construction team: Webuild Civil Work, FCC Canada

Under the progressive design-build model, the DMCA's multi-stage design process — or development phase — enables a collaborative approach between Metrolinx as the project owner and Pape North Connect as the contracting

partner, according to Infrastructure Ontario.

The development phase is expected to take approximately 24 months to complete, although early construction work can commence during this phase. At the conclusion of the development phase, Metrolinx will have the option to sign a final target-price agreement with Pape North Connect. This would include detailed designs and a negotiated price.

The 15.6-km Ontario Line will connect the Ontario Science Centre with Exhibition/Ontario Place in Toronto and serve 15 stations, including six interchanges. The line's overall capital costs are estimated at \$C 10.9 billion (\$US 8.05 billion) and the project is structured as a design-build-finance public-private partnership.

[INTERNATIONAL RAILWAY JOURNAL](#), February 5

VIENNA

New Tram Line 27

Ground was broken on February 14 for Vienna's new tram line 27, which will expand the tramway system in the Floridsdorf and Donaustadt districts. These districts are on the east side of the Danube River, across from the old city.

A central component of the project is serving the new urban development areas of Berresgasse and Heidjöchl, some of this area is still being farmland. It will connect with three subway (U-Bahn) lines:

- U2 at Aspern Nord
- U1 at Kagraner Platz
- U6 at Floridsdorf

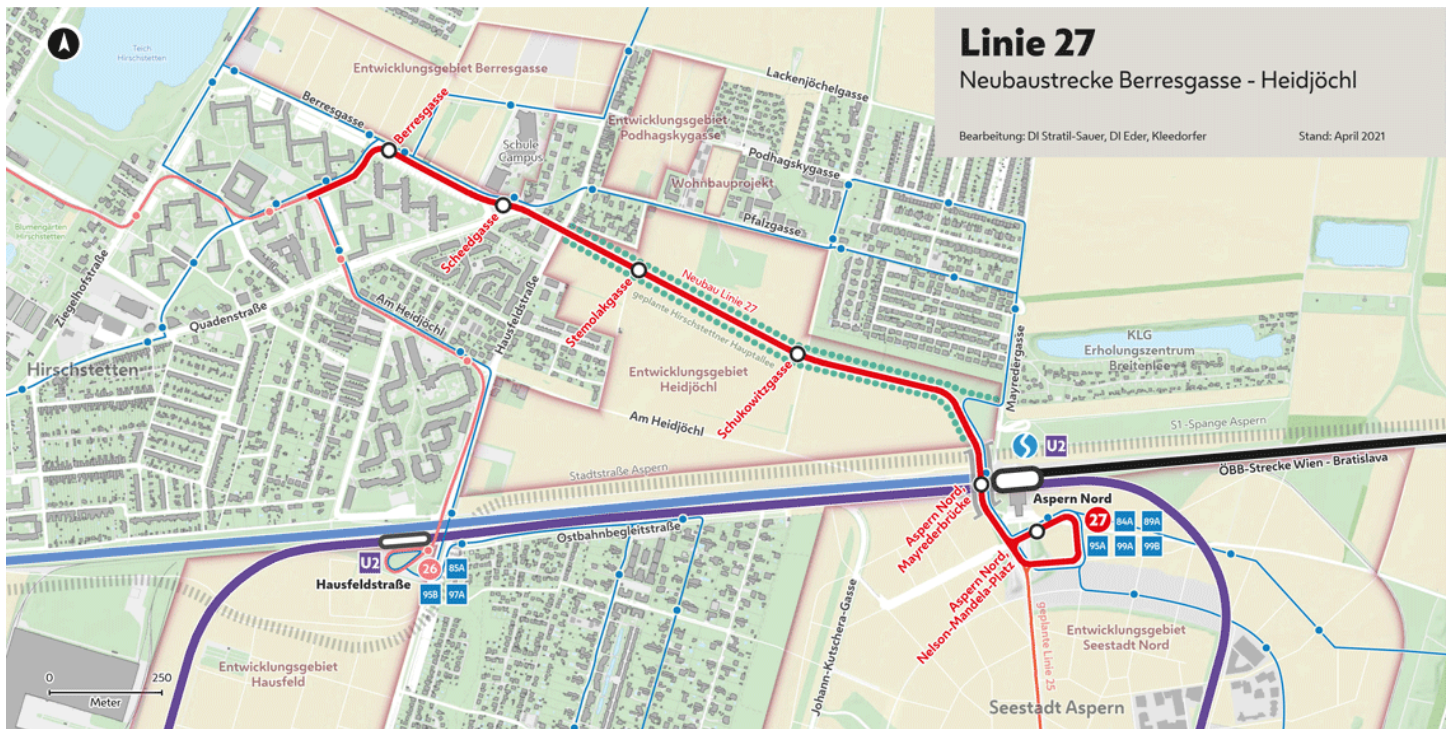
Aspern Nord is also the terminal of S-Bahn route S80. In addition to the U6 at Floridsdorf, connections will be available to S-Bahn routes S1, S2, S3, S4 and S7.

In the east, Line 27 begins at Aspern Nord in Seestadt and runs via Kagraner Platz and Floridsdorf to Strebersdorf. The section between Aspern Nord and the intersection of Pirquetgasse and Zanggasse, a distance of about 2.4 kilometers, is the new tram route, with six new stops being built. Between that intersection and Strebersdorf, Line 27 will run on the existing tracks of Line 26, lessening the crowding on that tram line.

There are three urban development projects in the area this line is being built, Berresgasse, Podhagskygasse and Heidjöchl. When these developments are completed, up to 34,000 residents within walking distance will benefit from the new route. According to passenger forecasts from Wiener Linien, the new route will then be used by around 10,000 passengers in each direction on school days.

Intervals will improve: on the section shared with the existing Line 26, trams will run with a peak interval of three minutes. The first piece of construction work is the 120-meter-long and 14½-meter-wide bridge structure at Aspern Nord over the U2 and the S-Bahn. This will be followed by track construction in the areas of Hausfeldstrasse (from mid-February 2024), Pirquetgasse/Berresgasse (from March 2024), and Hirschstettner Hauptallee (from autumn 2024). Completion is scheduled for autumn 2025.

[WIENER LINIEN PRESS RELEASE](#) (German only, your browser may be able to translate), February 14



Map of the new tramway section that will be used by Line 27. Wiener Linien

A Dive in the Archive

W-S Standard Under-Running Third Rail

By Paul Grether (ERA #6933)

The Pennsylvania Trolley Museum (PTM) recently created a rapid transit exhibit in their trolley display building. PTM constructed a high floor wooden platform with lighting reminiscent of rapid transit and placed Philadelphia Norristown high-speed “Bullet” car No. 209 and Market-Frankford No. 606 on display. Example third rail sections were needed to complete the display. From Metro-North Railroad came a section of scrap under-running third rail for car No. 606 and from the Long Island Rail Road came a section of over-running third rail for No. 209. To supply information for interpretive signage, fellow ERA board members were queried.

Subutay Musluoglu (ERA #6474) loaned me a booklet from his collection titled *W-S STANDARD UNDER-RUNNING THIRD RAIL* published by the Standard Third Rail Company, 165 Broadway, New York in 1911. It is a beautifully illustrated, detailed and well-written brochure extolling the virtues of under-running third rail as the railway electrification technology of the future. What was the origin of the Standard Third Rail Company? An interesting story with modern-day implications.

Sometimes there are instances when an innovative product fails in the marketplace. There are many examples in the consumer market such as the Tucker automobile, the Apple Newton and BetaMax. Each of these products was of superior design to what the competition had to offer, but due to reasons of competitive monopolies, poor marketing or inadequate capital they failed.

This is an interesting industrial example of this phenomena in electric railroading.

In 1903 a commission was formed of New York railroads that were implementing electrification to determine the standard. It was thought that standard design was important to ensure compatibility of equipment so that interchange and through running of locomotives, multiple-unit cars and clearances with existing cars would be maintained.

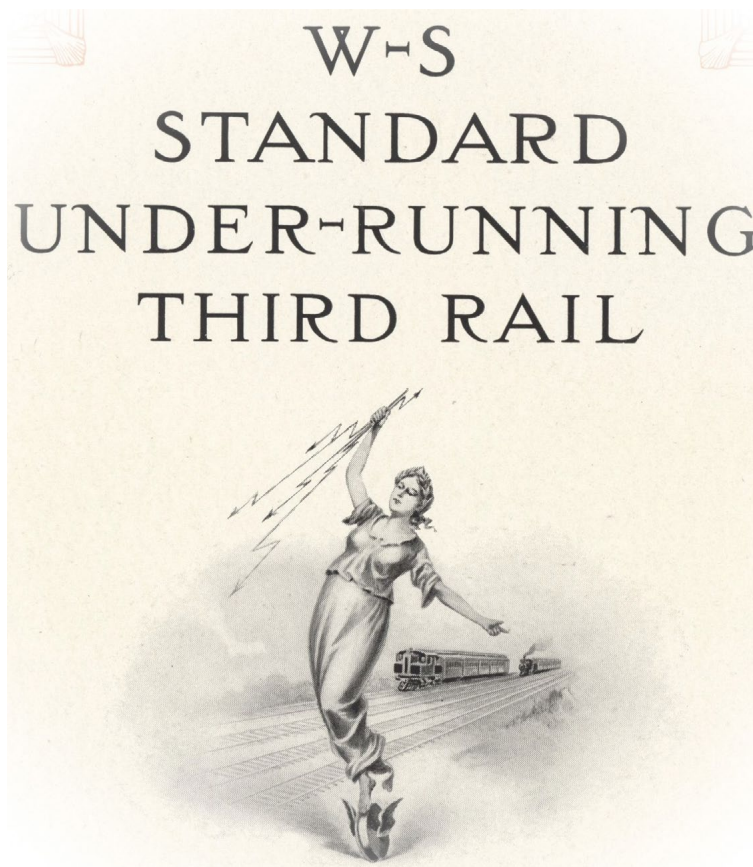
Participating railroads included various rapid transit companies (including elevated and subway) as represented by the Rapid Transit Commission, the Long Island Rail Road and the New York Central (NYC) lines. Ultimately an over-running third rail, 27 inches from the nearest running rail and energized at 600 volts direct-current (DC) was adopted since it was already in use.

The New York Central appointed Vice President William Wilgus as the chair of its Electrification Committee in 1902 after several years of Wilgus’ advocacy for electrification of

the lines to Grand Central Station. Despite his participation in developing the New York “standard” of over-running third rail, Wilgus soon determined that the sensitivity to weather, particularly snow and ice, the safety concerns of an exposed conductor that can be stepped on, fallen onto, or come into contact with tools required a different approach. Wilgus engaged consultant Franklin Julian Sprague to design an under-running third rail solution on which no ice can form, and it was claimed forms a helpful bench for workers to sit and rest on (!) since it is so safe.

In addition to the massive Grand Central electrification project on the Hudson River Main Line and the Harlem

Division, the New York Central also implemented the under-running third rail on its Detroit Windsor Tunnel project and subsidiary West Shore Railroad between Syracuse and Utica. Wilgus, no longer directly employed by the NYC, marketed the patented system together with Sprague as the W-S Standard Under-Running Third Rail and established the Standard Third Rail Company in New York. W-S is Wilgus-Sprague. Other than these projects, the only other significant systems to adopt the W-S Standard Under-Running Third Rail were the Market-Frankford rapid transit line in Philadelphia and the Central California Traction Company in Stockton that used third rail outside of cities



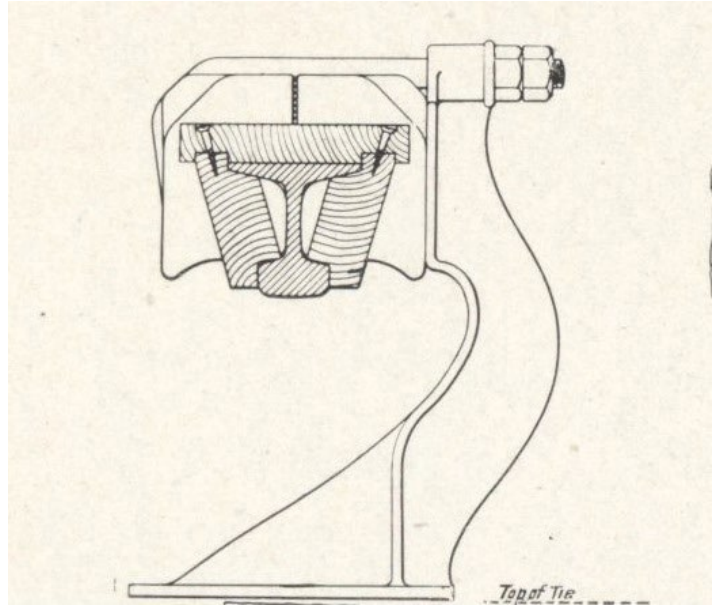
energized at 1,200 volts DC.

Ultimately, despite the best efforts at designing a clearly superior product, only Metro-North Railroad's former NYC electrification and SEPTA Market-Frankford examples remain. Overseas, in addition to the legacy S-Bahn systems in Berlin and Hamburg, Germany, several new-start metro systems in Europe and Asia have adopted under-running third rail, but curiously the new-start modern metro systems built in North America after World War 2 stuck with over-running third rail.

So, despite a superior design, the W-S Standard Under-Running Third Rail turned out to be anything but a standard.

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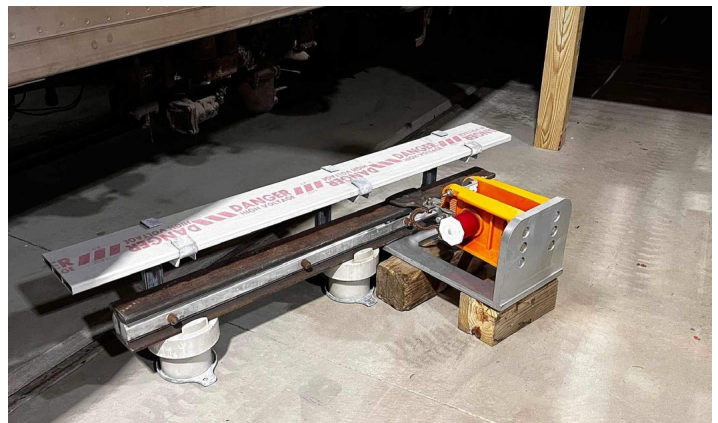
(Above and below) Drawing and photo from the 1911 Standard Third Rail Company booklet.



W.-S. UNDER-RUNNING THIRD RAIL
 DURING SLEET STORM, THE CONTACT SURFACE BEING FREE FROM ICE



Demonstration W-S Standard Under-Running Third Rail donated by Metro-North at the Pennsylvania Trolley Museum.



Demonstration over-running third rail donated by the Long Island Rail Road at the Pennsylvania Trolley Museum.

Book Review

By Paul Grether (ERA #6933)

Detroit, Toledo and Ironton Railroad: Henry Ford's Railroad

by Scott D. Trostel, published by CamTech Publishing, Fletcher, Ohio in 1988, hardcover, 312 pages, illustrated throughout with black & white photos, maps and diagrams. ISBN 9780925436023.

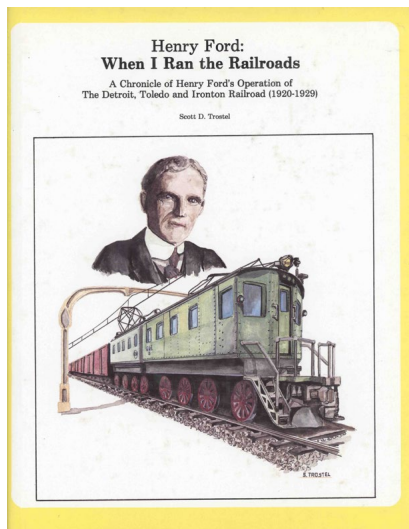
Henry Ford: When I Ran the Railroads - A Chronicle of Henry Ford's Operation of The Detroit, Toledo and Ironton Railroad (1920-1929)

by Scott D. Trostel, published by CamTech Publishing, Fletcher, Ohio in 1989, hardcover, 152 pages, illustrated throughout with black & white photos, maps and diagrams. ISBN 9780925436047

The Detroit, Toledo and Ironton Railroad (DT&I) has a very interesting history. Any railroad history enthusiast should read the detailed accounts in the two related titles above. The DT&I was a single purpose line that came out of bankruptcy to transport raw materials between the Ohio River and Dearborn, Michigan to support automobile manufacturing, and ship finished cars out. Purchased by Henry Ford in 1921, Ford invested heavily in the line to make its operations extremely efficient. Ford was an iconoclastic railroader and his desire to innovate clashed with the regulatory requirements of the Interstate Commerce Commission (ICC). By 1929 Ford had enough of the clashes with the ICC and sold the DT&I to the Pennroad (majority-owned by the Pennsylvania Railroad).

The most interesting aspect of Ford's investment scheme for the DT&I was the attempt to convert the line to electric operation. Much of the infrastructure and rolling stock, including a pair of motor-generator locomotives, were designed and built by Ford, albeit with some Westinghouse componentry. The designs and operating plans were different than anything the industry had contemplated to date. Limited electric operations started in 1927 and ceased after the DT&I was sold by Ford in 1930. The electrification scheme was never fully implemented, and power capacity constraints and other factors never allowed it to live up to its potential.

Not much has been written specifically on the unique electrification of the DT&I and either of the Trostel books provide a good, detailed chapter on it that places it in the context of the overall history of the DT&I. These books will be of interest to anyone wanting to learn about this unsuccessful but unique attempt at railroad electrification, the DT&I, and a little-known element of Ford's industrial empire and



investments.

Links to book information: www.libib.com/u/grether?solo=62156189 and www.libib.com/u/grether?solo=62156158



The two Detroit, Toledo and Ironton Railroad electric locomotives at the Ford Motor Company Highland Park plant, July 14, 1925. This appears to have been when the units were outshopped.

Ford Motor Company photo via Henry Ford Museum of American Innovation



A long-abandoned concrete catenary mast stands outside of Dearborn, Michigan along the former DT&I railroad right-of-way. Installed during the period of Henry Ford ownership and investment, the electrification was only briefly used. After attempts to remove the well-built masts proved complicated and expensive, many such as this one have been left in place and see only the occasional diesel-powered freight trains pass. Photo taken September 1, 2013. Paul Grether photo

Travels with Jack May

Britain and the Baltics — Part XXV

By Jack May (Photographs by the author)

Sunday, August 27

At 10:15 AM our group left Tallinn's carhouse in two cars to cover the tramway network.

Tallinn is the capital city of Estonia, the northernmost of the three Baltic republics. It has a population of about 400,000, which means it contains about 32 percent of the country's citizens. The country is separated from Finland by the Gulf of Finland and its people are considered to be Finnic, as they have some similar characteristics to their neighbors on the north. Their languages are similar but unusual, as both are not derived from the Indo-European group, like ours and most throughout Europe (another "different" language in Europe is Hungarian). Thus it is very difficult for most Europeans (and Americans) to understand signs in Estonia, but this is made up for by the large number of Estonians speaking English. Oddly enough, with the advent of DNA testing, it is now known that Estonians tend to be genetically similar to Russians, Latvians and Lithuanians, rather than Finns or Scandinavians — but the the average Estonian prefers to be considered Nordic.

I believe the modern city of Tallinn and its suburban areas look very similar to cities of its size in Germany and Scandinavia. But Tallinn also has an "old city," which dates from the 13th century when the city was a member of the Lubeck-based Hanseatic League — and that is where we lodged for two nights. It is said that Tallinn's old town is the best preserved medieval city in Europe, and as such it received UNESCO World Heritage Site recognition. I was certainly impressed by the substantial buildings, cobblestone streets and handsome churches, which made me think of the middle ages (but a cleaned up version).

In Part XXIV, I wrote about the 1991 visit the Wolfes and the Mays made to the city, but I should add that Clare and I actually came back in the summer of 2016, as Tallinn was a one-day stop on a Holland-America Baltic cruise that we patronized. It was a mixed weather day, as until then (and again after that day) we had poor weather with lots of rain. But our day in Tallinn started out sunny and very warm, and so when Clare and I disembarked from the *Zuiderdam* we were dressed in short sleeved summer attire. Clare went to museums while I rode streetcars. But just before noontime the temperature suddenly dropped by about 20 degrees and then the skies opened. Being totally unprotected (I was walking between tram stops) I got caught in the downpour and before I finally found shelter I was soaked to my skin. A few days later this manifested itself into a 101-degree fever and I was actually put into quarantine on the ship. Fortunately my recovery was reasonably quick, but after we returned to the

U. S. my doctor diagnosed me with walking pneumonia.

Anyway, I was happy to continue my exploration of the tramway that was so rudely interrupted the preceding year. There are four through-routed 3-foot 6-inch gauge lines (1067 mm) in operation, which cover four branches emanating from the city center, but only two of those routes were in service. Now all four are back, (*Author's note: As mentioned in Part XXIV, on September 1, 2017 the four-mile section of routes 1 and 2 to Kopli was reopened, as was a new short extension to the airport, now used by route 4.*) and the system has 40 stops covering 11¼ route miles — and a new line is going to be constructed in the near future. Only two types of cars are in service, both very well maintained. The roster contains 31 Tatra KT4s purchased from Erfurt (to replace older KT4s originally acquired new during the Soviet period and later from other East German cities) and 20 modern 100-percent low-floor three-section Urbos AXL units from CAF, which were built in Spain in 2015.

Our first destination was the Tondi end of routes 3 and 4. Photo stops gave me the opportunity to get some good close up views of the chartered cars and the two types of streetcars that were operating in regular service. Tondi is also a transfer point to Tallinn's suburban rail system — note the platform canopies in the first three views.



Pauline, or car T31, was one of 50 three-section articulated cars built by Gotha for Tallinn in 1967. These four-axle cars, model G4-61, were built for a number of properties in East Germany, but never achieved a great deal of success. Tallinn renumbered this car T31 (from No. 247) in 1988 and it was released as a cafe car or party tram for charter in 1993. The last tram of this type in regular service was retired in 1996.



Four-wheeler T-11 was built in 1953 (probably locally) as No. 47 and renumbered for work service in 1967. It was restored in 1988 as a heritage unit for parades and charters.



Tatra built this KT4 unit in 1986 for Erfurt. The PCC was one of 40 that came to Tallinn between 2006 and 2013. Prior to being placed into service these cars were regauged from one meter to 3 feet 6 inches (1.067 meters), following in the footsteps of others (now retired) also obtained from various East German tramways. A low-floor center section was added to 12 of these KT4s (which became KT6Ts) between 2004 and 2007, but all have since been retired.



No. 511 is one of 20 CAF Urbos AXL trams built in 2015 for Tallinn. These single-ended three-section 100-percent low-floor articulated units were manufactured in Spain. A tender is being prepared for eight more modern low floor cars, with an options for as many as 20 more.

From Tondi we proceeded out to Suur Paala at the other end of the system (see <http://www.urbanrail.net/eu/ee/tallinn/tallinn.htm> for a map — Note that this is a current map; during our visit only two services operated: the 4 from Tondi to Suur Paala and the 3 from Tondi to Kadriorg). With a passing track available at the terminal we were able to take some additional photos of both our chartered cars and regular service trams before proceeding over the remainder of the system. Finally, back in the city center, many of us left the trip, the chartered cars now headed back to the carhouse.



(Above and below) The sun gave way to clouds during the period we spent at the Suur Paali terminal of route 4, but it returned later. The upper view shows CAF-built car 519 approaching its final stop in the Ulemiste section of Tallinn. Below, our two chartered cars pause for photos on the sweeping loop at Suur Paali.



John and Julien decided to grab a bite, but Karl-Heinz and I decided to continue our explorations. We headed back out to Tondi loop. Sunday service on the tramway was quite frequent, with each of the two lines, the 3 and the 4, operating at 10-minute headways. We went up to the elevated suburban railway platforms, where we photographed the looping trams and checked posted timetables to see if there were any trains scheduled to stop in the next few minutes. There were, and our rides aboard the railways will be the subject of the next chapter of this report.

Instead of riding back to the main station when returning from our railroad trip, we alighted at Ulemiste, where we observed the new tram extension (which opened on September 1) and walked along it back to line 4 at Majaka Poik.



(Above and below) The Tondi terminal loop is shared by routes 3 and 4. On this Sunday, KT4s provided all service on route 3, while CAF Urbos hauled passengers on the 4. The lower view is from the railway station.

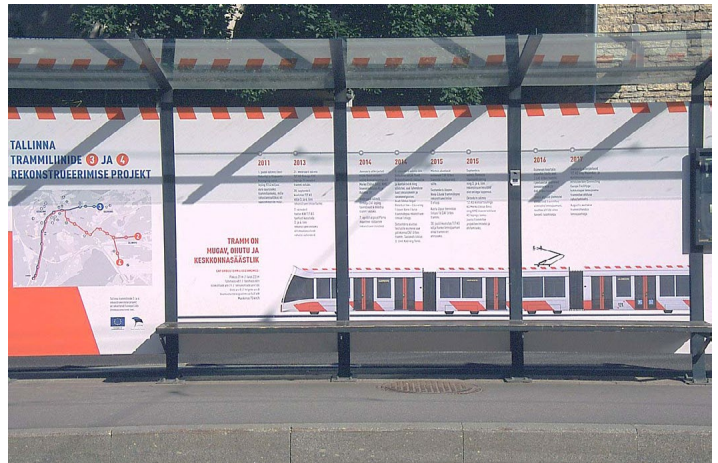


Majaka Poik is in a pleasant residential neighborhood. The junction of routes 2 and 4 are directly behind the photographer. The CAF Urbos car is shown operating on route 4 to Suur Paali.

We then rode the 4 back to the Vineeri stop, where we took even more photos. Finally, we boarded a KT4 (our first ride on one in Tallinn) and headed to Tondi, where we transferred to a DMU to the main station and finally walked to the hotel, in time for an excellent group dinner in an attractive restaurant in the old city, culminating a busy, but fruitful, day.



(Above and below) Two KT4s just north of Vineeri with different color schemes. No. 146 matches the livery of the CAF Urbos cars.



The reconstruction of lines 3 and 4 to Tondi was completed earlier in 2017. A comprehensive storyboard describing the project was displayed in one of the shelters at Vineeri Station. I had to wait a while to get this photo, as riders kept sitting on the bench. How inconsiderate!