



BULLETIN

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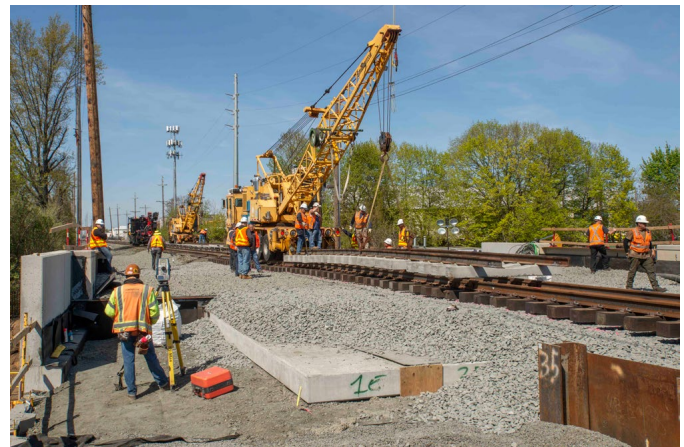
LIRR Main Line Third Track Project Milestone Reached

Over the weekend of April 30–May 1, the railroad, along with the 3TC contractors, pushed the seventh and final three-track bridge into place at Denton Avenue, on the border of the hamlet of Garden City Park (to the north) and the village of Garden City (to the south).

As was done for the other bridges in this project, the box-jacking technique was used. The entire bridge structure, with concrete floor and walls, is fabricated alongside the railroad right of way. On “cutover” weekend, the railroad tracks are removed, the existing right of way is scooped out and carted away, and the bridge structure is literally pushed into place. New tracks are then installed on the bridge and reconnected to the existing ones.

The construction of this last bridge had been delayed several months because the village of Garden City would not issue a permit for this work. They claimed that the project managers had stated that the very tall high tension electric poles would be located on the north side of the railroad’s right of way, on the Garden City Park side, and not the south, Garden City, side. These high tension poles are on the north side of the right of way west of the Merillon Avenue station but cross over to the south side at the station

and continue east towards Mineola on the south side.



After the bridge was put into place, work began to relay the tracks across it. In this view west, Track 1 has been relaid and a crane was using it to lay sections of Track 3, to the right. The trackway on the left will be for the new third track. Jeff Erlitz photo

The lack of the required permits for the bridge construction had the potential to delay the entire Third Track project. Fortunately, agreements were reached, the permits were issued and construction began last December. *(continued on page 3)*



Electric Railroaders’ Association, Inc.

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Back Issues

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Announcements

ERA Trips Are Back!

The Metropolitan New York Bus Association Committee of the Motor Bus Society is hosting a bus trip to the Pennsylvania Dutch area on June 4. Stops included will be the Museum of Bus Transportation in Hershey for the Spring Fling and the Red Rose Transit Authority’s Transit Center in downtown Lancaster. There will be free time in Strasburg to visit the Strasburg Rail Road or the Railroad Museum of Pennsylvania. Click on <https://erausa.org/region-al-trips/2022/06/> for details.

Cover Photo

Erie-Lackawanna MU cars are entering the passing siding at Murray Hill station of the Gladstone Branch in March of 1970. Noah Caplin, photographer

Donations

The ERA Board of Directors express their deepest appreciation for six member donations in March 2022.

\$200 to \$499

Barbara Abel (in memory of Joel Mintz)

\$100 to \$199

Roland Bell

\$50 to \$99

Charles Donnarumma, Michael Wares

Up to \$49

Jeffrey Freed, Alexander Ivanoff

ERA is a 501(c)(3) tax exempt corporation. Your donations are fully tax deductible and can be made either with your membership renewal or using our donation form on our website: www.erausa.org/donate. Your donation helps to maintain ERA’s 88-year long tradition of traction education and entertainment!

Meeting

Our next Zoom Meeting is on Friday, May 20, 2022 at 7:30 PM

Presenting This Month: Harvey Laner’s Midwest Traction Review

Our May Zoom program will be a video presentation of streetcar and interurban operations throughout the American Midwest. Primarily from the 1930s to the 1950s.

Harvey grew up in Chicago, where he was able to ride the North Shore, South Shore and Aurora and Elgin, along with Chicago’s trolleys and the “L.” In 1953 his family moved to Los Angeles and his Southern California railfanning adventure began. In mid-1954, Harvey joined the Southern California Division of the Electric Railfans Association — SC/ERA. He was also one of the fourteen founding members of the Orange Empire Traction Company, today’s Southern California Railway Museum in Perris, California.

This promises to be a show not to be missed.

How to Join Our Zoom Meeting

A Zoom login button will be posted on www.erausa.org about five days before Harvey’s presentation. You can sign in at 7:15 PM. The show begins at 7:30 PM. If you have any problems, email Bob Newhouser at bnnyc1955@aol.com, or on the night of the meeting, text or call Bob at 917-482-4235.



(Above) The view from street level, looking northeast. The box jacks are in blue in the ground. Jeff Erlitz photo



(Left) Looking down on the box jacks from the elevated embankment at track level. These are what push the bridge structure into place. Jeff Erlitz photo

Rail News in Review

New York Metropolitan Area

NEW YORK CITY TRANSIT (NYCT)

Terrorist Attack in Sunset Park

On April 12 at about 8:30 AM in the morning rush hour, a lone gunman wearing a gas mask set off a smoke bomb and opened fire on a northbound **N** train after leaving the 59th Street station of the BMT Fourth Avenue Line in Sunset Park, Brooklyn.

Passengers rushed out of the smoke-filled train at 36th Street. Some left the station there, and some ran onto an **R** train on the other side of the platform. The two exit stairways on the northbound platform are both at the extreme south end — relatively far from the part of the train where the shooting took place, near the front.

Five people from the shooting were transported to the hospital in critical condition, but all survived. At least 20 others were treated at local hospitals for smoke inhalation and gunshot wounds.

Service was suspended in both directions through 36th Street for many hours while the police conducted their investigation. The suspect was, luckily, apprehended the following day.

NEW YORK TIMES, APRIL 12

Vintage Trains Run Again

On Friday, April 8, NYCT operated both the Low-Vs and the “Train of Many Colors” for the Yankees’ first home game/season opener.



The museum train of Lo-Vs are seen on the middle track north of the 161st Street-Yankee Stadium station on the IRT Jerome Avenue Line on April 8. Raymond Mercado photo



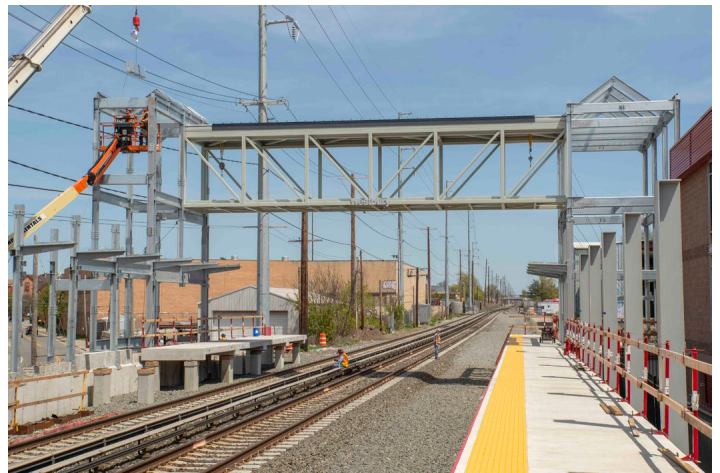
The “Train of Many Colors” operated along with the Lo-Vs and are seen here in the middle at 161st Street-Yankee Stadium station on April 8. Raymond Mercado photo

LONG ISLAND RAIL ROAD (LIRR)

Main Line Third Track Update

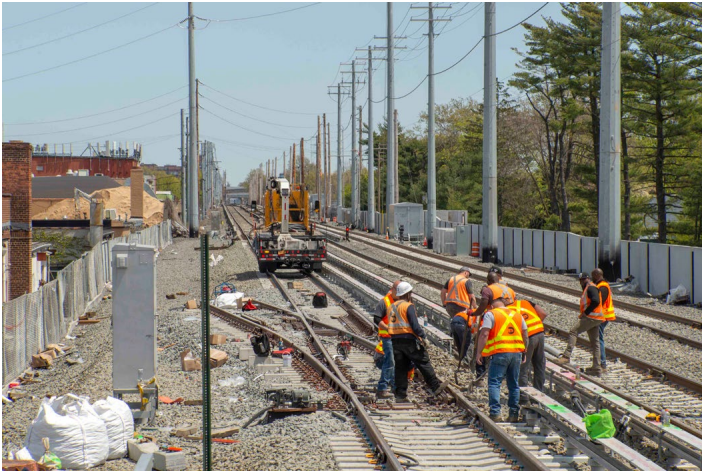
Over the same April 30–May 1 weekend as the Denton Avenue bridge push, several other jobs were “piggybacked” along the Main Line between Floral Park and Hicksville.

At Westbury station, a second pedestrian overpass, located at the extreme east end of the station, was put into place over the tracks. This overpass will contain stairs only as the main overpass in the middle of the station will have the required ADA elevators.



A second pedestrian overpass was installed at the east end of Westbury station. This was the view towards the east end of the station on Sunday, May 1. Jeff Erlitz photo

Over in New Cassel, at the Divide 1 Interlocking, the west end of the new crossover between existing westbound Track 1 and the new Track 3 was installed.



Just east of the Merillon Avenue station, a new hand-operated switch was installed for Maintenance of Way use. Jeff Ertlitz photo

Meanwhile, just east of the Merillon Avenue station, a new electrically locked hand-operated switch (trailing point west) was installed in Track 3 for a future Maintenance of Way siding. Oddly, documentation for the installation of this switch referred to it as the “Feldman Lumber” siding switch. There did used to be a freight siding for that customer, located in the near distance beyond the high-rail vehicle you see in the picture, but they have been gone for maybe 30 years now.

May 23 Timetable Change

New schedules will be instituted on May 23, the usual start of the summer season. This may very well be the last timetable change before East Side Access goes into service towards the end of the year.

In addition to adjusting schedules to allow for continued weekday single-tracking between Mineola and Hicksville, weekend Huntington service will drop from half-hourly to hourly. All weekend Huntington trains will make all stops from New Hyde Park east. Currently, alternate trains stop at New Hyde Park and Carle Place or Merillon Avenue and Westbury. Likewise, weekend Huntington-Port Jefferson “scoots” will drop from a 90-minute headway to bi-hourly. The 11:22 PM weekday train from Huntington to Penn Station will be terminating at Hicksville. There, passengers will transfer to a train from Ronkonkoma to continue their journeys west. The 10:26 PM weekday train from Penn Station to Huntington is being dropped and the following train, currently leaving Penn Station at 11:02 PM, will be pushed out at 10:55 PM.

Some Hempstead adjustments are being made to address conflicts at Floral Park after the first section of Main Line third track, from Floral Park to Mineola, gets placed in service, probably in late summer.

A weekday Babylon to Speonk trip is being added, leaving Babylon at 7:30 PM and arriving Speonk at 8:30 PM.

Train #162, leaving Atlantic Terminal at 6:08 PM, making all stops from Jamaica to Babylon and arriving at 7:20 PM will be restored to the timetable. With that, train #1158, leaving Penn Station at 6:10 PM and currently operating as a Babylon local, will resume its “Flyer” status and operate express from Penn Station to Rockville Centre and terminate at Freeport. Train #168, the weekday 6:28 PM Penn Station to Babylon Flyer is also being restored to the schedule. This runs non-stop from Jamaica to Babylon. Many weekend Babylon trains will now be stopping at Forest Hills and Kew Gardens, in both directions.

On the Main Line, the 11:15 PM weekday train from Penn Station to Ronkonkoma is being dropped. In its place, a train will leave Hicksville, Tuesdays through Saturdays, at 12:31 AM to Ronkonkoma, connecting with a Huntington train from Penn Station. The 11:21 AM weekday Farmingdale to Penn Station train is also being dropped. On weekends, Ronkonkoma trains will now stop at Mineola in both directions since Huntington service is being cut in half.

Almost all weekend westbound Oyster Bay trains will be leaving 16 minutes later while weekend eastbound trains will be leaving Jamaica 18 minutes earlier than they are now.

METRO-NORTH RAILROAD (MNR)

Nanuet Station Improvement

A rebuilt platform shelter at the Nanuet Station with modernized station amenities was unveiled to the public and dedicated in memory of the late Orrin Getz, Vice Chair of the Metro-North Railroad Commuter Council. The Nanuet Station is the Pascack Valley Line’s busiest station in New York, with approximately 600 daily passengers prior to the COVID-19 pandemic.



New Nanuet station facility. Marc Hermann/MTA photo

The shelter welcomes riders with new benches with USB connections, LED lights, a fully glass enclosed waiting

area, heating, a wooden ceiling, and directional signs on the exterior of the new shelter. The platform shelter has been redesigned in accordance with the Americans with Disabilities Act. Communication and security enhancements include the installation of a new speaker and camera inside the shelter and Help Points – sleek metal enclosures that contain an emergency call box with a direct line to MTA Police Department (MTAPD) and are topped with a high intensity LED beacon that provides high visibility and helps deter potential crime.

Additionally, as part of the Customer Service Initiative, crews have installed a kiosk that displays real-time train departure information. The Customer Service Initiative, known as CSI, is a part of the Way Ahead plan, MNR’s strategic plan that includes initiatives designed to set the standard for safety, reliability, and innovation in the delivery of excellent customer service.

Both the station shelter work and the real time information upgrades and are funded through the MTA’s Capital Program. The shelter work was performed by Pleasant Contracting Corporation, a Staten Island-based contracting company that participates in the MTA’s Small Business Mentoring Program.

MTA PRESS RELEASE, APRIL 21

Two Historic Stations to Be Restored

Plans were announced to restore the historic Hastings-on-Hudson and Tuckahoe station buildings.

Crews will ensure the historic structures will have architectural finishes as if they were just built by using the original station blueprints (known as “as-builts”) from 1901 for Tuckahoe and 1910 for Hastings. Spanish-style terracotta tiles that adorn the station roofs will be fully removed and replaced. These tiles will be complemented with full copper gutters, downspouts, flashing, and snowguards. New three-inch tongue and groove decking will be used on the canopies just as they were when they were built more than a century ago. As a finishing touch, the buildings’ exteriors will be repainted in their existing, original colors.

The restoration will conform with the U.S. Secretary of Interior’s Standards for the Treatment of Historic Properties and comply with the requirements of the New York State Office of Parks, Recreation and Historic Preservation.

Construction crews have mobilized at Hastings, and once complete, will proceed to Tuckahoe. First, crews will erect a sidewalk shed to isolate the work zone on the roof from the street and sidewalk below. Temporary striping and parking stalls will be installed to account for the footprint of the sidewalk shed. Next, roofers will work to remove the existing roof elements, perform any necessary rehabilitation to structural members, and lastly install the new roof. The anticipated completion of Hastings is in fall 2022 and Tuckahoe in spring 2023.

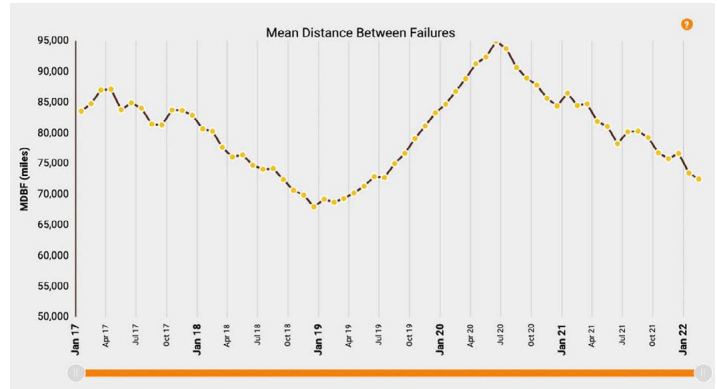
MTA PRESS RELEASE, APRIL 5

NEW JERSEY TRANSIT (NJT)

Service Reliability Declines

When a train breaks down, statistics don’t matter if you’re the one waiting in the rain.

In the past 19 months, NJT trains have steadily been traveling a shorter distance between breakdowns, a sign the fleet is aging and not as reliable. NJT officials say that will improve once new equipment is brought on, but the arrival of some of those is still two years away.



NJT mean distance between failure rate. NJT data

One of the ways transit agencies measure how reliable their fleets are is how many miles vehicles travel between breakdowns, called “mean distance between failures.” The higher the mileage is, the better the rail fleet is performing, and the fewer trains are canceled.

But since June 2020, NJT’s figure has steadily declined from a peak of 94,969 miles to 72,516 miles in February of this year, the most recent data available.

The yearly average improved from 2019 to 2020, but has since been on the decline, statistics show. In the past five years, the lowest, and worst, figure was 67,997 miles in December 2018.

That was attributed to the effects of installing and troubleshooting new positive train control safety equipment on trains, said Jim Smith, an NJT spokesman. Long Island Rail Road officials also said issues with the new PTC equipment brought that commuter line’s reliability numbers down in 2020.

Trains were most reliable a few months into the pandemic when ridership dropped significantly and fewer trains were running.

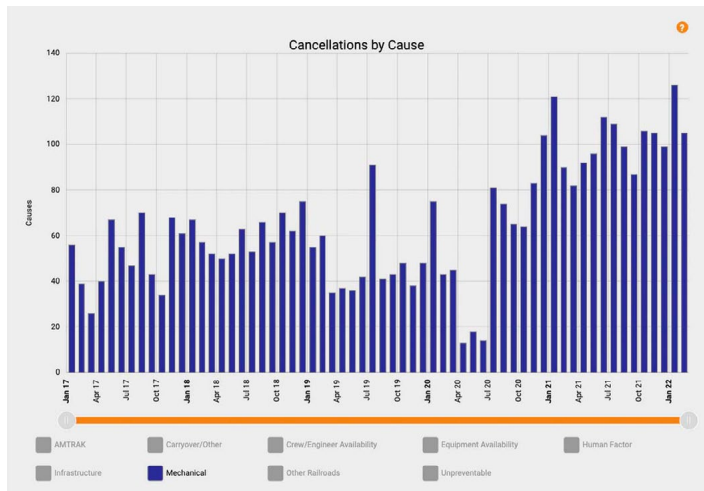
Similar to an aging car, the older the equipment is, the more prone to breakdown it is, officials said. Just under 30 percent of NJT’s rail fleet is 40 years or older, Smith said.

Officials blamed three older locomotive types that are between 44 and 53 years old for a reduction in miles traveled between breakdowns. One type of locomotive is slated for replacement, and two others will be rebuilt.

The other method to compare a transit agency’s reliability, which the Federal Transit Administration uses, is the total

breakdowns resulting in a canceled train.

Those figures have stayed between 60 and 126 a month since July 2020. But in the three years prior, they ranged between 26 monthly breakdowns to 75, rarely going higher than 60.



A chart of NJT mechanical breakdowns. NJT data

How does NJT stack up against other transit agencies?

The failure rate can't be used as an across-the-board comparison because age, equipment, and use can affect the cumulative result, transit officials from multiple agencies and an independent consultant told NJ Advance Media.

Even the type of service that rail equipment is used for can make a difference in reliability, said Michael R. Weinman, of PTSI Transportation of Rutherford.

“The all-stops local (train) will open and close doors hundreds of times per day, and thus door failures, which could take a train out of service, would be more likely,” he said.

A look at some other transit agencies show that SEPTA's trains went about half as far as NJT between failures in 2020. Agency spokesman Andrew Busch attributed that to a need for money to upgrade its oldest-in-the-nation fleet. Two-thirds of SEPTA's vehicles date to the mid-1970s, he said.

The much larger LIRR trains traveled 278,951 miles between troubles, higher than the 160,000-mile goal set in 2020, which officials said was achieved by replacing trouble-prone old trains with new ones.

While some transit agencies, like LIRR, set an internal goal to compare their own performance against, NJT did not set one in 2020. But goals are being “updated to more accurately reflect the current age of the fleet and the expectations of the equipment,” Smith said.

However, NJT officials estimate breakdown numbers will improve as more of the new locomotives are deployed.

A fleet of 25 new dual-mode locomotives, which can run on either overhead electric power or by an onboard diesel engine, will all be delivered by the end of 2022.

But NJT mechanics will have to keep the elderly Arrow III

cars currently used on the busy Northeast Corridor Line and the Gladstone Branch running for another two years. They were built in 1977 and rebuilt in the '90s. Come 2024, they will be replaced by 113 Multilevel III rail cars, about half of them electric-powered.

Those multiple-unit rail cars could travel 350,000 miles between breakdowns, officials said, and will likely drive up the reliability numbers for NJT. Unlike a locomotive powered train, those trains don't have to be canceled if one motor fails, NJT officials said.

While NJT officials are expecting better performance from the new electric multi-level cars, there is some risk because they are a completely new design, Weinman said.

NJ.COM, APRIL 12

Perth Amboy Station Upgrade Begins

A groundbreaking ceremony was held on April 21 to showcase major renovations to transform the Perth Amboy train station into a modern and fully accessible facility. Renovations will include the construction of two new high-level platforms, four new elevators, and additional ramps and stairs to provide greater access to the station's platforms.

Plans to improve the historical station, which served an average of 874 weekday customer trips prior to the pandemic, were included in NJT's five-year capital plan launched in June 2020. The approximate \$45.5 million awarded to a construction contractor to perform these renovations was funded with a combination of federal and state monies. Upon completion of the project, the station will meet accessibility requirements of the federal Americans with Disabilities Act (ADA).

These renovations are among many other upgrades planned for NJT's older rail infrastructure. Other projects underway include improvements along the North Jersey Coast Line and Northeast Corridor totaling more than \$2 billion dollars, including the revitalization of the Elizabeth train station and the construction of the new Portal North and Raritan River bridges.

The Perth Amboy renovations are expected to be completed by the first half of 2024. Additional improvements to the station will include renovated restrooms, the installation of upgraded security cameras, and repairs to the pedestrian bridge as well as the eastbound and westbound buildings.

The station's distinctive design elements, built in the Renaissance Revival architectural style when it was constructed in 1927, will be preserved in the new station.

NJ TRANSIT PRESS RELEASE, APRIL 21

First Construction Contract Awarded for Delco Lead Project

The NJT Board of Directors approved the first construction contract for early action work on the Delco Lead Storage and Inspection Facility project in New Brunswick which will create a safe-haven for rail cars and locomotives in case of a severe weather event. Equipment stored in this location



will be positioned out of flood prone areas and optimally situated for rapid return to service on the Northeast Corridor, Raritan Valley Line and North Jersey Coast Line following the weather event.

The contract with Union Paving for \$6,080,015 is for the first construction phase of the project which will include preparing the site for the subsequent construction phase for the service yard, inspection facility, Delco Lead, and remaining County Yard Improvement Project elements.

In the aftermath of Superstorm Sandy, the County Yard and associated four-mile-long Delco Lead were identified as safe-haven storage locations for rail cars and locomotives as the land and yard are above the flood plain with relatively no adjacent trees. Located along the Northeast Corridor, the Delco Lead Project will provide resilient storage for the rail equipment in the event the Meadows Maintenance Complex in Kearny, NJ and Morrisville, PA yard are evacuated. The Service and Inspection Facility will allow for the rapid inspection of rail equipment and its return to revenue service rapidly and efficiently following severe weather.

The early action phase of the Delco Lead project is anticipated to be completed in late summer 2023.

NJ TRANSIT PRESS RELEASE, APRIL 13

Lackawanna Cutoff Project Advances

Also on April 13, NJT advanced the project to restore rail service to Sussex County along the Lackawanna Cutoff with the approval of a contract to rehabilitate the Roseville Tunnel. The rehabilitation of the Roseville Tunnel is a crucial element in restoring passenger rail service from Port Morris to a new proposed station in Andover.

The contract with Schiavone Construction Co. LLC of Secaucus, NJ includes the final design, construction, and commissioning of the Roseville Tunnel Rehabilitation project. The approximately \$32.5 million contract is part of NJT's larger Lackawanna Cutoff Restoration project.

The Lackawanna Cutoff Restoration project focuses on the planned restoration of passenger rail service on the east end of the Lackawanna Cutoff, between Port Morris and Andover, building a new rail station in Andover and replacing approximately seven miles of track. As part of the project, the Roseville Tunnel, which is a rock tunnel located near Roseville Road in Byram Township, will be rehabilitated.

The work in the contract awarded to Schiavone Construction Co. LLC includes stabilization of rock slopes, construction of 8,000 feet of track bed, drainage improvements, lighting and communication for the tunnel, and replacement of two culverts (Hudson Farm culvert and Junction Brook culvert), and other related work.

The Lackawanna Cutoff Restoration Project from Port Morris to Andover is anticipated to be completed in late 2026.

NJ TRANSIT PRESS RELEASE, APRIL 13

Fare Modernization Program Advanced

The next step in the future NJT fare card was advanced on April 13 as part of the Fare Modernization Program. It is

taking steps to update its fare payment technology and offer additional payment options including the NJT fare card. This initiative is a goal of the NJT 2030 10-year strategic plan, which seeks to reduce cash and paper-based tickets while providing all passengers with quick, easy, and convenient ways to pay. The Board of Directors approved a contract to secure the required stock of cards which will become the NJT fare cards during a later phase of the modernization.

The future account-based solution will be utilized across all modes of transit including parking. Additionally, NJT will expand the sale of the NJT fare card through a statewide retail network to provide passengers additional access to the new fare card and the ability to load transit fare products and fare value to their accounts through various payment methods including cash. Currently, NJT sells tickets from Ticket Vending Machines (TVMs) and Ticket Office Machines (TOMs) that are located throughout New Jersey, New York, and Pennsylvania and also offers ticket sales through its mobile app.

The approximately \$2.5 million contract with Giesecke+Devrient of Munich, Germany for the purchase of MIFARE DESFire Fare Card stock includes labor, equipment, card packaging, shipping and materials necessary to supply fare card stock to NJT. This is just one phase of NJT's larger Fare Modernization program which also includes new onboard ticket validators on buses, handheld validators for train crews and activating the new NJT fare cards.

NJT has already completed the installation of 558 new TVMs throughout the system which offer faster transaction times and accept contactless payment options and mobile wallet applications. New displays on the TVMs provide passengers with important travel information and advisories.

NJ TRANSIT PRESS RELEASE, APRIL 13

Portal North Bridge Construction Gets Green Light

The issuance of the "Notice to Proceed" on the new Portal North Bridge project took place on April 7. The bridge, which is part of the larger Gateway Program, will improve capacity and reliability for rail travel between New Jersey and New York City.

The project is being funded by the U.S. Department of Transportation, NJT and Amtrak. In January 2021, Governor Murphy announced the signing of a Full Funding Grant Agreement which secured \$766.5 million in Federal Transit Administration funding to support the project's construction.

In October, Governor Murphy and NJT announced the approval of a \$1,559,993,000 construction contract awarded to Skanska/Traylor Bros PNB Joint Venture (STJV) for the construction of the new Portal North Bridge. The contract represents the single largest construction award in NJT's history.

The Portal North Bridge project spans 2.44 miles of the Northeast Corridor line and includes construction of retaining walls, deep foundations, concrete piers, structural steel bridge spans, rail systems, demolition of the existing bridge, and related incidental works. The Notice to Proceed

to STJV signifies start of the construction contract which is anticipated to take approximately five and a half years to complete.



Portal North Bridge rendering. gatewayprogram.org website

The Portal North Bridge project will eliminate the 110-year-old swing bridge which has been the enduring source of major service disruptions for NJT and Amtrak passengers traveling on the Northeast Corridor.

The old Portal North Bridge will be replaced with a new modern two-track, high-level, fixed-span bridge that will improve service and capacity along this section of the Northeast Corridor. The new Portal North Bridge will rise 50-feet over the Hackensack River and will allow marine traffic to pass underneath without interrupting rail traffic.

The Portal North Bridge project is a critical component of the larger Gateway Program which will eventually double rail capacity between Newark and New York.

NJ TRANSIT PRESS RELEASE, APRIL 7

Other US Systems

BOSTON

Green Line Service Resumes After Structure Collapse

Following the removal of more than a hundred tons of debris directly above the Green Line, MBTA structural engineers meticulously inspected the tunnel, took precise measurements, and searched carefully for any signs of damage above or below the surface.

Based on the comprehensive inspections, it was determined that the Green Line tunnel, including the shared wall between the Green Line and Orange Line, was structurally sound. Following the successful testing of trains in the tunnel, Green Line service resumed on April 9 between North Station and Government Center Station.

Structural engineers continued to closely monitor the tunnel during daily Green Line operations.

Green Line and Orange Line trains continued to bypass Haymarket Station while personnel completed some repair work on the standpipe system, which was damaged by debris from the garage collapse.

Both Green and Orange Line trains resumed stopping at Haymarket station the following day, April 10.

MBTA PRESS RELEASE, APRIL 9

HONOLULU

Trial Runs to Start

Honolulu Authority for Rapid Transportation (HART) will soon begin running trial trains along the first segment of its rail system between East Kapolei and Aloha Stadium after a track modification project was completed in early April.

The project corrected tight track gauge and weld modifications at five double crossovers on the alignment. The work was required after it was discovered last year flange bearing frogs at several crossings were showing signs of early wear. It was determined the railcar wheels were too narrow. HART, Jacobs and Transportation Technology Center, Inc., all worked on a plan to modify the frogs to allow operation of trains within an acceptable level of risk.

Morrison Metalweld Process Corporation performed the manganese welding; a move that required HART to obtain an exemption from the Department of Commerce and Consumer Affairs, Professional and Vocational Licensing Division because there were not local welders available to perform the specialty work. HART Director of Construction Matt Scanlon said using a mainland welding company resulted in “high-quality work executed in a timely manner on the five crossovers.” As welding work was under way, Hitachi Rail Honolulu maintenance crews and HART engineering and construction crews worked to adjust the track gauge. The project began February 28 and was completed April 8.

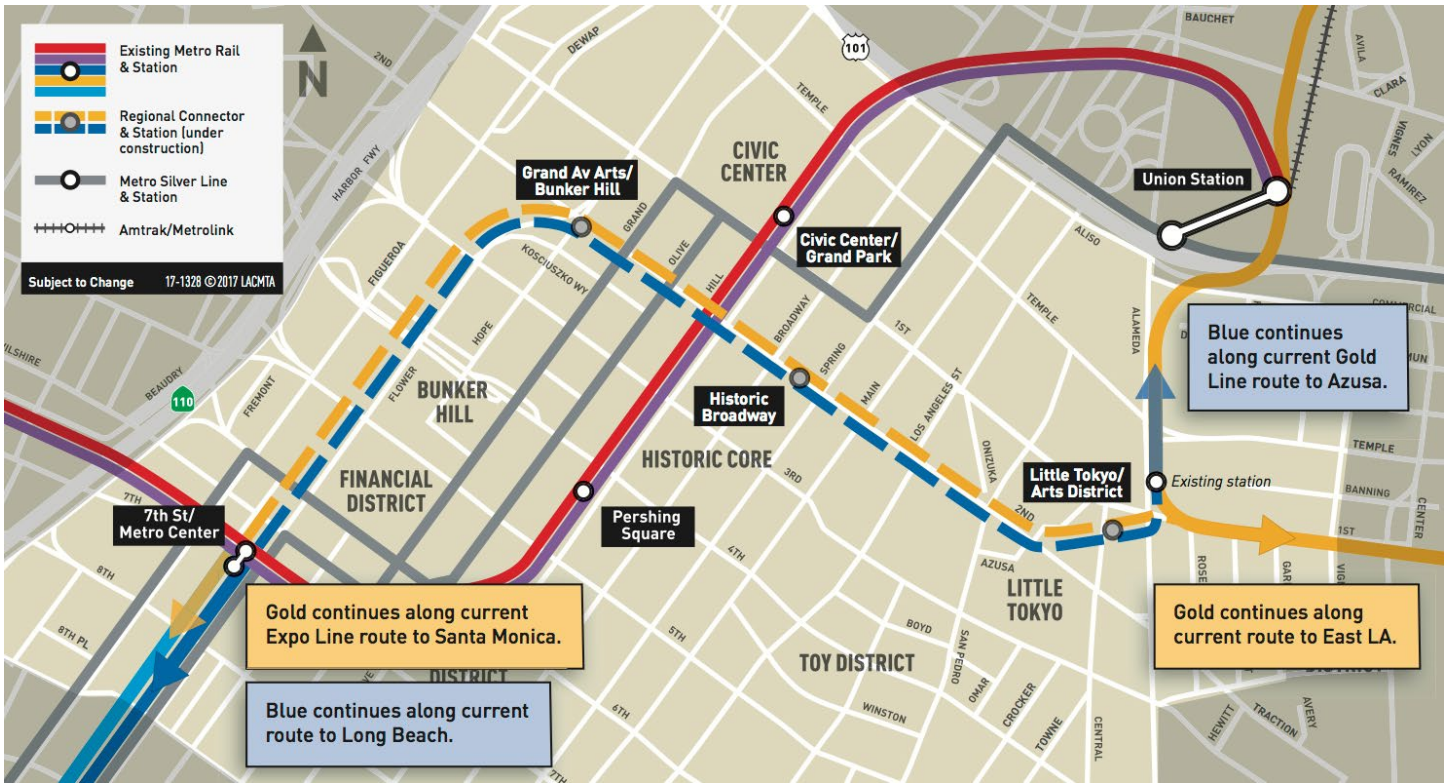
Now that track welding and gauge modifications have been completed, HART will begin running trial trains for a minimum of 90 days between East Kapolei and Aloha Stadium. HART will test all aspects of the trains, stations, communication systems and train control systems before turning the first segment of the rail line over to the city of Honolulu.

MASS TRANSIT, APRIL 21

LOS ANGELES

Regional Connector Reaches Milestone

The Los Angeles County Metropolitan Transportation Authority (L.A. Metro) has completed construction of all the track work, guideway systems and station platform areas for the Grand Av/Bunker Hill Station as part of the Regional Connector project.



Map of the Regional Connector through downtown Los Angeles. L.A. Metro

L.A. Metro has contracted with Regional Connector Constructors (RCC), a joint venture between Skanska USA Civil West California District, Inc., and Traylor Brothers, Inc., to design and build the \$1.8-billion Regional Connector that will connect the A (Blue), E (Expo) and L (Gold) Lines in downtown Los Angeles, saving L.A. Metro transit riders valuable time by eliminating transfers and giving them a one-seat ride through Downtown L.A. The entire transit project is now 90 percent complete.

L.A. Metro says its contractor has been able to achieve one of the best safety records of all L.A. Metro construction projects, with more than six million hours worked without any lost time due to injury or incident.

The Regional Connector will also add equitable access to new destinations such as Broadway Historic Core and the performing and Visual Arts venues of the Walt Disney Concert Hall, Colburn School, MOCA and the Broad Museum.

The Regional Connector Transit Project is a 1.9-mile underground light-rail extension which includes three new stations: the Little Tokyo/Arts District Station at 1st Street/Central Avenue, the Historic Broadway Station at 2nd Street/Broadway and the Grand Av Arts/Bunker Hill Station at 2nd Place/Hope Street.

Once fully completed and operational, the project is expected to serve 88,000 riders daily – including 17,000 new riders – and save commuters up to 20 minutes by reducing the need to transfer for those riding to and through downtown L.A. The project will offer seamless North-South and East-West rail service — with one light rail running between Long Beach and Azusa and a second light-rail line

between Santa Monica and East Los Angeles. The two lines will share five downtown stations where riders can easily transfer.

Construction of L.A. Metro’s Grand Av Arts/Bunker Hills Station has been a complex undertaking due to the depth of the station, which is approximately 100 feet below street level — the deepest rail station in the agency’s entire rail system. More than 33,000-cubic yards of steel and concrete have been used to construct the station. More than 90,000-cubic yards of soil was excavated to build the station.



Test train at the Grand Av Arts/Bunker Hill station during test runs.

L.A. Metro photo

With track and guideway work now completed, L.A. Metro has begun train and systems testing in preparation for revenue operations, which is anticipated this fall. Workers

will now be concentrating on finishing the station’s plaza concourse and ancillary levels, testing remaining HVAC and fire/life safety systems and completing station artwork, elevator and escalator installations.

To mitigate noise and vibration impacts to the community’s performing art institutions the Grand Avenue Arts/ Bunker Hill Station uses a special type of floating slab track system.

Also featured at the Grand Av Arts/Bunker Hill station is new artwork at the concourse, designed by artist Pearl C. Hsiung, that towers over 60 feet— the tallest glass mosaic mural in the L.A. Metro system. Titled High Prismatic, the work recognizes the ever shifting and dynamic geological and cultural landscape of Bunker Hill.

At the train platform, a new artwork on porcelain enamel steel designed by artist Mungo Thomson titled Negative Space, brings a stunning image of the cosmos, captured by the Hubble Telescope, underground.

Site-specific artworks commissioned by L.A. Metro Art are featured at each of the three new stations along the Regional Connector Transit Project. Artists Andrea Bowers, Audrey Chan, Mark Steven Greenfield, Pearl C. Hsiung, Clare Rojas, Mungo Thomson and Clarence Williams were selected through an open, competitive selection process following the recommendation of a panel of community-based arts professionals.

MASS TRANSIT, APRIL 19

MINNEAPOLIS

Proposed Blue Line Extension

The route recommendation for the METRO Blue Line extension was released by the Metropolitan Council (Met Council) and Hennepin County.

After reviewing community input and findings from technical analyses completed to date, the project recommends extending the existing Blue Line light-rail transit from Target Field station along West Broadway Avenue in Minneapolis to County Road 81 in Crystal and Robbinsdale, and along West Broadway Avenue in Brooklyn Park.

This recommendation comes from nearly two years of community outreach, technical analysis and stakeholder interaction, and is a major milestone for this transformational investment in the community.

Following the release, the community may provide their thoughts on the route recommendation. Comments on the report should be shared by May 18.

The Met Council and Hennepin County will consider public input along with technical analyses before approving a final route. After a route is officially adopted by the Met Council, work on the design and environmental review will advance.

MASS TRANSIT, APRIL 19



Map of the proposed Minneapolis METRO Blue Line extension.

Metropolitan Council map

TEMPE, ARIZONA

Streetcar Service Set to Begin

Valley Metro’s Tempe Streetcar service begins May 20 and service will be free for the first year.

The streetcar travels on Mill and Ash Avenues from Rio Salado Parkway and Marina Heights to Dorsey Lane and Apache Boulevard and differs from light rail in that it shares the roadway with vehicular traffic. Vehicles are also smaller, with a capacity of 125 people, and travel as a single car. Streetcars will arrive at stops every 15-20 minutes.

The three-mile streetcar route has two connections to light rail, has 14 sheltered stops with public art and landscaping and is ADA and bike accessible.

Another touted feature of the streetcar service is its off-wire capability on Mill Avenue in downtown Tempe. The hybrid battery-powered off-wire feature, the first in the Valley Metro fleet, helps preserve the natural canopy of trees that have long been identified with the area.

Construction of the Tempe Streetcar project began in 2018. It will serve the Tempe Arizona State University campus, downtown Tempe, Gammage Auditorium, Sun Devil Stadium, Tempe Beach Park and connect to many small

businesses and neighborhoods.

Streetcar service is a regional, public transportation service built with federal grants, regional funding from Proposition 400 and local public-private partnerships. Operations are entirely funded by the city of Tempe. Expansion of the streetcar may include future stops at Tempe Marketplace, Sloan Park, Riverview Park, Mesa Asian District and Mesa Community College.



Liberty 180 (Brookville, 2021) at the Operations & Maintenance Center. Valley Metro photo

MASS TRANSIT, APRIL 29

WASHINGTON, DC AREA

Purple Line Construction Set to Resume

Major construction works on Maryland's Purple Line light rail project are set to resume, after Public-Private-Partnership concessionaire Purple Line Transit Partners reached financial close on a funding package. This covers completion of the line and future operations and maintenance. Opening of the 16.2-mile orbital route between New Carrollton and Bethesda in the Maryland suburbs of Washington DC is now expected in autumn 2026.

In 2016 Maryland awarded the PLTP joint venture of infrastructure asset manager Meridiam, investor Star America and construction company Fluor a \$5.6 billion PPP contract to design, build, finance and operate the line. PLTP in turn appointed the Purple Line Transit Constructors joint venture of Fluor, The Lane Construction Company and Traylor Brothers to build the line.

Opening was originally scheduled for 2022, however PLTP pulled out of the project in 2020 after disputes over land acquisition, environmental approval and design changes brought significant delays and increased the cost by \$519 million.

In November 2020 the state agreed to pay PLTP \$250 million in an out-of-court settlement, and Fluor withdrew from the project. Maryland Transit Administration took over

responsibility for ongoing contracts while PLTP appointed a new construction contractor, with the Maryland Transit Solutions joint venture of Dragados USA and OHL USA being selected in November 2021.

The 40-year financing package which has now been arranged by PLTP comprises:

- \$1.76 billion Transportation Infrastructure Finance & Innovation Act loan from the federal Department of Transportation to PLTP, replacing and restructuring the original TIFIA loan
- \$643 million in private activity bonds issued to PLTP
- \$293 million of PLTP shareholder equity

METRO REPORT INTERNATIONAL, APRIL 26

International News

DARMSTADT, GERMANY

Tramway Extension Opens

Around two and a half years of construction came to a celebratory conclusion on Monday, April 25: the Lichtwiesenbahn was officially put into operation as part of a ceremony at the Technical University of Darmstadt. Tram line 2 now reaches the Lichtwiese campus via around 0.8 miles of new tracks and connects it to the city center and the main train station. The Hessian transport minister Tarek Al-Wazir and Darmstadt's mayor Jochen Partsch attended the commissioning ceremony.



Training runs were operated to the Technical University before regular service started on April 25. ST14 0785 (Alstom, 2007) is on the left and ST11 8210 (Waggon-Union, 1982) is on the right. HEAG mobilo photo

The extended tram route now branches off at the existing "Hochschulstadion" stop, which will be called "Jahnstrasse" again in the future, towards the east in the area of the TU. The route runs parallel to the Lichtwiesenweg, past the architecture faculty building, from there in the direction of

the civil engineering building/Mensa Wirtschaftshof and ends with a turning loop on the north side of the lecture hall and media center of the university. Two new stops were built along the route: “Hochschulstadion” at the height of the climbing hill and “TU-Lichtwiese/Campus” at the lecture hall and media center.

The planning, which began in 2013, presented a number of challenges, not least because of the complex route, the building site was difficult to calculate due to war debris and unmarked utility lines. The pandemic threw in additional delays. The commissioning originally planned for December 2021 had to be postponed.

HEAG MOBILO PRESS RELEASE, APRIL 25

ENGLAND

Cracks Found in GWR's Class 800 Train Sets

More than 1,200 class 800 series vehicles built by Hitachi for various British operators require modifications to rectify issues with cracks found on the bodyshell and anti-roll bar fixing points, according to a report published by British regulator the Office of Rail and Road on April 7. The repair program will last for six years.

The 182 trains were withdrawn by their operators after the discovery of the cracks in May 2021. Following stringent checks, the majority of the trains were able to return to service. However, the ORR launched a review into the cause of the problem.

At the time there were 93 trains operated by Great Western Railway (GWR), 65 by London North Eastern Railway (LNER), 19 by TransPennine Express (TPE) and five by Hull Trains (HT). The trains are mixtures of five and nine-car formations and are either bi-modes or EMUs.



An example of the GWR's Class 800 train sets in London's Paddington Station. International Railway Journal photo

Stringent safety measures were introduced to enable the trains to return to service. Cracks were also discovered on class 385 EMUs operated by ScotRail (SR) and class 395 EMUs operated by Southeastern.

The ORR has concluded that fatigue cracking on the vehicle body in the area above the wheels close to the yaw damper

bracket and anti-roll bar fixing points was caused by the trains experiencing greater loads from train movement than allowed for in their original design. The ORR says it is not yet known why this happened, although potential factors include wheel wear and track design. The ORR says in its report that there is no suggestion of problems with the infrastructure.

Additional cracks found in the area where the lifting plates attach to the vehicle body were the result of stress corrosion cracking. The ORR says this is the result of using a particular type of 7000 series aluminum in various areas of the class 800 series.

The report says that the characteristics of the specific aluminum used in combination with built-in stresses resulting from being welded to the body as well as exposure to air containing high levels of chloride resulted in the cracking. The ORR says that the British atmospheric conditions contain strong levels of chloride, and this appears to have caught the industry by surprise.

A program of repairs will be carried out on 1,247 class 800 series vehicles from GWR, HT, LNER, TPE and the Lumo class 803s, which entered traffic in October–December. A further 487 class 385 and class 395 vehicles will also be treated. This does not include the class 805 and 807 fleets, which Hitachi is currently manufacturing for Avanti West Coast. However, these will be included in the repair program, albeit towards the end of the project. The ORR says the focus will initially be on the trains which require the repairs.

The class 800 series modifications will be carried out by Arlington Fleet Services at Eastleigh Works, Hampshire, and it is expected that at least one train will be out of service at any one time. The planned six-year timeframe is designed to ensure that service levels are not affected by a lack of available trains.

The ORR is working with Hitachi and partners to agree a permanent solution. Once the program is formally agreed, work is expected to start this summer. No specific date has been confirmed.

INTERNATIONAL RAILWAY JOURNAL, APRIL 7

FRANCE

Ouigo Classic Begins Service

OUIGO, the low-cost subsidiary of French National Railways (SNCF), began selling tickets for its new low-cost locomotive-hauled Ouigo Classic service on March 2, with a two-day offer of 300,000 tickets sold at €5 ahead of the service launch on April 11.

Normal ticket prices will range from €10 to €30 with 60% of the tickets available for less than €19, and child tickets at €5. Bicycles will be charged at €10, or €5 if they are folded up. An extra €5 charge for bulky luggage will be introduced in 2023.

Ouigo, which has only operated high-speed TGV services since its launch in 2013, announced the launch of Ouigo

Classic and the rebranding of TGV services as Ouigo Grand in September 2021.

Two train pairs will initially operate from Paris Austerlitz station via Tours or Le Mans to Nantes with a journey time of between 3 hours 15 minutes and 4 hours 15 minutes. The frequency will increase to three trains in June. Another daily service will operate from Paris Bercy station via Dijon to Lyon serving 14 stations with a journey time between 4 hours 45 minutes and 5 hours 15 minutes, with a second train also to be introduced in June. The trains will stop at stations on the outskirts of Paris including Juvisy, Versailles Chantiers and Melun.



SNCF 22 347 (Alstom/MTE, 1980) is seen in its pink Ouigo paint scheme. Teller Report photo

The expansion of Ouigo's offer is part of SNCF's strategy to attract 2 billion additional long-distance passengers per year by 2025.

Trains will comprise specially liveried Corail coaches hauled by class BB 22200 dual-voltage electric locomotives from the SNCF Intercités pool, dating from the 1970s and 80s. These will be operated by SNCF's newly created Oslo subsidiary, with staff performing a variety of tasks to reduce costs.

INTERNATIONAL RAILWAY JOURNAL, MARCH 3

GRANADA, SPAIN

Light Rail to Be Expanded

Surveys have begun ahead of a call for tenders for construction of an extension to Granada's light rail line, and an order for additional trams has been confirmed.

Ayesa and Pontem Engineering Services are undertaking geotechnical surveys for the 2.9-mile, six-stop southern extension between Armilla, Churriana de la Vega and Las Gabias, which is to be built with €108 million of EU co-financing.

Construction is expected to start in spring 2023 for opening in 2026.

Meanwhile, sole bidder CAF has been formally awarded a contract to supply eight more trams, similar to the 15 already in service. These will have a maximum speed of 43.5 mph and a capacity of 221 passengers.

The additional vehicles are needed for the extension and to provide an increase in capacity, with trams to operate in pairs at peak times.



Urbos 3 #310 (CAF, 2013) at one of the three underground stops, Alcazar del Genil. Metro Report International photo

METRO REPORT INTERNATIONAL, APRIL 29

HANGZHOU, CHINA

Two Metro Extensions Open

Two metro extensions in Hangzhou were ceremonially opened on April 1, with revenue services starting the following day. The openings come ahead of the city hosting the 2022 Asian Games in September and take the network to a total length of 260.4 miles.

Line 7 has been extended 3.7 miles west through the city center from Citizen Centre to Hangzhou railway station and Wushan Square, adding three stations with one more to open at a later date. This completes Line 7, which now runs for 29.5 miles from Jiangdong'er Road in the northeast through Xiaoshan International Airport to Wushan Square.

Line 9 has been extended 7.5 miles from Coach Centre to an interchange with the new section of Line 7 at Guanyintang. This extension adds eight stations, with two more to follow. It was built by China Railway Construction Corporation and takes Line 9 to 18.3 miles.

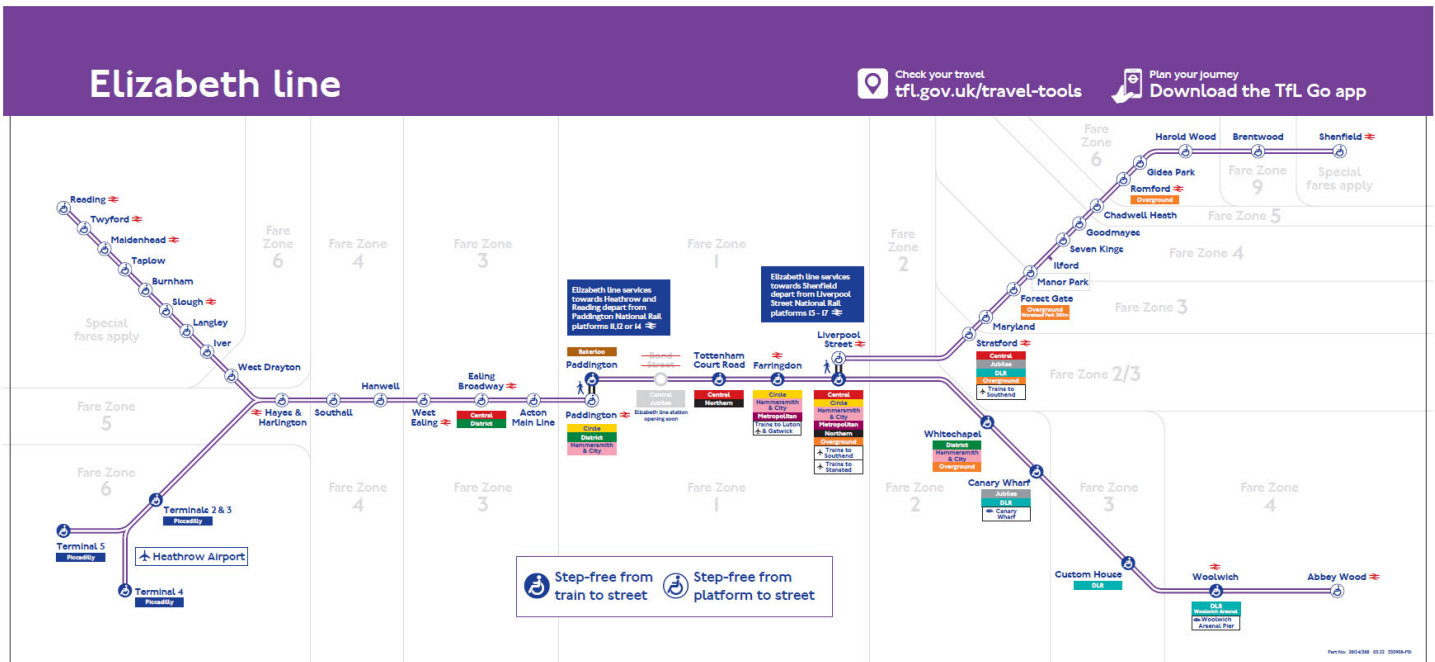
Another intermediate station was also opened at Baoshan Bridge on Line 5.

METRO REPORT INTERNATIONAL, APRIL 5

LONDON

Elizabeth Line to Open May 24

Transport for London (TfL) announced on May 4 that the Elizabeth Line would open for public revenue service on Tuesday, May 24. TfL Commissioner Andy Byford made the announcement on Twitter, and a short dramatic video was posted simultaneously on Crossrail's website and YouTube



Elizabeth Line services to be offered upon initial opening on May 24. Transport for London map

channel. Crossrail is the project name under which the Elizabeth Line was planned, designed, and built.

The announcement of the opening follows six months of intensive testing and trial operations during which time the line was running a full timetable service with empty trains. Over 150 operating scenarios have been performed to ensure all systems and procedures were working as intended, and several large-scale exercises were conducted to simulate responses to a range of mock incidents, such as ill passengers, signal failures, rolling stock breakdowns, and loss of traction power. Three separate full train evacuations were conducted jointly with London’s fire and rescue services with the participation of thousands of TfL staff and volunteers.



Paddington station on the Elizabeth Line. Transport for London photo

The line had already been in trial running mode since March 2021, with trains operating over the line at various speeds, testing all the signals and interlockings, traction

power, stopping and starting at stations, and testing the platform edge screen doors. Communications, and fire-life safety systems were also tested and retested.

Elizabeth Line services will initially be operated in three separate sections. Opening on May 24 is the segment between Paddington and Abbey Wood, which includes the core tunnel section between Paddington and Canary Wharf. On the same day, services between Liverpool Street and Shenfield in the east, and between Paddington and Reading in the west, which have been operating under the brand “TfL Rail” since 2015 and 2019 respectively, will be rebranded as the Elizabeth Line. However, passengers will need to change at Liverpool Street and Paddington to continue their journey across London via the tunnel. Similarly, the service between Paddington and Heathrow Airport which has also been operating as TfL Rail since 2018 will be rebranded as Elizabeth Line.

This situation is expected to last until later this year, when services from Shenfield, Reading, and Heathrow will be introduced into the tunnel in phases. Full services across the entire Elizabeth Line route are planned to take effect with the United Kingdom national timetable change in May 2023.

For the time being, services will be operated Mondays through Saturdays from 6:30 AM to 11:30 PM, with 12 trains an hour (every five minutes). The overnight hours and Sundays will be reserved for maintenance and for testing critical train control software updates which will be required before services can be increased this autumn. Furthermore, work will continue in the upcoming months to finish work at Bond Street Station, which will not be ready to open on May 24, but should be ready by the autumn as well.

Editor’s note: The Crossrail project/Elizabeth Line was described in some detail in the December 2021 Bulletin. A feature

article will be forthcoming in a future Bulletin which will follow the opening and initial period of revenue service.

CROSSRAIL PROJECT WEBSITE: <https://www.crossrail.co.uk/>

INTERNATIONAL RAILWAY JOURNAL, MAY 4

METRO REPORT INTERNATIONAL MAY 4

MELBOURNE

New Trams for Melbourne

Victoria's Department of Transport has awarded Alstom a €700 million framework contract to supply 100 G Class customized Flexity 2 trams to Melbourne from 2025.

The agreement announced on April 21 includes 15 years of maintenance, which Alstom said would make it the biggest tram contract in Australia and in the southern hemisphere.

The low-floor trams will provide an increase in capacity to handle predicted population growth and will improve accessibility by enabling the retirement of all existing high-floor trams by 2032.

The order forms part of Victoria's A\$1.85 billion Next Generation Trams Project, which will also include a purpose-built maintenance and stabling facility at Maidstone in western Melbourne.

The Flexity 2 tram design passed to Alstom with its acquisition of Bombardier Transportation, and it has been adapted to Melbourne's specifications to provide seamless integration into the network without the need for infrastructure, traction power or signaling works.



Melbourne's new G-Class trams from Alstom. Alstom rendering

The design has been informed by experience with the High-Capacity Metro Trains and E Class tram procurements. Initial proposals will now be refined in consultation with representatives of passengers, accessibility groups and tram drivers, before being finalized in 2023.

The basic design is for a three-section 82-foot-long vehicle with three trucks and a capacity of up to 150 passengers. This could be extended to 114.8 feet with four trucks to provide additional capacity.

The front end is designed to enhance driver sightlines and provide good collision protection, and the trams will be equipped with a driver obstacle detection assistance system.

Passenger facilities will include a street-boarding wheelchair lift, multi-purpose areas for pushchairs, bicycles and wheelchairs, air-conditioning suited to Melbourne's unique weather, and a "noise-optimized" design providing a quiet interior.

Onboard energy storage and regenerative braking will reduce energy consumption per passenger by 30% to 40% compared to an E Class tram, and limit the peak current draw to reduce the need for power supply enhancements.

The contract specifies 65% local content, an increase from Victoria's usual 50% requirement for rolling stock contracts.

Work to set up the production line at Alstom's Dandenong site is to begin imminently, with assembly of the first tram to start in 2023 for entry into service from 2025. The maintenance contract includes 85% local content.

METRO REPORT INTERNATIONAL, APRIL 21

MUMBAI (BOMBAY), INDIA

Metro Lines 2A/7 Open

The first sections of Mumbai Metro's elevated Line 2A (Yellow) and Line 7 (Red) were inaugurated by Maharashtra's Chief Minister Uddhav Thackeray on April 2, the Marathi new year.

Running along Link Road and Western Express Highway, the two sections are initially being operated as a single route, pending the completion of the second phases of both lines.

The 5.9-mile Phase 1 of Line 2A runs from Dahanukarwadi to Dahisar East, serving nine stations. The 6.1-mile Phase 1 of Line 7 runs from Dahisar East to Aarey, adding a further nine stations.



Opening day celebrations for Mumbai's Metro Lines 2A and 7. Metro Report International photo

The remaining phases of the two lines are expected to open later this year. Line 2A will eventually run for 11.5 miles from Dahisar East to DN Nagar, serving 16 stations, while the

10.3-mile Line 7 will link Dahisar East to Andheri East with 13 stations. The two lines will interchange with Line 1 at DN Nagar and Western Express Highway respectively.

Construction of the two lines was launched by Prime Minister Narendra Modi in October 2015. Contracts were awarded in 2016 and work began in November that year, with completion expected by 2019. However, the work was subsequently delayed by the coronavirus pandemic.

BEML has supplied 11 six-car trainsets, out of a total of 96 sets on order. The 25 kV 50 Hz stainless steel bodied trains are equipped with air-conditioning, regenerative braking, CCTV and real-time track monitoring equipment. They have four sets of doors per car and a capacity of 1,800 passengers.

Alstom has supplied its Urbalis 400 CBTC which is intended to support driverless operation in the future, as well as public address, communications, CCTV and passenger information systems. The stations are fitted with platform screen doors. METRO REPORT INTERNATIONAL, APRIL 5

MÜNCHEN

U-Bahn Orders More Trains

München U-Bahn operator MVG has ordered 18 Type C-2 trains from Siemens Mobility, representing the fourth order of this class. The initial contract was signed in November 2010 for an order for 21 sets, followed by the exercising in September 2016 of the first option for 24 trains, and then a second option of 22 sets, the first of which was accepted at a ceremony on April 27, when the latest contract was announced. The first of these trains is anticipated to arrive in 2024-2025. BVG is extremely pleased with the reliability of the C-2 trains, which are built in Vienna, with the trucks supplied by the Siemens plant in Graz. A total of 510 cars will be in service once the last train of this latest order is completed.

RAILWAY GAZETTE INTERNATIONAL, APRIL 27

PARIS

Testing Begins with MP14 Cars on Line 11 Extension

Test running with new five-car MP14 rubber-tired trainsets has started on the eastern extension of Paris Métro Line 11, transport authority Île-de-France Mobilités (IdFM) and operator RATP announced on April 6.

The new sets for Line 11 are the third batch of MP14 stock to be supplied by Alstom within a framework contract for up to 217 trains, but the first to be fitted with cabs. They follow 35 eight-car driverless trainsets for the automated Line 14 and 20 six-car sets for Line 4, which is due to be converted to fully automatic operation by the end of 2023.

Currently running from the city center hub at Chatelet to Mairie des Lilas on the eastern side of the capital, Line 11 is in the process of being extended to Rosny-Bois-Perrier, providing interchange with RER Line E and the Grand Paris

Express orbital network. The 3.7-mile extension, of which 3.4 miles will be used by passengers, will add a further six stations to the route, and is expected to open by early 2024.

Line 11 is currently worked by a fleet of four-car MP59 trainsets dating from 1963, which are now the oldest rolling stock in use on the Paris Métro network. They are to be replaced by 39 five-car MP14 sets which will also be sufficient to work the extended route. The new trains are 247.4-foot long with capacity for 562 passengers. They have three sets of doors per vehicle, which are operated by the driver.



MP14 cars at Line 11's new depot . RATP photo

Testing is being undertaken from the line's new rolling stock depot east of Rosny-Bois-Perrier, which has been operational since the beginning of the year, providing four tracks for maintenance, stabling roads and a train washer. Test running will initially use a 1.2-mile section of the extension, but from mid-2022 will continue as far as the elevated station at Coteaux-Beauchair. The program is due to finish at the end of the year, to allow the extension to be connected up to the existing line. According to RATP, through running with the MP14s on the whole of Line 11 is planned from mid-2023.



Interior of one of the new MP14 cars, with open gangways. RATP photo

Total cost of the 39 trainsets is €310 million of which IdFM is providing 74% and RATP the remaining 26%. The extension is priced at €1.08 billion, and is being funded by the national government, Ile-de-France région, Société du Grand Paris and the département of Seine-Saint-Denis. Modernization of the existing line, including station renewals and improved accessibility, is adding a further €214 million, with funds coming from RATP, the city of Paris, Ile-de-France and the national government.
 METRO REPORT INTERNATIONAL, APRIL 8

POZNAŃ, POLAND

Tramway Extension Opens

The latest phase of a tramway extension along ulice Naramowice in the north of Poznań has opened for revenue service, following an opening ceremony on April 23 which included a parade of historic trams. A Konstal 4N1 single-truck tram was borrowed from Krakow for the event.

Initially served by route 10, the double-track extension starts at the Wilczak loop and runs for 1.9 miles. It adds seven stops including the terminus at ulice Błażeja, which has been built as a stub with provision for a future extension to Umultowo.



Moderus Gamma 926 (Modertrans, 2019) on the new extension of route 10 at Błażeja. MPK Poznan photo

Construction was undertaken by Turkish contractor Gülermak under a 400 million złoty contract awarded in 2018, with work getting underway in late May 2020. An initial section to Włodarska was opened in August 2021 and another stop at Lechicka/Naramowicka was added in October 2021. Testing running through to Błażeja began in March.

As there is no turning loop at the new terminus, the line can only be worked by double-ended trams. Route 3 is expected to be extended to Błażeja in the near future.
 METRO REPORT INTERNATIONAL, APRIL 28

PRAHA (PRAGUE)

Short Tramway Extension Opens

A 0.6-mile extension of Praha tram route 5 from Sídliště Barrandov to Holyně was opened on April 9. This is the first phase of an extension to Slivenec and was built by Strabag in less than 10 months at a cost of KC170 million.



Matching KT8D5R.N2P trams, 9087 and 9089, both products of ČKD-Tatra in 1989, at the new Holyně terminal on April 9. DPP photo

METRO REPORT INTERNATIONAL, APRIL 9

TALLINN, ESTONIA

New Pesa Trams Ordered

Pesa has been named the winner of a €50 million contract to supply up to 23 trams to Tallinn from the second half of 2024.

The contract is due to be signed in May. The trams will be based on the Polish manufacturer's Twist family; the single-ended low-floor cars will be 93.8 feet long with five doors and have capacity of up to 300 people, including 65 seated.



Rendering of Pesa's Twist tram for Tallinn. Pesa

Deputy Mayor Andrey Novikov said the order would make public transport in the capital greener and support the

creation of new routes and lines, including to the port.
METRO REPORT INTERNATIONAL, APRIL 14

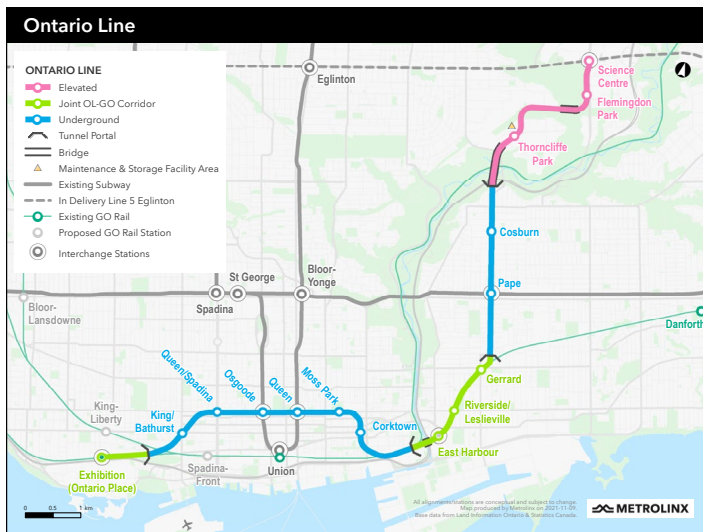
TORONTO

Work Begins on the Long-awaited Ontario Line

Ground was broken on March 27 for one of North America’s biggest transit projects, Toronto’s next subway – the Ontario Line. Almost ten miles in length, with 15 stations and projected to have a daily ridership of 388,000, the Ontario Line is the culmination of a years-long effort to reduce crowding on the downtown segments of Toronto’s current network, which prior to the pandemic rivaled New York City’s busiest lines for the most heavily traveled subways in North America.

Toronto’s existing subways are typical third rail powered rapid transit lines, with the exception of having a slightly wider track gauge of 4 feet, 10 7/8 inches. By contrast, the Ontario Line will be standard gauge, powered by overhead catenary, and be fully automated, with five-car trains operating at 90 second headways. The line will be in tunnel and on elevated structure, as well as at-grade sections running parallel to GO Transit lines east and west of downtown. Platform screen doors will also be installed.

The Ontario Line evolved from the proposed Downtown Relief Line project, which had been developed over the last decade as a way to relieve the busiest sections of Line 1 – the Yonge–University–Spadina Subway and Line 2 – the Bloor–Danforth Subway. At Bloor/Yonge Station, a key interchange station on Lines 1 and 2, it is projected that the Ontario Line will reduce overcrowding by up to 22 percent, or 14,000 fewer people, during the AM peak hour.



Map of the Ontario Line. Metrolinx

Furthermore, with connections to the GO Transit commuter rail system at two key locations on opposite sides of downtown Toronto, the Ontario Line will also reduce peak hour usage at Union Station by up to 14%. In fact, the Ontario

Line will offer transfer connections to 40 existing transit routes, including Lines 1, 2, and 5 (the soon to be opened Eglinton Crosstown Light Rail), along with trams, buses, and GO Transit. From west to east, the connections are as follows:

- Exhibition (Ontario Place) – transfer to GO Transit
- Osgoode – transfer to Line 1 Yonge–University–Spadina Subway
- Queen – transfer to Line 1 Yonge–University–Spadina Subway
- East Harbour – transfer to GO Transit
- Pape – transfer to Line 2 Bloor–Danforth Subway
- Science Center – transfer to Line 5 Eglinton Crosstown Light Rail (opening later this year)

The Ontario Line is sponsored by Metrolinx, the regional transportation authority for the Greater Toronto area, and the Ontario Provincial Government. Most likely it will be operated by the Toronto Transit Commission, the current operator of the subway and tram network, and will be fully integrated into the fare structure and wayfinding system. Construction is currently costed at \$11 Billion (Canadian) and the line is projected to be completed by 2030.

Currently, Line 3 designates the Scarborough Rapid Transit Line, a semi-automated, medium-capacity standard gauge railway utilizing linear induction propulsion technology, running mostly on an elevated guideway in the eastern part of the city. Opened in 1985, the Scarborough Line has not aged well and its technology is now life-expired, so plans are underway to replace the line with an extension of the Line 2 – the Bloor–Danforth Subway, for which construction started last year. It too is anticipated to open in 2030, and when it does, the intention is to reassign the Line 3 designation to the Ontario Line.

The Ontario Line represents the most significant expansion of the Toronto Subway since the initial openings of the Yonge–University–Spadina Subway in 1954 and the Bloor–Danforth Subway in 1966. With the Eglinton Crosstown Light Rail opening later this year and plans for additional extensions to Lines 1 and 2 being advanced, the next 10 to 15 years will be quite busy for transit development in Toronto.

RAILWAY AGE, MARCH 28

RAILWAY TRACK & STRUCTURES, MARCH 28

METROLINX – ONTARIO LINE PROJECT WEBSITE: <https://www.metrolinx.com/en/greaterregion/projects/ontario-line.aspx>

Eglinton Crosstown West Extension Tunneling Begins

Provincial, municipal and transit officials celebrated the start of tunneling of the Eglinton Crosstown West Extension on April 11. The 5.7-mile, seven-stop subway extension is one of four priority transit projects of the government of Ontario and will bring rapid transit to Etobicoke and Mississauga.

The extension will bring the Crosstown LRT further west from Mount Dennis to Renforth Drive with a further extension to Pearson International Airport being explored with the Greater Toronto Airports Authority. The Eglinton Crosstown

West Extension will offer connections to UP Express and Kitchener GO Train services, as well as GO Transit, Toronto Transit Commission and MiWay buses.

The more than 3.7 miles of twin tunnels are being dug by two tunnel boring machines (TBMs) that launched from a site near Renforth Drive and Eglinton Avenue West in Mississauga. The machines, named Renny and Rexy, will perform their work 65.6 feet below the surface and advance between 32.8 to 49.2 feet each day. The twin tunnels are expected to take 20 months to be bored.

As the TBMs cut through the ground, they will install tunnel liners to add structure to the tunnels. Metrolinx estimates the Eglinton Crosstown West Extension will require 7,400 concrete tunnel rings for the line's twin tunnels.

West End Connectors is performing the work and was awarded a contract in May 2021. The West End Connectors team includes developers and construction firms Aecon Infrastructure Management Inc., Dragados Canada Inc., Ghella Canada Ltd.; designers TYP SA Inc., EXP Services Inc.; and ACS Infrastructure Canada, Aecon Concessions, Scotiabank Capital, Ghella Investments & Partnerships handling the financial side of the project.



Map of the Eglinton Crosstown West Extension. Metrolinx

The scope of work includes the supply of the TBMs, installation of the tunnel liners, the design and construction of launch and extraction shafts, tunnels, as well as headwalls for emergency exit buildings and stations and activities necessary to build the tunnel, such as utility relocations, ventilation and drainage.

Once the TBMs reach Scarlett Road, they will be pulled from the ground and moved to a second launch site where

they will bore another stretch of tunnels for the project. A Request for Qualifications for the second tunnel package of the project was issued by Metrolinx and Infrastructure Ontario in December 2021.

MASS TRANSIT, APRIL 12

ONxpress Consortium Signs GO Expansion Deal

The long-awaited electrification of Toronto's GO Transit suburban rail network and its transformation into a 21st Century regional rail system took a significant step forward on April 19, when an agreement was signed between sponsor agency Infrastructure Ontario and ONxpress Transportation Partners, a consortium of engineering design consultants, construction contractors, rolling stock builders, and systems suppliers, including Aecon, FCC Construcción, Alstom, and Deutsche Bahn International Operations. The agreement kicks off a two-year development phase during which time the program's scope, costs, funding, and schedule will be finalized.

The core of GO Expansion includes the addition of 127 miles of track to the current 327 mile-long network, 426 miles of electrification, track and platform modifications at Union Station, new rolling stock maintenance facilities, the installation of European Rail Traffic Management System (ERTMS) for train control and signalling, improvement to grade crossings, with grade separations at select locations, along with miscellaneous structural and civil improvements.

The installation of ERTMS is noteworthy, being the first of its kind in North America. ERTMS is an all-encompassing system, with advanced cab signalling, train control, and traffic management in one package. For rolling stock, interestingly, the use of electric multiple units has been ruled out for now, so a fleet of electric locomotives will be procured to haul GO Transit's existing bi-level coaches. EMUs can be introduced in the future if demand warrants it and presumably when the coach fleet reaches the end of its useful life.

The development phase will be followed by a 25-year Design-Build-Operate-Maintain concession, with the province of Ontario retaining ownership of all assets, managed by regional transportation authority Metrolinx. Ultimately, the objective is to have a system on par with those found in London, Paris, Tokyo, and Sydney, with an all-day service featuring headways no more than 15 minutes on all lines, and a much more intensive service on the busiest lines. Prior to the pandemic, Toronto had the fourth busiest commuter rail system in North America, serving an average annual ridership over 72 million.

RAILWAY GAZETTE INTERNATIONAL, APRIL 20

WARSAWA (WARSAW)

New Metro Cars Arrive

The first of 37 trainsets being built for the Warszawa metro by Škoda Transportation was delivered to the capital on April 25, ahead of dynamic testing and certification which is

expected to be completed within three months.

Part-funded by the EU, the contract awarded in June 2018 covers the supply of 37 six-car trains, spare parts, a simulator, an extended guarantee and staff training. There are options for eight more sets, which would take the total value of the package to almost KC8 billion. Branded as Varsovia, the aluminium-bodied trains are formed of two Type 21Mt driving motor cars, two Type 22Mt powered intermediate cars and two unpowered trailers of Type 23t. The six-car sets are 387.8 feet long, with a design capacity for 1,500 passengers, including spaces for wheelchair users,

prams and bicycles. Taking power from a third rail at 750 V DC, the trains have a maximum speed of 60 mph.

According to Metro Warszawskie, 22 sets are intended to replace the original Metrovagonmash trains on Line M1, which date from the mid-1990s. The other 15 will augment the M2 fleet and facilitate more intensive services at 2½ minute headways. The optional eight would be ordered to further improve frequencies to a 2 minute headway if necessary.

METRO REPORT INTERNATIONAL, APRIL 27



First train of new Varsovia metro cars from Škoda Transportation at the Kabaty maintenance shop. Metro Warszawskie photo

Worldwide Metro and Tramway Openings in April

Date	Country	City	Segment	Distance (miles)	Metro/Tram
4/1	China	Hangzhou	Line 7 Citizen Center to Wushan Square	3.7	M
			Line 9 Coach Center to Guanyintang	7.5	M
4/2	India	Mumbai	Line 2A/7 Dhanukarwadi to Dahisar East to Aarey	11.4	M
4/9	Czech Republic	Praha	Line 5 Sídlíště Barrandov to Holyně	0.6	T
4/23	Poland	Poznań	Line 10 Lechicka/Naramowicka to Błażeja	1.1	T
4/25	Germany	Darmstadt	Line 2 Jahnstraße to TU-Lichtwiese	0.7	T
4/29	China	Fuzhou	Line 5 Ancient Luozhou Town to Jingxi Houyu	?	M
		Shaoxing	Line 1 China Textile City to Fangquan	?	M

URBAN RAIL NEWS WEBSITE, APRIL 30: <https://www.urbanrail.net/news.htm#nowopen>

Travels with Jack May

Britain and the Baltics-Part III

by Jack May (Photographs by the author)

Tuesday, August 15 (continued)

I took some photos at Starr Gate and then walked back to Pleasure Beach, stopping for a few additional views along the quiet, park-like, semi-elevated walkway located between the Promenade/trams and the beach/sea. Starr Gate Depot was built along the old loop in 2011 and now houses the modern tram fleet. Since they are double ended, service cars need not circumscribe the loop and instead reverse after the double track morphs into the single track carhouse lead. The huge Rigby Road Depot from 1935 is still extant, and now houses the heritage fleet, including all the Balloon trams. It is accessible via street trackage via Lytham and Hopton Roads from the Promenade near the Manchester Square stop.



The rear of a Flexity near the Waterloo Road stop south of the Tower. The dunes and beach fronting the Irish Sea are shown on the left.

I then rode back three stops to Pleasure Beach, where I found that the next heritage departure from that point would be a boat tram. That would be perfect for this sunny and warm afternoon and I felt very lucky. I've ridden three of the four boats that have been preserved in the U. S. (two on the Market Street Railway in San Francisco and one each at the National Capital Trolley Museum in Colesville, Maryland and the Western Railroad Museum in Rio Vista, California), but this would be my first trip on one in its native habitat.

I rode back as far as the Tower, and then took photos in that neighborhood, which by the afternoon had become very busy with tourists and vacationers.

Finally, I rode a Flexity back to North Pier and walked to my hotel. I gathered my luggage and continued to Blackpool North station, a trip that I felt was much faster now that it was daytime without rain. I found a ticket vending machine, entered my credit card and the code I had received when I

made the purchase on the web, and out popped my ticket. One of the turnstiles accepted the credit card-sized form and I found my gate easily. I was a bit early, but unfortunately the officious personnel guarding the entryways would not allow me onto the platform for photos of various other trains until mine was called. The Northern DMU local, with open seating, left on time at 5:12 PM and made the 12-stop, 40-mile run in 85 minutes, arriving at Manchester Piccadilly on the advertised at 6:37 PM.



Further southward, the line passes "The Big One," a roller coaster built in 1953-54.



The Starr Gate terminal of Blackpool's tramway. A Bombardier Flexity has just discharged its passengers and will soon pull forward, change ends and return to the stop to pick up the passengers congregating on the northbound platform.

It was a short walk to the Ibis Styles, the equivalent of one stop on the tramway (Piccadilly Gardens). I had not been very lucky weather-wise on my two previous visits to Manchester,

as I encountered large amounts of rain, which, I was told, was not the least bit unusual for Britain's third largest city. Thus I was not surprised that weather was the theme of the unusual Ibis Styles-branded hotel. Upon passing through the front door, I saw its quirky art theme, with a blaze of umbrellas hanging from the entryway's ceiling. There was an attended table in this space, where I was welcomed and asked my name. It was keyed into a laptop, and almost immediately I was handed a plastic electronic room key. The hotel's lobby was but a few steps away through a second door, and it did not have a formal front desk either. However, there were computers on pedestals for the guests and a bar-lounge and restaurant that could not be missed. The elevators were just a few steps away. This hotel was certainly distinctive--in a pleasant manner--and it gave new meaning to the term, "modern." See <https://www.ontheluce.com/ibis-styles-manchester-review/> for a review. And the hotel's budget prices and all-inclusive buffet breakfast was certainly another plus.

Manchester and would also accompany me during the next few days to other tram venues in the area. After dropping my luggage in the room and freshening up, we met in the lobby and proceeded to Manchester's Chinatown, where we had some excellent food, drink and conversation. Both had been living in Croydon, a suburb of London (about 10 miles south) that is the home of London Tramlink (formerly Croydon Tramlink), the place where trams were re-introduced to Great Britain's capital in 2000. But Andrew, with whom I traveled previously in France, Spain and the Czech Republic, was now in the process of moving from this suburban home to Ledbury, a small village near Birmingham, so I was grateful that he was able to take a little time off from the trauma of settling in a new house to spend time with me (although I don't know the degree this was appreciated by his wife). Richard, who remains in Croydon, has many connections with Australia, and so we were quite busy talking about tram developments throughout dinner.



Another view of the Starr Gate terminal of Blackpool's tramway. This shows the start of the single-track access to the carhouse where trams turn back.

As I was walking to the elevator, I was greeted by Andrew Beech, who with Richard Horne (a railfan that I had not met before), would spend the next three nights here in

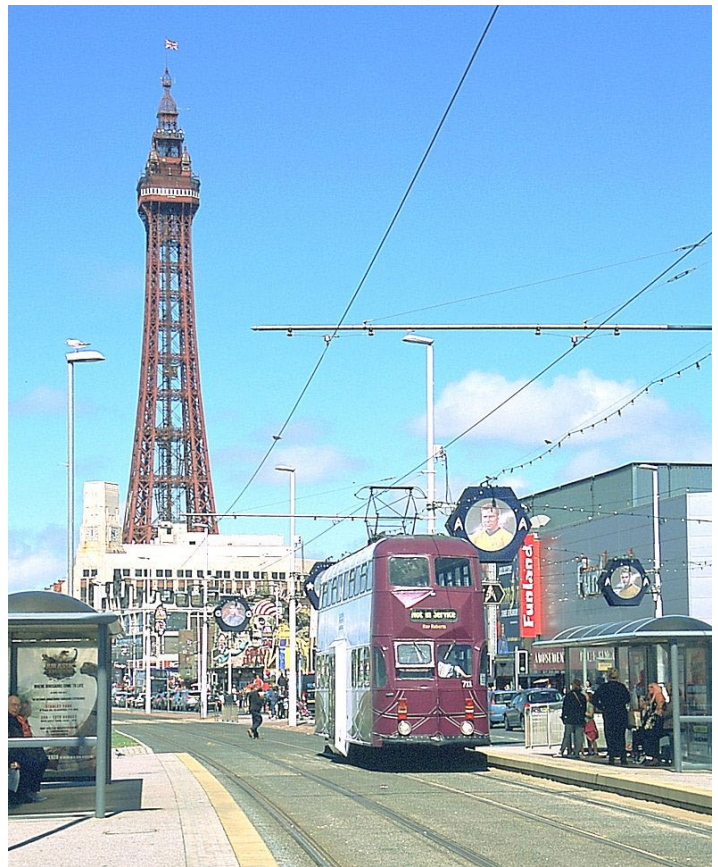
We would meet again for breakfast the following morning, which will be related in segment 4.



A view of an oncoming Flexity LRV paused at the St. Chad's Road stop, from alongside the boat tram's operator.



A southbound Flexity has just passed the Blackpool Tower, which was built in 1894. Inspired by the Eiffel Tower in Paris, it is 518 feet high, and contains an aquarium, circus and ballroom at its foot, and viewing platforms at its pinnacle, which are served by elevators (lifts). It is now called the Tower Eye.



A 1934-built Blackpool Balloon just south of the Tower. No. 711 is on the transit company's roster, and is one of nine painted purple that may be used to meet demand that cannot be fulfilled by LRVs on busy days. It was probably taken out for a test run.



At North Pier, featuring boat car 600. With most heritage trips terminating at the pier, a third track was installed to allow cars to lay over, out of the way of regular tram service. The War Memorial obelisk shown in the right view was built of granite in 1923.