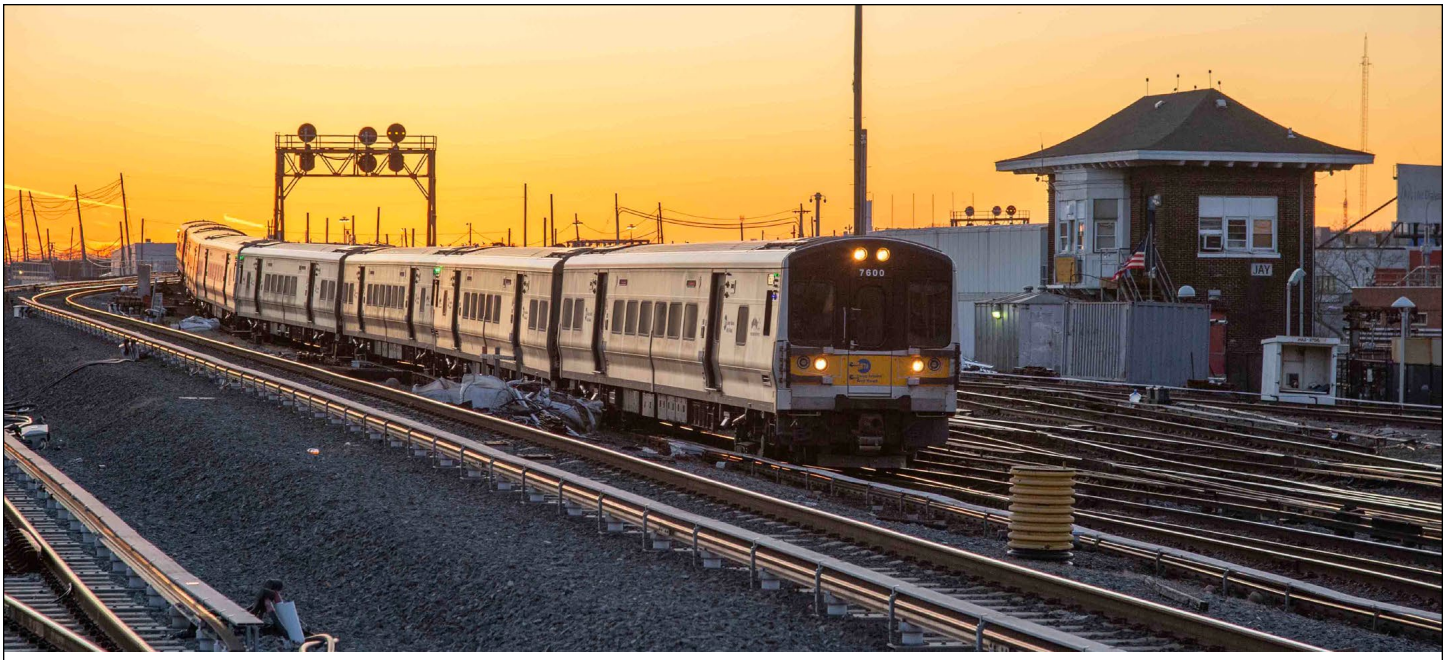

BULLETIN

Volume 66, Number 3 | March 2023

Full LIRR Schedule to Grand Central Begins

Monday, February 27 was the dawn of a new era on the Long Island Rail Road. After four and one half weeks of operating a shuttle service between Grand Central Madison and Jamaica that began on Wednesday, January 25, the full schedule of service was implemented.

The most dramatic change in the schedule was the reduction in direct service to Atlantic Terminal, Brooklyn. Most trips now shuttle between Brooklyn and Jamaica station, using Tracks 11 and 12 on either side of the recently-constructed Platform F.

(Platform F had been built as part of Phase I of the Jamaica Capacity Improvements project and was a "pre-requisite" for the current operation to Grand Central.)

Previously, there were trips from all of the electrified branches (except Port Washington, which does not pass through Jamaica) during the peak periods. During off-peak periods, service was provided from the Far Rockaway and Hempstead Branches, whose combined hourly services yielded a roughly half-hourly headway.

With the new schedule, all off-peak West Hempstead Branch trains now operate directly to Brooklyn. Most off-peak trains used to shuttle between West Hempstead and Valley Stream. In addition, West Hempstead's off-peak headway was more than doubled, from every two hours to every hour, seven days per week, and is now the best that branch has ever seen in its entire history.

In the peak periods, West Hempstead trains operate to Penn Station and Grand Central. Taking their place in that time period are trains from Hempstead and Freeport. These "extra" trips are as follows:

From/To	Lv JAM	Ar ATL	Lv ATL	Ar JAM
Hempstead	7:36 AM	7:55 AM		
Freeport	8:13 AM	8:33 AM		
"	9:18 AM	9:38 AM		
Hempstead			4:59 PM	5:20 PM
Freeport			6:12 PM	6:33 PM
"			7:24 PM	7:45 PM
"			7:50 PM	8:11 PM

Something else that changed with the new timetable was a reduction of maximum train length from 12 to 10 cars. Due to production delays at Kawasaki Rail Car, not all 202 of the M9 cars have been delivered, tested and placed into revenue service. As a result, a current car shortage is being met with the help of the 100 remaining M3s that were held in reserve.

After the first week of operation under the new schedule, adjustments started to be made. This was a result of overcrowding on some trains as well as complaints from the traveling public. We will cover this next month.

Electric Railroaders Association

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In This Issue

2023 Convention, July 6–11

For its 2023 Annual Convention, the Electric Railroaders Association returns to the dynamic Pacific Northwest, anchored by our two primary destinations: Portland and Seattle. For details, point your browser to https://www.erausa.org/conventions/2023/.

Cover Photo

Among all the "last runs" to be photographed before the start of full LIRR service to Grand Central, probably the most important one was this, train #1728 (Atlantic Terminal-Huntington), here with M7 7600 (Bombardier Transportation, 3/2006) in the lead. This was the only Brooklyn train that skipped Jamaica. It's eight minutes past sunset and the sky is still brilliantly lit as the train passes old Jay Tower, west of Jamaica station. Jeff Erlitz photo

Donations

The ERA Board of Directors express their deepest appreciation for these member donations in January 2023.

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Richard Aaron, Mark Douglas, Jeffrey Freed, Norman Gates, Brian Hager, Richard Kaplan, Herbert Lauterwald, David Miraglia, Bob Sandewicz, Joseph Yorio

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Monthly Zoom Meeting

Friday, March 17, 2023 at 7:30 PM.

Presenting This Month: Jeff Erlitz

Jeff (ERA #3997) will be presenting "European Trip 2022." Cities visited include Milan, Vienna and Berlin.

Milan still operates around 200 Peter Witt trams on several routes throughout the city. Examples from all six of the original builders of these cars, all dating from 1928-29, are operating today. While in Milan, Jeff also sampled the marine transport on Lakes Maggiore and Como which resulted in "multi-modal" tours on two days.

As many of our readers know, Vienna has one of the finest urban transport systems in the whole world. Even after the abandonment of many tramway lines due to subway construction over the years, there are still 28 lines operating throught the city. There is also an extensive suburban (S-Bahn) rail system and four subway (U-Bahn) lines, with a fifth currently under construction.

Berlin is another city with an extensive rail network, including tramways, subways and suburban rail. There are also three interurban tramway routes on the eastern

outskirts of the city.

A special highlight of his visit to Berlin was attending the biennial trade show known as InnoTrans. Exhibitors from all over the world showcase the latest innovations in rail transport, from long-distance travel to local urban transit. Taking place at the Berlin Messe, there are exhibits in all 28 buildings on the exhibition grounds and includes 2,834 exhibitors from 56 countries.

How to Join Our Zoom Meeting

A Zoom registration button will be posted on www.erausa.org about five days before Jeff's presentation. 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.

Worldwide Suburban Electric Railway, Metro and Tramway Openings in February 2023

Date	Country	City	Segment	Distance (miles)	Rail/ Metro/ Tram
2/4	China	Beijing	Changping Line Qinghe – Xitucheng	6.0	M
2/8	Iran	Shiraz	Line 2: Emam Hossein to Qahremanan	n/a	M
2/10	Taiwan	Taipei	Ankeng Line: Shisizhang to Shuangcheng	4.8	T
2/18	Algeria	Mostagenem	T1: Karouba to La Salamandre T2: Gare de Mostaganemto to Nouvelle Gare Routière	8.7	T
2/27	China	Chongqing	Line 5: The Expo Garden Center to Yuegangbeilu	5.6	M
"	Iran	Karaj	Line 2: Chehel-o-panj Metri Golshahr to Ayatallah Taleqani	3.4	M

URBAN RAIL NEWS, FEBRUARY 28

Rail News in Review

New York Metropolitan Area

NEW YORK CITY TRANSIT (NYCT)

First Customer Service Centers Open

The first-ever dedicated Customer Service Center in the subway system opened at the Coney Island-Stillwell Av D F N Q station, which includes an agent window with OMNY functionality, digital monitors displaying service status updates, MetroCard vending machines, and online kiosks for riders to access MTA websites. Coney Island-Stillwell Av is one of three Customer Service Centers that opened on February 7, along with Atlantic Av-Barclays Center 2 3 B D N R and 161 St-Yankee Stadium 4 B D. Twelve additional Customer Service Centers in all five boroughs will be opening over the course of 2023.

The MTA and Transport Workers Union (TWU) Local 100 announced the Customer Service Centers in December. The Customer Service Center model builds on the announcement from the Authority and the TWU of the enhanced station agent role, with station agents supporting passengers' needs outside of the booth.

Customer Service Centers will be staffed by station agents as part of the enhanced role and located within the physical premises of subway stations, either through new build-out spaces or repurposed station booths. These centers will provide services historically provided exclusively at 3 Stone Street in Lower Manhattan. The centers will be comprised of those repurposed booths and new retail outlets and feature enhanced accessibility, OMNY technology, and a dedicated, more welcoming visual presentation for riders through new lighting, branded wrapping, and canopies.

The new Customer Service Center in Fare Control Area R160 at Atlantic Avenue-Barclays Center on February 8, 2023 Jeff Erlitz photo

Station agents working at Customer Service Centers will be able to assist riders with switching to OMNY, including Reduced-Fare riders, and soon, will provide applications for the Reduced-Fare program. Additionally, the Centers will provide information about how to submit complaints, receive updates and information on travel delays, and act as a

resource to assist with wayfinding through the transit system. Agents at the centers will receive dedicated training on OMNY equipment as well as dedicated customer service functions that will be provided at these locations, which will be staffed by station agents 24 hours a day, seven days a week.

Following the first three Centers opening in February, additional centers will later this year at the following stations:

- St. George: SIR
- 34 St-Penn Station: 1 2 3
- Flushing-Main St: 7
- Fulton St: 2 3 4 5 A C J Z
- Myrtle-Wyckoff Avs: L M
- 74 St-Jackson Heights-Roosevelt Av: 7 E F M R
- E 180 St: 2 5
- 125 St: 4 5 6
- Fordham Rd: 4
- Times Square-42 St: 1 2 3 7 N Q R W S
- Sutphin Blvd-Archer Av-JFK Airport: E J Z
- 168 St: 1 A C

MTA PRESS RELEASE, February 7

ADA Improvements at 14 St 2 3 F M/6 Av L

Construction has begun that will make the existing pedestrian passageway that connects Sixth and Seventh Avenues at 14th Street accessible. A new ramp will be added to the west end of the pedestrian passageway, which connects subway riders to the 14 St 1 2 3 and 14 St F M and 6 Av L stations. Crews will also install new lighting and ceramic wall tiles. Once work is completed, the tunnel will be compliant with the Americans with Disabilities Act (ADA).

To safely accommodate the work taking place, the passageway was closed Monday, February 27, and is anticipated to reopen in December 2023. During the time the passageway is closed riders will be able to utilize a free out-of-system transfer between the two stations via OMNY or MetroCard.

The work on the passageway is part of a larger accessibility project taking place at the 14 St station complex. When the entire project is complete all three stations will be fully accessible with newly installed elevators, refurbished staircases, mezzanines and platforms.

Once work is completed, riders will see the following improvements:

14 St 1 2 3

- Two mezzanine-level elevators, with one to the northbound platform and the other to the southbound platform;
- One street-level elevator stopping at the mezzanine level;
- One new staircase and refurbished staircases, mezzanine and platforms.

6 Av L/14th St F M

- Two street-level elevators located at 14th St northeast and northwest corners stopping at the mezzanine level where riders can access platforms;
- Two mezzanine level elevators for riders seeking to access the platforms.

MTA PRESS RELEASE, February 14

Station Renovation and ADA Work on the BMT Jamaica Line

Beginning on February 27, planned station renovations and improvements at Cypress Hills J, 75 St-Elderts Ln J Z and 85 St-Forest Pkwy J in Brooklyn and Queens began. The three elevated stations will receive critical state of good repair work, as well as improvements to enhance accessibility and passenger safety. The renovations will occur in phases to minimize service impacts and have an estimated completion in the third quarter of 2025.

Queens-bound trains started bypassing 75 St-Elderts Ln beginning on Monday, February 27. Work will begin on the Manhattan-bound platform in the late summer of 2023. Work at 85 St-Forest Pkwy will start on the Queens-bound side in the late winter of 2024, and in the summer of 2024 on the Manhattan-bound platform.

This work is being coordinated with the installation of ADA elevators at Woodhaven Blvd J Z, with trains skipping that station in the same direction also starting on February 27.

The station renovation will bring several improvements to the three stations. Stations will have renewed platforms, structural repairs to the mezzanine levels, and extended canopies over stairs, providing better weather protection. Windscreens will be upgraded and will include laminated glass artwork installed by MTA Arts & Design.

Upgrades will also include rehabilitating platform components, such as installation of detectable warning strips at platform edges and minimizing gaps between trains and platforms.

Riders will receive notification about the renovations and related service impacts well in advance in and around stations through multilingual signage.

For the duration of this project J and Z trains will make all stops between Jamaica Center-Parsons/Archer and Crescent St, except for stations which are being bypassed for this construction. Riders whose station is skipped, can exit the train at the following stop and back-ride to their desired station.

Protective shielding will be constructed while work is performed. In addition, there are environmental mitigation plans to address public and safety concerns. Typical work hours for the project will be Monday to Friday from 6:30 AM to 4:00 PM.

MTA PRESS RELEASE, February 17

Extended Track Outage on IND Eighth Avenue Line

For a little over nine days, from Friday evening, February 17 to Monday morning, February 27, southbound local Track A1, from south of 59 St-Columbus Circle to West 4th St and southbound Track D3 from south of 5 Av to south of 50 St, were out of service continuously for CBTC and switch work.

During that time, there were several service changes:

- Southbound A service (nights) operated express from 59 St to Canal St;
- Southbound C service (weekdays) operated express from 145 St to Canal St;
- Southbound C service (weekends) operated express from

59 St to Canal St;
- Southbound D service (weekdays and weeknights) operated local from 145 St to 59 St;
- Southbound E service operated via Sixth Avenue from 5 Av to W 4 St;
- Selected F trains were rerouted via 53rd St during AM and PM rush hours;
- Weekdays, the M train was rerouted from Forest Hills to Chambers St, its former routing up to June of 2010 when the V train was discontinued.

LONG ISLAND RAIL ROAD (LIRR)

Garden City Bridge Work

Starting on the weekend of March 4-5 and continuing for four more weekends, the LIRR's Hempstead Branch will be shut down between Floral Park and Hempstead to enable bridge replacement work at the Cherry Valley Avenue undergrade bridge, about 500 feet west of the west end of the Garden City station.

According to LIRR historian Robert Emery, the abutments for this bridge date to 1871. However, he notes that the girders on the south side of the bridge, today's Track 2 and which was the original single track, date from 1906. That is the year the Hempstead Branch was electrified. The girders on the north side of the bridge, today's Track 1, date from 1918 when the line was double-tracked.

Looking north at the existing bridge over Cherry Valley Avenue in Garden City on the Hempstead Branch on March 1. Jeff Erlitz photo

The current bridge is about 85 feet long and spans four traffic lanes and a sidewalk on the west side of the street. Emery does not mention when the bridge was widened from its original construction in 1871. I suspect this was done in 1906, with the electrification.

During the first four weekends the existing bridge will be jacked up about one foot per weekend, along with the tracks on it. This will be interesting as there is only about 375 feet from the east end of the bridge to the Cathedral Avenue grade crossing at the west end of the station.

On the fifth weekend, the existing bridge will be cut away and the newly-constructed replacement bridge will be rolled into position, similar to the way the bridge replacements were done for the Main Line Third Track project.

The new bridge has been assembled and is located just south of the right-of-way and just east of Cherry Valley Avenue. This is looking northwest. Jeff Erlitz photo

During these weekends, eastbound Hempstead trains will discharge passengers at Floral Park. They will then proceed east to Park 2 Interlocking (built during the Main Line Third Track project) to change direction for the westbound trip. Riders continuing on to the Hempstead Branch will, interestingly, transfer to and from connecting buses at the Bellerose station and not Floral Park.

METRO-NORTH RAILROAD (MNR)

Collision at New Canaan

A Metro-North Railroad train crashed through the bumping block at the end of the New Canaan branch line on February 14.

It wasn't immediately clear whether anyone was injured in the crash, which occurred at about 7:24 AM, according to a fire dispatch notice. There were no passengers on board at the time, however.

It also isn't clear what caused the crash, what is the extent of the damage or how long New Canaan is expected to lose service. Metro-North Railroad said when reached by the New Canaanite that the incident is under investigation and there's no further information available at this time. Traffic slowed to a halt at the busy commuter intersection, with police directing motor vehicle and pedestrian traffic around the scene. The train crashed through the wooden fence at the corner of Park and Elm, used by New Canaan organizations to advertise local events, throwing up bricks and debris onto the sidewalk, including what appeared to be a piece of steel rail. Eyewitnesses described hearing a loud rattling noise during the crash.

M8 9436, on the east end of train #1731, at New Canaan on the morning of February 14. Carl Franco photo

(Editor's note: The consist of the train was W 9215-9214+ 9462+9437-9436 E. The east pair, 9437-9438, were then shopped at Stamford to see if repairs were necessary. Train #1731 was being shifted from Track 2, a yard track adjacent to the station, to Track 1, the platform track, when it hit the bumping block.)
NEWCANAANITE, February 14

NJ TRANSIT (NJT)

Gateway Tunnel Progress

The Hudson Tunnel Project, a key part of the Gateway Program, received a significant funding commitment from the federal government with a $292.17 million grant awarded to Amtrak through the National Infrastructure Project Assistance (Mega) Grant Program.

Many elected officials were on hand to mark the funding award at Hudson Yards in New York.

The Mega grant will help fund the Hudson Yards Concrete Casing, Section 3, a key component of the Hudson River Tunnel project which is part of the overall Gateway Program. The project will build the third and final section of concrete casing intended to preserve future right-of-way for the new Hudson River Tunnel and lay the groundwork for the Gateway Project.

The entire Hudson Tunnel Project carries an estimated cost of more than $16 billion and includes two components: The construction of a two-track Hudson River rail tunnel between New Jersey and Manhattan and rehabilitation of the existing North River Tunnels, which sustained significant damage during Superstorm Sandy. The existing North River Tunnels are the sole passenger rail connection between Manhattan, New Jersey and the Northeast Corridor.

The funding for Amtrak is one of nine Mega grants that were awarded a combined $1.2 billion, including more than $517 million that will benefit passenger rail and transit projects.
MASS TRANSIT, February 1

Newark Penn Station To Get Air Conditioning Upgrades

NJT is taking steps toward enhancing Newark Penn Station by making key upgrades to the station's air conditioning system. NJT's Board of Directors has approved a contract to replace two chillers and two cooling towers, which will provide reliable cooling for the foreseeable future. Chillers at this station provide air conditioning for all interior spaces, including electrical equipment rooms necessary for station operations.

The contract was awarded to John O'Hara Company Inc. of East Orange, New Jersey to provide construction services for the project in the amount of $4,620,756.32, plus five percent for contingencies, subject to the availability of funds.

Newark Penn Station was constructed in 1935. As the structure of the station has aged, so have the mechanical systems that provide a comfortable commute for passengers. The current units, each with a 150-ton refrigeration capacity, have been in service for nearly 30 years and have reached the end of their useful life. For the past seven years, the necessary maintenance of the existing HVAC system has increased while the replacement parts needed for repair have become more difficult to acquire.

In 2020, $190 million was allocated for renovations and upgrades at historic Newark Penn Station as part of a larger reimagining of the facility to provide passengers with a 21st century experience while maintaining the station's historic grandeur. The work began immediately with $30 million in renovations and restorations, with additional upgrades scheduled over the coming years totaling $160 million.
NJ TRANSIT PRESS RELEASE, February 8

Other U.S. Systems

ATLANTA

Streetcars Repaired

Four Metropolitan Atlanta Rapid Transit Authority (MARTA) streetcar vehicles have been repaired and will be back on the streets of downtown Atlanta for testing on February 28 and anticipated to be used for service on March 2. Additional streetcar vehicles will return to service as they are repaired.

MARTA removed the streetcar vehicles from service on November 29 last year after engineers discovered wheel degradation that could pose a safety risk. The wheels on the first streetcar have been replaced and wheels on the other three vehicles will be replaced in the coming weeks.

MARTA shuttle vans, wrapped to look like the streetcar, will continue servicing the route as the streetcar vehicles return to service.

The cost of the replacement wheels is approximately $400,000 and being paid through MARTA's capital budget.
MASS TRANSIT, February 24

Atlanta Streetcar S70 1001 (Siemens, 2013) is turning off of Jackson Street and onto Auburn Avenue in this view southeast on January 6, 2015. Wikimedia Commons photo

BOSTON

Feds probing Pennsylvania contract with MBTA's Chinese contractor

The U.S. Department of Transportation is investigating whether CRRC, the Chinese company manufacturing and assembling new subway cars for the MBTA, complied with federal requirements.

The inspector general's office of DOT announced Friday that it was launching an audit of Chinese-state-owned CRRC MA's $138 million contract with the Southeastern Pennsylvania Transportation Authority, for 45 new passenger rail cars.

USDOT launched the probe based on concerns raised by three then-ranking members of the House Transportation and Infrastructure Committee last year, who, citing a Philadelphia Inquirer article, stated that the rail cars appeared to be built almost completely in China before being shipped to Springfield for final assembly.

They were concerned whether CRRC MA had met the Buy America requirements over the course of the contract so far, and whether CRRC MA will be able to meet those requirements as the contract progresses, the lawmakers wrote to Inspector General Eric Soskin in September 2022.

According to the FTA's Buy America requirements, the cost of the components and subcomponents for rolling stock produced in the United States must total more than 60% for fiscal years 2016 and 2017, more than 65% for FY18 and FY19, and more than 70% for FY20 and beyond, the letter stated.

The lawmakers wrote that in addition to the components and subcomponents requirement, final assembly for rolling stock must occur in the United States and that CRRC has claimed that it sources 70% of the total cost of railcar components from manufacturers in the United States. That claim has been echoed by press affiliated with Chinese state media. However, a recent report by the Philadelphia Inquirer gives reason to speculate about the accuracy of that claim.

The letter also references Congress' concern with CRRC MA securing more than $2.6 billion in U.S. transit contracts to provide train cars for the cities of Philadelphia, Boston, Chicago and Los Angeles.

This resulted in Congress passing a provision in the National Defense Authorization Act of 2019, which banned mass transit agencies from using federal funds for the purchase of rail cars and buses from Chinese-owned companies.

Although CRRC MA was grandfathered in and allowed to continue doing business with its existing U.S. contracts, the lawmakers stated SEPTA and the company must still comply with FTA's Buy America requirements.

Carolyn Hicks, assistant inspector general for acquisition and procurement audits, wrote in a memo that the audit, which will begin very soon, will examine FTA's oversight of SEPTA's certification of CRRC MA's adherence to Buy America requirements for rolling stock.

MBTA's Orange Line cars in various states of assembly are viewed at CRRC's factory in Springfield, Mass. on December 18, 2018. Christopher Evans/Boston Herald photo

It will also examine SEPTA's calculation of the total value of foreign components for the purpose of determining compliance with FTA's Buy America rolling stock requirements.

A CRRC MA spokesperson said the company is fully aware of Buy America provisions and complies with the requirements.

The MBTA's contract with CRRC MA has been plagued with difficulties, including missed deadlines and manufacturing defects that prompted the T to halt delivery of new Orange and Red Line cars entirely last July.

The T started taking delivery again this month, with four new cars brought to the agency from the Springfield factory over the past two weeks.

However, it wasn't all smooth sailing, as the final car fell off a tractor-trailer hired by CRRC MA on I-495 the last week in Februaryt, snarling traffic for more than a day.

BOSTON HERALD, February 24

CHICAGO

Racine Blue Line Station Improvements

A 65-year-old station on Chicago Transit Authority's (CTA) Blue Line will undergo accessibility upgrades as part of the authority's All Stations Accessibility Program (ASAP).

Racine station on CTA's Blue Line. Jeff Zoline/StreetsBlogChicago photo

The Chicago Transit Board approved a $75.4 million contract to FH Paschen, S.N. Nielsen & Associates, LLC, to renovate the Racine Blue Line station, which was built in 1958, to make the rail station fully accessible.

The work is being funded through the state's Rebuild Illinois Capital Plan and involves full reconstruction of the main stationhouse to include a new elevator, upgrades to the Loomis Street auxiliary entrance/exit, a new ADA accessible ramp from the stationhouse to the platform, new stairs and an extension of the platform.

Upon project completion, the Racine station will have clearly defined accessible pathways to and from train platforms, bus stops and other major modal transfer points. All features along the pathway, such as fare arrays, shelters, benches and passenger information, will be redesigned to remove barriers and allow for universal accessibility.

Paschen will also make improvements to the traction power system, which CTA explains will help improve the reliability of services on the Blue Line. This work includes a new power substation at Morgan Street, replacement of equipment at the existing Hermitage substation and other electrical work.

CTA says details regarding the timeline of project work, including start and completion dates, will be announced at a future date.

The Racine station is the ninth rail station CTA has either funded, under design or construction as part of its ASAP Strategic Plan, which was introduced in 2018. More than 70 percent of CTA's 145 rail stations are ADA accessible with a goal of having 100 percent of its stations full accessible by 2038.
MASS TRANSIT, February 13

Blue Line O'Hare Branch Track Work

The Chicago Transit Authority (CTA) will replace critical Blue Line track components on the O'Hare branch. The work will impact weekend service beginning late February through May and will help provide better service on one of the highest-ridership branches of the 'L' system and ensure the branch can meet increasing ridership demand.

Crews will replace the 50-year-old Belmont crossover that was built with the original Kimball Subway portion of the Blue Line in 1970. Due to deterioration from decades of use, repairs are no longer an option and full replacement of this crossover is necessary.

To minimize service disruptions for riders, work will be limited to weekends, starting February 24-27, with up to eight other weekends planned through late May. Work will be primarily done between the hours of 10 PM on Friday nights and 4 AM Monday mornings, weather permitting.

The Belmont, Logan Square and California stations will be closed the weekend of February 24-27. To accommodate riders impacted by project work, bus shuttles will replace Blue Line service and operate between the fully accessible Addison and Western stations on the O'Hare branch. The bus shuttles will serve all the affected stations and connect riders to an open station for access to the Blue Line.

In future weekends, Belmont, Logan Square and California stations may be entirely or partially closed. During full closures, bus shuttles will be provided to accommodate riders.

Project work will also require the temporary relocation of select bus stops within the project area where crews are staging equipment for project work.
MASS TRANSIT, February 21

HONOLULU

Metro Expected to Open This Summer

Honolulu Authority for Rapid Transportation (HART) expects to open the first section of the city's much-delayed metro within the next six months, although no official opening date has been set for the initial 10.9-mile section from East Kapolei to central Honolulu.

Interim revenue service had been expected to start in mid-2017, but was later postponed to August 2022.

The authority is now aiming to enter the system demonstration phase within the next few weeks, which would run for a period of 45 to 60 days. Public service would then start within the next few months.

The HART Board was told that the earliest the metro could open to the public would be around June or July.

Opening of the first section has been delayed many times in recent years as HART has tackled construction issues and cost concerns on the $10 billion project to build an 18.9-mile metro line with 21 stations from East Kapolei to Alana Moana Center.

On the initial 10.9-mile section to the west of the city center, test runs have been underway since August 2022 as work continues to repair cracks in concrete piers supporting the

elevated stations.

The complete network, including the final 8.0-mile section through the center of Honolulu to Alana Moana Center, is now expected to open in spring of 2031.

As part of a recovery plan agreed with the U.S. Federal Transit Administration (FTA), HART and the City and County of Honolulu have reduced the scope of the project as defined by the original federal Full Funding Grant Agreement.

This has included postponing construction of the final 1.2 miles of elevated alignment from Civic Center to Kakaʻako and Ala Moana Center, which will now be undertaken as a separate phase of the project.

Meanwhile, HART held an information session on February 28 for potential bidders for a contract to design and build 3.5 miles of elevated alignment and six stations on the section running from east of Middle Street-Kalihi Transit Center station to Civic Center.

HART is expecting to issue Part 1 of the Request for Proposals (RFP) next month, with Part 2 to be released immediately after shortlisting is completed this summer. The contract would then be awarded by March 2024.

According to the City of Honolulu's rail recovery plan agreed last year, operating and maintaining the metro system will cost $103 million in the financial year which starts on July 1. This is less than 50% of the $264 million cost of operating the city's bus network over the same period.
INTERNATIONAL RAILWAY JOURNAL, February 24

LOS ANGELES

30th Anniversary of the Red Line

The Los Angeles County Metropolitan Transportation Authority (L.A. Metro) celebrated the 30th anniversary of the B (Red) Line. On an average weekday, L.A. Metro says the B Line has about 75,000 boardings. Together with the D (Purple) Line, which shares some of the same track, the B Line has seen more than 400 million boardings over the past decade.

Before the first 4.4-mile segment of the Red Line debuted on January 30, 1993 between Union Station and Westlake/MacArthur Park, the idea of underground rail in Los Angeles concerned the public. There had never been a modern subway in Los Angeles before.

The leaders of L.A. Metro's predecessors, the Southern California Rapid Transit District (SCRTD) and the Los Angeles County Transportation Commission were determined to assuage the public's concerns. They put out informational videos, demonstrating how the new system would work for millions of would-be riders. Safety from natural disasters was a top priority, and the engineers had planned for everything, including seismically-reinforced tunnels, fire-resistant vehicles and emergency sprinklers.

To drum up excitement for the new subway, SCRTD initiated a public art element. Officials dedicated .05 percent of the capital project budget for public artworks in each station. This was considered a huge sum at the time. Each station was envisioned as an underground gallery that channeled a unique sense of place (such as Stephen Antonakos' 12 neon sculptures that paid homage to the first neon-illuminated building in Pershing Square, or Roberto Gil de Montes's allegorical triptych describing the descent underground at the 7th St./L.A. Metro Center Station). Art was also regarded as a social salve that could discourage litter and vandalism.

Original rendering of Los Angeles Red Line. LAMTA

It took 6.5 years to complete the first segment of the Red Line, which cost $330 million per mile, but for many Angelenos, it was worth the wait. More than 52,800 people rode on the first day. Over 91,000 people rode it on the second day. By April 1, 1993, the Red Line had welcomed its millionth passenger.

"For now, the novelty of the Red Line seems to have created a jovial atmosphere," the Los Angeles Times reported in February 1993, nearly a month after the Red Line opened. "Unlike the New York City subway, where people were accustomed to avoiding eye contact, Angeleno riders are still intrigued enough by their new surroundings they have yet to develop the surly exterior of commuters whose only concern is to get quickly from here to there."

When the Red Line debuted, keeping the sleek Italian-made subway cars clean and pristine was all-important. If riders didn't feel comfortable descending into the stations, LA's bet on rail would be worthless. Therefore, L.A. Metro invested in an ambitious cleaning campaign, preparing for the worst. Despite their concerns, however, there was little to clean, especially during those first months.

Thirty years later, the Red Line is now officially known as the B Line and continues beyond MacArthur Park. By 2000, it had been extended all the way to North Hollywood. There have been new challenges, including the COVID-19 pandemic and the increase in L.A. Metro's region's unhoused population.

The Red Line introduced a new mode of transportation to a city designed for driving. It was proof of concept that local rail can work in Los Angeles, in spite of claims that it couldn't be done. It was a critical step toward the brighter, fairer and cleaner future.
MASS TRANSIT, February 6

PHILADELPHIA

King of Prussia Rail Final Design Awarded

SEPTA awarded a consultant contract to HNTB Corporation for the final design phase of the King of Prussia Rail (KOP Rail) Project.

This marks another major milestone for the project, which will extend the existing Norristown High Speed Line (NHSL) four miles into King of Prussia, providing a "one-seat" ride from any station along the NHSL, including 69th Street Transportation Center in Upper Darby and Norristown Transportation Center.

The total contract amount for Basic Design and Construction Documentation (Phase A) and Construction Related Services (Phase B) is $124,999,678.

The contract with HNTB will progress the engineering and architectural design from 30% to final design, which is required for the project to be eligible for Federal Transit Administration New Starts Capital Investment Grant funding.

SEPTA's Fiscal Year 2023 Capital Budget commits $390 million to advance KOP Rail, and the Authority will seek a Capital Investment Grant to support up to 60% of the total project cost.

Construction is expected to begin in 2025 if full funding is secured.

SEPTA PRESS RELEASE, February 23

New Trolleys

SEPTA awarded a contract to Alstom Transportation Inc. for the purchase of modern, fully ADA-compliant trolley vehicles to replace the Authority's entire aging fleet of trolleys. This represents a major step forward for Trolley Modernization—SEPTA's program to transform the nation's largest trolley network into an accessible, fast, and easy-to-use system.

Rendering of SEPTA's new low-floor trolley. Alstom

Trolley Modernization is a core component of SEPTA Forward, the Authority's Strategic Plan, to create a "lifestyle transit network"—a transit system that can be easily used for any type of trip, not just traditional 9-to-5 commutes to work.

Under the contract, SEPTA will receive 130 trolleys, with the option to order up to 30 additional vehicles. The total contract amount for the base order is $714,239,455. Delivery of the new trolleys is scheduled to begin in 2027 with full fleet delivery by the end of 2030.

The new trolleys will be longer and have higher capacity to move more passengers. The fleet will feature low floors and ramps; wider pathways; audio and visual messaging systems to communicate upcoming stops and service changes; and designated open space for wheelchairs, walkers, strollers, and bicycles.

Together, SEPTA's eight trolley lines run for 68 miles and connect communities in West Philadelphia, Southwest Philadelphia, North Philadelphia, and Delaware County directly with the region's two largest employment and health-care centers, Center City and University City. The current Kawasaki vehicles have served riders since the early 1980s.

SEPTA is building on-street stations to serve the new trolleys and rebuilding underground stations to be fully accessible. The Authority is also making significant operational and infrastructure improvements and extending some trolley lines to key locations to make connections to other SEPTA services easier. SEPTA is working on new and improved maintenance facilities to serve the new fleet.

Funding for Trolley Modernization comes from SEPTA's Fiscal Year 2023 Capital Budget and 12-Year Program.

SEPTA PRESS RELEASE, February 23

TAMPA

Streetcar Reaches All Time Ridership High

The Tampa Electric Company (TECO) Streetcar received a late holiday gift, with data showing it surpassed its monthly ridership record in December 2022 with 118,575 trips, which is the highest monthly ridership in more than 20 years.

TECO 430 (Gomaco , 2001) at the Centro Ybor stop East 8th Avenue on March 1, 2005. Wikimedia Commons photo

The TECO Line Streetcar has broken several ridership records over the past year with the previous monthly record achieved in March 2022 with 107,956 trips reported. The streetcar service also ended Fiscal Year 2022 (October 2021 - September 31, 2022) with all-time annual ridership of more than a million trips taken.

The record ridership is attributed to population growth along the streetcar line, visitors in town for events such as the ReliaQuest Bowl and an overall return in Hillsborough County tourism.

MASS TRANSIT, February 6

WASHINGTON, D.C.

Blue, Orange and Blue Plus Service Increased

The Washington Metropolitan Area Transit Authority (WMATA) is adding mid-week service for riders who use the Blue, Orange and Blue Plus lines during the morning and evening rush hour periods. Service on the three lines will increase to every 12 minutes instead of 15 minutes from 6-9 AM and 3-6 PM on Tuesday, Wednesday and Thursday. In the heart of the system, between Rosslyn and Stadium-Armory where the lines merge, trains will arrive at stations every four minutes.

The service improvements are focused on the middle of the week, where ridership is growing the most. As ridership has evolved post-pandemic, peak period demand is increasing with the heaviest ridership concentrated on Tuesday, Wednesday and Thursday. The improvements come as WMATA continues to return more 7000-series trains, increasing the number of daily trains in service by more than 40 percent since July.

MASS TRANSIT, February 8

Red Line Service Increased

More trains have been added to Red Line service. Trains will operate every eight minutes all day on Tuesdays, Wednesdays and Thursdays, which have become WMATA's highest ridership days as the region recovers from the pandemic.

WMATA 3217 (Breda, 1987) approaching Grosvenor-Strathmore station on the Red Line, June 8, 2005. Ben Schumin photo

On Mondays and Fridays, Red Line trains will continue to operate every eight minutes during the morning and evening rush and every 10 minutes at all other times until 9 PM

The service increase builds on improvements made earlier this month that gave riders on the Blue, Orange and Blue Plus lines more midweek service. The combined improvements provide riders with better, more frequent service throughout the system, with 70 percent of all mid-week rush hour trips served by a train every eight minutes or less.

As WMATA gradually returns more 7000-series trains to service, efforts are also underway to hire and train more rail operators to fill a shortage caused by the pandemic. This will allow WMATA to continue to add more trains and improve service for riders across all lines.

MASS TRANSIT, February 21

International

BERN

TramLink Tram Delivered

The first of 27 Stadler Tramlink trams ordered by Bern operator Bernmobil was delivered for testing on February 1. Entry into service is planned for late summer.

A framework contract signed between the two parties in September 2019 covers the supply of up to 50 trams, with a SFr125 million firm order for an initial 27 to be delivered by mid-2025, along with spare parts.

The order includes 20 bidirectional vehicles with 52 seats and six doors per side, and seven unidirectional trams with 68 seats and seven doors per side.

The 100% low-floor trams will be 139 feet long, with wooden seats throughout, retractable steps for accessible boarding and a collision avoidance system to assist the driver. The trams will replace 12 Vevey and nine RBS cars that are approaching the end of their service life, and expand the fleet to support an increase in services on Route 9 and an extension from Wabern to an S-Bahn interchange at Kleinwabern.

METRO REPORT INTERNATIONAL, February 13

BONN

Škoda Tram Delivered

The first of 28 Škoda Group 41T ForCity Smart trams for Bonn was delivered to Beuel depot on the morning of February 1, having left the factory in Plzeň on a heavy-duty road transporter at 9 PM on January 30.

Entry into service is planned for this summer, following testing and driver and depot staff training.

The framework contract placed in December 2019 covers up to 38 ForCity Smart trams worth up to KC4 billion.

The three-section low-floor bidirectional tram is 98 feet long with a capacity of 180 passengers and two

multi-function spaces.
METRO REPORT INTERNATIONAL, February 9

41T 2252 (Škoda, 1/2023) as it was being delivered to Stadtwerker Bonn's Beuel depot. SWB photo

CZECH REPUBLIC

RegioJet Orders New Locomotives

RegioJet has ordered a further 13 Traxx MS3 locomotives from Alstom. This third-generation model is designed for use on electrified networks and equipped with ETCS Level 2.

The latest Traxx locomotive delivers increased operational performance and reliability, and when compared to earlier versions, comes with a higher energy efficiency.

In addition, maintenance intervals have been extended by 33% to improve availability and reduce maintenance effort.

RegioJet currently has a fleet of 22 multi-system locomotives, 18 of which are Traxx models.

Alstom and RegioJet signed an agreement for the supply of another 13 Traxx MS3 locomotives. Alstom photo

The new additions will be used for domestic and cross-border journeys on electrified networks in Austria, the Czech Republic, Germany, Hungary, Poland and Slovakia, and will also be equipped with the conventional signaling systems for these countries.

The locomotives are being manufactured at Alstom's Kassel site in Germany. The trucks are provided by the Siegen site, also in Germany, while the body structures are being manufactured in Wrocław, Poland.

Delivery is expected to begin next year.
RAILWAY-NEWS, February 10

FRANCE

TGV-M Testing Begins

Pre-validation tests are currently underway on the first TGV-M test train at Alstom's Velim site in the Czech Republic.

These are part of a comprehensive test program that consists of static and quasi-static testing, pre-validation testing, admission and endurance tests.

At the end of the program, it's expected that the TGV-M will have travelled more than a 620,000 miles.

The TGV-M, unveiled last September, is from Alstom's Avelia Horizon range. The project is supported by the French government through ADEME and the "Secrétariat Général Pour l'Investissement" (SGPI).

It's benefited from the knowledge of Alstom's top experts and SNCF Voyageurs' Matériel and TGV-INTERCITES departments, brought together on a common platform.

TGV-M set 996. Alstom photo

Alstom states that this next generation TGV provides unprecedented modularity and accessibility, and offers a 20% increase in capacity, with seats for up to 740 people, compared to the current maximum of 634.

A total of 115 units have been ordered to date, 100 units in 2018 for domestic travel, and an additional 15 units in 2022 for cross-border services. These will be used for both the INOUI and OUIGO TGV services.

The pre-validation tests currently underway are being carried out by Alstom with the support of the Test Agency of the "SNCF Voyageurs" Equipment Engineering Department.

These tests also provide SNCF drivers with a chance to familiarize themselves with the new model.

On arrival, the TGV-M began its tests on the site's test ring,

where a gradual increase in speed to 124 mph was achieved in less than a week.

The first phases of functional development tests then began. This included braking with and without load, pantograph and signaling tests.

This testing will ensure compliance with the safety requirements for railway operations and enable SNCF Voyageurs to submit a request for authorization to run a test train on the French National Railway Network.

Another set will leave the Alstom La Rochelle site this month for a test site in Vienna, Austria.

From next month, this will be tested in a climatic chamber over a temperature range of -4 to +104°F.

Tests will include simulation of sunshine (up to 800W/m²) and wind (up to 100 mph), as well as heating, air conditioning and insulation.

These conditions are part of the train qualification process, but will also actively contribute to the planned 20% reduction in energy consumption of the TGV-M.

From this spring, several trainsets will run throughout the French national network to test their reliability under real operating conditions. The first TGV-Ms are due to enter commercial service at the end of next year (2024).

RAILWAY-NEWS, February 13

FRANKFURT AM MAIN

New Siemens EMUs

Hessische Landesbahn has ordered three two-car Mireo Plus B battery trains from Siemens Mobility for its Oberwesterwaldbahn (OWB) and Unterwesterwaldbahn (UWB) routes.

This is a pilot project to replace diesel trains with more climate friendly battery-operated vehicles on these topographically challenging routes.

Siemens Mobility's trains for Hessische Landesbahn will have three doors on each side for faster entry and exit, 126 seats and standing room for 156 passengers.

Rendering of Mireo Plus B for Hessische Landesbahn.
Siemens Mobility

They will be equipped with pantographs for operating under catenaries and for charging batteries, and with batteries for operating on non-electrified routes.

The Mireo Plus B model was chosen for its ability to deal with difficult, longer uphill stretches in the low mountains and long non-electrified sections of track.

Once they enter operation, the battery powered trains will provide substantial CO_2 savings by reducing exhaust emissions. They will also lower noise levels on the routes.

Additionally, Siemens Mobility's use of silicon carbide technology in the vehicles will provide significant energy savings.

The new trains will serve over 50 stations across the two routes, operating from Limburg to Altenkirchen–Au–Siegen on the OWB and between Limburg–Montabaur–Siershah on the UWB.

When operating in battery mode, the range of the Mireo Plus B on topographically challenging routes is around 50 miles before charging is required.

The OWB route is 71.5 miles long and includes a 46.6-mile stretch without overhead power lines. This means the trains' batteries will need charging in Limburg and on the Au–Siegen stretch.

The UWB's non-electrified section is approximately 21.7 miles in length, enabling trains to operate back and forth without recharging.

RAILWAY-NEWS, February 7

GREAT BRITAIN

Avanti West Coast Fleet Testing Begins

Avanti West Coast has started testing its new Hitachi fleet on the West Coast Main Line.

The fleet consists of 10 seven-car electric trains and 13 five-car Class 805 bi-mode trains, which can run under both electric and diesel power.

The first of Avanti West Coast's new fleet of Hitachi trains has made its first ever test run on the West Coast Main Line, shown here at Preston.
First Group-Brad Joyce photo

These were purchased as part of a £350 million investment in sustainable travel and are set to replace Avanti's diesel-only Voyager trains later this year. This change will provide an expected 61% cut in carbon emissions.

Two of the new trains have entered main line testing following two months of dynamic testing at Network Rail's Rail Innovation and Development Center (RIDC) at Melton Mowbray.

Here, basic functionality was checked, including the pantograph, Wi-Fi, onboard CCTV, coupling capabilities and emergency lighting. Additional noise testing was undertaken both on the train and lineside. Prior to this, static testing took place at Hitachi Rail's Newton Aycliffe factory, where final assembly was also undertaken.

Over the next few months, these trains will undergo main line testing, running up to their top speeds of 125 miles per hour, to ensure the vehicles can operate fault free for an extended period of time.

The 560-mile-long inaugural test run went from Alstom's Oxley depot in Wolverhampton—where the fleet will be maintained once it enters service—to Glasgow Central. During the test period, new customer-orientated features will also be evaluated. This includes improved passenger information, a new seat reservation system, multiple running and selective door opening, which allows the trains to call at stations with shorter platforms.
RAILWAY-NEWS, February 13

HAMBURG

Final DT5 Metro Vehicles Delivered

Alstom has manufactured a total of 163 fourth-generation DT5 metro vehicles for the Hamburg Metro, fulfilling several orders from Hamburger Hochbahn AG.

The final vehicle ordered for this fleet is now on its way to Hamburg from Alstom's plant in Salzgitter.

DT5 306 (Alstom, 12/2011), from an earlier order, outside the Eppendorfer Baum stop. Jan Oosterhuis photo

Throughout this project, 652 trucks, 815 air-conditioning systems, 978 traction motors, 1,304 pneumatic brakes and 2,119 passenger compartment doors were installed in a total of 489 cars, along with countless bolts and miles of cable.

This work has been ongoing since Hochbahn initially ordered 27 DT5 vehicles in 2006, followed by several additional orders. Prior to this project, Alstom also supplied the DT2, DT3 and DT4 fleets for the Hamburg Metro.
RAILWAY-NEWS, February 2

INDUSTRY

RAILPOOL Orders New Locomotives

Rail vehicle leasing company, RAILPOOL has signed a framework contract with Alstom for 27 new Traxx AC3 and Traxx DC3 locomotives, alongside the option for a further 15 locomotives.

The TRAXX AC 3 is the latest member of the TRAXX locomotive family. RAILPOOL photo

These locomotives will be used in Poland, Italy, Norway and Sweden and will be manufactured at Alstom's sites in Kassel, Germany and Vado Ligure, Italy. Delivery of the new vehicles will commence in 2024.

In addition to this investment in new rolling-stock, RAILPOOL will also be transferring nine of its existing Traxx AC2 locomotives to Sweden and Norway, where its operations have increased since its takeover of Nordisk TogTeknikk in 2022.
RAILWAY-NEWS, February 22

LONDON

New Docklands Trains

The Mayor of London and the city's Transport Commissioner visited Beckton Depot to see the first new DLR train in early February. A total of 54 trains are being manufactured by CAF, which was awarded the contract by Transport for London (TfL) in 2019.

The first trains will enter passenger service next year, with

the new fleet fully operational by 2026.

The trains feature a walkthrough design that will increase capacity on each train by 10%. They are also fitted with the latest audio and visual real-time travel information, air conditioning and mobile charging points.

In addition, they will provide improved facilities for those with mobility impairments thanks to three multi-use areas and three dedicated wheelchair spaces.

New DLR train at Beckton Depot. Transport for London photo

More than half (33) of the trains will replace existing DLR rolling stock, some of which are over 30 years old. The others are being introduced to boost network capacity and provide more frequent direct services to Stratford, allowing people from southeast London to reach east London without the need to travel through Zone 1.

The additional capacity will also support the growth of new homes in the area, particularly around the Royal Docks. Thanks to this, TfL was able to successfully secure funding for 11 of the new trains from the Department for Levelling Up, Housing and Communities as part of the Government's Housing Infrastructure Fund.

The DLR's modernization is a key part of the Mayor's transport strategy, which focuses on investing in public transport to reduce Londoners' reliance on cars.

His aim is to see 80% of journeys in London being made by public transport, cycling or walking by 2041.

TfL and KeolisAmey Docklands will now start testing the trains before they enter passenger service. This will begin during overnight engineering hours and some planned closure times, followed by gaps between normal services later in the year.

RAILWAY-NEWS, February 9

Elephant & Castle Design Study Contract Awarded

Transport for London has appointed Arcadis and Hawkins\ Brown architects to lead design studies for Stage 2 of the Elephant & Castle Station Capacity Upgrade project.

Stage 1 comprises the construction of a station box as part of the wider Elephant & Castle Town Center Redevelopment Project. This will provide the shell for a new London Underground station entrance and ticket hall with connections to the existing Northern Line platforms. Construction of the box began in January 2022 and is expected to take around four years. TfL expects to call tenders on March 29 for the civil works to build the remaining parts of the station box and the connecting tunnels.

Rendering of the new Elephant & Castle entrance and ticket hall. TfL

Stage 2 covers the fit-out of the station entrance and ticket hall, which are intended to replace the current Northern Line entrance, providing step-free access and improved evacuation routes.

There will also be provision for building a direct access to the Bakerloo Line platforms in the future, as part of a planned upgrade and a long-proposed extension. At present the Bakerloo Line has a separate station at street level, although there is a low-level passage connecting the platforms on the two lines.

Announcing the design study contract win on February 27, Arcadis said the work would include re-evaluating the requirements for the upgrade in light of TfL's post-COVID-19 financial position and the impact of the pandemic on short and medium-term travel demand.

Arcadis said the aim of the study was to ensure that the upgrade can be delivered in innovative and incremental ways that can realise the project benefits.

METRO REPORT INTERNATIONAL, February 27

MOSTAGANEM, ALGERIA

Light Rail Lines Inaugurated

Two new light rail lines have been inaugurated in Mostaganem, a port city and provincial capital in northwest Algeria, following completion of a project undertaken by a consortium of Alstom and Cosider under contracts awarded by Métro d'Alger (EMA).

While Cosider's role in the contract covered carrying out the civil engineering works including track, catenary and

traffic and instaling color light signals, Alstom supplied the telecommunications and signaling systems, the substations, ticketing systems and depot equipment.

Mostaganem is the seventh city in Algeria to operate the Alstom-designed Citadis low-floor LRVs which, as with others supplied to cities in the country, have been manufactured by Cital, a joint venture of Alstom, EMA and Ferrovial of Spain, at its Annaba plant in northeast Algeria. The fleet in Mostaganem comprises 25 144-foot-long Citadis 402 LRVs.

The new Mostaganem light rail system uses Citadis LRVs manufactured at the Cital plant in Annaba, northeast Algeria. Alstom photo

The inauguration of the new light rail network took place on February 18.

The Mostaganem Tramway comprises a total of nine miles of track with 24 stations, with the north-south Line T1 connecting Salamander Place in the north to the University of Kharouba in the south. The east-west Line T2 connects the city's mainline station in the east to Avanue Abane Ramdane bus station in the west.

Construction of the Mostaganem light rail system was originally begun in August 2013 by a consortium of Alstom and Isolux Corsán, Spain, under a €240 million contract awarded by EMA, with completion scheduled for May 2015. However, delays caused by flooding and subsidence together with severe financial problems for Isolux Corsán caused progress to stall. Work on the project was subsequently restarted by the Alstom and Cosider consortium.

Ridership of the new light rail system is expected to be 10,000 passengers a day.

INTERNATIONAL RAILWAY JOURNAL, February 20

NANTES

New Trams from Alstom

Alstom has unveiled the first Citadis X05 tram that will be delivered to Nantes Métropole later this year.

On February 13, the new-generation tram traveled at full speed on a 4,600-foot test track, where it was admired by elected officials and journalists.

The new vehicles are 20 feet longer than the trams currently operating in Nantes, providing a capacity for 300 passengers, rather than 250. They also feature extra large windows to allow passengers to enjoy the view and benefit from natural light and increased brightness.

Citadis X05 tram for Nantes unveiled. Jérémie Anne photo

The Citadis X05 tram will reduce energy consumption by 13% compared to Alstom's previous Citadis vehicles.

They will be delivered to Nantes Métropole from spring 2023 and will complete a series of technical trials on the network before entering passenger service at the end of the year. 49 trains, which were ordered in 2020, will be put into service by 2026. In 2027, an additional 12 of the new trams will be used for the city's future lines 6 and 7.

RAILWAY-NEWS, February 17

NEWCASTLE UPON TYNE

First Stadler Train Arrives

Tyne & Wear Metro took delivery of the first of its new Stadler fleet on February 28, marking a major milestone in the £362 million upgrade of the network serving Newcastle and Sunderland in northeast England.

The Class 555 train, the first of 46 that the publicly owned metro operator Nexus has ordered to replace its current 43-year-old fleet, will now go through testing and driver training before entering service this autumn.

The first train was delivered to Gosforth depot by rail on February 28 after being moved from the Stadler plant in Switzerland via the Channel Tunnel to northeast England.

New features for the Tyne & Wear Metro include air-conditioning, an open-gangway layout, and USB charging points. The Stadler fleet is more energy efficient and offers improved accessibility with a sliding step at every door to make

boarding easier for passengers with mobility needs, heavy luggage or bicycles, and for young families.
INTERNATIONAL RAILWAY JOURNAL, February 28

NORWAY

New Trains for Norske Tog

Norwegian train leasing company Norske Tog has announced that Stadler has been awarded a contract to supply 17 long-distance EMUs for the Oslo-Bergen route, with an option for up to 100 trains.

In January 2022, Norske Tog announced that it had short-listed Stadler, Alstom Transport Norway, CAF and Talgo to bid for a framework contract to supply up to 100 new trains for long-distance services, with an initial order for 17 sets worth up to an estimated Nkr 8 billion at the time. The new trains were to include sleeping compartments, which could be converted into seats compartments during the day, as well as reclining seats.

An impression of how one of the Stadler long-distance trains for Norske Tog will look passing through the mountain scenery of the Oslo - Bergen Roof of Norway Line. Stadler

With Stadler now being awarded the contract, production of the new trains will start in 2024 with the first EMUs arriving for testing in Norway from 2025. The new trains will enter traffic on the Bergen Line from 2026, replacing older trains that are nearing the end of their working life.

The new Flirtnex long-distance trains will have a maximum speed of 124 mph and will be formed of eight cars with a total capacity of up to 542 seated passengers. They will also provide more flexible accommodation than the existing fleet, with a combination of reclining seats and two- and four-bed sleeping compartments. During the day, the sleeping compartments will change to private seating areas for either families or business travelers, while the reclining seats will be available for use both during daytime travel and overnight. The trains will also feature a bistro car, family areas and ample space for luggage.

INTERNATIONAL RAILWAY JOURNAL, February 17

PARIS

Line 18 Metro Trains

Île-de-France Mobilités, the Société du Grand Paris and Alstom have unveiled the final designs for Paris' future Line 18 metro trains. These automated metro trains are designed and manufactured by Alstom and will be put into service on Line 18 from 2026.

Rendering of Line 18's new equipment. Alstom

The three-car trains will each be 154 feet long and will carry up to 350 passengers. Their interiors have been designed to improve capacity, fluidity and comfort, offering level flooring, wide doors and spacious corridors.

They also feature modern passenger amenities such as Wi-Fi, USB sockets and dynamic information screens, as well as efficient ventilation, air conditioning and heating systems.

In addition, the train's lighting follows the circadian rhythm and varies according to the time of day to help improve travelers' wellbeing.

Once operational, Line 18 will span across nearly 22 miles, serving 10 stations from Orly Airport to Versailles.
RAILWAY-NEWS, February 16

QUEBEC

Alstom's Coradia iLint to Operate on Réseau Charlevoix Network

Alstom has announced that it will conduct a passenger service demonstration project for its Coradia iLint hydrogen-powered train on the Réseau Charlevoix rail network in Quebec, Canada.

During summer 2023, the Coradia iLint will carry passengers along the St. Lawrence River, between Parc de la Chute-Montmorency and Baie-St-Paul. It will be powered by "green hydrogen" produced at Harnois Énergies' Quebec City site.

Alstom will lead this project in partnership with the

Government of Quebec, Chemin de fer Charlevoix, Train de Charlevoix, Harnois Énergies and HTEC.

This will make the province of Quebec the first jurisdiction in the Americas to run a train with "green hydrogen" that produces zero direct emissions.

By operating the train with passengers on board, Alstom aims to explore how hydrogen propulsion technology can be developed and scaled in the North American market.

This project is the first mandate of Alstom's new innovation center in Saint-Bruno-de-Montarville, Quebec.

The Coradia iLint first entered commercial service in Germany in 2018 and has since travelled more than 136,700 miles in eight European countries. On September 15, 2022, it traveled a record distance of 730 miles without refueling.
RAILWAY-NEWS, February 3

SPAIN

Renfe Deploys New Stadler Electrics

Renfe Mercancías has completed the first commercial deployment of its new "Zero CO_2" electric locomotives, which were manufactured by Stadler for use in Asturias, Spain. Renfe's freight division will use the new locomotives for ArcelorMittal traffic.

The vehicles are 100% electric and will consume energy solely from renewable sources.

Stadler's heavy-duty EURO6000 electric locomotive for Renfe Mercancías. Renfe photo

Renfe Mercancías is ArcelorMittal's main railway operator. To strengthen their commercial relationship, Renfe is progressively procuring 12 new high-power locomotives for ArcelorMittal services.

These new locomotives provide greater traction and load capacity to improve safety, reliability and availability. In addition, they operate with a lower noise level and no vibrations.

The first service of the new locomotives carried 20 freight cars from the ArcelorMittal factory in Trasona with a load of 1,440 gross tons.
RAILWAY-NEWS, February 21

TORONTO

Eglinton Crosstown West Extension Progress

Tunneling on Metrolinx's Eglinton Crosstown West Extension has passed the halfway point, with Renny, one of the two tunnel boring machines (TBMs), digging over 1.9 miles of the roughly 3.7-mile tunnel.

The 5.7-mile extension of the Eglinton Crosstown LRT will run from the future Mount Dennis station to Renforth Drive and will operate mainly underground. Once complete, it will create a continuous rapid transit line that stretches from Scarborough, through midtown Toronto, and into Mississauga.

Tunneling started last April from the tunnel launch site near Renforth Drive, with the TBMs making their way to west of Scarlett Road where the TBMs will emerge from underground.

The second tunnel boring machine, known as Rexy, is not far behind Renny. Since July, Rexy has tunneled 1.5 miles and reached the first headwall location at Martin Grove Road.
MASS TRANSIT, February 28

WARSZAWA

Three More Metro Lines Planned

The mayor of Warszawa has presented a public transport master plan that envisages expanding the metro network from three lines totalling 25.8 miles to five lines totaling 70.2 miles by 2050. Infill stations would be built on Line M1 at Plac Konstytucji and Muranów.

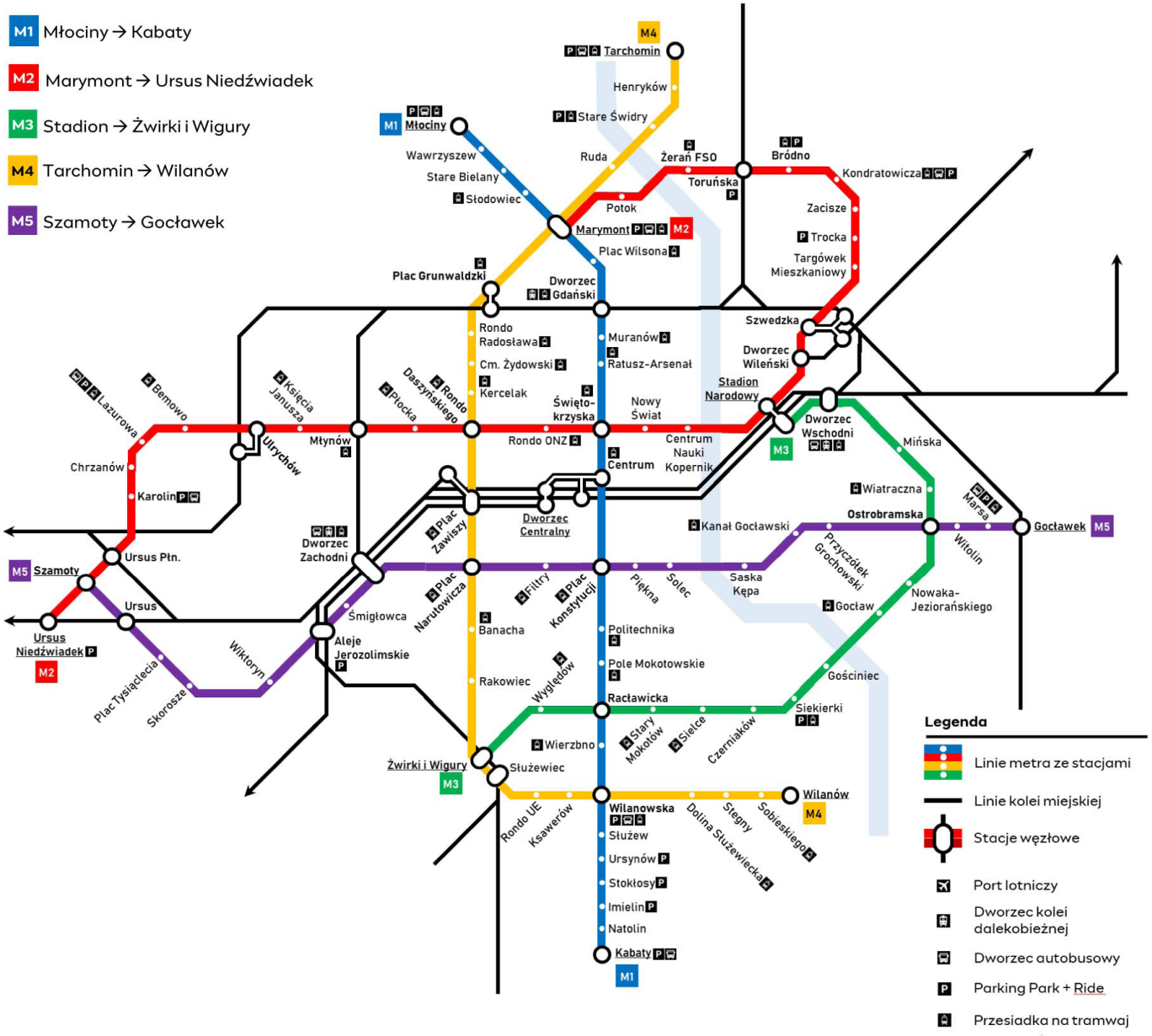
Line M2 is currently being extended west to Karolin, and under the plan would be extended further southwest to Ursus Niedźwiadek, adding three more stations. The eastern end of M2 would be extended from Bródno to Marymont, recrossing the River Wisła.

Studies are already underway for Line M3, which would run from Stadion on M2 to Żwirki i Wigury in the southwest.

The proposed Line M4 would connect Wilanów in the south to Tarchomin in the north.

M5 would run from Szamoty in the west to Gocławek in the east, with tunnels in the Śródmieście Południowe area arranged above each other rather than side by side to protect surviving pre-war buildings. The expansion would mean 17 of the city's 18 districts would have metro access, and the percentage of people living within two-thirds of a mile of a metro station would increase from 28% to more than 50%.

Design work on the third metro line has already started. They would like to start work on the fourth line. The city has promises from the European Union that they will get the money that is necessary for such an expensive undertaking.
METRO REPORT INTERNATIONAL, February 23



Schematic diagram of the proposed full network of five metro lines. Currently, all of line 1 and line 2 between Bemovo and Trocka are built.
Map from City Hall of Warsaw presentation

Railroad Book Collecting

By Paul Grether

One of the fun aspects of enjoying the railroad hobby is the collecting of railroad books. Thankfully, many people decide to write about the history, technology, current and past operations, equipment, infrastructure and people of the industry. Many of these monographs are incredibly well researched and provide fascinating reading. I collect books from around the world on topics ranging from railways, streetcars and transit systems in the U.S.A., The Netherlands (where I lived for some time as a teenager and became a railfan), Europe and the rest of the world. My current collection is about 1,600 books. Subjects I have included in my collection are history of specific railroads or systems, technical descriptions and histories of rolling stock, stations or other histories, antique books, atlases, museum collection guides and other primary reference materials. Much of the information in these books cannot be found online.

What are some things to consider when collecting?

Where do I find books? The two best places by far are railroadiana shows and trolley/railroad museum/used book shops. Oftentimes I find things that I didn't know existed but are interesting to me and collectible. Traditional sources are eBay and Amazon. Both sites let you set up alerts for specific titles. The best website by far is bookfinder.com which links several websites and thousands of databases of used bookstores around the world. It is a great site when determining the value of a book. Many railroad and trolley museums sell used books that have been donated to their libraries but are either duplicates or not part of their scope. I have purchased many interesting books from museums around the world and many post online inventories and will ship. Their prices are usually excellent and purchases support rail preservation. Finally, there are two Facebook groups that are relevant—Railway Book Collectors and Readers, which provides reviews and discussions about titles, and the sister group Railway Book Marketplace: Buy-Sell-Trade where books are exchanged.

A consideration in the last year when ordering books are the unfortunate delays and problems with the US Postal Service. The Media Mail category is appealing because it is a cost-effective way of shipping books, but I have found that it can suffer from substantial delays. Consider upgrading to fixed-rate Priority Mail if your seller can provide this option. Thankfully the situation with USPS seems to be improving. FedEx or DHL are superior for international shipments, usually cheaper and significantly faster than postal services.

How should I catalog my books? As your collection grows there are many tools that can be used to organize your titles and share your catalog with others. Several apps have been developed for the small library owner that have powerful features that minimize the time spent organizing and maximize the time you can use the tool to enjoy and share your collection. Many of these apps are free or have a minimal monthly cost to unlock features. I use Libib which allows me to catalog all of my books (and DVDs) including multi-volume grouping and my own subject/shelf headings. Libib also lets me upload a picture of the cover of each book. You may want to become familiar with the ISBN book numbering system, in my case I can scan most books printed after about 1960 and Libib will automatically and instantly catalog them. Other good sources for copying and pasting book catalog information are the Library of Congress (https://loc.gov/), WorldCat (https://worldcat.org/), the Ohio College Library Center/OCLC (https://www.oclc.org) or international library sites for books published overseas. LibraryThing is another good app that shares library catalogs and book descriptions and reviews in a social-media type structure. A good reference comparing the various app products is here: https://bookriot.com/home-library-apps/. Once you select an app be sure to plan out a subject heading system/shelf list so that you can include the headings as you catalog your books and label your shelves for easy reference. I have found the Library of Congress Catalog (LCC) and Dewey Decimal systems not well suited to my very specific categories and have come up with my own. My library can be found at https://grether.libib.com/. While Libib does have a feature to track lending of books, I don't really do that...

How should I display my books? Storing books upright on shelves is best. Make sure that they do not regularly get direct sunlight since UV rays through windows will fade covers and cause paper to deteriorate. The humidity and flood risk of basements generally make that a poor location choice for your library. I like my books in my main living area where they are accessible and provide a nice decorative effect. Getting creative with shelving as your collection grows can be important. IKEA has great options—I use the IVAR line which can be customized endlessly and is modular, incrementally expandable and has size and feature options, such as lighting to mix in displays of artifacts or models. Used office furniture stores are another good source for quality shelving. Avoid cheap white pressboard bookcases since the shelves will bend and fail over time when loaded. Use vertical space. Back-to-back bookcases can make nice room dividers if you run out of wall space. Remember that books are heavy, as your collection grows make sure that bookcases are placed in areas that do not cause any structural issues with your home and make sure cases are anchored or otherwise secure from tipping over. Office supply stores are a good source for shelf labels to mark subject headings or otherwise help organize your shelves. The label holders should be able to move or change as your collection grows, likewise bookends are a necessity, so books are arranged properly, neatly, organized and with room to grow. It is best not to cram or completely fill shelves, about three-quarters full is a good rule of thumb.

What books should you collect? There are probably hundreds of thousands of titles generally in the railroad/trolley/transit/bus transportation subject available globally. I avoid general history "coffee table" type books and instead focus on subjects that I have a geographic or technical interest in. Just because a book is a railroad or trolley book doesn't mean I want it. I judge a book by whether the topic is interesting enough that I would read it multiple times, if it would be a good reference and of course if the price is right.

Finally...

Many trolley/railroad/transit books are incredibly well researched and represent a major effort on the part of authors to put together. Unlike the internet, where the reader should view every "fact" with a critical eye many books contain references and are developed from primary source materials. Many excellent books can be found at very reasonable prices, the general trend is that over the last few years the used transportation book market is getting significantly cheaper, with some exceptions. There really should be more reviews of transportation books published; I am guilty of not writing them enough. I enjoy books because of the permanence of the information, the seemingly unlimited new discoveries of titles I take an interest in and the obscurity of the detailed information I have in my collection. I hope you will too.

Long Island Rail Road's New Train Numbers

With the start of the new timetable on February 27, many of the train numbers on various branches have changed. This was the first major change of train numbers since the railroad's Timetable #6 of June 8, 1992.

Some of the branches did not change numbers at all, such as Oyster Bay, Port Jefferson, Hempstead and Long Beach. In fact, those four branches in particular have not changed train numbers in over one hundred years!

One very interesting aspect to this renumbering was the restoration of the Patchogue, Speonk and Montauk train numbers to their pre-1992 numbers. Like the branches mentioned above, those train numbers go back more than one hundred years.

Train Numbers	Effective 2/27/2023	Effective from 6/8/1992 to 2/26/2023
1-29	Westhampton to Montauk weekday revenue	Babylon weekday revenue
30-49	Speonk weekday revenue	Babylon weekday revenue
50-99	Patchogue weekday revenue	Babylon weekday revenue
100-199	Babylon-Penn Station weekday revenue	Babylon weekday revenue
200-299	Babylon-Grand Central weekday revenue	Yaphank/Riverhead/Greenport weekday revenue
300-399	Port Washington-Penn Station weekday revenue	Great Neck weekday revenue
400-499	Port Washington-Grand Central weekday revenue	Port Washington weekday revenue
500-599	Oyster Bay weekday revenue	Oyster Bay weekday revenue
600-699	Port Jefferson weekday revenue	Port Jefferson weekday revenue
700-799	Hempstead weekday revenue	Hempstead weekday revenue
800-899	Long Beach weekday revenue	Long Beach weekday revenue
900-999	Riverhead/Greenport weekday revenue	West Hempstead weekday revenue
1000-1099	Brentwood weekday revenue	Merrick-Lindenhurst weekday revenue
1100-1199	Massapequa-Penn Station weekday revenue	Freeport weekday revenue
1200-1299	Massapequa-Grand Central weekday revenue	Hicksville weekday revenue
1300-1399	Bayside/Great Neck-Penn Station weekday revenue	Jamaica-Penn Station weekday revenue
1400-1499	Bayside/Great Neck-Grand Central weekday revenue	Jamaica-Brooklyn weekday revenue
1500-1599	Huntington-Penn Station weekday revenue	East Williston weekday revenue
1600-1699	Huntington-Grand Central weekday revenue	Huntington AM weekday revenue
1700-1799	West Hempstead weekday revenue	Huntington PM weekday revenue
1800-1899	Belmont Park weekday revenue	Jamaica-Hunterspoint Ave/LI City weekday revenue
1900-1999	Ronkonkoma-Penn Station weekday revenue	Belmont Park weekday revenue
2000-2099	Ronkonkoma-Grand Central weekday revenue	Ronkonkoma weekday revenue
2100-2199	Farmingdale weekday revenue	Central Islip-Wyandanch weekday revenue
2200-2299	Jamaica-Long Island City weekday revenue	n/a
2300-2399	Jamaica-Penn Station weekday revenue	Farmingdale weekday revenue
2400-2499	Jamaica-Grand Central weekday revenue	Westbury-Mineola weekday revenue
2500-2599	Hicksville-Penn Station weekday revenue	n/a
2600-2699	Hicksville-Grand Central weekday revenue	n/a
2700-2799	Far Rockaway weekday revenue	Montauk/Speonk/Patchogue weekday revenue
2800-2899	Jamaica-Atlantic Terminal AM weekday revenue	Far Rockaway weekday revenue
2900-2999	Jamaica-Atlantic Terminal PM weekday revenue	n/a
3000-3029	Westhampton to Montauk equipment	Babylon weekday equipment
3030-3049	Speonk equipment	Babylon weekday equipment
3050-3099	Patchogue equipment	Babylon weekday equipment
3100-3199	Babylon-Penn Station equipment	Babylon equipment
3200-3299	Babylon-Grand Central equipment	Yaphank/Riverhead/Greenport equipment
3300-3399	Port Washington-Penn Station equipment	Great Neck equipment
3400-3499	Port Washington-Penn Grand Central equipment	Port Washington equipment
3500-3599	Oyster Bay equipment	Oyster Bay equipment
3600-3699	Port Jefferson equipment	Port Jefferson equipment
3700-3799	Hempstead equipment	Hempstead equipment
3800-3899	Long Beach equipment	Long Beach equipment
3900-3999	Riverhead/Greenport equipment	West Hempstead equipment
4000-4099	Brentwood equipment	Merrick-Lindenhurst equipment
4100-4199	Massapequa-Penn Station equipment	Freeport equipment

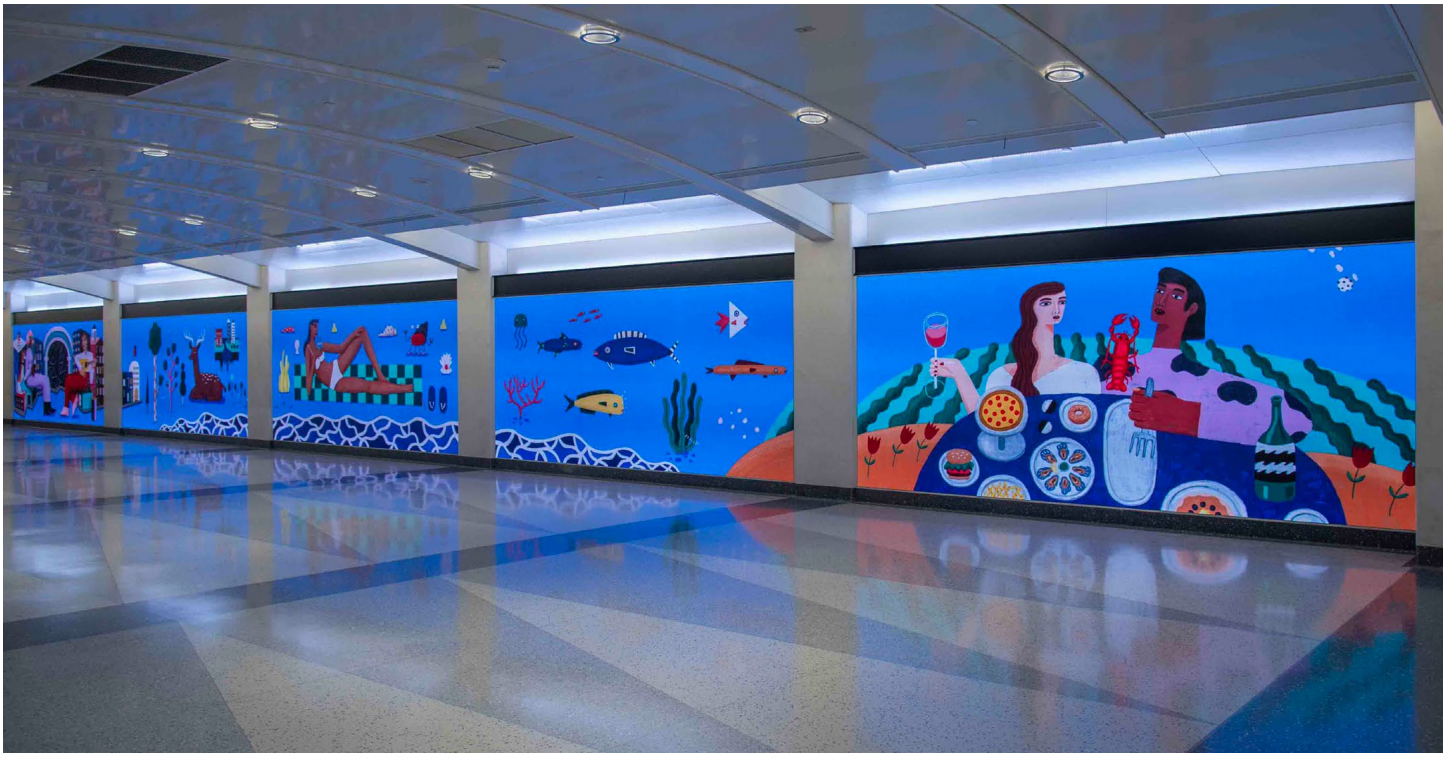
Train Numbers	Effective 2/27/2023	Effective from 6/8/1992 to 2/26/2023
4200-4299	Massapequa-Grand Central equipment	Hicksville equipment
4300-4399	Bayside/Great Neck-Penn Station equipment	Jamaica-Penn Station equipment
4400-4499	Bayside/Great Neck-Grand Central equipment	Jamaica-Brooklyn equipment
4500-4599	Huntington-Penn Station equipment	East Williston equipment
4600-4699	Huntington-Grand Central equipment	Huntington AM equipment
4700-4799	West Hempstead equipment	Huntington PM equipment
4800-4899	Belmont Park equipment	Jamaica-Hunterspoint Ave/LI City equipment
4900-4999	Ronkonkoma-Penn Station equipment	Belmont Park equipment
5000-5099	Ronkonkoma-Grand Central equipment	Ronkonkoma equipment
5100-5199	Farmingdale equipment	Central Islip-Wyandanch equipment
5200-5299	Jamaica-Long Island City equipment	n/a
5300-5399	Jamaica-Penn Station equipment	Farmingdale equipment
5400-5499	Jamaica-Grand Central equipment	Westbury-Mineola equipment
5500-5599	Hicksville-Penn Station equipment	Hillside-Penn Station equipment
5600-5699	Hicksville-Grand Central equipment	Hillside-Brooklyn equipment
5700-5799	Far Rockaway equipment	Montauk/Speonk/Patchogue equipment
5800-5899	Jamaica-Atlantic Terminal AM equipment	Far Rockaway equipment
5900-5999	Jamaica-Atlantic Terminal PM equipment	n/a
6000-6029	Westhampton to Montauk weekend revenue	Babylon weekend revenue
6030-6049	Speonk weekend revenue	Babylon weekend revenue
6050-6099	Patchogue weekend revenue	Babylon weekend revenue
6100-6199	Babylon-Penn Station weekend revenue	Babylon weekend revenue
6200-6299	Babylon-Grand Central weekend revenue	Yaphank/Riverhead/Greenport weekend revenue
6300-6399	Port Washington-Penn Station weekend revenue	Great Neck weekend revenue
6400-6499	Port Washington-Penn Grand Central weekend revenue	Port Washington weekend revenue
6500-6599	Oyster Bay weekend revenue	Oyster Bay weekend revenue
6600-6699	Port Jefferson weekend revenue	Port Jefferson weekend revenue
6700-6799	Hempstead weekend revenue	Hempstead weekend revenue
6800-6899	Long Beach weekend revenue	Long Beach weekend revenue
6900-6999	Riverhead/Greenport weekend revenue	West Hempstead weekend revenue
7000-7099	Brentwood weekend revenue	Merrick-Lindenhurst weekend revenue
7100-7199	Massapequa-Penn Station weekend revenue	Freeport weekend revenue
7200-7299	Massapequa-Grand Central weekend revenue	Hicksville weekend revenue
7300-7399	Bayside/Great Neck-Penn Station weekend revenue	Jamaica-Penn Station weekend revenue
7400-7499	Bayside/Great Neck-Grand Central weekend revenue	Jamaica-Brooklyn weekend revenue
7500-7599	Huntington-Penn Station weekend revenue	East Williston weekend revenue
7600-7699	Huntington-Grand Central weekend revenue	Huntington AM weekend revenue
7700-7799	West Hempstead weekend revenue	Huntington PM weekend revenue
7800-7899	Belmont Park weekend revenue	Jamaica-Hunterspoint Ave/LI City weekend revenue
7900-7999	Ronkonkoma-Penn Station weekend revenue	Belmont Park weekend revenue
8000-8099	Ronkonkoma-Grand Central weekend revenue	Ronkonkoma weekend revenue
8100-8199	Farmingdale weekend revenue	Central Islip-Wyandanch weekend revenue
8200-8299	Jamaica-Long Island City weekend revenue	n/a
8300-8399	Jamaica-Penn Station weekend revenue	Farmingdale weekend revenue
8400-8499	Jamaica-Grand Central weekend revenue	Westbury-Mineola weekend revenue
8500-8599	Hicksville-Penn Station weekend revenue	n/a
8600-8699	Hicksville-Grand Central weekend revenue	n/a
8700-8799	Far Rockaway weekend revenue	Montauk/Speonk/Patchogue weekend revenue
8800-8899	Jamaica-Atlantic Terminal AM weekend revenue	Far Rockaway weekend revenue
8900-8999	Jamaica-Atlantic Terminal PM weekend revenue	n/a
9000-9099	Hillside equipment	n/a
9100-9199	Midday Yard-Penn Station equipment	n/a
9200-9299	Midday Yard-Grand Central equipment	n/a

The Artwork of Grand Central Madison—Part 2

On Wednesday, February 8, a return visit was done to get more photographs of Grand Central Madison while it is still in its pristine condition. A special point was to photograph the mosaic tile piece by Kiki Smith that is up on the concourse, at the south end of the station. All photos here were taken by Jeff Erlitz.

Kiki Smith's fifth piece of mosaic tiles, the 80-foot-long "River Light," is installed on the east wall of the concourse between 43rd and 44th Streets. According to the artist, this is an abstracted, blue-and-white depiction of glinting sunshine on the East River. This work was originally a photograph and then a cyanotype before its transformation into mosaic tiles. All five of Smith's pieces were constructed by Franz Mayer of Munich, Germany.

Also missing from last month's issue was this series of 10 photographs by Paul Pfeiffer titled "Still Life," which depict the Times Square street performer Da Gold Man (real name: Travis Hartfield), known for holding motionless poses and being covered in gold paint. This is the first installment of a rotating lightbox exhibition programmed in partnership with the International Center of Photography. This is located in the 43d Street Corridor at the extreme south end of the concourse.



Jordan Bruner's "The Grand Wander" is one of three rotating digital works spread across five large LED screens. These are located on the west wall of the concourse at its north end, between 47th and 48th Streets. The other two pieces in this spot are Red Nose Studios' "Hat Trick" and "Platform," by Gabriel Barcia-Colombo.

Travels with Jack May

Britain and the Baltics — Part XIII

By Jack May (Photographs by the author)

Sunday, August 20

The narrative picks up briefly upon the arrival of our Flybe flight from the Isle of Man to Manchester. The ATR aircraft reached the gate on time at 7:55 AM and with no luggage to claim, Richard and I immediately headed for Metrolink's tramway, whose line 6 terminates at the airport (new designation after a route renumbering early this year—back last August the line was route F). *Editor's note: it appears that route designations by letter or number may now have been discontinued.* Most people heading to the city center from the airport choose to ride aboard railway trains, which provide fast and frequent service to Manchester Piccadilly station, as well as points in between, with a running time that varies from 13 to 25 minutes depending on the number of intermediate stops. Several operators run these trains, with many continuing beyond Piccadilly to other cities. The tram however, takes 48 minutes to traverse 20 stops to get to Deansgate, just short of the city center, and another eight or so minutes is needed to cover the last three stops to Piccadilly. Deansgate was the terminal of the F back last August, but in conjunction with its renumbering as route 6, it now continues through the city center to terminate at Victoria station—also three additional stops. We purchased day tickets (€5.40) and rode the tram, stopping off here and there for photos on this clear morning. See https://upload.wikimedia.org/wikipedia/commons/b/b6/Map_of_Manchester_Metrolink.png for a geographically correct map of the system and https://en.wikipedia.org/wiki/Manchester_Metrolink#/media/File:Manchester_Metrolink_-_Schemaplan.png for a diagrammatic map.

But first a little about Manchester. With a population of 2.6 million, Greater Manchester is the third largest metropolitan conurbation in Great Britain, falling directly behind London with 13.7 million, and Birmingham-Wolverhampton with 3.7 million. Metrolink, owned by the public agency, Transport for Greater Manchester (originally Greater Manchester Passenger Transport Executive), was the pioneer tram operation for Britain's version of the modern day "light rail revolution," and is now the largest light rail system in the United Kingdom. At the time of my visit it consisted of seven routes covering 57 miles with 93 stops, having gradually worked its way up to that number over the past 25 years. It started in 1992 with the conversion of two heavy eMU-operated suburban lines to light rail, adding track in city streets to connect them. The 19-mile original system used the infrastructure of two stagnant commuter services, the Manchester Victoria-Bury line and the Manchester London Road-Altrincham route. Both lines were electrically operated: the Lancashire and Yorkshire Railway equipping the Bury line with 1.2 kV DC third rail in 1916, while the Altrincham route had first been electrified by the Manchester, South Junction and Altrincham Railway with 1.5 kV DC overhead in 1931, which was upgraded by British Railways in 1971 to 25 kV AC.

My first view of Manchester's M5000 cars occurred when I walked from the railway station to the Ibis Styles hotel via the busy pedestrian walkway that crosses over London Road. I witnessed activity of the same nature each day I used Piccadilly station, which was originally named London Road. Since 1992 these tracks have carried trams from Bury and Altrincham into the basement of the station, where passengers reach their trains via stairs, escalators and elevators. Now with Metrolink's expansion, they are busier than ever.

The stop at Piccadilly Gardens has four tracks, with two carrying trams to and from Victoria station (route 4 on the way to Bury) and two to Deansgate (routes 2, 3 and 7 to Altrincham, Eccles and Media City, respectively). Destination signs on the trams to have never carried route letters or numbers.

Just northwest of the platforms, a pair of tracks comprise one of the two cross-city lines between Deansgate and Victoria. Two services use these rails, route 1, Altrincham to Bury (one of the original routes from 1992) and route 6 from Manchester Airport, which began using this trackage on January 20, 2018, when the line was extended eastward from Deansgate to Victoria. The "Second City Crossing" (2CC), used by route 5, Rochdale to East Didsbury, was opened in February, 2017, and was built to relieve congestion on the trackage shown in this photo.

(Above and below) Two photos at Ashton West, the first stop for route 3 trams after leaving their terminal. This section of the line is on private right-of-way, generally in central reservation. Views are looking east and west from the station, respectively. Note the ramp to the high platform.

The new tram system adopted 750 v DC overhead for its entire network, and uses high-level platforms, mainly because such platforms already existed on the lines to Bury and Altrincham, and that low-floor cars were not yet fully developed, especially for higher-speed grade-separated lines (compared to slower in-city routes running along streets). When I rode Metrolink in 1995 I could see the new system was implemented in an economical manner, noting that passengers either had to step up to board through certain doors of cars with wheel-chair-bound riders limited to small areas on platforms that had been slightly raised to make them flush with the trams' floors. (I found it easy to trip while walking along platforms if my eyes were not focused on the ground—that was rectified later.) The initial system was a great success, with significant increases in ridership compared to the commuter lines it replaced, and thus laid the groundwork for its gradual expansion, which is still going on with construction underway on a new line to Trafford Park. *Editor's note: the line from Cornbrook to Trafford Park opened in 2020.*

On my second visit in 2005, the lines to Eccles and Salford Quays had been completed, which added some four miles to the network, including an extensive amount of street running shared with automobile traffic. Since then, more openings have occurred and the system now covers 57 miles, with trackage ranging from railroad rights-of-way down to traditional street running, and including even a short subway at Piccadilly station. Because of its high platforms, many in streets, the system is somewhat reminiscent of Calgary's light rail operation. However, when the system first opened, I couldn't help thinking of Baltimore's light rail line, which went into operation about the same time, and also has a street running segment connecting two former commuter/interurban lines.

The original rolling stock, built by AnsaldoBreda (26 T-68 units and later six more T-68As), was totally replaced starting in 2009 with 120 M5000 Bombardier Flexity Swift cars. Base and rush hour service on each line operates every 12 minutes, although because of overlap, there are some sections of route that see a six-minute frequency. For the record, Manchester's legacy tram system closed in 1949.

Before I continue with the narrative for Sunday, August 20, I want to go back to Friday, August 18, when I spent the morning on Metrolink prior to leaving for Birkenhead and the Isle of Man. As I mentioned in part VIII, I left my bags at the hotel after checking out and then was free to ride and photograph some of the lines that had opened since my trip in 2005. I chose to direct my attention to the line to Ashton-under-Lyne, as it seemed to be the most interesting, a combination of private right-of-way and street running. This eight-mile line opened in two sections, to Droylsden in February 2013 and then to its current terminal in October of the same year. One of its most interesting aspects is its exit

An outbound tram approaches the Edge Lane stop on Manchester Road. A substantial portion of line 3 consists of street operation with the trams mingling with motor traffic. In other locations, where the street is too narrow to host a stop, the tracks are routed off the roadway to stations alongside.

through a portal in the rear of Piccadilly station.

I first took some photos on both sides of my hotel, especially near the four-track Piccadilly Gardens station, where a great deal of service is provided by four lines, with another two almost adjacent. Only route 5 does not traverse the immediate area.

The Etihad Campus stop serves the sports facilities of the Manchester City football (soccer) club, including the 55,000-seat Etihad Stadium, a major traffic generator for Metrolink. Etihad, the airline of Abu Dhabi, has paid huge sums for its sponsorship. (The stadium of Manchester City's rival, Manchester United, which seats 75,000, is also served by Metrolink, with all but one tram line stopping nearby at Trafford Bar.) In addition to being an intermediate stop on line 3, it is the terminal of trams on line 7.

I then rode route 3 (route E at that time) directly to its Ashton-under-Lyne terminal, passing through both portals surrounding Piccadilly station and then choosing location candidates for my photos. For what its worth, I found the street running to be a bit slower than corresponding operations in Sheffield and Nottingham. Andrew Beech provided me with some history of Ashton-under-Lyne's legacy tram operation.

"It had two tramway systems, one municipal and the other a private company, although the company was bought out by the local municipalities in 1921. The new tram terminus lies to the north of Ashton town center, near the railway station. Most of the first generation tramways therefore ran to the south of the new terminus, although the new line does have street running along much of the alignment of the first generation tramway. The new terminus is, however, on a site that was served by the first generation tramway—on the former company line that connected Ashton with Oldham. Ashton was an early convert to the trolleybus, and its trams were replaced by trolleybuses as early as 1925. They ran (though not all the way to Oldham) until 1938 when they were replaced by motor buses to enable through running to Oldham to recommence. The two main routes from Ashton to Manchester were converted to trolleybus operation in 1938 and ran until 1966."

The portal to the back of Manchester Piccadilly station is shown in this view just west of the New Islington stop. Trams of routes 3 and 7 pass through here, while those on routes 2 and 4, which terminate at Piccadilly, join them through the front portal in both directions.

I should point out that I rode Metrolink's route 5 to Oldham on Sunday, and that trip will be related in part XIV. If you examine the maps (links above) you'll see that Ashton to Oldham would have been a circumferential line. After inspecting the terminal I worked my way back along route 3, stopping at a few stations for photos.

Time was running short so rather than waiting for the sun to emerge from behind clouds near the portal I took my photos and headed back to the hotel, where I reclaimed my bags and then went back to Piccadilly station for my train to Liverpool. As related in part VIII, I dropped the large bag in the left luggage and retained the smaller one for my trip to the Isle of Man.

Part XIV will pick up with my activities in Manchester after returning from the Isle of Man on Sunday.