

The Bulletin



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This Month's Cover Photo:

Pacific Electric 606 and
Los Angeles Transit Lines
1291 are on S. Main Street
at 6th Street on 8/22/1950.
Kenneth L Douglas (1929-
2017) photograph

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LONG ISLAND RAIL ROAD TO TEST BATTERY- ELECTRIC MULTIPLE UNIT (BEMU) CARS



LIRR President Phillip Eng speaking at the April 19 press conference.

Jeff Erlitz photograph

Long Island Rail Road President Phillip Eng announced on April 19 that the LIRR has entered into an agreement with Alstom to test batteries that could enable their electric railcars to travel on the railroad's non-electrified branches. Upon successful completion of an eight-month initial analysis, technicians will retrofit a two car-long electric train to operate on battery power without passengers on the Oyster Bay Branch. While on electric portions of the route, the train would run on third rail power and charge the batteries, then switch to battery power for the unelectrified segment between East Williston and Oyster Bay. If

successful, the LIRR would ultimately be able to carry passengers directly between Oyster Bay and Penn Station without the need for a transfer, and that technology could expand to the rest of the railroad's diesel branches.

As part of the initial assessment, technicians will investigate whether and where recharging stations might need to be built along the route and along other branches. Recharging would take place in yards when trains are out of service, and, if necessary while in-service, during existing station stops that would not be delayed by recharging.

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LIRR to Test Battery-Electric Multiple Unit (BEMU) Cars

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The Oyster Bay Branch was chosen as the pilot branch due to its short, 13-mile trip. Other non-electrified branches would be tested in the future, as well as the feasibility of the battery technology and the ability to retrofit existing trains.

This appears to be the first test of battery-powered commuter rail cars in North America, and if successful could be deployed anywhere diesel commuter trains operate on the LIRR or Metro-North Railroad. If batteries succeed on the LIRR as they have for light rail in Europe and Asia, the use of battery-powered railcars promises over the long term to eliminate the need for transfers to a separate diesel fleet to reach the railroad's expansive unelectrified regions extending 160 miles, from East Williston to Oyster Bay, Huntington to Port Jefferson, Babylon to Montauk and Ronkonkoma to Greenport.

Battery-electric cars could open the possibility that in years and decades ahead, the railroad could entirely replace the noisy, carbon-emitting diesel fleet with quiet, reliable, zero-emission electric cars offering seamless transfer-free travel across the railroad.

In the near term, conversion of a fraction of the railroad's 836-car M7 electric fleet to operate with battery power on even just one of the railroad's unelectrified branches would allow the LIRR to consolidate its diesel fleet on remaining unelectrified branches, enhancing the frequency of diesel service there and lengthening trains. In recent years, the LIRR has seen such a surge in seasonal demand for diesel service that it has had to lease additional cars from Maryland's MARC train system.

The LIRR is sharing program details with its sister, Metro-North Railroad.

Work on the program, being conducted with Alstom,

will begin within the next month. In the first phase, ex-



M7 7604-7603 (Bombardier Transportation, 4/2004) sits on the Runaround Track at the Oyster Bay station on April 19. They were posed there to show the press what could be seen on this, and other, non-electrified branches in the near future.

Jeff Erlitz photograph

pected to last eight months, technicians will evaluate specifications for batteries and where they could be placed aboard M7 cars. They will study the physical characteristics of the Oyster Bay Branch and the Port Jefferson Branch including hills and distances between stations and evaluate sites for recharging stations. Following this initial stage, technicians would operate prototype cars on the Oyster Bay Branch, initially with no passengers. The outcome of these tests will enable railroad officials to evaluate the number of electric cars that could be retrofitted with batteries and when and which trains in passenger service could be converted to battery-electric. Alstom this year acquired Bombardier Transportation, which designed and built the M7 fleet and whose engineers are intimately familiar with all systems and workings of the cars. (MTA press release, April 19)



THE BOARD OF DIRECTORS EXPRESSES ITS DEEPEST APPRECIATION FOR 5 MEMBER DONATIONS IN MARCH, 2021

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\$100 and up	Robert Cuniglio
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THE GENESIS OF “DASHING DAN,” PART SEVEN — THE LIRR’S UBIQUITOUS M.U. FLEET AND OTHER ROLLING STOCK CHANGES, 1911-1920 by George Chiasson (Continued from April, 2021 issue)

THE WHEELING NEEDS OF PENN STATION FULFILLED

As of December 31, 1911 the Long Island Rail Road’s empire of electrified rolling stock consisted of 134 MP41s, 79 T39 wooden electric M.U. trailers and 5 MB45 “Composite” (i.e., wood-steel) baggage motors; 200 MP54 and MP54A M.U. control motors, 15 MPB54 baggage-coach “combination” control motors and 15 MB62 baggage control motors, for a total of 448 cars on hand to service the electrified lines. This included routes that were either already in operation or projected for the near future (meaning the North Side Division). On the non-electrified side of things (freight operations aside), the LIRR was a passenger railway still largely anchored by a diminutive, aging fleet of steam locomotives hauling vast numbers of equally elderly, open-vestibule wooden coaches all over portions of Queens, Nassau and (especially) Suffolk Counties. What through service there was between Pennsylvania Station and outer points could utilize borrowed New York Terminal DD1 electric locomotives to haul the minuscule fleet of 30 all-steel P54A steam coaches, ten B62 class baggage cars, five BM62 baggage-mail combines, five PB54 combines and the one P58 prototype coach 1451 through the East River tubes, with further deliveries continuing yearly. To be sure, the LIRR was continually designated for “minority” status in these Pennsylvania Railroad-sponsored acquisitions (especially as compared to the vastly superior number of “true” P70 class and variant cars the PRR was receiving for its own service to New York), but the overall drumbeat of new car arrivals would ultimately continue with little respite for over 20 years! As an afterthought, it should be added that our crack researcher (i.e. Jeffrey Erlitz in this instance) later amplified that the Long Island Rail Road’s own prototype P58 steel coach from 1907, once car 1401, was actually at first only renumbered to 1451 during December of 1907 to make way for the future MP54A control motors which bore that earlier identification upon its own delivery in 1909. The 1451 was later converted to a specialty “Club Car” simply known as “Smithtown” in 1925 while subsequently experiencing a fleet history of its own.

The year 1912 produced 20 more MP54A control motor cars (1602-1621) and 15 additional P54A coaches (344-358) from American Car and Foundry (ACF), along with the first ten all-steel, steam-operated parlor cars for those long and exclusive jaunts to highly desired destinations like Greenport, Montauk or the Hamptons. Numbered 809-818 and designated as LIRR class PP70 (meaning they had a full-length 70-foot passenger cab-

in), these special accommodations were an important and continuous revenue-enhancer for the railroad, at least when in season between May and September. Eight more PP70 class parlors were delivered from ACF in 1913 (819-826), along with a single 64½-foot club car. Classed P54F, unnumbered and named *Nassau*, it blended well with the 45 more contemporary P54 steam coaches that were by then on hand. As compared to the parlor trade of that very different age, which tended to cater to wealthier clientele on longer, less frequent journeys (Saturday mornings to Sunday evenings, to and from the Hamptons for example), club car patrons were more likely to be day-to-day commuters on specific trains (Penn Station to Oyster Bay or Port Washington perhaps) who forked over a small portion of their disposable riches to do so in greater luxury, leisure and company than the “commoner.” A dozen more MPB54 class control motor combinations arrived from ACF’s Berwick (Pennsylvania) plant that August (1370-1381), followed by the next MP54A control motor cars in September (1622-1636) and a sixteenth in October.

This single, extra car was numbered 1677 (one past the projected block for the next order) and arrived as the very first and only “control trailer” (CT54A) in the Long Island Rail Road’s burgeoning M.U. fleet, a state it retained across its first eight years of railroading life. Built hand-in-glove with the rest of the control motors along with this most recent lot of fifteen, car 1677 had two unpowered trucks as well as an operating cab that received control through the same Westinghouse “AB” group which had been the LIRR’s standard equipment apparatus going back to its earliest MP41 fleet in 1905. This particular operating arrangement was adopted by its close cousin regional railroad company, the New York, New Haven & Hartford from the start of its own M.U. fleet in 1907, which commonly deployed one conventional motor car mated with a pair of control trailers, wherein all three cars were strung as a trio to build a full consist. Another property which later utilized an equal electrified operational technique was the Canadian National, which lately took delivery of its own M.U. fleet in 1952 that ultimately carried commuters on its distinctive Deux-Montagnes line until 1995! The Illinois Central, along with the Chicago, South Shore & South Bend, employed a similar equipment configuration starting in 1926 as did the electrified Lackawanna system around northern New Jersey starting in 1930. Those cars were strictly paired as one motor to each control trailer and strung into operating consists as such until their retirements in 1977 and 1984, respectively. Whatever that

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The Genesis of “Dashing Dan”

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case be elsewhere, the “control trailer” scheme as contemplated by CT54A 1677 for a time after its delivery in 1913 was never fully embraced by the Long Island Rail Road itself, but for a handful of its early “Double Deck” cars in the 1930s and ‘40s that were gradually otherwise transformed by 1958. *(Editor’s Note: In January, 1972, five MP75c (World’s Fair or Zip) class control motors were converted to control trailers, class CT75c. These were the only other control trailer cars ever on the LIRR and these five were then converted into “push-pull” locomotive-hauled cars only two and one half years later, in 1973.)*

With its electrified network quickly gaining in recognition, ridership and patronage as it reached a state resembling “completion,” the wave of arriving M.U. motors abated after 40 more MP54As were brought in from ACF during the spring of 1914 (1637-1676), which were previously accompanied by the LIRR’s first three (and only) MPBM54 class baggage-mail-passenger control motors (1382-1384) and 15 additional baggage-passenger combinations (MPB54 cars 1385-1399). Those moved between New York, Queens and Nassau functioning as nomadic distribution cars on behalf of the US Post Office. Fitted with reception slots in the car body sides, patrons lucky enough to find them at the right moment could conveniently “post” their own mail, enabling it to possibly reach Manhattan destinations later that same day. These were complemented by a dozen P54A class steam coaches for the non-electrified lines (359-370) which were themselves attended by three more steam passenger-baggage combinations (PB54A cars 624-626) and four additional BM62A baggage-mail cars (744-747). As a further reflection of travel trends in this earlier period of time when many points on Long Island were reached after lengthy but occasional trips and not daily, nerve-wracking commutes, the LIRR also then received the first 20 of its stubby B40 class, all-steel, baggage and express cars (651-670) which more than anything resembled miniature freight haulers with arch roofs and a massive sliding door on each side. Their petite dimensions (40-foot cabin) may have indicated an intended use inside the oft-tight confines of Flatbush Avenue’s underground “Long Island Express Terminal,” but there is no way to determine to what degree this was actually the case.

During June of 1915 the “last” of the Long Island Rail Road’s passenger equipment that was acquired to complement the original Pennsylvania Station project rolled in, composed of its first 20 M.U. trailer cars (class T54, numbered 907-926). Like the fast-growing rapid transit lines in New York City and elsewhere, the incredible level of equipment utility on the LIRR’s electrified lines was a continuing cost issue and the purchase of non-motorized trailers offered one potential solution, just in time for the beach bound horde that summer brought with it. The cars in this small order from the Standard

Steel Car Company of Butler, Pennsylvania lacked motors and controls and did not have third rail collection apparatus, but they were wired for electric operation in tandem with existing MP54 and MP54A control motors through jumper cables (as was the usual such arrangement). These particular cars did not either have any provision for heat, whereas they were only expected to be in use during the summer months, and lacked headlining to preserve trapped internal warmth, but quite the contrary. To the casual observer they also sported a noticeably modified car body with a rounded, steel “arch” roof that had a row of fixed ventilators protruding above the middle seam.

That fall an even more unique club car was delivered from ACF, a full-length version classified LP70A and christened *South Shore*. This was followed by a third in 1916 (its second diminutive 64½-foot club car, classed P54G and named *Oyster Bay*), with all after that time able to intermingle among any locomotive-hauled equipment on the LIRR, though the *South Shore*’s weight may have sometimes presented a tractive challenge. Across the remainder of that year, ten more of the diminutive B40 class baggage cars were delivered from ACF (641-650), along with the LIRR’s first three P54B class steam coaches (371-373), which arrived that December. These were basically the same as the P54A but had slightly stronger frames to enable universal compatibility with any 80-foot equipment that might be around. Also entering service at the end of 1916 were a pair of additional PP70 class parlors (827 and 828), immediately followed by four more (830-833) during the first quarter of 1917.

As things turned out, the arrival of one more passenger-baggage combination (PB54A 627) that Spring proved to be a finale for the pre-war acquisition phase for the Long Island Rail Road. Also basically drawing to a close with the April war declaration was a distinctive era of travel across its system, one that had been marked by gaiety and grandiosity even as the long specter of World War I clouded the age of American Optimism. The arrival of international conflict would eventually result in manpower and materials shortages, then engender an extended inflationary backlash. In time this forced the LIRR and most railroads to de-emphasize the preferred, personalized (and by then trivialized) ways of transport past, as symbolized by such luxuries as clubs and parlors, in favor of the serviceable, forthright and fully democratic means that was expected for the future. Perhaps symbolic of those earliest changes to those stately times, both of the specially procured 64½-foot club cars (*Nassau* and *South Shore*) were converted into standard coaches, numbered respectively and simply as 390 and 391 in the fall of 1917. As a result, they received 66 plush 2x2 cushions each, a scheme that was slightly modified against their three closest comparative as-built P54B steam coaches (371-373), which could seat 68 persons.

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Rail News in Review

NEW YORK METROPOLITAN AREA

METROPOLITAN TRANSPORTATION AUTHORITY

A proposal to manage Midtown traffic by charging congestion tolls will go through an environmental assessment per guidance from the Federal Highway Administration (FHWA).

FHWA sent a letter to the New York State Department of Transportation (NYSDOT), the Metropolitan Transportation Authority (MTA) and the New York City Department of Transportation (NYCDOT) explaining the appropriate next step for the project would be the environmental assessment.

FHWA explained New York officials requested feedback on the level of review under the National Environmental Policy Act (NEPA), which is a required assessment for the project to enter FHWA's Value Pricing Pilot Program – the program that provides a pathway to implement congestion pricing.

The environmental assessment would analyze traffic volumes and air quality impacts of the proposed tolling program and FHWA noted the EA process would be designed to ensure involvement of stakeholders from throughout New York, New Jersey and Connecticut.

The project would create the nation's first cordon congestion pricing toll zone and would cover an area from 60th Street in Midtown to Battery Park. When MTA first proposed the Central Business District Tolling Program, it explained the area was the largest employment center in the region. However, residents and workers were losing 133 hours on average annually to congestion. Implementing a variable toll for vehicle traffic in the zone would create an estimated \$15 billion for MTA's current five-year capital program. Emergency vehicles and qualifying ADA transport vehicles would be exempt from the toll.

The net revenues of the program would be distributed with 80 percent going to New York City Transit for subway and bus improvements and the remaining 20 percent going to the Long Island Rail Road and Metro-North Railroad.

MTA Chairman and CEO Patrick Foye said the authority was pleased to see the application for the pricing plan move forward and noted MTA's readiness to see the plan implemented.

The Riders Alliance also supported the FHWA's move and urged quick completion of the needed environmental assessment. (*Mass Transit*, March 31)

New reconstruction options for transforming Penn Station into a world-class, 21st century transportation hub as part of the proposed Empire Station Complex were unveiled on April 21. The Metropolitan Transportation Authority, Amtrak and NJ Transit are working together to establish a framework that would unify the separate railroads' concourses into one state-of-the-art open, light-filled space through two fundamental approaches fol-

lowing a yearlong strategic re-envisioning process, supported by FXCollaborative and WSP.

The existing Penn Station served 600,000 passengers daily prior to the pandemic and is critical for sustaining rail service and connecting people to jobs throughout the Northeast region, yet much of the current station is substandard, overburdened and aesthetically unpleasant. The reconstruction of Penn Station will result in an interconnected, welcoming and modern station worthy of New York. This iconic project, in combination with the new tracks and platforms to be built as part of Penn Station Expansion, will be capable of accommodating the future volume of customers using both the existing Penn Station and the newly expanded facility. Ridership is expected to grow to 830,000 daily users in 2038, about 54 percent of whom will be MTA customers using LIRR, Metro-North and the subway, and 42 percent NJ Transit customers, with the balance being Amtrak customers.

During the yearlong strategic re-envisioning, the MTA, NJ Transit and Amtrak examined a number of options for the reconstruction of existing Penn and the result is two fundamental approaches. Key elements of the vision — under either alternative — include:

- Increasing concourse space to reduce congestion and handle future growth
- Unifying station operations such as ticketing, waiting areas, and cleaning services for all railroads
- Adding more stairs, escalators and elevators to spread riders along the narrow platforms, resulting in a total of 30 new ways to reach platforms
- Providing full accessibility in accordance with the Americans with Disabilities Act and introducing new retail opportunities

Two-Level Alternative

The first approach would transform Penn Station by leveraging the existing configuration's two-level boarding configuration while improving existing Penn's layout, creating a central atrium, and repurposing some of Amtrak's space for NJ Transit's commuters and operations. This alternative can be combined with a grand new entrance on Eighth Avenue and the light-filled West Train Hall in the space currently occupied by Madison Square Garden's 5,600-seat Hulu Theater by purchasing the theater from MSG, increasing sightlines and improving movement throughout the train hall. The two-level alternative could also incorporate new vertical access points to platforms, significantly widened concourses throughout, and new entrances at sidewalk level along Eighth Avenue.

Single-Level Alternative

This approach transforms Penn Station into an open, single-level concourse, eliminating all low ceiling heights and simplifying entry and exit routes from trains

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and the street level while also creating new large circulation areas bigger than the Great Hall of Grand Central Terminal. This alternative would remove 40 percent of the upper level so that all the public concourses could be two or three stories high, resulting in a more open, airy space throughout the station with better sightlines and more direct access to both tracks and platforms, and to station entrances/exits.

It would also feature a spacious, light-filled mid-block Train Hall with prominent new entrances on W. 33rd and W. 31st Streets near Seventh Avenue. The hall would bring in natural light with a new multi-story atrium built in the former taxiway between Madison Square Garden and 2 Penn Plaza, which has been closed for security since September 11, 2001. This alternative moves MSG loading off W. 33rd Street, allowing W. 33rd Street to become a pedestrian-oriented shared street — greatly improving the streetscape.

The single-level alternative could also be combined with a grand new entrance on Eighth Avenue, like the two-level alternative.

Next Steps

Input on these alternatives will inform how the MTA, Amtrak and NJ Transit advance the designs. The public is invited to comment on the proposed station design alternatives by visiting <https://new.mta.info/system/modernization/penn-station-reconstruction>.

When an alternative is selected, the MTA, Amtrak and NJ Transit will work with federal partners on an Environmental Impact Statement for Penn Expansion, together with other federally required processes, all in concert with ongoing public review. (MTA press release, April 21)

MTA NEW YORK CITY TRANSIT

New York City Transit officials announced on April 9 a significant milestone — 2,009,025 trips were recorded on the subway on April 8, the first time that more than two million trips were taken on the subway since the onset of the COVID-19 pandemic in New York City.

Ridership on buses also reflect a resurgent New York City. Bus ridership has regularly gone over one million trips since July, 2020, representing more than half of bus pre-pandemic ridership. Bus ridership on Wednesday, April 7 — 1,155,405 — represents a new record high since September, 2020 when fare collection resumed on buses. Preliminary data shows that there were at least 1,118,319 trips taken on MTA and NYC Transit buses on April 8. The final bus ridership count for April 8 will be higher after additional data is tallied.

Staten Island Railway ridership on April 8 was 3,889, making the total combined number of subway, Railway and bus trips citywide at least 3,131,233 for the day.

The subway ridership milestone comes as the recently passed American Rescue Plan includes an additional \$6.5 billion in emergency funding for the MTA.

Prior to the pandemic, average weekday ridership totals routinely exceeded 5.5 million in the subway sys-

tem. That figure fell by more than 90 percent to a low of roughly 300,000 daily trips last April as the number of COVID-19 cases peaked in the New York City area. Daily bus trips at that time were down close to 75 percent from pre-pandemic figures and fell to approximately 600,000 bus riders per day. New York City Transit workers continued to provide service for the frontline healthcare professionals and other essential workers who needed to get to work during some of the most troubling days in New York City history. (MTA press release, April 9)

President of MTA Construction & Development Janno Lieber announced that work to repair the **F** Line's Rutgers Street Tunnel under the East River has been completed, on time and on budget. The tunnel is the last of the 11 under-river tunnels that were damaged by Superstorm Sandy's corrosive floodwaters to be repaired and made more resilient against future storms.

The tunnel rehabilitation was part of the \$2 billion in work accelerated over the summer during lower ridership by Governor Andrew M. Cuomo and the MTA.

Known as the Rutgers Tube because it is aligned under Rutgers Street on the Lower East Side, the tunnel is actually a pair of parallel tubes that run between the East Broadway station in Manhattan and the York Street station in Brooklyn that were flooded with 1.5 million gallons of saltwater from the Sandy storm surge.

The announcement marks the completion of the tunnel rehabilitation work that has required service impacts to the **F** Line, which was rerouted over the **C** and **E** Lines for 17 weekends beginning in September, 2020 and many weekday overnights during the same period. At the same time, the **E** was rerouted over the **F** Line to Delancey-Essex Streets. Related work under this contract continues through the fall as crews turn their focus to improving tunnel ventilation plants and signal resiliency. To enable this work, which will take place outside the tunnel, weekend subway service changes are anticipated for approximately four weekends during the spring and summer months.

Regardless of what hours they ride, subway riders will benefit from improved service reliability on the line and upgraded station components at the East Broadway station, including a widened stairway and new station tile and platform surfaces. The tunnel is now ready for cellular service to begin once agreements with cell carriers are reached.

The project's construction timeline is the fastest of all Sandy tube rehabilitations. The MTA's Construction & Development division has deployed lessons learned during the **L** Project, including the installation of a similar cable management racking system to the one installed in the **L** Line's Canarsie Tunnel. The Rutgers Tube rehabilitation is also the first under-river tube project to use the fast-track "design-build" approach, rather than design-bid-build. Design-build harnesses innovation and makes projects more efficient by having a single vendor be responsible for both design and construc-

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tion.

Crews have installed new tracks, signal equipment, power and communication cables, and tunnel lighting. Teams are also bolstering the resiliency of the pumping system. In total, crews have:

- Replaced 4,635 feet of subway tracks
- Installed a cable management rack system (CMRS) for the entire length of the Rutgers Tube
- Laid 73,000 feet of signal cable, 44,000 feet of communications cable, 36,000 feet of fiber optic cable, 33,000 feet of cell service cable, 22,500 feet of radio antenna cable, 10,000 feet of cell service power cable, 10,000 feet of cell service antenna cable
- Repaired 250 feet of tunnel wall known as the “duct bench” where cables are housed
- Performed significant upgrades at Chinatown’s East Broadway station including:
 - 11,700 square feet of platform renewal
 - 13,000 square feet of wall tile replacement
 - 1,360 feet of platform edge removal and replacement
 - leak mitigation

(MTA Press Release, March 31)

Inspection of the Manhattan Bridge by the New York State Department of Transportation, as well as track maintenance work by NYC Transit personnel, resulted in the closure of the north side of the Manhattan Bridge on the weekends of April 16-19 and April 23-26 beginning at 11:30 PM Friday until 2 AM Monday.

Ⓓ trains only ran in Brooklyn, between Coney Island-Stillwell Av and Atlantic Av-Barclays Center. Ⓒ trains covered the north end of the Ⓓ route, operating between Euclid Avenue and 205th Street. On the midnights when the Ⓒ does not operate, a Ⓓ shuttle operated between 145th Street and 205th Street. (MTA press release, March 26)

MTA LONG ISLAND RAIL ROAD

President Phil Eng announced a slate of improvements to real-time seating availability information and trip accessibility information that are, apparently, unmatched anywhere in the world. LIRR riders will now find new real-time information available via platform screens, platform announcements and major improvements to the Train Time app that had already been first in the public transit industry to provide real-time seating availability information.

The enhancements in information availability come alongside enhancements to service. New timetables that went into effect on Monday, March 29, restored weekday levels of service that had been in place from January 25 through March 5.

Customer information enhancements include:

Platform Screens: Digital signs on platforms show a diagram of the arriving train, seating capacity in each car, and the observer’s relative position within the train. In a first for any public transportation system anywhere

in the world, customers can use this information to walk to a different part of the platform to find a car with fewer people. At approximately 20 stations with color screens, that information is color coded in accordance with guidelines established by the Americans with Disabilities Act (ADA). At approximately 90 stations with monochrome screens, that information is displayed graphically.

Audio Announcements: Announcements featuring ordinary Long Islanders reinforce the information aurally, advising customers on where within the approaching train they are likely to find more seats. When a train is approaching, the automated arrival announcements include statements to the effect of: “The 7:15 train to Penn Station will arrive on Track 1. There are more seats towards the [rear/middle/front] of the train.”

LIRR Train Time App Becomes More Detailed: The LIRR Train Time app — which already had provided information of this nature — has been made more detailed. The app now shows the number of passengers in each car of every train, refreshed every 15 seconds, along with the observer’s relative position within the train. (When it was first launched last year, the app provided a four-tiered color-coded system of green, yellow, orange or red to show a general sense of seating availability. This color coding remains in place even with the increased detail now being provided.)

Trip Accessibility Information: LIRR Train Time app users will now be able to locate elevators, escalators, and ramps on both origin and destination platforms, giving customers the ability to map out a trip in advance and position themselves in the ideal spot. LIRR staff traveled station-by-station to collect 900 data points to power this app feature. The app also features enhanced screen reader support for blind or low-vision users by reading out loud what is on the screen and adapt the speech output to the speed or volume they choose.

How It Works

The features on screens, announcements and the app are all powered by the same sophisticated first-in-the-industry data system, which uses sensors that can determine how many passengers are on board a train at any given moment. The LIRR securely transmits and processes this data, and seamlessly provides it back out to customers in a useful form in real time.

All of the latest station and app features were built entirely in-house, led by the LIRR innovation team and implemented by LIRR Communications and MTA I.T. staff with an intimate understanding of the system. The team designed numerous solutions tailored specifically to the LIRR and being shared across the MTA.

The approximately 70,000 customers who already have TrainTime installed will receive an automatic update so that they can use the new features. The revamped app remains available for free download through the App Store and Google Play Store for immediate download and use.

Building on Previous Innovations

Earlier this year, the LIRR introduced a chat function

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that LIRR customers can use to chat in real-time directly with LIRR customer service staff. This, in addition to the latest capacity tracking upgrades, will prove especially helpful to customers navigating their return to the LIRR in the wake of COVID-19.

The LIRR Train Time App already includes a wide array of features to make traveling easier, many of which are new for this update:

- (New!) Find a train by searching for a car number on that train
- (New!) See the location of all incoming trains on one map for a given station
- Real-time train location updated every three seconds
- Push notifications for track assignments at Penn Station and Atlantic Terminal
- Ability to share trips with others to coordinate (i.e., picking up at stations)
- Ability to bookmark favorite trips
- (New!) Enhanced iPad support

March 29 Timetables

On the Port Washington Branch, where crews are replacing concrete ties between Mets-Willets Point and Bayside, midday trains operate every hour instead of every 30 minutes. However, rush hour service will operate at a level similar to what had been in place prior to March 8. This work also influences one evening rush hour train on the Hempstead Branch, which will originate at Atlantic Terminal instead of Penn Station. This track renewal project is expected to last through late May. (MTA press release, March 24)

On the Port Washington Branch, westbound Track 1 was out of service between Shea and Bay Interlockings (west of Mets-Willets Point to east of Bayside) from Monday, March 15 continuously to Friday, April 7 for concrete tie installation work. On Monday, April 12, this work was shifted to eastbound Track 2 between the same two points.

Over the weekend of April 17-18, a new signal system was placed into service on the Long Beach Branch. Hurricane Sandy damaged a fair amount of the electronic signal equipment in this very low-lying section of Long Island, much of it located in a storm surge area. This project, in addition to replacing all of the signal equipment, made the new equipment much more resilient to future storms.

The two central instrument locations (CILs) containing all of the relays for the two grade crossings north (railroad west) of the Centre Avenue station (actually located in the village of East Rockaway) are located on the ground but all of the other CIL huts are mounted way up in the air, perhaps ten feet above the ground level.

All of the new signals located in Lead Interlocking, at the end of double track south (railroad east) of Island Park station and on either side of the Reynolds Channel drawbridge, are color light signals. They are not the new

Reduced Aspect signals as can be seen between Farmingdale and Ronkonkoma and at the new Nassau 1 Interlocking west of Mineola. They are of the "standard" type as can be seen at Wantagh and Amityville Interlockings on the Montauk Branch.



This is an example of one of the new Central Instrument Rooms located along the Long Beach Branch right-of-way that house most of the new signal equipment. As you can see, it is mounted quite high up off the ground. This particular location houses the relays, etc. that control Lead Interlocking, at the end of double track, and is only about 325 feet away from the water's edge of Reynolds Channel. View northwest on April 14.

Jeff Erlitz photograph

This is very ironic because the original signal system installed on the Long Beach Branch (in January 1927, along with the Bay Ridge Branch) was all color light signals! They were all replaced with position light signals in 1974-75. Now, 46 years later, color light signals are making their return.



M7 7651 (Bombardier Transportation, 5/2006) is seen here leading Train #861 from Long Beach to Penn Station through Lead Interlocking, east of the Island Park station. This portion of the interlocking controls the end of double track. The new color light signals are still bagged out of service in this view south on April 14, three days before the signal cut-in.

Jeff Erlitz photograph

The other big improvement with this new signal system is the addition of signal protection and automatic

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speed control for train movements going east on Track 1 and west on Track 2. Previous to this weekend, trains making those moves operated under manual block signal rules and would get a “clear block” signal at the east end of Valley Interlocking (in Valley Stream) or at the beginning of double track east of Island Park.

The following M9s were delivered from Kawasaki Rail Car to the Long Island in the first quarter of this year:

Cars	Date
9085-9086	1/26/2021
9087-9088	2/23/2021
9089-9090	2/23/2021
9101-9102	2/23/2021
9097-9098	2/25/2021
9103-9104	2/25/2021
9091-9092	3/5/2021
9099-9100	3/5/2021
9079-9080	3/9/2021
9105-9106	3/18/2021

MTA METRO-NORTH RAILROAD

Metro-North announced new train schedules in effect Monday, April 12 that restored weekend service to Wassaic and included service adjustments on the Harlem Line weekday schedule to accommodate track work. On Monday, April 12, Metro-North began replacing the switches at CP 121 north of the Hartsdale station. The switches are near the end of their expected service life and need replacement.

In order to get this work done, it will require trains to single-track between CP 119 south of Scarsdale and CP 123 south of North White Plains station.

During the pandemic Metro-North advanced critical infrastructure work, while operating a reduced schedule, since the impacts on train service are not as significant. By advancing the project while ridership is still low compared to pre-pandemic levels, train service between Scarsdale and North White Plains will be reduced to one track in both directions for the duration of the project as opposed to weekends only. As a result, more work can be done on weekdays, which will decrease overall nighttime work as well as, the duration of the project from approximately 20 weeks to 12 weeks.

The track work will not affect weekend service on the Harlem Line. Weekend service to Wassaic is restored with nine trains in each direction. The restoration of weekend service also signals the reopening of the Appalachian Trail station, with two morning northbound trains and three afternoon southbound trains providing more access to those seeking an outdoor activity in beautiful Dutchess County.

To help accommodate the work, Metro-North is made the following scheduling changes, reflected in the April 12 timetables.

AM Peak

Two local Harlem Line trains between Grand Central

Terminal and North White Plains end and begin at Crestwood. Stops at Crestwood, Scarsdale and Hartsdale have been added to Southeast express trains adjacent to those local trains to serve those stations and provide connections.

Six trains operate between 10 minutes earlier and seven minutes later to allow trains to pass each other outside the single-track area.

PM Peak

Three Grand Central-North White Plains local trains end and begin at Crestwood. Stops at Crestwood, Scarsdale and Hartsdale have been added to the Southeast express trains adjacent to those local trains to serve those stations and provide connections.

16 trains operate between 12 minutes earlier and four minutes later to allow trains to pass each other outside the single-track area.

Other Schedule Changes

In addition to the service adjustments on the Harlem Line, the following changes went into effect on April 12.

New Haven Line

Two new trains have been added to its schedule, one in the morning and one in the afternoon. There is a new early morning train from New Haven to Grand Central Terminal that departs New Haven at 4:00 AM and arrives Grand Central at 6:09 AM. The new afternoon train runs from Grand Central to Stamford, leaving Grand Central at 5:55 PM, running express to New Rochelle then making all stops to Stamford.

New Haven Line customers will also notice the following adjustments:

Two express trains in each direction add a stop at Greenwich: Grand Central-bound 6:40 AM and 7:18 AM from New Haven stop at Greenwich at 7:59 AM and 8:29 AM; New Haven-bound trains stop at Greenwich at 4:45 PM and 5:17 PM, arriving New Haven at 6:18 PM and 6:38 PM.

New Rochelle, Larchmont, Mamaroneck and Harrison gain additional service from New York City, with New Haven-bound trains departing Grand Central at 4:54 PM and 5:30 PM stopping at those stations.

The 4:59 PM New Haven-bound express train from Grand Central now stops at Stamford at 5:48 PM.

The 5:01 PM local train to Greenwich has been combined with the 4:54 PM Stamford local, departing Grand Central at 4:54 PM. The combined train makes all stops of both trains, connecting to a New Canaan Branch train at Stamford.

Hudson Line

The Manitou station, located near Bear Mountain Bridge and Anthony’s Nose, reopened on Saturday, April 17. Six trains in each direction stop at Manitou on Saturdays, Sundays and holidays to restore service to this popular Hudson Valley destination.

Special Service

Metro-North provides gameday service for New York Yankees home games, operating shuttle trains to and from Yankee Stadium between Grand Central Terminal, Harlem/125th Street and Yankees/E. 153rd Street as

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well as adding the Yankees/E. 153rd Street stop to all Poughkeepsie express trains. Harlem and New Haven Line passengers can make connections to these trains at Harlem/125th Street.

On Memorial Day, Monday, May 31, and Independence Day, July 4, Metro-North will operate on a Week-end/Holiday schedule. (MTA press release, April 5)

NJ Transit



NJ Transit photograph

April 6 marked the beginning of testing of NJ Transit's first of 25 new ALP-45 dual-power locomotives manufactured by Alstom. The beginning of testing was celebrated during a ceremony at Newark Penn Station with New Jersey Governor Phil Murphy, NJ Transit Chair Diane Gutierrez-Scaccetti, NJ Transit President and CEO Kevin Corbett and local officials.

The locomotives will meet the current EPA Tier IV requirements, the most rigorous air quality standard to date for new locomotives, reducing emissions compared to the locomotives to be replaced when operating in diesel mode, and producing zero emissions when operating in electric mode. The ALP-45s offer a significant increase in horsepower, acceleration and available head-end power. The ALP-45 locomotives are designed to operate push-pull passenger train service on both electrified and non-electrified lines at speeds of up to 125 mph in electric mode and up to 100 mph in diesel mode.

The locomotives will undergo dynamic qualification and acceptance testing for about six weeks, at which time they will be prepared to enter revenue service. (*Mass Transit*, April 7)

The Federal Railroad Administration (FRA) is working with NJ Transit, the Port Authority of New York & New Jersey (PANYNJ) and cooperating and participating agencies to prepare a Final Environmental Impact Statement (EIS) for the Hudson Tunnel Project, which FRA says will be completed by May 28.

The FRA is the lead agency preparing the EIS and NJ Transit and PANYNJ are joint lead agencies in the development of the EIS. The Federal Transit Administration and the U.S. Army Corps of Engineers are cooperating agencies. FRA is coordinating compliance with

Section 106 of the National Historic Preservation Act with the NEPA process.



The New Jersey end of the Hudson River Tunnels.
Amtrak photograph

The project is intended to preserve the current functionality of the Northeast Corridor's (NEC) Hudson River rail crossing between New Jersey and New York and strengthen the resilience of the NEC. The project includes construction of a new two-track rail tunnel on the Northeast Corridor, connecting New Jersey to Penn Station New York (PSNY) beneath the Hudson River, and includes railroad infrastructure in New Jersey and New York connecting the new rail tunnel to the existing NEC and rehabilitation of the existing two-track NEC tunnel beneath the Hudson River, known as the North River Tunnel.

The North River Tunnel, which was damaged by Superstorm Sandy in October, 2012, is used by Amtrak for intercity passenger rail service and by NJ Transit for commuter rail service. The tunnel has two separate tubes, each accommodating a single track for electrically powered trains, and extends approximately 2.5 miles from the tunnel portal in North Bergen, New Jersey to Penn Station, New York, New York.

The Gateway Development Commissioners released the following statement, commending the FRA for its commitment to completing the EIS:

The project will rehabilitate the North River Tunnel without disrupting existing levels of train service and provide redundant capability for rail service crossing the Hudson River. To perform the needed rehabilitation in the existing North River Tunnel, each tube of the tunnel will need to be closed for more than a year. However, rehabilitation needs to be accomplished without unacceptable reductions in weekday service. Therefore, the project will first include construction of a new tunnel with two new rail tubes beneath the Hudson River (the Hudson Tunnel) that can maintain the existing level of train service while the damaged tubes in the North River Tunnel are taken out of service one at a time for rehabilitation. Once the North River Tunnel rehabilitation is complete, both the old and new tunnels will be in service, providing redundant capacity and increased operational flexibility for Amtrak and NJ Transit. (*Mass Transit*, April 12)

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OTHER SYSTEMS

BOSTON, MASSACHUSETTS



The scene of the derailment on the MBTA's Orange Line on March 16.

@thetrueboston via Twitter photograph

The MBTA said that it would take all new Orange Line cars and one new set of Red Line cars temporarily out of service following a derailment on the Orange Line in Medford on Tuesday, March 16.

The derailment happened in a work zone near the Wellington station in Medford. About 100 people were riding the slow-moving train when it jumped the track, but no one was hurt. The train that derailed was made up of a new set of Orange Line cars. The MBTA is working to replace all older cars currently used on both the Orange and Red Lines.

The cause of the derailment is under investigation.

Shuttle buses replaced train service in the area of the derailment for at least three weeks.

The MBTA saw two high-profile derailments on the Red and Green Lines in 2019 that prompted a safety review of the entire system.

Delivery of new cars to both lines, which collectively costs about \$1 billion, has been delayed by about a year, though a new Red Line car debuted on the line at the end of 2020.

Delivery of the total set of new Red Line cars is expected to be done by September, 2024. The "T" hopes to be running the current level of service with new cars by Winter, 2023, with faster, more efficient trips by Winter, 2024.

The cars, built by China Railway Rolling Stock Corporation, are made in China but partially manufactured at a plant in Springfield. The "T" said most of the delays for the new cars have come from the Springfield facility, including issues with COVID-19. (*Patriot Ledger* via *Mass Transit*, March 18)

The MBTA plans to implement a new fare system that allows riders to board commuter trains, trolleys and buses with the tap of a credit card or smartphone. But the changes are raising concerns about riders who don't have access to those technologies — or just prefer to use cash.

So, the transit agency is planning a massive expansion of sales locations where people can use cash to buy tickets.

Under the new fare system, which would go into effect over the next three years, cash would no longer be accepted aboard "T" vehicles, but MBTA officials stress that customers will still be able to use paper money and coins at vending machines to get a ticket.

Transit advocates have expressed concerns that doing away with cash fares is not fair to those without smartphones or credit cards.

"T" officials say about 1 in 20 riders buy tickets with cash onboard, while a fewer number use kiosks at train stations and on buses to reload their Charlie Cards.

The "T" plans to focus on locating new ticket vending machines in traditionally underserved communities to reach minorities and the elderly.

Replacing the fare collection system is part of Governor Charlie Baker's plan to invest \$8 billion on modernizing the MBTA following crippling snowstorms in the winter of 2015.

Buses and subway trains will implement the cashless fare system sometime in 2023, according to "T" officials, followed by the commuter rail in 2024.

Overall, "T" officials say the new system will reduce fare evasion, boost ridership, speed up the boarding process and reduce the overall cost of operations.

New fare gates would be wider to more easily accommodate passengers with wheelchairs or baby strollers, "T" officials said.

Buses would be accessible by both doors instead of just the front, which "T" officials say would speed the boarding process. (*The Eagle-Tribune* (North Andover, Massachusetts) via *Mass Transit*, March 24)

The MBTA will perform nearly continuous work for seven weeks this April as part of the Green Line Transformation Program's B Branch Station Consolidation Project and the Building a Better "T" Program.

Accessible shuttle buses replace Green Line B branch trolley service between the Washington Street and Kenmore stations beginning at the start of service on April 17 through May 9, as well as from May 17 through June 13, including both weekdays and weekends. Evening shuttles will also replace B Branch service from Washington Street to Kenmore from May 10 through May 12 after 8:45 PM.

During this diversion in B Branch service, crews will continue to perform work to consolidate four B Branch stations into two brand new stations on Commonwealth Avenue adjacent to Boston University between Babcock and Amory Streets. The St. Paul Street and BU West stations will be consolidated into one station called Amory Street, and the Babcock Street and Pleasant Street stations will be consolidated into one station called Babcock Street.

With a total project budget of more than \$29 million, the new stations will include longer, raised platforms in both directions at each new station. These 225-foot

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platforms will be able to accommodate the future “Type 10” Green Line “supercars.” The new stations will also feature 150-foot canopies at each new platform, accessible walkways, new communications and safety/security systems, lighting, signage, new benches and additional station elements. The work also includes demolition of the existing four stations. Construction began in February, 2021 with an anticipated completion in late 2021. The project is being accomplished in coordination with Massachusetts Department of Transportation Commonwealth Avenue Phase 2A project and the Commonwealth Avenue Bridge Replacement project. **(Mass Transit, April 1)**

WASHINGTON, D.C. AREA



A rendering of the new 8000-series cars that will be built by Hitachi Rail for WMATA.

WMATA photograph

Hitachi Rail Washington LLC has been selected by the Washington Metropolitan Area Transit Authority (WMATA) to build Metrorail’s 8000-series rail cars to replace WMATA’s aging 2000-series and 3000-series cars, which have been in service since the early 1980s.

The \$2.2-billion contract includes a base order of 256 cars with options to build up to 800 in the fleet.

WMATA explains the new railcars are funded using new dedicated revenue streams established by the District of Columbia, Maryland and Virginia. WMATA says it structured the procurement process to encourage reinvestment of local tax dollars into the regional economy.

Hitachi Rail will manufacture the car body structure, perform the equipment installation and will do the final assembly of the 8000-series cars in the Metro D.C. region, which both Hitachi Rail and WMATA note will result in new skilled trades jobs in the local region. The initial pilot vehicles are expected to be delivered in 2024.

The 8000-series railcars will build on the 7000-series cars, which WMATA calls “the most reliable in Metro’s history.” The new cars will include state-of-the-art safety technology and mechanical design. The new railcars are designed to be lighter, safer and more energy-efficient with improved regenerative braking technology, ventilation system improvements, high-definition camer-

as and stringent cybersecurity requirements to enhance security.

The new railcars will also include features to improve the customer experience including real-time information, more digital screens, dynamic maps, electrical outlets for charging personal devices and additional handholds throughout the interior. **(Mass Transit, March 18)**

DALLAS, TEXAS



DART map

The Dallas City Council has unanimously approved a resolution supporting the Dallas Area Rapid Transit (DART) D2 Subway Project, a second light-rail line that will run through downtown Dallas and extend from Victory Park to Deep Ellum.

The resolution includes a commitment to continue to work towards addressing community concerns on the east end of the alignment.

The Dallas-Fort Worth area continues to experience unprecedented growth, with new businesses and residents moving to the area every day. The primary purpose of the D2 Subway project is to add long-term passenger carrying capacity to the DART light-rail system and provide operational flexibility and added reliability—especially important for the thousands of riders that use the DART system every day to get to work, services and school.

DART began planning for the D2 Subway project in 2007 and the 30 percent level of preliminary design was completed in October of 2020. DART will continue to work with the Federal Transit Administration (FTA) to request re-entry into the Capital Investment Grant program engineering phase as a core capacity project. The first step in this process will be for the FTA to issue the Final Environmental Impact Statement/Record of Decision along with the 30 percent design package. Public, agency and stakeholder involvement will continue to be integral to the process. **(Mass Transit, March 30)**

The opening of Dallas Area Rapid Transit’s (DART) Hidden Ridge Station at Carpenter Ranch in Irving, Texas, was celebrated April 9. This is the 65th station in the DART system.

Developed in partnership with the city of Irving and Verizon Communications, the new station is located on the Orange Line between North Lake College and Irving Convention Center stations.

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Originally a part of the 3.9-mile Irving-2 opening of the Orange Line in December, 2012, the Hidden Ridge station (formerly known as the Carpenter Ranch station) had been deferred in anticipation of Verizon Communications' Hidden Ridge development, a planned 110-acre mixed-use project which will feature 1,200 apartments and residences; 80,000-square feet of restaurant and retail space; a hotel; and a two-acre green space with amenities.

Constructed by Archer Western Construction with Jacobs serving as the design consultant, DART's Hidden Ridge station will offer amenities such as a 136-space parking lot; six bus bays for making connections and transfers; five kiss-and-ride spaces for a convenient drop-off and pickup; and a short trip to DFW Airport.

As with all DART stations, including an Art and Design Program that reflects the community it serves is important in the creation of each DART station. Marty Ray, a ceramic artist and former Professor Emerita of Art at Dallas College-North Lake Campus, is responsible for the artwork at the Hidden Ridge station. Since the station is located on Carpenter Ranch, once the homestead of Las Colinas founder Ben Carpenter, the art plays off the land's history. The installation also reflects the natural elements of the land, wildlife and nearby creek.

The DART Hidden Ridge station began revenue service April 12. (*Mass Transit*, April 12)



DART's new Hidden Ridge station on the Orange Line.
DART photograph

SEATTLE, WASHINGTON

Sound Transit's new U District, Roosevelt and Northgate stations will open October 2.

The \$1.9 billion, mostly tunneled extension is expected to add 45,000 daily passengers, who can travel from the Northgate station to downtown's Westlake station in 14 minutes.

The NHL Kraken hockey-team headquarters and ice rinks that are being developed at Northgate and a walk-bike bridge across Interstate 5 to North Seattle College should attract train riders. King County Metro Transit will increase bus trips to the three stations in a service change this fall.

The grand opening comes later than the September target set by Sound Transit. Agency staff attribute the delay to COVID-19 related construction disruptions. An October 2 start date is also more manageable because there is not a Huskies football game that Saturday.

Officials have yet to determine what celebrations will occur in the stations October 2, but parties were held in 2009 and 2016 grand openings.

Along with the three stations, new Siemens trains built in Sacramento, California will join the 25-mile corridor, with wider midsections to hold about 10 more people per rail car.

The week of April 4, the city reopened Brooklyn Avenue Northeast alongside the U District station to include car lanes and wider sidewalks.

Voters approved a sales-tax increase in 2008 to pay for the Northgate extension, as well as future track ways being built to Overlake, Lynnwood and Federal Way. In 1996, elected officials said, as Sound Transit was being formed, that they might reach Northgate in only ten years.

Seattle transit ridership showed the nation's fastest growth in the 2010s, to include 80,000 light-rail trips on busy days before the pandemic. (*The Seattle Times*, April 9)



The first girders are going up at the future Kent/Des Moines station.
Sound Transit photograph

Sound Transit has put into place the first elevated light rail structures for the Federal Way Link Extension.

Workers began installing the girders the week of April 11 to support the elevated station platform of the future Kent/Des Moines station. Girders supporting the elevated rail line will be installed throughout the alignment in the coming months.

The current work includes placing six girders at a time. The girders are typically between 100 and 115 feet and weigh up to 130,000 pounds. The girders are too large to be delivered during the day due to oversized load traffic regulations. Crews have also drilled 36 of 121 shafts and placed 25 of 121 columns that will support future elevated tracks and station facilities.

Construction is advancing at the sites of all three of

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the project's new light-rail stations and new garages.

Kiewit Infrastructure West Company is the design-build contractor for the \$3.1-billion project, which is funded in part by a \$790-million grant from the Federal Transit Administration and a \$629.5 million Transportation Infrastructure Finance and Innovation Act loan from the U.S. Department of Transportation. (*Mass Transit*, April 13)

SAN FRANCISCO, CALIFORNIA



A Sunnyside-bound T/Third train approaches the 4th Street Bridge. SFMTA photograph

The San Francisco Municipal Transportation Agency (SFMTA) Board of Directors approved temporary emergency transit lanes for the 4th Street Bridge to address a key bottleneck that delays the T/Third line on the street northbound and southbound between Berry and Channel Streets.

As a response to community feedback, the project team developed a two-phase implementation of the temporary transit lanes to allow for an evaluation of their effectiveness before fully restricting northbound bridge traffic.

The initial evaluation of the first phase has been completed, and data shows that partial implementation was effective in allowing Muni trains to travel across the bridge with little delay.

Currently, northbound left turns are restricted from 4th Street onto Berry Street. The previous left turn pocket at that location was converted to a temporary transit lane, while northbound through-traffic continues to be allowed on the bridge. As the city emerges from the public health order to less restrictive tiers, SFMTA will perform

an additional evaluation of the existing Phase 1 implementation. If that analysis determines that northbound private vehicle traffic on the bridge has begun to cause delays to the T/Third, the single northbound lane will be restricted temporarily to transit only between Berry and Channel Streets as a second phase of the project.

Phase 1: Complete

Evaluation of this phase began after the T/Third resumed service in late January:

- A southbound temporary emergency transit lane was installed in one of the two southbound lanes on the 4th Street Bridge
- Northbound left turns are now temporarily prohibited from 4th Street onto Berry Street
- The left turn pocket in the northbound direction from 4th onto Berry Street was converted to a temporary transit lane

Phase 2: If a change in emergency order tiers shows that traffic is causing transit delay on the 4th Street Bridge:

- A northbound temporary transit-only lane will be installed in the sole northbound lane on the 4th Street Bridge
- Northbound traffic will not be permitted on the 4th Street Bridge, with these additional temporary restrictions:
 - Heading north on 4th Street at Channel, no through traffic onto the 4th Street Bridge (right or left turn required)
 - Heading east on Channel, no left turn onto the 4th Street Bridge
 - Heading west on Channel, no right turn onto the 4th Street Bridge
 - Southbound general traffic will continue to be permitted

Evaluation of the phased approach

The Phase 1 evaluation included site visits and several weeks of monitoring traffic on and around the 4th Street Bridge. The chief metric was whether general traffic blocked trains on the shared northbound lane across the 4th Street Bridge. If northbound traffic blocked trains more than five percent of the time, the plan was to implement Phase 2. Periods of evaluation included morning, mid-day and afternoon/evening peak.

SFMTA also monitored train travel times using location data from T/Third train tracking devices to identify when trains experienced the longest travel times on the 4th Street Bridge. Because this data showed few instances when trains were blocked by northbound traffic, SFMTA paused implementation of the second phase. (*Mass Transit*, March 22)

Bay Area Rapid Transit (BART) is getting underway with a large construction project in southern Alameda County.

Crews will replace critical track components between the South Hayward and Union City BART stations as well as build a new storage facility at the Hayward Maintenance Complex for hundreds of new Fleet of the Future cars.

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BART is targeting stretches of trackway in the system that are in the greatest need of replacement and prioritizing work on those sections. This critical work will replace nearly 50-year-old track infrastructure. Many of these aging track components have been in operation since the beginning of BART service in 1972 and have outlived their design lives. Funding for the track replacement work is coming from voter-approved Measure RR. Support for the new rail car storage facility is supported in part by a \$1.17-billion grant from the Federal Transit Administration. The storage facility is part of the Transbay Corridor Core Capacity Program, which will dramatically increase the number of trains BART can run through the Transbay Tube.

Part of the project will involve the construction of a retaining wall. The equipment used for this part of the project installs the piles for the wall by vibrating the piles into the ground. This has the potential to create significant noise at the work site.

Once complete, BART passengers should experience a smoother, safer and more reliable ride. The new rail car facility will bolster BART's service to San Jose as well as help to ensure BART is maximizing the number of Fleet of the Future trains in operation.

The project will require a series of weekend track shutdowns between South Hayward and Union City. On those weekends, free buses instead of trains will carry passengers between those stations. Thirteen weekends have been scheduled for track shutdowns in South Hayward in 2021. On all these weekends free buses will replace trains and riders should plan to add 20-25 minutes to their trips. Additional shutdown weekends are expected spring through fall in 2022 but specific dates have not yet been selected.

Along with installing new rail components, BART will also replace the 34.5kV (kilovolt) electrical cable to ensure trains have a reliable source of traction power. Replacing these electrical cables is also an important step in allowing BART to run more trains in the future. This work will be performed primarily at night but will also require some days when train service between the South Hayward and Union City stations will be reduced to only one track. This will result in delays of 15-20 minutes for riders in that portion of the system. (*Mass Transit*, March 29)

TORONTO, ONTARIO, CANADA

Metrolinx published the Initial Business Case for the Yonge North Subway Extension (YNSE), one of the government of Ontario's priority transit projects. The scope of the 4.9-mile extension shows a shift east in the alignment and a reduction of the originally planned five stations down to four stations, depending on budget.

Within the document, Metrolinx says it is "committed to delivering a YNSE that offers an optimized program within the available funding envelope" of C\$5.6 billion (US\$4.48 billion). The three options are estimated to

carry total costs of C\$4.3 billion to C\$5.8 billion (US\$3.44 billion to US\$4.64 billion). However, Metrolinx explains none of the options can deliver the extension with five new stations within the project's budget. Additional stations are estimated to cost between C\$400 million (US\$319.81 million) and C\$500 million (US\$399.79 million).

The Initial Business Case and supplementary analysis show how extending the Toronto Transit Commission Line 1 subway from the Finch station to Richmond Hill would improve regional mobility, help people travel faster and more reliably and support sustainable travel patterns and public health.

The Initial Business Case also recommends opening the Yonge North Subway Extension after the Ontario Line enters service as the Ontario Line is expected to provide relief to Line 1 and free up capacity for the Yonge North Subway Extension to proceed. The schedule included in the document estimates a contract could be awarded in September, 2023 with construction starting in 2024 and the line entering service between 2029 and 2030.

Metrolinx will take the Initial Business Case to the public through virtual meetings and other engagement efforts shortly. (*Mass Transit*, March 19)

Metrolinx has made significant progress with rail work on the Eglinton Crosstown light rail transit project.

At the platform level of the Fairbank station, crews have completed the installation of the track. Visually, it sets the stage for the future light rail vehicles that will make their way constantly in and out of that Toronto stop.

Meanwhile, at the Oakwood station, there is more delicate work taking place. Experts are installing the final tiling at platform level.

At the Chaplin station, there is work happening on the stairs between the platform level and the concourse levels.

And in the railway corridor, the structural steel installation for the center UP Express platform has been completed. The Mount Dennis station will link Crosstown with UP, as well as to GO Transit and Toronto Transit Commission buses.

Metrolinx crews have finished installing tracks along a stretch of track leading westbound from the vital Brentcliffe portal, which has an underground tunnel opening at Eglinton Avenue East and Brentwood Road.

This stretch of tracks will be put to the test later this spring when six light-rail vehicles will make their debut along the eastern portion of the alignment for vehicle testing. Vehicle testing in this section will start in the spring and continue into the summer months.

Meanwhile, in other developments along the Cross-town line, at the Chaplin station's southeast entrance, crews are erecting structural steel and installing the decks at the second and roof levels.

And at the Mount Dennis station, the architectural works at the bus terminal have been completed. (*Mass Transit*, April 2 and 8)

VIENNA-BRATISLAVA-UKRAINE

by Jack May

(Continued from April, 2021 issue)

(Photographs by the author, except where noted)

Before continuing the narrative, I want to mention that Klaus Matzka has suggested some corrections and additions. My biggest mistake was describing Vienna's short ULF cars as having 5 sections with the long ones containing 7 in various captions. They are actually 3- and 5-section units respectively, as what looks like separations near their front and rear do not contain articulation joints. Klaus also commented that he understands my attraction to the works of Egon Schiele, as it turns out he was born in the railroad station at Tulln, having been the son of its station master. Lastly, when I indicated I was impressed by the enormity of having two organizations vying with each other to charter historic streetcars, it turns out there are three entities involved with renting out trams: Wiener Linien, whose museum is a major tourist attraction (and who operates the ring tourist tram as well as the bus and tram network); and the two that charter heritage cars: the VEF, a railfan group; and the Wiener Tramwaymuseum, a privately-owned operation. Wiener Linien will charter only modern cars, like the ULFs and the E-types.

Thursday, June 15

I was looking forward to visiting Bratislava, the capital of Slovakia, as although I briefly visited the city before, I had not gotten a good feel for the meter-gauge tramway network nor the urban area itself, but was impressed enough to try again. In 1999 I spent half a day there, at the end of Mike Glikin's fine ERA tour of Hungary, but all I was able to accomplish was a ride on a crowded fan-trip. That whetted my appetite and I planned a visit in 2007, between stops in Brno (Czech Republic) and Zagreb (Croatia). It was my first trip to Brno and I was so enthralled with its tramway that I stayed there an extra day, and as a result, ended up skipping Bratislava. (I could not push everything back a day, as I was picking up my 10-year old granddaughter in Dubrovnik and we had air tickets to the U.S. that were not changeable, except by paying a huge penalty. I did get back to Brno in 2016.) So this was my next opportunity.

Bratislava, close by Slovakia's border with Austria, is a mere 50 miles from Vienna, and is reachable by rail in roughly an hour. When I saw Klaus on the previous day he explained the various transportation alternatives. Most importantly, there are two routes that each have hourly service, one north of the Danube and the other south. Both run to and from Vienna's Hauptbahnhof, but the one south of the river ends at Petrzalka, a small station in a neighborhood a short bus ride from the newest extension of the tramway network, while the other runs to Bratislava's main station, Hlavna Stanica (hl st), which is served by two streetcar lines. That information, of course, you can obtain from the internet, but the devil is in the details.

Klaus was a lifesaver, as he told me that if you go to Petrzalka, be sure to have coins as the transit ticket vending machines do not take bills or credit cards. And

he continued, if you use hl st, you'll find that the trains' OBB cars are not air-conditioned, but there is usually one Slovakian Railways coach with A/C, so if it is warm, make sure to ride in that one. Complicating things further was the fact that today was a holiday in Austria (Corpus Christi Day) and the hourly service on each line would run only bi-hourly.

I decided to ride to Petrzalka and return from hl st, and so, after having breakfast with Clare, arrived at the Hauptbahnhof at 8:30. A special round-trip excursion fare to Bratislava for only €16 was available, which also could be used as a day ticket for the Bratislava transit system, and so I purchased it and went to platform 9 for the 8:45 train. The eMU was a through train from a place called Deutschkreutz, about 55 miles south of Vienna, and arrived late, disgorging a large number of passengers after it came to a halt. I found a seat in a now-sparsely occupied coach and we pulled out at 8:52, 7 minutes late. It was a pleasant ride, first through an industrial area and then farmland. There were about 8 intermediate stops, which all had some ons and offs, and we finally pulled into Petrzalka on a stub-ended track at 9:45, only one minute off the mark. I took a photo of the train, and interestingly, when I checked the internet (and with Klaus) to find the equipment type, I discovered it was dual-powered, which made sense because the Austrian Railways (OBB) uses 15,000 volts a.c. $16^{2/3}$ Hz, while Slovakia's electrification, which is newer, is at 25,000 volts and 50 Hz. But also of interest, the MUs also exercise their dual-voltage capability on the other end of their route, as Deutschkreutz, while in Austria, is very close to the border of Hungary, and the rail line, built in the days of the Hapsburg Empire when it was all one country, runs through a section of today's Hungary and switches to 25,000 volts when it crosses that border (at the city of Sopron*). That may explain why the two lines are through-routed — very clever.

*The German name for Sopron was Odenburg, but the city was awarded to Hungary after a plebiscite in 1921. At that time Deutschkreutz remained in Austria.

Bratislava is the capital of Slovakia, but prior to the end of the First World War it was called Pressburg, and was the leading city of the province of Slovakia, officially in the Hungarian portion of Austria-Hungary. After the breakup of the empire the province of Slovakia was combined with Bohemia, Moravia, Silesia and part of Ruthenia into the Republic of Czechoslovakia, with Prague as its capital. In 1948, three years after the end of World War II, with the overwhelming support of the Soviet Union, the Communist Party took complete control of the government and it became a satellite under the thumb of Russia until the Iron Curtain disintegrated in 1989, and a democratic state was created. Later, in

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1993, after a vote, Slovakia became independent with the remainder of Czechoslovakia becoming the Czech Republic (or Czechia, a name used by most English-speaking Europeans that is catching on).

The entire country occupies about 19,000 square miles of land, which makes its size somewhat between that of Maryland and West Virginia. Its population of about 5½ million puts it just below Maryland. The capital city's population is about 420,000, so it is smaller than Baltimore, but larger than any other city in those two states.

Once an electric interurban also plied the rails to Bratislava from Vienna. The standard-gauge Pressburger Bahn operated through passenger service between the centers of the two cities from 1914 to 1938. The railway utilized the Austrian Railways electrification system of 15,000 volts a.c. between the cities, but its dual-powered motor cars operated on 600 volts d.c. within Vienna and 550 in Bratislava. Being standard gauge, dual-gauge track was used on common sections of route with the Bratislava tramway. Too bad I could not ride that line on this Thursday.

Bratislava has 7 meter-gauge tram lines covering about 25 route miles (plus another two rush hour-only lines). Its rolling stock consists of 60 new 5-section Skoda-built CityPlus 100-percent low-floor articulated units (30 class 30T double-enders and 30 29T single-enders), plus a variety of Tatra cars built in Prague during the communist period.

In fact, since I also saw a very large number of Tatra cars in Ukraine, it now may be a good time for me to identify the different types of vehicles (in a simplistic manner, since I am neither a technical expert nor do I care about patents, licenses and royalty payments). Most Tatra trams are considered to be PCCs, mainly because of their trucks and electric equipment, with their construction having been based on the research and development performed in the U.S. that created the American PCC. Thus I am not surprised that over the years I found they have a similar feel and ride quality as our PCC cars.

Most were single-ended high-floor units (although there are some noted exceptions described below).

Double-truck cars

T3 The iconic eastern European version of the PCC car. Some 17,600 (including T4s) were turned out on Tatra's production lines from 1963 to 1989. Many have been renovated in varying degrees, even to the extent of being rebodied, and those are represented using alphabetic suffixes after the T3. Some were even rebuilt with small center low-floor sections. I tend to ignore the specific classification of the different versions as I cannot remember what each suffix means. The T3 was an evolution of earlier T1 and T2 cars, which were significantly fewer in number. A narrower version of this type of car, built mainly for systems with tighter clearances is called the ...

T4 and was especially popular in [East] Germany (T4D) and the Soviet Union (T4SU). As far as I know its width is the only major difference between the T3 and T4 designations.

T6 A modernized version of the T3/T4 with a major change in body styling, where the aesthetically pleasing curved lines of the PCC were replaced by angular shapes. Because these cars were newer models, they have updated electric and electronic components, but then that is also true for later versions of the T3. Still based on the PCC, one could say their body style is a copy of the KT4's (see below). Some 1,832 were built from 1985 to 1998, with a single unit in the last year of production sent to New Orleans for testing (it now runs in Strausberg, Germany). Again there is confusion in nomenclature, as the T6 cars built for the Soviet Union are called T3M in those countries (I will call them T6s). Prior to the T6 there was the ...

T5 for Budapest, which introduced the styling for double-truck cars. A substantial number, 322, were built (and are still running); they paved the way for the successful T6, which has the same body styling.

Articulated cars

K2 This is a 2-section, articulated version of the T3. K2 bodies look very much like T3s, but they are obviously longer. Some 567 were built for 12 cities between 1966 and 1983. Another 200 similar cars, but double-ended, were built for Cairo.

KT4 The successor to the K2 is narrow, like the T4, but its body style introduced the angular look later found on the T6 cars. Between 1973 and 1991 a total of 1,751 of these two-section articulated PCCs were constructed by Tatra, while another 50 were built in China with exported parts for Pyongyang, North Korea. An order of 20 for Belgrade was built as late as 1997. Some of these cars have been modernized with low-floor center sections added to become 3-section, accessible units.

KT8 Tatra's last production model was a long, 3-section double-ended PCC built to handle large crowds. Some 199 of these cars were constructed from 1984 to 1993, including 45 for Pyongyang. A number of their high-floor center sections have been replaced with low-floor ones.

In summary, because of the timeline, the T6 could be considered a newer, updated version of the T3/T4, while the same would be true for the evolution of articulated cars from the T2 to the KT4. One could also say the KT8 was the final chapter in the progression of Tatra-built PCC cars. Surely the T3 should be represented in the collection of an American trolley museum that wants to depict the history of PCC cars.

In Bratislava I rode K2, T4 and T6 cars (in addition to the new Skoda low-floor units). Following the text are examples of each of these types of PCCs.

After leaving the Petržalka station with my railroad/day ticket in hand, I saw the transit ticket vending machine at a bus stop along the curb and helped some other tourists purchase tickets (a senior day pass cost €3.45). A few minutes later a Route 99 bus pulled up and I

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boarded for what turned out to be a short, four-stop ride to a point (Farskeho) where the street crosses the tracks of Bratislava's newest tram line. The sky was solid blue and after a couple of photos, I rode one stop out to what is the temporary end of the line, Jungmannova. The company is building a 6-stop extension to run further south for another 2¼ miles. The Petrzalka neighborhood began to be served by Routes 1 and 3, which run on a combined 4-minute headway, in December, 2015, after a new truss bridge (called the old bridge*) was constructed for trams, bicycles and pedestrians. Apparently there is a desire in Bratislava to convert its tramway to standard gauge some time in the future, so this section of route is constructed for dual gauge operation, with each track equipped with four rails, two set at meter gauge within two at standard gauge. I suspect the outer rails will stay rusty for some time.

*The name of the bridge is Stary Most (old bridge) and it is located

on the footprint of a bridge that had been built for railroad trains and motor traffic in 1891, which closed for rail (1983), vehicles (2010), and finally pedestrians (2013). The new bridge, or Novy Most, was built in 1972.

After some photos I rode the two stops to the outer end of the bridge. My photos of the extension, which is operated exclusively with Bratislava's newest, double-ended Skoda 30T cars, are at the top of page 17.

As you can see, from the photo at the top left of page 18, the city is dominated by the huge Bratislava Castle, and as soon as I reached the other side of the bridge, I transferred to a Route 4 car and rode along the Danube to reach that point. The 4 uses modern 100-percent low-floor Skoda 29T single-ended equipment.

A ½-mile tramway tunnel cuts under the castle, and as I continued riding outbound on the 4 I saw that it would be best if I come back later to photograph at the portal, as the sun was shifting in that direction. Thus I first rode out further toward the end of route 4 at Dubrovka.

Photos along this line and of the rest of my explorations in Bratislava continue in next month's segment of this report.



The dual-voltage eMU that brought me from Vienna to Bratislava at a bumper block in Petrzalka station. The Bombardier Talent eMU is already signed up for its return trip to Deutschkreutz via Vienna.



Coming off the Tatra assembly line in 1975, K2 No. 7101 was extensively rebuilt in 1999, and is shown operating on Krizna just north of the Legionarska stop of lines 2, 4, 8 and 9. The building in the background is one of the oldest in Bratislava, and originally served as the station of the city's first railway, powered by horses, to the suburb of Svaty Jur, about 9 miles away.



Tatra T3 PCC 7841 was built in 1989 and is shown operating inbound along Karloveska just after stopping at Jurigovo nam, which is served by Routes 4, 5 and 9 (plus 6 in rush hours).



Tatra T6 PCC 7921 was built in 1991 and is shown operating inbound just beyond Karlova Ves, its first stop after leaving its terminal loop and rejoining Routes 4 and 5.

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Looking north toward the Stary Most, a double-ended Skoda 30T tram slows for the Farskeho stop. The roadway, with a matching automobile, leads to parkland, an industrial park and a freeway interchange.



Two views at the end of Lines 1 and 3 at Jungmannova in Petrzalka. The line will be extended a further six stops. Most passengers use the previous station, Farskeho, where there are connections with several bus lines. The two gauges are quite prominent in these photos.

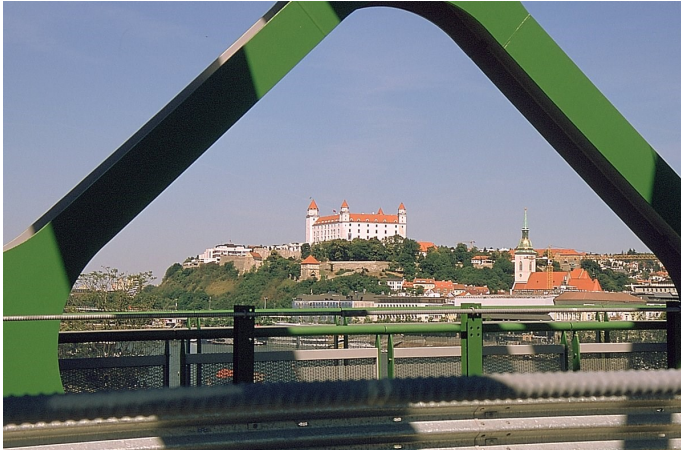


Views from the trackway on the Stary Most girder bridge, which was opened in 2015.

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The castle on the Carpathian hill, Bratislavský hrad, was constructed in the middle of the 16th century as the principal palace of Hungarian kings. Originally known as Pressburg Castle, it was a summer residence of the emperors of Austria-Hungary. But toward the end of the 18th century the city was demoted, with the Hungarian government moving to Budapest and the crown jewels to Vienna. The castle became a fort, which Napoleon bombarded in 1809. It burned spectacularly in 1811 and little attempt at restoration was made until 1957, when the communist government went to work on it. It was reopened in 1968 and has since been further improved. In 2005 the Bush-Putin summit was held there. The outbound Route 4 car is a single-ended Skoda 29T and the photo was taken from the approach to the 1972-built Nový Most.

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THE HISTORY CORNER



May's History Corner photo is looking east from the end of the north upper level platform at Queensboro Plaza in about 1942. A train of BMT Q-Type cars has just left the station and is heading towards Astoria.

Photographer and source unknown.