

# The Bulletin



***Electric Railroaders' Association, Incorporated***

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## ***The Bulletin***

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## **MTA NEW YORK CITY TRANSIT'S "SAVE SAFE SECONDS" CAMPAIGN**

MTA New York City Transit announced on December 10, 2018 that as part of the agency's "Save Safe Seconds" campaign to safely improve subway performance, a collaborative team has begun correcting antiquated speed limits and fixing faulty timers throughout the subway system.

Over the weekend of December 8-9, several months of careful testing and study led to the safe increasing of five speed limits between 36th Street and 59th Street on the **N** **R** lines in Brooklyn, with 15-mile-per-hour zones being increased to 20 or 30 miles per hour. Twenty-nine more increases throughout the system have also been approved by a safety committee and will be rolled out in coming weeks, with Transit officials estimating speed limits to be safely increased at more than 100 locations throughout the system by the springtime. The speed limit changes already approved increase speeds generally in the 10 to 20 mile per hour range to speeds that reach the 40s.

The same team doing this work is also testing and fixing speed regulating signals called "time signals" or "timer signals," with 95 percent of some 2,000 such signals tested since the initiative began in late August. Approximately 267 faulty timer signals have been discovered and approximately 30 of them have been fixed so far in what amounts to very labor-intensive work to inspect, diagnose, and repair or replace numerous possible pieces of equipment during times of exclusive track access for workers such as weekends or nights. The long-term benefit of timer repairs and modifications will not be noticed for a while, as numerous repairs system-wide still need to be made.

The New York City subway system was

built more than 100 years ago and early on in its existence, in order to provide for safe operations, various measures were put in place to ensure that trains were not going faster than the conditions they could handle. These measures ensure sufficient stopping distance for the braking capacity to a train ahead. They also provide for safe operation at switching points, on curves and grades, and when approaching a train stopped in a station.

One simple measure was placing "civil speed restrictions" — essentially just speed limits and signs, just like the ones drivers see on highways and roads — at various locations that that require reduced speeds throughout the system. The speed limits were designed to consider the operating characteristics of the trains that were in service at the time as well as track geometry.

Another measure involved the use of "grade time signals" or "timer signals" — signals connected to timing devices set to trip a train's emergency brakes if the train passes at a higher speed than allowed. This fail-safe system ensures safety by stopping a train if it goes too fast at a fixed point.

Over the decades, car design and track geometry have improved, allowing cars to maintain stability and safe operation at higher speeds, but the speed limits were not always changed to reflect these advancements in safety and comfort. Meanwhile, timer signals continued to be installed throughout the subway system, with an uptick after two fatal crashes in the 1990s — one at Union Square and one on the Williamsburg Bridge. Eventually, the number of timer signals grew to approximately 2,000 system-wide. However, as

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## THE GENESIS OF DASHING DAN — A NEW JAMAICA AND THE MAIN LINE COMPLETE by George Chiasson (Continued from December, 2018 issue)

### THE REPLACEMENT OF “OLD” JAMAICA STATION — NUMBER 3, THE “NEW” JAMAICA STATION OPENS

While March 9, 1913 is generally quoted as an opening date for the new Jamaica Station, this was more the case for the depot building than its large, associated array of trackside attributes. For the public at large an entry to the impressive, otherwise unmarked brick and stone edifice off of Sutphin Boulevard (there was then only a modest “Long Island R.R. Co.” inscription chiseled above the Archer Avenue executive entry) led to an airy and brightly lit two-story waiting room that was generously supplied with the hefty wooden benches of that era. A two-window ticket kiosk was set in its middle, with all surrounded by a typical assortment of news, food, and coffee concessions along the periphery, joined by customary comfort facilities as set apart for each gender (though the actual waiting space was a common area).

On a somewhat smaller scale, the new Jamaica Station building functioned much like its sister facility at Flatbush Avenue in Brooklyn, including an ability to handle baggage, mail, and express, but not the distribution of carload freight. The remainder of the building, as mainly accessed through the Archer Avenue side, was absorbed by the Long Island Rail Road’s corporate enterprise, with 4½ floors of office space devoted to the various administrative and operating departments, containing everyone and everything from the company’s President (still Ralph Peters) to engineering, facilities maintenance, and all titles in between. Until the new headquarters building was opened in March, 1913, the LIRR’s various company functions had been scattered at various locations around its system, mainly at points in Manhattan like the 34th Street ferry terminal (and of late at Penn Station as well), in Brooklyn (Flatbush Avenue), or elsewhere in Queens (Long Island City).

As yet, there was no direct, completely sheltered connection between the new terminal building and the railroad platforms that were opened on that day, nor was it completely a given as to which location any particular train would use. Definite was the diversion of all railroad traffic from the interim right-of-way and Old Jamaica Station by Church Street into the new facility at Sutphin Boulevard. To reach the four available platforms from the new Jamaica Station building, passengers had to go outside and cross the now-closed temporary tracks at ground level, then brush past the construction zone on the (unfinished) northerly side of the new elevation. Beyond that they finally entered portals through the westerly retaining wall of the Sutphin Boulevard overpass that were correspondent to the four train boarding areas, each containing a stairway that led up to its desig-

nated boarding area. The new high-level, concrete slab platforms (and there would eventually be five in all when the station was completed) measured 1,067 feet in length by 22 in width, and were almost completely covered by 33-foot-wide canopies structured of steel and covered with wood topped by a tar and asphalt coating. Compared to the station’s mildly elaborate accommodations otherwise, a somewhat rudimentary-looking overpass, primarily of wood construction with a composition floor, was installed to link the west end of all five platforms (though only four were available in the beginning), with no alternative ground access to be provided through the as-yet-incomplete Foley Street overpass at all.

On the railroad side of things, access to the new station was accomplished through the partial activation of “J” (later “Jay”) Interlocking at the facility’s westerly end which included newer, yet still temporary, alignments for Main Line Tracks 1 and 3 to reach the Van Wyck Avenue overpass. Also placed in service were the new Van Wyck Avenue overpass for eastbound Main Line Tracks 2 and 4, and the flyover which carried two Montauk Division mains over both the intersecting Atlantic Division and Van Wyck Avenue. What resulted at this early stage were seven grade-separated tracks, six of which were electrified (two from the Atlantic Division and one from the Montauk Division, all bracketed by Main Lines 3, 1, 2, and 4 from north-to-south), which fanned out to approach the four station platforms that were complete enough to open at this point (B, C, D, and E, also north to south). With no direct lead of their own, eastbound Montauk Division passenger trains could access station Tracks 6, 7, or 8 (Platforms D or E) by a separate switch onto Main Line 4 immediately east of Van Wyck Avenue. Meanwhile, westbound Montauk traffic briefly followed Atlantic Division Track 3, diverged to pass beneath the eastbound Main Line, then proceeded past the Morris Park Coach Yards to finally merge with the existing Montauk Division main line deep within the facility by “R” Interlocking and the “Shops” station. The outcome was a complete reconfiguration of MP Interlocking which eliminated any semblance of the previously-existing grade crossing where the Montauk and Atlantic Divisions came together.

On the easterly side of the station, all six tracks were quickly gathered into two leads at the start of “Cabin 3” Interlocking, a temporary control point that preceded the new “JE” (later “Hall”) Tower. From there they were guided along a temporary fill on the southerly perimeter of the LIRR’s alignment that began east of the Sutphin Boulevard overpass and included a temporary overpass, made of heavy wooden cribbing, which forded the

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## The Genesis of Dashing Dan

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temporary mains that had circumvented the new station's construction since November, 1910 and were retained briefly as a bypass for freight operations. The two leads then spread into three more temporary main tracks designated as Westbound Main, Lay-up (bi-directional), and Eastbound Main, their switches for the moment under control of the original "JE" Tower. The three temporary mains then crossed above Rockaway Road and encountered the turnout to a temporary wooden trestle which led onto the Atlantic Branch (nee "Old Southern Road"). Guarded by "Cabin 5", it was used by suburban electrics in both directions to access the Far Rockaway and Long Beach Branches. The three temporary main tracks then gradually descended to ground level and rejoined the original LIRR Main Line survey as it passed under the Prospect Street overpass (now 159th Street; this crossing no longer exists). So it was that use of the original "Old Jamaica" depot site came to an end after some 76 years, and along with it the ground-level right-of-way that was established through the construction zone in 1910. Their respective surveys soon gave way to additional work performed in conjunction with completion of the new station, while the former South Side station at Beaver Street was also officially closed at this stage and (more accurately) removed. As previously described, this site had been dormant for some 28 years prior to the LIRR's first round of electrification (1877-1905), but was revived for the early M.U. shuttle, suburban Rockaway, and later Long Beach services.

At this point, it is worth comparing typical operations at Jamaica, both "Old" and "New," to shed some light on the particulars of its layout. After a final enlargement and reconfiguration was completed in 1904, the original stop at Jamaica was comprised of five variously-sized platforms grouped about six tracks that were electrified in 1905-6. As might be expected these were mostly directional in nature, arranged in two pairs for westbound and eastbound flow, respectively, with the southernmost tracks that had been added in 1903 (and the newest, biggest platform) designed as a "tail" or terminus for those trains ending their trips at Jamaica. In particular this included rapid transit trains that originated at Flatbush Avenue and after September, 1910 the electric M.U.s from Pennsylvania Station. These two tracks were by nature bi-directional in nature, being "closed" at their west end by a double-slip switch which was fed from a rather elaborate "ladder" as the four main tracks approached the station from the west. This was also where a single-track lead (as added in 1903) diverged to the Atlantic Division, crossed Division (151st) Street, and narrowly missed the south side of Old Jamaica Station before joining the original 1867 alignment at the Beaver Street station. Upon leaving Old Jamaica toward the east, trains using the five main tracks were secondarily sorted through "JE" interlocking to assume their "Main Line" and "Montauk" alignments by the time they

passed beneath Union Hall Street. At its east end the Jamaica tail track (also known as the "pocket") led exclusively into a set of relay and storage tracks where trains could await their return to (westbound) service. Prior to electrification this procedure had also included a power runaround through the sidings at Washington Street, if not a trip to the turntable.

When the new Jamaica Station was initially placed in service on March 9, 1913, its convergence at several multiple-track main lines created concern as a potential point of congestion. This standing was exaggerated all the more as early events unfolded, with the accompanying elevation of surrounding main lines lagging behind progress on the station itself. Nevertheless, the facility was opened at the earliest available opportunity in part to enable the completion of other needed approaches, but this course of action also restricted its capacity to a level comparable to that of the older facility.

With just six of the eventual eight tracks through Jamaica available and only partially-completed signaling, Tracks 3-5 (westbound) and 6-8 (eastbound) were nominally directional, but in rush hours the railroad could optimize its scheduling "slots" by using Track 5 in both directions (westbound morning and eastbound during the evening peak). With the west end elevations more complete as opened than their easterly counterparts, the network of switches it contained were controlled through the new "J" Tower. This was a two-story brick and wood structure measuring 42 by 17 feet (50 x 25 feet over the eaves) which was tucked between the east and westbound mains across from Rose Avenue (138th Place). At the other end, all trains entering and leaving the new Jamaica Station did so via the three temporary main tracks laid across the southerly edge of the construction zone from Sutphin Boulevard to Prospect Street, with numerous track routings available as they proceeded back onto the existing alignment (though slightly modified) east of Prospect Street. For access to and from the Atlantic Division, trains were protected under "absolute block" authority for moves in either direction on the single-track lead that reached to Beaver Street, a condition also in force to protect Jamaica-bound traffic as it ran against the nominal flow on the transitory Eastbound Main from Cabin 5 to the Lay-up turnouts that were tended by "JE" Tower.

As the project progressed, the next phases of work were concentrated on the raising and completion of all approach tracks across the new site. On or about March 23, 1913 the LIRR closed the "temporary freight bypass" (actually the remaining grade-level alignment) east of Napier Street (now Sanders Place), as a prelude to its complete elevation around the southerly perimeter of the new station. This tactic precluded access between Holban Yard and the Montauk Division, which effectively isolated the freight handling facilities in Long Island City, Bay Ridge, and Bushwick from the eastern end of the system. During the shutdown, which lasted until the end of August, all freight trains were circuitously routed via Glendale and Woodhaven Junctions to the

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Rockaway Beach Division across Jamaica Bay, Far Rockaway, Valley Stream, Hempstead Crossing (via West Hempstead), and Mineola before finally reaching Holban. By May of 1913 construction activities were consuming the former grade-level right-of-way between the new station and the Prospect Street overpass, Old Jamaica Station had disappeared forever and “JE” Tower was demolished. Its functions were assumed by yet another temporary installation at the west end of the interim main tracks (just east of Jamaica Station) that was designated Cabin 4 and controlled the switchbacks for terminating trains as well as Atlantic Division moves in both directions. As the permanent east end approaches took shape through that summer, so too did a new “JE” Tower (later to be known as “Hall”) just slightly to the west of the original location, which would again consolidate the sundry tasks overseen by Cabins 3, 4, and 5.

Work to install the easterly elevated approaches to Jamaica Station proceeded from north to south and west to east through the warm weather months of 1913, with westbound Main Line Tracks 1 and 3 “from Cabin 3 to Union Hall Street,” Track 2 at Jamaica Station, the westbound Atlantic Division lead, and the three-track “Lay-up Yard E” all being placed in service on June 29. As a result, Platform A was finally opened, along with its corresponding stairways and an overpass extension. The temporary Westbound Main on the south side of the new station approach was thus removed, which in turn allowed the concrete “bellmouths” that would ultimately guide the completed Atlantic Division tracks beneath the as-yet-unfinished eastbound mains and the future freight by-pass, to be completed. As of July 1, construction had sufficiently progressed to allow Station Track 1 to be placed in service, which advanced “J” Interlocking closer to full completion, a state it finally achieved when the six-track coach and M.U. storage yard along Archer Avenue (also known as “Yard D”) was opened by October. As for the Atlantic Division, its eastbound traffic continued to rumble over the temporary wooden trestle to reach Beaver Street, while westbound trains were routed via a new steel structure (to be retained as part of an elevated “fill” when complete), crossed the two temporary mains at grade (under the supervision of Cabin 5) and proceeded into Tracks 1-4 at Jamaica Station via the new Atlantic #1 lead.

As work accelerated on the eastbound side of the permanent elevation through the latter part of summer, the permanent lead from Jamaica Station to Atlantic Division Track 2 was finally placed in service on August 21. As well, both of the Atlantic Division tracks from Jamaica Station to Beaver Street were placed on their final alignments and the temporary wooden trestle in use since the March opening was retired. At this point the steel structure on which they were mounted was being back-filled by cubic tons of “Syosset sand” as it extended onto a longer concrete and steel viaduct that ulti-

mately reached South Street. The “East Lay-up,” which was the former #1 track on the Montauk Division (as truncated to a siding that stub-ended next to the new Union Hall Street station) was also activated on August 18. In spite of its name, it was actually used as an additional westbound track to access Jamaica Station from the Main Line and Montauk Division, through a crossover at Prospect Street from Montauk #2 (as controlled through nearby Cabin 7). In addition, it could utilize a “back door” routing to handle bi-directional traffic for the Brooklyn end of the Atlantic Division, which enabled one more of the temporary main tracks running around the south side of the construction zone (the bi-directional “Lay-up Track”) to be removed so the concrete bellmouths could be completed. Sometime around the end of August or in September, the East Lay-up was joined in its bi-directional duties by a replacement version of the Montauk #1 Track, which transitioned from the new alignment into the original and significantly eased the congestion potential of operations east of the new Jamaica Station.

All of the approach elevation work on both sides of the new Jamaica Station was finalized in September of 1913, with the new freight by-pass (otherwise known as Tracks 5 and 6) put in service by late 1913. Laid on an elevated fill where the temporary ground-level detour had been between November, 1910 and March, 1913, it was engineered to receive trains from any of the three primary routes (Main Line, Montauk or Atlantic Division) through “J” interlocking and convey them around Jamaica station via new “Track 9,” which skirted the southernmost platform (E). By March of 1914 (but possibly earlier) the new “JE” Tower and three permanent eastbound leads (designated Montauk #2, Main Line #2, and Main Line #4) were opened between Jamaica Station and Prospect Street, where they meshed with corresponding trackage on the pre-existing alignment and finally allowed the last of the temporary main tracks used during Jamaica Station’s construction to be removed. This marked the facility’s basic completion after almost ten years of creation, though some external infrastructure aspects (mainly related to ongoing grade separations) would dribble on for years. As for the station itself a large, enclosed passageway between the Jamaica Station building and the five access stairways set along the western wall of the Sutphin Boulevard overpass was in use to meet the autumn chill of 1913. As exhibited in its final form, it was evident that the new Jamaica Station had been engineered from the start to optimize throughput, based on the railroad’s long years of experience with the “Old” Jamaica facility. In sum, Tracks 1, 2, and 3 (which surrounded Platforms A and B) were designed to facilitate westbound cross-transfers between trains on any of the three possible routes (Main Line, Atlantic, or Montauk), this flow being countered by similar eastbound function on Tracks 6, 7, and 8 using Platforms D and E. In contrast Tracks 4 and 5, along with Platform C, could be used in either direction by Brooklyn trains from the Atlantic Division and the LIRR’s “rapid transit”

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service from Flatbush Avenue.

As completed, a permanent fill was in place from Sutphin Boulevard across Rockaway Road and past Church Street, where it began to ramp downward to rejoin the previous ground level right-of-way at the Prospect Street bridge, with newly-completed overpasses situated above Rockaway Road (150th Street) and Church (153rd) Street. As the new Atlantic #1 and #2 leads escaped the station and passed through “JE” Interlocking, they hastily descended a pair of ramps and ducked beneath the three eastbound mains and the freight bypass while concurrently crossing over Rockaway Road. This resulted in an exaggerated depression of that thoroughfare through its new underpass that is still evident in 2019. Between Atlantic Branch Number 1 and Number 2 was a three-track relay and lay-up yard mainly used by “rapid transit” trains, which stub-ended next to Rockaway Road. Like their eastbound counterparts, the main westbound tracks ramped from ground level to the new elevation between Prospect Street and Rockaway Road while passing over Church Street and through the former site of Old Jamaica Station. They also were punctuated by an elaborate array of switchwork as they passed through “JE” Interlocking before continuing through the station to commune with “J” Interlocking at the west end.

Even though all tracks through the new Jamaica Station and its immediate approaches were electrified, the previous track arrangement on the existing, grade-level right-of-way east of Prospect Street was altered only slightly when the new Jamaica Station was opened.

Once past the new, hastily-constructed local station at Union Hall Street, the seven grade-level tracks from north-to-south, as far east as Larch (175th) Street (past Sub-Station Number 4) consisted of the “North Siding” (installed for rapid transit in 1890); “Main Line Number 1” (the original track opened in 1837); “Main Line Number 2” (the second track added in 1880); “Montauk Number 1” (added 1887 and 1890); “Montauk Number 2” and the “South Siding” (both installed 1903); and finally a series of short sidings and relay tracks, all added for the use of terminating rapid transit M.U. trains and to provide access for wayside freight customers when that part of the Main Line was initially electrified in 1905-6. Of these, the third rails did not extend onto Montauk Number 1 or Montauk Number 2, which were used by steam-powered trains headed to Babylon and various points on the Montauk Branch. Meanwhile the electrification on Main Line Number 1 and 2 extended to Floral Park and then diverged onto the Hempstead Branch, with most of the various siding tracks also possessing third rail. As previous, grade crossings continued to exist at New York Avenue (Guy R. Brewer Boulevard) and Puntine (165th), Smith (166th), Canal (168th), and Brenton (170th) Streets. East of Larch (175th) Street, the alignment temporarily squeezed back to just two electrified tracks (Main Line Numbers 1 and 2) before the two non-electrified Montauk Division lines (1 and 2) diverged onto the former New York & Rockaway at Rockaway Junction. From that point the Main Line continued east through the Rockaway Junction rapid transit station and on toward Hempstead, Mineola, and points farther out with an electrified lead running parallel from Holban Yard to Floral Park.

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## NYCT’s “Save Safe Seconds” Campaign

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time caught up with the signals and timer system, Train Operators have reduced speeds to avoid false brake applications.

In 2018, new NYC Transit President Andy Byford took a fresh look at the entire system with an eye towards improving service safely and an emphasis on listening to customers and front-line employees about their experiences. Timer signals were a frequent topic, and President Byford instructed his team to investigate the issue and assemble a methodology by which timer signals could be completely surveyed, tested, inspected, and repaired. President Byford and Senior Vice President for Subways Sally Librera also initiated a broader campaign called “Save Safe Seconds,” a program overseen by Librera by which personnel have been engaged to

help come up with ways to immediately improve subway performance and reduce delays, simply and affordably (or even at no cost) through better operating and service practices.

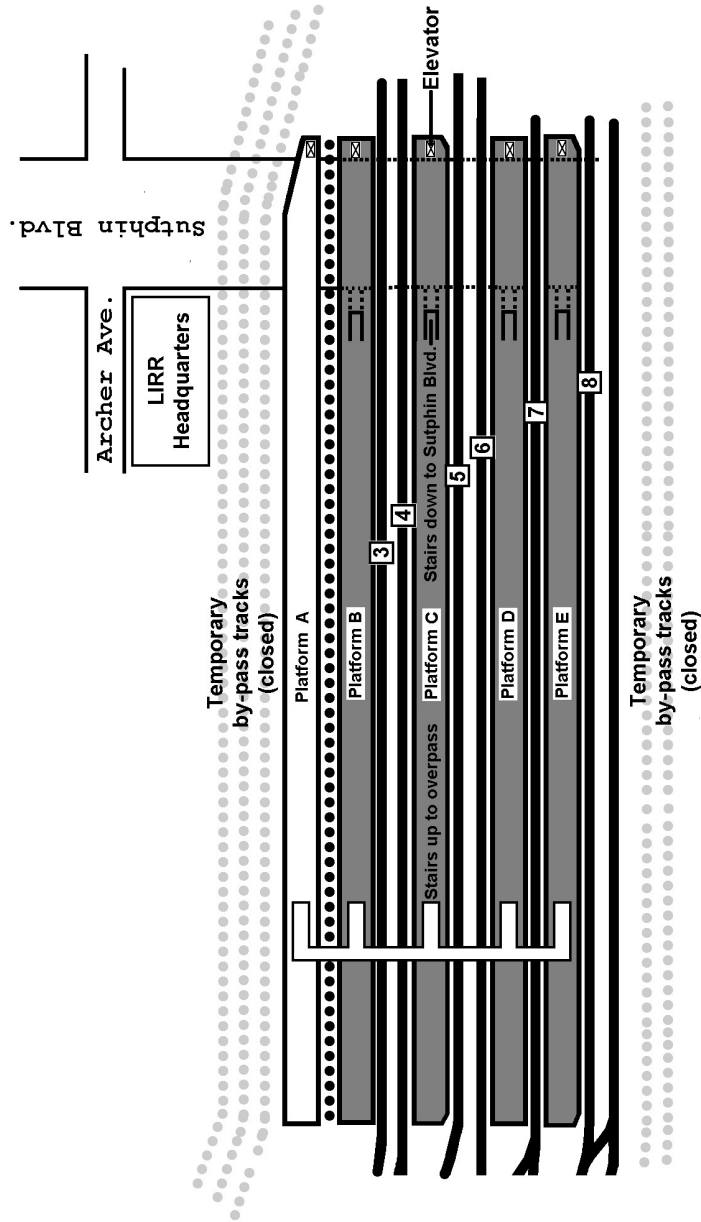
These priorities led to the creation in the summer of 2018 of the NYC Transit “SPEED Unit” — which stands for Subway Performance Evaluation, Education, and Development. The unit is part of the broader “Save Safe Seconds” campaign.

The SPEED Unit is part of a collaborative effort across multiple disciplines in NYC Transit and is also working together with union officials. The unit has traveled almost every mile of track in the New York City subway system in an empty 10-car train and armed with a radar gun performing several exercises and tests to find ways for passenger trains to move faster from station to station while still maintaining established standards for safety and comfort.

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New Jamaica Station  
March 1913

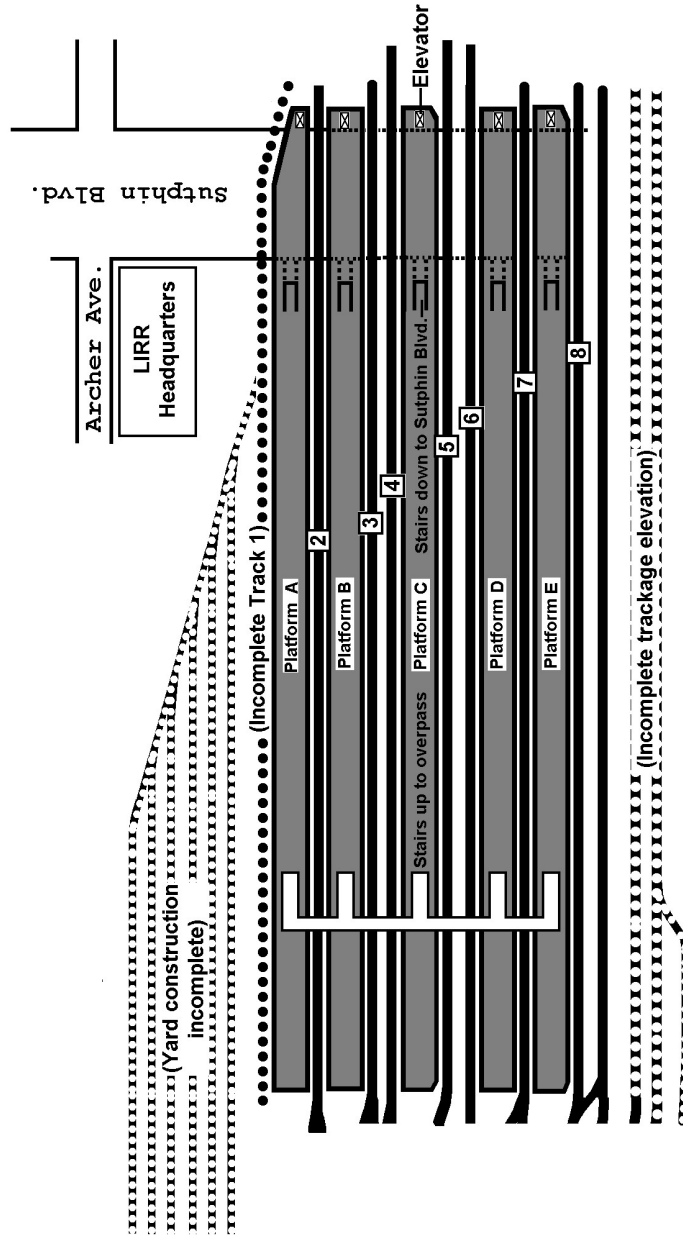


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New Jamaica Station  
June 1913



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# STATUS OF NORTH AMERICAN TRANSIT PROJECT OPENINGS SCHEDULED FOR 2019

by Randy Glucksman

DATE	AGENCY	CITY	TYPE	LINE	DETAILS	NOTES
<b>2018</b>						
At publication, K-W Ion LRT (Kitchener-Waterloo) was moved to sometime in the Spring.						
November 16	Loop Trolley Transportation Development District	St. Louis, Missouri	SC	Delmar Loop Trolley	Forest Park to University City 2.2-mile loop, 10 stations	From 2014
Using the latest available information at time of publication, these eleven projects are scheduled for completion by the end of 2019.						
<b>2019</b>						
DATE	AGENCY	CITY	TYPE	LINE	DETAILS	NOTES
January 5	Ft. Worth Transportation Authority	Ft. Worth, Texas	DMU	TEX Rail	Texas Railway Express T&P Station to DFW Terminal B 26.8 miles, 9 stations	
Early	OC Transpo (O-Train)	Ottawa, Ontario	LR	Confederation	Tunney's Pasture to Blair Road 7.75 miles, 13 stations	From 2018
Early	Valley Metro Regional Public Transportation Authority	Phoenix, Arizona	LR	Valley Light Rail	50th Street (infill) station	
Spring	Massachusetts Bay Transportation Authority	Boston, Massachusetts	CR	Fairmount	Blue Hill Avenue (between Fairmount and Morton Street stations) opens	
Spring	Region of Waterloo	Kitchener-Waterloo, Ontario	LR	K-W LRT (ION) Phase I	Fairview Park Mall to Conestoga Mall 22.8 miles, 22 stations	From 2017
March-September	Bay Area Rapid Transit/Valley Transportation Authority	San Jose, California	HR	Berryessa Extension Phase I	Warm Springs to Berryessa/North San Jose 10 miles, 2 stations	From 2016
May 20	Massachusetts Bay Transportation Authority	Foxborough, Massachusetts	CR	Providence	Service extension, Readville to Gillette Stadium (Foxborough) 11-month pilot 13 miles, 1 station	
?	Valley Metro Rail	Phoenix, Arizona	LR	Gilbert Road Extension (from Mesa Extension)	Mesa Drive to Gilbert Road 1.9 miles, 2 stations	
?	Amtrak	Miami, Florida	LD	Tri-Rail	Trains begin serving Miami International Airport station (9 miles)	From 2016
?	Denver RTD	Denver, Colorado	LR	E/F - Southeast Rail Extension	Lincoln to RidgeGate Parkway 2.3 miles, 3 stations	
Delayed till further notice	Denver RTD	Denver, Colorado	CR	G (Gold) Line	Union Station to Wheat Ridge-Ward 11.2 miles, 8 stations	From 2015

Legend:  
 CR: Commuter Rail      HR: Heavy Rail      LR: Light Rail  
 DMU: Diesel Multiple Unit      LD: Long Distance      SC: Streetcar

## A FOND FAREWELL TO SEPTA'S "TOASTERS" by Alexander Ivanoff (Photographs by the author)

As the clock on the year 2018 expires, two hard-working equipment classes belonging to two northeastern U.S.-based commuter railroads were set to retire. For years, the M-2/M-4/M-6 class EMUs operated by Metro-North provided the overwhelming bulk of New Haven Line service. After four decades were ready for replacement by the turn of this decade. The M-2s' specialized bar cars were retired in 2014 with the M-4 and M-6 classes following not long after. However, Metro-North and the Connecticut Department of Transportation (ConnDOT) kept up to 36 in service for a while, only using the cars in peak periods, with all other service handled by the replacement M-8 fleet. The M-8 fleet has proven both reliable and very popular with riders, with design changes made due to feedback from riders on the Harlem and Hudson Lines (M-7A fleet). With the PTC deadline approaching, it was decided during the fall of 2018 that as part of Metro-North meeting the deadline for an extension, the remaining M-2s would be retired by the end of the year.

Around Thanksgiving, the Southeastern Pennsylvania Transportation Authority (SEPTA) announced a farewell trip for the AEM-7 locomotives, purchased in the 1980s along with Bombardier coaches (similar to the NJ Transit Comet fleet). The push-pull trains were purchased to replace the remaining Reading Blueliners and first-generation Silverliner cars. The seven SEPTA AEM-7s were supplemented by a single ALP-44 (SEPTA unit 2308) that was part of a lawsuit settlement from the late delivery of Norristown High-Speed Line cars. SEPTA is replacing the AEM-7s and the lone ALP-44 with Siemens-built ACS-64 locomotives, used in conjunction with both the Bombardier cars and 45 CRRC-built multi-level cars due for delivery next year. This would be my first trip on SEPTA's push-pull trains, as they generally do not run on weekends and my travel needs have never synched with SEPTA's express services, where the equipment is assigned.

On November 30, I left work a few minutes early with the aim of riding a train of M-2s before their retirement. To my disappointment, I was unable to find a train of them at Grand Central Terminal and went home instead. I would later discover that while they were running, it was not until much later in the evening. My plans on December 1 would take precedence. (*Editor's Note: I hope Metro-North operates a farewell trip for the M-2 fleet, as the fleet has served three railroads in their four decades of service.*)

The following morning, I joined ERA First Vice President John Pappas at Penn Station, where we rode a *Keystone Service* train to meet up with retired Conrail and CSX manager Bob Fried, who would be joining us on the ride. Bob met us at the Exton station before we drove off to Whitford (former Pennsylvania Railroad/

Penn Central Trenton Branch). A now-abandoned Pennsylvania Railroad low-grade freight line runs above the Main Line, today's Keystone Corridor. As the train schedules were not conducive to spotting and I had updated information, we made our way to Fraser Yard.

The Fraser facility is the storage and maintenance facility for the Paoli/Thorndale services. Between *Keystone Service* trains that pass by every ninety minutes and the Paoli trains, activity at the site is good and photo opportunities are plentiful. While at Fraser, we saw one of the *Keystone* trains pass by along with a Silverliner put-in and one coming from Thorndale. A little before 10:15, the special train pulled out. ALP-44 2308 was on the east end of the train, while AEM-7 2301 was in the front, sandwiched between six Comet-type coaches. (It is worth noting that SEPTA almost never ran trains with power on both ends unless it was a rescue.) The consist was made up of E-2308-2550-2503-2513-2553-2557-2522-2301-W. Units 2550, 2553, and 2557 are center door coaches, much like the Comet III/IV and Shoreliner III/IV units.

Having succeeded at getting the shots of the train pulling out of Fraser Yard, the three of us got back into Bob's car and we drove to Paoli to get on a local bound for Philadelphia. Paoli is undergoing major renovations for ADA compliance, which has unfortunately included removing the two express tracks to install an island platform. That train ran ten minutes late getting into Philadelphia, and we were in enough of a time crunch that we opted for catching up with the special at 30th Street Station. To our surprise, the train was quite empty and there was plenty of room to stretch out. (I have a feeling that ridership was a little better heading out of Paoli in the morning, but according to reports on social media, there was plenty of space regardless.) SEPTA deserves credit for having run the special well, with the trains very clean and windows washed. Despite being computer-printed decals on the front of each locomotive, the farewell trip even had signs to indicate such. The train was a few minutes behind arriving in Paoli. After we got off the special, we waited for Amtrak Train #43, the east-bound *Pennsylvanian*, to leave several minutes behind the special. Then we had lunch.

After lunch we took some photos from right near the Daylesford station and were able to catch the east-bound *Pennsylvanian* (Train #42) passing by. As it was starting to get late, we opted to head to Norristown to ride the High Speed Line to connect with the Market-Frankford Line. To our disappointment, the High Speed Line was not running well on account of single-tracking due to weekend work and the weather, which had started off well but had turned pretty inclement. It was also apparent that last year's collision has taken its toll on

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**A Fond Farewell to SEPTA's "Toasters"**

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top speed. To SEPTA's credit, ride quality was good enough that I dozed off on the way to Upper Darby, where 69th Street Terminal is located. Once we arrived at 69th Street terminal, it was off to the Market-Frankford Line for the ride into Center City.

To get back to New York, John and I rode SEPTA's Trenton Line to NJ Transit's Northeast Corridor Line. The Trenton train made the connection in a timely manner and the train to New York was also operating as scheduled. The connection can be a hit or miss, so if

planning to travel between New York and Philly, do leave enough time if traveling via Trenton on local trains. (Bob took the former Reading Norristown Line back to Norristown to get to his car.)

While lacking the glamor that the last run of the GG-1s or NYCT's Redbirds had, SEPTA did put quite a bit of thought into the farewell trip. From the arrangement of the locomotives to clean coaches, SEPTA ensured a class act trip. SEPTA's farewell is as close as my generation will get to the specials of yesteryear. *(Editor's Note: Special thanks go out to John Pappas and Bob Fried for making the day memorable!)*



ACS-64 605 passing Fraser Yard pulling a Keystone Service train towards Philadelphia.



The interior of one of SEPTA's push-pull coaches. The units are identical to those found on Metro-North and NJ Transit.



SEPTA AEM-7 2301 pushing the farewell consist.



SEPTA AEM-7 2301 pulling the farewell consist up the grade on approach to 30th Street Station.

# Commuter and Transit Notes

No. 360

by Ronald Yee and Alexander Ivanoff

## MTA LONG ISLAND RAIL ROAD

The January 7-March 3, 2019 LIRR timetables will contain numerous schedule changes to accommodate Amtrak taking Penn Station Track 18 out of service for rebuilding work as well as ongoing track work at Harold Interlocking to accommodate the next stage of the LIRR East Side Access project to Grand Central Terminal. Three morning peak period trains will be diverted to Atlantic Terminal in Brooklyn and one train to Penn Station cancelled. During the evening peak period, two trains will originate at Atlantic Terminal instead of Penn Station, one train will originate at Jamaica instead of Penn Station, two trains will not operate, and one evening reverse-peak train will be diverted to Atlantic Terminal. To help offset these changes and maintain maximum capacity, two trains will be added to Penn Station in the early AM rush, as well as two trains added in the early afternoon from Penn Station, and one new peak train from Hunterspoint Avenue. Finally, during both the morning and evening peak hours, stops will be added to some trains to preserve service levels caused by the diverted or cancelled trains and cars will be added to lengthen select existing trains. (LIRR press release, December 14, 2018)

## MTA METRO-NORTH RAILROAD

On Wednesday, November 21, 2018, Metro-North fulfilled a key milestone in meeting the FRA's requirement for rail systems to have successfully tested a section of their route network as a demonstration of success in the process of implementing Positive Train Control (PTC). This was a final requirement for Metro-North to become eligible for the two-year waiver on full implementation. Metro-North installed and tested fully operational PTC systems on a portion of the Hudson Line between Tarrytown and Croton-Harmon. The consist was M-7A cars 4063-2-4110-1-4136-7 operating as train #744 and train #725. (MTA Metro-North Railroad, November 28, 2018)

## CONNECTICUT DEPARTMENT OF TRANSPORTATION

The Connecticut Department of Transportation (CDOT) released a \$12.1 billion, five-year capital plan, during the week of November 12, 2018.

CDOT anticipates using \$2.6 billion in total capital program funding in federal fiscal year 2019, which started October 1. This amount includes about \$1 billion for bus and rail assets and \$1.6 billion for highway and bridge infrastructure.

During FY19, CTDOT expects to bid 62 projects at roughly \$512 million in contract value. (CDOT press release, November 13, 2018)

## NJ TRANSIT

In what future rail transit historians will refer to as a pioneering moment in the history of electric multiple unit (EMU) operations in North America, NJ Transit placed an order for 113 Multilevel IIIs (ML-IIIs) with Bombardier for \$669.1 million with options for up to 886 additional

cars totaling \$3.6 billion, 636 for NJ Transit and 250 for Philadelphia's commuter rail system, SEPTA. In a dramatic break from past practices of paired EMU cars either both powered and sharing one pantograph or a motor-trailer combination, this initial order of 113 cars will consist of 58 powered cars, 33 cab cars, and 22 trailer cars, six of those being restroom-equipped and arranged in what will be called the Multilevel III Hybrid Consist. A blend of the standard EMU configuration and push-pull technology, a 12-car Hybrid Consist will have a non-powered cab car coupled to a powered car and coupled to a non-powered coach. This repeats itself three more times to form a 12-car train carrying 1,552 passengers, 172 more than the 1,380 seats on a 12-car Arrow III EMU consist. Each powered ML-III car will be powerful enough to propel the two ML-III coaches on either end of it. Within a typical 12 car consist will be four powered cars with pantographs, two cab control coaches (more cab cars may be located mid-consist as coaches), and six trailer coaches. The ML-IIIs will enable NJ Transit to begin replacing the 160 remaining 1978-vintage Arrow III EMUs, which were rebuilt by ABB in 1993 with a.c. traction motors. The option orders will enable the retirement of the rest of the Arrow III fleet, the 1980s-vintage Comet IIs and IIIs, and then the remaining single-level push-pull coaches, the Comet IVs and Comet Vs.

Some of the advanced features of the ML-IIIs will be: 110 mph maximum speeds, the ability to traverse phase gaps and differing voltages automatically, full compatibility with existing multi-level coaches, full compliance with Americans with Disabilities Act requirements, bicycle racks, 2x2 fixed seating with USB ports (all of the cars the ML-IIIs will be replacing have the undesirable 3x2 seating), regenerative braking, require only a 180-day FRA mandated inspection cycle, equipped with remote diagnostics, and engineered for a Mean Distance Between Failure (MBDF) rate of 370,575 miles for dramatically increased reliability. The first ML-IIIs are expected to be delivered for testing by the third quarter of 2022 with passenger service by mid-2023. (*Editor's Note by Ronald Yee: While the ML-III Hybrid Consist concept appears to be a sound one, it is hoped that a 12-car consist can still propel itself out of the Hudson River Tunnels (albeit at reduced speeds) with one of the power cars inoperative. From my operations experience and background, while that should be the minimally acceptable performance level of the power cars, such a train should be designed to still be able to limp its way up the tunnel gradients at perhaps 15 mph and out to safety without stalling out, even with two of its power cars disabled. Without that margin, a failure of 25% or 50% of the four power cars of a ML-III consist would leave NJ Transit almost as vulnerable to a stalled train in the tunnels as it currently is with the push-pull coaches and single locomotive*

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**Commuter and Transit Notes**

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arrangement. It is also questionable that just four toilet “facilities” will be sufficient for 1,552 passengers on the runs between Trenton and New York, which are over 90 minutes long. Perhaps there may be two toilets at each “facility,” similar to what is seen on most Amtrak trains, but that was not made clear in the press release.) (**Railway Age**, December 12, 2018)

As part of the efforts by New Jersey Governor Phil Murphy to turn NJ Transit around, he appointed former MTA Long Island Rail Road Vice President Raymond Kenny as Senior Vice President and General Manager, NJ Transit Rail Operations. (*Editor’s Note by Ronald Yee: Over the past several years, LIRR, Metro-North Railroad, and now NJ Transit have been engaged in an exchange of management personnel to bring in fresh ideas in to each agency as they address a multitude of issues.*) (NJ Transit press release, December 17, 2018)

Member Randy Glucksman reports that NJ Transit’s Hoboken Terminal has placed into service between Tracks 6 and 7, a brand new information board displaying, in alphabetical order, every station on the commuter rail system and the next Hoboken departure with any connecting train information to reach that station. This is similar to what NJ Transit has had to the left of the ticket windows at the Seventh Avenue end of New York Penn Station for years. (Randy Glucksman, December 10, 2018)



Randy Glucksman photograph

**PORT AUTHORITY TRANS-HUDSON CORPORATION**

PATH announced that the World Trade Center station will be closed for 45 weekends during the next two years, from January, 2019 to December, 2020, in order to repair damage to the Hudson River underwater tunnels damaged by floodwaters from Hurricane Sandy as well as to reinforce the infrastructure to better withstand the effects of future extreme storms. Service shutdowns will commence at 12:01 AM Saturday and end the following Monday at 5 AM. During these weekend shutdowns, service on the Newark-World Trade Center Line will terminate at Exchange Place and free transfers will be offered to ferry services to and from the Brookfield Place Ferry Terminal. The Journal Square-Hoboken-33rd Street weekend service will continue to operate its normal weekend service pattern and headway during

these outages. (secretnyc.com, December 6, 2018)

**AMTRAK**

In an unexpected move, Amtrak may keep its iconic “flipboard” train information sign located in the middle of the main concourse at Philadelphia’s 30th Street Station. Amtrak had plans to replace the vintage electromechanical display board with a new electronic display, but a local United States Representative, Brendan Boyle, appears to have persuaded Amtrak to reconsider. When Representative Boyle personally contacted Amtrak president Richard Anderson, he appeared to be receptive to the idea of retaining the flipboard and upgrading it for full connectivity to the rest of the passenger information displays. (philly.com news, December 11, 2018)

The New York State Department of Transportation announced that Hohl Industrial Services and Scufari Construction have been awarded a \$27.7 million contract to construct a new intermodal bus and intercity rail (Amtrak) station facility to replace the existing 66-year-old Exchange Street station in downtown Buffalo. It will also be connected to the nearby NFTA light rail line via covered walkway. (**Railway Track and Structures**, December 12, 2018)

**INDUSTRY**

The Federal Railroad Administration (FRA) on November 20, 2018 issued a final rule establishing modern, performance-based safety standards for railroad passenger equipment. The rule reinforces FRA’s commitment to safety while representing one of the most significant enhancements to the nation’s passenger rail design standards in a century. The rule paves the way for U.S. high-speed passenger trains to safely travel as fast as 220 miles per hour (mph), with regulatory cost savings of up to \$475 million.

The final rule defines a new category of high-speed rail operations and makes it possible for high-speed rail to utilize existing infrastructure, saving the expense of building new rail lines. These new “Tier III” passenger trains can operate over this shared track at conventional speeds, and as fast as 220 mph in areas with exclusive rights-of-way and without grade crossings.

The final rule also establishes minimum safety standards for these trains, focusing on core, structural, and critical system design criteria. FRA estimates that the rule will improve safety because of expected improvements made by the railroads to accommodate the operation of high-speed rail equipment in shared rights-of-way.

Passenger train manufacturers across the globe have utilized innovative design and testing techniques for years, incorporating features such as crash energy management. Under FRA’s previous passenger equipment regulations, U.S. rail companies have had limited procurement options or have needed to petition FRA for waivers to use these newer technologies.

The final rule continues to define Tier I as trains operating in shared rights-of-way at speeds up to 125 mph, and it also allows state-of-the-art, alternative designs for

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**Commuter and Transit Notes***(Continued from page 12)*

equipment operating at these conventional speeds. Tier II trains are defined as those traveling between 125-160 mph, an increase from the previous 150 mph limit. This supports a competitive operating environment for U.S. companies seeking to offer travelers more passenger rail options. By enabling the use of advanced equipment safety technologies, this final rule helps eliminate the need for waivers.

The final rule was developed with the assistance of the Engineering Task Force (ETF), under the auspices of FRA's Railroad Safety Advisory Committee (RSAC). (Federal Railway Administration press release, November 20, 2018)

**OTHER TRANSIT SYSTEMS****BUFFALO, NEW YORK**

Transit planners at the Niagara Frontier Transportation Authority (NFTA) have made major changes to the route of Metro Rail's proposed extension to Amherst, hoping to significantly reduce the length of its underground section and expand potential for development. The revised plans will save \$200 million by building more of the extension above ground.

The revised proposal plans now calls for northbound trains to exit University Station directly to Niagara Falls Boulevard rather than running beneath Bailey Avenue as part of the approximately seven-mile extension planned to the University at Buffalo's North Campus and beyond. Instead of coming above ground through a portal near Northtowns Plaza, new plans call for trains to travel under Kenmore Avenue to surface on Niagara Falls Boulevard just north of Kenilworth Avenue.

One of the projects goals is to both spur local development and the University at Buffalo's goals of linking its two campuses with a 20-minute ride. Current plans call for the extension's surface section to travel via the median of Niagara Falls Boulevard before turning east onto Maple Road and to UB's North Campus. Studies also continue to evaluate extending beyond UB to the interchange of I-990 and Audubon Parkway, where a light maintenance and storage yard would be located.

A \$1 million study supporting the NFTA's application to the Federal Transit Administration's "New Starts" program predicted \$1.7 billion in development along the entire route from downtown to Amherst, an increase in daily ridership from 20,000 to about 45,000 trips, and a \$310 million increase in nearby property values that would raise tax revenues 32 percent for Buffalo and Amherst.

NFTA hopes to complete its environmental studies in early 2020, followed by a design phase. If all funding and approvals are obtained, construction could start in 2024 or 2025. In the meantime, the Authority plans a "robust" public participation process of workshops for governments, businesses, residents, and other stakeholders. The authority has also set up a public participation website at [www.NFTAMetroRailExpansion.com](http://www.NFTAMetroRailExpansion.com).

*(The Buffalo News, November 20, 2018)*

**CHICAGO, ILLINOIS**

The CTA Board was expected to approve on December 12, 2018 contracts for the largest and costliest construction project in CTA history: the massive \$2.1 billion Red and Purple Line modernization.

The Board also is expected to approve a contract for preliminary work on an even larger project: the proposed \$2.3 billion extension of the Red Line from 95th Street to 130th Street.

The Red and Purple Line project will rebuild stations, bridges, and track along a century-old corridor between Lawrence and Bryn Mawr Avenues on the Red Line, the agency's busiest line, CTA officials said. The construction also will include a controversial bypass that will take Brown Line trains above Red and Purple Line trains north of the busy Belmont station, they said.

Construction is expected to start in the fall of 2019, with the entire project to be completed in 2025.

Currently, Brown Line trains have to cross the tracks of other lines before they can proceed north, forcing Red and Purple Line trains to wait. The CTA says the flyover will allow more trains to run per hour on the three lines, cutting delays and overcrowding up and down the line.

The CTA does not at this point know how it will pay for the extension. Transit agency heads are pushing for a state capital bill in Springfield to help pay for new rail cars and other infrastructure improvements. The CTA also is expected to seek federal funding for the project. (*Mass Transit Magazine* via the *Chicago Tribune*, December 12, 2018)

**SAN FRANCISCO, CALIFORNIA**

The CalTrain Board approved the exercising of a \$174.6 million option in the 2016 contract with Stadler to purchase 37 more multilevel EMUs for the CalTrain commuter line, the former Southern Pacific commuter line linking San Francisco with San Jose. The additional cars will permit the 16 six-car consists already ordered to be expanded to seven cars as well as provide an additional three seven-car sets for the service. This is in response to 2040 ridership projections of 240,000 vs. the present 65,000 for a typical weekday. The first cars are already being manufactured at Stadler Rail USA, located in Salt Lake City, Utah. Delivery of the first complete trainset is expected in late 2019. (*Railway Age*, December 10, 2018)

The \$2.2 billion Salesforce Transbay Transit Center, which closed a mere six weeks after it opened for operation in August, 2018, may stay closed for another six months until mid-2019. The massive facility was to serve as San Francisco's new downtown bus station and eventual intermodal transit facility, once tracks are built and connected to an electrified CalTrain and the California high-speed rail line to Los Angeles at some point in the future. In addition to the initial two cracked beams discovered in the structure spanning Fremont Street, forcing an emergency closure, engineers and metallurgical experts and consultants from around the

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world studying the metallurgy of those and other beams have expressed concerns over the integrity of many more similar beams. Apparently, their metallurgical strength was compromised by welding issues during the process of constructing the building. Of greater concern is the possibility of micro-fractures in these beams, which could result in the beams shattering if subjected to high stresses, for example, during an earthquake. It is suspected that the stresses on the two beams that failed were generated by bus traffic within the structure once it opened for service. Fabricating either replacement beams or adding additional reinforcing steel to the affected as well as suspect beams could take months. (*San Francisco Chronicle*, December 16, 2018)

**ORANGE COUNTY, CALIFORNIA**

Construction began November 30, 2018 on the Orange County Transportation Authority's (OCTA) 4.1-mile streetcar project in Santa Ana, the same day the project was fully funded. The Federal Transit Administration signed a full-funding grant agreement promising to supply \$149 million in funds for construction.

Combined with other federal funds, the FTA grant pushes the total federal contribution to more than half of the estimated \$408 million in total cost.

The streetcar will carry passengers between the Santa Ana Regional Transportation Center and a transit stop at Harbor Boulevard in Garden Grove, running along Santa Ana Boulevard, Fourth Street, and the Pacific Electric right-of-way, according to the Orange County Transportation Authority. That route will connect the streetcars to OCTA's busiest bus route, as well as Amtrak, Metrolink commuter rail, and Greyhound.

The OCTA Board approved a \$51.5 million contract with Siemens Industries in March to build vehicles for the route. Six Siemens S70 vehicles (with two spares) will work the route, making 10 stops in each direction and running at 10-15 minute intervals. Each vehicle can carry as many as 180 people at a time.

Testing and operations are slated to begin in late 2021. (*Railway Age*, December 5, 2018)

**WINDSOR, ONTARIO, CANADA**

VIA Rail Canada rejected the possibility of purchasing its new fleet from Bombardier as the company awarded Siemens Canada a contract on December 12, 2018 for 32 new trainsets for the Windsor-Quebec City Corridor services, at the price of C\$989 million (US\$741 million). The new trainsets are based off the design used by Brightline in Florida (and by extension, the design specifications drawn up by a committee of AASHTO members). The new push-pull trainsets will be powered by Siemens Charger locomotives, with passenger car amenities including LED lighting, USB ports, wide seats, quiet zones, new interior design elements, bike storage, and flexible luggage space. VIA has opted for a support agreement from Siemens for 15 years, worth C\$23.7 million per year.

VIA Rail currently operates some of the oldest trains in

North America, with many of VIA's railcars dating to the 1950s and a troublesome fleet of Renaissance cars built in the 1990s. Most of the cars currently in service are nearing the end of their lives. VIA Rail will retire a portion of its current fleet starting 2019, with the first Siemens trainsets scheduled to be placed into service in 2022. (VIA Rail Canada press release, December 12, 2018; *Railway Age*, December 12, 2018)

**TORONTO, ONTARIO, CANADA**

The Ontario government announced the introduction of a daily weekday round trip by GO Transit between Toronto and Niagara Falls, Ontario beginning January 7, 2019, four years ahead of schedule. Metrolinx, the agency operating GO Transit, will extend an existing equipment cycle to provide the new service. The train will depart Niagara Falls at 5:19 AM, stopping at St. Catharines on its way to Toronto. In the afternoon, the existing 5:15 PM train to West Harbour will be extended to Niagara Falls, again with a stop at St. Catharines on the way. (Ontario Ministry of Transportation, December 14, 2018)

**PARIS, FRANCE**

Tunneling will soon begin on the western extension of Paris RER Line E. On November 28, 2018 a ceremony was held to name the tunnel boring machine (TBM) which will bore the section from Haussmann-Saint Lazare to La Defense. Known as Virginie, the German-built Herrenknecht machine has a diameter of 11 meters (36 feet) and weighs 1,800 tons, making it the largest TBM ever to operate in France. It will work at depths ranging from 30 to 40 meters a day (98.42 to 131.23 feet) and is anticipated to advance an average up to 50 feet a day.

Line E originally opened in July, 1999, diverting some services previously terminating at Gare de l'Est and sending them into a center city tunnel with two stations at Magenta and Haussmann-Saint Lazare. The 34-mile extension to the west will have new underground stations at Porte Maillot and La Defense, then emerge aboveground to absorb the SNCF line out to Mantes-la-Jolie. It will take over RER Line A services to Poissy, diverting up to 15% of Line A's 1.2 million daily riders and bringing much needed relief to the line. Line E is scheduled to open in two phases, initially to Nanterre La-Folie in 2022, and then to Mantes-la-Jolie by 2024. (*Metro Report International*, December 7, 2018)

RATP has taken delivery of the first set of overhauled MF77 cars for Paris Metro's Line 7. Arranged as five-car sets, the first of the steel-wheeled MF77 cars began arriving 38 years ago, and they operate exclusively on Lines 7, 8, and 13. In addition to electrical and mechanical upgrades, the rehabilitated sets are receiving the new Ile-de-France Mobilites livery of light blue, white, and metallic silver, replacing the white and jade green that has been in use since the RATP's last major rebranding in the early 1990s. The new colors are becoming more common across Paris, as they are applied to all new and rehabilitated rolling stock, regardless of owner or operator, with the aim of presenting a unified

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## Commuter and Transit Notes

(Continued from page 14)

brand and single point of public accountability. Ile-de-France Mobilites functions in a manner similar to New York's MTA, as the parent organization providing the financial and logistical umbrella over all of the transportation providers of Paris, including RATP Metro, RER, trams and buses, and SNCF's RER and Transilien services.

All 71 trains of Line 7 will be overhauled until 2023, which will keep them in good running order until the early 2030s, which is when their replacements are anticipated to arrive. (Ile-de-France Mobilites website, December 11, 2018 and Transportparis.canalblog.com, December 12, 2018)

The last of SNCF's Z5300 EMUs were officially retired on December 8, marking the end of 53 years of Parisian service for the class. Known affectionately as the "petit gris" (little grays), the stainless steel trains were built by Carel et Fouche in two batches, the first introduced between 1965-8 and the second between 1972-5. Powered at 1,500 volts d.c. overhead, they were arranged as four-car sets, with a driving motor car, two intermediate trailers, and a driving trailer. Up to three sets could be coupled to form a 12-car train and sets were occasionally shortened with the removal of one or both intermediate trailers.

The Z5300 trains were limited to the 1,500-volt d.c. network of lines on the left bank of the Seine, and in 1979 they inaugurated RER Line C, providing the mainstay of services to the southwest and southeast of Paris until the mid-1980s, when they were joined by Class Z5600 bi-levels (also 1,500 volts), followed by dual-voltage Class Z8800 bi-levels to serve Line C's extension into 25,000-volt a.c. territory in the northwest suburbs. A total of 145 Z5300 cars were built, and in recent years the last survivors were limited to mostly Transilien Line R services operating out of Paris Gare de Lyon to Montereau. They are being replaced by 42 Bombardier Regio 2N eight-section articulated bi-level EMUs — Class Z57000 — taking over RER Line D and Line R services to the southeast. The final Z5300 set, 5362, had been in service since February 1, 1972. (Transportparis.canalblog.com, December 8, 2018)

In the November, 2018 *Bulletin* we reported on the improved pedestrian linkages between the Paris terminals Gare de l'Est and Gare du Nord, which will culminate in a new underground passageway between the two stations. It should be noted that Gare du Nord, built in 1864, is itself about to undergo a significant renovation and expansion, much needed to cope with 700,000 current daily users, expected to increase to 800,000 by 2024 and 900,000 by 2030.

At a cost of €600 million, there are several major project elements. The eastern flank of the station will be completely transformed with the construction of a new departure hall in an area currently occupied by a bus station, which will be relocated. The new hall will essentially enlarge an existing annex which abuts the south-

east corner of the headhouse, expanding it northward. The departure hall will have a new street entrance from the adjoining Rue du Faubourg Saint-Denis; new high-end retail and food establishments (standard practice now at the world's great rail stations); and will feature energy saving measures, including a green roof. The work will also create additional openings and vertical circulation down to the subterranean RER station mezzanine (located directly underneath the current bus platforms), improving the transition between the RER and the easternmost suburban platforms on the station's ground level main concourse.

It should be noted that the aforementioned annex is only 20 years old, built in conjunction with the 1999 opening of the adjacent RER Line E Magenta station to enable transfers to the existing RER Lines B, D and Metro Lines 2, 4, and 5. The annex rectified an inexcusable mistake committed in the 1970s, when an attractive glass and steel pavilion hall dating from the station's expansion in 1877 was sacrificed for a parking garage. The garage's removal, along with the RER, and the start of high-speed services to London and Amsterdam, all helped pave the way for the station's recent resurgence.

Rising from the new departure hall will be a new overhead glass-enclosed pedestrian bridge that will be built just outside the historic trainshed, spanning the northern end of all the main platforms. This is a pressing need, as the existing passageway traversing below the platforms, though recently widened, has already reached capacity. Originally envisioned as a large aerial concourse, the bridge will now be a simpler, scaled down design due to construction complexities. Upon completion, a complete separation of passenger flow will be implemented, with all arrivals directed to exit into the main concourse, and all departures utilizing the new bridge.

The western flank of the station, the Eurostar terminal, will be expanded by building a large glass enclosure out over the taxi driveway adjacent to the station's western façade, creating an arcade-like space. An adjacent historic SNCF office building, originally built by the Chemin de fer du Nord, will be converted into a boutique hotel.

Additional public realm and landscaping improvements will be implemented, such as the planting of both indoor and outdoor vegetation, and in all likelihood the street directly in front of the headhouse façade, the Rue du Dunkerque, will be permanently closed to vehicular traffic and converted into a large pedestrian plaza. It is hoped to complete all of the aforementioned work in time for the 2024 Olympics Games to be hosted by Paris.

Gare du Nord is not only Europe's busiest train station, but also one of the busiest in the world, surpassed only by a few stations in Japan. This project will further cement the station's status as a premier train station and an exceptional public place. (*Today's Railways Europe*, September, 2018; French Railways Society

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website, August 2018 news [www.frenchrailwaysociety.org](http://www.frenchrailwaysociety.org); *Railway Gazette International* website, July 7, 2018)

**AVIGNON, FRANCE**

Alstom delivered the first of 14 Citadis X05 compact LRVs for Avignon on December 13, 2018 after a three-day journey from La Rochelle, where the LRV was designed and built, with the trams due to enter service in summer 2019. The 24-meter-long trams are equipped with four double doors on each side and have capacity for 140 passengers.

The Citadis X05 compact features 100% LED lighting, large windows covering 40% of the tram, is energy efficient, and is up to 98% recyclable.

In May, 2017, Greater Avignon Council and Tecelys, the local government-owned company responsible for transport operation, selected a consortium of NGE Group's TSO subsidiary, Guintoli, EHTP, Agilis, and Alstom for construction of the line. The project includes installing 5.4 kilometers of civil infrastructure, 10.8 kilometers of track, eight track turnouts, 10 stations, and a maintenance facility.

The tramway is expected to start operations in June, 2019. (*International Railway Journal*, December 14, 2018)

**MUNICH, GERMANY**

The Government of Upper Bavaria has approved the first Avenio TZ LRVs for use on the Munich light rail network, with the LRVs coming into service on December 10, 2018.

MVG awarded Siemens a contract in 2015 to supply 22 low-floor LRVs with options for up to 124 additional vehicles. The order comprises nine two-section, nine three-section, and four four-section Avenio vehicles.

The four-section and five two-section LRVs have entered service, while the remaining 13 LRVs are undergoing the commissioning and approval process. The two-section vehicles, which will initially be used on Line 12, will in future be connected to the three-section LRVs during weekdays to increase capacity.

This is the second batch of Avenios ordered by MVG, following an initial group of eight four-section vehicles, which entered service on Line 19 in 2014.

The latest Avenio LRVs have a slightly different front-end design compared with the previous version, with doors that can be closed by the driver and flashing LED lights which alert passengers. The vehicles are also equipped with more handrails, intercoms on the doors to communicate with the driver, repositioned passenger information systems for better visibility, and wider gangways.

The vehicles are designed to be fitted with batteries for catenary-free operation along the planned line through the English Garden. (*International Railway Journal*, December 11, 2018)

**ULM, GERMANY**

Ulm celebrated the opening of the new 10-kilometer

meter-gauge tram Line 2 on December 8, 2018, the day before the line came into service with the introduction of the new European timetable on December 9.

Line 2 links Science Park in the northwest of the city with the main station and Kuhberg in the southwest.

The opening also marked the completion of operator SWU Verkehr's order from Siemens for 12 articulated Avenio M trams, the first Avenio fleet equipped with the "Siemens Tram Assistant" collision warning system, which will be used on Lines 1 and 2. The first trams from the order were delivered on April 21, 2018.

The collision warning system alerts the tram driver of critical situations with the help of lidar and radar sensors, helping to avoid accidents.

The €155 million line was partially funded with a €65 million grant from Germany's Federal Ministry of Transport and Digital Infrastructure (BMVI). The line is expected to carry 8,300 passengers a day, taking 5,500 cars off the road. (*International Railway Journal*, December 10, 2018)

**VIENNA, AUSTRIA**

The first Class D Flexity trams for Vienna public transport operator Wiener Linien began service on Line 67 on December 6, 2018 after receiving approval from authorities following test runs.

Two of the low-floor LRVs have been delivered by Bombardier and were used for the trials. Series production also has started, with delivery due to begin in January, 2019 at a rate of one tram per month. A total of 119 trams are on order with an option for another 35.

The new trams will be based at Favoriten Depot for use on Lines D, 1, 6, 67, and 71. Following the delivery of Class Ds, Wiener Linien will be able to withdraw the remaining class E1 and E2 high-floor trams. (*International Railway Journal*, December 7, 2018)

**TEL AVIV, ISRAEL**

Plans for a metro network for Tel Aviv were announced on December 12, 2018. The metro network is estimated to cost between Shekels 100-150 billion (US\$26.5- 39.7 billion) with more than 130 kilometers of underground lines and more than 100 stations. Ridership is estimated at 1.5 million passengers a day and 450 million a year, with trains operating with a headway of 3-4 minutes.

The metro network will be built in addition to the three light rail lines currently under construction.

The first 73-kilometer north-south line will serve the cities of Raanana, Herzliya, Ramat Hasharon, Kfar Saba, Hod Hasharon, Tel Aviv, Bat Yam, Holon, Rishon Lezion, Ness Ziona, Rehovot, Beer Yaakov, Ramle, and Lod, as well as future development areas, including IMI, Sharon Junction, Gilot Junction, Holon, and Tzrifin.

The second 25-kilometer east-west line will serve the cities of Rosh Ha'ayin, Petah Tikva, Ramat Gan, Givatayim, and Tel Aviv, as well as future development areas including the Sirkin area.

The third 32-kilometer line is a semi-circle line that will connect the network and will serve the cities of Bat Yam, Holon, Azor, Or Yehuda, Givat Shmuel, Petah Tik-

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## THREE ISLANDS OF ITALY

### by Jack May

(Continued from December, 2018 issue)  
(Photographs by the author)

SATURDAY, APRIL 2 (CONTINUED)

Last month's installment ended upon my arrival at Santa Lucia at 13:00. My arrangement with Clare was that I would meet her at Piazza San Marco at 18:00 so I had a mere 4+ hours to do my work. Plus I had another transit operation to ride on top of the Lohr tramway. So after I walked down to Piazzale Roma, at the end of the causeway from the mainland where the tramway now begins, I took a slight detour to ride Venice's people mover.

The short, half-mile Doppelmayr elevated cable line connects the historic gateway of Venice with its cruise ship terminal, and has an intermediate stop at a huge parking lot on the man-made island of Tronchetto. Every 5 or 10 minutes two cars run back and forth pulled by cables, similar to the people movers connecting Oakland Airport with BART and at Toronto Airport. Like many funiculars, the line, which was opened in 2010, is single-track with a passing siding, in this case at the intermediate station. It is automated and has elevator-style doors preventing access to the platforms when a train is not present. The tariff is outside the limit of the day ticket, so I paid a fare of €1.50 each way for the three-minute ride (I had to pay twice because I left the fare control at the Maritime Port end for photos). Access was via turnstiles that are actuated from the barcodes printed on flimsy credit card receipt-type tickets purchased from vending machines. Very retro, but the paper comes from the same kinds of rolls found in supermarket POS terminals, and the barcodes printed are recorded by the turnstile mechanism so the ticket cannot be used more than once. It did not take me long to cover the line, which many call a monorail. Doppelmayr, by the way, is a Swiss company known worldwide for reliable ski-lift equipment, sort of parallel to the much larger Bombardier, which started as a manufacturer of Ski-Doo snowmobiles.

Back at Piazzale Roma I walked to the tram terminal, a simple outdoor affair with street level "platforms" containing ticket machines serving three stub tracks. Only one was being used as the line's 15-minute weekend headways (10 on weekdays) and short layover time obviates having two cars in the terminal at the same time. Operating in pavement as all Lohr installations must, the ladder runs through a plaza full of taxis and buses, and then splits into two lines, one on either side of the causeway that crosses the Laguna di Venezia to the mainland.

I should mention that except for the 2¼-mile causeway, the tram system is confined to Mestre, the portion of Venice on Italy's mainland. Mestre has a population

of about 180,000, while the islands house about 90,000 more. The tramway is about 12 miles long and has 36 stops (see <http://www.urbanrail.net/eu/it/venezia/venezia-mestre.htm>). It opened in 2010 and has been extended twice since. Its 20 four-section low-floor rubber-tired cars look like LRVs and collect current from overhead wires using pantographs.

I first rode the new extension to the center of Mestre, stopping here and there for photos. Having ridden across the Ponte della Libertà (the causeway) on the adjacent railroad tracks, I now rode in a rubber-tired tram in the 4-lane (2 in each direction) roadway of this 1933 Mussolini-built structure (the double track railway bridge, which includes a long ladder on its Venice end, was built in 1846!). Sadly there is no comparison: While traveling at what might be their top speed, the Lohr cars cannot keep up with either road traffic, including buses, or rail operations.

The route over the causeway was inaugurated in 2015, while an earlier extension came in 2014. The original line was reconfigured and is now part of both the present network's two lines. The T1 runs northwestward from Venice to downtown Mestre, and then turns east to run over the northern part of the original line to terminate at Favaro. Line T2 connects with the T1 at Mestre Centro (with transferring passengers having to walk about a block) and runs over the original line to its former Sernaglia terminal at the railroad tracks. It now continues in a subway under the tracks (with a station) and then runs mostly southward to its Panorama terminal (cars are marked Marghera).

I transferred to the T2 and then rode to Panorama, stopping off for photos along the way. Then I returned only as far as Stazione FS in Mestre and took a bus back to Piazzale Roma on the island. I continued aboard a vaporetto to San Marco and arrived exactly at 18:00, our scheduled meeting time. We had a decent dinner in a touristy restaurant and then took a stroll through the old city, ending back at Piazza San Marco, where we had ice cream for dessert at the iconic Caffè Florian. We were pleasantly serenaded with melodies like the Blue Danube waltz, Hello Dolly, and Toselli's Serenata (remember the original Goldbergs on TV in the fifties) by a quartet that included an accordion and both a violin and viola. We then rode the vaporetto and bus back to our hotel.

It was a nice ending to a busy day.

The last four photos were taken in better weather on the following day, Sunday, April 3.

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### Three Islands of Italy

*(Continued from page 15)*



Two views of the cable-operated people mover that connects Piazzale Roma, the gateway to Venice, with a huge parking lot and the city's cruise terminal.



Two photos along Viale San Marco, which leads directly to Mestre's downtown area from the della Libertà causeway. Note how tram route T1 mixes with motor traffic in the roadway, just like traditional streetcar lines.



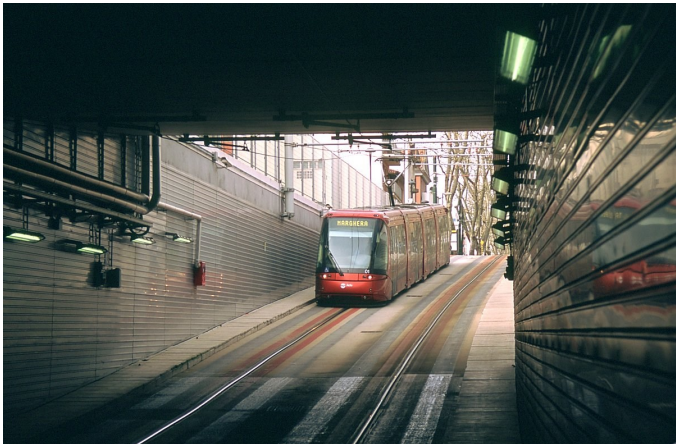
Two T1 cars pass at the off-street portion of the Mestre Centro station, alongside Piazzale Cialdini just north of Mestre's main business district. T2 cars terminate a short distance away on a single-track siding along Via Cristoforo Colombo.

A southbound car on route T2 along Via Cappuccina, just before it will duck under the railroad tracks.

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**Three Islands of Italy**

*(Continued from page 16)*



Photos of southbound T2 units at the two portals of the tram subway running under Trenitalia's mainline tracks in Mestre. The left view, taken from the northbound platform of the Stazione FS underground station, shows a car from Via Cappuccina slowing to a halt, while the right one shows a similar unit leaving the tunnel to join Via Giorgio Rizzardi.

*(Continued next issue)*

**Commuter and Transit Notes**

*(Continued from page 16)*

va, Tel Aviv, Ramat Hasharon, and Herzliya, as well as future development areas including Galil Yam and West Ramat Hasharon, Tel Hashomer, and Or Yehuda.

The Ministry of Transport and the Tel Aviv Metropolitan

Mass Transit System (NTA) presented the plan to the National Infrastructure Committee on December 12, 2018, although no other details from the meeting such as maps were made available. The NTA noted that it intends to examine further extensions to the network. *International Railway Journal*, December 14, 2018)

**Around New York's Transit System**

*(Continued from page 20)*

Streets/Rockefeller Center station on the **F** **M** lines, to south of the 50th Street **C** **E** station.

**NYCT Closes Outer End of Jamaica Line for Nine Days**

Another project that was to take advantage of year-end lower ridership, though to a somewhat different degree, was the closure of the outer end of the Jamaica Line for track and switch reconstruction. Starting on 9:30 PM on Friday, December 28, 2018 and lasting to 5 AM Monday January 7, 2019, **J** and **Z** service was to be cut back to 121st Street, resulting in the closure of the Jamaica Line platforms (lower level) at Sutphin Boulevard-Archer Avenue and Jamaica Center-Parsons Blvd/Archer Avenue. This was to allow for the replacement of Parsons Boulevard Interlocking's diamond crossover between Sutphin Boulevard and Parsons Boulevard, as well as other miscellaneous signal, track, and systems work. The crossover was to be rebuilt from Type II to Type II Modified track.

During the closure, the upper level of the Archer Avenue Subway was to remain open and **E** service was to continue on the upper level platforms at Sutphin Boulevard-Archer Avenue and Jamaica Center-Parsons Boulevard-Archer Avenue. At 121st Street, **J** trains were to relay from Track J1 to J2 on the diamond crossover north of the station and then proceed back into the station on J2.

What makes this closure slightly different from the 53rd Street Tunnel work is that it was to start just three days before New Year's Day and last for a full week after that. Presumably this was to be done to minimize the overlap with the 53rd Street Tunnel closure, which was to actually end on the morning of New Year's Eve. NYCT also added that schools in the Jamaica area, such as York College, would be on their winter break.

The service pattern will be **J** trains operating between Broad Street in Manhattan and 121st Street in Queens at all times, and **J**/**Z** skip-stop services were to be suspended. A shuttle bus bridge was to be implemented between 121st Street and the Jamaica-Van Wyck **E** station.

**MEMBER JOSEPH KORMAN PASSES AWAY**

As the December, 2018 *Bulletin* went to press, long-time ERA member and retired NYCT planner Joseph Korman (ERA #3421) passed away on November 20,

2018 at the age of 70. Korman hosted the popular website TheJoeKorner and was a wealth of information on both NYCT and transit as a whole.

## Around New York's Transit System

### 23rd Street-Sixth Avenue Station Reopens

MTA New York City Transit reopened the 23rd Street subway station on the **F** and **M** lines on Thursday, November 29, 2018, after four months of repairs to the station's structural steel and concrete. While crews were making these repairs and refurbishing components such as floors, tiles, stairs, and the turnstile area, they also modernized the station with new digital screens, countdown clocks, additional, brighter lighting and station furniture. As part of the Arts for Transit initiative, the station features 11 glass mosaic portraits, collectively titled "Stationary Figures," by William Wegman, an internationally known artist who lives in the neighborhood, and fabricated by Mayer of Munich. "Stationary Figures" feature Wegman's two Weimaraner dogs, Flo and her brother Topper. Photos of the station can be seen at <https://www.flickr.com/photos/mtaphotos/sets/72157701113581932>.

### 168th Street Station Closes

NYCT will close the 168th Street station on the **1** line for one year starting January 5, 2019 in order to replace the outdated and increasingly unreliable elevators providing the only link between the platforms at that deep station and the **A** and **C** line station far above it under the intersection of Broadway and St Nicholas Avenue. Currently, 35,000 passengers utilize this busy station, with many making a transfer to and from the **A** and **C** lines. When rebuilt, the new elevator cabs will have doors on both the front and rear to speed customer flow. This is the first of five deep stations with elevators that NYCT plans to rebuild. The other stations are: 181st Street **A** from October, 2019 to October, 2020, 191st Street **1** from February, 2020 to February, 2021, 190th Street **A** from November, 2020 to October, 2021, and finally 181st Street **1** from March, 2021 to February 2022. 181st Street **A**, 191st Street **1**, and 190th Street **A** will remain open during the work, with the elevator entrances closed. The first three stations are expected to cost \$60 million with no estimate for the final two. Customers affected by this and future closures will be offered free walking transfers between the 207th Street **A** station and the 207th Street and 215th Street stations on the **1** line. A novel three-legged transfer (train to bus to train, bus to train to bus) will also be offered to customers affected by this work so they do not have to pay a second fare with extra transfer required. Enhanced bus services on the M5, Bx10, and Bx7 routes will be offered during the project.

### NYC Transit Hires Signal Expert

Pete Tomlin is joining NYC Transit in January, 2019 as the head of the agency's systemwide resignaling efforts. A native Briton, Tomlin brings more than 21 years of international experience in the complex discipline of upgrading signal systems on new and existing subway systems, most recently in Toronto but before that in

London and Hong Kong. Tomlin's background is in electrical engineering, and he has worked for NYC Transit President Andy Byford in both London and Toronto.

Tomlin's area of expertise is the installation, testing, and commissioning of CBTC, a modern signal system that delivers high levels of service reliability and additional line capacity that anchors the subway element of President Byford's Fast Forward modernization plan. Once funding is secured, Fast Forward will convert 11 New York City subway lines to CBTC in an unprecedented 10 years, and it was for this reason that President Byford sought world expertise to drive the resignaling program.

President Byford said that Tomlin's first task will be to oversee the final adjustments to the CBTC system that just went live on the **7** line, to take charge of the current Queens Boulevard project, and to commence planning for the next portion of line conversions. Tomlin will also actively investigate and drive development of Ultra Wideband, an emerging technology that has the potential to enable New York's subway to be resignaled even more quickly, more cheaply and in a less intrusive manner to support the ambitious Fast Forward timelines.

### 53rd Street Tunnel Planned to Close for Five Days

For the second year in a row, NYCT was to take advantage of lower ridership during the year-end holiday season and close the 53rd Street Tunnel for repairs and upgrades. As announced on December 18, 2018, **E** and **M** service was to be suspended from 4:45 AM on Wednesday, December 26 until 5 AM on Monday, December 31, so the work could be performed between Queens Plaza and 50th Street-Eighth Avenue in Manhattan.

During the closure **E** trains were to operate alongside **F** service between West 4 Street and Jackson Heights-Roosevelt Avenue, via the 63rd Street Tunnel. Weekday **M** service was to operate between Metropolitan Avenue-Middle Village in Queens and Chambers Street on the Nassau Street Line in Lower Manhattan. The Seventh Avenue, Fifth Avenue-53rd Street, Lexington Avenue-53rd Street, and Court Square-23rd Street stations were to be closed entirely.

The work to be performed includes upgrades to the signal and power systems, installation of new communications cables, preventive switch maintenance, well as trackwork, including new rails, ties, plates, and tie blocks. The drainage systems will be cleaned, and the pumps and sumps will be ensured to be in good working order.

A portion of the work will be related to the installation of Communications Based Train Control (CBTC), as part of the ongoing work to resignal the Queens Boulevard Line with CBTC from north of the Kew Gardens/Union Turnpike **E** and **F** station to north of the 47th-50th

*(Continued on page 19)*