The Bulletin

Electric Railroaders' Association, Incorporated

Vol. 62, No. 2 February, 2019

The Bulletin

Published by the Electric Railroaders' Association, Inc.
P. O. Box 3323
Grand Central Station
New York, NY 10163

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LONG ISLAND RAIL ROAD MAIN LINE THIRD-TRACK PROJECT UPDATE

by Jeffrey Erlitz

(Photographs by the author)

As of last fall, construction of the long-awaited third track on the Long Island Rail Road's Main Line between Floral Park and Hicksville has begun in earnest. A groundbreaking ceremony was held on September 5, 2018 with Governor Andrew M. Cuomo and several other officials in attendance. The MTA awarded the $1.8-billion design-build contract to 3rd Track Constructors, which is a consortium of construction firms including Dragados USA, Incorporated, John P. Picone, Incorporated, CCA Civil, Incorporated, and Halmar International LLC. Stantec will act as the consortium's lead engineer. After much surveying work, crews began to clear the right-of-way of trees and brush that were in the way of the new track. There is also utility work going on in the areas of New Hyde Park and Carle Place.

Project elements along the Main Line corridor include:

- 8 miles of a new third track;
- 7 grade crossing eliminations, including Covert Avenue, South 12th Street, New Hyde Park Road, Main Street, Willis Avenue, Urban Avenue and School Street;
- 7 bridge replacements and modifications, including South Tyson Avenue Bridge, Plainfield Avenue Bridge, Tanners Pond Road/Denton Avenue Bridge, Glen Cove Road Bridge, Meadowbrook Parkway Bridge, and Cherry Lane Bridge;
- 5 station improvements, including New Hyde Park Station, Merillon Avenue Station, Mineola Station, Carle Place Station, and Westbury Station; in addition to ADA-compliant elevators at Floral Park Station;
- 7 substation replacements, including Floral Park Substation, New Hyde Park Substation, Merillon Avenue Substation, Mineola Substation, Carle Place Substation, Westbury Substation, and New Cassel Substation;
- 5 miles of sound/retaining walls; and
- Additional improvements throughout the project corridor

Looking east at ground level from Tulip Avenue in Floral Park on November 7, 2018. To the left is the Main Line and to the right is the Hempstead Branch. The pavement has been marked to show the locations where new columns will be constructed for the new overhead bridge/viaduct to carry the new track. This will probably be one of the trickier pieces of construction on this project.

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Long Island Rail Road Main Line Third-Track Project Update

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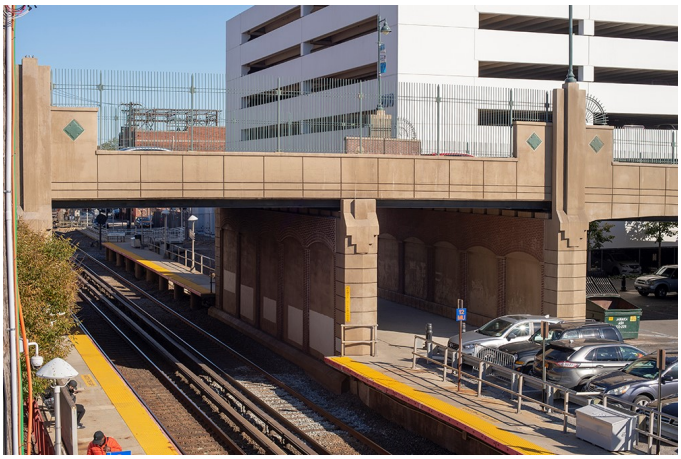
In this view from January 15, 2019, the new support columns have already been poured for the new track connection from the existing westward Hempstead Branch Track 1 (just to the right of the workers) to the new third track. In a bow to the architectural style of the existing elevated structure, these new columns exactly match those dating from 1962, when Floral Park was grade-separated.

View west from the Covert Avenue grade crossing in New Hyde Park on October 25, 2018. This is the westernmost grade crossing in the project area and will be replaced with an underpass. Construction barrier fencing has been installed along most of the right-of-way between Floral Park and Hicksville on the south side of existing Track 2, which is where the new third track will be built.

Located midway between the New Hyde Park and Merillon Avenue stations at milepost 16.96, the Denton Avenue bridge was constructed in 1889 and was rebuilt at some point in the last century. You can see that the original stone abutments were added to with a concrete layer. The bridge deck is supposed to be completely rebuilt for three tracks but not, surprisingly, widened. The existing stone abutments are supposed to be extended to accommodate the third track and a traffic light will be installed to control vehicular traffic through the "one-lane" underpass. Photo taken on October 25, 2018. Technically, three-quarters of this bridge is located in the incorporated village of Garden City and one-quarter in North New Hyde Park (a census-designated place).



When the Mineola Boulevard bridge was reconstructed several years ago, provision was made for the future third track, shown here on the right side of the center abutment. It is not clear to me whether there will be sufficient space for an island platform where the existing eastbound platform is so that Mineola can be an express stop. Mineola is, after all, the seat of Nassau County government. Photo taken on October 25, 2018.

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Long Island Rail Road Main Line Third-Track Project Update

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C-3 5001 (Kawasaki Railcar, 12/1998) leads train #651 from Port Jefferson to Long Island City into Mineola at 2:36 PM on October 25, 2018. Nassau Tower, just beyond the eastbound platform here, will need to be demolished to make way for the third track. All of the interlockings in the project area will be controlled from the Jamaica Central Control building with backup from the existing Queens and Divide Towers. The Main Street crossing, under the rear end of the first car, will either be completely closed to traffic and be replaced with a pedestrian bridge (the preferred alternative) or it may become a one-way northbound underpass (also with a pedestrian bridge) while Willis Avenue, just beyond the locomotive on the rear of the train, will be converted to an underpass. That little grade crossing right in front of the train is a pedestrian crossing, which will also be closed.

Looking west from the Ellison Avenue overpass in Westbury towards the Carle Place station on November 6, 2018 we see M-7 7818 (Bombardier Transportation, 3/2007) leading train #1714 from Penn Station to Huntington. You can see just how close the right-of-way is to the houses on the south side of the right-of-way here. From east of Mineola station to a point between here and Westbury station, the new third track is supposed to be on the north side of the right of way, to the right in this photo. Roughly five miles of new retaining and sound barrier walls will need to be constructed along the project corridor.

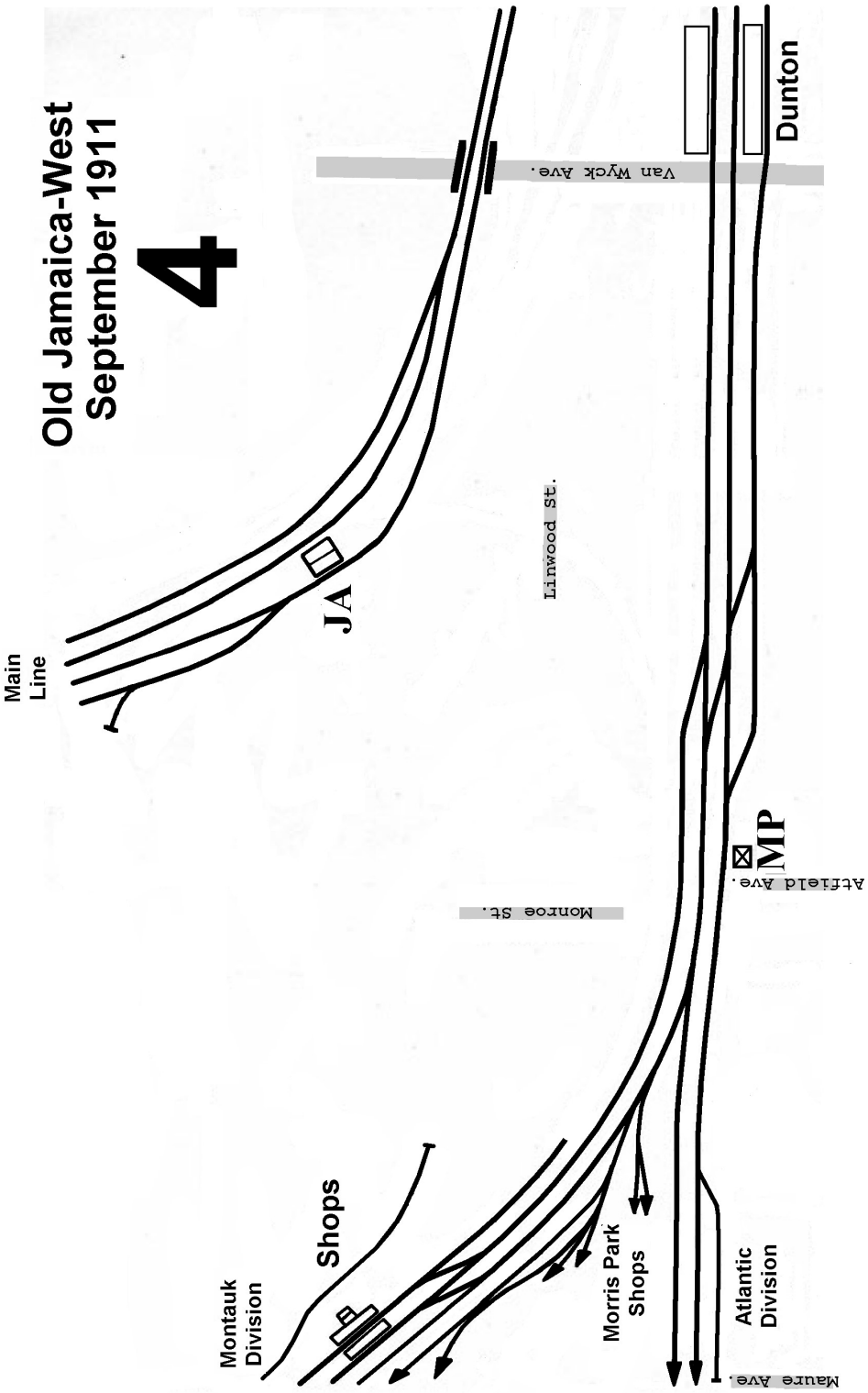
M-7 7305 (Bombardier Transportation, 10/2004) leads train #1709 from Huntington to Penn Station just east of Ellison Avenue in Westbury on October 25, 2018. It is not known to me why the large area to the right, or the smaller area to the left, have been cleared. I had thought that this was going to be for a new traction power substation but I have learned that the existing substations will all be rebuilt in place, as had been done at Substation G13 in Floral Park in 2010. In this view the current two main tracks are to be shifted slightly south (to the right) and the new third track is supposed to be on the north (left) side. Between here and Post Avenue in Westbury in the distance, all three tracks need to shift south again as the new third track is on the south side of the right of way through Westbury. All of these track shifts will be engineered for 80 MPH maximum speeds.

Looking east from the Grand Boulevard overpass in the hamlet of New Cassel on November 7, 2018. This is between the Westbury and Hicksville stations. Some where in this view all three tracks will take a very slight jog to the north (to the left in this view) and the new third track will be on the north side of the right of way from here . In the distance is the easternmost grade crossing of this project, Urban Avenue. It, too, will be replaced by an underpass.

THE GENESIS OF DASHING DAN — A NEW JAMAICA AND THE MAIN LINE COMPLETE

by George Chiasson

(Continued from January, 2019 issue)



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The Genesis of Dashing Dan

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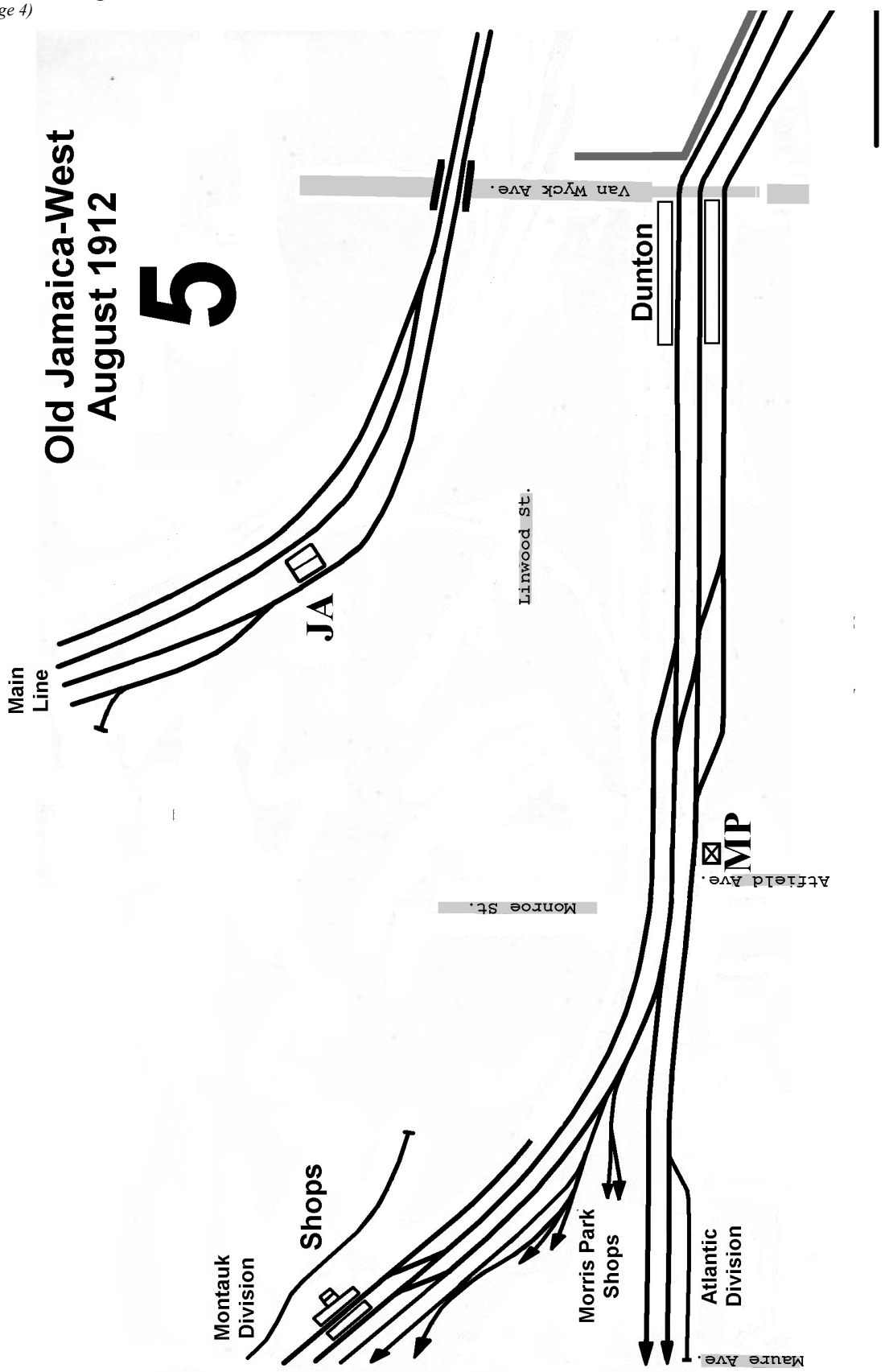

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The Genesis of Dashing Dan

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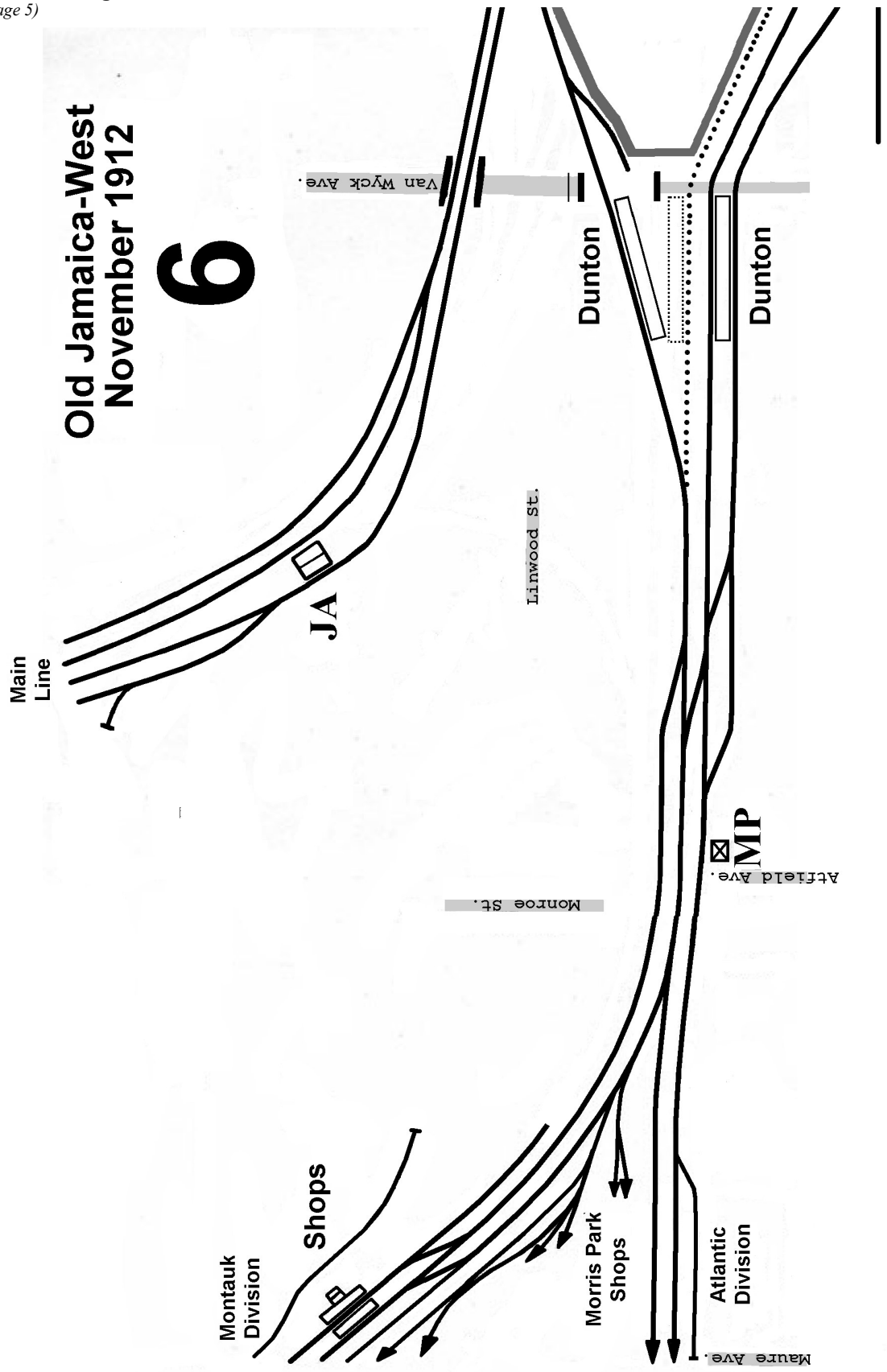

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The Genesis of Dashing Dan

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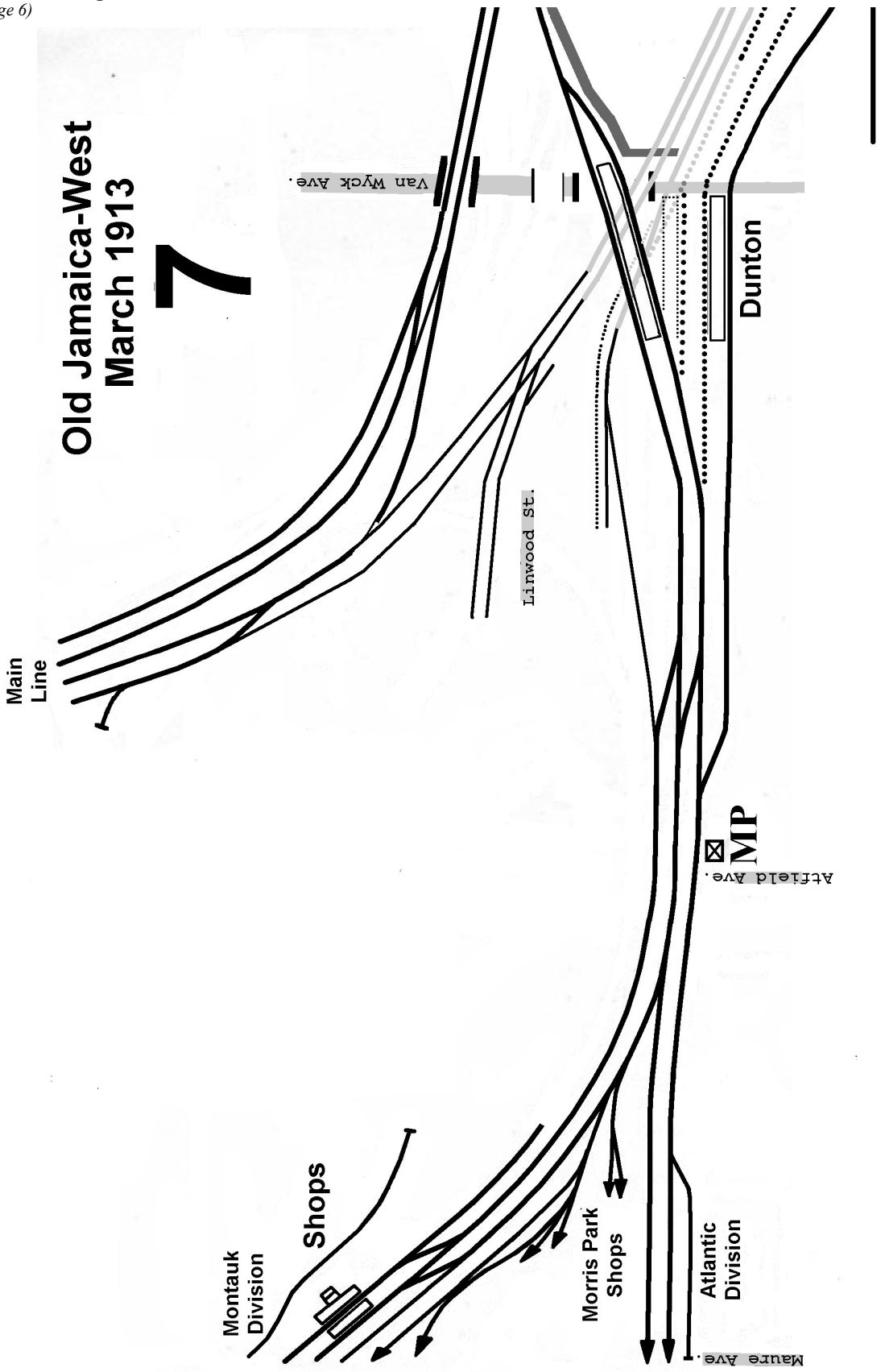

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NEW YORK CITY SUBWAY CAR UPDATE

152 of the 4-car R-179s were delivered as of December 31, 2018, with 3174-3185 arriving in November and 3186-3205 showing up during December. The second "pilot" 5-car set of R-179s (3010-4, which had originally been the initial set transported from Plattsburgh in September, 2016), were back at NYCT on November 10 and all ten cars observed once again conducting test operations by Thanksgiving weekend. After a pause of seven weeks in their introduction to revenue service, 8-car set 3150-7 made its debut as the first R-179 train in Ⓒ service on November 6, followed by 3158-61 with 3166-9 on Thanksgiving Day, November 22. (In a humorous side tale, one observer who was aboard the first trip on this second set was amused with the adverse reaction of some young riders to the train's "new car smell" as they all rolled Downtown to attend the Macy's Parade.) The third R-179 train to be inaugurated on the Ⓒ consisted of 3162-5 with 3170-3 on December 11, followed by 3174-81 as the fourth on December 21. This assignment brings final definition to the 96-car R-179 fleet on Ⓙ/Ⓩ as 3050-69 and 3074-3149, with 44 of the 4-car variety yet to be delivered to NYCT in the early months of 2019. On January 8, 2019, it was noted that all of the R-179s had suddenly been pulled from Ⓒ service, while several others continued to roll on the Ⓙ/Ⓩ. One of the four was back on the Ⓒ as of January 10.

As the first few R-179s entered Ⓒ service, a few sets of 4-car R-160A-1s were haltingly exchanged back to East New York for use on Ⓙ/Ⓩ and Ⓜ: 8601-4 on November 2, followed by 8593-6 on November 27. 8585-92 were then shifted back to East New York as of December 24; 8637-40 with 9951-4 on December 28; 8629-32 on January 3; 8641-4 with 8649-52 on January 7; and 8597-8600, 8617-20 plus 9955-8 on January 9, 2019. These removals left 36th such cars at 207th Street for use on the Ⓒ early in the new year, with just one train seen in service on January 10. At press time, it was evident that the withdrawal of all R-160A-1s from the Ⓒ (where they have been routinely stationed since May of 2015) was imminent.

After three to four trains of Phase I R-32s were observed on Ⓙ/Ⓩ for several weeks, removal of the final 28 from East New York (Ⓙ/Ⓩ) at last commenced on November 27, when 3476/7, 3870/1, and 3912/3 went over to 207th Street for the Ⓐ and Ⓒ. The remaining 22 were then largely idled but for one (maybe two) trains until Friday, December 21 when the last revenue consist on the Ⓙ proved to be N-3781-0/3717-6/3698-9/3578-9-S. On the following Monday (Christmas Eve) these 18 Phase Is then began to depart East New York for the last time and had started to appear on both the Ⓐ and Ⓒ by December 26: 3430/1, 3578/9, 3650/3767, 3698/9, 3716/7, 3736/7, 3778/9, 3870/1, and 3886/7. As of December 27, all 222 of the vintage, Budd-built cars were reunited at 207th Street, with the arrival of 3628/3669, 3670/1, 3774/5, 3856/7, and, finally 3938/9 in a series of moves which adopted Morrison-Knudsen-overhauled R-42s as "mules." Whereas the scheduled service on both the Ⓐ and Ⓒ remains heavily reliant on the R-46s, R-160A-1s, and R-179s, it can be discerned that the Phase Is are presently being deployed in a supporting role on both routes.

Last but not least, we are informed that the lone "special" R-46 consist, which is scheduled off a rerouted Ⓡ trip in the morning rush, has continued to turn up on the Ⓠ through the end of 2018, as regularly have trains of R-143s on the Ⓙ/Ⓩ. Jamaica R-160s are also still to be found on the Ⓡ during weekdays, joined for some reason by one Coney Island-assigned Siemens R-160B train on January 10. As a reminder, at least one train of R-68/68A equipment has been scheduled in the PM rush on the Ⓠ since January, 2017, and another on the Ⓐ for a few years longer than that. The technical details of CBTC equipment installation continue to be worked out at Coney Island Shops, as evidenced by the assignment of R-160Bs 8803-7 and 9183-7 for this purpose during December. In the lone Subdivision "A" notation of this month, there were separate handfuls of ❶-assigned R-62As and R-62s from the ❸ on the ❷ over the weekend of January 5-6, 2019 as part of a General Order operation. ❷ service was truncated at 96th Street from Flatbush Avenue-Brooklyn College, with ❺ trains filling in between Wakefield-241st Street and Bowling Green via Lexington Avenue (and shuttles between E. 180th Street and Eastchester-Dyre Avenue). All ❸ service was also suspended across the entire weekend.

Commuter and Transit Notes

No. 361

by Ronald Yee and Alexander Ivanoff

MTA Metro-North Railroad

To address an issue with early morning peak period train congestion into Grand Central Terminal, the schedules of three weekday early morning Harlem Line trains were moved up by two to four minutes effective January 22, 2019. Train #606 moved its departure time out of Southeast four minutes earlier from 5:17 AM to 5:13 AM with all station times between Brewster and White Plains being 3-4 minutes earlier. Train #306, which is #606's connection, departs North White Plains two minutes earlier at 6:04 AM with all stops between White Plains and Melrose being 1-2 minutes earlier. Train #504 has been adjusted four minutes earlier to depart North White Plains at 5:53 AM with all times between White Plains and Melrose being 2-4 minutes earlier. Arrival times at Grand Central Terminal apparently remain unchanged. New Hudson and New Haven Line timetable folders dated September 30, 2018 through April 13, 2019 but with a "Revised January 2019" notation on the cover panel were available at Grand Central Terminal as of January 18. The Harlem Line's revised timetable was likely held back until the weekend of January 19 to prevent customer confusion regarding weekday schedules. (MTA Metro-North Railroad press release, January 16, 2019)

MTA Metro-North Railroad and Amtrak came to an agreement on January 22, 2019 regarding the Hell Gate Line, paving the way toward linking Metro-North's New Haven Line with Penn Station, sharing the tracks with Amtrak's Northeast Corridor (NEC) between New Rochelle and Penn Station. New York Governor Andrew Cuomo brought both organizations together to resolve the issues that had stalled this project for years. These included track improvements, trackage use fees Amtrak would charge Metro-North for operating its trains on its NEC and the replacement of the century-old Pelham Bay Bridge. This clears the way for a contract to be awarded to begin the necessary engineering work to bring this plan to reality. MTA's Metro-North Committee approved a $35 million contract with HNTB New York Engineering and Architecture for preliminary design on January 22 with expected approval by the full MTA Board at its scheduled monthly meeting January 24.

Four intermediate stations on this new line are planned: Co-Op City, Morris Park, Parkchester/Van Nest, and Hunts Point. The line would then cross the East River via the Hell Gate Bridge, pass through northwestern Queens County past Sunnyside Yard, and enter Manhattan through the East River tunnels to Penn Station. MTA Metro-North Railroad will finance the cost of making the improvements to the tracks on this portion of the NEC and the construction of the four new stations. Metro-North and Amtrak will share the cost of replacing the Pelham Bay Bridge, and operating over the Hell Gate Bridge proportionate to the percentile of trains of both railroads passing over this line. Metro-North Railroad will also coordinate the project to accommodate planned increases in *Acela* service between New York City and Boston that Amtrak plans to implement starting in 2021. The MTA plans to begin work on this project as soon as the LIRR East Side Access Project is completed, allowing the LIRR to divert a number of its trains from Penn Station to the new terminus. This agreement will also commit the LIRR to reducing the number of trains in an out of Penn Station to clear up time slots there to accommodate Metro-North trains operating over this new line. New York State Senator Charles Schumer used the occasion of this historic announcement to push for the repair of the four East River tunnels damaged by flooding during Hurricane Sandy in 2012. (***Westchester Journal News***, January 22, 2019)

Amtrak

Amtrak cancelled the departures of the Lake Shore Limited and Capitol Limited for Saturday, January 19, 2019 in both directions due to a severe winter snow and ice storm forecasted to affect the regions these trains operate through. *(Editor's Note by Ronald Yee: Many comments have been made in the railfan community regarding the ease with which Amtrak suspends operations of its trains in the face of forecasted severe weather. As much as this Editor would like to see the train as the last bastion of service reliability in the face of severe weather, there are many factors involved in the decision to suspend service. One is the increasingly litigious nature of today's society. No risk management and/or legal department would endorse a company decision to willingly expose its customers and staff to potentially hazardous situations where access to emergency services and the ability to perform evacuations would be severely hampered or impossible (a scenario as simple as a passenger or crew member experiencing a medical emergency and needing assistance and/or evacuation). Local emergency services across the nation are increasingly reluctant to place their personnel's lives and limbs at risk to rescue people who are placed in harm's way through poor decision-making. In severe weather situations (snow or ice storms, hurricanes, flood risks, etc.), the ability to re-crew a heavily delayed train whose original crew has "outlawed" on the hours of service limitations becomes extremely difficult and potentially hazardous, especially if the train that needs to be re-crewed is stuck at a remote location, trapped by trains and/or obstructions both ahead and behind it.)* (Amtrak, January 18, 2019)

Other Transit Systems

Boston, Massachusetts

The first of 24 light rail vehicles that CAF is supplying to the Massachusetts Bay Transportation Authority's Boston Green Line entered regular passenger service on December 21.

The 70% low-floor LRVs, designated Type 9 by MBTA,

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Commuter and Transit Notes

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were ordered under a $118 million contract signed in 2014. CAF has produced the body shells in Spain, with final assembly and testing at its plant in Elmira Heights, New York, to comply with Buy America regulations.

All 24 LRVs are scheduled to be in service by late 2019. With a passenger capacity 10% greater than the LRVs currently in service on the Green Line, the new vehicles are expected to increase overall capacity on the route. They are also needed for the extension to Union Square and College Avenue. A groundbreaking ceremony for the extension took place in June, 2018, and opening is planned for late 2021. (***Metro Report International***, January 3, 2019)

Oklahoma City, Oklahoma

Embark Transit counted more than 10,000 trips on the Oklahoma City Streetcar over the first weekend of January, 2019. The streetcar operator announced on January 4 that it was extending through January free rides on the streetcar, and is gauging support for regular Sunday service, currently being piloted.

Total ridership since service began December 14, 2018 is 86,390. Initial plans are for regular service Monday through Saturday on the downtown loop and Friday and Saturday on the Bricktown loop.

Embark operated Sundays through January 27 to see whether demand for regular Sunday service is sufficient to justify the cost. (***The Oklahoman*** via ***Mass Transit*** Magazine, January 8)

Galveston, Texas

The ***Houston Chronicle*** reported in early January, 2019 that Galveston residents and visitors hoping to hitch a ride on one of the island's long-dormant classic trolley cars will have to wait at least a few more months, due to structural concerns. The first of three trolley cars currently being restored by Gomaco should be returned to Galveston sometime this spring, with the other two following shortly after. The company was selected in 2015 to restore three of the four damaged trolley cars and in 2017 the city shipped the first of the three cars.

The trolley car system has been out of commission since Hurricane Ike swept through the island in 2008. The storm severely damaged the three trolley cars and its 6.8 miles of tracks that stretch from downtown Galveston to the University of Texas Medical Branch campus and to the Galveston Island Pleasure Pier on Seawall Boulevard.

Gomaco's contract with the city totals just over $3 million. The restoration is funded by $1.9 million from the Galveston Island Convention and Visitors Bureau, as well as $1.6 million in Federal Emergency Management Agency funds from Hurricane Ike recovery. The fourth car could be restored in the future.

The island has been operating rubber-wheel trolley buses along the classic trolley route as a replacement since spring of 2017. (***Houston Chronicle*** via ***Mass Transit*** Magazine, January 16, 2019)

Dallas-Fort Worth, Texas

TEXRail inaugurated passenger rail services between Dallas-Fort Worth International Airport, Grapevine, and central Fort Worth on January 10, 2019 with the inauguration of the 28-mile commuter line. The opening was delayed because of the partial United States government shutdown that began in December.

TEXRail begins at DFW Airport Terminal B and serves seven intermediate stations before terminating at an interchange with the Dallas-Fort Worth Trinity Rail Express commuter rail line at T&P Station in Fort Worth. TEXRail will also eventually connect to Dallas Area Rapid Transit's (DART) Cotton Belt commuter line.

Trinity Metro is initially operating an hourly service seven days a week with a journey time of 52 minutes. Travel was to be free of charge until January 31, with a fare of $2.50 for a single trip and $5 for a day pass thereafter.

Construction began in August, 2016 and the $996-million project was funded with the aid of a $44.9-million Full Funding Grant Agreement from the Federal Transit Administration. Fort Worth Transportation Authority awarded Stadler a $106.7 million contract in June, 2015 to supply eight four-car Flirt 3 DMUs, which were assembled at Stadler's United States plant in Salt Lake City.

TEXRail is initially forecast to carry 8,000 passengers a day, increasing to nearly 14,000 passengers a day by 2030. (***Railway Age***, January 10, 2019)

Concurrent with the opening of TEXRail, Dallas Area Rapid Transit has awarded a joint venture of Archer Western and Herzog Contracting a $783 million contract to build the 26-mile Cotton Belt commuter rail line, with assistance from lead designer Jacobs Engineering. Construction is scheduled to begin this year for completion by the end of 2022.

The route will start at Terminal B at Dallas-Fort Worth International Airport, where it will share a station with Trinity Metro's 27-mile TEXRail commuter line from Fort Worth, which opened on January 10. From the airport the Cotton Belt line will run eastwards through Tarrant, Dallas, and Collin Counties to Shiloh Road in Plano, with ten stations including interchanges with Orange, Green, and Red light rail lines and local bus services.

Trains would initially run every 30 minutes during rush hour and hourly off-peak and on weekends.

The project will make use of an existing alignment used for regional freight services which DART acquired from the St. Louis Southwestern Railway in 1990 with a view to future passenger use. This will be double-tracked and upgraded to the standards required for passenger service running at up to 79 MPH. A fleet of eight diesel multiple-units is planned; these have not yet been selected, but would be required to be compatible with Flirt units which Stadler has supplied for TEXRail.

While the TEXRail and Cotton Belt projects are separate, much of the TEXRail corridor is also on the right-of-way owned by DART and it is envisaged that Cotton Belt trains may run along the full corridor in the future.

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Commuter and Transit Notes

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The $1.1 billion Cotton Belt project is being financed through a $908 million Railroad Rehabilitation & Improvement Financing (RRIF) loan. (***Railway Gazette***, January 4)

San Francisco, California

The $2 billion Salesforce Transit Center in downtown San Francisco opened in August, 2018 amid much fanfare only to unexpectedly and suddenly close barely six weeks afterward on September 25, when crews working on completing the finishing touches on the facility discovered a cracked structural support beam. Subsequent emergency inspections uncovered a second cracked beam which supports the structure spanning a street overpass bisecting the ground floor of the facility. After three months of testing and analysis of the two failed beams, metallurgical experts determined that the fissures were the result of “brittle fracture” of the beam’s metal flanges where maintenance access holes had been cut, or additional welding work had been performed on its surface. While the structural strength of the affected beams is allegedly unaffected, measures to correct the issue, most likely in the form of cover plates bolted onto the girders as reinforcement, are being worked on. Until a thorough inspection of all beams of similar construction affected by post-fabrication modifications are made, the transit center will remain closed to the public as well as for all bus operations. As of the January 10, 2019 meeting of the Transbay Joint Powers Authority Board, joint venture contractor Webcor/ Obayashi has been directed to begin repairs in earnest. No timetable has been given or deadlines promised for the re-opening of the Salesforce Transit Center as the repair process involves a thorough inspection of all other potentially affected beams for similar issues. (***Construction Dive***, January 18, 2019)

With the completion of the $1.6 billion Central Subway light rail line expected for late 2019, MUNI officials are seeing, for the first time ever, a more receptive community reaction to the concept of extending the line underground into the Marina district and perhaps as far as the Presidio. In past years, residents and community organizations had vehemently opposed any extensions of the MUNI Metro, F/Market streetcar line, or transit-only designated lanes on Chestnut Street into the Marina district. However, at the SFMTA community meeting held in December, 2018 at the Marina Middle School, the mention of an extension of the Central Subway was met with an unexpected level of enthusiasm. The subway would be extended to a new station at Columbus Avenue in North Beach, then under the Joseph Conrad Mini Park at Beach Street. From there, four alternative alignments were presented. One option from the Mini Park would head under Fort Mason and through Marina Boulevard until reaching the northeast corner of the Presidio. Two proposed routes along Lombard Street would depart from either Joseph Conrad Mini Park or the North Beach station toward Van Ness Avenue. The last option would take off from the North Beach station along Union Street, just three blocks down from the latter, before curving northward into the Presidio. As a reference, a 2015 feasibility study estimated the extension from the Chinatown station toward Fisherman’s Wharf could cost between $367 million and $1.4 billion in 2014 dollars. While an aging population in the Marina District and a public attitude seeking alternatives away from driving motor vehicles may be a factor in increased community acceptance and desire for the line, SFMTA will need to avoid any appearance of building this line primarily to serve tourists along the Marina Boulevard corridor. The Marina District Community Association suggests a way to avoid that perception, building the line above ground along the commercial corridor of Chestnut Street and placing the line underground in residential areas. (***SF Weekly***, January 17, 2019)***Honolulu, Hawaii***

Honolulu, Hawaii

A series of "prematurely" awarded rail contracts doled out to construction companies as early as 2009 prompted delay claims and change orders that increased the cost of the Honolulu rail project by more than $354 million, according to a new report by the Hawaii State Auditor released on January 10, 2019.

The report also noted some delay claims and change orders are unresolved, which means the cost of those claims will continue to rise. For example, rail officials are now trying to settle a claim by rail contractor Ansaldo Honolulu JV, which sources say originally demanded $200 million in 2016 in connection with rail construction delays.

The auditor's report also cited documentation that the Honolulu Authority for Rapid Transportation staff throughout 2015 reported one set of rail cost and schedule estimates to the HART Board of Directors, political leaders, and the public, and reported different cost and schedule estimates to the federal government.

The official rail construction budget for the 20-mile rail line from East Kapolei to Ala Moana is now nearly $8.3 billion, but the total cost is expected to climb to more than $9.2 billion when financing costs are figured in.

The half-built rail line is the largest public works project in state history, and its cost has wildly exceeded its original budget. In 2012, the city pledged to complete construction of rail for $5.12 billion. (***Honolulu Star-Advertiser*** via ***Mass Transit Magazine***, January 11, 2019)

Ottawa, Ontario, Canada

The consortium building Ottawa’s light rail transit (LRT) Confederation Line says it will finish construction work in the first quarter of 2019 and expects to turn the project over to the city by March 31. The new date was announced on January 3, 2019. Ottawa had expected the consortium, Rideau Transit Group (RTG), to provide a new handover date for the $2.1 billion LRT line on January 2, but RTG requested more time. Ottawa gave RTG a one-day extension.

RTG had twice before missed deadlines—in May and

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November of 2018. After missing the November deadline, RTG was hit with a $1 million penalty.

Under the terms of the city's contract with RTG, the consortium is to complete all civil work, construction of mechanical and electrical systems, delivery of all light rail vehicles, all signage and wayfinding systems, installation of onboard announcements and public address systems, secure safety certifications, reach compliance with an independent safety audit, and successfully complete trial runs.

Following the handover, both the city and OC Transpo, the local transit agency, will require approximately one month to finalize such items as additional systems practices, simulated operations, and staff training. Commencement of public operations could commence within about a month, about May 1. That date, ironically, would be the 60th anniversary of the abandonment of Ottawa's streetcar system.

The Confederation Line, the first phase of a plan to install LRT around Canada's capital city, will connect to the existing BRT at Tunney's Pasture Station, and to the O-Train at Bayview Station. A central feature of the line is a 2.5-kilometer tunnel under the city's downtown, which officials hope will reduce congestion. A sinkhole in 2016 has been behind much of the delays. (***Railway Age***, January 7, 2019)

France

The government on January 9, 2019 formally launched the process of opening the French domestic main line passenger railway to competition when it announced the publication of a Prior Information Notice covering two routes.

Issued by the Ministry of Environmental Transformation & Sustainability and to be published this week in the Official Journal of the European Union, the PIN covers the Nantes–Bordeaux and Nantes–Lyon services currently operated by SNCF Mobilites as part of the Trains d'Equilibre du Territoire network of conventional inter-city trains. These two routes are among eight TET services still specified by central government rather than regional authorities, and SNCF's operating agreement with the state runs until 2020.

The ministry says that the PIN marks the start of the first competitive tendering process under the national railway reform program which was passed into law in June, 2018. This is intended to ensure that France complies with the provisions of the European Union's Fourth Railway Package.

The PIN will give potential bidders the chance to consider the "enhancements and value-added propositions" which they may wish to offer in the bidding process. However, a formal call for tenders will not be made until "at least 12 months" after publication of the PIN.

The ministry is clear that for now the tendering process applies only to the two TET routes specified. This is because the rolling stock on both routes has recently been renewed, and this will be made available for use by the winning bidder. Future tendering of other state-managed TET services would only take place once fleet and infrastructure enhancements have been completed.

The government says that "it has complete confidence in the quality of the bids that will be presented." The operating contract is expected to come into effect from 2022. (***Railway Gazette***, January 10, 2019)

Paris, France

SNCF has awarded Bombardier Transportation a €330 million firm order to supply a further 42 seven-car and five eight-car train Francilien suburban electric multiple-units.

The contract announced on December 21, 2018 has been placed on behalf of Greater Paris public transport authority Ile-de-France Mobilites, which is funding the order. The latest batch of units is intended for use on Transilien lines L, J, and P.

The contract has been awarded within a 2006 framework agreement between SNCF and Bombardier Transportation covering up to 372 of the suburban EMUs, of which 360 have now been ordered and more than 240 are in service. (***Railway Gazette***, December 27, 2018)

The Netherlands

A €400 million firm order for CAF to supply a further 50 three-car and 38 four-car Civity electric multiple-units was announced by national passenger operator NS on December 27, 2018. Deliveries are scheduled to begin in 2020.

The latest order builds on a 2014 contract covering 68 three-car and 50 four-car units worth approximately €500 million. The first of these New Generation EMUs entered service in 2018. All 206 of the units now on order are expected to be in service from 2023.

The 100 mph EMUs are intended for use on short-distance trains; NS said 48% of passengers use a Sprinter train for at least part of their journey.

The EMUs will have two classes of accommodation, with what CAF describes as a "transparent, open, attractive" interior, wi-fi, an accessible toilet, power sockets and USB charging points, leather upholstery, bicycle spaces, and level boarding.

CAF said the NS contract was one of the largest it had secured internationally and one of the most significant in the history of the company. (***Railway Gazette***, December 27, 2018)

Czech Republic

National operator CD has purchased 12 second-hand Stadler GTW2/6 two-car diesel multiple-units from DB Regio for an undisclosed price.

The Class 646 DMUs were previously deployed on RE6 Prignitz-Express regional services north of Berlin, but were replaced by other types following a series of engine fires in 2017.

CD intends to put the units into service on regional routes around Olomouc including Olomouc-Unicov-Sumperk and Sumperk-Krnov from December, 2019. The air-conditioned low-floor vehicles are to be fitted with a new audio-visual passenger information system,

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wi-fi, 230-volt sockets, and new upholstery. (***Railway Gazette***, January 15, 2019)

Milan, Italy

The government has approved an extension of Milano metro Line M5 northeast from Bignami to Monza, and is to provide €900 million towards the project.

A feasibility study for the 12-kilometer extension with 11 stations was launched in December, 2017. The total project cost is expected to be €1.2 billion, with the Lombardia region providing €300 million and Milan Municipality €36 million. The government's share will be disbursed from 2019-27.

Construction is expected to start in 2021, with a target date for completion of 2026. Milan and Cortina d'Ampezzo are jointly bidding to host that year's Winter Olympic Games, along with a rival bid from Stockholm.

Once the extension is built, Line M5 is expected to carry 210,000 passengers on an average weekday. (***Metro Report International***, January 4, 2019)

Dakar, Senegal

Senegal President Macky Sall was among the invited guests who joined the first test run of an Alstom Coradia Polyvalent multiple-unit in Senegal on January 14, 2019)

The train's first run marks a further step in preparations for the opening of the 55-kilometer Train Express Regional rail link between the capital, Dakar, and a new international airport at Diass. The line is expected to open in two stages, with the first passenger trains planned to run later this year. An initial 36 kilometers will link a station in central Dakar with the new town of Diamniadio.

A second phase of 19 kilometers would extend the route to Blaise Diagne International Airport. The completed line would have 14 intermediate stations and the fastest end-to-end journeys will take 45 minutes. The railway is expected to carry 115,000 passengers/day.

Alstom is supplying 15 electro-diesel Coradia Polyvalent trainsets for the route, of which three have now arrived in Dakar. These were ordered in 2016 under a contract placed by government-owned investment agency APIX. The four-car trains can carry up to 400 passengers in first- and second-class saloons and have a maximum speed of 100 MPH (160 kilometers per hour). The trains have been designed with Senegal's climate in mind.

A consortium of France's Eiffage, local company CSE, and Yapı Merkezi of Turkey was awarded a construction package worth CFAFr 330 billon back in 2016. Energy services company Engie and subcontractor Thales supported by CSE were selected as preferred bidders for a €225 million design and build contract covering the power supplies, 25,000-volt electrification, signaling, train control, and telecoms. (***Railway Gazette***, January 15, 2019)

Tashkent, Uzbekistan

The first section of an elevated metro line in Tashkent is being built by national railway company UTY to designs by the Boshtransloyiha engineering institute.

Starting at the Olmazor terminus of the Tashkent metro's existing Chilonzor Line, the 7.1-kilometer Sergili Line will run south above Choshtepa, Mirzo Tursunzoda, and Qipchoq Streets, serving six stations.

The project was granted presidential approval in November, 2016, and is being funded by the national government.

Commissioning is planned by 2020, augmenting the three existing underground lines. (***Metro Report International***, January 4, 2019)

Seoul, South Korea

Korea's Ministry of Land, Transport, and Infrastructure (MOLIT) announced on December 11, 2018 that it has approved the preliminary feasibility study for Line C of Seoul's Great Train Express (GTX) high-speed regional rail network.

The planned 74.2-kilometer GTX route starts at Deokejong in the northern city of Yangju, passes through Seoul, and terminates at Suwon in southern Gyeonggi Province.

Like the other GTX lines, tunnels will be constructed at depths of up to 40 meter and trains will travel 2-3 times faster than regular metro trains, with an average speed of approximately 100 mph.

Line C will have 10 stations and connect with GTX Line A at Samseong along with Line 2 and a new high-speed SRT terminal, which is expected to open in 2021.

Commuting times will be reduced dramatically by the new line: Suwon-Samseong will be cut from 1hour 18 minutes to 22 minutes, while Uijeongbu-Samseong will fall from 1 hour 14 minutes to 16 minutes and Deokjeong to Samseong from 1 hour 20 minutes to 23 minutes.

According to the feasibility study, daily ridership will average an estimated 350,000 passengers in 2026, taking up to 72,000 vehicles off the region's roads, and in turn boosting the economy by Won 5.7 trillion (US $150 million). (***International Railway Journal***, December 14, 2018)

Japan

President of Central Japan Railway Shin Kaneko announced on January 6, 2019 that the N700S prototype trainset will be tested at up to 360 kilometers per hour later this year.

Running trials with the 16-car N700S prototype began in March last year, and the train has since achieved a maximum speed of 205 MPH (330 kilometers per hour). Kaneko said in an interview that "we aim to carry out test runs at 224 MPH (360 kilometers per hour) this year so that we can demonstrate safety when we export the train to such markets as the United States and Taiwan."

Series-built versions of the N700S are expected to enter commercial service on the Tokaido Shinkansen in the financial year starting in April, 2020. Maximum speed on the 515.4-kilometer route between Tokyo and

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THREE ISLANDS OF ITALY
by Jack May
(Continued from January, 2019 issue)
(Photographs by the author)

I specifically scheduled a Sunday for my trip to Trieste, because its remaining tramway line operates at the same 20-minute frequency all seven days of the week, while most other transit systems run reduced schedules on the "day of rest." Trieste is about 100 miles from Venice and Trenitalia gets you there in just under two hours. Service is hourly, but with a few gaps.

While Clare chose to sleep in before continuing her examination of Venice's large assortment of museums, I decided to ride the 7:53 to Trieste, and so I participated in the hotel's buffet breakfast at about 7:15. My push-pull train, consisting of an electric locomotive and a string of coaches, stopped at seven intermediate stations before arriving at Trieste Centrale about two minutes early at 9:44. The line is mainly double track and passes through acres of farmland. Unlike in Venice, the sky was blue, but clouds appeared to be closing in. It was a five-block walk to the Trieste-Opicina tramway's terminal station.

Trieste is a city of 200,000 close to the border between Italy and Slovenia — in fact possession of the city was disputed after World War II between loser Italy and winner Yugoslavia, which was just the opposite of World War I when Italy was on the winning side in the conflict against Germany and Austria-Hungary (https://en.wikipedia.org/wiki/Free_Territory_of_Trieste and https://news.google.com/newspapers?nid=1981&dat=19541005&id=ym0vAAAAIBAJ&sjid=4doFAAAAIBAJ&pg=1062,3548417&hl=en). I suspect Trieste would now be part of Slovenia had it not been for the cold war — Yugoslavia had become part of the Communist bloc and the West was not about to allow it to gain additional land. The city is a major port and has a very busy harbor. Italian is the dominant language in the urban area, while Slovene is widely spoken in the suburbs.

The city's regular standard-gauge tramway network quit in 1970, but the independent meter-gauge line to Villa Opicina continued in operation because it could not easily be replaced by buses. Its direct route calls for the streetcars to be propelled by a cable-powered funicular that cuts through the topography, climbing for a little over 500 feet from the lowlands of the city, which is at sea level. The line is a little over three miles long, has 13 stops, and is mostly single track, with a few intermediate passing locations. The streetcars operate onto the funicular track under their own (550-volt overhead) power, while new, automatically-controlled (driverless) tractors either push them up or hold them back from rolling down the steep grade, which reaches a maximum of 26 percent. The remainder of the line climbs gradually along regular adhesion trackage, which is in pavement in Trieste, and on private right-of-way in Villa Opicina.

I had ridden it twice before, but being in the neighborhood prodded me to visit this unusual tramway once more. And since my last sojourn the line had obtained new, automatically-operated tractors for its funicular portion. The Stanga-built streetcars remain the same, although they have been renovated at various times since their construction in 1935. Interestingly, the double-ended rolling stock has doors (three) only on one side, as all platforms are located on the western side of the line's predominantly north-south alignment and there are no loops. (The only other line I recall riding with that kind of configuration was the local route in Gmunden, Austria, but now it has been extended with modern double-sided low-floor cars — of course the Glasgow subway had that feature for many years.) The line was built in 1902 and until 1928 operated as a rack railway along the section that is today's funicular. In 1961 it was acquired by the city and assigned route number 2.

The city terminal at Piazza Oberdan has two tracks but only one is used regularly, as the schedule calls for a 20-minute headway with only a six-minute layover. I arrived in time to photograph the incoming tram, first trundling down the street, and then again alongside the attractive terminal. The building has a small cafe and ticket office/newsstand, which also sells souvenirs, including books and postcards of the iconic line. I purchased a day ticket at €4.25 and would buy some other items upon my return. I boarded just in time for the car's 10:11 departure, with a small Sunday load of both tourists and local residents aboard.

We headed along Via Giosue Carducci, the only perfectly flat section of the line, for about two blocks, and then up the relatively steep and narrow Via Martiri della Lieberta to Piazza Cassali, at the foot of the funicular. This is the only section of the line in pavement, and in fact is very short in length, with the single track mostly separated from motor traffic by low concrete islands. Then we joined the steep funicular trackage, operating for just a few yards over a curve and a connecting switch onto the cable right-of-way. We came to a stop and then rolled backwards, coming to rest touching the front of the tractor located at the foot of the cable, on what could be considered technically as a siding. The operator did not move from his position and apparently runs the tractor remotely. He probably pressed a button after coming to a halt, while the corresponding operator of the tram at the top of the funicular did likewise. Soon we were being pushed up the single track by the tractor, which is permanently connected to its cable. I had competed with a tourist with a video camera for a position immediately behind the motorman and to his right

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(where a door would have existed had the cars not been single sided). I let him have the unimpeded view, as I could see around him, but that made it a bit difficult to photograph the oncoming car when the line fanned into double track for passing (but I got the full use of the window when I made another round trip later). There are two intermediate stations on the cable section. After the two cars passed, instead of reverting to single track, the line's tracks run close together but stay separate, which leaves room for only single-direction travel until the summit. Some beautiful views of the city below can be enjoyed from the west (door) side of the car on this section of the line.

The simplicity of the automatic operation was evident after we stopped at Vetta Scorcola, the top station. The operator just wound up the controller and were on our way; there was no need to uncouple, as we had merely been pushed up the grade. The remainder of the line is single track with three passing sidings, and is located primarily at the sides of roads, but it also has some traditional private right-of-way. The terminal at Villa Opicina consists of the single track ending at a bumper block in front of a building similar to the one in Trieste. Just prior to the platform a lead fans out into a five-track carhouse. One unit of the six-car fleet was in the yard, beautifully spotted in the sunlight for photos. The ride had taken about 25 minutes, and we passed two inbound cars along the way.

I broke up my return trip with a combination of walking, riding, and photographing. I first ambled downgrade along the track at the side of Via Nazionale for three stops to Obelisco, where I was able to get a few hazy views of the city and harbor below. I did some doubling back and forth for a few more photos, and on one journey was joined by a lady with a young beagle, which I duly photographed after they alit at Obelisco. For the record, at the summit of the funicular inbound cars just roll slowly into the tractor, which holds them back while descending. At the foot of the funicular, after coming to a stop on the siding, the cars operate backwards over the switch, then reverse direction and head for the downtown terminal. While I was riding the shadows were disappearing due to high cloudiness, which gradually thickened. I took some slides of the activities at the foot of the funicular before walking back to the terminal to buy some souvenirs and then continued on to the railway station.

Trenitalia was fouled up, and the 13:15 train I planned to ride did not leave until 14:15, while the departure board indicated the 14:15 would start out 40 minutes late. My train arrived in Mestre at 16:00 (15:08) and I noticed that the 14:15 from Trieste was now marked only 20 minutes late. It was sunny in Venice, so before meeting Clare back at our hotel I spent the rest of the afternoon riding and photographing the southern end of tram line 2, including the portal of the subway that runs under the mainline railroad tracks. Those photos were included in last month's installment of this report.

We were both a bit tired and decided to have dinner in our hotel's restaurant. This virtually concluded the Venetian portion of our trip, save for our breakfast and checkout the following morning. We enjoyed seeing this city of canals very much.

Stazione Ferroviaria Trieste was built in 1857 and was restored and renovated in 2007. It is huge inside, but does not serve too many trains.

A hazy view of the city of Trieste from suburban Villa Opicina at the Obelisco station.

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Shin-Osaka is limited to 177 MPH (285 kilometers per hour), but trains continuing beyond Shin-Osaka on JR West's Sanyo Shinkansen to Hakata are permitted to run at 186 MPH (300 kilometers per hour). The N700S incorporates a number of design changes compared with its predecessor the N700A and is expected to reduce energy consumption and improve passenger comfort. (***Railway Gazette***, January 8, 2019)

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Inbound Stanga-built car 402 is shown on the final leg of its journey from Villa Opicina to Piazza Oberdan on this quiet Sunday morning.

Streetcar 404 has taken the switch at the foot of the funicular and is now heading for downtown Trieste. Tractor 1 is alongside on the "siding," having just completed its service as a buffer for the passenger car as it descended. It will wait for 404 to return so it can push the tram back up.

Views at the foot of the funicular showing new (2005) tractor 2 and the stub switch in both its positions. The trough guiding the cable is also shown.

A view from an inbound streetcar that has just passed its outbound counterpart at the halfway point on the funicular connecting the center of Trieste with the northern suburbs of Cologna and Villa Opicina.

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Two views just north of the Campo Sportivo stop in Cologna. On the left, car 404 heads inbound along single track private right-of-way after having crossed Via Commerciale at grade. At right, outbound car 406 is shown at that crossing.

The carhouse and terminal building in Villa Opicina. Some passengers have a last cigarette prior to boarding 402 for their ride to the center of Trieste.

Two passengers alighting at the Obelisco stop of the Trieste-Opicina tramway. Three similar beagles permitted us to live with them while our kids were growing up.

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Around New York's Transit System

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single-tracking in the other tube. Overnight/weekend closures were regarded as extremely inefficient due to the length of time required to set up and break down for each work shift, and more importantly, safety was a pressing concern to deal with the high concentration of airborne silica dust that would be created during the demolition of the bench walls. This approach was accepted as fatally flawed and as such, overnight/weekend closures were not considered further.

While the single-tracking option ensured that the L would continue to operate, the limited service had the potential to severely hamper the mobility of the line's daily users, and even the slightest service disruption would result in cascading delays from which recovery would be very difficult. Moreover, the work was anticipated to take at least three years, while a full closure was anticipated to take around 15 to 20 months.

Throughout 2015 and 2016, during extensive consultations and a series of public meetings on both sides of the East River, the public was offered the opportunity to weigh in and offer their thoughts as to which type of closure they would prefer. While the vast majority lamented any disruption, a consensus clearly emerged among elected officials and the riding public — a full closure. Eventually, as details and construction methods were finalized and contractor incentives were enacted, the anticipated extent of the closure was reduced to 15 months.

Three years of close coordinated planning undertaken by NYCT and the NYCDOT had yielded a complex and elaborate alternative service plan, which would have seen the cutback of L service to between Canarsie-Rockaway Parkway and Bedford Avenue and a wide-ranging program of mitigation measures, including in-

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creased service on adjacent subway lines, new express bus services across the Williamsburg Bridge, and a new ferry service between the Williamsburg waterfront and Manhattan.

The subway mitigation plans included lengthening G trains to full eight-car consists, increased service on the 7 E F J M Z lines, and capacity improvements at several subway stations across northern Brooklyn and southern Queens. These capacity-increasing measures include reopening long closed street access stairways and station mezzanines, new and widened internal stairways, and reconfiguration of fare control areas, all to facilitate increased passenger throughput. This work has already been completed at the Court Sq G, Flushing Av J M, and Hewes St J M stations, and currently underway at the Metropolitan Av G/Lorimer St L and Marcy Av J M Z stations.

With respect to the current plans, the uncertainty initially began in the morning hours of December 14, 2018 when Governor Cuomo embarked on an overnight inspection of the under-river tube. The Governor was accompanied by several NYCT and MTA officials, representatives of the engineering firms which have been providing consulting services on the Canarsie Line rebuilding, as well as several senior academic experts from engineering colleges in the New York metropolitan area.

The tour was presented to the press and the public as an opportunity for the Governor to see the extent of Sandy's destruction and the tunnel's deterioration firsthand and to understand the complex challenges involved in the rebuilding effort as justification for the closure that would be required.

On January 3, 2019, the MTA announced that the full shutdown had been cancelled, in favor of a new revised plan that would allow L service to continue through both tubes during weekdays, while a single tube would be closed during overnight hours and on weekends. During a hastily arranged press conference that same day, the Governor, accompanied by the deans of the Cornell University and Columbia University engineering schools who have been advising him, announced that new construction techniques and "innovative technologies" in common use globally, but new to the New York City subway, has now obviated the need for the full closure. It should be noted that members of the MTA Board and NYCT President Andy Byford received less than a half hour's notice of the press conference.

Precise details were lacking other than stating that racking technologies would allow for mounting all the cabling along the upper curves of the tunnel liners and abandoning the current cabling in situ. The most seriously deteriorated segments of the benchwall would still be rebuilt, while the remaining portions would be left in place and be secured with a material known as fiber reinforced polymer (FRP), which would essentially wrap and brace the benchwall. Sophisticated monitoring devices would be installed throughout the length of the retained, braced benchwalls to provide real time detection of movement resulting from future deterioration.

This revised approach has raised a number of important issues. The original planned work would have ensured the long-term life of the 14th Street Tubes, for at least another century. The mounting of cabling on racks along the upper reaches of tubes is actually not that innovative, having been used on the Flushing Line extension to Hudson Yards. And while there are certain advantages to having the cables at a higher elevation, such as ease of accessibility for maintenance and future upgrading, and sparing them from the effects of a future flooding event (unless the water reaches the tunnel crown, as it did in the case of Sandy), they are still exposed to other hazards, including fire.

The benchwall work has emerged as a serious concern. While the use of FRP to wrap concrete bridge columns has been accepted in certain situations, its use in an active subway tunnel environment is not well proven. Questions concerning a patchwork of new and existing benchwalls and their availability for safe passenger evacuations need to be addressed.

In totality, the new revised plan has been seen by many transit experts and outside observers as a temporary fix, putting off a full closure to some point in the future measured in a few decades and not a century.

It can be argued that the Canarsie Line shutdown has been among the top transit topics of conversation in New York City for the last several years, right up there with the deterioration of daily subway service and the MTA's perpetual state of financial precariousness. At the time of the Governor's late-night tunnel walk in December, the shutdown was slightly over four months away, and while everyone involved and to be affected was bracing for the inconveniences to come, a sense of general acceptance had settled in. There was a widespread feeling of "get in there, get it done fast, and get out."

Presumably, the Governor, who just started his ninth year in office, has awareness that the shutdown was on the verge of starting and had already been carefully vetted over the last three years. The motivation and constituency for initiating this action at this late stage is not entirely clear. It was a nonexistent topic during the election season. There is no evidence that there was a rising clamor among Canarsie Line riders for intervention in such an aggressive manner.

Instead, there are now legitimate questions as to whether the April 27 shutdown is officially off, and if so, when will the work start; will it take the same amount of time or longer than the original schedule; how disruptive will it be, especially during times of single tracking; and how much will it cost?

During an "emergency" Board meeting held on January 15, with a number of Board members absent, several of those in attendance raised many of the same aforementioned concerns and requested that an independent consultant be retained to assess the revised

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plan and report directly to the Board as to its viability and due diligence to safety. When pressed, one of the consultants did acknowledge that replacing the benchwall in its entirety is more advantageous from a long-term service life perspective, rather than a patchwork of new and existing. Questions were asked regarding the costs and contractual changes to the agreement with Judlau Contracting and TC Electric, the contractors that are to perform the Canarsie work. Typically, cost changes to contracts require additional Board action.

It appears that the raising of these questions is being viewed as a hindrance to carrying out the revised plan. In the days that followed the emergency meeting, a series of press releases and leaks stated that further Board action would actually not be necessary because the revised work would be performed at the same cost as the previous plan. To this last point, it should be noted that even if the contract is not altered and the contractor agrees to perform the revised scope at the already agreed-upon price, it is more than likely that there will be additional costs incurred to the MTA resulting from the financial and labor resources required to support the increase in General Orders. With all of this, it was announced that MTA Managing Director Veronique Hakim and MTA Chief Development Officer Janno Lieber are to take direct charge of the Canarsie Line project.

Stay tuned to these pages for updates.

Save Safe Seconds Program

At the direction of NYCT president Andrew Byford, a new initiative, Save Safe Seconds, was formulated in 2018 with a goal of reducing travel times within the subway system by permitting a safe increase in train speeds where possible. The SPEED Unit (Subway Performance Evaluation, Education, and Development) was formed during Summer, 2018 to investigate and implement measures to achieve this goal. Over the past several months, this unit has evaluated 95% of the approximately 2,000 grade time signals and identified 320 such signals as being mis-calibrated to speeds lower than necessary to guarantee safe train speeds through a particular section of track. As of January, 2019, signal crews have worked during service shutdowns over select weekends and nights to adjust 59 of these signal sequences to permit higher train speeds without compromising safety. These speed increases are based upon the latest engineering standards which consider increases in railcar stability, braking profiles, and track geometry. Work continues on evaluating the remaining locations that are candidates for speed adjustments.

Other than recalibrating grade-time signals, the only adjustments made have been to unenforced speed restrictions. These are locations where there is a speed limit sign without enforcement by the signal system. To date, here is the complete listing of speed restrictions that have been modified:

Date	Location	Track	From (mph)	To (mph)
12/8-9/2018	n/o 36 St Ⓓ Ⓝ Ⓡ	F2	15	30
	s/o 36 St Ⓓ Ⓝ Ⓡ	F1	15	20
	s/o 36 St Ⓓ Ⓝ Ⓡ	F1	15	20
	n/o 59 St Ⓝ Ⓡ	F1	15	20
	n/o 59 St Ⓝ Ⓡ	F2	15	30
12/15-16/ 2018	s/o Essex St Ⓙ Ⓜ Ⓩ	J2	15	30
12/17/2018	n/o 207 St ❶	4	20	Removed
	s/o 215 St ❶	1	20	Removed
12/20/2018	s/o Prospect Park Ⓑ Ⓠ	A2	D15	D25
	s/o Prospect Park Ⓑ Ⓠ	A3	D15	D25
12/27-28/ 2018	s/o 34 St-Penn Sta ❶ ❷ ❸	2	23	30
	n/o 34 St-Penn Sta ❶ ❷ ❸	1	18	Removed
	s/o Times Square-42nd St ❶ ❷ ❸	4	18	20
1/9/2019	s/o 34 St-Herald Square Ⓝ Ⓠ Ⓡ Ⓦ	A4	20	25
	s/o Times Square-42 St Ⓝ Ⓠ Ⓡ Ⓦ	A2	15	Removed
1/12/2019	n/o Grand Army Plz ❷ ❸	1	20	Removed
	s/o Atlantic Av-Barclays Ctr ❷ ❸ ❹ ❺	1	23	Removed
	s/o Atlantic Av-Barclays Ctr ❷ ❸ ❹ ❺	2	26	Removed
	s/o Franklin Av ❷ ❸ ❹ ❺	3	20	Removed
	n/o Nevins St ❷ ❸ ❹ ❺	4	10	15
	n/o Nevins St ❷ ❸ ❹ ❺	1	10	15
	s/o Nevins St ❷ ❸ ❹ ❺	1	10	25
1/17/2019	s/o Prince St Ⓝ Ⓠ Ⓡ Ⓦ	A1	10*	D15
	s/o Prince St Ⓝ Ⓠ Ⓡ Ⓦ	A3	10*	D15
	s/o City Hall Ⓡ	B2	6	15

*Note: At this location, there previously had been no speed restriction signs in place whatsoever. Where there are no speed restriction signs posted, diverging moves over switches are restricted to ten MPH so this is an implied increase from ten to 15 MPH for he diverging moves.

In related news, over the night of January 18-19, Maintenance of Way-Signal forces added a countdown clock aspect to approach signal 1631/E(XB236) on northbound express Track 3 in the middle of the Atlantic Av-Barclays Ctr ❷ ❸ ❹ ❺ station. This is part of a pilot project that will inform Train Operators when a one-shot grade time signal will clear, by counting down the seconds until the signal clears. The aim is to ensure optimal performance and confidence of signal clearing.

Around New York's Transit System

Canarsie Line Uncertainties

As 2018 drew to a close, MTA New York City Transit (NYCT) and the New York City Department of Transportation (NYCDOT) jointly announced that the 15-month closure of the Canarsie Line between 8th Avenue in Manhattan and Bedford Avenue in Brooklyn would commence on Saturday, April 27, 2019, restricting L service to between Bedford Avenue and Canarsie-Rockaway Parkway. The closure, in the works for over three years, is required to address the aftereffects of Superstorm Sandy from October, 2012, which filled the 14th Street Tubes under the East River with over seven million gallons of brackish water, causing deteriorating structural conditions and significant issues with the tunnel's electrical and mechanical systems.

However, a series of last-minute actions by New York State Governor Andrew Cuomo and senior MTA management has now thrown the scheduled closure into disarray, directly affecting the commuting fate of 275,000 daily L riders, while sowing confusion throughout the city. The 15-month closure has apparently been cancelled in favor of a revised plan that appears to be very similar to the earlier discarded option of performing the work during weekday overnights and on weekends.

The 14th Street Tubes have been in use for almost 95 years, originally placed into service on June 30, 1924 as part of the segment between Montrose Avenue in Brooklyn and 6th Avenue in Manhattan of what was then referred to as the BMT 14th Street-Eastern District Subway. Like the majority of the New York City subway's under-river tunnels, the 14th Street Tubes are comprised of two separate single-track tunnels, built with shields driven under compressed air and lined with cast iron rings. A layer of concrete was poured to form the inner liner and the tunnel invert upon which rests the trackbed.

The 14th Street Tubes have a length of 3,341 feet as measured between the N. 7th Street Shaft in Brooklyn and the Avenue D Shaft in Manhattan. They have an inside diameter of 18 feet (measured from the cast iron outer liner), have an average of 12 feet of separation, and lie in the river bed at a depth of approximately 110 feet below mean high water level.

Running the length of both sides of the tubes are concrete benchwalls, within which are the duct banks that contain the cabling for the various electrical and communications systems that were inundated by Sandy. The benchwalls also provide a safe and solid path for passengers to egress from a train and evacuate from the tunnel in case of an emergency.

Though the tubes were pumped out immediately after Sandy and the systems were eventually restored, subsequent inspections have revealed that the cabling within the duct banks is decaying from the corrosive effect of sustained submersion in the salty, brackish water. The benchwalls themselves are also severely damaged and actually crumbling in several locations.

To address this damage, NYCT intended to completely demolish the benchwalls. New duct banks would be encased within new benchwalls, and the track bed and third rail would be completely renewed. To achieve this, a full closure was seen as the only way to effectively perform the work involved. NYCT had proven experience with this type of work, having closed the Montague Street Tubes (N R) for 13 months, also to deal with Sandy damage, between August, 2013 and September, 2014. The availability and close proximity of adjacent transit options lessened the impact of the Montague Street Tubes' closure, and riders managed to adjust, making for a relatively routine project which was actually completed a month ahead of schedule.

NYCT's other lower East River under-river tunnels — Joralemon Street (4 5), Clark Street (2 3), Cranberry Street (A C), Rutgers Street (F), Steinway (7), 53rd Street (E M), and the Greenpoint Tubes (G) under Newtown Creek, also received damage from Sandy, but the extent was less severe, and has been addressed with overnight and weekend closures.

In the case of the 14th Street Tubes, the required work is anticipated to be much greater and disruptive. The sheer numbers themselves are staggering — NYCT is planning on replacing over 30,000 linear feet of duct banks, 176,000 feet of communications cabling, and 126,000 feet of power cabling. For the track work, 14,440 feet of new track and 15,800 feet of new third rail are to be installed. Also included are a new mid-river pump room, and three new substations to provide increased traction power, which is currently inadequate to support increased train frequencies otherwise possible with the Canarsie Line's CBTC signal system.

Work is already underway on two high-profile aspects of the project – the expansion of the 1 Av L station in Manhattan and the Bedford Av L station in Brooklyn. For the 1 Av station, a new fare control area with street entrances and elevators is being built at the station's east end at Avenue A. This will address a long-sought need to address the single-ended station's imbalanced loadings by enabling access to and from the east. The Bedford Av station, where passenger numbers have increased considerably over the last 15 years, is receiving additional street entrances at both Bedford Avenue and Driggs Avenue, with both mezzanines being expanded to accommodate new additional stairways down to the platforms. Elevators are also being installed at Bedford Avenue.

Initially, two partial closure scenarios were explored — one involved conducting the work during weekday overnights and weekends, while another involved closing one tube at a time and operating a limited service with

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