

# The Bulletin



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## ***The Bulletin***

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## **CAR MOVES BETWEEN DIVISIONS** by Henry Raudenbush

As the construction of the Dual Contract lines of the IRT and BRT wound down, there were only a few track connections between the IRT and BRT and other rail systems, but the location and the various uses of these connections are of interest. Later connections, and how they have been used, are a further story.

At that time, the Manhattan Elevated network and the main IRT subway system were connected to each other at several points, all in The Bronx. They were connected between 149th Street and Jackson Avenue, at Gun Hill Road, and near Yankee Stadium. The only connection from those systems to anything else was a connection between the Third Avenue El and the New Haven Railroad at 133rd Street-Harlem River.

The rapid transit lines of the Brooklyn Rapid Transit, then being reorganized as the BMT, were organized into an Eastern section, centered around East New York, and a Southern section, the lines toward Coney Island. The Eastern section had a connection to the Southern section at the Sands Street terminal at the Brooklyn Bridge, but this could only be used by 9-foot-wide elevated cars. Another connection via the Chambers Street station could also be used by 10-foot-wide subway cars. The Eastern section had no other rail connections, but the Southern section was connected to the South Brooklyn Railway, the freight operation of the BRT/BMT that shared tracks at several places with subway trains, and with B&QT streetcars along McDonald Avenue toward Coney Island.

South Brooklyn had two railroad connections. One was at Parkville Junction and most of the new car deliveries for many

years were made via this connection (it has since been abandoned). There were two tracks connecting the Long Island Rail Road to the South Brooklyn Railroad. Midway, the Long Island Rail Road a.c. catenary (installed 1927) and the South Brooklyn Railroad trolley wire (both since removed) dead-ended back to back. The other connection was down at 39th Street and Second Avenue, where the South Brooklyn Railroad, the Bush Terminal Railroad, and the Church Avenue streetcar line were all connected. That connection is still in use to this day. However, the Bush Terminal Railroad is now New York New Jersey Rail, LLC.

The IRT initiated service through the Steinway Tunnel between Grand Central and Vernon-Jackson in 1915, operating as an isolated section with 12 cars. Just outside the portal at Hunterspoint Avenue, a two-car inspection shed was built on the south side, with the track running through the shed to a connection to the Long Island Rail Road. When the line was extended to Corona and Astoria, the Second Avenue El was extended over the Queensboro Bridge to make a connection at Queensboro Plaza. This provided a link between the Astoria and Corona lines and the IRT subway system. In 1927, a torrential downpour in Long Island City ran down into the Long Island Rail Road-Pennsylvania Railroad tunnels and flooded them. The railroad borrowed both the IRT and the BMT pump cars. I heard this story from an old-timer: he was assigned to the IRT pump car, which was brought over the Queensboro Bridge and down to this shop. Like all IRT work equipment, that car had Van Dorn link & pin couplers. When a rail-

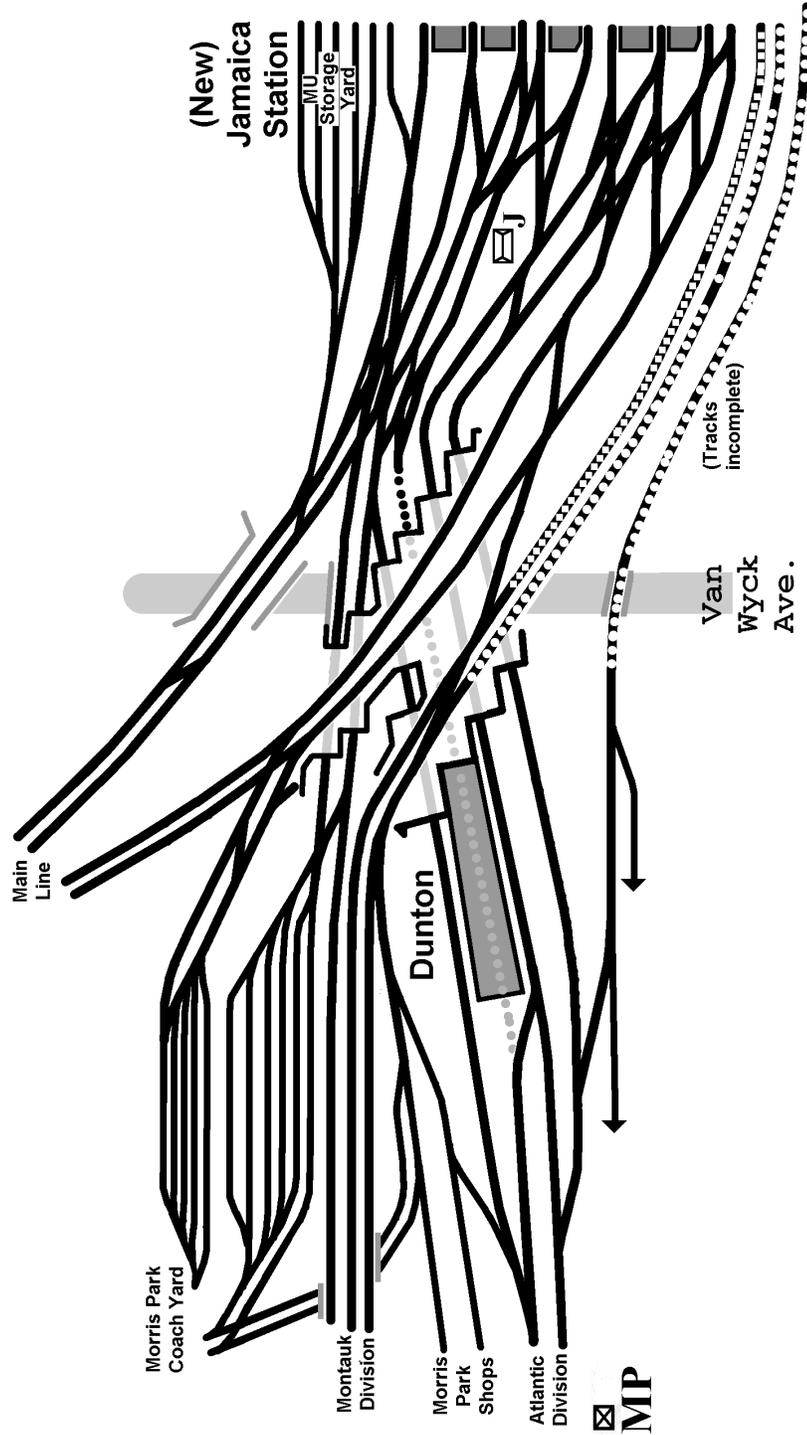
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# THE GENESIS OF DASHING DAN — A NEW JAMAICA AND THE MAIN LINE COMPLETE

by George Chiasson  
(Continued from November, 2018 issue)

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New Jamaica-West  
August 1913

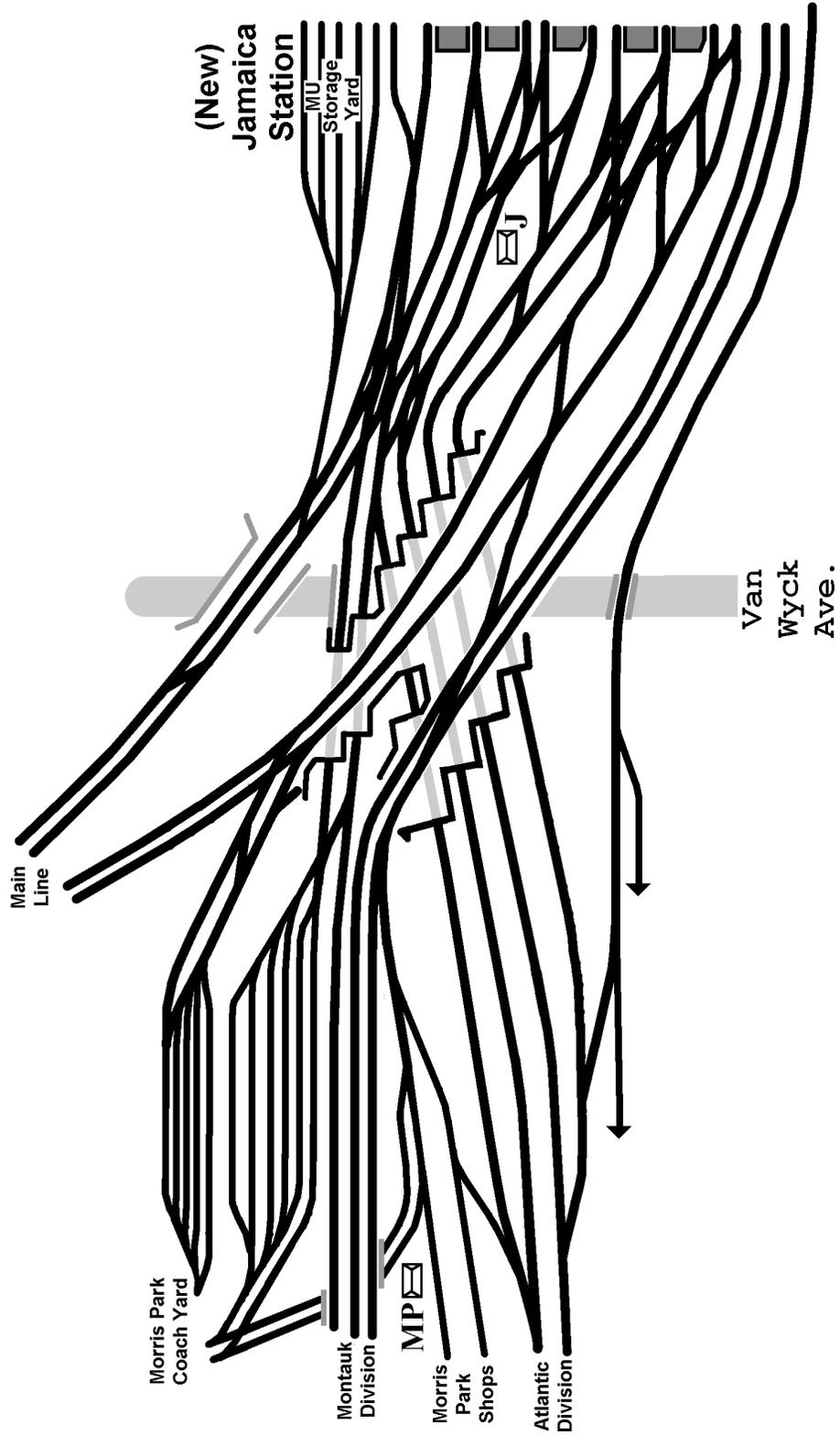


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The Genesis of Dashing Dan  
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New Jamaica-West  
March 1914



(Continued next issue)

## STATUS OF NORTH AMERICAN TRANSIT PROJECT OPENINGS SCHEDULED FOR 2018 by Randy Glucksman

Using the latest available information at time of publication, there are two projects listed in the table below that were scheduled for completion by the end of 2018, but had no opening dates. Both are holdovers from previous years. If they open before December 31, I will include this information in the January, 2019 *Bulletin*.

Separately, three projects from this year moved to 2019 and one to 2020, and Denver's Line G remains delayed until grade crossing issues are resolved. The completed list includes seven holdovers going back to 2014, 2016, and 2017.

### COMPLETED

DATE	AGENCY	CITY	TYPE	LINE	DETAILS	NOTES
January 13	Florida East Coast Industries (All Aboard Florida)	Miami, Florida	LD	Brightline Phase I	Fort Lauderdale to West Palm Beach 46 miles, 2 stations	From 2017
March 16	Charlotte Area Transit System	Charlotte, North Carolina	LR	Blue Line Extension	7 <sup>th</sup> Street to UNC Charlotte Main 9.3 miles, 11 stations	From 2017
May 19	Florida East Coast Industries (All Aboard Florida)	South Florida	LD	Brightline Phase I	Miami Central to Fort Lauderdale 30 miles, 1 station	From 2017
May 26	Bay Area Rapid Transit	San Francisco, California	DMU	eBART	Pittsburg/Bay Point to Antioch 10 miles, 2 stations	From 2016
June 18	Connecticut Department of Transportation	New Haven, Connecticut to Springfield, Massachusetts	CR	CT Rail Hartford	New Haven to Springfield 62 miles, 8 stations	
July 30	Florida DOT (SunRail)	Orlando, Florida	CR	Phase II (South)	Sand Lake Road to Poinciana 17.2 miles, 4 stations	
July 31	Bi-State Transit	St. Louis, Missouri	LR	Red Line / Blue Line	Cortex station (fill-in station) between Central West End and Grand stations	From 2017
September 8	MTA New York City Transit	New York, New York	HR	🚇 Broadway	WTC-Cortlandt Street station re-opens	
September 21	Long Island Rail Road	Ronkonkoma, New York	CR	Ronkonkoma	Double-track completed Farmingdale to Ronkonkoma (13 miles)	
November 2	City of Milwaukee	Milwaukee, Wisconsin	SC	The Milwaukee Streetcar Connector	Intermodal station to Burns Commons 2 miles, 18 stations	
November 8	Sun Metro Camino Real Regional Mobility Authority	El Paso, Texas	LR	El Paso Streetcar Project	International Bridges to UT-El Paso 4.8 miles, 27 stations	
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
December 14	City of Oklahoma City	Oklahoma City, Oklahoma	SC	OKC Streetcar	Downtown TC to Midtown 6.9 miles, 22 stops	

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**Status of North American Transit Project Openings**

*(Continued from page 4)*

**HOLDOVERS**

DATE	AGENCY	CITY	TYPE	LINE	DETAILS	NOTES
From 2017 to 2020	Virginia Railway Express	Potomac Shores, Virginia	CR	Fredericksburg Line	Potomac Shores station opens (Woodbridge and Rippon Landing)	
To early 2019	Region of Waterloo	Kitchener-Waterloo, Ontario	LR	K-W LRT (ION) Phase I	Fairview Park Mall to Conestoga Mall 11.8 miles, 22 stations	From 2017
From 2016 to 2019	Amtrak	Miami, Florida	LD	Tri-Rail	Trains begin serving Miami International Airport station (9 miles)	
From 2016 to 2019	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	
To 2019	OC Transpo (O-Train)	Ottawa, Ontario	LR	Confederation	Tunney's Pasture to Blair Road 7.75 miles, 13 stations	
From 2016 Delayed until further notice	Denver RTD	Denver, Colorado	CR	G (Gold) Line	Union Station to Wheat Ridge-Ward 11.2 miles, 8 stations	

Legend:

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

**SUBDIVISION "B" CAR ASSIGNMENTS**  
CARS REQUIRED NOVEMBER 4, 2018

LINE	AM RUSH	PM RUSH	LINE	AM RUSH	PM RUSH
<b>A</b>	40 R-32, 272 R-46	40 R-32, 280 R-46, 8 R-68A	<b>L</b>	184 R-143, 8 R-160	184 R-143, 8 R-160
<b>B</b>	48 R-68, 152 R-68A	40 R-68, 144 R-68A	<b>M</b>	184 R-160	176 R-160
<b>C*</b>	56 R-32, 24 R-46, 56 R-160, 8 R-179	56 R-32, 24 R-46, 56 R-160, 8 R-179	<b>N/W</b>	24 R-68, 8 R-68A, 290 R-160	24 R-68, 8 R-68A, 290 R-160
<b>D</b>	232 R-68	224 R-68	<b>Q</b>	210 R-160	8 R-68, 210 R-160
<b>E</b>	260 R-160	260 R-160	<b>R</b>	240 R-46	240 R-46
<b>F</b>	64 R-46, 360 R-160	64 R-46, 360 R-160	<b>S</b> (Rockaway)	12 R-46	12 R-46
<b>G</b>	48 R-68, 4 R-68A	48 R-68, 4 R-68A	<b>S</b> (Franklin)	4 R-68	4 R-68
<b>J/Z</b>	16 R-32, 32 R-42, 32 R-160, 80 R-179	24 R-32, 16 R-42, 32 R-160, 80 R-179			

\*R-46 trains are 600 feet long; R-32, R-160, and R-179 trains are 480 feet long

**Around New York's Transit System**

**2018 Holiday Train Announced**

NYCT will operate its eight-car R-1-to-R-9-vintage consist as its annual Holiday Train for 2018. Due mainly to Enhanced Station Initiative work at 57th Street-6th Avenue, the Holiday Train will operate partially on a new routing. While its southern terminus will remain at Second Avenue at Houston Street on the **F** line, this year it will operate as an express on the IND Sixth Avenue

Line to 59th Street-Columbus Circle and run express to 125th Street. There, it will discharge passengers and relay in the middle at 145th Street lower level. The Holiday Train will operate on Sundays, November 25 and December 2, 9, 16, 23, and 30. Departure times from Second Avenue will be 10 AM, 12 noon, 2 PM, and 4 PM. Departure times from 125th Street will be 11 AM, 1 PM, 3 PM, and 5 PM.

## NEW YORK CITY SUBWAY CAR UPDATE

### Subdivision A News

Omitted from the spring time inventory of Subdivision "A" fleet moves previously listed was the compensatory transfer of R-142s 6696-6710 from **5** to **2** back on May 21. That more or less balanced the fleet quantities among the three most critical Subdivision "A" express lines at 410 cars on **2**; 420 on **4**; and 415 on **5**. That on **4** was raised yet again by 5 more cars on November 1 when R-142A link 7661-5, which had been missing in action since January, returned to revenue service after receiving long-awaited replacement componentry. Over the summer of 2018 various changes were made concerning the fleet of 10 single-unit R-62As based at Corona and Livonia (1901-8, 1910, 1923) as certain of each were used in their customary but recurrent duties on refuse trains. By the end of August, cars 1901 and 1908 were back at Corona, 1903 was at 207th Street; and 1907 was at 239th Street along with outlier unit 1923. The latter pair was then also sent back to Corona when the "season" ended on September 28, which coincidentally ended the brief tenure of single-unit R-62As in "official" main line work service.

As for car "work car" 1904, on August 28 it was joined to four Livonia-assigned R-62As to form another coupled five-car set and shipped off to Westchester Yard for service on **6** as 1940-1952-1904-1927-1931, using the full-width cabs already set up on the end cars for their prior duties on **5**/42nd Street Shuttle. This represented the first (and only) direct transfer of R-62As between **5** and **6** in the aftermath of the R-188 fleet reconfiguration, but could symbolize the transfers that would ultimately be necessary to numerically consolidate the 824-car fleet someday. Finally, on October 12 single R-62As 1901, 1902, 1903, 1905, and 1923, again set up as a coupled five-car set with full-width cabs deployed on 1901 and 1905, was moved from Corona to Westchester to also join the revenue fleet on **6**. Before they did though, "middle" car 1923 was swapped out in favor of 1904 to yield 1901-5, in numerical order, by the time that set began carrying passengers as of October 18. In exchange, 1923 was inserted into the group of four cars that had been brought in from **5** in late August and is being operated on **6** as 1940-1923-1952-1927-1931. In what appears to be its final form, the Westchester-based fleet of R-62As, which has gradually had green stickers applied beneath its number boards in place of the existing purple (Corona) or red (240th Street) since mid-year, stands at 445 cars as of October 31. Further, NYCT's formal roster of equipment now shows those four single units remaining at Corona (1906, 1907, 1908, 1910) as "permanent" work motors, the first such cars of the R-62/62A generation to be converted (and perhaps the first to be so directly transformed since a group of R-12s back in 1970).

### Subdivision B News

There were 116 of the 4-car R-179s delivered as of October 31, following a hiatus of one month between

late August, by which time cars 3142-9 had appeared, and late September. "Pilot" five-car set 3015-9 was brought back from Bombardier's Plattsburgh production facility during this interim on September 6, where it was said to have been upgraded with the range of post-production modifications identified through stringent testing since their initial arrival two years previous. Deliveries resumed when cars 3154-7 were delivered to 207th Street on September 27, followed by 3150-3 and 3158-73 through the month of October. New cars 3130-3 and 3138-41 were placed in **1Z** service as the 11th R-179 train on September 14, with 3142-9, in order, forming the 12th on September 28. To date this has been the most recent equipment accepted, though the testing of R-179s 3150-7 was essentially complete by the end of October. A reasonable conclusion can be drawn at this stage that (for whatever reason) deliveries have been accelerated while entry into revenue service has not.

By the end of August, these 26 Phase I R-32s had been shifted from East New York (**JZ**) to 207th Street (**AC**): 3430-1, 3488-9, 3500-1, 3550-1, 3628/3669, 3646-7, 3654-5, 3672-3, 3708-9, 3828-9, 3856-7, 3894-5, and 3900-1. As of September 21 they were followed by 3376-7, 3396-7, 3406-7, 3426-7, 3442-3, 3614-5, 3664-5, and 3772-3. For unknown reasons, six others (3430-1, 3628/3669, and 3856-7) were concurrently sent back to East New York and so things remained through the end of October, with 186 Phase I R-32s currently assigned to 207th Street (**AC**) and just 36 remaining at East New York (**JZ**). Also on August 31, the first two 4-car sets in what are eventually expected to be all 100 of the R-160A-1s used on the **C** since 2015 (9943-6 and 9959-62) were returned to East New York, where they were immediately blended with their 208 sister cars on the **JZ** and **M**. Another eight R-160A-1s (8605-8, 8633-6) followed suit on October 5, as should others of the same group as the **C** is gradually extended to full-length (ten-car) trains during 2019.

Starting in August, four-car sets of non-CBTC-equipped R-160A-1s (pulled from **M**) were sequestered at Jamaica Shop and had portable, prototype (test-only) versions of Ultra-Wideband CBTC equipment temporarily installed, as part of the long process of finalizing design of the new signaling system to be employed on the Queens Boulevard Line tracks over the next few years. The Queens Boulevard Line installation (as well as southerly parts of the Manhattan ex-IND trunk lines) was presented as being a wholly new system when compared to the experienced CBTC being employed on the **L** and **7**, with R-160A-1s 8377-80 used as a prior CBTC engineering test train on the Culver Line express tracks between 2015 and 2017. This work is being performed under a contract awarded to the Thales Group over the past summer, which originated out of last year's "Genius Transit Challenge." According to an ex-

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## Car Moves Between Divisions

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road crew with a locomotive arrived — “Link & Pin couplers! That’s illegal! We can’t take that”. Bill had quite an argument to convince them — “You have a flood; I have a pump car; let’s get together.” Eventually they worked out a solution.

When the BMT extended to Queensboro Plaza via the 60th Street Tunnel, for the first time there was a connection between the BMT and the IRT/Manhattan systems. Until 1949, the Corona and Astoria lines were jointly operated by the IRT and BMT, each providing alternate trains. Since the station platforms were dimensioned for nine-foot-wide cars of the IRT, the BMT could not run its ten-foot subway trains beyond Queensboro Plaza. Instead, it ran shuttle trains of its elevated cars. These cars would have to deadhead through the BMT subway to reach Coney Island Shop.

The BMT 14th Street- Eastern Line was opened as an isolated segment between Sixth Avenue and Montrose Avenue in 1924. The portion of the line beyond Montrose had not yet been built (it had been intended to be an el). A hole in the subway roof was left at Montrose Avenue, and 50 new 67-foot cars were delivered to the Long Island Rail Road Bushwick station and moved over temporary track in streets and down a steep ramp into the subway. The ramp was removed, and these cars were maintained in the subway tunnel for three years until the line was completed to East New York and connected to the outside world.

The IND was built as the Independent City-Owned Rapid Transit Railroad, with no direct connections to anything else. To allow delivery of the original fleet of cars, a float bridge was provided at 207th Street Yard. Cars could be delivered from any railroad that reached New York Harbor by carfloats coming up the Harlem River. The R-1 (including the cars that had been test-run on the BMT), R-3, R-4, and probably R-6 cars were delivered that way. By the early 1960s, I heard that there was doubt as to the structural condition of the float bridge by that time. A scrap dealer buying IRT Lo-V cars, which were located at 207th Street Yard, asked to use the bridge but was refused. He cut the carbodies in half in the yard and had a crane lift the halves onto railroad gondola cars on a carfloat tied up beside the yard.

About 1937 a single track was installed south of Church Avenue connecting the surface-level South Brooklyn tracks on McDonald Avenue to the IND. This could be done, because the ramp structure was not yet complete. The R-7, R-8, and R-9 cars were delivered that way.

In 1940-4, after unification, several elevated lines were closed and torn down. Removal of the BMT Fifth Avenue Line meant that the Eastern and Southern sections were only linked via Chambers Street, and el cars en route between the Eastern section and Coney Island Shop had to go that way.

A bigger change came with the closing of the Second Avenue El and its branch over the Queensboro Bridge.

This broke the only connection between the Flushing and Astoria Lines and the IRT. IRT cars on those lines then were transferred through the BMT to Coney Island for backshop work, as had been done with the BMT el cars and Q-Types.

Also, in that period, the City bought the Bronx portion of the abandoned New York, Westchester & Boston Railway, and instituted shuttle service between E. 180th Street and Dyre Avenue. Although ex-Manhattan el cars were used, this line was initially operated as part of the IND, and running maintenance of the cars may have been done in the NYW&B shop at E. 180th Street. A single hand-throw crossover linked the line to the parallel IRT White Plains Road Line.

In 1947-8, a new fleet of cars were delivered, all of them interchanged from the Long Island Rail Road to the South Brooklyn at the Parkville Junction interchange and via the South Brooklyn to Coney Island Shop. This was the route also used for many later deliveries of cars, and there are various pictures of McDonald Avenue PCCs being followed by South Brooklyn Railroad locomotives with 10-car strings of new subway cars. Since the structural steel for the upper portion of the ramp from the IND at Church Avenue to the BMT at Ditmas Avenue had been erected, the 1937 connection from the IND to the South Brooklyn Railroad was broken. A single track was laid on the ramp, connecting to the easternmost track of each line. This was then the only connection between the IND and anything else, and R-10s were sent to the IND that way. The R-11, which operated in the **E**, Brighton, and **A** services, must have made several trips up and down this ramp.

The new cars for the IRT Flushing Line (R-12s, R-14s, and R-15s) were accepted at Coney Island, and sent via the BMT to Queensboro Plaza. In 1949, the station platforms on the Astoria Line were trimmed back to clear ten-foot-wide subway cars, and that became a BMT line, while the Flushing Line became exclusively IRT. This resulted in some interesting further moves. The Steinway-Type IRT cars were to be transferred to the main IRT network, and the BMT Q-Type cars were transferred to the Third Avenue “L,” the only surviving Manhattan el line. With the Queensboro Bridge route gone, all these cars had to be taken to Coney Island by South Brooklyn Railroad to the Parkville Junction interchange and turned over to the railroads — Long Island Rail Road and New Haven. They were taken over the Hell Gate Bridge to the 133rd Street interchange. Some Brooklyn el cars on their way to preservation at Branford also went this way, and up the New Haven.

The 133rd Street connection was broken when the Third Avenue El was abandoned south of 149th Street. A connection was made from the Dyre Avenue Line along the NYW&B right of way from E. 180th Street to the New Haven at 174th Street. The earliest postwar cars for the IRT main lines (R-17/21/22) were probably delivered that way. I am not sure how many IRT-South Brooklyn Railroad-BMT transfers were made that way before the connection at Concourse Yard was built, but

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**Car Moves Between Divisions**

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there were regular moves of hopper car loads of ballast via the 174th Street connection. These used standard hoppers owned by NYCTA and were brought from New Haven Trap Rock by the New Haven.

In the 1950s, a ramp was built connecting the IND Concourse Yard with the southbound track of the IRT Jerome Avenue Line. This made it possible to move equipment between all NYCTA lines without having to interchange to railroads. Some years later the 174th Street connection was given up, and the NYW&B right-of-way was taken by the City for development. At first, the Concourse connection was used to give the IRT access to one, and later two, wheel truing machines at Concourse Yard. About 1959, it was realized that this connection could be used to bring IRT cars to 207th Street Yard, permitting the closure of the 147th Street Shop complex, and release of its site for development, bringing income to the City.

In the 1950s and 1960s, several connections for regular passenger service were built between the IND and the BMT, welding them into a single network, now

known as Subdivision B. Later, another connection for shop moves was built between 207th Street Yard and the IRT Broadway Line. This avoided the need to route these moves via the Concourse Line to 125th Street and then the Eighth Avenue Line to 207th Street Yard. This avoided some problems with contact shoe gauges and trip cock locations.

There is a facility used by the Maintenance of Way Department in eastern Brooklyn, located beside the Long Island Rail Road Bay Ridge branch (now operated by the New York and Atlantic). This has a connection to the IRT Eastern Parkway Line at Junius Street, to the BMT Canarsie Line at Livonia Avenue, and to the railroad. None of this track is electrified. Some years ago, the Williamsburg Bridge was closed due to necessary repairs. For a period of time, the BMT Eastern section (Broadway-Jamaica, Myrtle Avenue, and 14th Street-Canarsie Lines) was disconnected from the rest of the system. Some moves of cars between those lines and Coney Island shop were made, diesel-hauled, via this connection, the LIRR/NY&A Bay Ridge Branch, NYNJ Rail through Bush Terminal, along First Avenue, and finally to the South Brooklyn Railroad connection.



What may be the only known picture of a Long Island Rail Road "rapid transit" train on the connection from the Fifth Avenue Elevated to the Atlantic Branch at Flatbush and Atlantic Avenues, in 1903. Various sources indicate this was used from 1899 to 1905. Jeffrey Erlitz collection



R-12s being delivered at Parkville Junction, looking west on the interchange tracks between the Long Island Rail Road and the South Brooklyn Railway. Frank Pfuhrer collection via Jeffrey Erlitz

**MTA TO PURCHASE GRAND CENTRAL TERMINAL AND THE HARLEM AND HUDSON LINES**  
by Subutay Musluoglu

This piece of interesting news raised some eyebrows when it was announced on Tuesday, November 13 at both the MTA Board's Metro-North Railroad Committee and the Finance Committee meeting that the MTA would exercise an option to buy Grand Central Terminal (GCT), as well as the Harlem and Hudson Lines, from their owner, Midtown Trackage Ventures, L.L.C., for \$35 million. Most people assumed that these were already the properties of the MTA; however, because of some

quirks of history, the MTA has actually been paying an annual rent of \$2.4 million under a 280-year lease that went into effect in April, 1994 and was to run to 2274 (!).

So, how is it that the MTA did not already own GCT? Some history is in order. As part of the railroad system assembled in the 19th Century by Commodore Cornelius Vanderbilt and his successors, the original railroads that constitute today's Harlem and Hudson Lines

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**MTA to Purchase Grand Central Terminal***(Continued from page 8)*

were either built by, or merged into, the Hudson River Railroad, the New York & Harlem Railroad, and their various antecedents, eventually comprising what came to be known as the New York Central System.

In the mid-19th Century, the New York & Harlem Railroad (NY&H) served a terminal on Fourth Avenue between E. 26th and 27th Streets. The Hudson River Railroad (HRR) had entered Manhattan via Spuyten Duyvil and proceeded down the west side, eventually having its primary passenger facility in the W. 30s (site of today's Hudson Yards). The New York and New Haven Railroad, unable to secure proprietary rights of its own to enter New York City, obtained trackage rights from the New York & Harlem, linked with it at Woodlawn Junction in the Bronx, and proceeded to shared use of the Fourth Avenue terminal.

By the late 1860s, these facilities were inadequate for the NY&H's needs, and not befitting as the gateway between the city and the railroad empire envisioned by Vanderbilt. He looked north to 42nd Street where he proposed the building of a large, elegant terminal, worthy of New York City and the New York Central.

Moving north made sense on a practical level; the amount of land required for the scale of facilities required to fulfill Vanderbilt's dream was not easily available, and it would have been exorbitantly costly to obtain and assemble the property required, even more so to satisfy his long-desired objective of consolidating the operations of the NY&H and the HRR. This was to be achieved by using another Vanderbilt holding, the Spuyten Duyvil & Port Morris Railroad in the Bronx running along the east bank of the Harlem River, to establish a connection between the NY&H and the HRR. This is the route of today's Hudson Line between Mott Haven Junction in the South Bronx and the Spuyten Duyvil wye.

At the time, many scoffed at the idea of a station so far north, away from the city's center. Vanderbilt foresaw that the city would reach the area before long, and in time, his station would be at the very heart of a vast and prosperous city.

Grand Central Depot opened in 1871, the first of three stations on the site of today's GCT. In many ways, it resembled a traditional European station, with a French Empire-style headhouse and an immense, curved glass and iron trainshed reminiscent of London's St. Pancras Station. With a yard extending northward as far as E. 48th Street, the complex was a dramatic leap forward for the railroad's operations and passenger amenities. That same year, the New York & New Haven Railroad merged with the Hartford & New Haven Railroad, creating the New York, New Haven & Hartford Railroad (NYNHH). Continuing as a tenant of the Central, the NYNHH served a key link between New York City and Boston.

In short order, Vanderbilt was proven right in his decision as traffic increased to his station, spurring the growth of the neighborhood around it, so much so that the station was rebuilt and enlarged in 1898-1900 as Grand Central Station. Vanderbilt did not live to see this development, having passed in 1877.

On January 8, 1902, a southbound train in the Park Avenue Tunnel approaching the station overran several signals due to reduced visibility caused by smoke and steam in the confines of the tunnel. It collided with another southbound train, resulting in the deaths of 15 people and injuring dozens more. This accident, and the subsequent passing of a New York City law banning the use of steam locomotives in tunnels within the city's boundaries, would have far-reaching ramifications for the railroad and for the future of midtown Manhattan.

In response to the accident and to ensure the ability to accommodate future growth of traffic, the New York Central's Chief Engineer, William Wilgus, devised an ingenious solution that eventually led to his and the railroad's crowning achievement. He proposed to electrify the lines leading into Manhattan, allowing for the creation of a vast subterranean terminal and yard, capped by an architecturally significant headhouse. The yard would be covered over, freeing up valuable real estate that would be developed to generate a revenue stream for the railroad.

The completion of GCT in 1913 was followed by an incredible amount of commercial and residential development in the area, not only on New York Central-owned land, but throughout Midtown. The buildings immediately adjacent to the terminal, an assortment of office towers and hotels, were linked to the terminal via a network of underground passageways. The entire complex came to be known as "Terminal City." As passenger traffic and revenues increased, the New York Central grew to become one of the nation's premier railroads.

The years following World War II were not kind to America's railroads. After playing a significant role in the nation's war effort, the demographic and economic shifts in American society had a profound negative impact on passenger rail travel. A combination of suburbanization, the availability of Federal funding to the states for road construction and the building of the Interstate Highway system, and the explosive growth of air travel, all contributed to the demise of the railroads as the primary mode of medium- and long-distance travel. Railroads sought relief by extracting as much value as possible from their holdings, leading to a series of poor decisions which only exacerbated their problems. Divesting real estate was one way to salvation, exemplified by the Pennsylvania Railroad's sale and eventual destruction of New York Pennsylvania Station.

The New York Central sought similar remedies. The first proposal for an overbuild tower on top of GCT came in 1954, eventually evolving as the Pan Am Build-

*(Continued on page 10)*

**MTA to Purchase Grand Central Terminal***(Continued from page 9)*

ing (today's Met Life Building), sacrificing the baggage building just north of the terminal headhouse by the time it was completed in 1963. That same year demolition started on its crosstown contemporary. This was the last straw for New Yorkers, leading to the decision on August 2, 1967 to designate GCT as a NYC Landmark. This did not sit well with the Central, which vigorously fought the move as an unconstitutional seizure of property by the government, initiating a series of legal actions that led all the way to the United States Supreme Court.

Separate from the bankruptcy were the fate of the actual train operations, limited not just to the New York metropolitan area, but throughout the entire Northeast United States. To step into the void vacated by the Penn-Central, the federal government set up the Consolidated Rail Corporation. Conrail, as it became known, entered into a contract with the MTA in 1976 to provide commuter rail operations. Meanwhile, the landmark designation wound its way with back and forth decisions through the New York courts. GCT was added to the National Register of Historic Places in 1975, followed by National Historic Landmark status in 1976. Finally, in 1978, the U.S. Supreme Court ruled in favor of landmarking, a monumental decision for historic preservation and the rights of municipalities to protect their architectural and cultural heritage.

Another significant milestone was achieved on January 1, 1983, when the Metro-North Commuter Railroad Company came into being. Organized as a subsidiary operating agency of the MTA, Metro-North assumed rail operations from Conrail and established a clear public presence and accountability as it embarked on a program of revitalization across the entire service territory.

As plans were drawn up for a comprehensive rehabilitation of the entire terminal, the first of its kind since its 1913 opening, a much needed rehabilitation of the roof began in 1987. In 1988, the GCT Master Plan was released, which detailed a multi-phase program of architectural and infrastructure improvements to address every component of the terminal, from its intricate Beaux-Arts design details to the unseen, yet vitally important electrical, mechanical, and plumbing systems. A symbolic move came in 1990 with the removal of the oversize Kodak advertising sign that had been erected on the east balcony and had obscured the monumental east windows since 1950. Between 1991-3 the Main Waiting Room was restored, yielding today's Vanderbilt Hall.

Before the MTA could start work on the rest of the terminal, in 1994 it signed the current 280-year lease with American Premier Underwriters, to run through February 28, 2274, which included this option for purchase. The long lease term was seen as advantageous to se-

cure the MTA's investment in the redevelopment of the terminal. American Premier Underwriters later sold the ownership rights to Midtown Trackage Ventures, L.L.C., in the early 2000s.

With the lease secured, the full rehabilitation kicked off with the restoration of the concourse ceiling and its famous constellation painting. By 1998 the terminal's interior had been completely restored, with some spaces reconfigured to meet modern needs. In the years that followed, additional projects were completed to open new passageways and entrances to the north, as well as full restoration of the terminal's Beaux-Arts exterior.

In addition to GCT, MTA's ownership will encompass the Hudson Line to a point 2.2 miles north of the Poughkeepsie station, or Milepost 75.8 as measured from the bumper blocks at Grand Central. North of this point, the right-of-way is owned by CSX Transportation, with MNR handing off control of train movement to Amtrak. On the Harlem Line, MTA ownership will now extend to Dover Plains. The MTA had previously acquired the segment of the line from Dover Plains to Wassaic in 1990 when MNR extended Harlem Line service northward over this five-mile segment.

The window for exercising of the option began in April, 2017 and was due to expire in October, 2019. If the MTA had decided to forgo the option and pursue it at some future point in time, it would more than likely have been at a much higher cost. As such, there are a number of important benefits to the MTA's ownership. It secures the substantial financial investment that the MTA has already made over 35 years in terms of capital investments at GCT and along the entire rights-of-way of the Harlem and Hudson Lines. It protects the MTA from having to "pay twice" for any future capital expenditures. MNR will have full operational control of its environment, while the LIRR will accrue similar benefits to its East Side Access terminal currently being built underneath GCT.

Ownership of the Harlem and Hudson Lines rights-of-way will give the MTA the ability to capture the full value of future real estate development rights, through transit-oriented development and public-private partnerships as well as the outright sale and disposal of unneeded property. There is tremendous potential for generating new revenue that can be used to fund the railroad's future capital needs. It should be noted that Midtown Ventures will continue to retain GCT's air rights, which can be transferred around the Grand Central district for future development. They had been separated from the lease prior to 1994.

Symbolically, it is perfectly fitting and appropriate that MNR and the MTA now have full ownership and control of GCT and the Harlem and Hudson Lines, having revitalized the railroad and expended much effort and expenditure to ensure that they continue to serve the public for generations to come.

# Commuter and Transit Notes

No. 359

by Ronald Yee and Alexander Ivanoff

## METROPOLITAN TRANSPORTATION AUTHORITY

In an unexpected move, on Friday, November 9, MTA Chair Joseph Lhota announced his sudden departure from the post he had held for the past 15 months. In his second stint as MTA Chair, he gave no reason for his departure. Fernando Ferrer will assume the position of Acting Chair of the MTA until a successor is appointed. (MTA press release, November 9)

## MTA METRO-NORTH RAILROAD

Metro-North has a new plan it has branded “Way Ahead” with the goal of improving the riding experience of its customers, which has admittedly suffered due to the railroad’s aging infrastructure, increased ridership, changing demographics, and evolving customer needs, Metro-North officials said in a press release. Since 2013, Metro-North has significantly upgraded its infrastructure, reinvigorated its cyclical track maintenance program, and bought new technology to help identify track defects. The plan is also designed to help improve Metro-North’s safety, service, infrastructure, and communications.

Areas of focus under the “Way Ahead” program include: Expand TRACKS, Metro-North’s award-winning free community outreach program designed to educate and promote rail safety; enhance grade crossings; improve the customer experience in Grand Central Terminal in the evenings and on weekends by creating new Grand Central Terminal customer advocates; revitalize Metro-North’s aging locomotive-hauled fleet by replacing seats and floors in more than 100 coaches; begin the process of replacing the existing locomotive fleet, which is nearing its projected service life; bring new, real-time digital train information displays to Grand Central Terminal, including a new, state-of-the-art “Big Board” and new signs at each of the departure gates; replace the antiquated public-address system in Grand Central Terminal and at outlying stations with a new state-of-the-art system; take delivery of 66 new M-8 railcars to accommodate increased ridership; install heated platforms as deteriorated ones are replaced; expand the tree trimming program to reduce the potential for fallen trees to disrupt service; complete the \$1 billion Harmon Shop car maintenance facility; replace 1,200 power transmission poles on the Upper Harlem Line; and complete the “Fix and Fortify” project to make the railroad’s communications, signal, and power supply infrastructure more resistant to flood and wind damage by future severe storms. (Metro-North Railroad press release, Metro-North *Mileposts*, November 12)

As noted in Subutay Musluoglu’s article on page 8 of this issue, the MTA announced its purchase of Grand Central Terminal (GCT) for the sum of \$35 million from its current owner, Midtown Trackage Ventures, LLC. This will allow the MTA to end its 280-year lease on the

iconic terminal and be in full control of its operating environment. This is all the more important with the future opening of the LIRR terminal around 2022-3 upon completion of the ongoing East Side Access project. GCT was originally owned by the New York Central Railroad and, later, the Penn Central Real Estate Company and in the early 2000s by Midtown Trackage Ventures. (*New York Daily News*, November 13)

Metro-North has leased two P-42-DC locomotives from Amtrak to bolster its locomotive power pool for its branch line shuttle trains. They will likely be used on Metro-North’s shuttle services between Southeast and Wassaucott on the Upper Harlem Line and Connecticut’s Danbury and Waterbury shuttle services. (*Editor’s Note by Ronald Yee: I have obtained an internal Metro-North document designating the units as class P42-BH, numbered 2112 and 2115, with a maximum speed of 95 mph. Interestingly, at the present time, both units are restricted from operating on Tracks #6 and #8 north of the Danbury station crossing (milepost 23.4), which prevents them from operating on the loop at Danbury. In all likelihood, the units were renumbered by adding a “2” prefix in front of the original Amtrak unit numbers 112 and 115, which, unfortunately, duplicated existing unit numbers of Metro-North’s Brookville BL-20-GH locomotives. These P-42 locomotives were deemed surplus as Amtrak has received a significant number of new Siemens SC-44 Charger locomotives for use on its Midwest corridor, Pacific Northwest “Cascades” corridor, and California services.*) (Ronald Yee, November 9)

## INDUSTRY

Mainly driven by difficulties in the United States market, Kawasaki Heavy Industries may exit the business amid mounting losses and an increasingly difficult market. The builder would explore alliances or possibly closing its rail unit if a turnaround is unsuccessful. A labor shortage and Buy American requirements have complicated the company’s business plans in North America.

Kawasaki plans to outline a restructuring for the rail business this fiscal year after announcing a net loss of \$31 million for the six months ended September, down from a profit of \$95 million a year ago. That included a reported loss of \$78 million in its rolling stock division, primarily on contracts with Washington’s Metro and the Metropolitan Transportation Authority’s Long Island Rail Road.

Following early design issues and delivery delays, Metro inspections earlier this year found flaws that will require replacement of all wiring in 548 of about 600 new 7000-series cars. The agency has a \$2 billion contract with Kawasaki for a total 748 cars, all of which it expects to be delivered ahead of schedule by late 2019. Profits were also dragged by additional orders in the

(Continued on page 12)

**Commuter and Transit Notes***(Continued from page 11)*

2013 contract with the LIRR for the M-9 fleet that were less than expected. (*Editor's Note by Alexander Ivanoff: At this time, Metro-North will not be procuring its own M-9s, as the need for new dual-mode locomotives is more pressing.*)

The company has two plants in the U.S.: one in Yonkers, New York and the other in Lincoln, Nebraska. (***Railway Age***, November 7)

**OTHER TRANSIT SYSTEMS****UNITED STATES**

Outside of the failure of propositions in Colorado, the 2018 midterms proved good for transit nationally. California voters rejected Proposition 6, an attempt to rescind a 2017 state gasoline tax. The rescission failed by a 55-45 margin. Colorado voters rejected both Propositions 109 and 110 by wider margins than in California. And despite the political climate in Florida, Hillsborough County residents (Tampa area) approved a tax to fund transit and to maintain free fares on the TECO Streetcar line. (Rail Passengers Association email, November 7)

**TAMPA, FLORIDA**

Brightline, the first private United States intercity rail operator since the early 1980s, has made significant developments in the last month. Florida Department of Transportation officials on November 8 received one proposal to run an intercity passenger train from Orlando to Tampa, and it came from Brightline, which, according to the ***Tampa Bay Times***, had proposed creating the route in the first place. DOT's recommendation will go to a selection committee of high-ranking transportation officials, who are scheduled to make a decision on Nov. 28.

In Tampa, Brightline has scouted sites for potential terminals near downtown, including three that could put the train and its development plans within walking distance of the proposed Rays stadium on the southern edge of Ybor City, including Tampa's Union Station currently occupied by Amtrak.

The Virgin Group and Brightline announced on November 16 a partnership that will see the line rebranded as Virgin Trains USA. As part of the partnership, an affiliate of Virgin Group has agreed to make a minority investment in Brightline, with little to no changes in day-to-day operations. Brightline will rename itself Virgin Trains USA by the end of November and transition to Virgin Trains USA branding in 2019. (***Tampa Bay Times***, November 8; Brightline press release, November 16; WPLG-TV, November 16)

**CHICAGO, ILLINOIS**

Metra, the Chicago commuter rail agency, has approved the purchase of three used F-59-PH locomotives from Progress Rail for \$2.5 million. The agency is supplementing its aging fleet as it continues a longer-term procurement of new or remanufactured locomotives.

The three used locomotives were built by General Motors Corporation's Electro-Motive Division for GO Transit

in 1988. Progress Rail will test, evaluate, and make needed repairs before shipping the units to Metra. The F-59-PHs feature parts and operating characteristics that are similar to Metra's existing fleet of Electro-Motive Division F-40s, some of which are 40 years old.

In late 2017, Metra issued a request for proposals for new or remanufactured locomotives, but those units are not expected to be available until at least late 2020. The used F-59-PHs will be available this year.

In 2015, Metra bought three identical F-59-PH locomotives from Rail World Locomotive. In February, Metra announced the purchase of 21 F-59-PHs from Amtrak.

Meanwhile, Metra's Board has approved the railroad's 2019 operating and capital budgets. The \$822.2 million operating budget includes no fare increases, as the commuter rail agency promised earlier this year.

The \$185.6 million capital budget will be funded with \$173.6 million from the federal government, \$5 million from Chicago's Regional Transportation Authority, and \$7 million in fare revenue. Additional funding is needed to address Metra's capital needs, according to the agency. (***Progressive Railroading*** via Randy Glucksman, November 12)

**MINNEAPOLIS, MINNESOTA**

The Southwest light rail line in the Minneapolis metro area has cleared a critical hurdle that will allow construction to begin on the \$2 billion project this winter, which would allow for revenue service to launch in 2023.

The Federal Transit Administration (FTA) has notified the Metropolitan Council that it will likely pay for close to half the cost of the nearly 15-mile line linking downtown Minneapolis with Eden Prairie — the biggest public works project in state history.

Transit planners have long argued that Southwest, an extension of the Green Line, will prove a critical link in the Twin Cities' public transportation network as the metro area's population grows.

The route's 16 stations in Minneapolis, St. Louis Park, Hopkins, Minnetonka, and Eden Prairie will touch major employment centers in the southwestern suburbs. However, the project has faced strident opposition, ranging from residents who live near the project in Minneapolis to Republican lawmakers at the State Capitol who say it is a waste of money. As recently as 2012, the price tag of Southwest was \$1.25 billion.

A citizens' group called the Lakes and Park Alliance sued the Council in 2014, alleging the project violated federal environmental laws. But a federal judge threw out the legal challenge, which has since been appealed.

Project planners have also tussled with freight railroads that will share part of the line's path to the suburbs. Both Burlington Northern Santa Fe and Twin Cities & Western Railroad have reached agreements with Met Council to allow for construction.

More recently, the bidding process to construct the line has been marred by delays. The council rejected

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

four bids in September, 2017, ranging from \$797 million to \$1.08 billion to build the line because they were "non-responsive."

By May, new bids from two contractors were higher than the first round. The project was still expected to be awarded August 1. But that was delayed until September 30, and then until November 15.

Heavy construction is expected to occur between 2019 and 2022, creating some 7,500 jobs with an estimated \$350 million in total payroll.

The existing Green Line, which links the downtowns of Minneapolis and St. Paul, was issued nine such letters, permitting the project to move forward before receiving its federal grant in 2011. The Green Line began passenger service in 2014. (*Mass Transit* Magazine via the *Minneapolis Star-Tribune*, November 15)

**DENVER, COLORADO**

Not even a month after the last of the flaggers was taken off duty along RTD's A Line, some are once again directing traffic at several crossings after a "safety critical software problem" was discovered. Crossing gates, controlled by RTD's positive train control (PTC) technology, have failed to work as designed. The G Line to Wheat Ridge and Arvada was supposed to open to revenue service in the Fall of 2016, which has been indefinitely delayed due to the crossing gate issues.

Residents living along the A Line were led to believe this Summer that once the flaggers were relieved from duty in mid-July, Denver and Aurora would be able to apply for quiet zone status and end the need for the horns.

But according to an internal RTD email obtained by *The Denver Post* on November 6, the Federal Railroad Administration took note earlier this month when a G Line test train reached a crossing ahead of the safety gates' minimum 20-second warning time, thus forcing reinstatement of the flaggers.

It is unclear why the incident on the G Line affected just some of the crossings on the A Line and the one B Line crossing, and *The Denver Post* was unable to receive a reply from the RTD and FRA regarding the issue. (*Editor's Note by Alexander Ivanoff: I concur with Bulletin Co-Editor Ronald Yee with regard to the crossings. Almost all across the world, railroad crossing gates are triggered by track circuits.*) (Jack May via *The Denver Post*, November 7)

In more positive news, RTD in November began running test trains on its 2.5-mile Southeast light-rail extension in Lone Tree.

The agency was scheduled to energize the rail line the week of November 5, with testing of the entire extension to start shortly after, RTD officials said in a news release. An extension of the nearly 20-mile Southeast Line, the new route runs from the Lincoln to RidgeGate stations.

During the integrated testing phase, crews will measure track clearances and test train signals and the electrical and communications systems. After that phase is completed, RTD will begin training operations crews.

Revenue service is slated to begin next year, although an exact date has yet to be determined.

The Southeast extension is part of RTD's FasTracks program to expand rapid transit across the Denver area. (*Progressive Railroading*, November 2)

**LOS ANGELES, CALIFORNIA**

On November 13, the Foothill Gold Line Construction Authority Board of Directors received a report on how the agency can deliver nearly 70% of the Foothill Gold Line light rail extension from Glendora to Montclair at least two years ahead of schedule and avoid tens of millions of dollars annually in market escalation and risk money proposed by the four design-build teams competing for the Glendora to Montclair Alignment contract, while also approving an increase in the overall project budget for the 12.3-mile, six-station light rail extension of \$570 million (to a total project budget of \$2.1 billion). The proposed plan is subject to environmental approval.

In response, the Construction Authority is proposing to revise the phasing of project construction to deliver the first eight miles of the 12.3-mile light rail extension (including delivery of 80% of the freight relocation, 72% of the structures, 65% of the grade crossings, and three of the light rail stations — Glendora, San Dimas, and La Verne) — in 2024, two years ahead of the original schedule, while working to secure the additional funding necessary to complete the project to Montclair by 2028.

If the plan is approved, the agency can deliver it within the currently ongoing design-build procurement by asking bidders to provide separate bids for the first eight miles of the project and also for a contract option that would allow the winning team to complete the full project to Montclair if funding is secured within two years of Notice to Proceed. (LA Metro press release via *Mass Transit* Magazine, November 15)

**MONTREAL, QUEBEC, CANADA**

The Societe de Transport de Montreal (STM) has signed a C\$340 million agreement with Bombardier-Alstom to purchase 153 additional Azur-class cars (17 nine-car open gangway design sets) for its Metro. Identical to the 2010 order for 468 (52 nine-car sets) Azur-class cars, this additional order will also be manufactured and assembled at the Bombardier plant at La Pocatiere, Quebec. (*Progressive Railroading*, November 12)

**LIEPAJA LATVIA**

Liepaja tram operator Liepajas Tramvajs has selected Koncar to supply six meter-gauge trams.

Koncar's €8.8 million bid was lower than that of Modertrans. Railvec UAB had also bid with an offer of trams made by Belkommunmash, but that bid was disqualified.

The contract is expected to be signed after a 10-day

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## THREE ISLANDS OF ITALY

### by Jack May

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

SATURDAY, APRIL 2

We got up a bit late this morning; our fervid activities finally catching up with us. Clare would be off to some museums in Venice, including the Accademia and the Peggy Guggenheim, while I would concentrate on rail transit, no — make that guideway transit. After another excellent buffet breakfast we walked the few steps to the railroad station, where she found a train to Santa Lucia leaving in a few minutes while I searched for one to Padova.

Both Padova and Venice Mestre have Trans-Lohr single-rail guided rubber-tired tramways. My first experience with one of those French Michelin-developed rubber tire-supported operations was in the home of the iconic manufacturer, Clermont-Ferrand, and then I followed that up with Paris. I visited the two similar systems in this area in 2013, but had bad weather for photos — so now I was hoping for better. No such luck as it was overcast for almost the entire day.

On top of that, because of our late start, and also because it was the weekend, the regional service for the 20-mile trip from Venice to Padova was sparse. I purchased a local ticket for €2.85 on my Carta Argento (15 percent senior discount), but then found out that I would have to wait until 10:54 to board a regional train. My mistake was not paying attention to the small print on the hard-copy departure billboard, where many (if not most) regionals were marked Monday-to-Friday only. Anyway, the next regional train to Padova was not until 10:54, but a long-distance train was due out at 9:37, and would arrive at 9:51, instead of the regional express's 11:08. The fare, however, would be €12.70, about \$11 more. But I would have had to rush to make it. I decided to take a chance, validated the ticket, and boarded the *Frecciarossa*, a top-of-the-line high-speed train headed to Rome. The conductor finally got to me just as we were pulling into Padova, punched my ticket, and told me it really was not valid for that train. I breathed a sigh of relief that I did not get into trouble.

Despite the dark weather, I bought a day ticket, did some riding, and took a few photos. I especially concentrated on the short portion of the system that runs wireless, using power from batteries that are charged while the trams run under the overhead. I had not gotten such photos on my first trip because it was raining cats and dogs, or should I say *gatti e cani*.

As I mentioned in my previous Eurocruise trip report, Padova has a population of about 215,000 and its rubber-tired tramway opened in 2007. Sixteen three-section articulated cars operate on its six-mile-long, 26-stop system (see <http://www.urbanrail.net/eu/it/pad/>

[padova.htm](http://www.urbanrail.net/eu/it/pad/)). The cars were running on a seven-and-a-half-minute headway, and mostly had seated loads with occasional standees.

The cars are guided by a single rail, which is also used to return the electric current, but because rubber tires are used, the right-of-way is always paved. Cars can operate in mixed traffic or physically separated from motor vehicles. In any case they are bumpier and noisier than typical European modern tramways (and good American ones).

I should make mention to the purists among you that despite the use of rubber tires I consider the line a tramway rather than a trolleybus installation. I do not recommend it as an alternative for steel wheels, as I find the quality of the ride inferior to standard light rail. Probably because of the technology, seating in the cars is somewhat limited, and a 1-and-1 layout is utilized.

Further, I am not convinced there are any savings in capital and operations costs, as are claimed by many of the proponents of rubber-tired transport. I suspect the cost of the heavy, rut-resistant paving materials is high, even if they do not work perfectly (free-wheeling buses usually provide a smoother ride, as the tires wander all over the roadway, while the tires of the guided vehicles go over the exact same spots all the time, wearing them down). Nevertheless, I rationalize my interest in these lines as being akin to my pleasure in exploring the rubber-tired metro systems in places like Montreal, Mexico City, Lyon and elsewhere around the globe. In summary, I have concluded that these systems are somewhat inferior to steel-wheeled installations, but way better than buses.

I also wanted to ride the extensions of the Trans-Lohr line in Mestre that went into service after my previous trip, so I hurried back to Venice as soon as I could. Again I was defeated by the Saturday schedule and when I got back to the station the first train out was a *Frecciarossa* scheduled for 12:09. Since I had the time to buy a ticket I paid the correct fare for a ride to Venice Santa Lucia and got down to the platform at 12:05, just as the 11:54 *Frecciargento* was coming in late. Unfortunately I was waiting at the wrong door and the conductor refused to let me on, because my ticket was for the next train (the fare was the same). Had I been waiting at a different door I would have just gotten on. Anyway, the 12:09 was marked 15 minutes late, then 20 minutes late, and finally arrived at 12:29. It got me to its Venice terminal just before 13:00. I took a few photos in the station and then was on my way.

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**Commuter and Transit Notes**

*(Continued from page 13)*

standstill period. The first tram is due to be delivered in a little over a year, with all six due within 36 months of contract signature.

This marks Koncar's first contract to supply trams outside its home city of Zagreb. (*Metro Report International*, November 7)

**CHANGCHUN, CHINA**

The third line of Changchun's light rail network opened on October 30. Line 8 runs north from the northern terminus of metro Line 1 at North Ring Road to Guangtong Road.

Service on the elevated 13.3-kilometer route with 12 stops runs every 10 minutes from 6 AM-9 PM, offering

an end-to-end journey time of 28 minutes.

CRRC Changchun supplied a fleet of six-section Type C light rail vehicles, which are stabled at a depot at Tai-ping near the northern end of the route. They have capacity for 622 passengers, including 124 on seats which are heated to provide greater comfort in the city's cold winters. The LRVs draw power at 750 volts d.c. and have a maximum operating speed of 70 kilometers per hour.

Construction started in April, 2014 and was undertaken by China Railway Electrification Bureau.

The second phase would extend the route by 27.6 kilometers from Guangtong Road to Mishazizhen, adding nine stops. (*Metro Report International*, November 1)

**Three Islands of Italy**

*(Continued from page 14)*



After crossing the Trenitalia tracks on a viaduct, one of Padova's 16 three-section Lohr cars heads down the ramp leading to the railway station and the city center.



Two scenes of southbound cars on the short section of wireless operation. The cars run on batteries in an area below Padova's downtown where the city fathers have determined that overhead would spoil the views of landmarks. The left photo shows a car on Via Beato Luca Belludi with the Basilica di San Antonio di Padova, the city's main cathedral, in the background. The right photo was taken around the corner on Prato della Valle, near the Prato stop.

*(Continued on page 16)*

**Three Islands of Italy**

*(Continued from page 15)*



A view of the cab cars of two push-pull Trenitalia trainsets typical of the local and regional services in the Venice-Padova area. The motive power, of course, consists of electric locomotives.



Santa Lucia station in Venice just west of the bumper blocks. From left to right a *Frecciabianca* locomotive, followed by *Frecciarossa* and *Frecciargento* trainsets, representing the initial and latest equipment (respectively) used for *Trenitalia* high-speed rail in the Torino-Milano-Roma-Napoli corridor. The prefix *Freccia* means arrow, so the most modern (center) unit is the Red Arrow, with those surrounding it are the White Arrow and Silver Arrow. The White Arrow services run between Venice and Torino using E414 locomotives at a maximum speed of 125 mph. The Silver Arrow trainsets are the most "modern" looking, with their duck-billed front ends, and are capable of 160 mph. These original tilting Pendelinos have been replaced on the HSR by the faster Red Arrows, or ETR500s, which can go up to 186 mph. It is said that Trenitalia is now introducing ETR1000s (also *Frecciarossa*), which are capable of 250 mph, although the existing HSR infrastructure is certified for only 220 mph at this time. The *Frecciarossa* trains do not tilt.



Two close-up views of Arrow equipment. The angle of the left-hand view deemphasizes the stylized front end of the *Frecciargento* Pendolinos. The E414 locomotive and its matching *Frecciabianca* train in the right-hand photo presents a streamlined appearance.

*(Continued next issue)*

**New York City Subway Car Update**

*(Continued from page 6)*

planation of the topic showing included in Wikipedia: "Ultra-wideband train signals would be able to transmit more data wirelessly in a manner similar to CBTC, but

can be installed faster than CBTC systems. The ultra-wideband signals would have the added benefit of allowing passengers to use cell phones while between stations." To date (late October), R-160A-1 links 8441-4, 8517-20, and 8541-4 have been used to perform these trials.