The Bulletin

Electric Railroaders' Association, Incorporated

Vol. 59, No. 9 September, 2016

The Bulletin

Published by the Electric Railroaders' Association, Incorporated, PO Box 3323, New York, New York 10163-3323.

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NEW YORK RAILWAYS STREET CARS QUIT 80 YEARS AGO
by Bernard Linder
(Continued from August, 2016 issue)

On July 9, 1895, the company operated the first electric car on Lenox Avenue. After the car passed the two-year test, the company decided to electrify the entire system. After all overhead wires were blown down by the Blizzard of 1888, New York City passed a law prohibiting overhead wires in Manhattan. To comply with the law, the street cars received their power from an underground conduit (third rail), which was more expensive than overhead trolley.

To electrify the cable lines, the cable and its supports were removed, after which underground conduit, insulators, and feeder cables were installed. On Broadway, 1,000 men removed the cable and installed the underground conduit. Electric cars were running on May 27, 1901, two days after the cable was removed. On Fourth Avenue, the street was closed to traffic from Grand Central to Astor Place during the excavation. Service was interrupted for a month starting August 31, 1897. Meanwhile, electrification proceeded rapidly, as shown in the following table:

ELECTRIC OPERATION BEGAN

DATE	LINE	DATE	LINE
July 9, 1895	Columbus and Lenox Avenues (W. 108th-W. 146th Streets)	December 16, 1897	4th Avenue
1897	116th Street	About 1898	23rd Street
Autumn, 1897	Madison Avenue	March 20, 1898	Amsterdam Avenue
April 3, 1898	2nd Avenue	June, 1901	Columbus Avenue
May 7, 1898	8th Avenue	1901	8th Street
October, 1898	6th and Amsterdam Avenues (W. 125th Street to South Ferry)	1902	9th Avenue
Spring, 1901	Broadway	December 2, 1903	14th Street
Spring, 1901	Lexington Avenue	February 5, 1908	1st Avenue (E. 125th-E. 59th Streets)

STEPLESS CENTER ENTRANCE CARS

CAR NUMBERS	BUILDER	DATE BUILT
5000	Brill	1912
5001-5175	St. Louis	1913
6000	Brill	1912
7000	Brill	1912
7001-45	ACF	1913
7046-7115	Southern	1916

After the company completed electrifying the busy lines, it decided to economize by abandoning the least profitable horse car lines and replacing the other horse car lines with stepless center entrance battery cars. On May 20, 1931, the last battery car operated on the Spring and Delancey Streets Line.

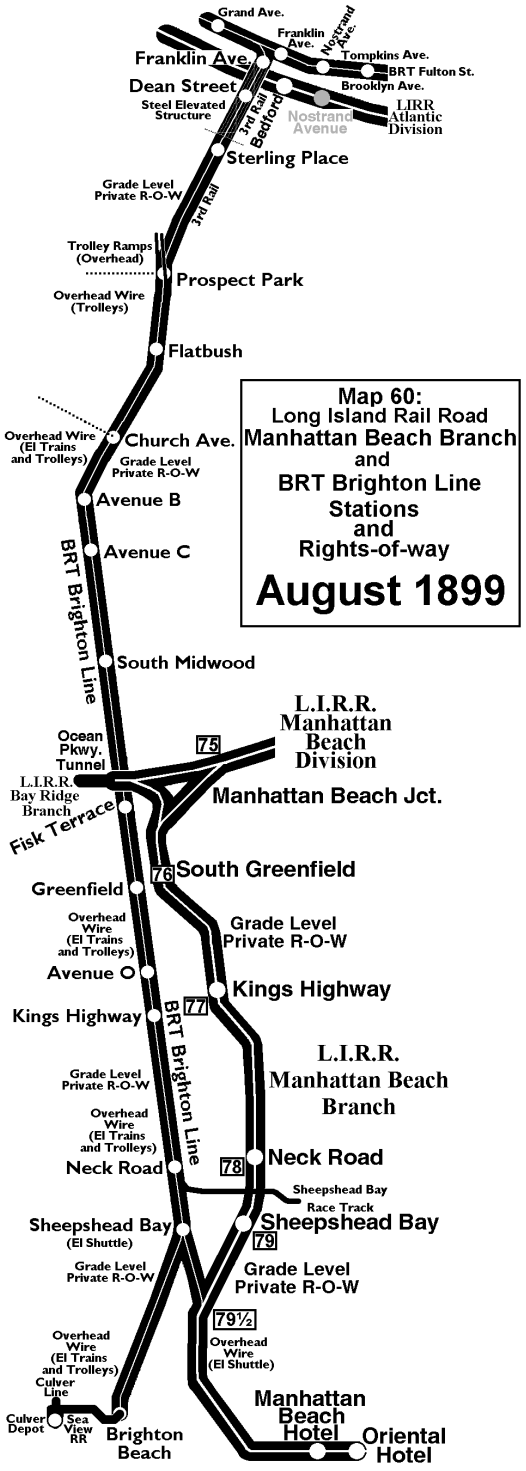
(Continued on page 4)

NEXT TRIP: WEEKEND TRIP TO ROCHESTER/CLEVELAND/BUFFALO — OCTOBER 15-17

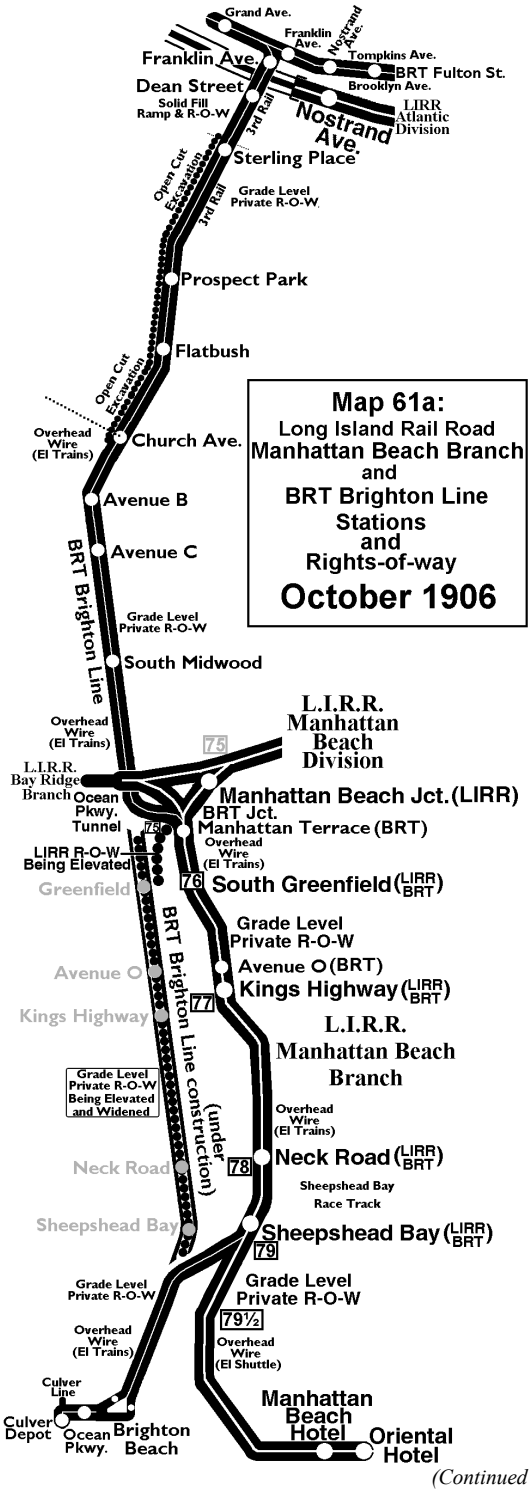
FROM RECOGNITION TO DOMINANCE: THE NEW YORK CONNECTING RAILROAD (BRIDGING THE BAY AND CONNECTING THE PIECES)

by George Chiasson

(Continued from August, 2016 issue)



Map 60:
Long Island Rail Road
Manhattan Beach Branch
and
BRT Brighton Line
Stations
and
Rights-of-way
August 1899



Map 61a:
Long Island Rail Road
Manhattan Beach Branch
and
BRT Brighton Line
Stations
and
Rights-of-way
October 1906

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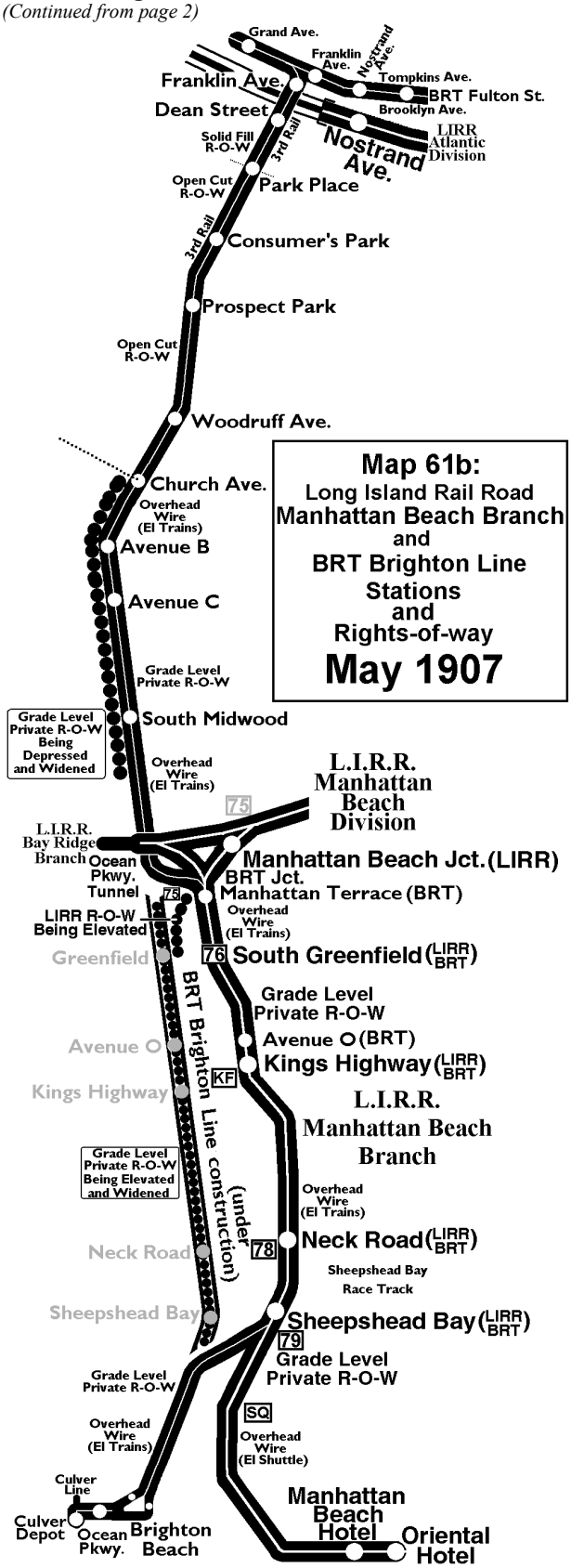
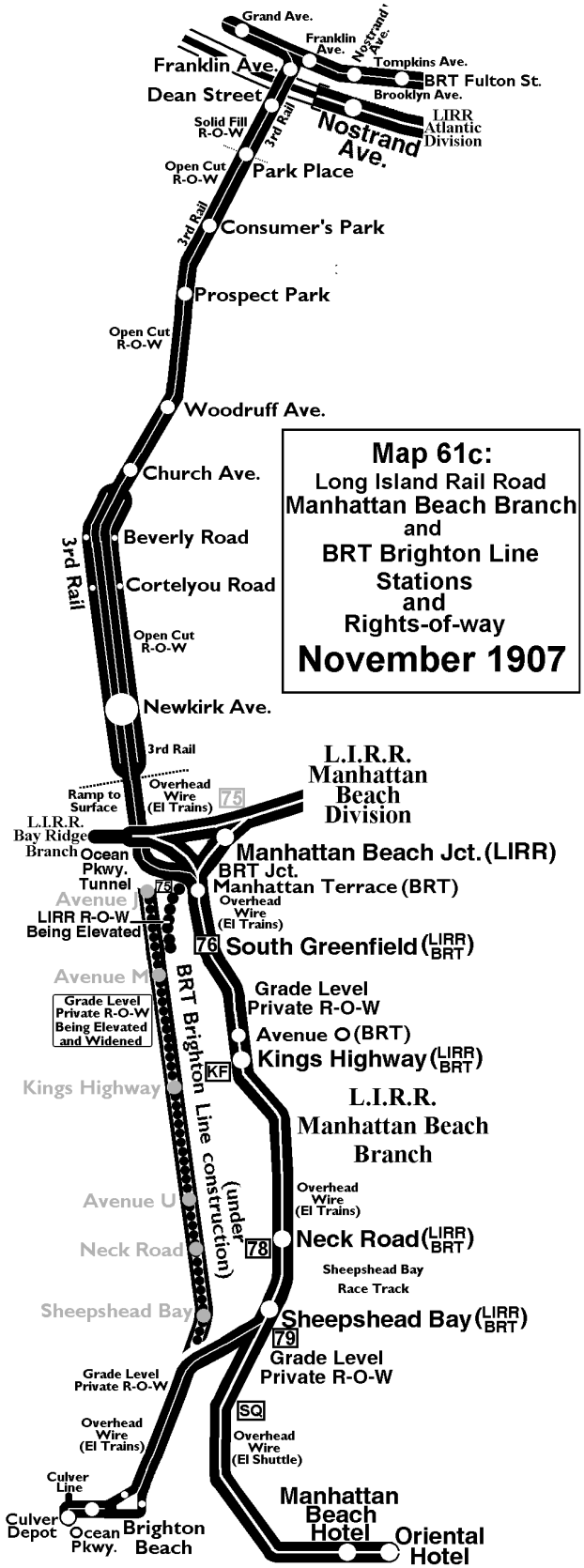
From Recognition to Dominance

(Continued from page 2)





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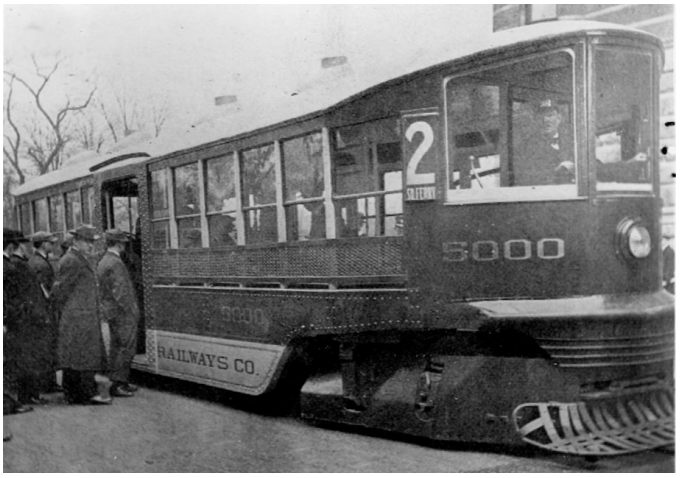
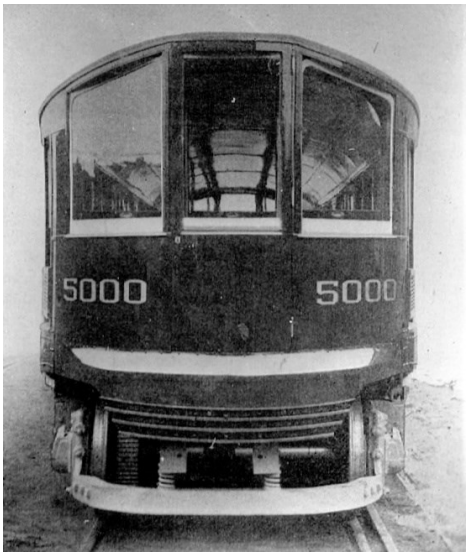
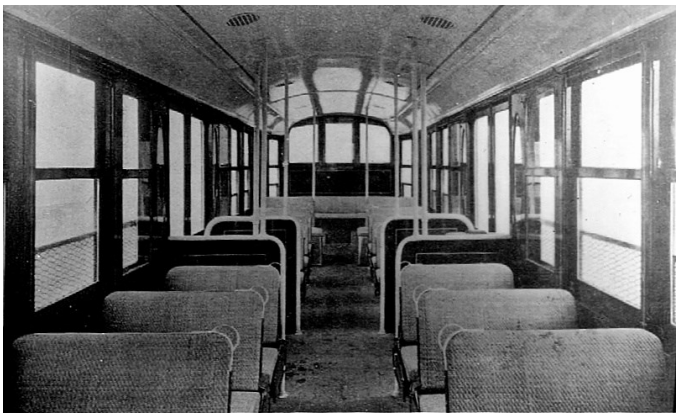
New York Railways Street Cars Quit 80 Years Ago

(Continued from page 1)

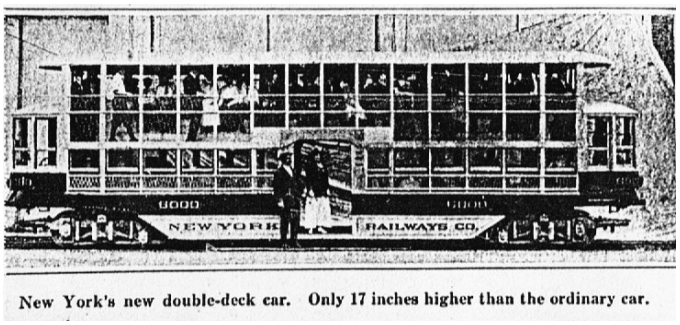




Stepless electric car 5000.
Bernard Linder collection



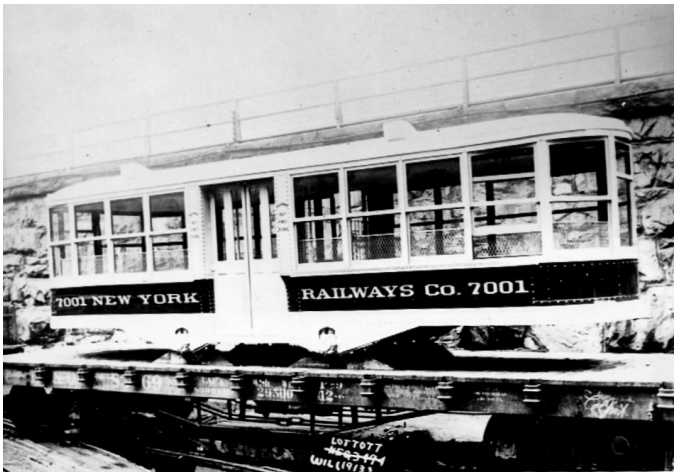
Stepless electric car 5001.
Bernard Linder collection



New York's new double-deck car. Only 17 inches higher than the ordinary car.

Double-deck car 6000.
Bernard Linder collection

Stepless storage battery car 7000.
Bernard Linder collection



Stepless storage battery car 7001.
Bernard Linder collection

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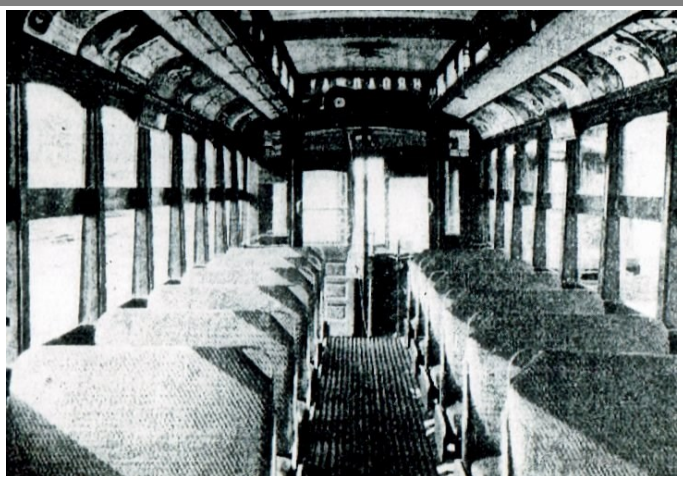
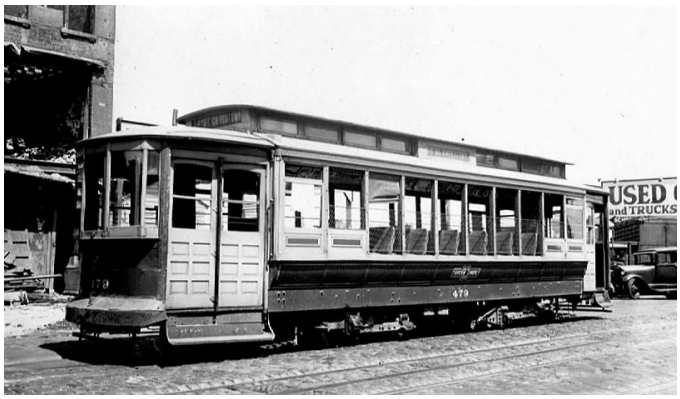
New York Railways Street Cars Quit 80 Years Ago

(Continued from page 4)

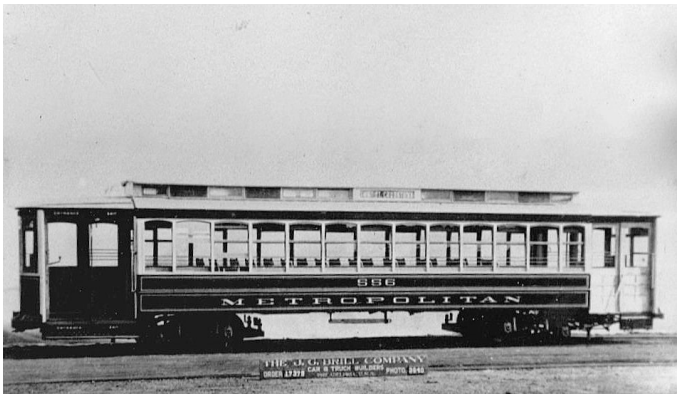
12-window car 175 on transfer table. Car was sold to TARS and renumbered into the 400 series.
Bernard Linder collection



Interior of a convertible car.
Bernard Linder collection



Car 479 at E. 34th Street and the East River, July 30, 1935. Convertible with windows removed for summer operation.
Bernard Linder collection



13-window semi-convertible 556, sold to TARS and renumbered to 528.
Bernard Linder collection

Car 566 at LaSalle Street and Amsterdam Avenue, July 19, 1935.
Bernard Linder collection

Car 4122 at W. 146th Street and Lenox Avenue, March 14, 1936.
Bernard Linder collection

(Continued on page 6)

New York Railways Street Cars Quit 80 Years Ago

(Continued from page 5)

The company also purchased a fleet of stepless center entrance electric cars and one double-deck car, nicknamed the "Broadway Battleship," which made its trial run on August 4, 1912. With passengers entering and leaving at the center doors, the cars were slow loaders, especially on the busy Broadway Line. The double-decker was even slower and was soon taken out of service. Because the trucks were near the ends of the car, a front door could not be installed and the cars could not be converted to one-man operation.

In 1922, there were only 85 electric and 18 battery stepless cars in service during the rush hour. Unfortunately, the cars were out of service long before the end of their useful life.

In 1896, before the subway was built, most lines operated on a 30-second headway in the rush hour. In 1919, after most subway lines were built, rush hour service on most lines was reduced to a 1½-to-2-minute headway and 911 cars were in service. The street cars had difficulty competing with the trains, which were faster. Three years later, only 754 cars were required. During the Depression, from 1929 to 1933, riding declined again. In 1936, before abandonment, only 444 cars were in service during the rush hour.

The track plans revealed that Third Avenue Railway cars operated on the same tracks as New York Railways cars for short distances, as shown in the following table:

JOINT OPERATION WITH THIRD AVENUE RAILWAY

COMPANY	STREET	FROM	TO
New York Railways	Washington Street	Desbrosses Street	Vestry Street
New York Railways	Greenwich Street	Desbrosses Street	Vestry Street
New York Railways	Broadway	W. 71st Street	W. 65th Street
New York Railways	7th Avenue	W. 46th Street	W. 42nd Street
New York Railways	Lexington Avenue	E. 129th Street	E. 130th Street (A)
New York & Harlem	Grand Street	Centre Street	Bowery
New York & Harlem	E. 42nd Street	4th Avenue	Madison Avenue
2nd Avenue Railroad	Bowery and Grand Street	Worth Street	Forsythe Street

(A) Lexington Avenue between E. 129th Street and E. 130th Street was equipped with underground conduit for New York Railways cars and overhead trolley for the Bronx Third Avenue Railway cars operating light to the car house. The overhead trolley was in service until the cars were transferred to the Kingsbridge and West Farms car houses In 1941.

This concludes our brief history.

Around New York's Transit System

South Ferry Station Main Entrance to Reopen

The main entrance to the South Ferry station was expected to reopen during August, allowing access to the combined 1 R station complex. Following Hurricane Sandy, which heavily damaged the 2009 South Ferry stub-end terminal of 1, the old South Ferry station was quickly restored to service and access to the R station at Whitehall Street was limited to the old entrance, a three-minute walk from the ferry terminal. This will restore accessibility for the subway station's disabled customers. Work continues on the $193.8 million effort to restore the damage South Ferry station.

18-Month Canarsie Tubes Closure Option Selected

New York City Transit (NYCT) announced that it has selected the 18-month total closure option after it had worked closely with 11 Community Boards served by the line as well as held four community meetings where local residents could weigh in with their opinions and preferences. In the end, 77% of the feedback received by MTA via emails, social media, and community meetings favored the shorter duration full closure of the line to minimize the impact. The other option, a three-year-long, partial closure where one track would remain open but offer only limited service across the East River, was rejected. During the closure of the Canarsie Tubes (which will not occur any earlier than 2019), the tracks, switches, signals, trackbed, benchwalls, communications and signal cables, electrical, and lighting systems will all be replaced.

Operation Track Sweep

In an effort to reduce track fires and vermin issues, NYCT launched Operation Track Sweep, a multi-pronged program to clean the tracks and platforms of accumulated trash. June, 2016 saw the start of Phase One, an increase in the frequency of trash pick-ups at stations with known high volumes of refuse. Phase Two begins on September 12 with an intensive two-week system-wide cleaning at all 469 stations with over 500 workers dedicated toward the removal of all accumulated trash and debris during the overnight hours. Phase Three involves the development and purchase of portable vacuum systems that can clean the trackbed while positioned on station platforms. Phase Four involves the purchase by NYCT of three track vacuum trains capable of removing up to 14 cubic yards of trash each day. The first two trains are scheduled for delivery in 2017 and the third in 2018. These three trains will be supplemented by a portable track vacuum system that will operate within station areas, allowing the vacuum trains to focus on the stretches of track between stations.

From Recognition to Dominance

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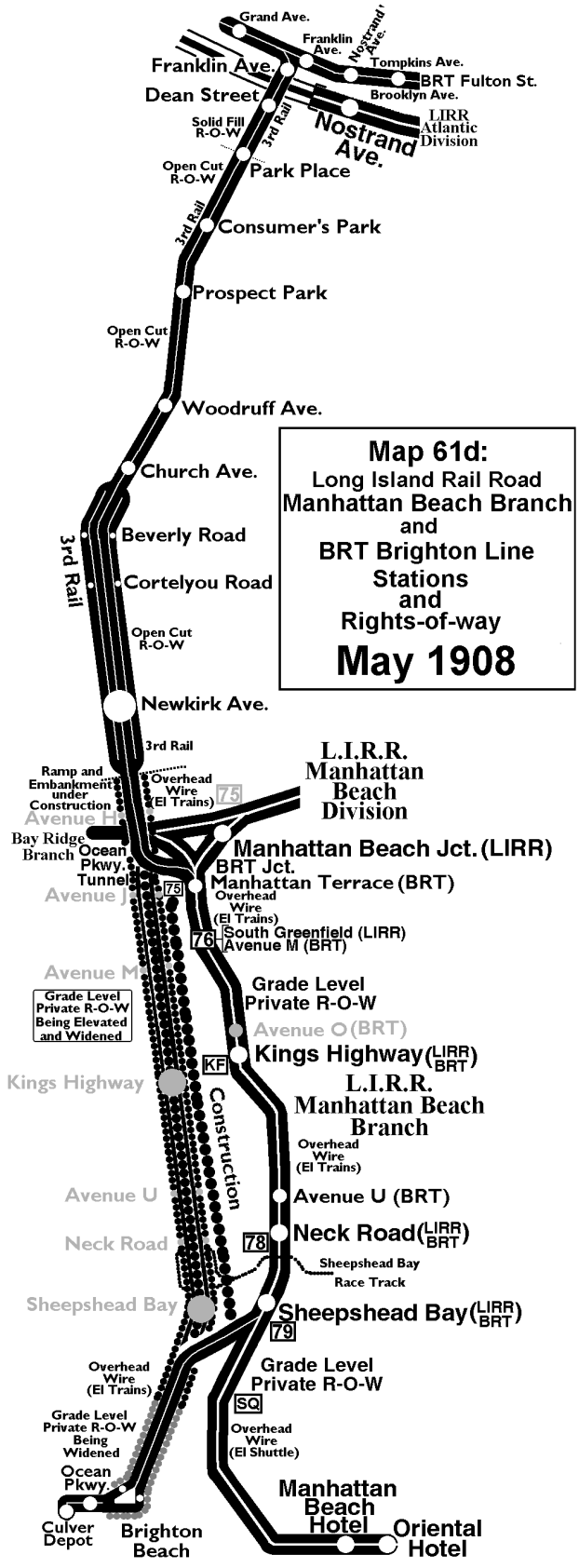

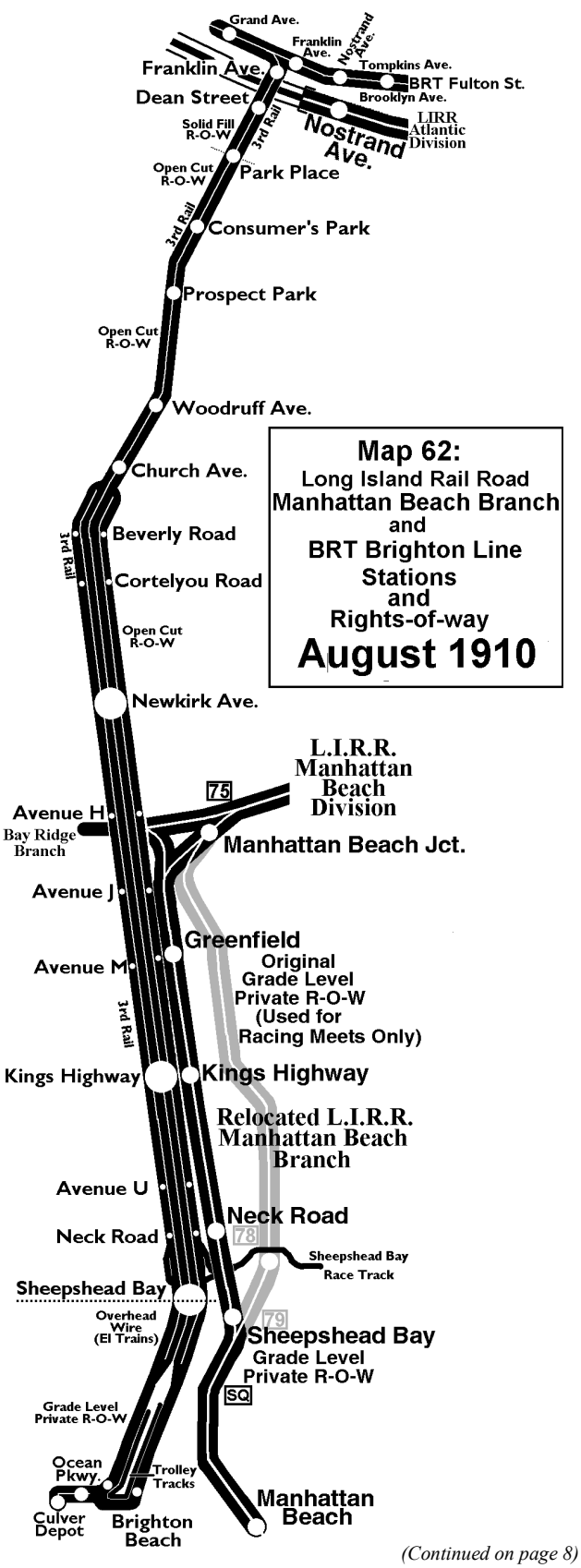

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From Recognition to Dominance

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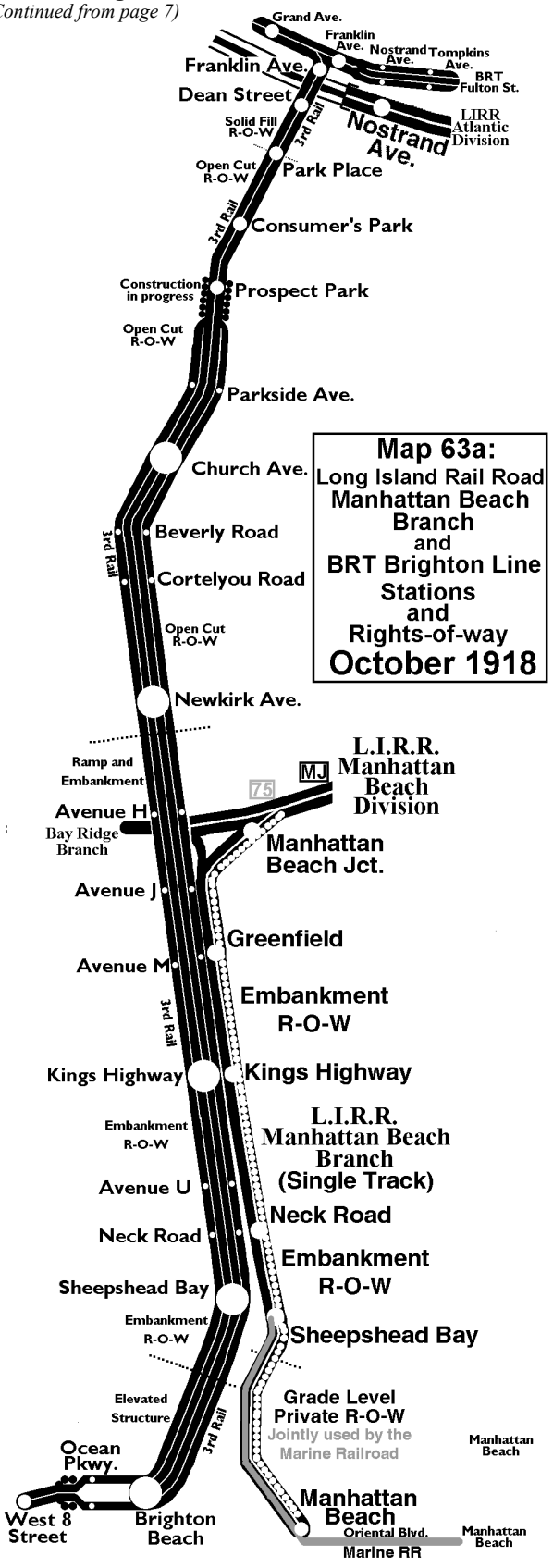

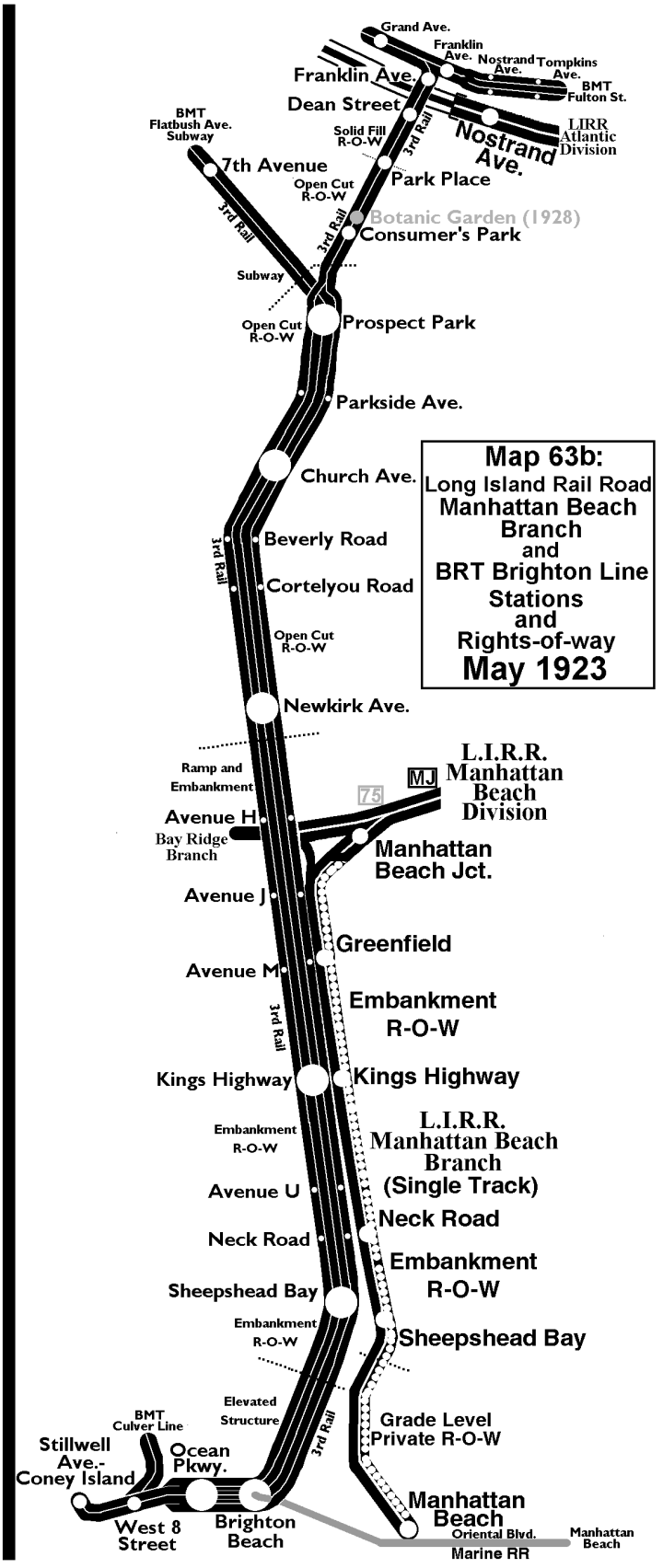

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From Recognition to Dominance

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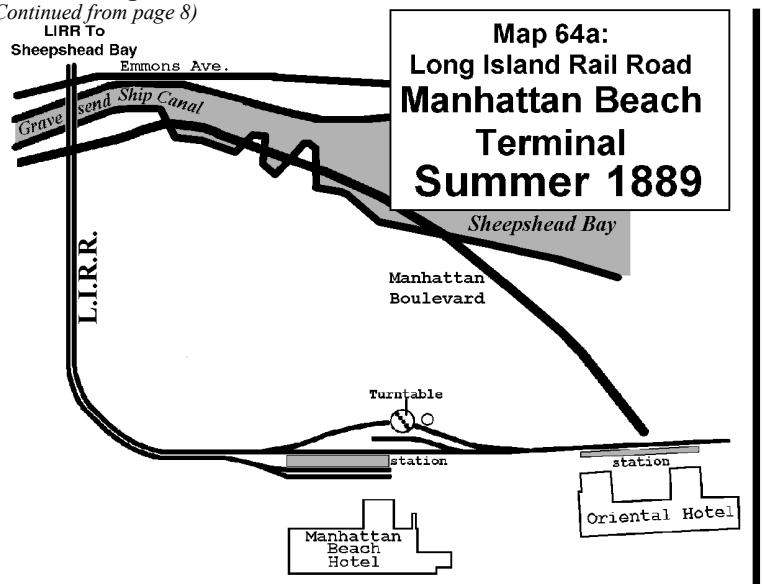
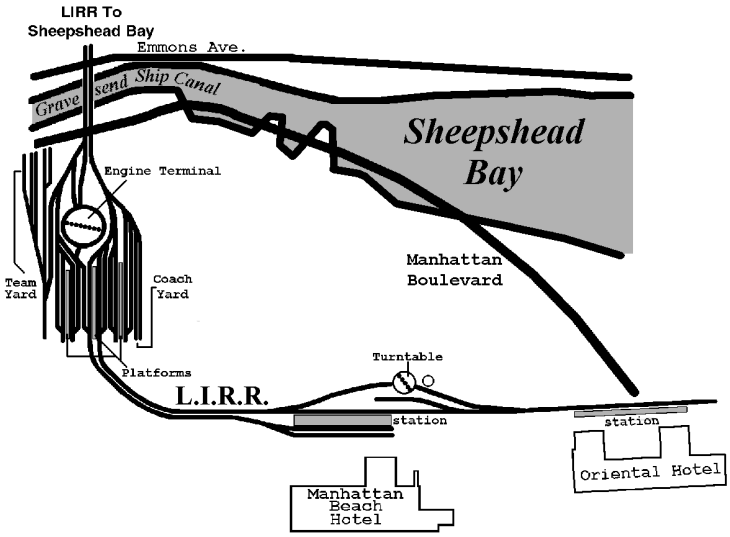
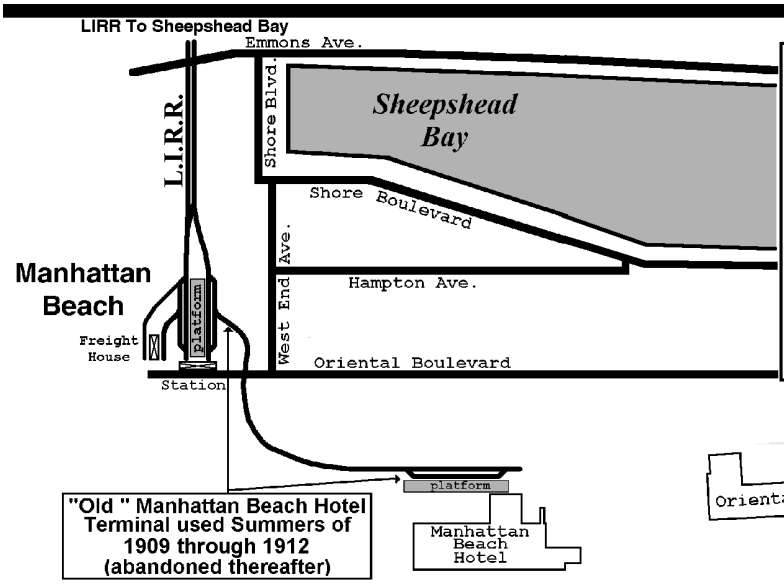
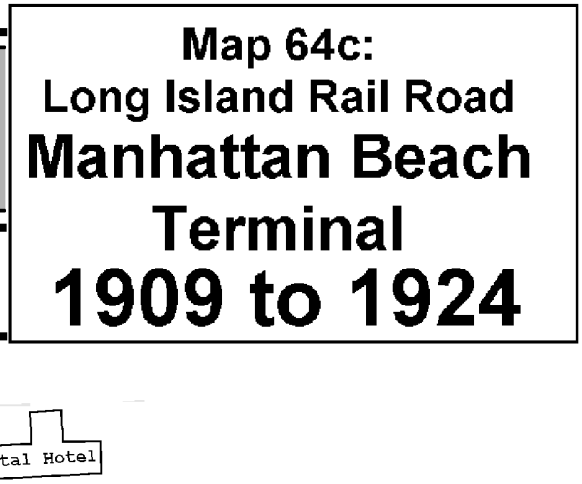
The Evolution of Manhattan Beach









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Commuter and Transit Notes

No. 334

by Ronald Yee and Alexander Ivanoff

Metropolitan Transportation Authority

Robert Kiley, Chairman of MTA from 1983 to 1991, passed away at his home in Chilmark, Massachusetts at the age of 80. He took the reins from Richard Ravitch, who had just put together and arranged the funding for an $8.5 billion capital program to turn the New York City area subways around from an abyss that saw steep ridership declines, underinvestment in capital expenditures, years of deferred maintenance, a plague of vandalism and crime, and an entire fleet of subway cars covered with graffiti and constantly breaking down. A nuts and bolts kind of manager, he aggressively took on MTA's woes and began the process of transforming the culture at MTA while learning the nuances of the political side of the picture, the latter resulting in Mr. Kiley managing to add another $8 billion to the capital program during his tenure and beginning the process of turning the entire MTA system around toward where we see it today. Management was revamped at all levels, increased accountability and business practices were put into place, and union contracts with outdated work rules were renegotiated to reduce costs. Ridership declines, which saw the annual subway ridership dip below 1 billion for the first time since 1917, rebounded to 1.08 billion by 1994. Subway crime was addressed with increased and more effective policing and the implementation of a zero-tolerance policy toward graffiti/vandalism and fare evasion. He hired William Bratton as his Chief of Transit Police (before its merger into NYPD), who was so effective at reducing crime in the subways that he eventually became the New York City Police Commissioner.

In his 30-year career in public transit starting in 1975 (he formerly worked for the CIA (1963-70) as an operative and public policy expert), Mr. Kiley was selected by then-Massachusetts Governor Michael Dukakis as the new chief executive of Boston's MBTA, where he led an effort to expand rail transit services from 1975-9. After leaving MTA in 1991, he was recruited to become London's Commissioner of Transport for five years by London's Mayor Ken Livingstone. While his relationship with British Prime Minister Tony Blair was a rocky one, Mr. Kiley worked with Mayor Livingstone to improve London's transportation picture and successfully created and implemented "congestion pricing," a system of collecting tolls on vehicular traffic entering London's core, credited with reducing traffic and generating needed revenue for transportation-related projects (***New York Times***, August 9)

MTA Long Island Rail Road

LIRR President Patrick Nowakowski announced that the railroad plans to operate weekend rail service to Greenport on a year-round basis beginning this fall. This would restore winter season service that was discontinued as part of a 2010 austerity measure when MTA was in the depth of a financial bind from the "Great Recession" of 2008-10. Since then, service on the 46-mile portion of the LIRR mainline east of Ronkonkoma had been suspended after the Thanksgiving weekend until the following spring. Local civic and business groups had been pressing LIRR to improve rail service to the north fork of Long Island. (LIRR press release, July 25)

MTA Metro-North Railroad

The last of the M-6-class electric multiple unit commuter cars was shipped out to Frontier Industrial Corporation in Ashtabula, Ohio. Cars 9019-9069-9018, 9010-9065-9061, and 9011 were the last cars to depart MNR. In service for just 22 years, the 48 cars of the Morrison-Knudsen-built M-6 class as well as the 54 Tokyu-built M-4s dating back to 1987 were all retired along with the 232 active General Electric built M-2s dating back to 1973-6 when the 405 Kawasaki built M-8s arrived during 2011-4. Four M-6 cars survive as training facilities for the explosives detection canine unit of the MTA Police in Stormville, New York (cars 9030-1) and the Connecticut Department of Emergency Services and Public Protection (cars 9014-5). *(Editor's Note by Ron Yee: Frontier Industrial is a salvage firm which has an EPA-compliant plant where asbestos and lead paint-laden railcars can be disassembled and scrapped without harm to the environment.)* (Metro-North Railroad press release, July 22)

To support efforts to fortify the infrastructure of the Hudson Line against the damaging effects of future severe storms and hurricanes, reverse peak train service at Philipse Manor and Scarborough was suspended starting August 1 and replaced with bus shuttles connecting with trains at Tarrytown. The suspension is expected to continue into the first quarter of 2017. During this project, which will add or relocate to higher elevations renewed signal, power, and communications infrastructure that can survive intense weather events, only the southbound 8-car high-level platform adjacent to the southbound local track (Track 4) will remain in service. To provide the safest and most convenient access and egress from trains at these stations as well as minimize station dwell times, all peak direction trains will operate on Track 4. The other platform track (Track 3) would be closed for the construction work. Reverse peak electric trains would operate on the southbound express track (Track 2) and bypass these stations. Diesel-powered peak direction express trains would utilize the northbound express track (Track 1). The use of "double bridge plates" across Tracks 1 and 3 was not an option as they would lead to increased dwell times of trains making stops on Track 2 at these stations, as well as prevent the use of Track 1, bottlenecking the line to just two tracks between Croton-Harmon and Tarrytown. Local Trains #703, 705, 707, 709, 711, and 713 are affect-

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Commuter and Transit Notes

(Continued from page 10)

ed in the morning and Trains #770, 772, 774, 776, 778, 782, and 786 are affected in the late afternoon/evening reverse peak periods. New schedules were issued for the Hudson line effective August 1, 2016. *(Editor's Note by Ron Yee: Standard single track length bridge plates are not possible at these two stations as Track 1, the northbound express track, is not equipped with third rail, the byproduct of a mid-1980s economy move while upgrading the third rail and power supply (new 150-pound third rail replacing the New York Central Railroad's 70-pound third rail dating back to 1913 and upgraded/new substations) to only three tracks instead of all four. A deal was made with NYSDOT, Amtrak, and Conrail to leave Track 1 in place but remove the third rail north of Greystone since their trains did not require it. NYSDOT took on a larger share of the maintenance of that track but did not have to pay for the power upgrades. That decision came back to haunt the railroad whenever the northbound local track (Track 3) needed to be taken out of service. It requires major service adjustments such as substitute busing to maintain reverse peak services as well as operating the railroad "left handed" during the PM peak period, creating potential delays when trains must be crossed over against traffic to be "re-sorted" back into normal "right handed" operation in the Bronx as the line approaches the junction with the Harlem Line on the way to Grand Central Terminal and vice-versa. Subsequent projects requiring Track 3 to be removed from service for extended periods created massive operational headaches, resulting in MNR re-installing the third rail between Greystone and Tarrytown on Track 1 during the 1990s and limiting such disruptions only to situations when work needed to be done on Track 3 between Tarrytown and Croton-Harmon. How much it would cost to reinstall the third rail between Tarrytown and Croton-Harmon to finally eliminate this source of operational headaches is unknown. An added bit of history: actually, we are lucky to still have Track 1 as a non-electrified track as the original plan was to reduce the Hudson line to just three tracks north of Greystone, use the extra right of way to "flatten out" the curves on the line for the remaining three tracks, and increase speeds to as high as 90 mph. While it is only a 1.5-mile bus ride between Tarrytown and Philipse Manor, Scarborough is 5 miles by bus from Tarrytown. While it may seem more efficient distance-wise to serve Scarborough with a bus shuttle out of Ossining, just 1.4 miles north, a well-placed source at MNR informed this Editor that the contractor providing the bus shuttles had its own internal operational constraints that dictated that all shuttle buses must connect with the trains at Tarrytown, requiring the longer bus ride to and from Scarborough.)* (Metro-North press release, July 22)

PORT AUTHORITY TRANS-HUDSON RAILROAD

On August 6, PATH began work in the Hudson River tunnel carrying its trains between Hoboken, Pavonia/Newport, and 33rd Street. The tunnel under the river will undergo full repair of damages from Hurricane Sandy and the process of installing positive train control (PTC) on that line will be launched. The weekend outages beginning 12:10 AM Saturdays through 5 AM Mondays are expected to last until December 19. Customers from New Jersey seeking to reach stations on the 33rd Street Line will be able to take a free shuttle bus from the World Trade Center (WTC) station during these outages. In addition, the weekday-only Hoboken-to-World Trade Center Line will operate on weekends to supplement the service to and from New York City during this project (NBC News, August 6)

PATH carried record ridership of almost 7 million people in June, marking a 3.6% increase over June, 2015. The stations recording the highest increases in ridership were Christopher Street in Manhattan and Grove Street and Exchange Place in New Jersey. (***Progressive Railroading***, August 1)

AMTRAK

Amtrak opened its new Metropolitan Lounge at Chicago's Union Station on June 27 following a five-month-long, $7 million project that replaced a much smaller facility built in 1991 on the concourse level of the station. Located beneath as well as above one of the marble staircases featured in the movie "The Untouchables" in what used to be a storage area and an employee break room, the new lounge will be the waiting facility for sleeping car and business class passengers. It features 360 plush seats in a 13,500-square-foot two-level facility, has a street-level entrance with redcap service and an entrance from Union Station's Great Hall. There is a business area with computer workstations, a family area with children's play-space, a "millennial area" featuring high-backed chairs with cell phone accommodations, and a "quiet zone" on each floor for those seeking a quiet experience free from loud conversations and electronic devices. The lounge was unveiled with an open house celebration held on Thursday, June 23. (***Chicago Sun-Times***, June 26)

Amtrak unveiled the launch of its first nationwide magazine, ***The National***, replacing the current ***Arrive*** magazine found aboard most *Northeast Regional* and *Acela* trains. The upscale publication produced by Ink, a United Kingdom-based magazine publisher, will be issued every other month and feature an emphasis on quality travel photographs, long-form journalism with stories about people on the trains and from all around the nation. This will be a change from ***Arrive***'s celebrity interviews and a focus on destinations along the northeast corridor. (***New York Post***, July 25)

Amtrak's 70 new ACS-64 electric locomotives have enabled the railroad to reduce delays by almost 25%. In the 10 months ending July, 2013, there were 1,138 delays attributable to locomotive-related issues. For a similar 10-month period ending July, 2016, there were 857 locomotive-related delays. Advanced self-diagnostics and reporting systems aboard the new locomotives to pinpoint issues before they became major problems and the fact that they are almost new relative to the locomotives they replaced (which averaged of 3.5 million miles when they were retired) were cited as the main reasons for the performance improvement. The ACS-64 fleet cost Amtrak $466 million in the form of a federal loan to be repaid over the next 25 years from net revenue prof-

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Commuter and Transit Notes

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its from the Northeast Corridor. (***Seattle Times***, August 4)

Amtrak is suing Sevier Valley Oil, a Utah-based supplier of diesel fuel for its locomotives, for $242,452 in damages and potential fines. The suit alleges that Sevier Valley Oil had purchased oil from Rock Canyon Oil Company, which blends refined used oil with fresh diesel and the contaminated fuel clogged the injectors of several Amtrak locomotives, resulting in eight stalled trains during April and May, 2011. One train was stranded 100 miles east of Elko, Nevada with no electrical power when both locomotives began billowing smoke and experienced "stack fires," a situation where flames shoot out of the exhaust stacks on the roof of the unit, and had to be completely shut down. Amtrak determined that the engine failures were all caused by fuel contamination and identified the source, tracing the incidents all back to refuelings performed at Salt Lake City. Amtrak is seeking to recoup its expenses from these locomotive breakdowns caused by the bad fuel, including $14,576 in passenger refunds and credits in compensation for late and missed connections, chartering of buses to transport stranded passengers onward, the leasing of a Union Pacific locomotive to tow the train to Elko, locomotive repairs related to all eight incidents, draining the contaminated fuel out of fuel tanks, testing of the fuel to determine the nature of the contamination, and the $48,082 Amtrak had already paid Sevier for the bad fuel. Sevier is disputing the allegations, inferring that the fuel contamination had come from other fuel suppliers in California or Colorado. (***Salt Lake Tribune***, August 5)

Other Transit Systems

Boston, Massachusetts

In an effort to encourage an increase in transit usage and get its employees out of their personal vehicles as a means to reach their jobs, Massachusetts Institute of Technology (MIT) and MBTA have agreed to a novel program of offering free rides to all MIT employees on MBTA subway, light rail, and buses and an increase in the subsidy of commuter rail monthly pass from 50% up to 60% as well as a 50% rebate on parking fees at the commuter rail stations. MBTA "Charlie Card" chips will be embedded into MIT employee ID cards. MIT will pay MBTA the non-discounted fare for every rider the program attracts to mass transit. By increasing MBTA system access and reducing the costs to riders, it is hoped that enough personal vehicles can be removed from the region's congested roadways and employee parking can be reduced by 10% over the next 2 years. A trial run with 1,000 employees in a program called MIT Mobility Pass in 2010 proved successful in shifting many of these commuters to mass transit. It is hoped that other employers and organizations will see the benefit of encouraging transit ridership and follow MIT's lead. (Todd Glickman, news,mit.edu, June 14)

Around 40 residents, business owners, and environmentalists came out to express concerns over plans to expand South Station with seven new tracks and four new platforms to support increases in train operations in and out of the station. Peak period service involves three times the number of train movements when compared to the off-peak periods. Such a differential dictates that additional storage yards must be constructed to permit the midday layover storage of around 33 additional peak period trains. Opponents of this plan are advocating that the monies would be better spent on building a rail link between South and North Stations, eliminating the need for expanded tracks, platforms, and layover yards at South Station by sending trains through to North Station and beyond. (***Boston Globe***, June 9)

MBTA authorized $18.5 million toward preparing the outdoor portions of the Red Line from JFK/UMass to Field's Corner on the Ashmont Line and to Braintree on the Quincy Branch for the upcoming winter season. Track and power infrastructure improvements, including third rail heating systems, track and tie renewals, and the replacement of signaling equipment will make them more resilient to winter weather. The scope of work will require that the Ashmont Line be closed and replaced by shuttle buses for three weekends from October 22 through December 19, 2016 and the Quincy Branch closed for six weekends from September 10 through October 17 and also during the weekend of December 3, 2016, service covered by shuttle buses. (WBGH News, July 25)

Transit and neighborhood advocates have filed a federal complaint over the cessation of late-night service on weekends on key MBTA lines. It is alleged that MBTA used flawed passenger ridership data showing lower than expected ridership as a justification for eliminating the service. Late-night fare evasion has been cited as a possible cause of low ridership figures and may not have been considered in MBTA's analyses. It should be noted that transit, low income, and minority community advocates are citing a flawed "equity analysis" where impacts of transit service changes are required to be evaluated for impacts across an entire community and balanced for income and racial factors. They are pressing the Federal Transit Administration (FTA) to provide an alternative set of services and not necessarily restore the late-night services that had been discontinued in March, 2016. (***Boston Globe***, July 27)

Washington, D.C. area

To facilitate and expedite urgently needed repairs to its aging track and infrastructure, WMATA's General Manager Paul Wiedefeld is seriously considering the elimination of late-night Metrorail service, ending service at 10 PM Sundays and 12 midnight Monday through Saturday. These earlier closures may continue even after its one-year-long SafeTrack program is completed to enable longer time windows to perform the proper levels of maintenance. WMATA Board approval will be needed before the operational hours can be reduced. (***Railway Track & Structures***, July 27)

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Virginia Railway Express reported that it is carrying record levels of ridership, with 23,309 trips recorded on Tuesday, July 12. This is directly due to line closures on the nearby Blue and Yellow Lines of the Washington Metro as emergency track work is performed to address serious safety issues. It is expected that the Manassas Line will see similar spikes in ridership when the Orange and Silver Line services are curtailed by single tracking operations for similar maintenance blitzes. (***Fredricksburg Today***, July 19)

Atlanta, Georgia

The Atlanta City Council has unanimously voted to include a menu of significant Metropolitan Atlanta Rapid Transit Authority (MARTA) transit improvement projects on a ballot referendum, which if approved would fund many MARTA projects with a half-penny sales tax levy that would raise an estimated $2.5 billion over the next 40 years. Among the projects that could be built if the referendum passes is a light-rail line that would connect areas of southwest Atlanta, a transit station at Greenbriar Mall, on-demand circulators that operate in neighborhoods, infill stations, additional fixed-bus routes, and other enhancements and expansion initiatives that would link to the Atlanta Belt Line as well as MARTA's existing bus-and-rail network. (***Railway Age***, June 23 and 27)

The Metropolitan Atlanta Rapid Transit Authority (MARTA) is taking the first steps toward the replacement of its railcar fleet of 318 cars. The original cars date back to 1979 and are nearing the end of the typical 40-year economic lifespan of a rail car. On-board self-diagnostics will make the new cars easier and cheaper to maintain while keeping them in service for longer periods of time between visits to the maintenance shop after a road failure. Improved passenger features may include live graphic displays and maps, more charging stations for passengers' personal electronics, increased Wi-Fi capability, and improved features to accommodate customers with mobility issues and those who are disabled. Each car will have two positions to berth wheelchairs, color-coded priority seating, and an induction loop system for the hearing-impaired. Focus groups will be convened to help determine the final layout of the seating, poles, how they are attached to the car body, and color schemes, establishing the color combinations for the new interiors. An order for 250 cars is expected with an option for 100 more. Interest has been expressed by all ten international railcar builders to bid on a request for proposal later this year. The pilot set of new cars would be expected on the MARTA rails by 2019, with the rest of the order commencing in 2020. Of interest is MARTA's desire to order consists with three-car "triplet" sets with open gangways between cars as well as a provision for pantograph operation over future line extensions that may opt not to use 750-volt d.c. third rail and utilize overhead catenary. There is a question about what will be done for the Green Line with its short two-car platform at Bankhead. In the interim, MARTA is placing a request for bid on a contract that will enable up to 216 of the newer car types to be rehabilitated for a few more years of service until the new cars arrive. (***International Railway Journal***, August 10)

Illinois

The first two Siemens SC-44 Charger diesel passenger locomotives arrived in Colorado for the start of testing at TTCI's Pueblo facility at the end of June.

Illinois Department of Transportation (IDOT) awarded Siemens a $228 million contract in 2014 to supply 32 of the 125-mph diesel-electric locomotives for use on Amtrak services in the states of Illinois, California, Michigan, Missouri, and Washington. The locomotives are being assembled at the Siemens plant in Sacramento, California, and the first units are due to be accepted by IDOT in December. According to a recent report from the committee in charge of procuring the locomotives, there have been very mild delays but should not have an impact with the overall delivery, unlike the bilevel railcars.

The first options for additional units were exercised in November, 2015, when the states of California, Illinois, and Maryland ordered a total of 34 locomotives.

In September, 2014, Florida East Coast Industries subsidiary All Aboard Florida ordered 10 Charger locomotives to operate its *Brightline* higher-speed passenger service from Miami to Fort Lauderdale and Orlando, which is due to be launched next year. Assembly of these locomotives is now under way at Sacramento.

The four-axle, AC-traction Charger is the first locomotive to be equipped with the Cummins QSK95 prime-mover, which is the first locomotive from the factory that meets U.S. Environmental Protection Agency (EPA) Tier 4 emissions standards. *(Editor's Note by Sasha Ivanoff: The states (and Amtrak) need those locomotives badly. The MDBF of the P32AC-DMs that Amtrak uses, for instance, is worse than a NYCT R-type during the worst days of the deferred maintenance era. The 58 that the state DOTs have on order is a small dent in Amtrak's (including state DOTs') nearly 275 active diesel locomotives. However it will allow (if no locomotives will be sold or scrapped) for an increase in spare locomotives and allow for some of Amtrak's (and the state owned equipment) to be overhauled, if economically feasible.)* (***Railway Age***, June 22)

The Northern Indiana Commuter Transportation District (NICTD) has been approved for Federal Transit Administration (FTA) funding toward a $210 million project to double-track the Chicago South Shore Line from Tennessee Street in Gary to just west of York Street in Michigan City, Indiana. It is expected that this will enable NICTD to operate more trains in each direction without having the scheduling restrictions of single-tracking with passing sidings and reduce travel times between Chicago, Michigan City, and South Bend. The FTA approval makes this project eligible for a 50% matching grant to state and local source funding. Once funding is secured from all sources, construction could begin in 2019 and be completed in late 2020, potentially attract-

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ing 5,000-8,000 new daily riders. (***Chicago Tribune***, May 19)

Metra began work to repair and upgrade the 111th Street/Pullman station on the Metra Electric Line. Serving as the gateway to the Pullman National Monument, the improvements are part of the $200 million being spent on the 2016 construction program funding infrastructure improvements to almost 30 stations and over 20 bridges. (Al Holtz, June 27)

Citing financial and funding issues stemming from the withholding of $300 million of capital funding from the State of Illinois toward its capital program, is suspending efforts to seek a builder for up to 350 new gallery-style commuter railcars. The railcar purchase would have consumed around $1.2 billion of a projected $11.7 billion in capital needs over the next ten years. Instead, Metra will focus on its efforts to implement Positive Train Control and explore the options of rehabilitating the oldest members of its gallery coach fleet as well as acquiring and rebuilding surplus/retired coaches from other rail operators. (***Chicago Tribune***, August 10)

Indiana

Indiana Department of Transportation (INDOT), Iowa Pacific Holdings, and the communities served by the ***Hoosier State*** route operating between Chicago and Indianapolis four times a week by Iowa Pacific, celebrated the one-year anniversary of the privatized operation. Ridership data for May and June, 2016 compared to the same months in 2015 show a 60% increase in ticket revenues from a higher level of ridership, a strong and positive response to the improved service. Around 90% of the passengers have rated their experiences with this train as "very satisfied," one of the highest ratings on the Amtrak system. Since October, 2015, on-time performance has been around 82%, a vast improvement over 54% in 2014 and 67% in 2015. Iowa Pacific provides and maintains the locomotives and cars. Amtrak operates the train with its crews, with INDOT providing a share of the annual funding for this train. (***IndyStar***, August 2)

Dallas, Texas

Brookville Equipment shipped off the fourth Liberty-class streetcar to Dallas Area Rapid Transit (DART) during the week of July 25, six months ahead of schedule. This was to enable the Dallas Streetcar line extension to the Bishop Arts District to open, as of press time, in late August, 2016. The line will operate seven days a week with 30-minute headways and is expected to be reduced to a 20-minute headway once the extension is open. (DART, ***Metro Magazine***, August 1)

Fort Worth, Texas

After securing approval from the Federal Transit Administration, officials will be breaking ground to begin the construction of the TEX Rail, a 27-mile commuter rail line that will link downtown Fort Worth with Terminal B at Dallas-Fort Worth Airport via northeast Tarrant County, North Richland Hills, and Grapevine. Service is expected to commence in late 2018 with an expected daily ridership of 8,000 passengers in the first year, potentially growing to 14,000 by 2035. The line will be served by a fleet of eight Stadler Diesel Multiple Units (DMUs) similar to the DMUs on the Denton County A-Line and Austin's Capital MetroRail. (***International Railway Journal***, June 29)

Washington

Many cities and metropolitan regions across the United States on Election Day will be voting on ballot initiatives to increase sales taxes to fund the expansion of rail networks. (Detroit's plan was mentioned in the July ***Bulletin***). The Sound Transit Board has capped three-and-a-half years of discussion and public input by unanimously voting to send voters a final Sound Transit 3 (ST3) ballot measure for consideration in November. The plan's proposals include completion of a regional light-rail network as the area's population grows an estimated 800,000 by 2040. The ST3 plan would build a total of 62 miles of light rail with stations serving 37 additional areas. Improvements introduced following public comment on a draft plan in April would speed up most of the extensions by two to five years. A few of the existing projects would be speeded up., but expansion projects to South Kirkland, Bellevue, and Issaquah would also be built. The plan would expand the capacity of fast-growing *Sounder* commuter rail service linking Seattle with Tacoma and Lakewood, with extension of the line to reach Joint Base Lewis-McChord and DuPont. The Tacoma Link light-rail line would extend from Hilltop to Tacoma Community College.

The ST3 Plan's $53.8 billion in investments would be funded through new voter-approved sales, MVET, and property taxes, with estimated additional $200 annual or $17 monthly costs for a typical adult in the Sound Transit District. If implemented, the ST3 Plan is projected to up to quintuple Sound Transit ridership from what it is today, increasing it from approximately 145,000 each weekday to between 561,000 and 695,000 daily riders in 2040. With ST3, the share of all transit travel in the region on Sound Transit rail lines would grow from 17 percent today to 69 percent in 2040. (***Railway Age***, June 23 and 27)

San Francisco, California

BART unveiled the first of its Stadler-built Diesel Multiple Unit (DMU) trains that will operate over its 10-mile line extension from the current Pittsburg/Bay Point BART station to Antioch that will be built in the median of Highway 4. The $525 million line will be served by DMUs to avoid the much higher costs of extending electrified BART service to Antioch using its current and future fleets of rapid transit commuter cars. All eight DMUs are expected to be delivered by the end of 2016, with extensive testing to be performed during 2017 and a projected opening in the winter of 2017-8. While the line will have a capacity of 2,400 passengers per hour, initial daily ridership is expected to be 5,600 and grow to 10,100 by 2030. (***Railway Age***, July 1)

BART is identifying and working with manufacturer

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Bombardier to rectify several issues that have cropped up since the initial pilot test cars arrived at Hayward Shops in March. Since then three more cars have arrived, with the remaining six of the pilot consist still on schedule for delivery by the end of 2016. The technical issues include the auxiliary power system, which handles all non-propulsion systems such as HVAC (Heating, Ventilation, and Air-Conditioning) as well as the pumps that control the hydraulic fluid to the braking systems. The problems cropped up during the stress testing of each system to determine if it is robust enough to handle 30 years of service. The Auxiliary Power System failed when it was subjected to "longevity testing," where components are run through vibration and shaking tests simulating 30 years of service, other components that are designed to function in a hot environment failed at 300 degrees when a multiple cleaning machines were plugged in and run, blowing it out. All of these issues must be resolved before Bombardier can ramp up to full production of the 775-car order that is still on schedule to deliver 60 cars by the end of 2017, 230 by 2018, 420 by 2019, 610 by 2020, and 775 by 2021. *(Editor's Note by Ron Yee: Noteworthy is that the first test run of the pilot car this past spring experienced a highly publicized brake failure, which caused it to run off a stub-end track at a slow speed and into a sand berm beyond.)* (***San Francisco Chronicle***, August 9)

VIA Rail Canada

A four-year labor contract, retroactive to January 1, was ratified by over 80% of the members of Unifor, the union representing 1,800 of the carrier's 2,500 employees including station, customer service, maintenance, and administrative personnel. *(Editor's Note by Ron Yee: A threatened VIA Rail Canada strike had resulted in the abrupt cancellation of the NYC-Toronto Canada Maple Leaf for several days in early June to prevent the possibility of equipment being stranded in Canada.)* (***Progressive Railroading***, July 14)

Toronto, Ontario, Canada

Bombardier photograph

Metrolinx, the province of Ontario's regional agency overseeing GO Transit, has exercised a C$328 million option for the purchase of 125 additional bilevel commuter rail coaches from Bombardier. The next-generation cars will be built at Bombardier's plant at Thunder Bay, Ontario beginning in mid-2018 with all cars delivered by early 2020. From the Bombardier photo of the prior order of new cars, this order will include additional cab control cars that will be built with energy absorbing structures designed to reduce the impacts of a crash on the train's occupants. (***Metro Magazine***, August 2)

Calgary, Alberta, Canada

John Pappas photograph

John Pappas photograph

Calgary Transit's new fleet of Siemens S200 high-floor LRVs entered service on the city's CTrain light rail network on July 5 in time for the annual Calgary Stampede.

Calgary Transit signed a C$201.6 million contract with Siemens in September, 2013 for 63 S200s, which will support the introduction of four-car operation on the CTrain network and enable the withdrawal of the oldest U2 vehicles, which date from the opening of the system in 1981.

Assembly is being carried out at Siemens' plant in

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SWITZERLAND IN THE LATE SUMMER
by Jack May
(Photographs by the author)

With the summer of 2014 heading towards its end, and realizing we had not done much traveling since our early spring trip to North Africa, Clare and I were trying to decide on a destination to relieve some of our cabin fever when a cheap air fare offer came to us on the internet. Basically, the fare to Milan from the east coast of the U.S. would run some $600 to $750, depending on the date and the carrier, starting in September. But we had traveled in Italy recently and did not want to do that so soon again, so we put on our thinking caps and came up with that country's northern neighbor, Switzerland, as a good choice for clean air, scenery, exercise, and (of course) trains and trolleys.

We selected dates (September 10 to 24) and found that our best deal would come from Swiss International Airlines. Oddly enough, our routing in both directions would be via Zurich, where we would have to change planes, but taking that extra leg to Milan would cut our price by a little over $300 each. We worked on an itinerary, which would be a combination of visits to cities, lakes and mountains. From a railfan point of view, we would be riding standard- and narrow-gauge railways, both adhesion and cog, propelled by electricity and steam, as well as making use of streetcars and interurbans, including even a battery-operated line.

My most recent Bible (Swiss Kursbuch) was from 2002, which was rather out of date, but fortunately the Swiss Federal Railroad (SBB) has an excellent website that makes it easy to access traditional detailed timetables, which are tied into the schedule numbers on Swiss rail maps and the Kursbuch. To plan a trip of this nature, I needed to see full timetables rather than the data that comes from most travel websites, which encourage you to enter From and To stations, and then show only departure and arrival times at those points. So I was planning to buy a new Kursbuch, and with an hour and 40 minutes between flights at Zurich, hoped that I had sufficient time to get to the airport's rail station to buy the three-volume national timetable (two are devoted to buses).

Several pre-departure notes:

1. Swiss International Airlines is a successor in kind to the failed Swissair. Now the flag carrier of Switzerland with its hub in Zurich, it is part of the Lufthansa Group, a member of the Star Alliance (which includes United), and appears to be somewhere between a legacy airline and a budget carrier in terms of costs, amenities and procedures

2. In the summer of 2014 the Swiss Franc was very strong against the U.S. Dollar, making costs somewhat expensive, so we decided to economize by avoiding accommodations near tourist areas in large cities, and instead looked for apartments, pensions, and the like. Since then the Dollar has gained on both the Franc and the Euro, although in the past few months that may have begun to be reversed

3. We also decided to use Swiss Rail Passes, which are sold for a variable number of consecutive travel days. The passes include free transit travel in most cities and provide a discount for rides on most of the expensive mountain railways. With regular fares being high we saved a great deal of money by getting 15-day passes, and also had the ability to make on-the-spot decisions with regard to travel destinations and routings.

Without suffering any trauma, we soon completed the purchase of our air tickets and rail passes, and made reservations for our accommodations, generally through internet sites, although in some cases we had to use email.

Our itinerary called for us to fly to Europe from Kennedy Airport, but return to Newark, so we decided to travel to JFK by public transportation. Mostly, I should say, as Sue and Phil Craig picked us up at about 14:30 and drove us to NJ Transit's Bay Street station, which has high-level platforms, allowing us to roll our carryon-sized bags right onto a commuter car. The 14:55 train was on time, and consisted of an ALP-46 electric locomotive pushing Comet coaches, which meant we would not have to use stairs to reach comfortable transverse seating, as is necessary with the newer Multi-Level equipment. The ride was mostly uneventful, meaning lackadaisical, except that we waited for two trains (one an Amtrak Regional and the other an NJ Transit MLV) to pass on the former PRR high-line before our *Midtown Direct* entered the double-tracked route to Penn Station. As a result we arrived two minutes late, at 15:48.

With the escalators typically running in the wrong direction from the platform serving Track 2, we used an elevator, eventually reaching our first destination, the Hot & Crusty bake shop on the Long Island Rail Road level, where we bought a black-and-white cookie and an elephant ear for sustenance on our trip to JFK and the wait for our flight to load. We just missed the 16:00 LIRR non-stop train for Jamaica, but were accommodated by the 16:03 Babylon-bound train of M-7s, which made all stops (Woodside, Forest Hills, and Kew Gardens) before arriving at the multimodal transfer station at 16:29, three minutes late. Many of the non-stop trains make the run in as short a time as 15 minutes, although most are scheduled for 16. The train was crowded with early rush hour commuters, but not to the extent that our luggage prevented anyone from reaching a seat.

Up the escalator from Track 8 and across the elevated passageway, and we were soon at the turnstiles leading to the Port Authority's Airtrain. For some stupid reason, Senior *Metrocard*s are not accepted for passage on PA

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facilities (including PATH), even though it would be simple to subtract $5 from whatever value is stored on the card for a trip to JFK, so we had to use a regular *Metrocard*, which accomplishes that. I always carry at least one extra, just in case I am traveling with a tourist from another city, and so we added $10 to its value and swiped it twice for our transportation. The ride in the steel-wheeled automated train was swift; we boarded at 16:35 and reached Terminal 4 at 16:49. With boarding passes printed at home we were checked in quickly and then passed through TSA security rapidly as well, reaching the gate at 17:00. This may have been the fastest we've experienced since 9-11.

We had been notified by email that our plane's departure would be 15 minutes late (18:25 instead of 18:10) and that was the case, with the Airbus A330, registered to Swiss subsidiary Edelweiss, pulling away from the gate at 18:18. The Captain of the almost-full aircraft announced "departure in 40 seconds" at 18:35 and soon we were up in the air, right over the junction of the Rockaway Beach and Far Rockaway branches of the Ⓐ train near the Broad Channel station. We then turned sharply left and followed the shores of the Long Island beaches eastward away from the sunset.

Soon we were offered a choice of chicken or pasta, accompanied by an excellent (meaning nut-less) chocolate brownie for dessert. Clare watched Unstoppable (which I recommended; she enjoyed it), while I tuned into as many episodes of the American TV series, House of Cards, as I could. As much as I like Kevin Spacey, I think the British version of the story, with the late, great Ian Richardson, was much better. Before I knew it, it was 6:30 and time for a croissant and yogurt, along with preparation for our arrival in Zurich. It was a good flight although not excellent, as the food was not particularly tasty or well-prepared.

But we were satisfied until after our virtually on-time arrival of 8:03 (8:00). We touched down in rain at 8:01 and it took only two minutes to get to the gate. But then time began to pass quickly as we had to navigate the almost longest walk possible at Kloten Airport, from gate E23 to A74 for our flight to Milan. We also had to wait in line for 20 minutes to get through passport control. I think Europe is getting even with us for all our bureaucratic visa requirements by excluding Americans from the fast EU-only lanes. All in all, the very tedious walk took almost an hour, and I had to skip my planned side trip to the railway station to buy the national timetable.

Anyway, our aircraft pushed off at 9:39 (40) and we were up in the air at 9:49. The plane was an Avro RJ-100 with comfortable 3-and-2 seating, but with such a short flight, the snack and beverage service had to be rushed. We touched down at Malpensa Airport at 10:21 and reached our spot on the tarmac at 10:24. We boarded a bus soon afterward and we were deposited at a gate at 10:35 (35). Give high marks to Swiss for punctuality!

Although we could have ridden the non-stop Malpensa Express MU train to the Cardona station at 10:58, we waited for the 11:13 suburban local, which operates to Centrale, where we would eventually board our train to Switzerland. Operation was on-time, 11:13 to 12:05, although that 52-minute run is much slower than the 35 minutes consumed by Cardona-bound trains.

Before doing anything touristy, we had some housekeeping to accomplish. We acquired Euros at an ATM, checked our bags at the Left Luggage, validated our Swiss Passes (we were worried that this could not be done outside of Switzerland, but were accommodated), applied for and received Italian Railroad Senior Passes, and bought our tickets from Milan to Domodossola, the point where our Swiss Passes would take over. We accomplished that reasonably quickly, and got the half-rate for the rail journey to the Swiss border.

After grabbing light lunches in a station café Clare went off to visit the Poldi Pezzoli art museum, a couple of metro stops away, while I directed my efforts toward streetcars on this partly cloudy afternoon. I bought two one-way tickets for Clare and a day pass for me at one of the many tobacconist kiosks in the station. One of my main objectives was to ride Route 179, the interurban to Limbiate, but I suspected I would miss its 13:27 departure from Comasino, its current inner terminal, which is 7 stops up from Centrale on the M3 metro line. Milan's only remaining interurban line had been cut back on several occasions as the metro system expanded — the system's line to Desio has not been abandoned, but is undergoing a long period of inactivity to allow for its total conversion into a modern LRT operation). See http://www.urbanrail.net/eu/it/mil/milano.htm and http://www.urbanrail.net/eu/it/mil/tram/milano-tram-map.htm for maps. I had looked up the schedule on the internet from home. The next trip was due out at 14:13, and so I took the extra time to photograph some trams near the M3's Zara station, getting a few shots of Peter Witts on Line 33 and Eurotrams on Line 7. Milan's Peter Witt cars are now iconic. Some 500 were built in the late 1920s and 175 are still on the roster, with about 90 to 100 serving 5 of Milan's 17 tram lines. The Eurotrams are similar to the 100-percent low-floor cars introduced in Strasbourg, France and also purchased by Porto, Portugal.

I rode the 14:13 and obtained some photos as well. The mostly single-track side-of-the-road line is still as slow as ever. Dwell times at the stops are very long, with many older passengers struggling to conquer the steep stairs on the high-floor cars, which operate in a driving trailer-motor-driving trailer configuration.

After riding back to Comasino, I took the M3 to Maciachini, 4 stops or halfway back to Centrale and photographed "Sirietto" cars on Route 4. These are short versions of Ansaldo-Breda's 100-percent low-floor Sirio cars, which, in addition to Milan, also run in Athens, Florence, Naples, and Samsun (Turkey), among other cities. Milan's original Sirios contain 7 sections, and these Siriettos were given a diminutive nickname be-

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cause they are shorter with only 5 sections. They are very austere inside, with sickening-looking institutional green plastic seats and fittings, but they have quite a charming exterior, fitting in well with the city's streetscapes. Milan is going back to its attractive 1920s livery of yellow and white with black striping, after its most recent green, which superseded traction orange and an earlier lighter green. This is all reflected in San Francisco, where the ex-Milan Witts on the F-Line roster appear primarily in orange, but with at least one each in the new yellow and the old green. San Jose's Milan car is painted green. I should also mention that all Milan trams are single ended, and there are many loops (in Toronto fashion) at the outer ends of the ATM's 17 routes, although in the downtown area cars are turned by circling along various streets (also like Toronto). There are some wyes as well.

With shadows getting long I got back to Centrale, bailed out our luggage, met Clare and we headed for our train at about 17:05. We found the track easily and then our seats in a second class coach of a EuroCity express whose destination was Geneva. The train was crowded and it contained a dining (restaurant) car, but we chose to relax in our facing reclining seats. EuroCity trains require reservations, which include seat assignments, but it appears that the exact seat numbers are often disregarded by crews and passengers alike, and as long as there are seats available, passengers just sit in any of them. I suspect that if all the seats in a car were occupied, those boarding with a seat reservation would insist on enforcement. This certainly seemed to be the case in Switzerland, where few, if any, trains appear to require reservations, although they may be made for a nominal cost--something desirable for busy travel days.

A note about the railways of Switzerland. One could write a book — in fact many books have been written on the subject. Briefly, like the U.S. and everywhere else in Europe, steel rails were laid throughout the nation, connecting cities with the hinterlands, ranging from main lines to suburban lines and even interurbans, as well as street railways. In addition, because of its mountainous topography, somewhat like that of Colorado, but more pervasive, narrow gauge and cog (rack) railways were also built so that steep grades and narrow passes could be surmounted. The Swiss grew to love their trains, and so riding has remained high through the years and there has been relatively few abandonments. This is not to say that there are not many automobiles in this wealthy country, but their use tends to be relatively limited, possibly due to the lack of land for parking in cities and the population's social/cultural attraction to rail travel.

The "national" rail system is dominated by the federal railway organization, but also includes a number of independent, technically privately-owned lines. For the public this combination is totally transparent, with both national and international through services operating in a coordinated manner without regard to ownership. Also included in the system are some meter-gauge lines. The far majority of mainline trackage is owned and operated by the Swiss Federal Railway, which is known by three sets of initials — SBB (Schweizerische BundesBahnen), CFF (Chemin de Fer Federaux, and FFS (Ferrovie Federali Svizzere) — that correspond to the three major languages of the country.

At present there is no High-Speed Rail in Switzerland, although TGV and ICE equipment, capable of running in the 200 mph range in Germany and France, operate in international service over the rail system. Velocities on Switzerland's excellently graded and maintained track reach as high as 120 mph. Additionally, in many places speeds are being increased, due to investment in several huge infrastructure projects, including the Lotschberg base tunnel (in service) and the Gotthard base tunnel (just completed) that will improve travel times significantly as trains are transferred from older steep and curvy lines through the mountains. Passenger trains on these lines are supplemented by auto carriers, much like those in the Channel Tunnel.

Except for Japan, Swiss rail frequency is the highest in the world, with one-train-per-hour service being the worst case; most lines have 2 to 4 express trains per hour, plus locals threaded in between. On-time performance is inbred, allowing guaranteed connections and only short waits in case of extraordinary circumstances. With a network of this kind passengers do not have to select which train to take in advance; they just get on the next one that comes along. It is like the Pennsylvania Railroad corridor of days past, when passengers in New York City would board the next *Clocker* to reach points like Philadelphia, Baltimore, and Washington, as well as intermediate stations, and did not have to worry about making reservations for even the shortest of trips, which unfortunately they must do today on Amtrak. Or for that matter, they did not have to deal with different organizations with different ticket systems for parts of their journey, as they must today.

Our itinerary included travel on many of these mainlines, making it possible to complete one-day excursions from one end of the country to the other and avoid the inconvenience of constantly changing our accommodations. But, being railfans, we also traveled on local trains, mountain railways, private interurban lines, and streetcars.

That said, we remained in our seats at Domodossola, the last station in Italy. Swiss frontier police canvassed the passengers, checking passports on what may have been either a random basis or profiling. We were not approached, and enjoyed the mountain scenery surrounding the Simplon Tunnel until dusk approached.

Our arrival at Brig was on the advertised, at 19:16. In typical Swiss fashion there was an across-the-platform transfer to an Inter-City train to Bern scheduled to leave at 19:20, along with a connection to an Inter-Regional train to Geneva at 19:28, which would make more intermediate stops than our express, which left for Geneva

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at 19:23.

The station at Brig can certainly be characterized as a Union Station. There are 8 standard-gauge tracks, used by the SBB and the BLS (Bern-Lotschberg-Simplon) railways, served by platforms in the main building, and then two more meter-gauge ones in the forecourt, which are used by the Matterhorn Gotthard Bahn (MGB, a merger of the Furka-Oberalp Bahn and the Brig-Visp-Zermatt Bahn), the route of the famous *Glacier Express*. Needless to say (but I will anyway), all of the tracks had catenary above them, the standard gauge with 15,000-volt, 16⅔-Hertz a.c. (same as Germany and Austria) and this specific meter gauge line with 11,000 volts at the same frequency. The entire Swiss railway system is electrified, except for a small number of tourist and museum lines.

As soon as we were outdoors we spied our hotel, the Europe, and made a beeline for the entrance, across the street. Yes, our room was ready, and we were ensconced there in a few minutes. We were tired, having not been in bed since the morning of our departure from New York, but also hungry. Most of the town's dining spots are in its center, a short distance away. Not wanting heavy Central European food at this time, we soon found a Thai restaurant, and were pleasantly surprised by the delicious dinners we were served. We fell asleep as soon as we hit our bed, at about 22:00.

One of Milan's ubiquitous Peter Witt cars is shown operating on Route 33 near its northern terminal, Piazza Le Lagosta. The 1928-built unit fits in well with the architecture along Via Perasto.

Sirio unit 7111, running on Route 7, is shown operating along Viale Zara as it crosses Viale Stelvio. One of the entrances to the Zara metro station is in the median at right. It is close to its southern terminal, Piazza Le Lagosta, where it will loop with Route 33. AnsaldoBreda began building the Milan's Sirios in 2002.

Two views of the 7-mile-long Milan-Limbiate interurban line. The only such line in service during 2014, its 3-car sets continue to trundle on. Oddly enough they are made up of two control trailers with pantographs sandwiching a blind motor. The cars were built for another interurban line (now replaced by metro line 2) in 1950-4, and were assembled together in 1964, a half-century before this visit. I cannot help loving them. The left view shows Maria waiting for a friend to join her aboard one of the interurban cars at its Comasino terminal. The right photo is of my outbound train waiting for the inbound to pass at the Cassina Amata Scambio stop, a little under halfway along the line.

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Commuter and Transit Notes

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Sacramento, California, and deliveries are due to be completed next year.

The vehicles are known as MASK cars after the exterior design, which was inspired by an ice hockey mask and selected by the citizens of Calgary from three options in a public vote.

The 50 mph, 600-volt d.c. bidirectional single-articulated LRVs are 81.4 feet long and 8.7 feet wide and accommodate up to 247 passengers, 60 of them seated, with two wheelchair spaces and two multi-purpose spaces.

The order is being funded by the government of Alberta, with C$133 million coming from the Green Transit Incentives Program (GreenTrip) and C$67 million from the Municipal Sustainability Initiative.

The Canadian government has provided C$51.3 million through the Building Canada Fund for various improvements to the CTrain network, including C$20 million for platform extensions to enable four-car operation. (***Railway Age*** via Al Holtz, July 11)

Bangladesh

Prime Minister Sheikh Hasina officially inaugurated construction of the first metro line in Dhaka on June 26 at a ceremony also attended by Minister for Road Transport and Bridges Obaidul Quader and Japanese Ambassador Masato Watanabe.

Hasina had previously laid the foundation stone for Line 6 on October 31, 2013. Work is split into six civil and two railway systems packages. The project is being managed by the Communications Ministry's Dhaka Transport Co-ordination Authority, and a consortium of Nippon Koei, Delhi Metro Rail Corporation, Mott Macdonald, and Development Design Consultants is acting as general consultant. Service would be operated by Dhaka Mass Transit Company.

The government is providing 53.9 billion taka of the 219.85 billion taka project cost, with the remainder coming from JICA under a 40-year soft loan agreement signed in 2013. JICA expects to disburse the first quarter of the loan this year.

The 20-kilometer elevated north-south route will link Uttara North and Motijheel. There would be a depot beyond Uttara North at the northern end of the line. The line would be overhead electrified at 1.5 kilovolts d.c. and all 16 stations would have platform edge doors.

A fleet of 24 six-car trainsets is to be procured; bids were due by June 15. The rolling stock would have a maximum speed of 100 kilometers per hour, giving an end-to-end journey time of 38 minutes. Peak headways of 5 minutes are envisaged.

Trial operation on the northern part of the route is expected by the end of 2019, with the full line open in 2024. Ridership is forecast at 483,000 passengers per day in 2021, rising to 1.3 million in 2051.

Line 6 is the first of three planned lines. A feasibility studies for lines 1 and 5 is currently underway. (***Railway Gazette***, June 27)

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Sirietto unit 7509, running on Route 4, is shown along Via Farini approaching Viale Stelvio south of the Maciachini metro station. AnsaldoBreda began building the shorter Milan Siriettos in 2003. These cars are more attractive than the Sirios and are about 15 percent shorter. With additional Siriettos having arrived later, the older ones have been repainted into the new-old yellow color scheme.

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