The Bulletin

Electric Railroaders' Association, Incorporated

Vol. 60, No. 9 September, 2017

The Bulletin

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

For general inquiries, or *Bulletin* submissions, contact us at bulletin@erausa.org. ERA's website is www.erausa.org.

Editorial Staff:
Editor-in-Chief:
Bernard Linder
Tri-State News and Commuter Rail Editor:
Ronald Yee
North American and World News Editor:
Alexander Ivanoff
Contributing Editor:
Jeffrey Erlitz

Production Manager:
David Ross

STATEN ISLAND'S 157-YEAR-OLD RAILROAD
(Continued from August, 2017 issue)

Before the end of 1925, the railroad was able to operate full electric service from St. George to Tottenville, South Beach, and Arlington with 100 new M.U. electric cars. The fleet was composed of 90 motor cars numbered 300-389 and ten trailers numbered 500-509, of which five were eventually converted to motors. Freight was also carried on nearly the entire line, including the non-electrified track extending from Arlington across the bridge to Cranford Junction, New Jersey. Because the passenger service usually operated at a deficit, the company was unable to spend $17 million to extend the third rail in New Jersey and in the yards and to buy electric locomotives.

It was allowed to continue operating steam engines for five years, but the diesel locomotives did not arrive until the mid-1940s.

A 1948 newspaper article reveals that the railroad was operating at a deficit since 1920, except during prosperity in 1927, 1928, 1929, and World War II in 1943 and 1944. The Baltimore & Ohio Railroad kept the Staten Island Rapid Transit Railway running to protect its investment and to insure a controlled entrance into New York for patrons of the line. Value was intangible and could not be estimated. Otherwise B&O freight would be handled by interchange with other railroads with most interchanges taking 24 hours. Staten Island Rapid Transit charged for all freight handled on Staten Island and from Staten Island to Cranford Junction. B&O handled lighterage at St. George. Practically all freight was transported on the North Shore, the East Shore to Clifton, and one round trip on the Tottenville Line south of Clifton. There were a few coal yards on the South Beach Line. The freight revenues offset the passenger deficit.

Buses adjacent to the railroad appeared in the 1920s, but the railroad still made a profit. Several years later, railroad riding declined because of competition from the buses. When the Isle Transportation Company surrendered its franchise on February 23, 1947, the Board of Transportation started operating the buses immediately, retaining the five-cent fare with several five-cent zones depending on the distance. On July 1, 1948, bus fares were increased to seven cents, zone fares were abolished, and passengers could buy a 2-cent transfer valid on subway lines at South Ferry, Manhattan. Of course, they still paid five cents for their ferry ride. Railroad riding declined because the passengers preferred the less expensive bus ride, which caused a $1.5 million annual deficit in 1951. The company applied for abandonment of all three routes, including the profitable Tottenville Line. At the hearing, the Board of Transportation testified that its buses could not handle the crowds on the busy Tottenville Line. After the city invoked an obscure law requiring a railroad carrying passengers and freight to maintain both services, a compromise was reached. The company was allowed to abandon the North Shore and South Beach Lines on March 31, 1953 if the Board of Transportation would increase service on buses adjacent to the abandoned lines.

The North Shore Sub-Division extended along the shore from St. George to Jewett Avenue, then operated a short distance south of Richmond Terrace and across the Arthur Kill on a bridge north of the Goethals Bridge.

The June 17, 1951 timetable lists the following stations and mileage:

(Continued on page 4)

FROM RECOGNITION TO DOMINANCE: THE NEW YORK CONNECTING RAILROAD (BRIDGING THE BAY AND CONNECTING THE PIECES)
by George Chiasson
(Continued from August, 2017 issue)

Electrification Part One—The New Haven's Wires Reach Sunnyside

By the summer of 1917, electrification of the new railway line between the Bronx and Queens was being implemented and the work of installing the remaining catenary supports undertaken from SS-3 (Bungay) to E. 133rd Street and on the length of the Long Island Viaduct from the Hell Gate Bridge to Stemler Street in Astoria where the former Section "A" had ended. Those built into the steel girder structures used riveted steel "knees" as bases that were bolted onto the bridges at 300-foot intervals, while those nearest to Port Morris were drilled into the concrete retaining walls or "planted" in the ground as they approached Bungay Street. On Sections "B" and "E" in Queens, another new series of supports also took shape from Stemler Street to Signal Station 2. These mostly consisted of steel lattice masts set on each side of the embankment (or mounted on steel bases added to girders on bridges) but were interspersed with a few full-size New Haven-style lattice supports where added reinforcement was deemed appropriate. The required electrical facilities were simultaneously built under the supervision of New Haven engineering personnel, including the stringing of wire in a fashion identical to that applied on the Harlem River Branch and the latter-day extension to New Haven. Once again the system was set up to receive an 11,000/22,000-volt feed of alternating current, which was provided by the Sherman Creek generating station (in parallel with Cos Cob) and passed to the new catenary through the existing substation at Bungay Street, which was complimented on the far end by an autotransformer at "Bowery Bay," in the vicinity of Signal Station 2. Even so, when work was finished on this phase of the New York Connecting Railroad the overall electrification remained far from complete. Although wire was added over the entirety of Tracks 3 and 4 across the Hell Gate Bridge and overlapped the Pennsylvania's d.c. third rail through SS-2 to accommodate power swaps, it was placed over Track 5 only as far as the center of the Hell Gate Bridge and tied off; it was not placed above Track 6 at all.

In the meanwhile, the joint Pennsylvania-New Haven *Colonial* and *Federal Express* continued to come by daily under steam, while freight operations of the New Haven, Long Island, and Pennsylvania Railroads were still separated by the incomplete Sections "C" and "D." On June 11, 1917 those first two passenger "liners" were joined by a third, summer-only train known as the *Bar Harbor Express*. This was the Pennsy's first foray into through passenger service to Northern New England, though thanks to the New Haven such had already been available on a full-time basis out of Grand Central (tabbed as the *State of Maine Express*) since 1913, making through travel possible as far as Bangor and the coastal community of Rockland. As might be expected, the seasonal PRR version was an all-Pullman consist and used the Northeast Corridor between Washington and New York. After crossing the New York Connecting Railroad it was then transferred to the New Haven and diverged to their "Norwich & Worcester" affiliate at Groton. At Worcester it crossed the Boston & Albany and finally began a long trip via the Boston & Maine from there to Portland (routed Ayer-Lowell-Lawrence), where it was again furthered to the Maine Central. On that road out of Portland this train actually served two outward terminals — one at Rockland on the Maine Coast via Freeport and Brunswick, the other at the Canadian border municipality of Ellsworth, which was reached by passing through Brunswick, Augusta, and Bangor. On June 29 a through car was added to this special train which was handed off to the Maine Central at Portland and forwarded to the infamous Bretton Woods resort near Mt. Washington in northern New Hampshire, which itself was reached by carriage from a remote location on that company's "Mountain Division."

As though to demonstrate the much-anticipated, long-awaited service dimension availed by the New York Connecting Railroad and Penn Station après achèvement, a short-lived through route blandly named the *Boston-Pittsburgh-St. Louis Express* was initiated on November 24, 1917. This was a mixed Coach & Sleeper consist that passed between South Station, Boston and Union Station, St. Louis (its name inverted in the eastbound direction) by way of Penn Station, North Philadelphia, Pittsburgh, Columbus, and Indianapolis. It traveled an aggregate distance of approximately 1,175 miles, which thus created the longest single "Northeast" route in the annals of the Pennsylvania Railroad. As intimated this service did not exist for very long, being discontinued in the westbound direction on January 5, 1918; despite schedule proclamations, it may have never even operated heading east. A century later we can only speculate on the cause of its seemingly premature demise, but suspicion would have to center on its timeliness across such a long journey, in addition to the two motive power changes and numerous terminal districts the run would have encountered on two railroads. For all the favor bestowed on the potential of "seamless" long-distance inter-company railroad op-

(Continued on page 3)

From Recognition to Dominance

(Continued from page 2)

erations in most recent times (as especially witnessed during the latter-day division of Consolidated Rail Corporation between Norfolk Southern and CSX), it plainly was a concept whose time had not yet come in 1917, despite the previously unimaginable geographic capability that Penn Station and the New York Connecting Railroad were now able to provide between the Atlantic Ocean and the Mississippi River.

New Haven EP-1s were employed on a handful of the two passenger round-trips that were scheduled when the first Hell Gate Bridge electrification from Bungay Street in the South Bronx to Signal Station 2 in Sunnyside was activated on April 1, 1918, but a more forceful implementation had to wait until its next generation of electric locomotives (the "EP-2") could arrive in quantity. The first five such units (0300-0304), which were developed through years of experimentation with prototypes produced by both Baldwin-Westinghouse and General Electric-Alco between 1910 and 1912, had actually been ordered for some time but their arrival was delayed by never-ending design refinements (to improve capability) and wartime foibles. This series of haphazard, unfolding events (which actually represented the rapid evolution of cutting-edge technology in real time as opposed to that already proven) continued even after the first group was on hand in 1919 and it was not until 1922 that EP-2s were routinely assigned to the passenger trains crossing the Hell Gate Bridge. This was a hit-and-miss proposition, however, with steam engines still employed due to the sheer dearth of available electric units. 12 more EP-2s (0305-0316) were at last delivered in 1924 and it appears to be about this time that the turntable was eliminated at SS-2 in favor of a simplified arrangement tailored at the easy swap of two double-end electric locomotives. For the next few years, whenever a New Haven steam engine was (desperately) needed to tote a southbound train across the Hell Gate Bridge (likely an infrequent occurrence by then), it was forced to make a long (and costly) tender-forward deadhead back across the bridge to SS-3, relay, and head into the Harlem River Terminal for turning and servicing. A matching tender-forward deadhead move was then required back to SS-2 so the engine would be in position to catch its next northbound assignment toward New Haven and beyond.

The stable of Pennsylvania-New Haven through trains using the Hell Gate Bridge had grown modestly through the early 1920s, but was still far short of that in the modern era. On March 28, 1920 the existing *Federal* and *Colonial Express* (as well as the summer-only *Bar Harbor Express*) were joined by another pair of trains, the southbound *Quaker* from Boston to Philadelphia and a round-trip between the same two cities identified as the *New England Express* going north and the *Pittsburgh Express* heading south. As might be deduced from its title, the latter offered through cars to and from the Steel City in its consist, which were switched to and from a separate through train at Broad Street station in "Philly" and called at the North Philadelphia station en route. Effective on the same date a short-lived northbound service from the Broad Street station was also instituted under the title *New Haven Express*, serving its namesake city and lasting just under a year and a half until it was dropped on August 15, 1921. For the 1922 season, schedules on the *Bar Harbor Express* were modified to run twice a week in the months of May and September and thrice weekly between early June and Labor Day. Then on June 15, 1924 another new train, called the *Montrealer* heading north and the *Washingtonian* going south, was instituted and in time became an institution of its own. This mixed consist followed the Northeast Corridor to Penn Station, the New York Connecting Railroad to New Rochelle, and then the New Haven to the Elm City, where it diverged through Hartford to Springfield. There, after a "wye" type stop at Union Station the train went north on the Boston & Maine's "Connecticut River" Line to East Northfield, Massachusetts and merged with the Canadian National-controlled Central Vermont Railway. On this railroad it traveled across the length of Vermont through such cities as Brattleboro, Bellows Falls, White River Junction, Montpelier Junction, Essex Junction (with connection to/from Burlington), and St. Albans, then crossed into the Canadian Province of Quebec where it acceded to CN at St-Jean-sur-Richelieu (i.e. "St. John's") and proceeded the rest of the way to Montreal. In general, the number of jointly-operated New Haven/Pennsylvania Railroad passenger trains routed via the New York Connecting Railroad climbed appreciably through the balance of the "Roaring '20s," its rails being graced by such luminary brand names as the *Everglades*, the *State of Maine Express*, the *Senator,* and a Boston-based section of the *St. Louisan*. By the middle of 1930 there were a total of nine (9) southbound and seven (7) northbound through passenger trains roaming across the fully-completed railroad between New Rochelle Junction and Penn Station in Manhattan, a quantity which rose further in the years before World War II.

The New Haven's Harlem River Branch never stopped acclimating to the urban development that swirled around it through the years, with the period surrounding World War I marking a particularly busy time not just in the Bronx but throughout New York City in general. Around 1919 a 6-track-width, steel truss street overpass was added to carry White Plains Road over the tracks between the Unionport Road and the Adams & Van Nest Streets and West Farms Road underpasses, as part of its extension to the East River at Clasons Point. Another occurrence, and as fate had it an extremely crucial event that was not directly related to the railroad, was the addition of the Interborough Rapid Transit Company's "Pelham Line" (presently the ❻ train of MTA New York City Transit). This had conceptually started life as the "East Bronx" route specified under the so-called Dual Contracts of March, 1913, a series of pacts that managed a near doubling of the city's privately-

(Continued on page 6)

Staten Island's 157-Year-Old Railroad

(Continued from page 1)

Between Oakwood Heights and Bay Terrace, March 23, 1963.
Bernard Linder photograph

Bernard Linder at Rose Avenue crossing (New Dorp station), August 19, 1961.
Lawrence Linder photograph

Grant City, looking north, September 6, 1966.
Bernard Linder photograph

Grant City, looking south, September 6, 1966.
Bernard Linder photograph

Jefferson Avenue, looking north, September 10, 1966, before grade crossing elimination.
Bernard Linder photographs

(Continued on page 5)

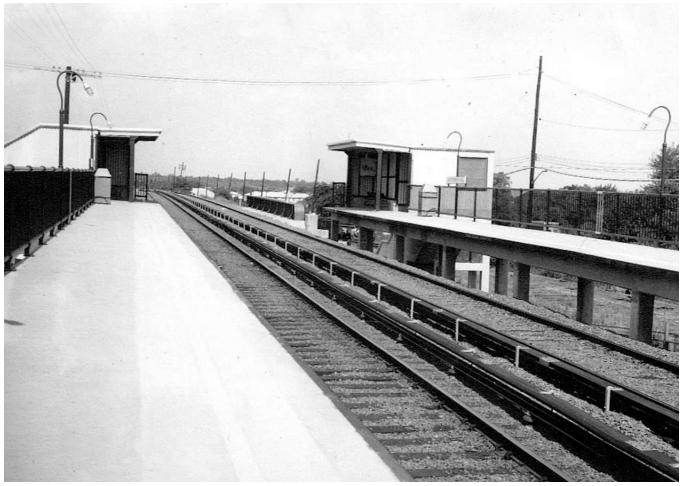
Staten Island's 157-Year-Old Railroad

(Continued from page 4)

Jefferson Avenue, looking south, September 10, 1966.
Bernard Linder photograph

Jefferson Avenue, looking north, August 30, 1968, after grade crossing elimination.
Lawrence Linder photograph

Jefferson Avenue, looking north, August 28, 1968.
Lawrence Linder photographs



Jefferson Avenue, looking north, August 30, 1968.
Lawrence Linder photographs

(Continued on page 20)

From Recognition to Dominance

(Continued from page 3)

operated rapid transit assets in partnership with the City of New York and in time also held profound consequences for the economic welfare of the New Haven and New York, Westchester & Boston. Not surprisingly, the rapid transit line was to remain underground as it navigated its way through the oldest portion of the Bronx after branching off the new Lexington Avenue Subway, which ran up the length of Manhattan's East Side. It would then emerge above ground as it crossed the Bronx River and completed its winding course across the so-called "Annexed District" to a terminal at the edge of Pelham Bay Park. As a result of this alignment it paralleled the Harlem River Branch just one block to the west, under Southern Boulevard from Leggett Avenue to Hunts Point Road (at E. 163rd Street). It then swung beneath Whitlock Avenue and bordered the westerly edge of the right-of-way for about a half-mile until it ramped to a 3-track steel elevated, which made a sweeping eastward turn to continue its course of travel along Westchester Avenue. As completed during 1918 and 1919 (with wartime material restrictions still in effect), this structure had a unique variation applied to its bed of steel, where a twin set of truss bridges were used to avoid the driving of columns into the New Haven-built street bridge across the Harlem River Branch (right at its Westchester Avenue station) and another installed by the city that crossed the Bronx River. One result of this bit of finesse in civil engineering was the unequal placement of elevated columns through the area, resulting in a 100-foot interruption over the railroad and a similar 160-foot open space over the river, but four columns or "bents" stuffed into the 120-foot space between. The imbalance of load stresses this anomaly can create, as heavy subway trains pass back and forth, still engenders a stiff southbound speed restriction approaching the hard left turn into the Whitlock Avenue station (a circumstance that has also created classic photo opportunities across the generations).

Whatever its infrastructural attributes, the extension of IRT service from Third Avenue & E. 138th Street to Hunts Point Road on January 8, 1919 had an immediate effect on utilization of the Harlem River Branch, whose passengers instantly gained the direct access to Lower Manhattan the New Haven was never able to provide itself, and all for just 5¢! This was a bargain that was obviously just too good to pass up, for although yet another change of trains would have been required at 125th Street to get a Lexington Avenue Express (then as now), scores of New Haven and New York, Westchester & Boston riders alike availed themselves of this opportunity at once by strolling about 250 feet between the New Haven and IRT stations. This exodus then rapidly gained in momentum for more than 2½ years until the New Haven finally responded by curtailing its operations at Hunts Point and drastically reconfiguring its trackage inward of West Farms Interlocking (Signal Station 8) effective October 17, 1921. After that time all New Haven locals were forced to relay through the switches at Signal Station 3 (Bungay Street) for their return trip to New Rochelle on a markedly reduced schedule. All-Local service was operated about every two hours, daily, and the use of stations at Casanova, Port Morris, and Harlem River Terminal discontinued entirely by the New Haven. In addition the right-of-way was heavily modified from SS-8 (West Farms) to SS-3 (Bungay Street) wherein Track 3 became Track 1; Track 1 became Track 2; and Track 2 became Track 3, with Tracks 4, 5, and 6 unchanged to create an orderly alignment of 1-2-3-4-5-6 across. New Haven Locals and New York, Westchester & Boston trains were then nominally assigned to Tracks 1 and 2 (westernmost pair) and through New Haven passenger trains to Tracks 3 and 4 (middle pair), while New York, New Haven & Hartford freights bypassed it all on Tracks 5 and 6 as previous. Finally, the northbound platforms at the Westchester Avenue and Hunts Point stations were shifted from Track 4 to the newly-configured Track 2, while the Casanova station was rebuilt with an island platform between Tracks 1 and 2 accessed by a set of stairs off the Leggett Avenue overpass and the (lightly-used) northbound side of the Port Morris station eliminated entirely. Preparatory to these changes the interlocking plant at Signal Station 8 was simplified by the end of 1919, with the four tracks shared by NYW&B and the New Haven's locals being merged to two through the interlocking. Access was then controlled by a pair of double-slip switches in place of the original quadrant of single, facing-point switches that had individually controlled access to and from the main line toward Mount Vernon.

Somewhat belatedly NYW&B had just begun to extend its New Rochelle Branch further east by paralleling rather than using the existing New Haven right-of-way, having reached Chatsworth Avenue in Larchmont (adjoined to the railroad station there) in March of 1921 with an interceding station called Pinebrook (located at the present-day Potter Avenue overpass). Given the preceding death of J.P. Morgan in early 1913, the formerly lavish quantities of capital bestowed upon NYW&B during initial construction were not to be had this time around, but nevertheless it had experienced a steady ridership build-up over nine years in real terms as opposed to its forecast potential. Whatever the case, both of the new stations employed the simplest form of construction (high island platforms made of wood) and quickly became the company's greatest collective source of patronage, a trend which continued as the extension gradually marched east. The new IRT line was also completed all the way to its terminal, but with service being operated in the form of incremental shuttles to minimize rolling stock requirements due to that company's seemingly perpetual shortage of steel cars. Its trains began roving between Hunts Point Road and the E. 177th Street station (now Parkchester) on May 30, 1920, then were extended to Westchester Square on October 24 and finally to Pelham Bay Park on December 20. Truly, these measures likely had little dis-

(Continued on page 7)

From Recognition to Dominance

(Continued from page 6)

cernible effect on New Haven (or NYW&B) operations as the lines were several blocks apart (perhaps a half-mile overall) for the remaining distance that new rapid transit service was an alternative. As time went on these changes in the ridership dynamic also spurred some belt-tightening on IRT, with the Willis Avenue Shuttle to the 129th Street station in Upper Manhattan eliminated on April 15, 1924. Concurrently the Harlem River (née Mott Haven) Terminal itself was appreciably reconfigured with a pair of high platforms installed on the northerly side that were used exclusively by the New York, Westchester & Boston. Each was set between a main track and a siding to yield four terminal irons overall, with access achieved through a "scissors" (diamond) crossover between Tracks 1 and 2, at which the New Haven finally added Signal Station 1 for governance on February 17, 1929. In addition, a long wooden overhead walkway was erected that expedited the existing transfer to the 133rd Street station of the (Bronx) Third Avenue "L" by passing its associated foot traffic above the streets. As it had been since 1886, this method of connection was truly the alternative preferred by the terminal's most devout, rush hour-oriented users. IRT's little shuttle was probably not missed by many customers after it passed away, though the company kept its terminal trackage active for special moves and rolling stock deliveries until about 1942, when it was dismantled to support the United States government's World War II scrap metals drive. *(Continued next issue)*

ERA 207TH STREET SHOP TOUR
by Ronald Yee

On Saturday, August 5, the Electric Railroaders' Association conducted a tour of MTA New York City Transit's 207th Street Shop. One of the two main repair and overhaul facilities in the system (the other main shop is located at Coney Island), this facility not only serves as the maintenance base and "northern" storage yard location for A C (their "southern" yard is at Pitkin Yard in Brooklyn) and is tasked with heavy maintenance as well as overhaul of around half of the subway car fleet, from both Subdivision "A" (former IRT) as well as Subdivision "B" (former BMT/IND). Hosted by General Superintendent-207th Street Shop Rosamond Duff and led and narrated by Superintendent William Allcot, the ERA group was able to view and photograph Subdivision "A" R-62 and R-62A cars and Subdivision "B" R-32, R-46, and R-160 cars. A real treat for the group on this tour was the opportunity to see much of the Transit Museum fleet that has recently operated out on excursion trains around the system. Just outside the shop building's doors were the four IRT Lo-Vs and R-9 1802 leading the three-car set of B-Type "Standards" 2390-1-2, R-10 3184, R-16 6387, R-11 8013, and the Train of Many Metals (TOMM) led by slant R-40 slant 4281-0, and a pair of R-30s (8481/8522) set aside from work service. Several of the "Arnine" cars used for the annual "Holiday Train" operated between Thanksgiving and Christmas on the Sixth Avenue (former IND) Line were laid up adjacent to the main shop building and the former IRT Train of Many Colors made up of mainline R-33-class cars was parked on a distant track across the yard closer to the Harlem River. In the shop were two SMEE cars including R-17 6609, which was moved out of the Transit Museum to 207th Street Shop for mechanical inspection prior to a return to service, possibly in the consist of Transit Museum's Train of Many Colors (TOMC) excursion on 7 scheduled for August 19. That excursion train may turn out to be the final run of the TOMC on 7 as it was mentioned during the tour that the initial stages/line segments of the new signal and control system known as Communication-Based Train Control (CBTC) is slated for cut-in sometime in October, after which trains not equipped with CBTC will be prohibited from operating in passenger service on that line. On two other shop tracks were single R-33 9331, probably being prepped for conversion to Subdivision "C" work service, and a single R-33 (possibly 9307 based upon markings on the trucks) undergoing major body work, patching and repairing the numerous locations of rust damage largely stemming from both 53 years of being based at and stored outdoors at Corona Yard adjacent to a tidal salt marsh and a decade of washes with muriatic acid and later on, a citrus-based wash solution in a futile effort to remove graffiti in the mid-late-1970s to mid-1980s. Another surprise was seeing R-1 103 parked just north of the shop building undergoing restoration efforts. That particular car is unique in that it has a lower, flat interior ceiling modified to accommodate axial fans with fan covers (similar to those that would first appear on Subdivision "B" with the R-16) shielding the blades and a modified clerestory roof with horizontal louvered vents serving as intake vents for the fans. Last but not least, a set of newly delivered R-179s was in the shop being prepared for operation on NYCT track. At a glance, one can differentiate the R-179 from the R-160 by looking at the grab irons on the left front face of the lead car. The R-160 has the grab irons mounted on the black facing on the front, a few inches inward from the left edge, while the R-179s' left front grab irons are mounted much closer to the left edge on the silver-colored frame. The R-179 trucks are also quite different from the R-160, axle mounts equipped with angled side springs similar to radial trucks on some newer light rail vehicles and freight locomotives.

Commuter and Transit Notes

No. 345

by Ronald Yee, James Giovan, and Alexander Ivanoff

Metropolitan Transportation Authority and Port Authority of New York & New Jersey

Summer, 2017 was a watershed period where several New York area agencies underwent regime and leadership changes. Joe Lhota took over the reins of MTA, returning to his former role as MTA Chair in late June, and Metro-North Railroad President Joseph Giulietti retired on July 25, a month earlier than had been previously announced this past spring. Metro-North Executive Vice President Catherine Rinaldi was designated by then-MTA Interim Executive Director Veronique Hakim as Acting President of the railroad until a permanent replacement is found. On August 1, the Port Authority of New York and New Jersey (PANYNJ) jumped onto the bandwagon of leadership change when Kevin J. O'Toole was named Chair of the Board of Directors and Rick Cotton named as Executive Director by New York State Governor Andrew Cuomo and New Jersey Governor Chris Christie. Mr. O'Toole had already joined PANYNJ as a Board member in July and is a former Republican New Jersey State Senator who has close ties with Governor Christie. The prior PANYNJ Chair was John Degnan, who had clashed with Governor Cuomo over the plans for the new Port Authority Bus Terminal on the west side of Manhattan. Mr. Cotton was Governor Cuomo's Special Counsel for Interagency Initiatives, overseeing many New York infrastructure projects, including the new Tappan Zee Bridge. O'Toole and Cotton will resume the search for a new PANYNJ Chief Executive Officer while they oversee several new projects including the new terminals at LaGuardia Airport, John F. Kennedy Airport renovations, and a new bus terminal replacing the outdated midtown Port Authority Bus Terminal in midtown Manhattan.

Cotton replaces Patrick Foye, who has been appointed by MTA Chair Joe Lhota to the newly-created position of President of MTA. Foye, a former MTA Board member (2010-2) prior to his stint at PANYNJ, returns to MTA and will take on a leadership role in key innovation and modernization initiatives by MTA. Veronique Hakim was appointed Managing Director of MTA (another newly-created position) and will be responsible for MTA's operations; these moves at MTA will give Governor Cuomo a strong degree of influence at both MTA and PANYNJ. (***New York Times***, ***New York Post***, August 1)

MTA Long Island Rail Road

New York State Governor Andrew Cuomo provided a full summary of ongoing and upcoming capital improvement projects on LIRR valued at $5.6 billion that will transform the railroad for the 21st Century. First and foremost is the $2 billion Main Line Third Track and Grade Crossing Elimination Project over a 9.8-mile section of the Main Line between Floral Park and Hicksville that will finally enable LIRR to offer reverse peak train service throughout the rush hours. Currently, reverse peak service is suspended for around 90 minutes during the peak of the rush hours as LIRR requires the use of both tracks in the peak direction. The third track will also enable an increase in trains during peak hours and add flexibility into the overall operation of the railroad. The seven grade crossings on that stretch of track will be eliminated. A $387.2 million project to fully double-track 12.6 miles of the Ronkonkoma Branch is currently underway with an expected completion date of Summer, 2018, 16 months ahead of MTA's original expectation. This will enable an increase in the frequency of service on the line, currently constrained by long stretches of single track, limiting service options. To support the increased service levels, a new $128 million Mid-Suffolk County Storage Yard will be built in Ronkonkoma to provide for the maintenance, inspection, and servicing of the increased number of trains. The yard will have 11 additional tracks and a 28,000-square-foot command facility. There will also be a $375 million project to reconfigure and improve the tracks as well as upgrade the signal system at Jamaica Station. This will permit higher speeds, increased train capacity, and new and extended platforms. Ultimately, this reconfiguration will provide the option of converting the Atlantic Branch to Atlantic Terminal in Brooklyn into a shuttle service out of Jamaica. There will also be enhancements made to 39 stations and upgrades of 13 electric power substations, bringing them up to 21st Century standards. Lastly, the $1.6 billion, 225,000-square-foot Moynihan Train Hall will rise from the conversion of the United States Postal Service's Farley Post Office into a first-class passenger rail facility shared with Amtrak and NJ Transit in 2020 and tie in closely with the Gateway Project. That project will construct two more tunnels under the Hudson River and allow for the repair and upgrading of the 100-year-old pair of existing former Pennsylvania Railroad tunnels that were flood-damaged by Hurricane Sandy and are in danger of structural failure. The recently opened West End Concourse with entrances near Eighth Avenue is the first step of the Penn Station renewal. (***Railway Track & Structures***, July 20)

LIRR announced some adjustments to its alternative transportation options for the remainder of the Penn Station track reconstruction program which, at the time this ***Bulletin*** is going to publication, is still on schedule for completion Labor Day weekend with a restoration of normal weekday peak period train service for not only LIRR but NJ Transit and Amtrak on September 5. Based upon ridership and utilization data of these alternative services to Manhattan, it became evident that many LIRR customers responded to this summer's service changes by taking advantage of the discounted fares to Atlantic Terminal and Hunterspoint Avenue and connecting with subway lines into Manhattan. Many others were

(Continued on page 9)

Commuter and Transit Notes

(Continued from page 8)

accommodated by the lengthened consists of the trains that continued to serve Penn Station. The temporary East River ferry service from Long Island City to the 34th Street ferry pier and the shuttle bus connecting it to the LIRR Hunterspoint Avenue station was discontinued. The alternative bus option from five park-and-ride lots to two stops on 34th Street between Lexington and Third Avenues and between Seventh and Eighth Avenues adjacent to Penn Station was reduced to hourly, no longer requiring 200 buses to cover, departing at 6 AM, 7 AM, 8 AM, and 9 AM and departing Penn Station every hour on the hour from 3 PM to 7 PM. (MTA press release, July 29)

NJ Transit

On Friday, July 29, an errant garbage truck too tall to fit under the NJ Transit overpass at River Road slammed into the structure with enough force to dislodge the bridge girders from their foundation mounts and shift the track on it by around two feet. Service on the Atlantic City Line was suspended between Philadelphia and Cherry Hill and customers were diverted onto substitute bus services and PATCO's Lindenwold Line. Atlantic City Line tickets were cross-honored on PATCO and NJ Transit's *RiverLine* as well as all southern New Jersey local bus routes. The process of inspecting the steel structural members of the former Pennsylvania Reading Seashore Lines (PRSL) bridge for structural integrity and then moving it laterally back into the proper position and replacing the displaced track is expected to take at least two weeks. Service on the line was quickly restored by instituting a "bus bridge" between Philadelphia and Cherry Hill, where passengers would transfer onto trains for service eastward for travel to Atlantic City and intermediate points. *(Editor's Note by Ronald Yee: Rail service between Atlantic City and Philadelphia was apparently restored by Tuesday, August 1 with trains operating through the area on a single track, utilizing the Atlantic City-bound track while repairs were made to the damaged track and bridge based on a photo report from member Bob Vogel, who recorded several digital images of the single-tracking operation at the Pennsauken Transit Center station and coming over the Delair Bridge.)* (CBS Philadelphia, July 30)

Amtrak

Amtrak's Great Dome Car, the rail carrier's sole remaining full length dome car, will operate on select *Downeaster* trains between Boston's North Station and Brunswick and Portland, Maine until September 24. Built in 1955 as one of 6 full-length dome cars for the Great Northern Railroad, Amtrak Great Dome Car 10031 is now part of Amtrak's business car fleet and operates seasonally on select routes that are considered scenic such as the *Pacific Surfliners*, the *Downeaster*, and the *Adirondack*. The Great Dome Car is scheduled to operate on the following trains: Monday-Friday on #682, 683, 688, and 689. Saturdays on #692, 693, 696, and 697, and Sundays on #690, 691, 698, and 699. *(Editor's Note by Ronald Yee: While not yet officially announced, this car is expected to operate on Amtrak's* Adirondack *between Albany-Rensselaer and Montreal, Canada beginning late September until late October. In past years, the dome operated on northbound train #69 Thursdays, Saturdays, and Mondays and on southbound Train #68 on Fridays, Sundays, and Tuesdays It did not operate on Wednesdays.)* (Amtrak press release, August 16)

Miscellaneous

On July 29, Disneyland reopened its reimagined railroad-themed ride attraction over a new routing that follows a new scenic route along the north bank of the Rivers of America, traversing stunning new rockwork and waterfalls, providing guests with breathtaking views along both sides of the train. (Disney press release, July 28)

Industry

General Electric's Transportation Division plans to end most locomotive production at its century-old plant in northwestern Pennsylvania, resulting in the elimination of around 575 jobs. The locomotive production lines are expected to be transferred by the end of 2018 to a new plant in Fort Worth, Texas that is staffed by a non-union workforce. Earlier this year, General Electric announced it was cutting 250 positions at its Fort Worth plant, as demand for new locomotives has waned due to a drop in freight rail traffic nationwide, leading railroads to idle hundreds of surplus locomotives and store them off the main lines. About 225 employees at the Fort Worth plant would be recalled, and as many as 200 other jobs would be created at General Electric suppliers around the country. Employees at Fort Worth are not members of a union, while those in Erie are. (Associated Press, July 29)

Siemens announced on August 9 that it is establishing a new locomotive service hub at New Castle, Delaware, to remotely monitor the operation of Siemens locomotives across the United States.

Siemens Digital Rail Services staff based at the 43,000-square-foot facility will remotely collect and analyze information from over 800 data points on each locomotive every day.

The site will monitor in real time the operation of more than 140 diesel and electric locomotives for customers including Brightline in Florida, Amtrak, Maryland Transit Administration, Southeastern Pennsylvania Transportation Authority, and Illinois Department of Transportation.

Siemens will gather data on the condition of equipment, operational metrics, and environmental conditions, which is streamed automatically and continuously from the locomotive. This data can then be used to help diagnose fleet issues and develop predictive maintenance regimes so issues can be identified before they become a problem.

Siemens is already monitoring Amtrak's fleet of 70 ACS-64 locomotives using its Smart Cockpit software, which helps to analyze and flag any issues that might require technical attention. Siemens staff review flagged items and recommend actions, which are then relayed directly to depots along the Northeast Corridor.

(Continued on page 10)

Commuter and Transit Notes

(Continued from page 9)

Siemens says the data collected from these locomotives has been used to design and implement software updates for the ACS-64 fleet. (*International Railway Journal*, August 10)

OTHER TRANSIT SYSTEMS

BOSTON, MASSACHUSETTS

A veteran executive from General Electric and a business turnaround expert will lead the Massachusetts Bay Transportation Authority starting September 12. The Boston transit agency has appointed Luis Manuel Ramirez as its new General Manager and Chief Executive Officer. Ramirez has over 30 years of experience in executive and business leadership and most recently managed a strategic and turnaround business consultancy firm. Before managing his own firm, Ramirez worked at General Electric from 2000-12, where he was promoted into numerous executive leadership roles. He wrapped up his career as President of the company's energy industrial solutions business. MBTA leadership believes Ramirez' executive experience will help transform the agency into a more efficient and effective organization.

"I am excited about joining a great team at the 'T' to build upon the progress they have already made," says Ramirez. "Going forward, we need financial discipline, we need operational excellence, and we also need strategy. But in everything we do, the overriding objective will be to put the customer first," said Ramirez. (trn.trains.com, August 16)

BALTIMORE, MARYLAND

The Maryland Board of Public Works (BPW) approved a $400.5 million contract to replace railcars and enhance safety components on the Maryland Department of Transportation's Maryland Transit Administration Metro SubwayLink system.

The $400.5 million contract was awarded to Hitachi Ansaldo Baltimore Rail Partners.

MDOT MTA Metro SubwayLink service began service in 1983 and the railcars and train control system currently in use are 35 years old and at the end of their useful life. The operation of these outdated vehicles presents challenges in ongoing maintenance due to long lead times for spare or unavailable parts, which ultimately reduce the reliability of train service.

The replacement project will provide a fleet of 78 new railcars operating under a new state-of-the-art train control system. The new railcars will be more reliable and more energy efficient, and provide enhanced passenger security and customer service capabilities. The new railcar motors are more energy efficient and require less maintenance.

The vehicles will also have environmentally friendly LED lighting and air conditioning refrigerant and a new passenger information system that will provide riders with real-time travel information, with more comfortable and aesthetically pleasing train interiors equipped with bicycle tie-down areas. The cameras on board the railcars will be viewable in real time by MTA Police and tie into MTA's homeland security video surveillance system. The new train control system will incorporate Communication-Based Train Control (CBTC) technology.

The system allows precise automatic operation, allowing trains to operate at maximum allowable speeds under all conditions, providing for more consistent travel times. The system will provide MTA's Train Dispatchers and Maintainers with real-time performance and fault annunciation, reducing the time to restore normal operations during a system fault. *(Editor's Note by Alexander Ivanoff: The Baltimore cars are nearly identical to the ones currently scheduled to be delivered to Miami (also from Hitachi), so it is almost a stone's throw to the past when both agencies were building their subways at around the same time AND both purchased the Budd Universal Rapid Transit Car (BURT). It is interesting that Baltimore, which just renovated its fleet, is now going ahead with their replacements. I would hope that Atlanta (MARTA) considers the Hitachi cars as a replacement for its fleet; however, MARTA has had a negative experience with Hitachi Ansaldo's predecessor Breda (but not with Hitachi proper) so it is anyone's guess as to how MARTA will proceed replacing its railcar fleet.)* (MTA Maryland press release via ***Mass Transit Magazine***, July 31)

DURHAM, NORTH CAROLINA

On July 28, the Federal Transit Administration approved moving the $2.47 billion, 17.7-mile Durham-Orange light rail project into the engineering phase, the last design piece before learning whether the counties could get 50 percent of the project's funding by 2020 from the federal government.

The final federal decision also depends on the project getting up to 10 percent of its funding from the state and the remaining 40 percent from regional partners — roughly $890 million, plus interest on short-and-long-term debt. GoTriangle plans to repay the debt through 2062.

The local split is estimated at $316.9 million for Orange County taxpayers and $1.5 billion for Durham County taxpayers, largely from vehicle registration fees, car rental fees, and a half-cent transit sales tax. Officials also are working with the public-private Funding and Community Collaborative to secure land and cash donations.

GoTriangle announced FTA's decision in a news release on the same day. The project was submitted for consideration in April, but federal budget discussions this Spring cast doubt on whether the money in FTA's New Starts and Small Starts programs would be there for major transit projects nationwide.

GoTriangle officials noted the project got favorable ratings in three major areas — local financial commitment, project justification, and engineering readiness. The project was measured for its mobility improvements, environmental benefits, congestion relief, economic development effects, land use, and cost-effectiveness.

The GoTriangle Board of Directors was scheduled to

(Continued on page 11)

Commuter and Transit Notes

(Continued from page 10)

meet the first week of August to discuss the project's rating and FTA requests and what those mean for the project, GoTriangle spokesperson Juan Carlos Erickson said. The $70 million engineering contract was approved this Spring and the work is in progress.

Meanwhile, the Durham-Chapel Hill-Carrboro Metropolitan Planning Organization plans to resubmit the project for North Carolina Department of Transportation funding. The project remains on track for construction in 2020, with service beginning in 2028, GoTriangle officials said.

If built, the light rail line would link UNC Hospitals in Chapel Hill with Duke and North Carolina Central Universities in Durham. The plan includes 18 stations connecting residents to education, work, home, and retail centers. (***The Herald-Sun*** (Durham, North Carolina) via ***Mass Transit Magazine***, July 31)

Atlanta, Georgia

Police Officers at the Metropolitan Atlanta Rapid Transit Authority Police Department are punishing riders who try to skip paying fares. The agency's Police Department has arrested 538 people during a recent six-week operation goaled at addressing the problem. Plainclothes Officers have been located at fare gates across the agency's 38 rail stations to watch for fare evaders. Anyone arrested for trying to board a train without paying was automatically given a 60-day suspension from using MARTA's rail and bus system. If the evaders were unable to produce a valid identification, they were sent to jail. MARTA General Manager and Chief Executive Officer Keith Park says the agency takes fare evasion seriously and is committed to ensuring the safety and security of its customers. The agency did not comment whether its police would continue monitoring fare gates after the initial six-week effort. MARTA's rail system has about 48 miles of commuter rail serving downtown Atlanta and its nearby suburbs. (trn.trains.com, August 8)

Nashville, Tennessee

As Nashville Mayor Megan Barry's administration is pursuing the first spoke of a light rail system in that city, a new report shows how the entire five-corridor network could work, what it might look like, and where Metro faces construction and right-of-way challenges.

These details are laid out in the new "high-capacity transit briefing book" released by the Metro Transit Authority on August 11 that found "no fatal flaws" in developing high-capacity along the five corridors. The report's release completes the final phase of the region's nMotion transit plan, which outlines a proposed $6 billion transit system for Middle Tennessee over the next 25 years.

Barry has already proposed moving ahead with new light rail service on Gallatin Pike and Main Street in East Nashville. She wants to hold a public referendum in May, 2018 that would let voters decide whether to dedicate new tax revenue to pay for transit projects.

Nolensville Pike, Murfreesboro Pike, and Charlotte Avenue are also identified for light rail in the nMotion plan, while Dickerson Pike is targeted for bus rapid transit.

Though the report — led by the transportation planning firm Nelson/Nygaard Consulting Associates and HDR, Incorporated — found no major issues that would prevent the construction of high-capacity transit on any of the corridors, it did identify what it calls "pinch points."

These are challenges where transit design would require "intense collaboration" among project designers, neighborhoods, adjacent property owners, the Tennessee Department of Transportation, and other stakeholders such as the railroad CSX.

The study says that Murfreesboro Pike is currently the most equipped to handle new transit construction, followed by Gallatin Pike and Charlotte Avenue. (***The Tennessean*** (Nashville, Tennessee), August 11)

Hammond, Indiana

Local and state governments have pledged their financial backing for the South Shore Line's biggest projects in decades. Soon the decisions — whether to build the 9-mile West Lake extension from Hammond to Dyer and the 25-mile double-track project from Gary into Michigan City — will be up to a federal agency. Based on preliminary evaluations, NICTD General Manager Michael Noland told the NICTD Board he expects "medium-high" ratings on both projects from the Federal Transit Administration. Last year, he said, every project with a "medium" rating and higher received FTA approval.

West Lake would be the South Shore's first expansion in more than a century, and NICTD says adding a second set of tracks to Michigan City would improve the railroad's speed and reliability. FTA funding, if approved, would pay 50 percent of each project's cost.

NICTD will formally submit its projects for FTA ratings in September. The results could be announced in mid-October, with land acquisition commencing at the end of the year upon a favorable rating from FTA along with preliminary environmental approval.

The NICTD Board agreed, passing resolutions that authorize real estate acquisitions for both projects.

The largest number of acquisitions will be in Hammond, for West Lake, and Michigan City, for the double-track project — about 60 properties in each city, Noland said. About 10 homes in Munster could be taken.

Noland said NICTD has been working with local officials in each community affected by the projects.

The last local funding agreement for the $290 million double-track project came in August, when the St. Joseph County Council agreed to finance its county's share. And more recently, the Hammond City Council voted to commit 15 percent of its share of county income tax money for the next 30 years toward the $605 million West Lake project, half the amount that community originally promised.

The Indiana Legislature and most Lake County cities and towns, plus the county, have made financial com-

(Continued on page 12)

Commuter and Transit Notes

(Continued from page 11)

mitments for West Lake, along with a grant from the Indiana Department of Transportation.

The double-track project would further improve crossing safety in Michigan City, Babin said, by eliminating more than 30 crossings that have only crossbucks or flashers and installing 10 with flashers and gates.

Noland said rerouting the South Shore tracks to South Bend Airport would cut 10 minutes from the running time and eliminate 16 or more at-grade crossings. South Bend has offered to pay for the project, but NICTD also might seek a federal grant. (***Post-Tribune*** (Merrillville, Indiana) via ***Mass Transit Magazine***, July 29)

Morrison, Missouri

Union Pacific officials are trying to figure out what caused an eastbound UP freight train to rear end another freight train near Morrison in central Missouri on August 15, the Associated Press reported. According to a railroad representative, one Conductor was transported to a nearby hospital with non-life threatening injuries as a result of the incident. No other injuries were reported. At least two locomotives and nine freight cars derailed in the rear-end collision. Both trains were carrying a mix of cargo, but no hazardous materials were involved. In addition to slowing down freight operations between St. Louis and Jefferson City, Missouri, the derailment delayed Amtrak's *Missouri River Runner*. Buses provided substitute service to passengers affected by the track closure. UP and officials from the Federal Railroad Administration are investigating the derailment.

The derailment took place on the railroad's ex-Missouri Pacific rail line connecting Jefferson City and St. Louis. (trn.trains.com, August 16)

Dallas-Fort Worth, Texas

Irving-based Fluor Enterprises and Lane Construction Corporation have been chosen to help with the design and construction of the high-speed rail line that will carry travelers between Dallas-Fort Worth and Houston, developer Texas Central Partners said on August 14.

The announcement comes after more than three years of development by Texas Central, the private company behind the $12 billion-plus venture. The project will be backed by private investors, and the company has pledged not to pursue federal or state government grants but said it may seek loans from existing transportation credit programs.

The 240-mile high-speed rail line would take travelers between the cities in less than 90 minutes, with trains departing every 30 minutes during peak periods. The line, which could follow one of several routes, would wind down to Harris County and back at 205 miles per hour. Currently, the company is awaiting the results of an environmental impact statement for a preferred routing.

Dallas' station could be placed just outside of downtown, with the goal of tying it into the Dallas Area Rapid Transit network. Construction is expected to begin in late 2018 or early 2019, and the train could be open for travelers several years later.

Lane Construction is a subsidiary of the Italian construction and civil engineering company Salini Impregilo. Fluor is a multinational engineering and construction firm. The selected companies will be working with Texas Central to refine and update the project's construction plans, schedule, and cost expectation, according to the news release.

Texas Central's news release said it had agreed on Fluor and Lane as the project's preferred "design-builder." A final decision will be made once the design, schedule, and implementation are reviewed and approved. Texas Central plans to use the N700-I bullet train system — the same one used by the Central Japan Railway Company on its Shinkansen Line between Tokyo and Osaka, with competitive fares. The Mayors of Dallas, Fort Worth and Houston have supported the project. Combined, the metropolitan areas of the three cities account for about 13.1 million of Texas' 28 million people.

A 2015 impact study commissioned by the company estimated the project would spur $36 billion in economic benefits over 25 years. An estimated 10,000 jobs a year would be created over four years of construction, and the company would hire 1,000 permanent employees, the study said. The bulk of the criticism of the project is directed at the eminent domain factor, viewing the railroad as a nuisance. An opposition group has worked with very limited success to block the project.

Texas' relationship with high-speed rail dates back to the late 1980s, when the State Legislature created the Texas High-Speed Rail Authority to select a group that would build the system and granted the powers of eminent domain.

The French-American group Texas TGV Corporation was awarded the project but failed to raise money and the franchise was revoked. Plans crumbled in the early 1990s under the weight of the cost and from opposition from air carriers in the state.

Between Texas and California, there is currently a high-speed rail "space race" to see which Sun Belt state can complete its project first. (***Dallas Morning News***, August 14)

Stadler has completed the first Flirt multiple-unit to be assembled in the USA at its plant at North Salt Lake in Utah. The DMU for the TEX Rail project will be officially unveiled at the APTA Expo in Atlanta in October.

In 2015 the Fort Worth Transportation Authority signed a $100 million contract with Stadler for the supply of eight DMUs. This was Stadler's first contract to include federal funding and was thus subject to Buy America regulations requiring 60% of the contract value to be sourced in the United States. The bodyshells and bogies are being produced in Switzerland, with final assembly taking place in Utah.

Groundbreaking ceremonies for the TEX Rail commuter route were held in August, 2016. Due to open in

(Continued on page 13)

Commuter and Transit Notes

(Continued from page 12)

2018, the 26-mile line would link central Fort Worth with Dallas-Fort Worth International Airport. Around half of the $1 billion cost, which includes rolling stock, is being met from federal sources. (***Railway Gazette***, August 3)

San Francisco, California

Bay Area Rapid Transit (BART) has entered the next phase of the road testing of its new trains. Test trains are now making test runs during regular business/daylight hours on all lines. Prior to this stage of testing, the new trains had been operating on designated test tracks and on the mainlines only during the overnight hours. Now, while the trains may actually stop at stations and cycle their doors open and closed, simulating regular passenger service, signs aboard the cars will inform waiting passengers on the platforms that they are not in service. Upon successful completion of a series of 16 tests mandated by the California Public Utilities Commission, it is expected that the first of the 775-car order for new trains built by Bombardier of Plattsburgh, New York will enter regular passenger service and begin the process of gradually replacing the existing fleet, the oldest rapid transit fleet in North America. 35 cars are expected to be in service by the end of 2017, 166 cars by the end of 2018, and all 775 by Autumn, 2022. (***International Railway Journal***, July 21)

A ground-breaking ceremony was held at the Millbrae station attended by California Governor Jerry Brown and several state officials and Caltrain representatives marking the commencement of construction work to electrify the Caltrain commuter rail corridor between San Francisco and San Jose with 25,000-volt, 60-cycle catenary power. The $1.98 billion project is expected to be completed by early 2021, with the first of 96 multi-level electric multiple unit cars delivered by August, 2019 for testing and entering service in 2020. A total of 16 six-car consists have been ordered from manufacturer Stadler for $551 million. The trains will be capable of being lengthened to seven or eight cars if future needs require it. Earlier in 2017, funding for this project had been thrown into doubt with the change in presidential administration. Fortunately, a frenzied lobbying effort by elected officials, business leaders, and transit leaders and advocates convinced United States Transportation Secretary Elain Chao to approve a $647 million federal grant for the project. (KRON Channel 4 News, July 21)

San Francisco's Municipal Transportation Agency (SFMTA) ordered 185 trolleybuses from manufacturer New Flyer of America. The buses will be 40-foot versions of New Flyer's Xcelsior class bus body. This is in addition to the 93 articulated 60-foot trolleybuses that were delivered to SFMTA starting in 2015 and are seen on the 14/Mission, 30/Stockton, 5/Fulton, and 5R/Fulton Rapid routes. A big difference between the new trolleybuses and the 2001 models they are replacing is that the new buses are capable of operating off-wire for a few miles on battery power at speeds of up to 40 mph, a useful feature in case of route diversions or having to get around disabled vehicles blocking the way. Another feature provides the ability to lower or raise the trolley poles from the wires from the safety of the Operator's seat. These 185 trolleybuses are expected to enable the full retirement of the existing fleet by 2019. (Metro-report.com, August 2)

Montreal, Quebec, Canada

Member Al Holtz reports from a source in Montreal: The future Reseau Electric Metropolitan (REM) light rail transit line (LRT) network will connect the communities along the south shore of the St. Lawrence River via a new Champlain Bridge (now under construction with the LRT line through the middle) with the Deux Montagnes Line (the former Canadian Northern electrification, now Canadian National Railways (CNR)) and will tie in with the West Island Line (the Canadian Pacific (CPR) Winchester Subdivision) and a new line to Dorval Airport. The Deux Montagnes line will then replace the relatively new commuter rail electric multiple unit (EMU) commuter railcars, which had replaced the CNR electrics in 1995, with brand-new LRT trains. All this will connect with Montreal's existing and extensive subway system. The retirement and conversion of the Deux Montagnes line is scheduled for 2020. The new Champlain Bridge, whose construction is well underway, is scheduled to open in late 2018. However, the Deux Montagnes line conversion to LRT is at odds with VIA Rail Canada, which presently runs through the Mt. Royal Tunnel (with diesel trains) to and from northern Quebec. After the conversion VIA will no longer be able to use the tunnel as it is not compatible with the new LRT. (Al Holtz, August 11)

Mexico City, Mexico

Metro operator STC has begun tendering for studies of an express rail link to Mexico City's new airport, which will include defining route options to make the best use of existing rights-of-way and minimize disruption to the urban fabric. The preferred bidder will also consider the civil engineering and electro-mechanical works required, as well as rolling stock, signaling, and power supplies.

According to STC Director General Jorge Gavino Ambriz, one option is for the new service to make use of Line 1 of the STC network, running from Observatorio in the west of the city via Avenida Fray Servando Teresa de Mier to the existing Benito Juarez International Airport, close to Boulevard Puerto Aereo station on Line 1. It would then run on to the new airport, due to enter service in 2020-1.

Calling at a limited number of intermediate stations, the east-west express service is seen as complementary to the metro network, which has three stations serving the existing airport, and is expected to encourage the use of public transport by both regular and occasional passengers in place of the private car.

Separately, STC has also called tenders for studies of an extension of Line 9 from Tacubaya to Observatorio, providing interchange with metro lines 1 and 12, as well as the suburban railway now under construction to Tolu-

(Continued on page 14)

Commuter and Transit Notes

(Continued from page 13)

ca. (***Metro Report Intern***ational, August 2)

Basel, Switzerland

Basel tram operator BVB opened the first phase of an extension into France on July 31. The 500-meter extension of Route 3 from its previous northwestern terminus of Burgfelden Grenze to Burgfelderhof brings it to the border.

The Burgfelden Grenze stop closed on July 14, with buses replacing trams to the terminus until the new section opened. There is an intermediate stop at Waldinghoferstrasse.

The cost of the first phase of the extension was SFr 35 million, including a new turning loop. Because this is partly on the French side of the border, trams are not permitted to carry passengers while travelling around it.

The full 3-kilometer-long extension with four stops to the Saint-Louis station in France is due to open on December 9. Test running started on August 2 and driver training is due to begin in September.

The remaining section cost SFr 54 million, and the entire extension project, including the construction of park-and-ride facilities, is SFr 87 million.

Once the extension to Saint-Louis is open, every second tram will continue into France, giving the Burgfelderhof-Saint-Louis section a 15-minute frequency.

Route 3 will become BVB's second cross-border tram route, following the opening of a Route 8 extension into Germany in December, 2014. Route 10, operated by Baselland Transport, already crosses into France, where it serves one stop before crossing back into Switzerland. (***Metro Report International***, August 9)

Palermo, Italy

Work on the Anello rail line in Palermo restarted on July 29 following the government allocating an additional €50 million to the project in April.

The project to create a circular line around the city center is now 80% complete. This will use a former freight branch to the port and a mostly underground passenger line between Palermo Centrale and Giachery. A new section is being built to connect the line from Giachery to Notarbartolo, completing the circle. The line will remain single-track, with service only running in one direction. Frequencies will remain at 30 minutes.

The project is due to be completed next year, along with the Passante link upgrade and extension of the existing suburban line between Falcone e Borsellino Airport and Palermo Centrale. On July 27 work ended to cover the tunnel on the De Gasperi-Francia section.

In the longer term Passante will be extended south to Termini Imerese, and a bypass of Palermo Centrale will be built. Passante services will run every 15 minutes, down from the current 30-minute headways between the airport and Palermo Centrale. (***Metro Report International***, August 2)

Krakow, Poland

MPK Krakow has selected Pesa as preferred bidder for a contract to supply 35 LRVs, with an option for 15 vehicles, after a decision to exclude the Polish manufacturer from the tender was overturned.

Pesa submitted a bid of Zlotys 427.4 million ($117.9 million) for 50 unidirectional Karakowiak II vehicles, which will be a development of the bidirectional Krakowiak LRV, 36 of which were supplied to MPK by Pesa in 2015-6. At 32-35 meters, the new vehicles will be shorter than the existing Krakowiaks, which are the longest vehicles in MPK's fleet. The new vehicles will also be able to operate without catenary for up to 3.5 kilometers (2.2 miles).

In addition to the offer from Pesa, Newag, Škoda, and a consortium of Stadler Poland and Solaris submitted bids for the contract. Pesa submitted the lowest-priced offer, but was subsequently excluded from the competition due to late delivery of the Krakowiak fleet.

However, Pesa contested its disqualification at Poland's National Court of Appeal, which ruled in favor of the supplier.

The LRVs must be delivered within 30 months and MPK will accept a maximum of three vehicles every two weeks. The deadline for exercising the option is October 31, 2021, and deliveries must be completed by October, 2023. (***International Railway Journal***, August 8)

Kramatorsk, Ukraine

Trams ceased running in Kramatorsk in eastern Ukraine on August 1 with the closure of the last remaining route. The city intends to buy three buses to serve the 14.6-kilometer (2.9-mile) route, with fares kept the same.

The main reason given for the closure was the high cost of fleet replacement. The eight operational KTM5 trams in the fleet, of which five were needed for regular services, date from 1974 and needed replacement. This would have cost 12 million to 15 million hryvnia (US $470-590,000) per tram, compared with 1.5 million hryvnia (US $60,000) for a bus. The trams will all be sold.

Additional factors were the poor state of the tracks and decreasing ridership as industrial activity along the route having slowed. *(Editor's Note by Alexander Ivanoff: by no small part due to the Ukrainian conflict.)*

Tram operations in Kramatorsk began in 1937 and the network had five routes at its maximum extent. The network began shrinking in the early 2000s, and in May, 2014 it was temporarily closed because of the conflict in eastern Ukraine. *(Editor's Note by Sasha Ivanoff: Having been to Ukraine to visit relatives twice during my high school years, I worry about this as a trend, especially in the struggling eastern part of the country, which is still a war zone. Because my dad's cousin Zhenya had a car or we charted transportation, we never utilized public transit while on my trips. I think it is strange that having spent a fair bit of time in the country, I have never ridden on any Ukrainian transit property, and some opportunities that I should have taken, like riding the Yalta-Simferopol trolleybus, an excursion that today would require not only a visa but some toleration of Russian authorities, I have not taken. On a future trip to Ukraine I hope to change that.)* (***Metro Report Interna-***

(Continued on page 15)

Commuter and Transit Notes

(Continued from page 14)

tional, August 2)

St. Petersburg, Russia

Stadler Minsk, Transportnaya Koncessionnaya Kompanya and LSR Group started acceptance testing of the first six Metelitsa trams for the fast tram route being developed in St. Petersburg on August 1.

The TKK consortium of Lider Group and LSR Group is developing the fast tram project in the Krasnogvardeisky district under a 30-year BOT agreement. In August, 2016 Stadler signed a contract to supply 23 trams, designated B85600M, from its Minsk factory. The trams are branded by the future operator as Chizhik. Stadler will provide maintenance during the five-year warranty period.

Also in St. Petersburg, the first of 27 Yubileyny trainsets ordered last year for that city's Metro Line 3 was delivered to the Nevskoye depot on August 7.

On September 8 2016 Transmashholding subsidiary Oktyabrsky Electric Railway Car Repair Plant announced on that it is to supply 27 six-car trainsets for 13.4bn rubles. The order comprises 54 driving cars, 54 intermediate motor cars, and 54 trailer cars.

The second trainset is to be delivered in late August, followed by 13 more sets in 2017 and 12 in 2018. (***Metro Report International***, August 8 & 9)

Tehran, Iran

The southwestern branch of Tehran Metro Line 1 from Shahed to Namayeshgah-e Shahr-e Aftab was rebranded as Line 8 when an extension to Imam Khomeini International Airport opened on August 7. This is the second metro link to the capital's airports, with Line 4 already serving Mehrabad Airport.

The extension to Imam Khomeini International Airport runs at ground level, paralleling the alignment of the Tehran-Qom motorway. A further extension to the satellite town of Parand is under construction. This will be Tehran Metro's first "express" line, with a maximum operating speed of 75 miles per hour (120 kilometers per hour). (***Metro Report International***, August 11)

Port Louis, Mauritius

Mauritius Metro Express signed an 18.8 billion Rs (US $572 million) design-and-build contract with Larsen & Toubro (L&T), India, on July 31 for the construction of a 26-kilometer light rail line linking the island's capital Port Louis with the town of Curepipe.

The contract was awarded following a competitive tender and the project is being fully funded through a grant and line of credit from the Indian government.

The contract includes the construction of stations, bridges and viaducts, trackwork, d.c. electrification, signaling, and depots. L&T will also procure a fleet of 30 LRVs and fare collection and passenger information systems.

Metro Express will serve 19 stations, two of them elevated, and will link three bus interchanges, enabling connections to towns and villages across the island.

Preliminary works began in March and major construction will start next month. The initial 13 kilometer section of the route from Port Louis to Rose Hill is scheduled to open in 2019, with the remainder of the line to Curepipe due for commissioning in 2021. (***International Railway Journal***, August 3)

Beijing, China

Test running at speeds up to 350 kilometers per hour (217 miles per hour) is underway on the Beijing- Shanghai Line, as part of China Railway Corporation's plan to reinstate the previous national maximum speed six years after it was reduced to 300 kilometers per hour (186 miles per hour) in the wake of the Wenzhou collision in July, 2011.

A new timetable is expected to be introduced in mid-September that would cut journey times on the 1,300-kilometer (807-mile) Beijing-Shanghai route by around 30 minutes to about 4½ hours. Service would be operated with Fuxing trainsets, which were designed by CRRC with speeds up to 400 kilometers per hour (250 miles per hour) in mind. According to the manufacturer, a test run on July 27 showed that a Fuxing trainset would use 10% less energy than a CRH380 when running at speeds of 350 kilometers per hour, although a Fuxing trainset's energy consumption at 350 kilometers per hour would be 20% to 30% higher than when it runs at 300 kilometers per hour.

China's first 350-kilometer-per-hour service was launched on the Beijing-Tianjin Line in August, 2008 and more routes followed, but maximum speeds were reduced to between 250 kilometers per hour (155 miles per hour) and 300 kilometers per hour in 2011. (***Railway Gazette***, August 2)

Bangkok, Thailand

New automated monorails are in store for two rapid transit systems in Bangkok, as announced recently by Bombardier Transportation. The train manufacturer has received two orders to provide its Bombardier Innovia Monorail 300 system for two rapid transit systems in Bangkok. The automated monorails will be built for Northern Bangkok Monorail Company and Eastern Bangkok Monorail Company, and will serve the city's northern and eastern areas. Bombardier will create the mechanical and electrical components for the two monorail lines, including 72 four-car monorails equipped with automated train operation technology. The contract with Northern Bangkok Monorail will include 42 monorail trainsets for the 21.4-mile Khae Rai-MinBuri Pink Line. Additionally, the Eastern Bangkok Monorail project will include 30 trainsets for the 18.8-mile Lat Phrao-Samrong Yellow Line. Bombardier will facilitate project management, systems engineering and integration, and testing and commissioning for both projects. The monorails are estimated to serve more than 400,000 people each day. Bangkok has a population of more than 8.2 million people. (trn.trains.com, August 16)

SWITZERLAND IN THE LATE SUMMER
by Jack May
(Photographs by the author)
(Continued from August, 2017 issue)

Before beginning the next chapter, I want to mention a message I received about the previous portion by Klaus Matzka, who commented that many of Basel's Duewag cars, which I did not see operating on this trip, are now in Belgrade, Serbia. He provided this photo of the cars on their way there.

(Continued on page 17)

He (as well as some others) also reminded me that plans are afoot to convert the 750-millimeter gauge of the Waldenburgerbahn to one meter, for a possible future link to the Basel tramway system.

Now on to the main portion of this installment...

Daylight Saving Time in Europe means that the sun rises relatively late, especially toward the end of summer, so there was no reason to get up early, and I caught up on the sleep I missed the previous night. Today was our day for exploring Zurich, the nation's largest city, with a population of about 380,000 (1.1 million in the metropolitan area). It is the financial center of Switzerland, and has a large number of museums and tourist attractions. Clare would concentrate on them while I would catch up with transit developments since my last visit.

As mentioned in the introduction, we did not have to worry about having to arrive at the station in time for a specific train; we would just hop on the next one to our destination, as we once did with P-70s on the Pennsylvania Railroad corridor. That turned out to be the 9:33, which left 6 minutes late. Soon after our departure there was a trilingual announcement over the public address system that informed the passengers that there was a problem "with the tracks" at Aarau, and so we would travel via Brugg instead — "and be 7 minutes late!" Upon our arrival at Zurich's Hauptbahnhof at 10:37 (10:26) another multilingual apology announcement came over the loud speaker, "Thank you for understanding."

After picking up transit maps, we decided when and where to meet for our return journey, and I bade Clare goodbye. I took the next regional train toward the Zurich Flughafen and got off at Oerlikon, a busy town about

(Continued on page 17)

Switzerland in the Late Summer

(Continued from page 16)

halfway out. For many years this was the northernmost extent of Zurich's meter-gauge tramway (the Verkehrsbetriebe Zurich — VBZ), but the Glattal project to extend the system to the airport and surrounding neighborhoods has since expanded the system further. Zurich has a comprehensive tramway network with 15 lines covering a little over 50 miles of double track (see http://www.urbanrail.net/eu/ch/zh/zuerich.htm). Unlike the variety of rolling stock in Basel, the Zurich fleet is limited to just two basic car types, although there are variations among them. The older group, called the Tram-2000s, were built locally from 1976 to 1992 by Schindler (now part of Bombardier), with trucks from SIG (now part of Alstom) and electrical equipment by Brown-Boveri (the BB of ABB, later part of Adtranz and now also part of Bombardier). Some of these now have low-floor center sections, somewhat like the cars in Dallas, but many do not, and their use prohibits comprehensive stepless access. All VBZ stops have countdown displays indicating the route number and destination of the next few cars. An appropriate symbol is shown when the corresponding trip is wheelchair-accessible.

The other units are the 100-percent low-floor "Cobra" cars, dating from 2001 to 2010. The story of the Cobra trams is interesting. Much like the reasoning in Vienna (that created the ULF — Ultra Low-Floor car), Zurich decided the equipment offered by the major European carbuilders did not meet its specific needs and decided to employ the group of companies that manufactured the Tram-2000 to design its own 100-percent low-floor units, with the thought of creating a standard for all of Switzerland and for sales to cities in other European countries. As the project moved forward those companies became parts of Bombardier and Alstom, and finally in 2001, a few prototypes were delivered. I rode on one of the new Cobras soon after it went into test public service and wrote that it was a disaster in all respects — noise, ride quality, speed, comfort, etc. (almost as bad as Prague's Skoda 14Ts). I thought a full order would never be built, but I was wrong. The kinks were worked out and Bombardier delivered 68 of these units. I truly believe the final version is as good as similar 100-percent low-floor units running throughout the continent (and of course the prototypes were later upgraded). But like the Strasbourg Eurotram design, Bombardier ceased manufacturing the Cobras and the next batch of new cars for Zurich will not be this model.

The Cobras are still the city's most modern trams, and so when it was desired to extend the network to the airport, 20 more were ordered for the new Route 12 and the extensions of the 10 and 11, bringing the final number of units up to 88. Like in Basel, these suburban extensions are owned by a separate entity, the Glattalbahn. To differentiate these Cobras from the VBZs, it was decided to paint them white with blue trim, almost the exact opposite of the traditional Zurich colors of blue with white trim. The first segment of the Glattal system opened in 2006 and I rode a portion of it from the Flughafen (Kloten Airport) between planes on a trip to Sofia in May, 2010. Now I had the chance to ride the remainder, which includes the entirety of Route 12, inaugurated in December, 2010. All the cars on the 12 and most of those used on the 10 are painted white for the Glattalbahn, while VBZ blue still rules on the 11 (probably because of some proportional allocation formula).

Thus I rode a blue Cobra to the end of the 11 at Auzelg, where the 12 begins. I transferred to a white Cobra at that point and proceeded on the relatively new right-of-way, laying over here and there for photos, including one on a long viaduct in the town of Glatt itself. The line ends at Stettbach, where it connects with the S-Bahn and VBZ Route 7, which terminates on a separate loop. I then rode the 7 to Schwamendinger Platz, a very interesting location that unfortunately was undergoing some construction. It is the junction of Routes 7 and 9, and the location of the outer portal of Zurich's ill-fated attempt to build a metro. A tunnel was dug to launch a controversial plan for a subway system in the late 1960s, but a referendum on the project in 1973 killed it. What to do? Obviously, convert it to light rail and integrate it with the tram system. But the three subway stations were built with center platforms and all of Zurich's rolling stock is single-ended with doors only on the right side. The solution was to have Routes 7 and 9 run through the tunnel left-handed. Because its western end is on a hill it was relatively easy to route one of the tracks under the other and have them run through separate portals. But on the eastern end the two tracks emerge alongside one another. Once outside they simply cross each other at grade. (I am sure FRA or FTA would have a conniption if this were done in the U.S.)

Note: I can think of two other places that have such scissor crossings: both are in Sweden, specifically in Stockholm and Goteborg. The former results from the change of the rule of the road that occurred in 1967 and the specific desire to retain a Red Arrow-like tram line (Alvik-Nockeby) that accesses the left hand-operated subway with across-the-platform transfers. The Goteborg case matches Zurich's, where an underground station (Hammarkullen) was built with a center platform before it was decided to incorporate the line into the tram network. In this case the entire end of the line, from Hajallbo, the location of the crossover, to Angered, operates left handed, including the two above-ground stations. Since I wrote this a third example has been created, this time in Vienna. Route 26 now has such a pair of scissor crossovers on either end of a long tramway bridge that has a station in its middle. With single ended cars having doors only on one side, the system cut the cost of the station by having only a single center platform with only one elevator and a pair of escalators rather than twice as many. From my travels back in 1968 I also observed this abnormality along a section of the PCC-operated legacy tramway in Madrid, allowing one track to be on side-of-the-road reservation and the adjacent one in the roadway. Unfortunately the system was abandoned before the new light rail network was built.

(Continued on page 18)

Switzerland in the Late Summer

(Continued from page 17)

The Bahnhofstrasse neighborhood in Zurich's center. The spire of the Fraumuenster Kirche, shown in the left view, was built in the 13th Century and is now a city landmark. The church, with windows by Augusto Giacometti and Marc Chagall, is located on a cul-de-sac off the pedestrianized street, which serves four streetcar lines. The facade of Zurich's huge Hauptbahnhof dominates the right view looking north from the pedestrianized Bahnhofstrasse, a promenade considered the world's most expensive and exclusive shopping avenues.

Two views at the Auzelg station of the new Glattal railway. Route 11 terminates at this point and its cars lay over on the adjacent well-manicured loop, while the 12 runs through, heading to Kloten Airport. Both lines use single-ended Cobra cars, with the 11 equipped with VBZ units (left) while the 12 is operated with virtually identical VBG cars (right).

Two equipment photos. The five-section 100-percent low-floor Cobra car at left is shown at the elevated Glatt station in Zurich's northern suburbs. The right view is at the joint Bahnhof Stettbach terminal of VBZ Route 7 and VBG Route 12. The long unit is made up of a six-axle Tram-2000 articulated motor with a low-floor center section, MU'd with a four-axle matching blind motor, called a "Pony." The VBZ roster also includes six-axle blind motors.

(Continued on page 19)

Switzerland in the Late Summer

(Continued from page 18)

Two photos at Schwamendinger Platz, the eastern end of Zurich's tram subway. A Route 9 Cobra tram is shown approaching the scissors crossing that will take it from the left side to the right. Left-hand operation through the tunnel is a necessity because the three underground stations were constructed with center platforms for an aborted Metro. At the bottom a Tram-2000 set, consisting of an 8-axle center low-floor unit and a Pony, climbs the ramp from the tunnel to the surface. You would think you were in England.

The Romerhof stop on Route 8, which is a transfer point to the Dolderbahn rack railway. A single 6-axle Tram 2000 unit, sans low-floor center section, operates over this relatively light line, which is soon to be extended as part of Tram West.

I photographed the crossover as best I could and continued on a Route 9 car through the tunnel. Because of my location, I decided to ride and photograph two of the city's three more unusual rail transit operations. The next installment will cover these and the rest of my day.

(Continued next issue)

Around New York's Transit System

implementing this program. MTA Managing Director Ronnie Hakim stated that if the funding from both the city and the state were quickly made available and moved into place to finance the program, MTA could hire up to 700 new employees by the end of 2017 to fill vacant job positions; their efforts would be noticed by riders in early 2018. (NBC New York, August 8)

Around New York's Transit System

NYC Subway Action Plan Introduced

Less than 30 days after New York State Governor Andrew Cuomo declared that the NYC subways were in a "state of emergency" after several high profile service interruptions trapping passengers between stations and topped by a series of derailments, MTA Chair Joseph Lhota introduced a NYC Subway Action Plan intended to stabilize and improve the trouble-plagued system and provide a foundation for the upcoming efforts to modernizing the antiquated systems that have been failing at an alarming rate in the past few months. Phase One will aim at achieving measurable results within one year with increased service reliability and capacity, enhanced station cleaning and safety, and clear and accurate communication. Aimed at the key causes of 79% of the delays, 54% stemming from signal, track, and power issues with the balance caused by track fires, car equipment breakdowns, station issues, water-related corrosion, and police activity, a signal repair program will be expedited to address the 1,300 most trouble-prone signals, a water management initiative will be launched under which leaks will be remedied and sealed, drains cleared of debris to prevent back-ups and flooding issues, and the entire underground system will be cleared of fire hazard debris. 31 Track & Structures teams will be positioned strategically around the system to improve response times to incidents as they develop and provide a 30% increase in capacity to install welded rail. The number of Combined Action Teams responding to track power and signal issues will be tripled to reduce response times from 45 minutes to 15 minutes. In terms of improving subway car reliability, overhaul capacity will be increased from 950 cars to 1,100 cars per year, adding an additional full repair and maintenance shift to maximize 24/7 shop capacity with an emphasis on inspection and repair of doors (which account for 40% of on-the-road breakdowns) and pre-positioning Emergency Subway Car Response Teams for quicker repairs of defective equipment at the locations where they occur.

Where existing platform lengths will allow, consists will be increased to 10 cars. This will be the case with Ⓒ. A controversial feature of this Phase One is a pilot program to remove seats from select subway cars with the goal of increasing the capacity of each modified car by 25 passengers. The two lines this program will debut on will be Ⓢ Times Square Shuttle and Ⓛ Canarsie Line. The number of stations with assigned Emergency Medical Technicians (EMTs) will be doubled to reduce delays due to medical incidents aboard trains and at stations. On the communications aspects, the completion date of "countdown clocks" providing real-time information on the status on upcoming trains will be accelerated, a new integrated MTA app for smartphone and tablet users to provide current and accurate information will be developed, and revised communications protocols for customers and placing MTA Customer Service representatives at high volume stations to convey more concise and accurate information will be done. Management will be restructured so that key decision-makers will be placed together so that incidents can be jointly monitored and response measures can be more quickly dispatched to where they are needed. Elements of Phase Two will be defined in the coming weeks with a focus toward modernization of the aging system. Among them will be adopting the best innovations from the MTA Genius Challenge that have the greatest potential for actual improvements and focusing on long-term improvements such as Communication-Based Train Control (CBTC) and better designed new-technology subway cars. (MTA press release, July 25)

But…

Just over a week after MTA announced its Subway Action Plan to turn the system around from its recent spate of accidents and incidents of service disruption, MTA officials revealed that the agency lacked the staffing to begin working toward even starting the process of

(Continued on page 19)

Staten Island's 157-Year-Old Railroad

(Continued from page 5)

STATION	MILES	STATION	MILES
Arlington	0	Port Richmond	1.8
Harbor Road (A)	0.2	West Brighton	2.6
Mariners Harbor	0.4	Livingston	3.1
Lake Avenue	0.7	Sailors Snug Harbor	3.6
Elm Park	1.0	New Brighton	4.3
Tower Hill	1.5	St. George	5.1

(A) Harbor Road was formerly Arastina

There was no passenger service on the 7.1-mile non-electrified line, which crossed the following railroads in New Jersey and probably interchanged freight: former Central Railroad of New Jersey and Baltimore & Ohio Railroad at Cranford Junction, former Lehigh Valley Railroad at Staten Island Junction, and former Pennsylvania Railroad at Linden Yard near Linden Junction.

(To be continued)