# The Bulletin

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**The Bulletin**

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# MTA NEW YORK CITY TRANSIT OPENS WTC CORTLANDT STATION ON THE 1

## by Subutay Musluoglu
## (Photographs by the author)

At 12 noon on Saturday, September 8, MTA New York City Transit opened WTC Cortlandt Station at the World Trade Center (WTC), the long-awaited replacement for the original Cortlandt Street station destroyed in the terrorist attacks of September 11, 2001. It marked a significant milestone for New York City Transit (NYCT), as 1 service was finally restored to the WTC, and for New York City as a whole, as it represents the final piece of new/replacement transportation infrastructure at the WTC complex.

Coming on the eve of the 17th anniversary of 9/11, WTC Cortlandt is a fitting successor to the original station, which would have celebrated its centennial this past summer, built during the peak of the Dual Contracts era of New York City subway construction and opened when the IRT Seventh Avenue Line was extended from Chambers Street to South Ferry on July 1, 1918.

A ribbon cutting ceremony was first held at 11 AM on September 8, attended by numerous MTA officials, including MTA Chairman Joseph Lhota, MTA Managing Director Veronique Hakim, MTA Chief Development Officer Janno Lieber, NYCT President Andy Byford, and MTA Board Member (and longtime ERA member) Randy Glucksman, whose personal experience and observations of the station's opening are the subject of an adjacent article.

Built at a cost of $181.8 million, the WTC Cortlandt station is a typical two-track, side platform station, yet it features a number of novel design characteristics. For starters, while the station is directly under Greenwich Street, it is also "elevated" as it spans clear over the concourse and steps that descend from the floor of the WTC Transportation Hub "Oculus" down to the Port Authority Trans-Hudson (PATH) mezzanine. This makes for a truly unique visual experience — to look up and walk below the underside of a NYC subway station contained entirely within another structure. This feature also relates directly to the station's platform level, where the central part of the station is entirely column-free, corresponding to the clear span below. This structural arrangement is completely tied to the design of the WTC Transportation Hub, which will be discussed later. The station is air-tempered, and also features two mezzanines that are underneath the station. Access to the station is as follows:

Southbound platform:

- North end: There are two stairways that descend to a north mezzanine/fare control area that is actually underneath the subway here. This mezzanine offers a crossover to the northbound platform and opens up into the West Concourse Main Level C2 of the WTC Transportation Hub, north of the steps that descend down to the PATH mezzanine. Separately, there is also a fare control area at the southbound platform level leading to a stairway and elevator to Vesey Street, adjacent to the future Performing Arts Center. Note that on opening day, only the elevator to Vesey Street was open for public use, with the street stairway unfinished due to the ongoing construction

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

### THE REPLACEMENT OF "OLD" JAMAICA STATION—NUMBER 1, THE HOLBAN YARD DEBACLE

Concurrent with the reconstruction and upgrading of the North Side Division was the reconfiguration and replacement of the existing station complex at Jamaica, thereby creating a new "heart" for LIRR operations. As described above, what the railroad freely depicted as "Jamaica" in its early decades was the original Main Line passenger stop at Church (now 153rd) Street, one block removed from Jamaica Avenue on a small side street named Twombly Place, and across the street from the landmark Dutch Reformed Church. This was located in the historical and commercial center of Jamaica as it had evolved into one of Queens County's oldest townships. After the South Side Railroad began operation in 1867, that generic title also encompassed their separate station (originally a temporary terminal) at Beaver Street about a block and a half away. The two railway stations in Jamaica were then functionally but not physically united by a footpath as part of the Poppenhusen LIRR consolidations of 1876, simply because there was no practical way for trains using the Southern (née South Side) alignment toward Springfield Junction and Valley Stream to also call at the Jamaica Main Line station. This malformation of purpose, albeit circumstantial, immediately proved a handicap for the newer line and its service was substantially downgraded as a result, lasting only about another year until it was relinquished completely in July, 1877. Earlier that year, the former Southern's Beaver Street depot building was physically relocated to the older LIRR site at Church Street, where it was to remain in use for another 36 years. As also described above, the so-called "Old Jamaica" station was inherently if not perpetually overcrowded because of its constricted confines and of questionable standing from a standpoint of safety. The location was then expanded several times through the years to meet its increasing traffic challenges, most notably in 1890 as part of the LIRR's extension of "rapid transit" service across Brooklyn and Queens. This particular refinement proved yet again to be inadequate for the ever-increasing needs of the railway's explosive ridership base in that period, and another round of growth and improvement was undertaken between 1900 and 1904 to address its continually precarious operating environment.

By 1902, even as the right-of-way was being extensively widened across Jamaica and provisions added for the electrification of the LIRR's popular rapid transit service, such advances were seen as provisional at best and an effort to identify and implement broader improvements was intensified. As was the case with many of the LIRR's facility upgrades of the time, the improvement of Jamaica Station was also perceived as a paramount ingredient in the successful implementation of the joint New York Terminal, so was carried out with the full complicity and financial participation of the parent Pennsylvania Railroad. In a vein similar to that employed for Penn Station, the most important consideration in determining a course of redevelopment for Jamaica was optimizing its location, to accommodate the lines' adjoining geographic characteristics. Given that the then-moribund "Old Southern" was to be used as the primary corridor of travel for suburban electric trains while the rest of the railroad would continue to ply the LIRR's traditional "Main Line" and Montauk Division east of Jamaica, it was felt that an entirely new station of a multi-functional nature would be required, one in the genre of an operational base akin to the new Flatbush Avenue terminal. Thus it was intended not only to accommodate the coming and going of LIRR trains and their passengers but also be consolidated with retail opportunities, crewing requirements, and administrative needs, each of which at that time was erratic in nature and irregularly located.

Without undertaking an expensive and likely unnecessary effort to completely relocate its main line through one of Queens densest neighborhoods (never a serious consideration), the only desirable location at which this new facility could be placed was soon recognized as the large Jamaica freight yard that had been constructed in 1899, some seven to twelve blocks west of Church Street. Though in time the location of Jamaica's new station would become its biggest point of contention with the surrounding community and perhaps the traveling public, the LIRR had little if any alternative that could offer the operational and safety improvements to be gained through the new site while being able to maintain existing schedules during its construction. The project's execution was also coordinated with the operational requirements for the LIRR's embryonic suburban electrification and its existing freight, equipment storage, and maintenance needs, all of which relied on continuous, ready access to nearby yards and the company's Morris Park Shop complex. The operational consequences that such a massive venture would entail were thus substantial and long-ranging in nature. Completely separate from the particulars of the station's design, they also had to be implemented in as timely a manner as possible with a minimum of disruption to the surrounding community.

The first task at hand became the construction of a new and modern freight yard to replace that at Jamaica, thereby freeing up its location for the new passenger station. For this purpose a large plot of semi-developed land was selected next to the Main Line at the eastern

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**The Genesis of Dashing Dan**

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edge of Jamaica's original municipal limit. This was between the existing turnouts to the Montauk Division main line which had originally been added for the New York & Rockaway Railroad of 1872. The adjoining properties were former "estates" (farmlands, really) that had once belonged to the Chapman and Debevoise families, situated in the vicinity of the Long Island Rail Road's former "Willow Tree" station stop, which existed at Hamilton Avenue (183rd Street) from 1837 to approximately 1872. With the city's assistance, portions of several projected or incomplete side streets were supposed to be acquired for one full block south and about eight across (west-to-east) between Rockaway Junction and Farmers Avenue.

Construction of the new yard (and by extension work on the Jamaica station relocation) was started in October, 1904 and for the lack of a better title, it was dubbed "Hol-ban" from a relatively early date. This name employed New York's characteristic verbal shorthand in acknowledgement of its location, which overlapped the newly-emergent Hollis and St. Albans neighborhoods of Queens. As explained above, Holban's role in the LIRR's operational scheme was to act as the main collection point for freight to and from local points all over the easterly reaches of the Long Island Rail Road system, enabling it to eventually be exchanged with regional carriers such as the New Haven or forwarded to national "roads" like the Pennsylvania or even further west, with all movement at that time using float barges to pass around New York City. The initial portion of the new yard was activated sometime in the middle of 1906 from its easterly connection at Tower 43 near the Hollis station, that leg of the former Rockaway wye then (and still) being known as the "Springfield Branch." Meanwhile, the westerly end of the project was dogged by lagging property issues and delayed in completion, with the connecting lead from Rockaway Junction finally ready for use the following year. Evidently some kind of misinterpretation had come into play, as city authorities and community representatives claimed an understanding that Hamilton Avenue (183rd Street) was to be brought through the site in an underpass, which posed a very expensive challenge, while the yard itself was constructed at grade level. For its part, the railroad's design had called for the street to be completely removed (contrary to this prior "agreement"), and as a result each of Holban's 16 working tracks was laid right across the existing roadway. Naturally, this created an impossible situation for nearby residents when switching was underway, as it became difficult to navigate from one end of the street to the other between South Road (now Liberty Avenue) and Jamaica Avenue.

The state's courts were employed to determine the site's ultimate fate and this tenuous state of affairs hung like a cloud over the yard's first several years of service. A judgment against the railroad's "appropriation" of the public way was finally rendered in the spring of 1912 which forced the switching tracks across Hamilton Avenue to be at least temporarily closed pending appeal, effectively splitting the yard into two parts. The tracks were then reopened after the LIRR hastily pursued a petition for reversal of this decision (of course), but the original finding was upheld on November 18 and the 16 yard tracks crossing Hamilton Avenue were then physically removed, with the yard truncated at a set of "blocks" along its easterly and westerly curb lines. This rash outcome naturally had an adverse impact on LIRR freight operations, with some switching operations actually having to be performed on the nearby Belmont Park Branch for a while. Rather hurriedly, the adverse legal result brought about design and implementation of the "Holban-Hollis Elevation" on which preliminary work commenced in 1914. As a result Hamilton Avenue was indeed depressed beneath the yard late in 1915 and that portion in contention was able to reopen by the middle of 1916. Nevertheless, the entire Holban Yard complex as it might now be remembered, complete with a hump and small car servicing facility, did not come together until about 1924 when the last grade crossings in that area were eliminated. As for the old Jamaica Yard, it remained in use for coach storage and train composition purposes after freight operations were moved to Holban in 1906-7, then became a fundamental ingredient in the construction of the new Jamaica station after 1910.

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# SUBDIVISION "B" CAR ASSIGNMENTS

**CARS REQUIRED SEPTEMBER 4, 2018**

| LINE | AM RUSH | PM RUSH | LINE | AM RUSH | PM RUSH |
|---|---|---|---|---|---|
| Ⓐ | 60 R-32, 256 R-46 | 60 R-32, 264 R-46, 8 R-68A | Ⓢ (Rockaway) | 12 R-46 | 12 R-46 |

This change is due to completion of Recovery and Resiliency work at Hammels Wye that allowed the resumption of Ⓐ service to/from Far Rockaway. Ⓢ Rockaway Park shuttle service between Rockaway Park and Broad Channel resumed as well.

**The Genesis of Dashing Dan**

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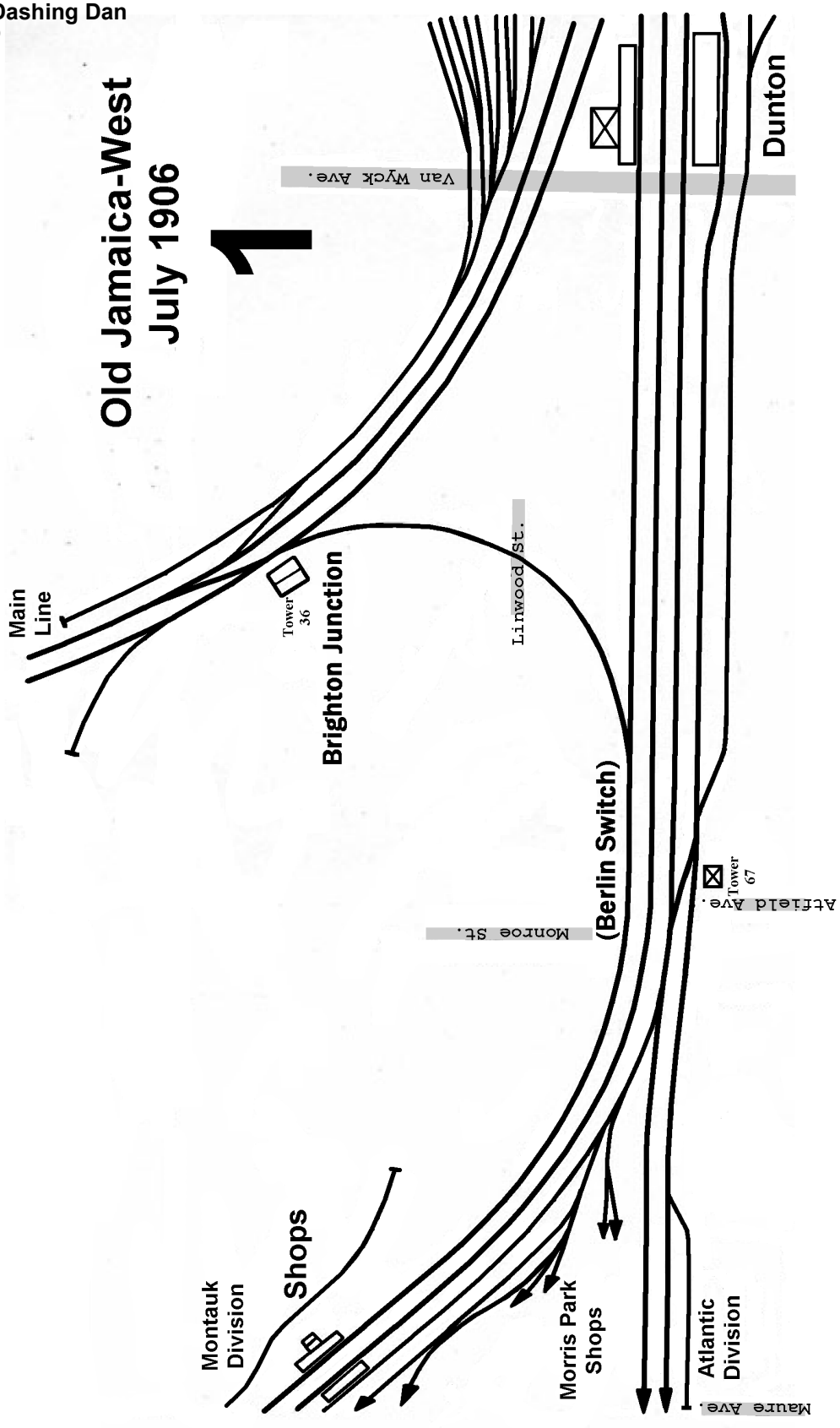


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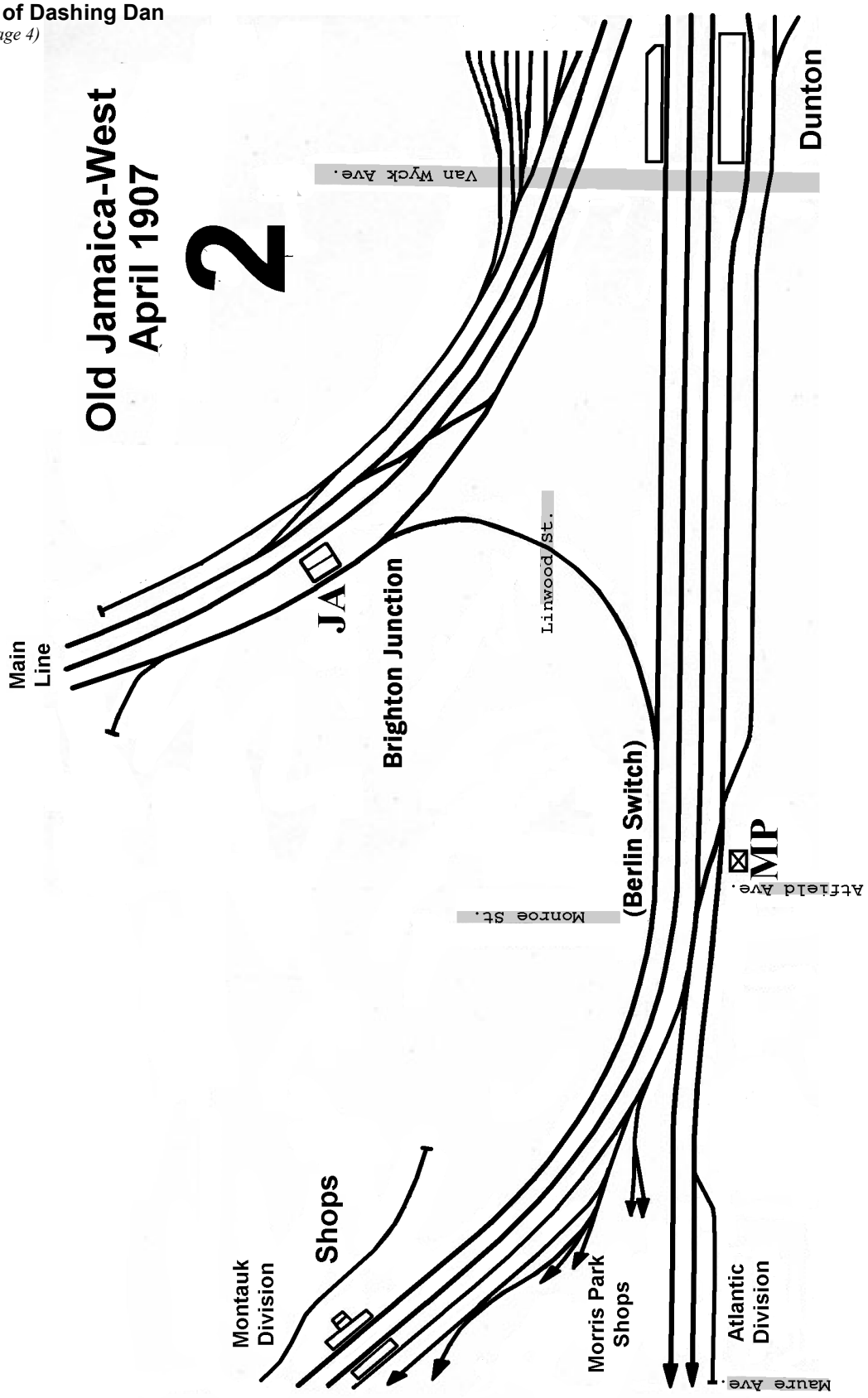


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**The Genesis of Dashing Dan**

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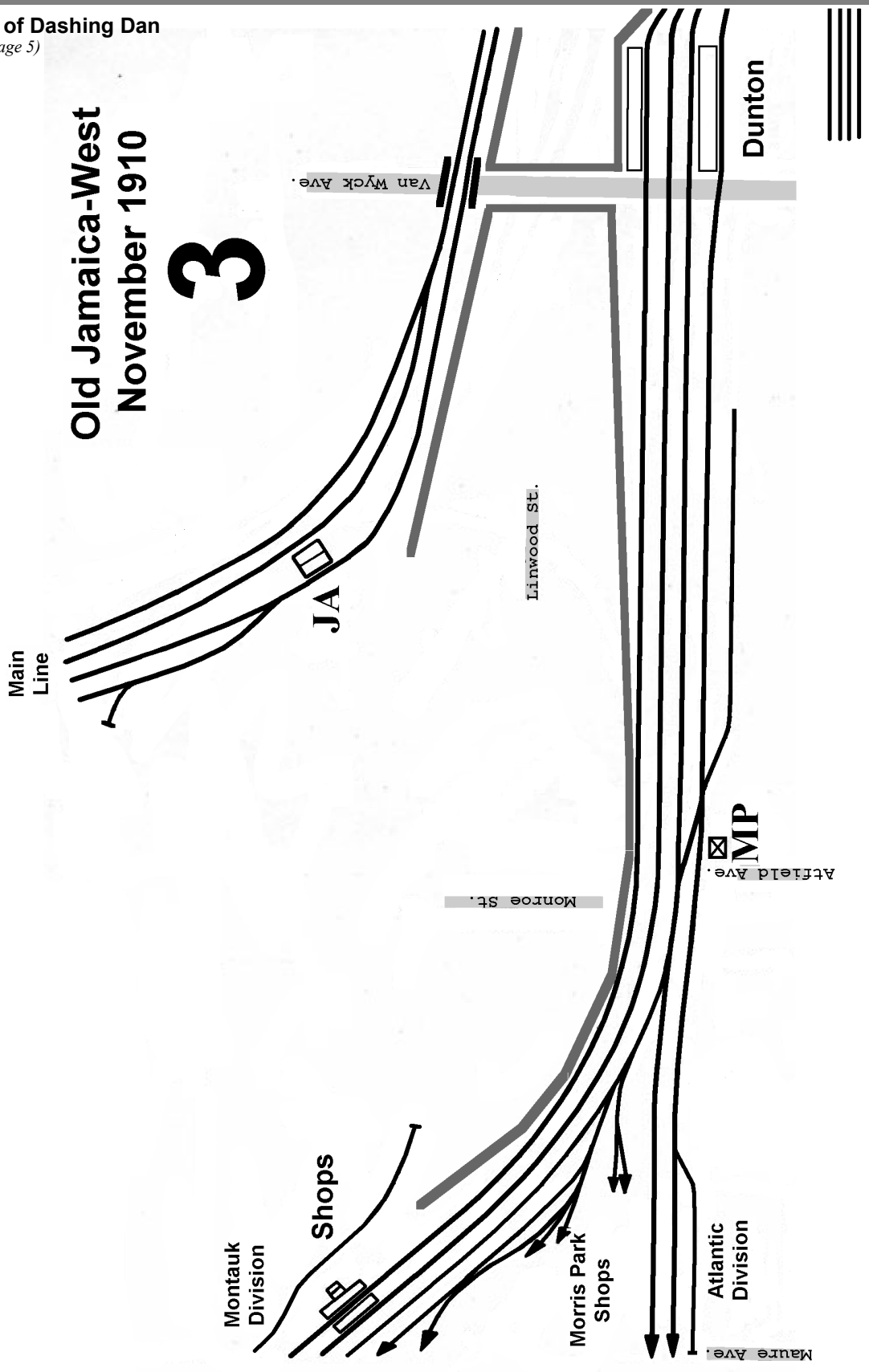


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**MTA-NYCT Opens WTC Cortlandt Station**

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associated with the Performing Arts Center. However, during a return visit two weeks later, it was observed that access to the elevator was no longer possible, and the fare control area was entirely cordoned off. The signage above the fare array, which on opening day had read that it was an exit to Greenwich and Vesey Streets, had been changed to read that it was now an "Emergency Exit Only." When the Center is completed and the final street restoration is complete, this street stair and elevator will be located on the west side of Greenwich Street, just south of the Vesey Street intersection. This approximates the pre-9/11 location of the previous Vesey Street entrance, which opened out of the base pedestal of the WTC.

- Middle: A stairway drops down to a small mezzanine/fare control area underneath the subway that also opens up onto the West Concourse Main Level C2 of the WTC Transportation Hub, but south of the steps that descend down to the PATH mezzanine.
- South end: Fare control area at platform level with two stairways ascending to the west side of Greenwich Street at Cortlandt Way, directly adjacent to the 9/11 Memorial Plaza.

Northbound platform:

- South end: Fare control area with a short set of steps descending to the South Concourse Balcony Level C1, adjacent to 3 World Trade Center.
- Middle: Primary (staffed) fare control area at platform level that opens onto Oculus Balcony Level C1. Glass walls at this location offer views out into the Oculus space, and there is direct access to the east side of Greenwich Street via the western end of the Oculus headhouse, containing a set of stairs, escalators, and an elevator.
- North end: A stairway and escalator down to the aforementioned north mezzanine/fare control area underneath the subway, offering a crossover to the southbound platform, and opening up onto West Concourse Main Level C2 of the WTC Transportation Hub, north of the steps that descend down to the PATH mezzanine.

On par with the station's structural design is the equally impressive art installation, named "Chorus." The work of artist Ann Hamilton, it is a white-on-white marble mosaic on both the southbound and northbound platform walls, rendered in relief, spelling out text from the 1776 Declaration of Independence and the 1948 United Nations Universal Declaration of Human Rights. It covers 4,350 square feet, making it one of the largest MTA Arts & Design installations in the subway system. The tactile nature of the work invites touch, and the contemplation of the text's meaning is befitting of the World Trade Center's history. It should be noted that the installation is not quite finished; while it appears to be complete on the southbound platform wall, it is only partially installed on the northbound platform. The remainder of the wall is covered with a temporary vinyl wrap displaying the same text, with work continuing towards completion sometime in October.

Keen observers will notice an interesting inconsistency — the station is referred to as WTC Cortlandt on the subway maps dated September, 2018 and on MTA literature, and the Greenwich Street entrances and the platforms' northern and southern column signs show this as well, yet only "World Trade Center" appears on the platform walls. It remains to be seen if this is just temporary and will be updated in the future.

My personal observations of WTC Cortlandt are highly positive, and it has become one of my favorite NYC subway stations. It has a bright and open feel to it, and the station's beauty lies in its simplicity. The artwork is both inspiring and impressive, and will be even more so when it is fully installed. The Greenwich Street entrances and their glass railings are unique and they integrate well with the landscaping of the 9/11 Memorial Plaza, making for a very tranquil and peaceful setting.

Railfans and photographers will be rewarded with very favorable photo opportunities as trains arrive from either direction. Southbound trains enter the station at speed on a curve, making for a dramatic scene for those standing at the very north end of the platform. At the south end of the northbound platform, a long straightaway allows one to see almost as far back as Rector Street, allowing for an interesting shot of an approaching train. And, of course, the column free center of the station provides great lateral views across to the opposite platform.

It would be an understatement to say that the building of WTC Cortlandt was a challenge. The destruction of the WTC complex had a devastating effect on the original Cortlandt Street station, as thousands of tons of steel and concrete came crashing down on the station, with several steel columns piercing through the crown of the station structure, as well as collapsing the adjacent line structure to the north and south. The extent of the damage was 1,400 feet in length, resulting in a complete loss of the Cortlandt Street station and lesser damage to the Rector Street station to the south.

The damage was so extensive that NYCT forces laid sandbags, installed timber posts, and poured concrete into the void of the collapsed tunnel in order to hold up the structure and withstand the weight of debris and construction equipment as the WTC site was cleared. Furthermore, two concrete bulkheads, one at Park Place and the other at Cedar Street, had to be installed as a precaution against flooding, an urgent concern at the time as it was feared that the "bathtub" slurry wall which encompasses the WTC foundation could have collapsed in the absence of a solid building structure to hold back the pressure of the Hudson River. Such an occurrence would have been catastrophic, as it would have flooded an extensive stretch of the IRT Seventh Avenue Line. Fortunately, the bathtub held, but the measures were necessary nonetheless, as millions of gallons of firefighting water was poured into the site's

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**MTA-NYCT Opens WTC Cortlandt Station**

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smoldering ruins continuously for four months following the attacks.

A little over a week after the attacks, on September 19, 2001, NYCT started sending 1 service to New Lots Avenue at all times, except at nights when it was turned back at Chambers Street. This was not ideal and it was feared that the southern segment of the IRT Seventh Avenue Line would be out of service for years, with the loss of access to the South Ferry terminus severely hampering operations along the entire West Side IRT. The situation was so serious that at the time there was discussion of giving up on it entirely and instead explore the possibility of rerouting the line over to West Street for a stretch.

Just the mere thought of this was highly significant as it would have entailed permanently bypassing the Rector Street station as well, and possibly building a new station at Liberty and West Streets, depending on the chosen alignment. It would have presented its own set of challenges, as the new alignment would be outside of the protection of the WTC bathtub slurry wall, making for a highly complex and costly construction effort under West Street even closer to the Hudson River. Further south, a choice between rejoining the 1918 line or proceeding on a new alignment to South Ferry would have been required.

With respect to South Ferry, the situation was also seen as an opportunity to rectify the less-than-ideal situation there, where the original 1918 station on a single-track loop could only accommodate the platforming of the first five cars of a ten-car train. Rebuilding it as a modern two- or three-track terminal would improve the reliability of local 1 operations and provide great benefit all along the West Side IRT.

In the end, it was decided to rebuild the line in place. Starting in November, 2001, through the herculean efforts of NYCT, the Port Authority of New York & New Jersey (PANYNJ), and numerous other agencies and contractors, the line's right-of-way through the confines of the site was cleared, followed by an intense period of reconstruction utilizing the standard New York City steel bent structure method. Including repairs to the Rector Street station, and leaving a provisional shell for a future station at Cortlandt Street, the line was reopened with the restoration of local 1 service between Chambers Street and South Ferry on September 15, 2002, just a few days after the one-year anniversary of the attacks.

Ultimately, $4.5 billion in Federal funding was secured to pay for transportation infrastructure reconstruction in Lower Manhattan. The funds would be used to rebuild the WTC PATH terminal, construct a new Fulton Street Transit Center (opened in November, 2014), the Dey Street Connector to link the two hubs, a new South Ferry terminal (March, 2009), and a replacement for the Cortlandt Street station.

In hindsight, reopening the line was easy compared with the greater difficulties that would follow with respect to rebuilding the Cortlandt Street station. The restoration of the World Trade Center became mired for years in the time-honored tradition of New York City politics at its ugliest, at the intersection of real estate, commerce, and public policy. The initial rush to rebuild the site as quickly as possible had the complete opposite effect of slowing down the process to a standstill, as the stakeholders argued over the design, cost, size, and scope of a project bigger than the central business districts of most cities, to be built over what is arguably one of the most hallowed pieces of ground in the United States.

From a practical standpoint, the future of the Cortlandt Street station became intertwined with the World Trade Center Transportation Hub. The Hub was originally envisioned as the permanent replacement for the PATH terminal located in the bowels of the WTC that was also destroyed on 9/11, but as detailed planning began in the mid-2000s, it eventually evolved to become the centerpiece of the entire complex. Through a network of concourses and passageways radiating out from the PATH terminal, the Hub would tie together the new WTC office towers, while also creating a new retail complex to replace the original WTC shopping concourse. It would also provide an underground link from the World Financial Center (now Brookfield Place) in the west all the way over to the Fulton Street Transit Center on Broadway in the east. In 2004, the PANYNJ awarded the design of the hub to Santiago Calatrava, the world-renowned architect/engineer responsible for the design of several signature railway stations, bridges, and other landmark structures around the world.

While Mr. Calatrava's design was distinguished for the "bird wings" of the headhouse, the real challenge was the highly complex subterranean work. The entire WTC complex pivoted on the Hub, and as such, much of the underground structural framework needed to be in place first before other elements of the complex could even begin to rise. This was most critical for the 9/11 Memorial Plaza, part of which was located directly above the PATH mezzanine. The mezzanine's ceiling was to form the base of the plaza, and since Calatrava's intention was to have an open, column-free space above the mezzanine, a complex truss system would be necessary to support the memorial plaza. Finding a workable design solution proved difficult, and the mounting delays had a cascading effect on the entire complex. Mounting political pressure to open the 9/11 Memorial in time for the tenth anniversary in 2011 forced design compromises, and along with delays in other aspects of the site's infrastructure, collectively impacted progress on the WTC Cortlandt station.

To facilitate building the Hub, the NYCT line structure was underpinned with hundreds of "minipiles" to allow excavation to proceed to below it. At the height of construction, the structure was completely suspended in mid-air while 1 trains continued to run through it. Once the Hub's structural framework was complete, and the load of the NYCT structure was transferred to it, the

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**MTA-NYCT Opens WTC Cortlandt Station**

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minipiles were cut, leaving the future station "elevated" as described earlier.

The PANYNJ had originally intended to hand over a partially completed station to NYCT, with most of the structural components and utilities in place, requiring only the final architectural finishes. However, when the time came for the turnover in February, 2015, it was clear that much more work remained before the station could be ready for public use. And though the Hub itself was substantially completed and opened on March 3, 2016, there were still serious issues requiring close coordination between NYCT and the PANYNJ. The delay in opening the Hub meant that the temporary PATH headhouse on Vesey Street remained in use longer, which in turn put off the start of construction on the Performing Arts Center. This made finalizing the location of the Vesey Street stairway entrance and elevator a particularly difficult challenge, which is evident in its current unfinished state. Ultimately, finishing the WTC Cortlandt station required more NYCT resources and amendments to the MTA 2010-4 and 2015-9 Capital Programs.

It should be noted that even before its destruction in 2001, the Cortlandt Street station had already seen a fair amount of change as Lower Manhattan evolved over the decades. The Hudson & Manhattan Railroad (H&M) arrived in the neighborhood nine years prior to the Cortlandt Street station's opening, with H&M's imposing Hudson Terminal on Church Street. The new subway line itself was directly underneath the Ninth Avenue Elevated's Greenwich Street segment. Nearby was the historic Washington Market complex, occupying the entire block bounded by West, Vesey, Washington, and Fulton Streets (the site of today's 1 WTC tower), and just to the south was the neighborhood known as Little Syria, a bustling Middle Eastern immigrant community. Within a few years of the station's opening, the city's electronics retail district began to take shape. Known as Radio Row, the station found itself directly in the heart of the district, whose popularity was no doubt directly attributable to the station.

The Ninth Avenue Elevated was closed on June 11, 1940 and subsequently demolished on the eve of the Second World War. In the postwar years the city's economy began to change, and its impact was felt quite strongly in Lower Manhattan. The focus of new commercial office construction shifted to East Midtown, while the maritime trade moved over to New Jersey, where there was plenty of real estate to accommodate the containerization of global cargo shipping. By the early 1960s, Lower Manhattan was down on its heels, raising alarms within the business community as it was in danger of losing its historic status as the city's second business district. The H&M was in dire straits, and in need of major capital investment.

The situation led the city and state to plan a number of highly ambitious urban renewal schemes to be paid for with vast sums of public funding, ultimately coalescing to produce the Battery Park City concept and the World Trade Center, with the PANYNJ taking the lead in the building and operation of the complex. Conditional to the deal was the PANYNJ taking possession of the H&M. Hudson Terminal was demolished and its acreage was absorbed into the overall WTC site, and the H&M platforms were shifted to the west and underneath the center of the new complex, forming a key element of the overall program of modernization that led to the creation of the PATH system. The excavated material from the WTC site was taken across West Street and dumped in the Hudson River, forming the landfill that would later become Battery Park City.

The Washington Market was demolished, and Radio Row was wiped out, a painful event that effectively destroyed dozens of small businesses. Twelve square blocks were cleared in total and as site excavation proceeded, the Seventh Avenue Line structure was supported, and subway service continued as the new WTC complex arose around it, not unlike the situation for the last 17 years. The station was rebuilt in the early 1970s, completely located within the WTC complex, and accessible from the WTC concourse and Vesey Street. It served usefully and uneventfully until that tragic and fateful day in 2001.

It should be noted that with the opening of the new WTC Cortlandt station, and allowing for the 11 stations that are currently closed temporarily due to the Enhanced Station Initiative program or other station modernizations, the New York City Subway can be considered back at "full strength" with 472 stations.

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# MTA NEW YORK CITY TRANSIT OPENS SECONDARY ENTRANCE AT 34TH STREET-HUDSON YARDS STATION ON THE 7

## by Subutay Musluoglu

September was a busy month in MTA New York City Transit station news. On the morning of Saturday, September 1, the secondary entrance to the 34th Street-Hudson Yards station on the 7 was opened to the public. The entrance is located on the southwest corner of W. 35th Street and Hudson River Boulevard, which is the new north-south thoroughfare built mid-block between Tenth and Eleventh Avenues.

The opening of the second entrance occurred less than two weeks before the three-year anniversary of the inauguration of the IRT Flushing Line extension that brought the 7 to the far west side of midtown Manhattan. Since the station originally opened on September

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## MTA-NYCT Opens WTC Cortlandt Station

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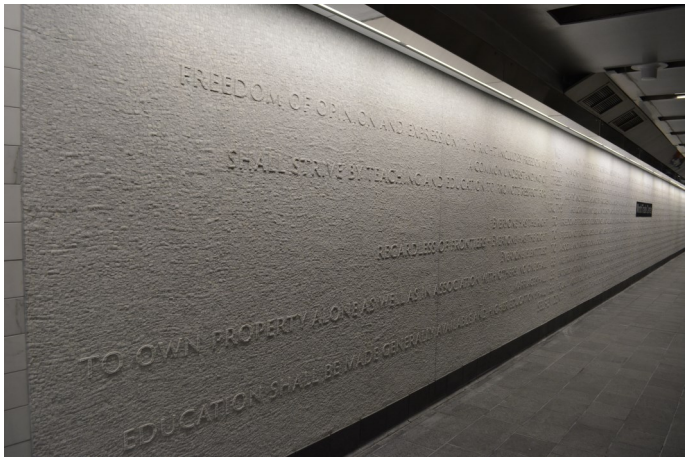
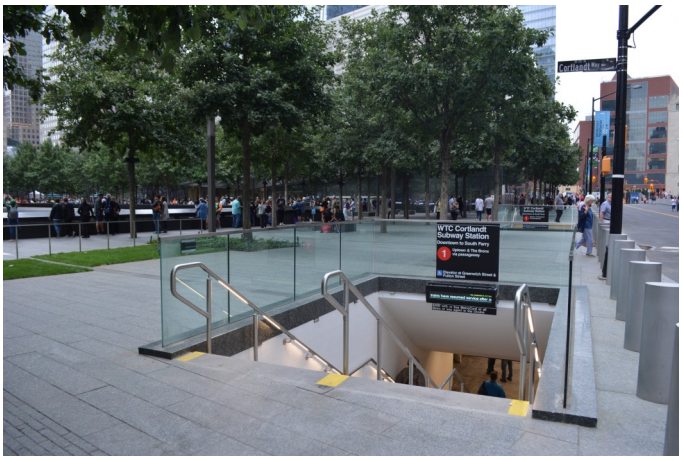
**WTC Cortlandt station on opening day, looking across the column-free center to the southbound platform, September 8, 2018.**



**"Chorus" by Ann Hamilton, on the WTC Cortlandt station southbound platform wall, September 8, 2018.**




**Street entrances to the WTC Cortlandt station's southbound platform, on the west side of Greenwich Street at Cortlandt Way looking north, adjacent to the 9/11 Memorial Plaza, September 8, 2018.**


**The primary entrance to the WTC Cortlandt station's northbound platform, on Oculus Balcony Level C1 of the WTC Transportation Hub, September 8, 2018.**


**WTC Cortlandt station spanning over the concourse steps descending from the Oculus to the PATH mezzanine, on Level C2 of the WTC Transportation Hub. The north mezzanine under the station is in the far background, and the primary entrance is on the bridge structure directly above, September 23, 2018.**

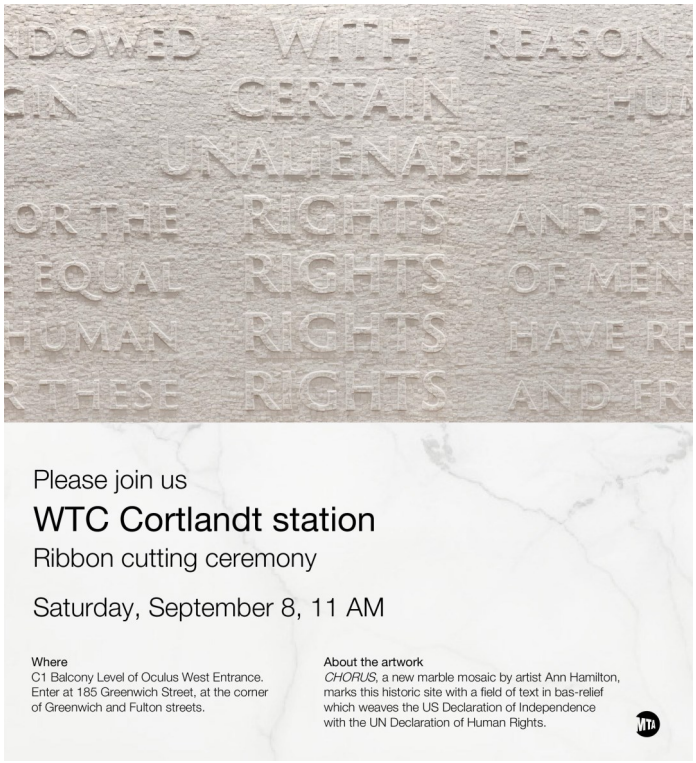

**View across to "Chorus" on the northbound platform wall, showing the demarcation between the completed and uncompleted sections, at the top of the escalator landing ascending from the north mezzanine, September 23, 2018.**

# WTC CORTLANDT STATION REOPENS
## by Randy Glucksman

I had been following the progress of the re-opening of this station for several reasons, including, but not limited to, "filling in a blank" in my annual column about planned transit openings and service expansions, which appears in the January and December issues of the ***Bulletin***, but also because of the horrendous way in which this station has not been in service for nearly 17 years.

As an MTA Board Member, when I receive the meeting agendas for the committees on which I serve, one of the first items that I check in the NYC Transit/MTA Bus Committee book is the status of this station. Since joining the Board last year, the opening date was to be December, 2018, but a few months ago, October became the goal, and then I heard September 11. However, due to the Jewish New Year occurring on September 11, I knew that this would not happen. Then on Friday morning, September 7, I received the email invitation at right for the following day.

Since my sister-in-law was visiting us, the MTA Board Office kindly arranged for her and my wife to also attend the ceremony. We arrived well in advance of the requested 10:45 AM time, and were soon joined by other MTA officials and invited guests and had time to inspect the station. At the "appointed time", I joined Chairman Joseph Lhota, Managing Director Ronnie Hakim, Chief Development Officer Janno Lieber, and NYCT President Andy Byford in cutting the ribbon. (I kept the piece that I was holding.)





**Dan Creighton (with hands folded), Chief Development Officer Janno Lieber, MTA Chairman Joseph Lhota, Board Member Randy Glucksman, Managing Director Ronnie Hakim, MTA NYCT President Andy Byford and the artist, Ann Hamilton.**
MTA photograph

# Commuter and Transit Notes

No. 357

by Ronald Yee and Alexander Ivanoff

**MTA Long Island Rail Road**

Long Island Rail Road President Phil Eng announced Autumn Weekends, a continuation of the popular Summer Saturdays program, as a sign of appreciation for monthly ticket holders.

Over 10 weekends this fall, from Saturday, September 8 until Sunday, November 11, monthly LIRR ticket holders have the chance to bring along up to four additional companions aboard LIRR trains for only $1 per person, each way, children and adults alike.

The Summer Saturdays program ran on 13 weekends from June 2 to August 25. On these Saturdays, more than 62,000 Family Fare tickets were sold, a 50% increase in Family Fare ticket sales over the same Saturdays in 2017.

The LIRR Summer Saturdays and Autumn Weekends pilot is modeled on the existing Family Fare ticket, which runs year-round, and allows up to four children (ages 5-11; children under 5 ride free) to ride for $1 each when accompanied by a fare-paying adult. This new program extends this offer to adults as well, when traveling with a monthly customer whose ticket in effect becomes a system-wide pass on Autumn Weekends. (MTA press release, September 7)

The Cuomo administration announced on September 5 that the Long Island Rail Road is breaking ground on the historic Third Track. The $2.6 billion project includes 50 components to modernize 9.8 miles along the congested Main Line of the LIRR between Floral Park and Hicksville.

Benefits of the project will include smoother and more reliable commutes, safer and quieter crossings, improvements to stations and parking facilities, and reduced noise along the project corridor, as well as less congestion and cleaner air. The project includes nearly ten miles of third track, seven grade crossing eliminations, bridge replacements, station and electrical substation improvements and replacements, and seven miles of sound barriers.

At the Governor's direction and after 70 years of stagnation, the state, MTA, local officials, and Long Island communities are moving forward on this $2.6 billion project. The transformative new plan differs significantly from past proposals. The plan takes no residential properties, eliminates the seven street-level grade crossings, and widens or increases the height of seven bridges across the line to prevent bridge strikes. In addition, to increase safety, the system will add Positive Train Control to prevent Engineer error. To ensure community input throughout the entirety of the project, the LIRR has entered into memoranda of understanding with the communities on the Main Line Third Track. The MOUs invite input on numerous aspects of the project's design. (MTA press release, September 5)

In conjunction with the Third Track project, the MTA and the LIRR announced on September 21 that the Double Track project between Farmingdale and Ronkonkoma has been placed into service, more than a year ahead of schedule. This historic project adds a second 13-mile track between the two communities, allowing for reverse-peak service expansions and reduced delays. The Double Track project also includes a new signal system, electrical substation modifications, and new third rail electrical systems that will power the new track's trains. Governor Cuomo also announced the official opening of a new and fully accessible Wyandanch station along the new double-track.

The Double Track project added 13 miles of new track to an already existing 5-mile stretch of previously unused track, for a total of 18 miles. (MTA press release, September 21)

**NJ Transit**

Due to NJ Transit's PTC-related turmoil, the agency announced on September 20 that fares in and out of Penn Station would be slashed by 10 percent from November through January as the agency rushes to meet the January deadline.

Starting Sunday, October 13, more than a dozen trains will be temporarily discontinued or see changes in their origins and destinations, with passengers who travel along the Northeast Corridor, North Jersey Coast Line, Morris & Essex Lines, Montclair-Boonton Line, and Main and Bergen County Lines being affected.

As part of the cuts, all Princeton "Dinky" rail service will be replaced by buses on weekdays and weekends, and all weekend Gladstone Branch rail service will be replaced by buses. *(Editor's Note by Alexander Ivanoff: I would not be surprised if further cuts are made and the Gladstone Branch loses all service until PTC is up and running*.) (NBC New York, September 20)

**Amtrak**

Amtrak has completed its summer infrastructure renewal work at New York Penn Station, allowing the *Empire Service*, *Ethan Allen Express*, *Adirondack*, and *Maple Leaf* trains to return to New York Penn Station on Tuesday, September 4 as planned. Since Saturday, May 26, these four trains that travel to and from Northern New York and Canada were running in and out of New York Grand Central Terminal to accommodate the track and infrastructure upgrades. Additionally, the *Lake Shore Limited* has also returned to New York Penn Station, reconnecting direct service between Chicago and New York City.

The total cost of the summer renewal work is estimated between $45 and $50 million, which will keep this important infrastructure in a state of good repair for Amtrak and benefit New York State with an upgraded, state-of-the art railroad. (Amtrak press release, September 4)

*(Continued on page 13)*

**Commuter and Transit Notes**

*(Continued from page 12)*

Museums

A group of railfans in Northeastern Pennsylvania is aiming to preserve the last remaining Wilkes-Barre Transit Corporation streetcar in existence. Car 790 (Brill, 1924), was one of four cars that remained on the company's property on the last day of streetcar service, managed to avoid scrapping, and has spent the last 67 years as part of a cottage in Franklin Township (roughly ten miles north of Wilkes-Barre), overlooking a small lake in the Back Mountain.

After many years of organizing and negotiating, a group of local volunteers has created a nonprofit organization, Anthracite Trolleys Inc., and is raising funds to extricate 94-year-old car 790 from its longtime resting place and restore it to running condition. The goal is to have the car safely removed by the end of 2019, with restoration costs estimated to be $300,000. While the car has been stripped of fixtures, the body itself is in good shape as the car has been protected by the cottage roof itself. (Editor's note by Alexander Ivanoff: Facebook friend and Times Leader Editor Roger DuPuis graciously allowed me to use the article in this month's Bulletin. The URL for the article is https://www.timesleader.com/news/719208/group-aims-to-rescue-restore-wilkes-barres-last-trolley#/ for those who want more information.) (Times Leader, September 22)

**OTHER TRANSIT SYSTEMS**

***PITTSBURGH, PENNSYLVANIA***

Light rail commuters enjoyed a return to full service for the Monday, August 27 commute after final repairs were completed to the transit line damaged in the August 5 derailment of a Norfolk Southern train.

Repairs were completed Saturday, August 25 to the inbound tracks at the Station Square station, damaged when the NS intermodal train derailed on a line above the station, sending cars and containers onto the tracks. The station had partially reopened on Thursday, August 23, when the outbound track reopened (Trains News Wire, August 23)

***WASHINGTON, D.C. AREA***

After a pull-apart between a pair of Metrorail cars within a consist of an eight-car train operating on the Silver Line around 10:45 AM on August 26, The Washington Metropolitan Area Transit Authority (WMATA) has undertaken an emergency inspection of over 200 cars in the 5000- and 6000-series cars while the Federal Transit Administration (FTA) is looking into what may have caused this rare incident. Emergency brakes automatically activated when the pair separated and there were no reported injuries. (WTOP Radio, August 28)

WMATA has issued a request for proposals (RFP) for the design and construction of at least 256 new 8000-series rail cars.

The new units would allow WMATA to retire 2000- and 3000-series cars, which are nearing the end of their 40-year service life, according to a WMATA press release.

Options in a potential contract would allow WMATA to purchase up to 800 cars in total. That would provide flexibility to expand all trains to a maximum eight-car length, run trains more frequently during rush hour, and retire the 6000-series fleet in lieu of a midlife overhaul, WMATA officials said.

The agency is seeking proposals for units that include digital advertising screens, power outlets for charging electronics, additional handholds, and improvements to lighting.

Proposals are due in late January, with a contract expected to be awarded late next year. The new units would be delivered as soon as 2024. (***Progressive Railroading***, September 5)

***DENVER, COLORADO***

In an unfortunate setback, final testing on the G Line uncovered yet another flaw in the software governing grade crossing gate protection. A recent G Line test train almost outran the gates and ended up passing through the crossing in far less than the 20-second minimum allowable period from the time the gates are deployed. Since similar systems are in place at three grade crossings on the A Line and one on the B Line, grade crossing flag-persons have been reinstated until the issue is fully resolved. In the meanwhile, none of the surrounding communities on either line can apply for FRA Quiet Zones where trains no longer have to blow their horns approaching grade crossings. Local residents along the A Line have been dealing with two years of horn blowing that they had initially been assured would not happen with the high-tech grade crossing technology being applied there. *(Editor's Note by Ronald Yee: This kind of delay just adds more ammunition to the position taken by NIMBYs.)* (***Mass Transit*** Magazine, August 2)

***SACRAMENTO, CALIFORNIA***

In an effort to attract more ridership and "give back" to the community for recent cost-cutting measures, the Sacramento Regional Transit (SacRT) Board, for the first time in its 47-year history, has approved a reduction in its fares from a base of $2.75 to $2.50 and the monthly pass from $110 to $100, effective possibly as early as October. This rolls back the fare increase implemented back in early 2016. A 25-cent cash transfer ticket will be reinstated for passengers paying cash fare while passengers using electronic fare cards will continue to enjoy free transfers between bus and light rail. (Al Holtz, August 29)

***LAS VEGAS, NEVADA***

On September 18, Brightline announced that it would take up construction of XpressWest, a struggling rail project planned from Las Vegas to Southern California, in essence a merger between Brightline and XpressWest.

As a result of the acquisition, Brightline will take over the development, construction, and operation of the project and work with federal and local transportation officials to connect Las Vegas with Victorville, California, 200 miles away, with future plans to expand into the Los Angeles area.

*(Continued on page 14)*

**Commuter and Transit Notes**

*(Continued from page 13)*

The XpressWest project was once expected to break ground in 2012 but has been beset by delays, funding shortfalls and failures in partnerships. In its acquisition announcement, the company believes it can cut the project's forecast $7 billion cost through a new design and engineering scheme. A Chinese consortium was originally enlisted to build the line, but backed out in 2016 citing bureaucratic hurdles.

Brightline quoted ridership studies as finding travelers make more than 50 million annual trips between Las Vegas and Southern California. Today those travelers are limited to traveling by air or highway; Brightline expects to make the trip in less than two hours. High speed rail is also expected to benefit from the move of the NFL's Oakland Raiders to Las Vegas in 2020.

The first phase of the corridor is expected to be built on a right-of-way within and adjacent to Interstate 15, traversing 185 miles with no at-grade or pedestrian crossings. Construction is expected to begin in 2019 and Brightline is planning to begin initial service in 2022.

Union Pacific and BNSF maintain mainline operations in the vicinity, including from Southern California through Cajon Pass through the San Gabriel Mountains to Las Vegas, among other destinations. It is unclear whether Brightline, which operates on sister company Florida East Coast Railway's track in South Florida, intends to negotiate agreements for use of those lines; however, such an agreement would allow easier access into Los Angeles and provide a one-seat ride. (*Editor's note from Sasha Ivanoff: I expect Brightline to cut costs in part by using the same Siemens* Charger *locomotives as found in Florida, as in a lack of electrification.) (**Railway Age**, September 18; **Miami Herald**, September 18)

***San Diego, California***

The San Diego Metropolitan Transit System (MTS) has received the first light rail car from Siemens as part of a 45-unit order placed in 2016, continuing a relationship that dates back to the opening of the San Diego Trolley network in 1981.

Siemens delivered at the end of August the first unit to the agency's downtown rail yard, with the remaining vehicles slated to arrive over the next two years.

The new S70 rail cars will enable the agency to increase service frequency on its existing UC San Diego Blue, Sycuan Green, and Orange lines. Additional trains also will used on the Mid-Coast Trolley line, which is an 11-mile extension of the UC San Diego Blue Line scheduled to open in 2021. MTS will use 36 of the new 45 new cars on the Mid-Coast Trolley extension.

The units feature the same low-floor design as MTS' current fleet, along with a redesigned middle section aimed at improving passenger flow and providing better accessibility for riders in wheelchairs. Siemens has relocated the units' operational equipment to make maintenance easier, according to the agency. (**Progressive Railroading**, September 4)

***Toronto, Ontario, Canada***

An extremely heavy rainstorm on August 7 lasting two to three hours dropped nearly four inches of rain on Toronto, causing major flooding that trapped nine of the Toronto Transit Commission's (TTC) new Bombardier Flexity light rail vehicles (LRVs). One Flexity LRV stalled while traversing an underpass on the 504/King Street Line and eventually became inundated under six feet of flood water. While the LRV sustained substantial damages, the Operator successfully evacuated the six passengers aboard without injuries. That LRV and one other were water-damaged enough to warrant them being sent to Bombardier's plant in Plattsburgh, New York. They will be dismantled and components dried out, and an evaluation will be performed on what the costs and timeframes involved are for restoration. While Bombardier has repeatedly missed delivery deadlines for the 204 car order, it is optimistic that the entire order will be delivered to the TTC by the end of 2019. (CTV News, August 28)

***Vancouver, British Columbia, Canada***

Canadian Prime Minister Justin Trudeau and British Columbia Premier John Horgan announced on September 4 more than C$3 billion in federal and provincial funding for two major passenger rail projects in Vancouver.

The money will fund construction of the Surrey-Newton-Guildford light rail project and the Broadway Subway extension of TransLink's Millennium SkyTrain line. Both projects are part of TransLink's 10-year plan to boost transit options in the Vancouver area.

The Broadway Subway project calls for building 3.5 miles of rail and six stations, while the Surrey-Newton-Guildford project calls for building a 6.5-mile light rail line. The subway project will, in part, replace the existing B-Line bus rapid transit route and have the capability to move more than 5,100 passengers per hour in each direction.

The funding stems from an agreement signed this spring by the governments of Canada and British Columbia. Over the next decade, the federal government will provide C$3.9 billion toward the cost of infrastructure in British Columbia. (**Progressive Railroading**, September 5)

***London, England***

The opening of the Crossrail tunnels under London has been delayed from December, 2018 until the fall of 2019, project management firm Crossrail Ltd. announced on August 31.

The Paddington-to-Abbey Wood section of the future Elizabeth Line will open later than scheduled because the contractors need more time to complete fit-out and software development. This has led to testing running behind schedule.

Crossrail Ltd. says that operations on the full Elizabeth Line from Reading and Heathrow Airport in the west to Shenfield and Abbey Wood in the east are to begin "as soon after the central tunnels open as possible." This was originally scheduled for December, 2019.

*(Continued on page 15)*

## Commuter and Transit Notes

*(Continued from page 14)*

Transport for London has already taken over services from Liverpool Street to Shenfield in the east and from Paddington to Heathrow in the West. Class 345 electric multiple-units being supplied by Bombardier are in service on these routes, alongside older rolling stock. The new EMUs are still undergoing tests in the Heathrow tunnels.

Once the central tunnels open, services will initially run from Paddington (low-level) to Abbey Wood, from Paddington (high-level) to Heathrow, and from Liverpool Street (high-level) to Shenfield. Through running would be introduced later. (***Metro Report International***, August 31)

The first of 17 driverless metro trains that Stadler is supplying for the Glasgow Subway was displayed at the InnoTrans 2018 trade fair in Berlin in September.

In March, 2016 Strathclyde Partnership for Transport approved the award of a £200 million contract to a consortium of Stadler Bussnang and Ansaldo STS to supply a fleet of driverless trains and signalling. This is part of a £288 million modernization project for the 6.5-mile circular underground metro line.

Expected to enter service from 2020, the 4 foot gauge four-car trainsets with walk-through gangways will replace the existing fleet of three-car sets. SPT envisages that operations will switch from the current ATO (GoA2) to UTO (GoA4) once the signaling and control systems have been fully tested. (***Metro Report International***, September 18)

***Potsdam, Germany***

Fully-automated driving of a conventional tram was successfully demonstrated by Potsdam transport operator ViP and Siemens Mobility on September 18 with a special test run for delegates to the InnoTrans trade fair in Berlin. Demonstrations were due to continue until September 21.

Under the joint research and development project, ViP has made available the original Siemens Combino low-floor tram, which has been part of the Potsdam fleet since ending its role as a global demonstrator almost two decades ago. As well as the Siemens Tram Assistant collision warning system fitted to the new Avenio M cars for Ulm, the experimental tram has been equipped with a wide range of sensors including video cameras, radar, and LIDAR, to detect surrounding objects and moving traffic.

Currently, Siemens says the tram is purely experimental and not authorized to carry passengers in revenue service. The intention is to identify any technological challenges to autonomous driving under real-life conditions and then develop appropriate solutions. (***Metro Report International***, September 18)

***Nuremberg, Germany***

Nuremberg Transport Company (VAG) has received two modern LRVs on loan from Munich and Krakow as it prepares to launch a request for proposal (RFP) for up to 85 new LRVs. VAG says it needs additional LRVs to accommodate increasing ridership and expansion of the network. The operator plans to solicit requests by the end of the year, subject to the confirmation of financial support from the German federal government and the state of Bavaria. The latter could cover up to 40% of the cost of the initial order for 12 vehicles through a fund for reducing air pollution, but deliveries of all 85 LRVs would need to be completed by the end of 2022., with the balance delivered by 2034. (***International Railway Journal***, August 28)

## NYCT Opens Secondary Entrance at Hudson Yards

*(Continued from page 9)*

13, 2015, it has operated with the primary entrance which is located just south of W. 34th Street, on the west side of Hudson River Boulevard. The extension and station are key elements of the Hudson Yards development, which is adding over 25 million square feet of commercial office space to the area.

The new entrance shares design similarities with the primary entrance, but there are some differences as well. The overhead glass canopy at street level is in the same style as the primary entrance, but smaller On the upper mezzanine, the fare control area is not staffed, and the mezzanine is offset from the escalator bank that descends to the lower mezzanine. With respect to the escalators, there are seven at this location — three in the bank between the street and upper mezzanine (plus a stair) and four in the bank between the upper and lower mezzanines. There are no elevators here; they are at the primary entrance. One feature that stands out is a large tiled wall that separates the two inner escalators for almost the entire length of the escalator bank's rise. The wall appears to be structural in nature, most likely to provide load bearing for the future commercial tower overbuild that will be rising over the station over the next few years.

The new entrance also features the third and final installment of the large scale, multi-color glass mosaic "Funktional Vibrations" by the artist Xenobia Bailey.

Additional details and photographs will be published in the November ***Bulletin***.

## Tech Talk

*(Continued from page 18)*

ject. A single crossover east of the Farmingdale station, part of Farm interlocking and currently installed, needs to be placed into service. I presume that all of the position light signals at Farm will be converted to the Reduced Aspect System dwarf signals, but this is just a guess on my part. Also, the one switch at PW interlocking from Track 1 to the west end of the Pinelawn Long Siding needs to be installed and placed into service.

# SWITZERLAND IN THE LATE SUMMER
## by Jack May
## (Photographs by the author)
## (Continued from September, 2018 issue)

*Before resuming the Switzerland trip report with the final segment, I must thank Rich Taylor for sending me a link to a great 5½-minute video that shows how freight and supplies are transferred between the cable car and tramway at Grutschalp. See http://www.youtube.com/watch?v=7joxgxsIjTI. (My rides between Lauterbrunnen and Murren were covered in the May and September, 2018 issues.)*

We got a good night's sleep and had a decent Continental breakfast in this friendly mini-hotel. After checking out and leaving our luggage at the desk, we went our individual ways — for the last time on this trip. Clare proceeded to an art museum and I, of course, rode and photographed some streetcars on this variably cloudy day. I concentrated on the city center, aiming for pictures of the different types of rolling stock, especially the Peter Witts. I was pleased with the assortment of equipment, all single-ended, in this area where many lines converge and diverge. In addition to the Witts, which are approaching 90 years of age, I observed the 4600/4700-series of articulateds, the 4900-Jumbos, and the Siriettos, shorter versions of the original Ansaldo-Breda Sirio cars. Except for the Jumbos, they all seem to blend in with the city's architecture and traditional urban environment. Soon it was time to get back to the hotel, as Clare and I had agreed on a 12:30 meeting time.

We both arrived at almost the same moment, picked up our bags, and rolled them across the square to Centrale. Our goal was to ride the 12:55 to Malpensa Airport (I had bought tickets earlier), and it was tight. But we did not fret, as the next train was at 13:25, which still would give us enough time to catch our Swiss flight at 15:00. We actually made the train, as it left a minute or two late. We arrived at the airport's underground station on time at 13:46 and were checked in very rapidly, as the first leg of our journey home had us traveling within the confines of Europe (Zurich) and we would not have to go through the special screening required for flights to the U.S. (and other intercontinental destinations).

There is little else to write about. After being served a nice snack, our RJ-100 landed at Kloten virtually on time at 16:00. We saw that our departure gate was similar to the one at which we arrived when we started our trip, but surprisingly, this time the walk was quick. Apparently arriving passengers from the U.S. are directed on a roundabout route, possibly because of the need to pass through Immigration and Customs. We were soon aboard our Swiss A-330 and had a non-eventful flight home, leaving on the advertised at 17:20 and arriving in Newark a little before 20:10. We remarked that we felt the service on the return flight was better than on the going one, but it is hard to be specific. Anyway, Paul met us at EWR and we were home before 21:00, ending a very enjoyable and successful trip.


**Milan Peter Witt 1827 is shown operating on Route 5 eastbound through Piazza Duca d'Aosta in front of our hotel. To the right is Centrale, the city's principal railway station. Five hundred of these cars were built between 1928 and 1930 and about 100 remain on the ATM's roster. Eleven of these cars, equipped with trolley poles (and in three genuine Milan color schemes), are on the roster of San Francisco's F streetcar line, while two were fabricated into a double-ended unit for San Jose (with pantograph).**


**A Sirietto glides down Via Broleto in the center of Milan. Route 14 continues straight ahead while Route 1 turns onto Via Grossi at this intersection near the Cordusio station of the Metro. A diminutive version of the Sirio tram, 68 of these 100-percent low-floor units (87 feet long compared to the normal 116 feet) were built by Ansaldo-Breda between 2003 and 2011.**

*(Continued on page 17)*

## Switzerland in the Late Summer

*(Continued from page 16)*

"Jumbo" six-axle car 4987 is shown southbound on Route 12 on Via Orefici near the Duomo station of Milan's metro. These large, 96-feet-long three-section articulateds were built between 1976 and 1978, and sport a peculiar offset front end to make clearances. The first 50 of these high-floor cars were built by Fiat and the remaining 50 by Stanga. The 15th century Castello Sforzesco, housing various museums, looms in the background.

Among Milan's most attractive cars are the 33 Stanga-built 46- and 4700s. Sporting a PCC-like exterior, the 65-feet-long high-floor single articulated units date from 1955 to 1960. The 4600s are air-electric, while the 4700s are all-electric.


Tracks 1 and 2 at Milan's Central Station serve the *Malpensa Express*, which connects the massive rail terminal with Milan's largest airport. Regular service is provided by eMU cars, which make the run in 52 minutes every half hour. A faster service, including non-stop trains, operates between Cadorna, the traditional terminal of the Nord Milano Railway in the city center, and Malpensa, with running times as low as 37 minutes.

# TECH TALK
## by Jeffrey Erlitz

The big news this month was the completion of the new interlocking at W. 4th Street-Washington Square on the IND Sixth and Eighth Avenue Lines (Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ Ⓕ Ⓜ). It was placed into service over seven weekends, as follows:

7/28-30, northbound local Track B2
8/4-6, southbound local Track B1
8/11-13, southbound local Track A1 (upper level)
8/14-17, southbound connecting Track AB1
8/18-20, southbound express Track B3
8/25-27, northbound express Track B4
9/8-10, northbound local and connecting Tracks A2 (upper level) and AB2

This interlocking is remotely controlled from the new 34th Street Master Tower, which was placed into service on May 14 and is capable of being operated automatically via Train Operator pushbuttons at various locations. The new relay room is at the south end of the southbound platform on the upper level and can be controlled locally with the maintainer's control panel located there. This work was performed by TC Electric, LLC under contract S-32765. As per current NYCT standards, the maintainer's control panel was built by Mauell Corporation. The signals and switches were supplied by Ansaldo STS, USA but are all still marked as US&S (Union Switch and Signal).

The BMT Fourth Avenue Line (Ⓓ Ⓝ Ⓡ) is undergoing major structural rehabilitation work. Starting on August 30, and running through at least the end of this year, express Tracks F3 and F4 are out of service from the south end of the 36th Street station to the south end of the 59th Street station. Ⓝ trains are running via the local tracks on that segment for the duration. This work was anticipated, so Ⓝ train schedules were written to take this into account for the Spring Pick back in June.

Over the weekend of August 4-6, the single crossover at the Northern Boulevard station on the IND Queens Boulevard Line (Ⓔ Ⓕ Ⓜ Ⓡ) was removed from service. The work was done by L.K. Comstock and Company, Incorporated under contract S-48005, which is the Queens Boulevard West CBTC project. This interlocking saw extremely little use over its entire lifetime. It was possibly last used during a General Order operation, in the late nineties if I recall correctly, when there was no service between Queens Plaza and Roosevelt Avenue-Jackson Heights. Ⓕ trains, which were being short-lined from 179th Street-Jamaica to Roosevelt Avenue, were operated light to Northern Boulevard and turned for northbound service there. Ⓔ trains were being turned at Roosevelt Avenue and it was felt, I guess, that there would be too many trains to turn at Roosevelt. Your Editor managed to ride one of those Ⓕ relays and so was able to ride over possibly the rarest switch on the entire subway system! Even the connection from Track 4 of the 42nd Street Shuttle gets used more often.

Two more components of the Enhanced Station Initiative project were started recently, both on the IND Concourse Line (Ⓒ Ⓓ). 174th-175th Streets was closed on August 13 and 167th Street was closed two weeks later on August 27. These are both scheduled to be closed for the rest of the year but may very well reopen sooner.

Over the Labor Day weekend, September 1-4, Five Star Electric Corporation, under contract A-35301, modified the track indications for northbound local Track 4 between the Cortlandt Street (now known as WTC Cortlandt) and Chambers Street stations on the Times Square master control panel, Chambers Street maintainer's control panel, and South Ferry Terminal dispatcher's indication panel. This was all for the addition of one new automatic signal in that area and was part of the WTC Cortlandt station project.

September 2 saw the latest reopening of an Enhanced Station Initiative project when Cathedral Parkway (110th Street) on the IND Eighth Avenue (Ⓐ Ⓑ Ⓒ) Line was completed. This had been out of service since April 9.

On September 3 Tracks F3A and F4A (east leg of the wye) at Hammels on the Rockaway peninsula were returned to service. They had been out of service since July 2 for Sandy recovery work. During that time, Far Rockaway Ⓐ service operated to Rockaway Park and the Ⓢ Rockaway Shuttle ran between Rockaway Park and Far Rockaway, using the lightly-used Track F6 on the south leg of the wye.

On September 8, the southbound platform at 238th Street on the IRT Broadway Line (1) was taken out of service for street stair rehabilitation work. This work is scheduled to run through the end of this year but may not take that long.

The big news this month on the Long Island Rail Road was the attainment of "Beneficial Use" status for the Main Line Double-Track project between Farmingdale and Ronkonkoma. Over the weekend of September 8-9, work was completed to place the second main track into service between Farmingdale and Deer Park on Monday morning just after midnight.

Included in this work, Farm 1 interlocking was renamed Farm and PW, Lawn, and Danch interlockings were placed into service. As stated in a previous issue of ***The Bulletin***, PW is the former Farm 2 interlocking and was the location where the original double-track ended and single-track began. Over at JS interlocking west of the Deer Park station, the other single crossover and eastward home signal on Track 2 were also placed into service, completing the work at this interlocking.

At the Pinelawn and Wyandanch stations, the new platforms on the south side of the new Track 2 were placed into service.

There is still a little bit of work to be done on this pro-

*(Continued on page 15)*