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

by Subutay Musluoglu

(Continued from October, 2018 issue)

(Photographs by the author)

As first reported in the October ***Bulletin***, New York City Transit opened the secondary entrance to the 34th Street-Hudson Yards Station on the 7 on September 1. This month we will examine the long process by which rail transit came to the growing Hudson Yards neighborhood, with a closer look at the three-year-old subway station that serves it.

The opening of the entrance is the latest step in the development of Hudson Yards, where over 25 million square feet of commercial and residential space will ultimately be built. It should be noted that while the use of the name Hudson Yards is itself relatively new, the area's evolution goes back over 30 years. The neighborhood traditionally did not have a name, sometimes referred to as the Far West Side or Far West Midtown, or some variation thereof, and was defined loosely as an area bounded by W. 42nd Street on the north, 10th Avenue on the east, W. 30th Street on the south, and 12th Avenue on the west. Until recently, the area's most prominent features were the access roadways to the Lincoln Tunnel, the Jacob K. Javits Convention Center (opened in 1986), and the Long Island Rail Road's John D. Caemmerer West Side Yard (opened in 1987). Both of those were constructed over the remains of the Penn Central (originally New York Central) 30th Street Yard, which dominated the area for most of the 20th Century. The rest of the neighborhood was comprised of an assortment of tenement apartment houses, industrial loft buildings, warehouses, and parking lots and garages used mostly for off-hour taxi and bus storage.

While the area had always been seen as the logical extension of the Midtown office district, the right economic conditions never seemed to line up for redevelopment. It had been hoped that the opening of the Javits Center would be followed by hotels and new commercial office buildings; however, its location on 11th Avenue, a 10-15-minute walk from the nearest subway station (8th Avenue and W. 34th Street) was considered less than ideal, so the anticipated development never occurred, leaving the center rather isolated.

Various proposals emerged to jump-start development. In the mid-1980s, the MTA began to examine ways of building transit access westward from Penn Station. One idea that gained some traction was to build a form of automated guideway transit, essentially a people mover, underground between Penn Station and the Javits Center, mostly following the alignment of the LIRR's access tracks to the West Side Yard. The complexity of the construction, which would have required extensive modifications to Penn Station's subterranean structural framing and impacts to LIRR daily operations, was deemed to be not cost-effective relative to the investment required and the ridership served.

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THE GENESIS OF DASHING DAN — A NEW JAMAICA AND THE MAIN LINE COMPLETE
by George Chiasson
(Continued from October, 2018 issue)

THE REPLACEMENT OF "OLD" JAMAICA STATION — NUMBER 2, INTERIM TRACKAGE AND CONSTRUCTION

As a follow-up to its emphasis on physical plant improvements which would directly impact operations at Penn Station, the Long Island Rail Road designed the new Jamaica station project in the years between 1906 and 1910. By the latter year not only had the New York Terminal come to reality, but so also were the LIRR's Main Line and Atlantic Division able to completely support the various types of service engendered by the era of electrification. As disclosed above, the first bits of construction at the new site materialized in July, 1910 when foundation work was undertaken for the station and office building on what was then a largely-residential street in Jamaica, and a series of grade separations started at Van Wyck Avenue which would not only expand and elevate the LIRR over the street but also overcome the track-level convergences of the Montauk Division and Main Line with the Atlantic Division west of the new station site.

After the creation of Archer Avenue had made sufficient progress by that fall, ground-level trackage through the existing Jamaica Yard was adopted for the Main Line as a temporary right-of-way around the northerly side of the new station site. This initial thrust of construction bore fruit by November when a permanent 2-track overpass was opened at Van Wyck Avenue to carry what would become Main Line Tracks 3 and 1 over the street as a partial replacement of that location's long-existent grade crossing, though in the interim it was to be used by trains to and from Woodside in both directions. As a result "JA" and "AC" Towers were permanently eliminated, along with any future ability to operate through trains between Brooklyn and Queens via the Main Line.

Meanwhile the Montauk and Atlantic Divisions were diverted around the future Jamaica Station site to pass through "MP" interlocking (the former Tower 67), using three temporary tracks along the south perimeter of the original alignment. On the easterly end of the site, all five main irons were reunited in their original positions by Rockaway Road, and continued from there into "Old" Jamaica Station. As the fair weather began to take shape in 1911, so did the next stage of construction with continued expansion of the work area westward of Van Wyck Avenue into the area of "MP" interlocking and even toward Morris Park Shops, which brought about some track consolidation on the Montauk Division main line by September, along with a relocated westbound platform at the Dunton rapid transit station. All through 1911 and 1912, a pair of imposing new overpasses were built across Van Wyck Avenue which would facilitate the future crossing-free connection between the Atlantic and Montauk Divisions, positioned inside the triangle once formed by Brighton Junction, Tower 67, and Tower 14.

On July 25, 1911 the LIRR and City of New York reached agreement on the construction of 16 overpasses (one variant of which was locally referred to as an "underjump") across existing streets where the tracks were being elevated around the new Jamaica Station project. The most important of these included the already-partially-complete Van Wyck Avenue bridges for the Main Line, Atlantic Division, Montauk Division, and Morris Park Shop leads, along with Foley (143rd) and Church (153rd) Streets as well as Rockaway Road, each of which were located in the immediate area of the new station. However, the huge overpass at what became Sutphin Boulevard was not included in this agreement as that street was considered to be new construction on otherwise private property undertaken by the railroad. Contracts for the list of new bridges were let within months, but disputed cost estimates delayed all from being started either simultaneously or on time. This later resulted in a haphazard pattern of grade crossing elimination and put the new station out of harmony with its supporting track improvements as both were separately completed in stages. By the end of 1912 the two most essential overpasses at Foley Street and Sutphin Boulevard (situated at either end of the new station) were nearing completion, along with the four-track Atlantic Division crossing at Van Wyck Avenue and that of the Montauk Division at Maure Avenue (130th Street). Of the remainder, Rockaway Road and Church Street had been delayed and were still in their earliest phases of construction, while several overpasses along the westerly stretch of the Montauk Division main line were well underway and would be completed during the following year. Other bridgework on the Atlantic Branch (Old Southern Road) as it moved away from the new Jamaica Station had yet to even be started and would not materialize for several months.

After another construction contract was granted on June 13, 1912 the railroad's large, five-story terminal building also took shape during the winter season of 1912-3, sporting a somewhat utilitarian design of brick and sculpted stone with a marquee attached on the east side to mark the main entry point off Sutphin Boulevard. The two temporary Main Line tracks between Van Wyck Avenue and Rockaway Road passed immediately by the south side of the new structure, while a 16-foot-high elevation, located in part through the former Jamaica Yard and in part where the original main tracks had been, was constructed next to that across Sutphin

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Boulevard. The actual station on the new elevation would be formed by five high platforms bracketed by eight tracks when completed, but this aspect of the project did not fully emerge until the second half of 1912, while wooden "dummies" which mimicked the projected facilities in size were used elsewhere on the site to assess equipment clearance details three years before construction was finalized.

Also to be added on this burgeoning elevation was a new wood and brick control tower to replace "MP" (formerly Tower 67 and later to be designated "Dunton"), where the Montauk and Atlantic Divisions had historically come together at Maure Avenue (130th Street), while another called "J" (and later to be known as "Jay") would eventually take the place of "AC" (formerly Tower 14) where the Atlantic Division and Main Line converged near Van Wyck Avenue. Thanks in part to overpass construction delays, very little of substance was changed east of Rockaway Road while the new station was built, with the existing right-of-way remaining largely intact well into 1913.

As work progressed further through 1912, the abuilding elevation grew to encompass almost 20 blocks from west to east, and the temporary main lines adjusted accordingly to retain access via the previous grade-level right-of-way. By August of 1912 this brought about the creation of a wholly-new but temporary station at Dunton, located on the west side of what was left of the Van Wyck Avenue crossing.

After a third temporary main track was laid around the north side of the new station site, westbound Montauk and Atlantic Division traffic began to use it on November 30 to reach their new (permanent) overpass of Van Wyck Avenue as well as yet another temporary platform for the Dunton station. This was actually laid within one of the "portals" being created to carry the future Montauk Division "by-pass" and eastbound Main Line tracks across the Atlantic Division, thereby forming a double-deck bridge over the pre-existing street when it was completed.

Meanwhile, eastbound Montauk and Atlantic Division trains continued to utilize the two remaining ground level leads around the south side of the Jamaica Station site until sometime in early 1913, when more changes at MP Interlocking pulled Montauk trains over to the north side, where they shared iron with Jamaica-bound Main Line traffic, itself still employing the temporary arrangement begun in November of 1910. From that time until the new station was placed in service, the lone remaining grade-level main around the south side of the work area was used solely by eastbound trains from Flatbush Avenue in Brooklyn that were bound for Jamaica.

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NYCT Opens Secondary Entrance at Hudson Yards

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In the early 1990s, Amtrak began floating the idea of using the landmark James A. Farley General Post Office building as a westward expansion of the Penn Station complex. This made practical sense, as the center trackage and platforms of Penn Station stretched underneath the postal facility. It was proposed to transform the landmark mail sorting room into a grand passenger concourse that would both recall and pay homage to the original Penn Station headhouse. The rest of the building would receive a variety of mixed uses, including retail, offices, and meeting spaces, forming the first step of the of Midtown's inevitable westward march. The usefulness of the project was questionable; while it would add to Penn Station's passenger circulation and enhance the passenger experience, it did not physically expand the station's rail capacity, and other than providing a portal from 9th Avenue, did not directly serve the areas to the west.

The project came to be known as Moynihan Station, named after the late United States Senator who became its greatest champion up until the time of his death. Following over 20 years of alternating phases of momentum and languishment, the effort is now in full swing, with Phase 1 having opened in June, 2017, and Phase 2 scheduled to open by late 2020. A more ambitious follow-on phase is in development, which includes the widening of Penn Station's 33rd Street Concourse and the permanent closing of the street above to allow for the addition of a number of new signature entrances to the station.

While the initial plans for Moynihan Station were formulating, the city had begun to recover from the effects of the 1990-2 recession. Economic growth began to take off in the mid-1990s, during the first term of Mayor Rudolph Giuliani's administration, creating favorable conditions for the development of Far West Midtown. At around the same time, the New York Yankees were seriously contemplating leaving their long-time home in the Bronx, possibly even moving to New Jersey. Mayor Giuliani, always quick to tout his Yankee fandom, proposed decking over the West Side Yards for a new Yankee Stadium and accompanying commercial development. The proposal ran into heavy opposition from a variety of forces, ranging from local residents and elected officials to good government advocates. The resistance centered on the inappropriateness of the area for a sports stadium and the accompanying parking accommodation that was being proposed. As such, the project did not advance and the Yankees eventually settled on staying in the Bronx and building themselves a new home there. Yet the genie was now out of the bottle — the concept of covering the yards and transforming the area only became a matter of time.

As the 21st Century dawned on New York City, and in the wake of the 9/11 terror attacks, a new Mayor was eager to prove that the city's tragic setback would be

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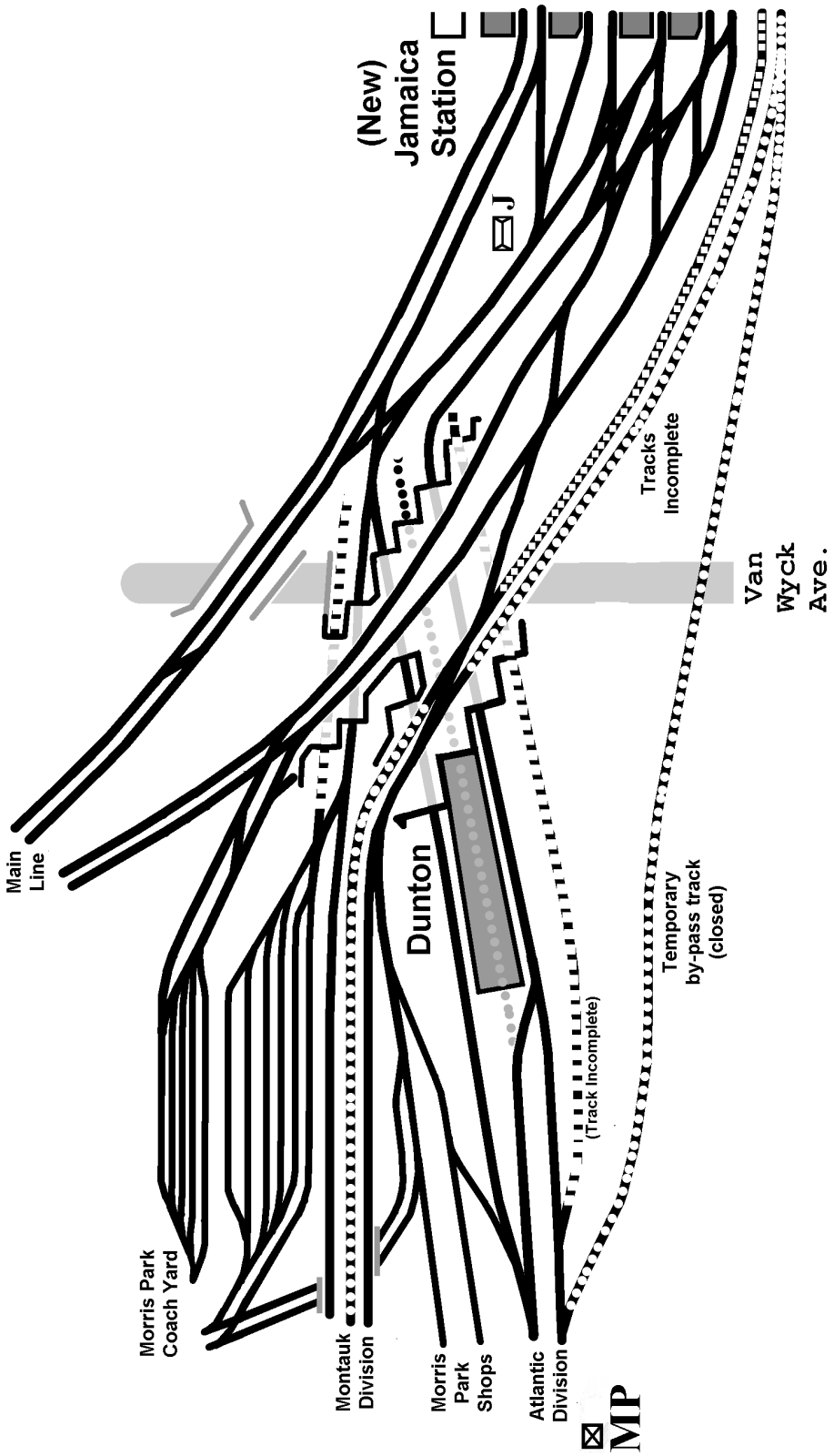
New Jamaica-West
March 1913



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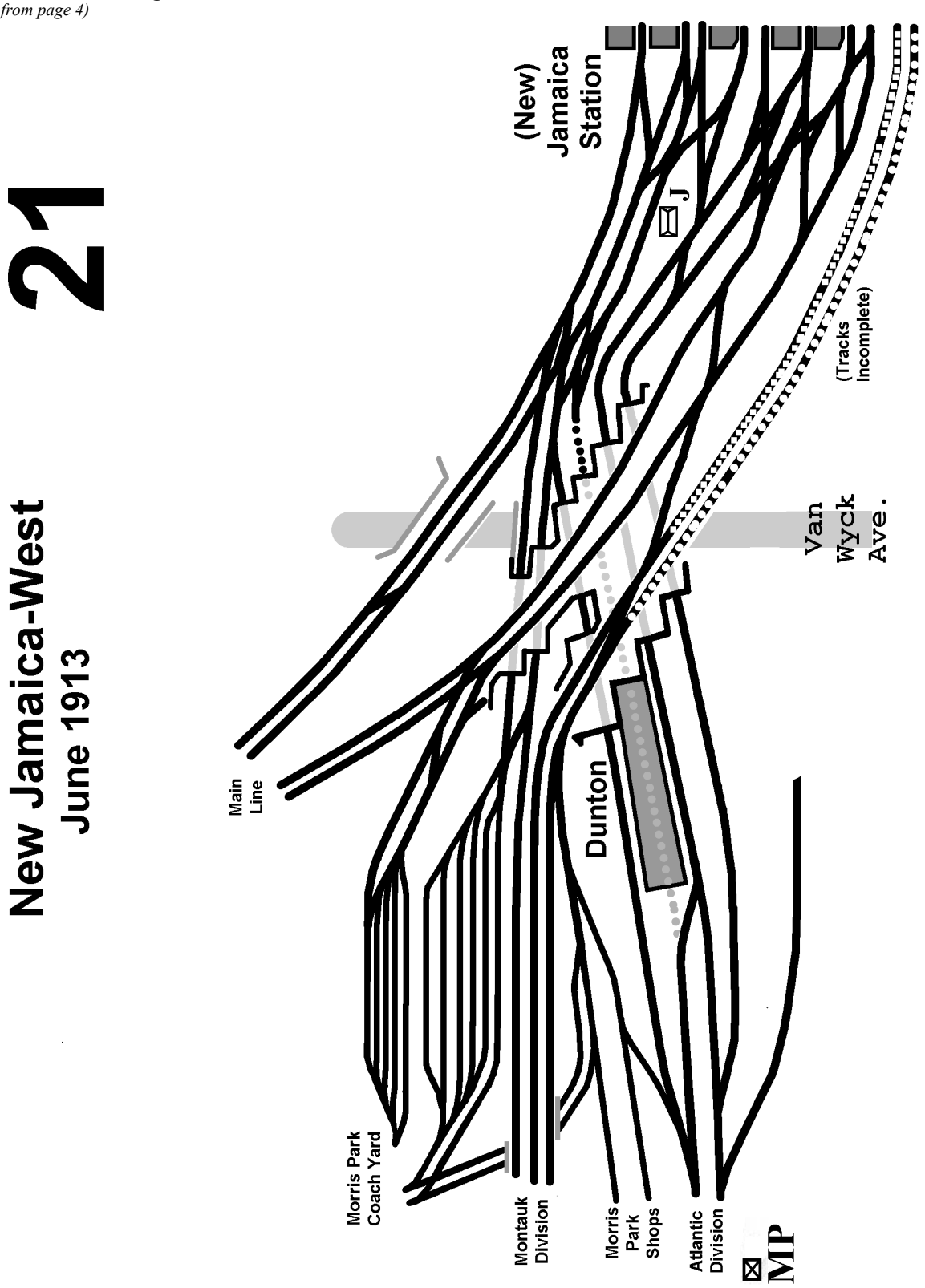

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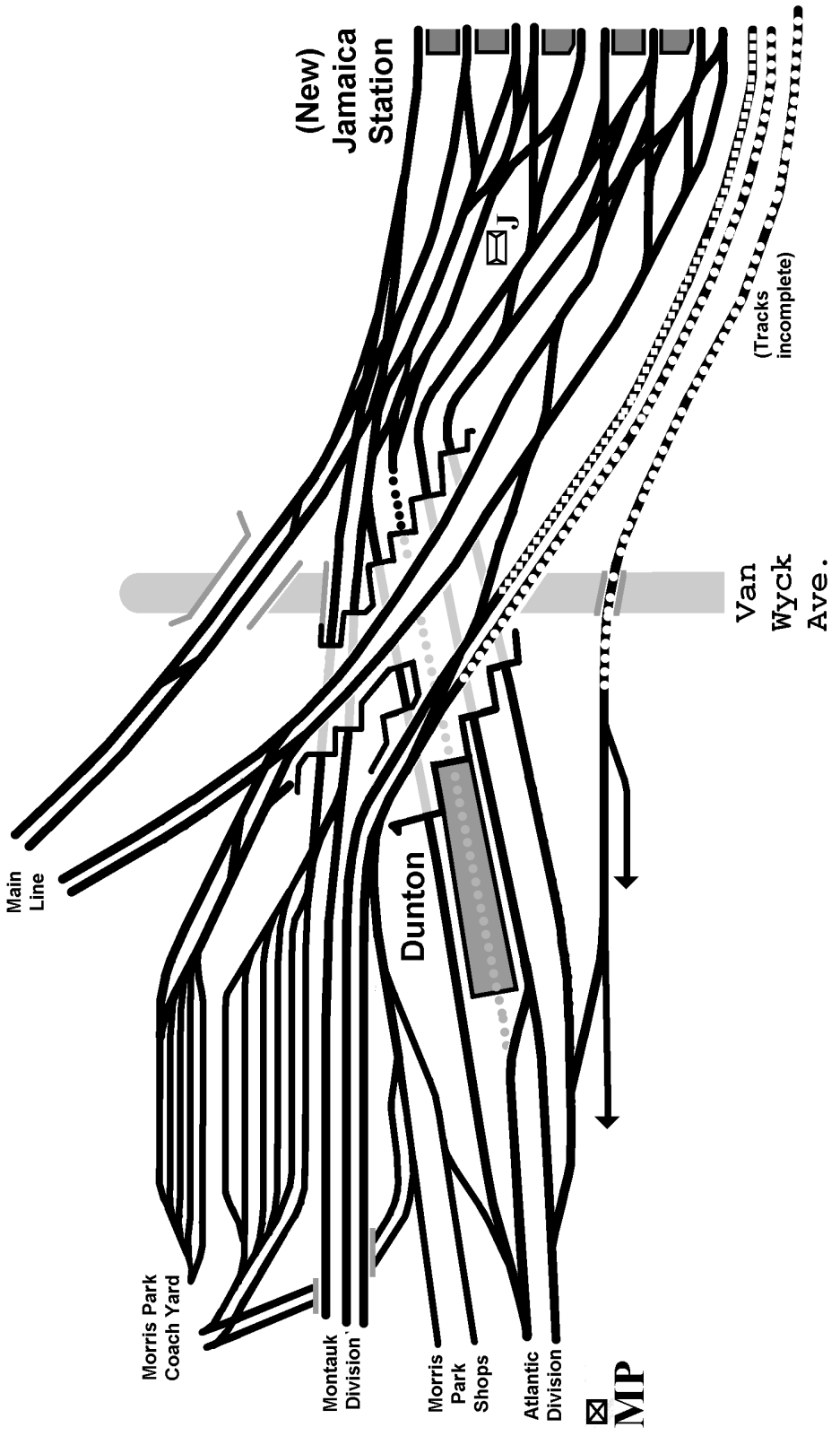
New Jamaica-West
July 1913



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NYCT Opens Secondary Entrance at Hudson Yards

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overcome. Mayor Michael Bloomberg picked up where his predecessor left off, proposing an even more ambitious plan. The city would make a bid for the 2012 Olympic Games, and the centerpiece of the bid would be a grand stadium over the yards. Following the conclusion of the Games, the stadium would be converted for use as a professional football stadium, luring the New York Jets back to the city from New Jersey. Over time, a new office and residential district would grow around the stadium. Though some limited parking was still a component of the plan, Mayor Bloomberg was eager not to repeat past mistakes. As part of its bid package, the city proposed to fund the construction of an extension of the IRT Flushing Line from its Times Square terminal, which was seen as an absolute necessity to serve the stadium. Doing so was seen as essential to winning over the International Olympics Committee in securing the games, while also placating critics rightly concerned about the scale of future development in a "transit desert."

Technically this was not the first time that a westward extension of the Flushing Line was considered. In the late 1980s and early 1990s talk began of the possibility of extending the Flushing Line out to the Meadowlands in New Jersey, providing a direct link to the sports and arena complex there. A broad sketch of such a concept found its way into the MTA's 20-Year Capital Needs Assessment covering the period of 1992-2001. This discussion, which was taking place on both sides of the Hudson River, led to the initiation of a major investment study known as "Access to the Region's Core," the purpose of which was to study the expansion of passenger capacity across the Hudson and East Rivers into Midtown Manhattan. The effort was an unprecedented cooperative effort of the Port Authority of New York & New Jersey, the MTA, and NJ Transit. At a high level, the scope of the study took a matrix approach that was not limited by mode and jurisdiction, and as such produced a long list of 137 alternatives comprised of multiple subway and commuter rail extensions, as well as bus and vehicular crossings. An extension of the Flushing Line to New Jersey was among the alternatives, but it did not survive a detailed screening process to meet the study's objectives, which eventually yielded an expansion of commuter rail between New Jersey and New York, comprised of a new Hudson River rail tunnel and a new terminal adjacent to Penn Station. It was this project that was cancelled by then-New Jersey Governor Chris Christie in October, 2010, and has now been born again as the first phase of the Gateway project.

Returning to the city's Olympics bid, detailed studies were required as to how the area around the stadium would eventually be developed. By this time, the name Hudson Yards had been coined and its common usage was promoted actively. The studies included a framework for rezoning from predominantly industrial use to mixed use, identifying the right balance of uses, determining the appropriate massing and scale of the buildings, open space and public realm improvements, and the utility and infrastructure requirements. To handle this effort, the city set up a new agency known as the Hudson Yards Development Corporation (HYDC), which was essentially a subsidiary of the existing New York City Economic Development Corporation. The HYDC would also ultimately be responsible for negotiating and entering into contracts with the developers who would build the commercial and residential buildings. A companion entity, the Hudson Yards Infrastructure Corporation (HYIC) would focus on the financing of all the public investments, including the Flushing Line Extension.

In September, 2002, the HYDC awarded a contract to Parsons Brinckerhoff for the conduct of an Environmental Impact Statement. Following two and half years of work, in January, 2005 the New York City Council approved the Hudson Yards rezoning and the Flushing Line extension. However, concerns with the stadium and the Olympics bid as a whole continued to grow. And then on June 6, 2005, the New York State Assembly refused to fund the West Side Stadium, dealing the bid a major setback. The city quickly scrambled to salvage its bid, offering to build the then proposed Shea Stadium replacement in Queens initially as an Olympics-grade venue, but ultimately, the 2012 Olympic Games were awarded to London.

Despite the setback, the Bloomberg Administration was convinced that the city's future economic potential would be best served if the Hudson Yards development continued to move forward. By October, 2006 the MTA, the City of New York, the HYDC, and the HYIC agreed to the design, construction, and $2.1 billion in funding for the Flushing Line extension. The length of the extension would be 1.5 route miles, with 3 track miles. Two stations were planned, at 10th Avenue and W. 41st Street, and the terminal at W. 34th Street and 11th Avenue. Final engineering was underway, also performed by Parsons Brinckerhoff and in April, 2007 the MTA awarded a construction management contract to a joint venture of Hill International, LiRo Engineers, and HDR.

As the designs were finalized, it became clear that the project would exceed its original estimate, approaching $2.4 billion. This led to the controversial decision in October, 2007 to cancel the 10th Avenue station. Since the city had pledged to pick up the entire cost of the extension, the MTA indicated that it would not cover any cost overruns. The city was equally resistant to increasing the budget, which was specifically tied to the selling of bonds backed by the anticipated future revenue streams coming in from the Hudson Yards development. Efforts to revive the station were pursued, and there was talk of at least having a "shell" to minimize disruption if and when it became possible to add the station in the future. In hindsight these efforts were ineffective and weak as the city and the MTA could not even agree to the cost sharing of the shell. The initial construction contract for the running tunnels advertised in February, 2007 had contained the shell as an option

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which had to be exercised by the time of award so as not to jeopardize the contractor's bid price.

With no agreement to be had, in November, 2007 a construction contract in the amount of $1.145 billion was awarded to a joint venture of Shea Construction, Skanska Construction, and Schiavone Construction. This contract encompassed the mining of the running tunnels with tunnel boring machines (TBM), the 34th Street station cavern, and the transitionary structures under the Port Authority Bus Terminal to link the mined tunnels with the tail tracks of the existing Flushing Line beyond the Times Square station. Additional contracts were subsequently awarded for the primary station entrance structure, the secondary entrance, three ventilation buildings, systems, and station finishes. Initial excavation began in January, 2009 below the bus terminal, a tricky operation involving drill and blast techniques without disturbing the 24/7 operations of the terminal. Just to the east, the IND Eighth Avenue Line posed an additional challenge. The unused lower level trackway was directly in the path of the proposed extension alignment, requiring special measures to underpin the existing subway structure, while the lower level was penetrated and reconstructed to allow the extension alignment to intersect it and pass through.

Also in January, 2009, the first components for the two tunnel boring machines began to arrive at the TBM assembly shaft at 11th Avenue and W. 26th Street. That location marked the end of the tail tracks that extend south beyond the 34th Street station, with accommodation for laying up six trains (three on each track). Mining started four months later in May, 2009 and was completed by June, 2010.

As we have seen with the other rail expansion projects in New York City (Second Avenue Subway and East Side Access), the actual tunneling is always the easiest part of the overall project. The complexities lie with the systems work, which includes communications, signaling, traction power and facility power, fire and life safety systems, and vertical circulation. This last element was particularly challenging on the Flushing Line Extension, with the longest escalators in the New York City subway system being a prominent feature at the 34th Street station. Moreover, fulfilling the need for ADA access required the installation of inclined elevators — a first for the New York City subway (more on that shortly).

As work proceeded on the extension, the Hudson Yards development was having some challenges. As the owner of the LIRR West Side Yard, the MTA took the lead on choosing the developer. A bid process with a companion design competition was held in Autumn, 2007, yielding 5 bid teams comprised of the biggest names in New York City real estate. By Spring, 2008, as the winning bid was about to be selected, critics expressed concern that the MTA was not receiving a fair price for the yard's value. Under pressure, the MTA modified the terms of the deal, received revised bids, and then selected Tishman Speyer. However, Tishman Speyer subsequently withdrew its bid, and the next highest rated bidder, Related, moved up. By this time, the 2008 financial crisis was in full swing, forcing more delays. It was not until 2011 when a final agreement for a $1 billion sale price was reached between Related and the MTA.

It had been hoped to open the extension before the end of the Mayor Bloomberg's last term on December 31, 2013. It became clear by mid-2012 that this would not happen. A variety of challenges with the systems installations inevitably led to delays. Particular issues with the fire alarm systems, the escalators, and the inclined elevators were difficult to solve. Completion and opening was tentatively scheduled for June, 2014. Nonetheless, a photo opportunity was staged on December 20, 2013 to allow Mayor Bloomberg to "ceremonially open" the 34th Street station.

Less than two months later, on February 27, 2014, it was announced that the line would open in November. Ongoing issues throughout 2014 once again forced additional delays. By October it was hoped that February, 2015 would finally be it, yet by the end of the year this was revised again to be April or May. In March, 2015, it was pushed to July, and when July rolled around it was announced that opening day was settled — September 13, 2015, and indeed on that day the Flushing Line Extension and the primary entrance to 34th Street-Hudson Yards Station was finally opened for public service.

At this point a review of some of the 34th Street Station's specifics. While the station cavern is located directly underneath 11th Avenue, the vertical access is through three shafts inclined 27 degrees to the east. As such, the station access points are to the east of 11th Avenue, almost midblock (see Figure 1). It is comprised of three levels — an upper mezzanine 28 feet below street level, a lower mezzanine 109 feet below street level, and the platform is at 125 feet below street level. It should be noted the station has a design capacity of 25,000 people in the peak hour and is anticipated to be the busiest single-line station in the NYC subway system once the Hudson Yards area is fully built out. Every aspect of the station was designed with the singular objective of handling large amounts of passengers. The column-free platform is 36 feet in width, one of the widest in the system. Eight sets of stairs and an elevator provide access from the lower mezzanine to the platform. Two diamond crossovers are located at opposite ends of the station and with the aforementioned tail tracks, train throughput is a marked improvement over the previous situation when the Times Square station was the terminal. And as the Flushing Line's cutover to full CBTC signaling operations takes place before the end of this year, it is hoped that daily operations will improve even more.

The primary entrance is located just south of W. 34th Street, on the west side of Hudson River Boulevard, a new north-south thoroughfare that has been built midblock between 10th and 11th Avenues. The south end of

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the new street is right outside the entrance, and when the Hudson Yards development is fully built out, this street will provide direct access into the heart of the complex. It should be noted that prior to the start of work on Hudson Yards and the subway, the grade of W. 34th Street was higher than W. 33rd Street. In fact, when the station opened, keen observers standing by the entrance would have noticed that Hudson River Boulevard ended at a fence twenty feet above the north sidewalk of W. 33rd Street. Since then, W. 33rd Street between 10th and 11th Avenues has been filled in to raise its profile, creating a uniform and level grade between Hudson River Boulevard and the top of the Hudson Yards deck.

The primary entrance contains four low-rise escalators and two stairways passing under the first of three installments of the large scale glass mosaic, "Funktional Vibrations," by the artist Xenobia Bailey. An elevator is located in the public park just behind and to the south of the glass entrance canopy. The oval-shaped upper mezzanine, which features the second art installment on the ceiling, contains a staffed booth, and beyond the fare array two separate shafts descend to the lower mezzanine. Facing west, the right-hand shaft contains four escalators. The left-hand shaft contains an additional escalator and two inclined elevators. Specially manufactured in Italy, and installed at a cost of $2.7 million, each inclined elevator is essentially a form of funicular, with two side-by-side cabs descending 82 feet, while traveling a lateral distance of 172 feet. Each cab can accommodate 15 standing passengers or 3-5 wheelchair passengers. Though the elevators proved to be initially problematic prior to opening, there was a very practical reason for their construction. Because of the station's unique configuration, providing conventional elevator access would have been costly and impractical. It would have required the excavation of a deep vertical shaft from 11th Avenue directly down to the cavern to an additional fare control area adjacent to the lower mezzanine.

As mentioned last month, the secondary entrance is also located on Hudson River Boulevard, but one block to the north. Three escalators and a stairway descend under the third and final art installment to the upper mezzanine's unstaffed fare control area, which is distinct for being offset from the shaft that descends to the lower mezzanine. The shaft contains four escalators and features 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.

Now that the station is complete, all that remains is for

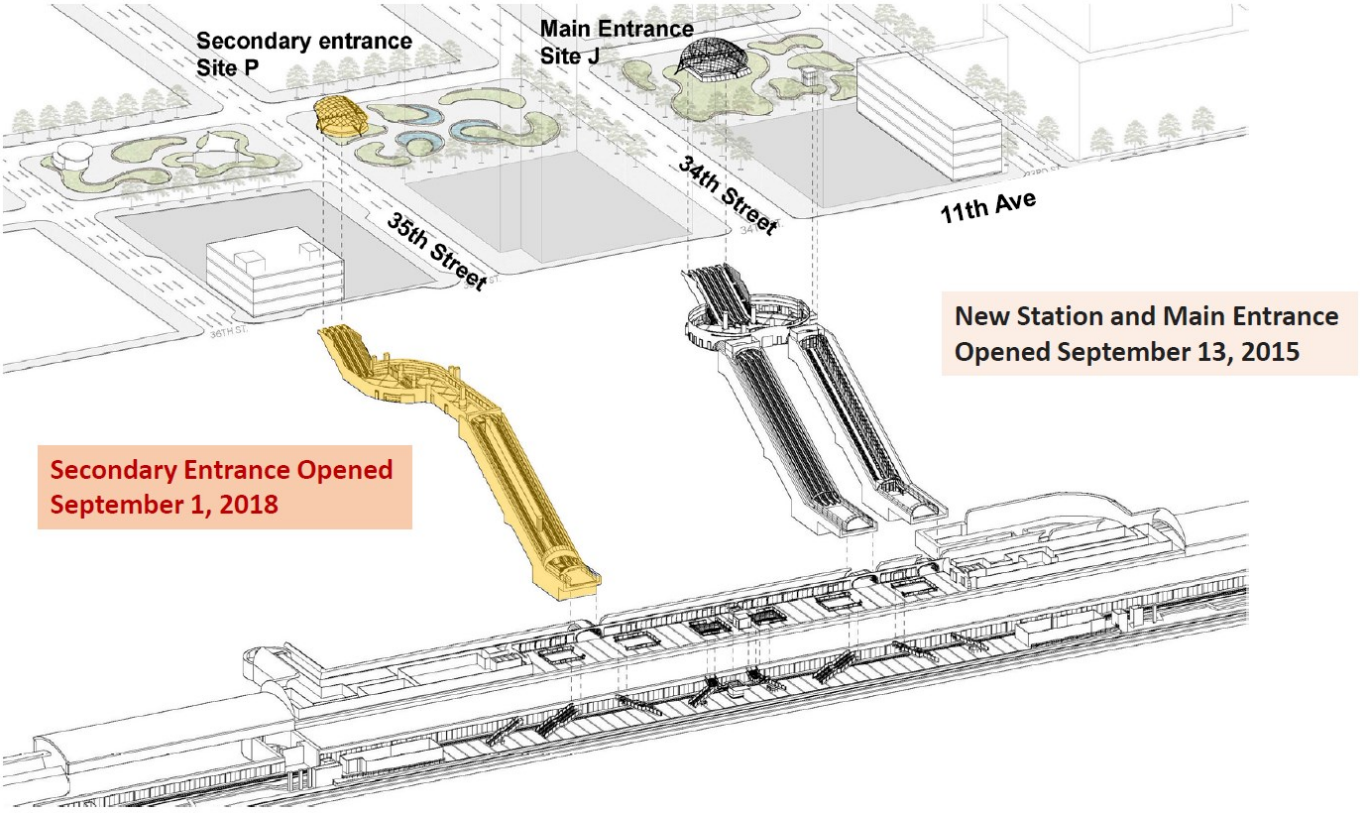

Figure 1 - Isometric view of the 7 Line's 34th Street-Hudson Yards station.
MTA Board New York City Transit Committee presentation, September 24, 2018

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Commuter and Transit Notes

No. 358

by Ronald Yee and Alexander Ivanoff

MTA Long Island Rail Road

The LIRR officially re-opened the rebuilt Flushing Main Street station on the Port Washington Branch on October 18. Costing $24.6 million, the reconfigured station now provides direct access from both eastbound and westbound platforms to Main Street in Downtown Flushing. The original access to the westbound platform was via an alleyway on the south side of 40th Road, about 150 feet west of Main Street. In recent years, at least, there was no signage at Main Street directing potential passengers to the westbound platform. You either had to know where it was or you had to ask someone.

The station is now fully accessible, with elevators to both platforms. A street-level ticket office on the west side of Main Street, located in an open plaza, leads directly to the stairs that lead up to the westbound platform. A vast improvement over the former narrow stairways, the station now features passenger waiting shelters equipped with USB charging ports for personal electronics, new platform railings, tactile platform edging, LED lighting, new passenger information displays, and a new, improved public address system. With an average of over 2,200 weekday riders, Flushing Main Street ranks 50th of the LIRR's 124 stations and is the ninth busiest in Queens County. (LIRR press release, ***Flushing Post***, October 18)

MTA Metro-North Railroad

An internal source at the MTA has indicated that Metro-North is in active negotiations to lease two P-42-DC Genesis locomotives that Amtrak has deemed surplus and recently advertised for sale or lease. The intent is to assign the two units to power the "Rail Scrubber," a train that is utilized to clean the running rails of slippery leaf residue during the Fall foliage season to prevent trains from losing traction during braking and acceleration modes. During the other seasons, these two locomotives would join the locomotive pool powering the shuttle trains operated on the Danbury and the Waterbury Branches on the New Haven Line.

While on the subject of Metro-North's dual-mode locomotive fleet, the railroad is currently proceeding with the initial steps of plans to replace the 27 Metro-North-owned P-32-AC-DM Genesis II dual mode locomotives acquired during the 1995-2004 period, which will be approaching the end of the expected service lives in about five years. During the July, 2018 MTA Board meeting, Metro-North officials indicated that up to 15 Siemens Charger-class SC-44 locomotives may be purchased to replace the current mix of rebuilt F-40 and GP-40-class locomotives powering the Port Jervis and Pascack Valley Line trains of the west-of-Hudson services out of Hoboken, New Jersey. The Siemens Charger locomotive body, with some minor adjustments, would meet the tight clearance requirements of the Park Avenue Tunnels leading to Grand Central Terminal. A Phase I RFP (Request for Proposals) was issued in August 16 with responses due September 17 for a base order of 28 dual-mode versions of its SC-44 class with options for additional units over several option orders. It is assumed that the Connecticut Department of Transportation (CDOT) would join in such an order when it is placed to replace its four P-32-AC-DMs and possibly its eight aging ex-Amtrak P-40-DC locomotives currently in use on the Shoreline East (SLE) Line from New Haven to Old Saybrook, Connecticut. Interestingly, there are technical variations for the option locomotives (Phase Two of this possible order to include the ability to operate above the 90 miles per hour maximum specified for the Metro-North units with possible 110 and 125 miles per hour maximum operating speeds, dual-mode diesel and third rail d.c. electric, as well as dual-mode diesel and overhead catenary electric operation with a.c. catenary energized at 25-cycle, 11.5 kilovolt or 60-cycle, 12.5 kilovolt and 25 kilovolt. *(Editor's Note by Ronald Yee: Potential applications of such variants would be for Amtrak's Empire Corridor to Penn Station, New York (Diesel and d.c. third rail) and elimination of engine changes for Harrisburg and* Vermonter *trains (diesel and a.c. catenary) as well as NJ Transit operating through services from its non-electrified lines to Penn Station, New York such as the Raritan Valley and Montclair Lines and possibly the Port Jervis and Pascack Valley when and if a direct rail connection is built in the future. The LIRR would probably be well advised to join in on this potentially collaborative locomotive order (Metro-North, Connecticut Department of Transportation, and possibly Amtrak and NJ Transit) as its 45 DE-30 and DM-30 Super Steel EMD-design-based mainline passenger locomotives also date back to the mid-1990s and will soon be considered life-expired.)* (MTA Metro-North Railroad, August 16)

NJ Transit

In an effort to free up a few more cars for the accelerated pace of installation of Positive Train Control hardware and software on NJ Transit's operating cab cars and locomotives, the agency has proposed to temporarily discontinue the Princeton "Dinky" shuttle, linking that university town with Princeton Junction on the Northeast Corridor. NJARP and other transit and urban advocates have mounted an opposition campaign. They are concerned that this suspension, like the "temporary" suspension of Atlantic City services until a "promised" restoration in early January, 2019, could become permanent as a cost-cutting measure by the cash-strapped agency. NJ Transit is struggling to climb out of the fiscal hole that the previous Governor had created through systematic underfunding which led to deferred maintenance on infrastructure and equipment. Even with the revised train schedules that reduce the number of trains operated during the peak periods to free up cars and locomotives for PTC work, train cancellations stemming

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from equipment shortages caused by the sidelined equipment being upgraded with PTC continue to plague the 150,000 commuters using the system on an average weekday. Progress has been made, with the number of PTC-equipped trains rising from just 12% in January to over 74% as of mid-October. (Bloomberg.com, October 18)

Industry

UITP and APTA signed a memorandum of understanding (MOU) on September 25 to strengthen their relationship and future cooperation. The two organizations will work together on areas of mutual benefit to their members and organize joint training programs. The first topics identified for cooperation are electric buses and new mobility services. (***Metro Report International***, October 8)

Miscellaneous

2018 ERA Convention

The Electric Railroaders' Association held its annual North American convention in the San Francisco Bay Area over the Labor Day weekend. There were around 85 attendees, making it one of the most well-patronized conventions in recent history.

On September 1, the ERA visited the Western Railway Museum at Rio Vista Junction. The visitors were treated to a ride on Oakland, Antioch and Eastern interurban car 1020 (Hall Scott Motor Car Company, 1913) and then Key System interurban 187 (Bethlehem Shipyard, 1937). Also seen and photographed was former San Diego Trolley U2 1018 (Düwag, 1982). Some of the group also toured the trolley barn containing the rest of the museum's collection.

The group then left, as they were on a very tight schedule, given California's notorious freeway traffic, to Sonoma County to ride the Sonoma-Marin Area Rail Transit (SMART) commuter rail line. This new service uses diesel multiple unit trains (DMUs) built in 2015 by Nippon-Sharyo. Unfortunately, Nippon-Sharyo exited the U.S. railcar manufacturing market in mid-2018. Poor market conditions to manufacture rail equipment and maintain an acceptable profit margin were cited as the reasons for doing so. Due to delays on the highways, the ERA ended up boarding the SMART train at the Novato San Marin station, three stops north of the south terminal, for the ride north to Sonoma County Airport, its northern terminus. The conventioneers then rode the line in its entirety southbound to Santa Rosa, where two chartered buses took some of the group to Sausalito for a ferry ride back to San Francisco while the rest of the group stayed aboard to return to the hotel with plenty of time to freshen up for the ERA banquet and show.

The banquet featured a show by ERA First Vice President John Pappas focused on scenes he recorded of San Francisco's transit scene from his prior visits to the Bay Area spanning several decades into the past.

September 2 was the second day of the convention and saw the group ride two chartered MUNI trolleys over parts of the light rail network. The cars were ex-Melbourne & Metropolitan Tramways Board 496 (James Moore & Sons, 1928) and PCC 1051 (St. Louis Car Company, 1948), painted in traditional SF Municipal Railway colors. The ERA was indeed fortunate in securing the two cars to charter as MUNI, citing extreme crew shortages, has imposed a ban on private charters of any MUNI trams that began in June, 2018. To insure that MUNI would be able to support the ERA's two-tram charter, the charter date was moved from Saturday, September 1 to Sunday, September 2. The crew shortage situation is not expected to change anytime soon. The older operators who are qualified to operate the vintage equipment are retiring at a faster rate than they can be replaced by new employees.

The ERA's charter trip started from the Cameron Beach Barn and Yard, where MUNI's historic streetcar and tram fleet is stored. MUNI brought out much of its rarely seen historic fleet, forming a lineup for all attendees to photograph, board and inspect. A tour was also given of the Curtis E. Green Light Rail Center (MUNI Metro's main shop) across the street before the trip commenced. Two photo stops were conducted during the charter, one along the J Line on San Jose Avenue, a short distance from Balboa Park. This turned out to be a bit too narrow of a location for a car load of fans. The other photo stop was at the Brannan Street stop on the N and T Lines. This stop offered views of the trolleys and the west suspension spans of the San Francisco Bay Bridge. Unfortunately, due to MUNI regulations and safety and legal liability concerns, this photo stop was conducted at the low-level platform area of the Brannan Street station and not a block earlier, which would have offered a better view of the bridge over the trolleys. We made the best of both. A stop was made at the MUNI Metro-East Yard and Shop where the ERA was given a tour of the facility as well as some of the newly delivered Siemens LRV4 cars. On the way back to Cameron Beach Yard we caught up to the regular service J Line LRV ahead of us as we neared Mission Dolores Park. An unscheduled photo stop was then conducted at the 20th Street stop. This provided a great sunlit view of both of the chartered cars, the upper end of Mission Dolores Park, and the downtown San Francisco skyline in the distance.

On the third day of the convention, September 3, the group rode chartered buses to Sacramento, where a connection was made onto Sacramento RT's (SacRT) Yellow Line from the Sacramento Valley station to Historic Folsom. The Blue Line had been covered during a previous ERA convention in 2004 with both the 100-series Siemens and 200-series CAF LRVs and had also included a shop tour. After a lunch break in Historic Folsom, the group rode back to the Sacramento Valley station and made a short stroll over to the California State Railroad Museum, located in Old Town Sacramento. After a guided tour, the group was free to enjoy the museum and the Old Town district and have dinner there.

September 4, the fourth and last day of the ERA Con-

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vention, featured a ride on BART from the Montgomery Street station in Downtown San Francisco to Hayward. There, we were met by BART officials who invited us to stay at the station 20 minutes to wait for and photograph the new Bombardier-built BART railcars. As they are still considered very new, BART is limiting them to passenger service only on the Richmond-Warm Springs/South Fremont "Orange" Line, allowing them to pass by the Hayward Shop on every run. BART did not quite have the full confidence in these cars to allow them to operate on the other lines, all of which involve a crossing in the four-mile-long Transbay Tube to San Francisco. BART provided the ERA with a tour of the current, as well as the new, Hayward Shop. The latter was scheduled to open for operations the following weekend with component repair being the first to move in. Car repair and overhaul will continue to be conducted at the old shop until the new shop is in full operation. Once that happens, the old shop facility will be repurposed into administrative functions. After a very brief lunch break, the group was taken to the Bay Fair station, where we were fortunate enough to catch the new Bombardier consist on the Orange Line to Oakland, where we transferred to a train bound for Pittsburg/Baypoint. The BART trains continue a short distance east of that station to a transfer station where passengers connect to the newly opened (May 26, 2018) e-BART line to Antioch, which is served by Stadler GTW Diesel Multiple Unit trains (DMU). Our BART guide gave a speech and summary of BART's potential plans to extend this line in the future. The 2018 ERA Convention officially concluded when the group returned to San Francisco that afternoon.

Other Transit Systems

Washington, D.C. area

WMATA announced on social media on October 12 that its 5000-series railcars used for Metrorail services have been retired after only seventeen years in service. However, ***DCist*** reported that several of the 5000-series cars continued in service after that date. Built jointly by CAF and the AAI Corporation, the cars have been continuously plagued with reliability issues, with WMATA getting permission from the Federal Transit Administration in 2015 to replace them instead of a mid-life overhaul. *(Editor's Note by Alexander Ivanoff: It is unfortunate that the 5000s were so unreliable as to not warrant rebuilding. The R44s and R46s were around the time of my birth just as old as the WMATA cars and yet those two classes received complete general overhauls (GOH), which included replacing problematic systems (P-wire controls being one of them) with more reliable ones (traditional Cineston controllers and braking systems). Most New York-area railfans would argue the NYC Transit and Morrison-Knudsen GOH made the R44s and R46s better equipment than when St. Louis Car and Pullman-Standard, respectively, built them. It is a shame that such young equipment is being retired, but I cannot object if it is justified.)* (WMATA's Twitter newsfeed, October 12; ***DCist***, October 17)

Atlanta, Georgia

The Metropolitan Atlanta Rapid Transit Authority's Board of Directors made history by unanimously approving the More MARTA Atlanta program which represents the region's largest transit investment in more than four decades.

The More MARTA Atlanta program will be partially funded by approximately $2.7 billion generated by a half-penny sales tax approved by city voters in 2016. Additional public and private funding will be sought to advance and expand key aspects of the program.

A two-year examination of technical data, performance measurements, and community surveys led to a 17-project program that calls for 22 miles of light rail transit (LRT), 14 miles of bus rapid transit (BRT), 26 miles of arterial rapid transit (ART), two new transit centers, additional fixed-route bus service, and upgrades to existing rail stations. Residents were most supportive of transit investments along the BeltLine, in the Clifton Corridor, and on Campbellton Road.

Next steps include developing costs and schedules associated with individual projects and beginning the process of securing additional funding. MARTA will also work to educate riders on various programs in the months ahead. More easily implemented projects, such as expanded bus service, have already begun. (MARTA press release via ***Mass Transit Magazine***, October 8)

Dallas, Texas

Texas Central selected state-owned Renfe of Spain as strategic partner for operation and maintenance of the Dallas–Houston high-speed line.

Renfe and Adif will assist in the further development of Texas Central's operation and maintenance plans to prepare the line for passenger service. Renfe will also operate and maintain system components such as the trains, signals, and other equipment, and will oversee development of ticketing platforms and procedures, passenger loyalty programs, and other customer-facing services.

Service on the 200-mile-per-hour, 242-mile line will link Dallas with Houston in around 90 minutes, with trains serving a single intermediate station in the Brazos Valley. Private investors will finance the entire project and no federal or state support will be sought for construction, operation, or maintenance.

Based on the latest generation of Central Japan Railway's Tokaido Shinkansen high-speed system, Texas Central is currently refining and updating construction planning under the Federal Railroad Administration's (FRA) recently-released draft environmental impact statement. The FRA now is working on a final environmental review that will help determine the project's timeline and final route. *(Editor's Note by Ronald Yee: While the RENFE ADIF consortium was selected as the lowest qualified bidder of the five proposals submitted to Texas Central, this Editor questions the wisdom of blending a Spanish consortium familiar with constructing and implementing high-speed rail with TGV and Talgo technology in Spain with Jap-*

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anese Shinkansen high-speed rail trains and technology. One can only hope for a good outcome.) (***Railway Age***, October 11)

San Francisco, California

Since the discovery of two large cracks in structural beams supporting the Salesforce Transit Center over Fremont Street, the $2.2 billion transit center serving 12 bus companies has remained closed. Buses are currently being operated on diversionary routes around the center, resulting in a lot of delays to bus operators, including MUNI, that had called this new terminal home for a mere six weeks. While temporary beams and pillars have been erected under the building to provide additional structural support where the cracked beams were discovered, the entire transit center remains closed and no date has been announced for it to reopen. (***East Bay Times***, October 18)

Los Angeles, California

The Los Angeles County Metropolitan Transportation Authority broke ground on the Metro Orange Line Improvements Project, which will improve bus speeds and safety and prepare the bus rapid transit line in the San Fernando Valley for a future conversion to light rail. Part of the project includes new aerial bridges as part of a grade separation project and soil sample investigation as part of the initial design into the light rail conversion.

Metro will also build four-quadrant crossing gates at up to 35 intersections between North Hollywood and Chatsworth. Other project improvements will include better traffic signal priority technology for buses to improve travel times along the 18-mile corridor.

Taken together, the project could achieve a 20 percent reduction in bus travel times, increase ridership capacity by 39 percent, and virtually eliminate the potential for vehicle intrusions onto the busway while improving safety for buses, cars, pedestrians, and bicyclists alike.

The $320 to $393 million transit project is funded by L.A. County's Measure M voter-approved sales tax. Approximately $75 million of the project cost has been made available by SB-1, the state's gas tax and vehicle fee transportation funding program that was approved by the Legislature and signed into law by Governor Jerry Brown in 2017.

The project is scheduled in Measure M to be completed by 2025 and is one of the transit projects identified in Metro's Twenty-Eight by '28 list of transportation improvements slated for completion before the arrival of the Olympic and Paralympic Games in Los Angeles.

Metro is now working closely with the city of Los Angeles to test four-quadrant gates for a BRT application like the Orange Line. The pilot gate will be located at the city of Los Angeles Bureau of Street Services crossing that is approximately 300 yards east of Sepulveda Boulevard and will be completed in Winter, 2019. (LACMTA via ***Mass Transit Magazine***, October 14)

Also in Los Angeles, in what officials described October 17 as a key milestone for construction of the first segment of the LACMTA Purple Line Extension Project, twin tunnel boring machines (TBMs), named Elsie and Soyeon, will start by tunneling parallel underground sections of the system between the planned Wilshire/La Brea station and the existing Wilshire/Western Purple Line terminus.

The TBMs each weigh in at 1,200 tons, measure 450 feet in length, have a diameter of 21.8 feet, and will simultaneously excavate about 60 feet per day in the twin tunnels during the next two years.

The $2.82 billion section of the project is supported through funds allocated by Measure R, in addition to federal funding. The first segment of the Purple Line Extension Project is set for operation in 2023, with the second section to Century City to be ready in 2025, officials said. The final section serving the Westwood/VA Hospital is set to be operational in 2026. (***Railway Age***, October 19)

Toronto, Ontario, Canada

The Province of Ontario, after completing an environmental assessment of the project, approved the Toronto Transit Commission's plans to construct a new downtown relief subway line and moved it onward to the next step in the approval processes leading up to actual construction. Toronto's City Council has already approved the routing and station locations for this new line. Multiple contracts have already signed to begin designing stations and tunnels linking Line 2 (Bloor-Danforth Line) with Line 1 (Yonge-University Line). The new line would run south from Line 1's Pape station to Queen Street East, turn westward under that heavily traveled light rail corridor, and connect to Line 1 at Yonge and Queen Streets. It would terminate at University and Queen Streets, connecting to Line1's Osgoode station. Current projections indicate that this line could be completed in the 2028-31 timeframe. *(Editor's Note by Ronald Yee: This new subway line would offer an alternate route to the downtown core and relieve the overcrowding of Lines 1 and 2. It should relieve the severe and sometimes borderline dangerous peak period platform and stairway overcrowding at the current Line 1 and 2 transfer station at Bloor-Yonge. Expansion of the current platform configurations there is not physically or economically feasible.)* (CBC News, October 19)

Buenos Aires, Argentina

A milestone was reached in the modernization of Buenos Aires' suburban Roca Line on October 12 when passenger service resumed on the 8.3-kilometer section between Berazategui and Bosques following the completion of upgrading and electrification. The completion of the Pesos 297 million (US$7.7 million) project takes the total extent of electrification on the Roca Line to 71 kilometers. New EMUs supplied by CRRC Qingdao Sifang have been introduced on service between Berazategui and Bosques. (***International Railway Journal***, October 16)

Sheffield, England

Tram-train service from Sheffield to Rotherham was to be launched on October 25, operator Stagecoach Su-

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pertram, infrastructure manager Network Rail, and the South Yorkshire Passenger Transport Executive announced on October 4. There will be three trips an hour from Sheffield Cathedral to the Rotherham Central station and Parkgate Retail Centre.

Confirmation of the long-delayed launch date follows extensive testing of the Vossloh (now Stadler) Citylink Class 399 tram-train vehicles and driver training on the Network Rail freight line, which has been modernized, electrified, and joined to the Sheffield tram network with the construction of the 160-meter Tinsley Chord.

The seven tram-train vehicles meet higher crashworthiness standards than trams, and are fitted with mainline-standard lighting, the TPWS train protection system, and GSM-R radios. The extension over the rail network has been electrified using the 750-volt d.c. electrification used on the existing Supertram network, but the Class 399 vehicles could also operate on 25,000 -volt, 50 Hertz electrification should this be installed on the mainline section of the route in the future.

The government-funded tram-train pilot project has been developed by a partnership of SYPTE, Network Rail, Stagecoach Supertram, and train operator Northern Rail.

The project was announced in September, 2009 and approved by ministers in May, 2012 with an expected infrastructure cost of £18.7 million and opening originally planned for 2015, but by July, 2017 costs had skyrocketed to £75.1 million.

The Rotherham service will initially run for two years while customer satisfaction, passenger numbers, reliability, and costs are tested. If deemed successful, it would then continue to operate. (***Metro Report International***, October 4)

Paris, France

In Paris, the two main line stations of Gare du Nord and Gare de l'Est are less than 500 meters apart by foot, covered in less than a 10-minute walk. Drawing a straight line, the two stations are even closer. Nord serves 700,000 passengers a day, making it the busiest in Europe. Besides mainline and high-speed services to Holland, Belgium, Germany, and the United Kingdom, the station is a busy suburban terminal, along with Metro and RER services. While it's not quite as busy, Est is also a key station for high speed services to eastern France, Germany, and Switzerland, along with mainline and suburban services, and the Metro. There is significant transfer traffic between the two stations, and seeing pedestrians with roller luggage navigating the streets between the two stations is a common sight. To make this transfer easier and weather-protected, plans are being developed to improve the pedestrian connections between the two stations. A program of €50 million has been proposed, initially consisting of wayfinding improvements and various street upgrades, followed by the building of a new underground link connecting the existing passageway underneath the platforms at Est with the upper mezzanine of the Magenta RER station, which is part of Nord's subterranean concourse network. The ultimate objective is to treat both stations as "an integrated hub." (***Railway Gazette***, October 10)

Wuhan, China

The Wuhan metro network expanded on October 1 with the opening of two driverless lines.

Line 7 runs from Garden Expo North in the north to Yezhihu in the south, serving 19 stations along its 30.4-kilometer route. The end-to-end journey time on the underground line is 51 minutes. CRRC Changchun and CRRC Zhuzhou have supplied a fleet of 40 trainsets, which are stabled at the Noji depot, also used by Line 8.

A 17-kilometer southern extension that adds seven stations is expected to open in late 2018 between Yezhihu and Qinglongshan Ditiexiaozhen. Construction of a northern extension started in 2017, and this is expected to be inaugurated in 2020.

The underground Line 11 is currently isolated from the rest of the network, until the southern extension of Line 2 opens later this year. The 18.7-kilometer Line 11 with 13 stations links Optics Valley Railway Station and Zuoling in the southeast of the city. CRRC Changchun has supplied 12 trainsets, which are stabled at a depot at Changlingshan.

Line 11 was known as Line 29 during the planning phase, and construction started in October, 2014. An eastern extension is under construction and is due to open in 2020, and a western extension is also planned.

Both Line 7 and Line 11 are designed for 100-kilometer-per-hour running and use six-car Type A trainsets that are to be lengthened to eight cars in the future. (***Metro Report International***, October 2)

Shanghai, China

China's top economic planning authority, the National Development and Reform Commission (NDRC), has approved the construction of a 163.5-kilometer high-speed line linking the Shanghai Hongqiao station with Suzhou and Huzhou, a city of nearly 3 million inhabitants in northern Zhejiang province.

The project includes the construction of four-new stations and the line will have a design speed of 350 kilometers per hour.

According to the NDRC, the project has a budget of Yuan 36.7 billion (US$5.3 billion), including Yuan 1.2 billion for rolling stock, with construction expecting to take around four years. (***International Railway Journal***, October 18)

Yilan County, Taiwan

A Taiwanese Puyuma Express derailed in Yilan County in northeast Taiwan, killing at least 18 people and injuring at least 187. Railway authorities say they are investigating the accident, which happened at about 4:50 PM local time on October 21.

A total of 366 people were on the train travelling between Taipei and the eastern county of Taitung when all eight of its carriages derailed. The train reportedly came off the tracks close to the Xinma station, near the town of Su'ao, about 70 kilometers (43 miles) from Taipei. (BBC News, October 21)

THREE ISLANDS OF ITALY
by Jack May
(Photographs by the author)

This is the first of 15 segments covering the report of a trip that my wife and I made to Italy in early April, 2016. Most of our time was spent on the islands of Venice, Sicily, and Sardinia (Sardegna).

Suspecting that we would have severe cases of cabin fever by the time spring came along, and prodded by an airfare offer that was too good to turn down — $450 per person for round-trip travel between New York and Milan — Clare and I decided to plan a trip to Italy, where we hoped that spring weather would arrive earlier than at home. Thus in the dead of winter we arranged for a journey that focused on Venice, Sicily, and Sardinia (Sardegna).

Rather than write a full narrative with minute travel details, I will summarize such information in the next few paragraphs. As it turned out all of our travel turned out to be trouble-free. In fact we only suffered only a small number of glitches on the entire trip and they were all minor.

Our intercontinental travel between New York (JFK) and Milan (Malpensa) was in Economy Coach class aboard Emirates Airlines Airbus 380s, and we were very pleased with comfort of the seats in their 3-4-3 configuration, both in terms of the seat width and leg room. Also we were impressed with the speed of loading and discharging; with the coach portion appearing to be about 90 percent full, it seemed just as fast as what we are used to on smaller jets. The service and entertainment were excellent; only the food left something to be desired, being no better (or worse) than we have experienced on U.S. legacy carriers like United and Delta. We were virtually on time. I mostly listened to music; there was an abundant choice of albums, including those of performers like the Duke Ellington orchestra, Ella Fitzgerald, Billie Holiday, Frank Sinatra, etc., as well as classical music and original cast Broadway shows. On the going trip I saw the movie Trumbo, which I can highly recommend. I also watched the start of Bad Day at Black Rock, a movie I have seen several times before, but which has some stunning views of Southern Pacific equipment. On the return trip I saw Truth, which was just O. K.

In both directions we traveled between Montclair and JFK by NJ Transit, the Long Island Rail Road, and Airtrain. Going took 2 hours 10 minutes, but that included a leisurely stop at Rose's Pizza in Penn Station — a preview of the type of food we would be consuming for the next two weeks and of the same excellent quality. Our son actually drove us from home (4 minutes) to NJ Transit's Watchung Avenue station, but on our return trip I walked to our house and picked up the car to take Clare and the luggage home. (When we were younger we both would roll our bags for the 10-minute trip.)

Our other flight was on a European low-cost carrier, Volotea, from Venice to Catania in Sicily. It was nonstop aboard a Boeing 717 (the first time in that relatively small plane). We were a bit concerned with the carrier as the reviews we read on the internet were not very favorable, specifically about how their customers had been treated (actually left in the lurch) when flights were cancelled. But with a robust schedule of three daily nonstops on our route, we figured if there were problems we would be accommodated (there were no problems). With our carry-on bags being larger than the new requirements, we checked them at an additional fee. Our only complaint was something that we have encountered at many foreign airports, and that applies to both low-cost and legacy carriers: we had to ride buses between the terminal gate and the aircraft and then climb a portable staircase. Otherwise, the seats were comfortable, the legroom adequate, and the timekeeping perfect. We did not purchase any food or drink on the less than 2-hour trip.

Our rail intercity travel was on Trenitalia, and was pretty nondescript. The trains were well patronized, the seats comfortable (although some faced backwards — not a problem for us) and arrivals were on the advertised (or just a few minutes late). This included Milan to Venice Mestre and Genoa to Milan, as well as from Cagliari to Sassari on the island of Sardinia, this being more a local/regional service.

We also occupied outside cabins aboard two overnight Tirrenia ferries for travel to and from Sardinia. Each trip was 12 hours long and mainly catered to travelers in automobiles and trucks. In both cases our cabin had sea views (a few dollars more expensive than those facing inward), two single beds along opposite walls, and a bathroom equipped with a shower. The ship from Palermo to Cagliari (runs weekly in April) was the *Dimonios*, and its amenities were adequate, including a la carte food and drink; it has comfortable-looking reclining seats with leg rests for those not paying the "space" surcharge. The Porto Torres-Genoa ship, the *Sharden*, running on a daily schedule (alternating between Porto Torres and Olbia on Sardinia) was quite modern and luxurious and looked like it was brand new (although it was not). It included a huge gymnasium (fitness center in today's parlance), large children's play area, a cafeteria and a formal sit-down restaurant, as well as bars and very appealing overnight seats for those choosing not to occupy a cabin. Unlike cruise ships, there were no safety drills, although there were plenty of lifeboats in sight. It also was very easy to make reservations and buy tickets through the Direct Ferries website, which is extremely user-friendly (and in English). Both trips were not subject to major delays. The only complaint was that we had to access the berth in Porto Torres by taxi from the railroad station. In Palermo we used a taxi arranged

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Three Islands of Italy

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by our hotel.

For the most part, I used Booking.com to select overnight accommodations, paying strict attention to their maps and customer ratings. I then verified the information at TripAdvisor. We were not disappointed in any of our selections, and some were quite exceptional and economical as well. Almost all included robust breakfasts and had clean and roomy private bathrooms (some with only a shower). They tended to be small Bed & Breakfasts occupying portions of apartment buildings or commercial buildings, except for the Best Western Hotel Bologna in Venice Mestre, which was a modern traditional hotel with a large lobby and restaurant. While all had their own style, we highly recommend each of the B&Bs.

As for dining, it was a mixed bag. We had some excellent meals, but also a few that were just run-of-the-mill. It seemed that whenever we got recommendations for our hotel keepers we did very well, but when we randomly chose eateries in tourist areas, we felt the quality of the cuisine was similar to what we find in typical New Jersey diners and many chain restaurants. In general the pizza we sampled was excellent, with very thin crusts and fresh ingredients — what we call New York- or Neapolitan-style. The pasta varied — some was too al dente for me. Veal and beef were much better than I expected; and the duck in a Chinese restaurant in Mestre was terrific.

Now to get specific. After landing in Milan with our carry-on luggage at 12:20 we hurried to Malpensa's railway station via Customs and Immigration (lines were short, but the walk was long) and rode the 13:13 *Malpensa Express* train to Milano Centrale. Unlike the express service to Cardona, it carries local passengers and makes some stops along the way, being scheduled for 52 minutes (rather than 37 on Cardona expresses). It arrived a couple of minutes late at 14:07 (14:05). With the next Venice train due to leave at 15:05, I had plenty of time to take care of some important logistics. This included buying our tickets, but first applying for a Carta d'Argento, which provides a 15 percent discount on Trenitalia rail fares. It is free for those 75 or older, and there is no residency requirement. The ticket office was busy, but I had to wait only for about five minutes to be served.

The seats assigned to us aboard the express train were one behind the other, but when we boarded there was an empty place next to one of our reserved seats, so we were able to travel next to each other for the slightly under 2½-hour journey, arriving at about 17:30. After checking in at the Best Western across the street from the station, Clare chose to rest (we had been on the go since our departure from home), while I walked over to Venice's rubber-tired tramway to get the lay of the land. We had an average dinner at a nearby restaurant, enhanced when we were amused by our waitress taking out a crab and lobster from the tank and watching them play with each other under her supervision (prodding).

FRIDAY, APRIL 1

We slept very well and were up bright and early the next morning. Unfortunately the skies were not bright, and it remained mainly overcast all day. After a wholesome breakfast we purchased transit passes from our hotel's desk clerk: Clare's a three-day unit for €40 and mine for two days at €30 (there is also one-day pass available for €20). The steep price is based on the pass allowing unrestricted travel on Venice's vaporettos (actually vaporetti), large ships that run along the city's Grand Canal. Single rides cost €7.50. Today was our scheduled day for sightseeing, and so the weather, which remained dry, only interfered with the quality of the photography.

There are two fast ways to get to Venice from the Mestre railway station: one the Number 2 bus and the other the train. Both are rather quick (10 to 15 minutes), and cross the causeway to Piazzale Roma (bus) or Santa Lucia (train), the main arrival points for the islands that constitute the ancient city. Because we were now carrying bus/tram/boat passes we opted to ride the bus, which picked us up virtually in front of our hotel. I should mention that Venice's rubber-tired tramway also goes to P. le. Roma, but its direct route is from the center of Mestre rather than the railway station. Part 2 of this report will cover that Lohr-type operation.

To make a long story short, we had a very good day touring the sights of Venice. I should mention that I had a very brief visit to the city over 30 years ago, but was ill with a high fever for most of the time — which was between overnight trains from Vienna and to Rome — and then in 2013 lost my day there when I could not get at my luggage in the locked baggage room of a railway station in Rome — see my "Eurocruise" trip report.

The vaporetti we rode operated like scheduled buses on a fixed route system (with locals and expresses), crossing between stations on one side of the Grand Canal and the other with lots of "on-and-off" traffic, made up of both tourists and the local populace. Another version of the transit vaporetti is the traghetti, smaller vessels that just cross from one side of the canal to a point opposite, as there are few pedestrian bridges (and of course no automobiles). Public transit is complemented by water taxis and gondolas, which can be patronized at very steep prices.

We also did a great deal of walking on the islands, from various attractions to others. Returning in the late afternoon, we left our vaporetto at Santa Lucia, one stop before the P. le. Roma terminal (and actually a short walk) and rode to Mestre aboard a regional train.

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Three Islands of Italy

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The two main entry points to the principal island of historic Venice. There is plenty of boat traffic at Piazzale Roma, the foot of the Grand Canal, as shown in the left view. Buses and rubber-tired guided electric trams terminate here, and there is a constant stream of residents and tourists transferring to the vaporetti at their terminal station. A short distance further up the canal is Santa Lucia, the rail head for the city. The Ponte degli Scalzi, dating from 1934, is one of only 4 bridges that cross the canal from one side to the other. The dome and bell tower of the San Geremia Church, dating from 1753, are shown behind the bridge.

A typical vaporetto along the Grand Canal with the Basilica di Santa Maria della Salute, dating from 1681, hovering in the background. Its name translates to health and the church was constructed as an offering to deliver it from the outbreak of a nasty plague toward the end of the 17th century. The vaporetti are the canal's equivalent of buses.

The Grand Canal is Venice's main boulevard, where gondolas are housed in front of the city's finest buildings. Their drivers do not have to deal with parking meters, however.

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NYCT Opens Secondary Entrance at Hudson Yards

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its full potential to be realized as the Hudson Yards neighborhood grows over the coming years. Already, 1.8 million square feet of commercial space has been built, with another 12.2 million square feet currently under construction. An additional 11.8 million square feet is planned. On the residential front, 8,700 units have already been built, with another 2,300 presently under construction and 7,200 more planned. Additionally, 4,300 hotel rooms have been built, 2,500 are under construction, and another 1,700 units are planned. The Javits Center is no longer isolated and has benefited greatly by the direct subway access and the development growing up around it.

The IRT Flushing Line was first opened just over a 100 years ago, and one of the famous photos of that time is an aerial view looking out east over the line's Queens Boulevard viaduct, passing through clear tracts of land waiting for development. Before long, the neighborhoods of Sunnyside, Woodside, and Jackson Heights would fill the view, and now, a century later, the Flushing Line is helping create New York City's newest neighborhood of Hudson Yards.

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Three Islands of Italy

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A typical intersection between a minor tributary and the Grand Canal. Neither stop signs nor traffic lights are necessary.

The famous Rialto Bridge. It is made of stone and was constructed in 1591 (a mere 427 years ago), which probably explains why it often undergoes a certain amount of repair. It contains rows of stores lining both sides of its interior walkway.

The next four views are of Piazza San Marco, or St. Mark's Square, the principal tourist sight of Venice. It has been described as Venice's social, religious, and political center — although Napoleon once called it the "drawing room of Europe." In my opinion the principal attraction is the Doge's Palace (Palazzo Ducale), the seat of government for the Republic of Venice, which existed until it fell to Napoleon in 1797. The beauty of the building is not in its facade, but rather its interior, often called the Doge's apartments. (Doge was the title of the senior elected official of Venice, most like our President. Our equivalent of the Doge's Palace is the White House.) The chambers are magnificent, both architecturally and in their decorations, with priceless artworks, including paintings by Tintoretto and Titian, among others. It should be noted that the territory between the square and the Rialto Bridge is the heart of Venice's tourism, and is loaded with hotels, restaurants, and shops, as well as narrow canals, where gondoliers station their boats under bridges loaded with tourists taking photos. It was too dark for me to take pictures of the rooms in the Ducal Palace, so I had to settle for photos of some of the other great buildings surrounding the square.

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NYCT Opens Secondary Entrance at Hudson Yards

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The new secondary entrance to the 34th Street-Hudson Yards station on September 4, 2018, three days after its opening.

Secondary entrance, upper mezzanine, looking towards the top of the escalator shaft, September 4, 2018.

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Three Islands of Italy

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Even in the off-season Piazza San Marco is crowded. The landmark Campanile, or Bell Tower, in the left photo, was built in 1912 to replace the original 9th Century structure that collapsed in 1902. The 323-foot structure provides excellent views, but there is always a long line to enter. In my opinion the Torre dell'Orologio, or Clock tower, shown in the right photo, is the most interesting looking building on the square. It is said that this example of late 15th century Venetian Renaissance architecture represents the "ostentatious display of the wealth and power of Venice" at the time Columbus discovered the new world. The crowd awaits the top of the hour, when a pair of hammers strike the clock's bell.

Zooming in on the gables of two of the major buildings straddling the square to show the ornamental embellishments from two distinct architectural periods. Atop the renaissance Torre dell'Orologio clock tower in the left photo are two great bronze figures, hinged at the waist, which strike the hours on a bell. Directly below the winged lion of Venice with the open book is placed in front of a blue background with gold stars. The next level contains a semi-circular gallery with statues of the Virgin and Child seated in gilt beaten copper. On either side are two large blue panels showing the time: the hour on the left in Roman numerals and the minutes (at 5-minute intervals) on the right in Arabic numbers. And finally, the 24-hour clock itself. The right photo shows the gable of the Byzantine Basilica San Marco, the Cathedral of Venice. It was constructed in the 11th century as the Doge's private chapel, so it is clear he was a rather important figure. The statue of Venice's patron apostle, St. Mark, is surrounded by angels above a winged bronze lion, the symbol of the saint and of Venice.

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Around New York's Transit System

Lo-Vs Run for Yankees Home Postseason Games

NYCT rolled out its four-car Lo-V consist to commemorate the New York Yankees baseball team hosting appearances in the Wild Card game as well as Games 3 and 4 of the American League Divisional Series. The train departed the Grand Central station approximately an hour before game time of these three games. As the Yankees did not advance into the American League Championship Series, the Lo-Vs were operated only for these three games.

72nd Street Station Reopens

The latest station in the Enhanced Station Initiative program, 72nd Street on the IND Eighth Avenue Line (A)(B)(C), reopened October 4. It had been closed in May for renovation and repairs to address structural deterioration in the nearly 90-year-old station. Chronic leakage issues throughout the station, causing corrosion and structural decay of walls, flooring, and support columns, were addressed with repair and waterproofing measures and replacement of flooring panels and fallen or deteriorated tiling on the walls. The platform was power washed, new platform tactile warning strips were installed, brighter and LED lighting was installed, and customer help points were installed along with improved WiFi connectivity and a re-designed fare control area with glass panels replacing the iron bar barriers. The missing or damaged tiles were replaced with tiles making up six separate mosaics located on both the mezzanine and platform levels. This artwork by Yoko Ono in commemoration of her late husband John Lennon is titled, "Sky."

NYCT is in the process of rebuilding the stations in greatest need of repair under the Enhanced Station Initiative program. To maximize the safety of both the personnel performing the repair and restoration work and customers using the stations, each station is closed for a continuous period lasting several months. Closing the stations also expedites the work. Stations currently in the Enhanced Station Initiative program include:

23rd Street (F)(M)
57th Street (F)
39th Avenue (N)(W)
Broadway (N)(W)
167th Street (B)(D)
174th-175th Street (B)(D)
28th Street (4)(6)

Also currently undergoing reconstruction, although not in the ESI program per se, are 104th-102nd Streets and 121st Street on the BMT Jamaica Line (J)(Z) and Fort Hamilton Parkway, New Utrecht Avenue, 18th Avenue, 20th Avenue, Kings Highway, Avenue U, and 86th Street on the BMT Sea Beach Line (N) (southbound direction only, northbound platforms having already been completed).

Culver Line Crossover Conversion

On October 22, the double crossover south of the Ditmas Avenue station on the IND Culver Line (F) was converted to a single crossover. The switch removed is the southbound move from express Track B3/4 to local Track B1. This work, taking place over several weekends and weekday middays through December 16, is being done by L.K. Comstock and Company, Incorporated under the Kings Highway Interlocking project, S-32176.

NYCT Opens Secondary Entrance at Hudson Yards

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Looking at the knockout wall on the lower mezzanine for the future secondary entrance on September 13, 2015, the opening day of the 34th Street-Hudson Yards station.

Lower mezzanine, lower landing of the escalator shaft to the new secondary entrance, September 4, 2018 .