The Bulletin

Electric Railroaders' Association, Incorporated

Vol. 63, No. 1 January, 2020

The Bulletin

Published by the Electric Railroaders' Association, Inc.
P. O. Box 3323
Grand Central Station
New York, NY 10163

For general inquiries, or *Bulletin* submissions, contact us at **bulletin@erausa. org** or on our website at **erausa. org/contact**

This Month's Cover Photo:
Chicago, North Shore & Milwaukee 775 (Standard Car, 1930) leads a two-car train southbound at Racine WI in 8/1961, photographer unknown.

In This Issue:
Let's Take a Ride on the 25 Line!
...Page 3

NYCT's R-179 PROBLEMS?

(From *Railway Age*, December 10, 2019)

According to news reports from local media, an audit by New York City Comptroller Scott Stringer takes issue with Bombardier Transportation's long-delayed contract with the Metropolitan Transportation Authority for 300 new R-179 subway cars.

The R-179s, now running on the A C and J Z lines, are replacing the R-32 cars, built by the Budd Company in 1964-5. The R-32s are the oldest rolling stock in the NYCT fleet and, apparently, they are also the oldest rolling stock running on any subway or metro system in the world!

Stringer's audit, which he touted during a December 9 press conference, notes that the MTA signed a $599 million contract with Bombardier in 2012 for the R-179s, but that the agency had received only 18 of those cars by the original 2017 delivery deadline. He stressed that the contract is 35 months behind schedule, and that the MTA still has not received the entire order.

An additional 18 R-179 cars worth $36 million are being built as part of a liquidated damages agreement originally forged in December, 2017, and updated in January, 2019. New York City Transit President Andy Byford — no stranger to vehicle delivery problems involving Bombardier from his tenure with the Toronto Transit Commission — said the $36 million offsets the expense of keeping the R-32s in a state of good repair.

As of December 9, 2019, 305 of the now-318 R179 cars had been delivered. MTA spokesman Tim Minton said 278 have been qualified and placed in service, and that the remaining 13 cars will be delivered by the end of December.

Stringer said some of the first R-179s had what he called "dangerous defects." His audit points out that Bombardier began building the R-179s without a contractually required sign-off from MTA officials on its welding procedures. In December, 2013, Bombardier discovered a "hot cracking" issue with the welds on some of the cars, a problem that took 18 months to resolve. That delay, along with a longer-than-expected testing period, forced the R-32 cars, which are costly and time-consuming to maintain because of their age, to remain in service, the audit states.

"New Yorkers have lived and commuted for three extra years with delays and breakdowns," Stringer said. "We found that the MTA repeatedly looked the other way. They ignored clear warning signs. They failed to enforce deadlines. They delayed in enacting penalties. We need Bombardier and the MTA to clean up their act and step up. The MTA gave Bombardier a pass. And what does it mean for straphangers? More delays. More breakdowns of outdated cars."

Andy Byford took issue with Stringer's report. He said it only confirmed what he and his staff already know. "We have held Bombardier's feet to fire throughout this project," said Byford. "We have embedded resources to make sure the trains are being built properly. And critically, we leveraged the liquidated damages…to get us new trains, additional new trains that will benefit New Yorkers."

Bombardier spokeswoman Maryanne Roberts said in a statement that the company is "focused on completing delivery of the remaining cars by the end of this month."

The MTA plans to spend $6 billion on 1,900 additional subway cars in its next, $51 billion five-year capital plan, part of Byford's $37.3 billion "Fast Forward" plan to overhaul New York City's transit system. Byford said a new

(Continued on page 2)

STATUS OF NORTH AMERICAN TRANSIT PROJECT OPENINGS SCHEDULED FOR 2020
by Randy Glucksman

Six projects are scheduled for completion and as you will see, three are holdovers from previous years.

DATE	AGENCY	CITY	TYPE	LINE	DETAILS	NOTES
2019						
December 14	Sonoma Marin Area Rail Transit	Petaluma, California	DMU	Phase II	Extension to Larkspur 2.1 miles, 1 station	
2020						
Early ?	Bay Area Rapid Transit/Valley Transportation Authority	San Jose, California	HR	Berryessa Extension Phase I	Warm Springs to Berryessa/ North San Jose 10 miles, 2 stations	From 2016
May or August	Denver RTD	Denver, Colorado	CR	N - North Metro Rail Phase I	Union Station to Eastlake-124th Avenue 13 miles, 7 stations	From 2018
June	Los Angeles Metropolitan Transportation Authority	Los Angeles, California	LR	Crenshaw /LAX Transit Corridor	Crenshaw/Expo to Imperial/ Aviation 8.5 miles, 8 stations	
July 16	Washington Metropolitan Transit Authority	Washington, D.C.	HR	Silver Phase II	Wiehle Avenue to Dulles International Airport 11.5 miles, 6 stations	From 2018
Fall	South Florida Regional Transportation Authority	Miami, Florida	CR	Tri-Rail	Extension to Miami Central Station 9.05 miles, 1 station	
December	Edmonton Transit	Edmonton, Alberta, Canada	LR	Valley Phase I	102nd Street to Mill Woods Town Center 8.07 miles, 12 stations	

Legend:
CR: Commuter Rail HR: Heavy Rail
DMU: Diesel Multiple Unit LR: Light Rail

NYCT's R-179 Problems?

(Continued from page 1)

law requires the MTA to leverage design-build contracting for its biggest projects to help ensure that future car orders are delivered on time, placing primary responsibility for railcar design and quality on carbuilders.

Photo copyright 2017 Max Diamond

R-179 3065 operating on the J on the first day of service, November 19,2017.
Max Diamond photograph

LET'S TAKE A RIDE ON THE 25 LINE!
by Jeff Erlitz
(Photographs by the author)

On May 13, 2019 I had the pleasure of hiking along this tram line in the Austrian capital city of Wien (Vienna). The 25 line runs for 5.75 miles from the Floridsdorf railroad and metro station, in the Floridsdorf district of Vienna, southeast to Aspern, in the Donaustadt district of Vienna. The whole route operates on the east side of the Danube River, across from the old town and center-city.

May 13 was a weekday and the midday requirement for the 25 line is 13 trams, of various vintages as follows:

CARS	TYPE	BUILDER	BUILT
6	E1+c4	SGP (Simmering-Graz-Pauker) +Rotax	1971-6, 1974-5
1	E2+c5	SGP (Simmering-Graz-Pauker) +Bombardier	1986, 1985
4	B	Siemens	1998-9
2	B1	Siemens	2011

The type E1 and E2 motor cars and the type c4 and c5 trailers are older, high-floor models. The type B and B1 cars are articulated low-floor models.

The east end of the 25 line is at this turning loop in the Aspern neighborhood of the Donaustadt district of Vienna. Sitting on the loop and not yet signed up for the return trip to Floridsdorf, was the only example of an E2 motor car with a c5 trailer that was running on the line this day. E2 4055 was built by SGP, Simmering-Graz -Pauker, in 1986 and c5 1455 was built by Bombardier Transportation in 1985. Aspern,

Much of the line runs on private right-of-way either in the middle of, or alongside, a street. Here, we see E1 4863 (Simmering-Graz-Pauker, 1976)+c4 1323 (Rotax, 1974) west of the Trondheimgasse stop, on Langobardenstraße & Sandefjordgasse. The apartment building to the right is an example of one of the many Municipal Housing Estates found all over the city of Vienna. The earliest examples date from the mid-1920s but this one, Langobardenstraße 128, was built 1994-6 and is one of the newer examples.

Vienna is quite a large city and, unlike most American cities, still has many working farms within its boundaries. E1 4795 (SGP, 1972)+c4 1336 (Rotax, 1974) are passing one in this view at the Langobardenstraße/Kapellenweg stop.

Vienna figured out a long time ago how to do intermodal transfers. This is the Donauspital U stop with that same, lone E2+c5 pair with a train on the U2 line above. The eastbound tram track crosses the westbound track so that both directions of the tram line share the same platform, with stairs and escalators up to the U-Bahn, or metro, platform.

(Continued on page 4)

Let's Take a Ride on the 25 Line!

(Continued from page 3)

Further west, we see E1 4795 (SGP, 1972)+c4 1336 (Rotax, 1974) east of the Langobardenstraße stop at Heinrich-Lefler-Gasse. The private right-of-way here is between the traffic lanes and the northbound sidewalk.

North of the Langobardenstraße stop, the line turns on to the Konstanziagasse. Type B 616 (Siemens, 1999) is heading south at Hans-Steger-Gasse.

Type B 604 (Siemens, 1998) is about to duck under a railroad right-of-way at the Erzherzog-Karl-Straße stop, another intermodal transfer point. Through this section, buses share the right-of-way with the trams.

The sort-of underground station at Erzherzog-Karl-Straße with the S-Bahn upstairs. The S80 and at least one "Regional" route stop here. Type B 602 (Siemens, 1998) has just stopped in front of the no-doubt-recently-installed elevator. Note the extremely traditional bus and streetcar stop signs.

Emerging from the Erzherzog-Karl-Straße interchange stop, you get a better view of the S-Bahn station above. E1 4833 (Simmering-Graz-Pauker, 1975)+c4 1335 (Rotax, 1975) are heading west to Floridsdorf.

E1 4730 (SGP, 2/1971)+c4 1317 (Rotax, 1974) are heading out to Aspern east of the Donaustadtstraße stop, at Viktor-Kaplan-Straße. This motor car is one the oldest still operating in all of Vienna.

(Continued on page 5)

Let's Take a Ride on the 25 Line!

(Continued from page 4)

About to come to a halt at the Donaustadtstraße stop is Type B 610 (Siemens, 1998). In the background is one the oldest Municipal Housing Estates, the Albert-Schultz-Hof at Erzherzog-Karl-Straße 65-79, built 1927-8.

Vienna is not immune to American-style gargantuan movie complexes. Here at the Siebeckstraße stop, E1 4833 (SGP, 1975)+c4 1335 (Rotax, 1975) are about to turn off the Wagramer Straße and onto the Siebeckstraße.

Type B1 732 (Siemens, 2011) has just left the Siebeckstraße stop and is heading towards the big Kagran intermodal station. As we saw at the other intermodal stop, the tracks cross each other so that they share a common, extremely wide, island platform.

E1 4863 (SGP, 1976)+c4 1323 (Rotax, 1974) are passing under the elevated U1 metro line at Kagran, a busy interchange station. Kagran was the north terminal of the U1 from 9/3/1982 until the line was extended north to its current terminal at Leopoldau on 9/2/2006.

North of the Prandaugasse stop, the line runs along the Tokiostraße. This is a relatively new section of line, having been rerouted off the Wagramer Straße to this location in 2012. Type B 610 (Siemens, 1998) is heading south at Arakawastraße along the well-manicured right-of-way.

E1 4730 (SGP, 2/1971)+c4 1317 (Rotax, 1974) are leaving the Josef-Baumann-Gasse stop on Donaufelder Straße and are turning into Tokiostraße. The 26 route, running with the 25 up to this point, continues straight. From this point west to Floridsdorf, the trams share the street with vehicular traffic.

(Continued on page 6)

Let's Take a Ride on the 25 Line!

(Continued from page 5)

Type B1 727 (Siemens, 2011) has just left the Carminweg stop on Donaufelder Straße and is passing the eastbound stop. Though running in the street, the stops are on safety islands.

E1 4774 (SGP, 1972)+c4 1329 (Rotax, 1975) are about to come to a stop at Fultonstraße.

Type B 610 (Siemens, 1998) is arriving at Hoßplatz, less than a half-mile from the end of the line.

E1 4730 (SGP, 2/1971)+c4 1317 (Rotax, 1974) is about to leave Floridsdorf for its journey to Aspern. Floridsdorf is a very big inter-modal transfer point between suburban and regional railroad lines, U-Bahn, trams and buses.

SUBDIVISION "B" CAR ASSIGNMENTS

CARS REQUIRED NOVEMBER 17, 2019

LINE	AM RUSH	PM RUSH	LINE	AM RUSH	PM RUSH
A	70 R-32, 200 R-46, 60 R-179	70 R-32, 208 R-46, 8 R-68A, 60 R-179	L	176 R-143, 16 R-160	176 R-143, 16 R-160
B	48 R-68, 152 R-68A	40 R-68, 144 R-68A	M	192 R-160	184 R-160
C	72 R-32, 72 R-179	64 R-32, 72 R-179	N/W	24 R-68, 8 R-68A, 290 R-160	24 R-68, 8 R-68A, 290 R-160
D	232 R-68	224 R-68	Q	210 R-160	8 R-68, 210 R-160
E	260 R-160	260 R-160	R	248 R-46	248 R-46
F	80 R-46, 350 R-160	88 R-46, 350 R-160	S (Rockaway)	12 R-46	12 R-46
G	52 R-68	52 R-68	S (Franklin)	4 R-68	4 R-68
J/Z	88 R-160, 72 R-179	80 R-160, 72 R-179			

Commuter and Transit Notes

No. 372

by Ron Yee, Alexander Ivanoff, and Jeff Erlitz

MTA Long Island Rail Road

The running times in the November 11, 2019 to January 5, 2020 LIRR schedules were lengthened to reflect the slower speeds imposed on the trains to prevent their wheels from building up flat spots from sliding on slippery rail caused by fall foliage leaving oily residues on the railhead. Changes in the peak period affect several trains on the Main Line to Ronkonkoma. The 5:25 AM train from Greenport to Ronkonkoma will depart six minutes earlier and arrive in Ronkonkoma three minutes earlier. Its connecting train, the 6:51 AM westbound train from Ronkonkoma, will depart 3 minutes earlier at 6:48 AM. The 7:51 AM westbound train from Farmingdale to Penn Station will depart one minute earlier at 7:50 AM and the 7:32 AM westbound train from Ronkonkoma to Penn Station will depart three minutes earlier at 7:29 AM. On the Babylon Branch, track resurfacing work between Jamaica and Valley Stream will result in single-track operations during the weekday midday off-peak period. Babylon Branch trains will depart between seven minutes earlier and 13 minutes later. Overnight trains on the Babylon and Long Beach branches will depart between 20 minutes earlier and 15 minutes later. To accommodate Positive Train Control (PTC) cable installation on the Atlantic Branch to Brooklyn and NYC Department of Transportation construction work at Atlantic Avenue, weekend and overnight trains operating between Jamaica and Brooklyn will depart seven minutes earlier and 15 minutes later. (LIRR press release, November 7, 2019)

MTA Metro-North Railroad

Beginning in May, 2020, a project aimed at rehabilitating the two-story-deep, 86-track Grand Central Terminal trainshed will commence and is expected to affect the streets and sidewalks above it for the next 20 years. The trainshed covers all of GCT's 86 tracks served by dozens of platforms and several rail yards, with the north end of it tapering to just four tracks before entering the Park Avenue Tunnel. This tapering north end serves as the access point to and from GCT for all Metro-North Railroad trains. Consisting of a series of bridges and a viaduct that forms a continuous cover over an area of around 75 acres, it forms a deck upon which an entire street network and neighborhood was built over the past 105+ years since GCT's opening in 1913. The 1.8-mile-long viaduct is better known to the average New Yorker as Park Avenue, with bridges spanning out on both sides, forming streets that connect it to Madison Avenue to the west and Lexington Avenue to the east. The shed's bridges begin with E. 45th Street and end at E. 57th Street. Budgeted at $2 billion, the work to be done will include repair and replacement of road salt-damaged structural steel columns and beams that support the streets and viaduct, replacement of the waterproofing layers that have become porous or damaged over the decades, and, in some cases, the partial or full replacement of the roadway decking. A waterproof membrane layer will be added as the work wraps up to prevent new seepage and resulting corrosion.

The preconstruction surveys have shown that most of the rust and decay damage has occurred along the curbsides of the streets above, where the roadway meets the sidewalks. Metro-North will try to minimize disruption to vehicular as well as pedestrian traffic on the streets above by limiting the reconstruction work to small sections at any given time. As each cross bridge is repaired, the street above must be partially and at times, completely closed. Metro-North will make every effort to minimize impacts on vehicular as well as pedestrian traffic, but it appears inevitable that most buildings will have their access affected and/or reduced while the rehabilitation work is being performed in their area.

Complicating the rehabilitation schedule is the fact that a recent ruling changing the zoning regulations in the area to permit the construction of larger and taller office towers will result in several existing buildings being replaced by taller office towers over the next few years. MNR is coordinating with the known building projects to try and coordinate the construction impacts on each work sector as the trainshed is being rehabilitated.

Thus far, the project engineers have released drawings for the first two sections of the trainshed that will be rebuilt. "Sector 1" is at 270 Park Avenue, located on the west side of Park Avenue and including all of E. 47th and 48th Streets westward to Madison Avenue. J.P. Morgan Chase is replacing its current office building there with new office tower. GCT construction engineers expect to be able to maintain two of the three existing traffic lanes on Park Avenue to minimize traffic impacts. "Sector 2" is slated to begin in 2024 and will rehabilitate the viaduct that is Park Avenue from E. 53rd to 55th Streets. As Sector 2 will involve a rebuilding of Park Avenue, the famous flower boxes located in the medians will be removed and replaced when the work is completed there.

While it is realized that less than half of the necessary work will be completed in the first ten years, the "learning curve of experience" gained from this period will hopefully enable the rest of the work to be completed at a faster pace by the year 2040. *(Editor's Note by Ron Yee: This rosy timetable is dependent on continuous and robust financing by future MTA capital programs, something that is never assured, especially when looking over such a long period of time during which the natural course of economic cycles peak and ebb. However, this work is absolutely necessary to prevent future and inevitable structural failures with serious safety and operational consequences to Metro-North as well as the function of the street network above.*

(Continued on page 8)

Commuter and Transit Notes

(Continued from page 7)

(***The Wall Street Journal***, November 10, 2019)

Metro-North marked its first year accomplishments in its highly touted "Way Ahead Plan" to improve safety, customer service, and infrastructure across the railroad. Metro-North announced that 90 route miles of the railroad and 90% of the Hudson Line is now protected by Positive Train Control (PTC). This figure includes the New Canaan Branch, which was activated at the end of 2018, along with the Hudson Line between CP25 Tarrytown and CP33 Croton-Harmon. Those were the demonstration to the Federal Railroad Administration (FRA) that Metro-North and the Connecticut Department of Transportation were on their way to compliance with the Congressionally-mandated December 31, 2020 deadline of full PTC implementation. *(Editor's Note by Ron Yee: The 90% figure for the Hudson Line likely refers to the section from Division Post at CP75 north of Poughkeepsie southward to CP5 (Mott Haven Junction). The Hudson Line continues south of CP5 to GCT and is awaiting the next stages of PTC activation, as is the Harlem Line and the rest of the New Haven Line. According to MNR sources, the railroad is well on its way to being fully compliant systemwide by the deadline.)*

Other safety enhancements included:

- Upgrade of the emergency exits of the Park Avenue Tunnel
- Luminescent warning signage installed every 100 feet on all four tracks from 59th Street to the 97th Street portal
- TRACKS, a community outreach program to educate the public on rail safety
- Equipping 78 grade crossing gates with brighter and more reliable, energy efficient LED warning lights
- Safety-critical communications skills training for operating personnel

Customer service improvements included:

- Major improvements at White Plains (new and/or expanded heated and air-conditioned waiting rooms on the platform, upgraded toilet facilities, new and improved food concessions, a renewed and expanded island platform), Crestwood, Riverdale, Harlem-125th Street, and Port Chester
- Accessibility improvements at Port Chester and Crestwood (bringing 60 stations in New York State into full compliance with ADA accessibility requirements)
- Completed the rehabilitation of the Middletown parking facility on the Port Jervis Line
- Assumed control of the 109-space parking facility at Fleetwood and proceeding with plans to expand it by 12 spaces
- Extended the platform lengths at the Old Greenwich station

Infrastructure improvements included:

- Opened the newly constructed Harmon Shop EMU (electric multiple unit) Annex and the Consist Shop, which is a 119,000-square-foot facility capable of accommodating two 10-car EMU consists rolling intact without having to uncouple cars. Metro-North was in the process of transitioning the shop facility on the day the ERA toured the shop on October 26, 2019
- Completed GCT track rehabilitation for Tracks 14, 18, 23, 112, and 200 (the upper level loop), where new rail, bracket ties and block ties replaced components dating back to the origins of GCT. This is an ongoing process where all tracks will eventually be replaced and modernized to bring the terminal's tracks up to a state of good repair

Looking ahead to 2020, Metro-North expects to complete the implementation of PTC systemwide, begin receiving the supplemental order of M-8 EMU cars for the New Haven Line, complete the White Plains station renovation project, continue the SMARTRACK program, which is cleaning up the trackside and right-of-way and trimming back the trees that could threaten service should they topple over, and install security cameras and "Help Point" stanchions where customers can call for travel information, report issues or call for help. (Metro-North press release, November 12, 2019)

Connecticut Governor Ned Lamont is calling for 14 roadway tolls that would generate the revenue needed to support a $21 billion transportation spending program which could fund $4 billion going toward improvements to Metro-North, including $1 billion for additional new railcars for the New Haven Line capable of 110 mph, $2.25 billion to replace the aging river bridges, which have imposed slow speed orders along the line, begin straightening out some of the slow speed curves, and enable the railroad to shorten travel times by as much as 30 minutes to GCT. The proposal for imposing 14 roadway tolls on Connecticut's more heavily used roadways and bridges is actually a step back from his initial over-exuberance toward imposing even more tolls on Connecticut highways to finance this plan. It now remains to be seen if Connecticut state lawmakers will approve of such an ambitious plan and not put it on hold. (***Railway Track & Structures***, November 7, 2019)

Amtrak

Amtrak service was temporarily suspended beginning at 11:05 AM Thursday, December 5, 2019 between New York City and Boston, then between New York and New Haven. This was due to catenary power outages stemming from a fatal accident involving an Amtrak Power Department employee who was electrocuted while changing out a fuse at a catenary power substation alongside the Northeast Corridor in the Parkchester section of the Bronx, near Unionport and the former Van Nest station. Service was resumed, but with significant delays, with Amtrak arranging for its diesel locomotives to tow its New York-Boston Regional Services through the area without catenary power, namely between Gate Interlocking in Queens County and Manor Interlocking in Westchester County. ACELA Express trains were not operated through the area, with northbound trains terminated at Penn Station-New York and southbounds

(Continued on page 9)

Commuter and Transit Notes

(Continued from page 8)

turned at New Haven. (***New York Post***, December 5-6, 2019)

Other Transit Systems

Boston, Massachusetts

The MBTA's new Orange Line trains built by CRRC (China Railway Rolling-stock Corporation) at its assembly plant in Springfield, Massachusetts were taken out of service indefinitely around November 18 to allow engineering personnel to investigate an "uncommon noise" coming from the underside of the new trains. Making their passenger service debut in August, 2019, the first train had been joined by a second consist a month later. However, these were the only two consists that were placed into service before an on-board systems glitch caused an uncommanded door opening incident while the train was in motion. A safety stand-down was performed and the glitch was corrected, allowing the two trains to return to service until the unusual underfloor noises were detected in November. The MBTA expects to take delivery of 152 new Orange Line cars before the end of 2021. On that schedule, one new six-car train should be entering service roughly every month for the next 24 months. (Al Holtz, December 1, 2019)

The MBTA Fiscal and Management Control Board approved a $30 million contract for second phase work and third phase preliminary design work of the Franklin Line Double Track Project, which will improve reliability and support future network growth by adding double-track segments to the Franklin Line. The contract was awarded to the MBTA's Commuter Rail operator Keolis Commuter Services.

While the Franklin Line is one of the highest ridership lines on the commuter rail, the line also is utilized by freight trains on the same tracks with a short track segment west of Walpole Station used for passing: Trains pull into this short section of track and pause for trains traveling in the opposite direction to pass by. When the Franklin Double Track Project is complete, the second track being added will extend this track segment, allowing for passing trains to travel without stopping, improving the reliability of service schedules and supporting future Franklin Line network growth.

Keolis Commuter Services and the MBTA's Railroad Operations team partnered to manage Phase 1 of the project, which aimed to add about four additional miles of double track between the Walpole and Norfolk stations. Keolis was awarded the Phase 1 contract in February, 2019, which included the design, procurement, construction, and commissioning of two new signal interlockings; the delivery of all subgrade preparation work, tree removal, major drainage improvements, bank stabilization, and new retaining walls; and replacement of a road bridge that included the removal of the existing bridge, requalification of abutments, the procurement of a new bridge structure, and installing and building the new deck. This work also included the plating of 11,000 ties, the demolition of rock ledges, and adding 150,000 tons of ballast. Phase 1 track construction was anticipated to be complete in November, 2019 with all Phase 1 work on target to be completed in December, 2019. The new track is anticipated to be commissioned in Spring, 2020 after the MBTA's positive train control program completes its activities on the Franklin Line.

Following the completion of Phase 1 work, Phase 2 work will commence, which includes the addition of another 3.5 miles of double track west from the Norfolk station to Frank Street, which is just east of the Franklin station. The addition of this 3.5-mile segment improves the resilience of the line and decreases the time between trains from about 45 minutes (after the current Phase 1 project) to about 35 minutes. Phase 2 work, which is anticipated to be complete in December, 2020, includes subgrade preparation; drainage improvement work; two interlockings, signal houses, signal gantries, and retaining walls; and new track infrastructure.

In parallel with Phase 2 construction taking place, preliminary design work will begin for Phase 3, which is focused on the 4-mile section of track between Walpole and Norwood Central Stations. Upon the completion of the design and construction as part of Phase 3, a double-track line will have ultimately been created along the entire line between South Station in Boston and Franklin Station, improving resiliency on both the Franklin and Fairmount Lines and creating the opportunity to potentially schedule Franklin Line express service. (Railway Track & Structures, November 19)

Denver, Colorado

The Denver Regional Transportation District (RTD) is exploring the implementation of a $3 local flat fare to promote ridership on the yet-to-be-opened N Line to the northern suburbs of Denver. The original plan was to charge the $3 fare for rides over most of the line but a $5.25 one-way fare for trips originating from or destined to the last two station stops (Northglenn/112th Street and Eastlake/124th Street) of the new line. The N Line is expected to open sometime during Spring/Summer, 2020. If this Promotional Fare Program is approved by the RTD Board and is proven to be successful in stemming the loss of ridership, the RTD may elect to charge only the $3 flat rate for the entire N Line light rail line. (***Denver Post***, November 12, 2019)

Petaluma, California

Sonoma-Marin Area Rail Transit (SMART) opened its long-awaited, two-mile, $55 million extension from its former southern terminus at San Rafael to its new terminal at Larkspur with an opening ceremony on Friday, December 13, 2019. Regular passenger service commenced the next day, Saturday, December 14. SMART began regular passenger operations on its original 43-mile-long route on Friday, August 25, 2017. While the Larkspur terminus is not adjacent to the Golden Gate Ferry terminal, it is less than a ten-minute walk from the station to the pier. Golden Gate Ferry offers a direct, 30-minute ride to the piers of the Ferry Terminal Building at

(Continued on page 10)

Commuter and Transit Notes

(Continued from page 9)

the foot of Market Street in downtown San Francisco.

The SMART Board approved new travel pass options through a partnership with the Golden Gate Bridge District, which operates the ferry. Starting in January, when SMART will begin running its new expanded train schedule, and lasting through February, transfers to and from the ferry will be free on weekends and holidays. Through a six-month pilot program that the two transit agencies are calling the "Sail and Rail" pass, passengers can also take advantage of a two-for-one option via the SMART smartphone ticket application only when they ride on weekdays during off-peak or reverse commute hours for a flat rate of $12 each direction. The price for a standard adult ticket to ride the entire 45-mile SMART line is $11.50, and a one-way ticket aboard the Larkspur ferry is $12.50, or $8 with a Clipper Card. A $1.50 discount will be applied for riders who transfer between the two transit services with the Clipper Card, providing a combined fare of $18 one way. Between San Rafael and Larkspur five roadway grade crossings are under review for approval and certification of each of them as "quiet zones," eliminating the need for trains to sound their horns, a relief to Marin County residents living nearby. (***The Press Democrat***, December 6, 2019)

Salt Lake City, Utah

December 4 marked the 20th anniversary of the launch of Utah Transit Authority's (UTA) TRAX light-rail service.

In 1998, UTA opened its first rail station in Midvale, Utah, and received delivery of its first fleet of Siemens SD100 trains. By 1999, the first light-rail line opened to connect riders between Salt Lake City and Sandy.

Today TRAX operates on three lines along 44 miles of track, serves 50 stations, and has 114 rail cars.

To date, 283.4 million people have traveled using the light rail system, UTA officials said a press release. (***Progressive Railroading***, December 4)

San Francisco, California

On November 26, Caltrain announced it is stepping up the manufacturing, assembly, and testing activities for its electric trains at Stadler's Salt Lake City plant in preparation for the rail system's electrification between San Francisco and San Jose, California, by 2020.

Three rail cars are completely wired and undergoing electrical testing, while other structural and lifecycle testing continues on the cars' trucks at the Utah plant. In addition, endurance tests are wrapping up on propulsion gearboxes, Caltrain officials said in a project newsletter.

Also, 75 percent of first article inspections have been completed. The inspections verify that the first manufactured component in a series is built to requirements, Caltrain officials said.

And this month, crews began installing system foundations in Palo Alto and Mountain View, and continued pole installations in San Mateo, Belmont, San Carlos, and Redwood City, California.

Work also was performed this month on six traction power facilities in San Jose, Redwood City, Sunnyvale, South San Francisco, and San Mateo. (***Progressive Railroading***, November 27)

Orange County, California

OCTA rendering.

Orange County Transportation Authority (OCTA) crews are advancing construction on the 4.1-mile, 10-stop OC Streetcar route between the Santa Ana Regional Transportation Center and a new transit stop in Garden Grove, California.

Crews have begun pouring foundations for a maintenance and storage facility to be constructed along the former Pacific Electric Railway Company right-of-way in Santa Ana throughout 2020.

OCTA also has completed construction of the foundation and pier walls for a 350-foot-long bridge across the Santa Ana River. Other bridge work is scheduled to resume after the rainy season, OCTA officials said in a press release.

Meanwhile, streetcar construction has been suspended on Fourth Street until 2020 to give shoppers access to businesses in the area during the holiday season.

The $408 million OC Streetcar project is funded by federal money, including a $149 million grant from the Federal Transit Administration, and by Measure M funds, Orange County's half-cent sales tax for transportation improvements.

The streetcar will begin testing and operations in early 2022 with six Siemens S70 vehicles. (***Progressive***

(Continued on page 11)

Commuter and Transit Notes

(Continued from page 10)

Railroading, December 5)

Toronto, Ontario, Canada

Toronto was to end another chapter in its streetcar history book on December 28, 2019 when the last of its 40-year-old fleet of CLRVs were to make their final runs in regular passenger service. Just prior to entering 2020, the city's streetcar fleet completed its transition to the Bombardier Flexity low-floor LRV, with the 204-car order almost complete. On Saturday, December 28, the remaining CLRVs on the Route 511/Bathurst were to make their last runs. On Sunday, December 29, a few CLRVs were to make some limited runs on the Route 501/Queen Street line and a farewell run with seats issued via a TTC-sponsored lottery was to be made from Wolseley Loop, departing around 2:30 PM and operating eastward on Queen Street to Russell Carhouse, arriving around 3:45 PM, marking the completion of just over 40 years of service on the streets of Toronto. *(Editor's Note by Ron Yee: From the massive fleet of Peter Witts of the 1920s, the post-war transition to the PCCs built in the 1940s to 1950s, to the CLRVs built in the late 1970s and early 1980s, and now onward to the Flexity LRVs, light rail in Toronto looks forward to a bright future.)* (Toronto Transit Commission, December 4, 2019)

United Kingdom

West Coast Partnership (WCP) of First Group and Trenitalia officially launched operation of Avanti services on Britain's West Coast Main Line at an event held at London Euston Station on December 9. The joint venture is taking over the franchise from Virgin Trains, which operated the service for 22 years.

The franchisee is set to refurbish the Pendolino fleet to "as new condition" with the goal of substantially improving capacity on the network. Improvements include installing 22,000 new seats, offering more reliable Wi-Fi, and power sockets for all passengers. The operator is also set to replace the diesel Voyager fleet with 10 new seven-car EMUs and 13 five-car bi-mode trains ordered from Hitachi.

As well as Avanti West Coast, WCP is overseeing the West Coast Partnership Development, which will act as the shadow operator for future high-speed rail services on HS2. The group will design, develop, and mobilize operations for the new line, working with HS2 Ltd. and the Department for Transport.

First and Trenitalia founded the joint venture in 2017. Trenitalia already operates C2C, the Essex Thameside franchise which offers commuter services between London Fenchurch Street, Southend, and Shoebuyness. (***International Railway Journal***, December 9)

Austria

Austrian Federal Railways (ÖBB) has announced plans to procure new single-deck EMUs. A so-called market investigation has been published in the official Journal of the European Union (EU). While ÖBB does not specify the total number of vehicles required, it says it wants three types of trains: 50, 75, and 100 meters long. All the trains must be approved for operation in Austria, Germany, Slovakia, Czech Republic, Hungary, Slovenia, and Italy under 15kV 16.7Hz, 25kV 50Hz, and 3kV d.c. electrification.

The EMUs must be able to cope with platform heights of 380 mm, 550 mm, and 760 mm. The trains will have a maximum speed of 160km/h and the option for 200km/h. ETCS is also required, and delivery should take place within 36 months.

The 50-meter-long version should be able to operate on battery power over at least 100 km.

The call is an interesting move by ÖBB, as it currently has a framework contract with Bombardier for up to 300 Talent 3 EMUs, from which it has only placed a firm order for 46 EMUs. However, ÖBB is extremely unhappy with the Talent 3, which has already been delayed by one year, and does not want to place additional orders. As a result of the market investigation ÖBB may announce a formal tender but also reserves the right to cancel the whole procurement. (***International Railway Journal***, November 18, 2019)

Bombardier Talent (Cityjet) 4024 103 operating a S45 service at Wien (Vienna)-Heiligenstadt, May 14, 2019.
Jeff Erlitz photograph

Lyon, France

Lyon opened the 6.7-kilometer T6 light rail line on November 22, 2019, an extension of T1 connecting Debourg to Est-Pinel Hospital with 14 stations. The new line provides a connection with the south and east of the city while bypassing the city center. T6 also connects with metro lines B and D, light rail lines T1, T2, T4, and T5, and 14 bus lines.

The line is built along a greenway for 70% of its route, providing more vegetation through the city, and also features a cycleway along its entire length. Work on the project began at the end of 2016. LRVs are operating at 10-minute intervals during peak periods, with an end-to-end journey time of 21 minutes.

In May, Lyon public transport authority Sytral launched a six-week public consultation on proposals to extend T6 north to the La Doua university campus, completing a light rail circle within the city's inner ring road. (***International Railway Journal***, November 25, 2019)

(Continued on page 12)

Commuter and Transit Notes

(Continued from page 11)

An Alstom Citadis 302 is seen operating on route T2 at Avenue Berthelot & Rue du Repos, May 31, 2006.
Alain Caraco photograph

Saint-Étienne, France

Saint-Étienne, the oldest surviving French tramway city, opened a 4.3-kilometer extension to Line T3 of the city's light rail network on November 16. The extension runs from the Châteaucreux station to La Terrasse via the center of the Soleil, Zénith, Plaine-Achille, and Technopôle districts and the Geoffroy-Guichard/Étivallière sports stadium. Six of the line's eight stations are new.

The line connects with the T1 and T2 lines, creating a loop around the city center and reducing travel time between Châteaucreux station and La Terrasse from 19 minutes to 14 minutes. Service will operate at 10-minute frequencies. A feasibility study was completed at the end of 2014, the project was approved in April, 2015, and construction started in mid-2017. (***International Railway Journal***, November 18, 2019)

Urbos 3 944 (CAF, 2016) is seen crossing the Place du Peuple in Saint-Étienne on October 12, 2017.
Alexander Zelentsow photograph

Saint-Étienne was one of only two cities in France (Marseille was the other) that operated PCCs. Seen here just north of the Hôpital Bellevue stop at Rue Gabriel Péri & Rue Ambroise Paré is PCC 519 (Les Ateliers de Strasbourg, 1958).
Jeff Erlitz photograph, May 24, 1986

Paris, France

The first unit of an order for 255 EMUs for SNCF's Paris RER Nouvelle Generation (RER NG) program was rolled out of the plant on October 18, 2019 in preparation for final fit-out and the start of testing. The program is a hybrid merging of Alstom's Xtrapolis and Bombardier's Regio 2N models and encompasses a combination of 125 six-car sets and 130 seven-car sets, equipped to run on both 1,500-volt d.c. and 25,000-volt a.c.

The trains are a unique blend of single and bi-level cars, with the single-level cars featuring extra-wide doors and generous aisles for peak hour, short-distance loading and wheelchair access, while the bi-level cars are arranged for a mix of service needs, with the lower level for urban and inner suburban commuters and the upper level containing more seating for longer-distance travel from the outer suburbs. A key design advantage is the single-level car contains the pantographs and the bulk of the electric traction package, allowing an increase in the amount of available interior space in the bi-level cars.

The new trains, yet to receive a class designation, are destined for RER Lines D and E, with the first 71 sets set to replace Class Z 20500 on Line D, the first of which were introduced in 1988. Five pre-series sets will be tested throughout 2020, with production units starting in passenger service in 2021. Line E sets will be introduced prior to the commencement of service on the western extension to Nanterre, scheduled to open in 2022. (***International Railway Journal*** and ***Railway Gazette International***, October 18, 2019)

Paris regional transportation authority île-de-France Mobilités and Paris transit operator RATP announced on November 29 that they were awarding a contract to Alstom and Bombardier to supply up to 410 trains for the Paris Métro. The base order, worth €530 million, will

(Continued on page 13)

Commuter and Transit Notes

(Continued from page 12)

furnish 30 five-car sets for Line 10 and 14 four-car sets for Lines 3b and 7b. Designated as the MF19, they will begin the replacement of the MF67, currently the oldest class of steel-wheeled trains on the Métro, as well as the nine three car-sets of MF88s which operate exclusively on Line 7b, the short shuttle line in the northeast corner of the city. Incidentally, the MF88 were noteworthy for introducing a number of revolutionary features, including being the first truly interconnected gangway trains in Paris, which has been standard on every Métro car class since.

The MF19s are scheduled for delivery between 2024 and 2026. The exercising of the options will allow for the replacement of the remainder of the MF67 cars on Lines 3 and 12, as well as the MF 77 cars on Lines 7 and 13. Upon fulfillment of the entire order, there will be no steel-wheeled trains remaining from the 20th Century. (***International Railway Journal*** and ***Railway Gazette International***, November 29, 2019)

Finally, staying in Paris, the massive rebuilding of the Gare du Nord rail hub has come under fire. As we first reported in the January, 2019 ***Bulletin***, a multi-year renovation and expansion of Europe's busiest railway station was being prepared to start in 2020 with an anticipated completion in time for the start of the 2024 Olympic Games, which are being held in Paris.

As the summer of 2019 drew to a close, SNCF's Stations and Connections Division and its designated developer Auchan released details of the proposed renovation plans, including accompanying architectural renderings, which were immediately met with strong criticism from many quarters. A coalition of elected officials, rail passenger advocates, civic associations, architects, urban planners, historic preservationists, and architectural critics have united in opposition to the program, referred to as StatioNord, for placing an emphasis on retail and commercial development over the needs of rail passengers.

When the program was first announced almost two years ago, and as described in great detail in the January, 2019 ***Bulletin***, it appeared that the pressures bearing on a 155-year old railway station as it tries to cope with 700,000 daily users, expected to grow to 900,000 by 2030, would be addressed. Conflicting passenger flow patterns would be untangled, new entry and exit points would be opened up, and the public realm around the station would be dramatically transformed. While most of those improvements are still moving forward, it is the manner in which they will be built and operated that is engendering great controversy.

The primary objection that has been raised is in response to the amount of space dedicated to retail storefronts, especially along the new pedestrian pathways that are to be created. Furthermore, it appears that the commercial spaces have been arranged in a manner to force commuters past the storefronts, encouraging them to stop, shop, and linger. Direct paths between the Métro/RER transfers and the main line/suburban platforms will be sacrificed in favor of longer, more circuitous routings, adding to travel time and congestion, and only exacerbating the very same conditions that the program was supposed to solve.

Generally, the fear is that Gare du Nord is going to be turned into an airport, or a shopping mall that happens to have a train station attached to it. This should not come as a great surprise, as the developer Auchan is known as the "Wal-Mart of France." Similar concerns were raised in 2012, when a similar, multi-year, costly renovation of Gare Saint-Lazare was completed with the addition of a new shopping mall within the headhouse of the terminal. However, Saint-Lazare has a much simpler layout than Nord, so the effects of the commercial spaces there are not as impactful on passenger flows as they could be at Nord.

It is not clear what happens next. Gare du Nord is a national asset, so municipal objections may not carry that much weight. SNCF and Auchan have touted the project's benefits, and have emphasized that time is of the essence with the Olympics now four years away. Meanwhile, opponents have vowed not to give up. Stay tuned. (***New York Times***, September 4, 2019; City Lab website - *Why a Train Station Addition has Parisians Outraged*, September 9, 2019)

Tel-Aviv, Israel

Israel Railways started test running on the newly electrified section between Ben-Gurion Airport and Tel-Aviv's Hahagana station on the night of November 16, 2019.

This follows the completion of electrification of the link between the A1 line to Jerusalem and the center of Tel-Aviv and to the electric locomotive depot in Lod.

Regular test runs will now take place daily until the start of commercial service, when electric trains will operate at a frequency of two trains per hour.

"Covering the 56 km between Tel-Aviv and Jerusalem is great news," says Israel's Transport Minister, Mr. Benjamin Smotrich. "I salute the former Transport Minister, Mr. Israel Kats, for his initiative to promote the A1 despite the challenges and objections." (***International Railway Journal***, November 19)

The first electric train on test at Tel Aviv's Hahagana station.
International Railway Journal photograph

(Continued on page 14)

Commuter and Transit Notes

(Continued from page 13)

Sydney, Australia

For the first time since 1961, trams operated on the streets of downtown Sydney when the new Sydney Light Rail line opened on Saturday, December 14, 2019. The new line, named L2/Randwick, spans 12 kilometers (7 miles) with 19 stations from Circular Quay to Randwick, southeast of downtown. It is served by a fleet of 60 Alstom Citadis 305 five-section low-floor light rail vehicles designed to operate as two car trains.

Originally projected to coast AUS$1.7 billion, the final project cost reached a total of AUS$2.96 billion, almost twice the original projections. Transdev Sydney is the contract operator of the tram line. A tram with VIPs aboard made an inaugural trip at 8:50 AM with the first public trips starting at 11 AM. No fares were charged during the first weekend of service. Unfortunately, opening day was marred by at least two service interruptions caused by mechanical failures. One LRV apparently stalled and lost power at Circular Quay while making a turnaround there. Aerial photos showed the tram stalled while on a double crossover, blocking both tracks. Tram service was truncated back to Town Hall where another set of crossovers provided the ability to reverse trams downtown.

Sydney's original light rail line, Route L1/Dulwich Hill, connecting Dulwich Hill on Sydney's west side with Central Station, opened in August, 1997. A third line, to be designated L3/Kingsford Line, connecting Circular Quay, Central Station, and Juniors Kingsford, is expected to open in March, 2020. (***Australian Associated Press***, December 14, 2019)

Around New York's Transit System

(Continued from page 20)

transponders. *(Editor's Note by Ron Yee: The CBTC transponders, when "read" by passing trains, communicate exact location information to that particular car and to the central computer system controlling all trains on the line. The CBTC transponders observed on the BMT Canarsie L Line, and which have been installed on the IND Queens Boulevard E F M R Line, are of a different design as they are provided by Siemens rather than Thales. Their transponders are much larger and robust in appearance and have endured multiple snowstorms and blizzards on the L line over the past few years. They are apparently not affected by snow or ice accumulations. Covered by less than one inch of snow, the Thales transponders apparently could not relay their electronic codes to communicate to passing trains their exact locations, crippling the ability of the CBTC system to control and operate trains automatically as intended. As of press time, the focus was on the 110 transponders installed between 111 St and Queensboro Plaza on the elevated structure that have been identified as being vulnerable to snow and slush. 30 had already been covered when this issue first surfaced in March, 2019. The remaining 80 were covered prior to the start of the Christmas holidays. The entire line has 498 transponders. This Editor is curious as to why the elevated sections between the 111 St station and the tunnel portal approaching Flushing-Main St and the section between Queensboro Plaza and the tunnel portal at Hunters Point Av were apparently unaffected by the snowfall. While the problematic transponders are being equipped with rounded top plastic covers on the sections of the line on elevated structures where the snow would simply slide off and through to the streets below, it remains to be seen if the trains will be able to "read" the newly covered transponders when they are buried in over a foot of snow following a heavy snowfall, sometimes for several days on the Queens Boulevard viaduct where it has no place to "fall through" to.* (NBC-4 TV News, Gothamist, December 11, 2019)

Ultrawideband Test on the Flushing Line

Ultrawideband (UWB) signaling and train control technology is being tested on the Flushing 7 Line. Equipment was installed on two trains. News Editor Ron Yee observed three cars equipped with the experimental equipment, which consists of an enhanced wireless antenna transmitter and receiver mounted on the pillar between the storm door and the Train Operator's windshield even with the top of the door and extending to almost the roofline. There is also a small outward-looking camera on the inside lower corner of the windshield as part of the testing.

The observed car numbers are 7395, 7400, and 7535. The fourth car number was not observed; however, if the equipment selected for this test were in sequential order for two 11-car trains, it may be surmised that the fourth missing car number could be 7600.

Ultrawideband equipment on a 7 train.
Ron Yee photograph

SOUTHWEST UNITED STATES
by Jack May
(Photographs by the author)

In April, 2017 Clare and I decided to take a motoring tour of parts of the American southwest, which would include visiting friends and seeing some national parks we had missed before, as well as giving me the opportunity to ride the relatively new Tucson streetcar line and various extensions to the modern light rail lines in Los Angeles and Phoenix. We have friends living in Culver City, who always invite us to stay with them, and in getting in touch with them we decided that all four of us would spend about 10 days exploring parts of Arizona and Utah, as they have friends and relatives in Phoenix and Prescott, and had always wanted to roam through national parks other than the relatively nearby ones of Sequoia, Kings Canyon and Yosemite. They are consummate hikers and were very enthused about visiting Monument Valley, Arches, Canyonlands, Capitol Reef, Bryce and Zion. It would be our second visit to the last two, which we were pleased to be able to see again.

I have actually known Sig longer than I have known my wife, as he was working at Hudson Labs when I joined the staff after graduating college in 1958. Clare was hired a year later and they both taught me how to ski. Sig, an octogenarian physicist even older than we are, still skis, generally at Mammoth in California. He was born in Florida, but his family moved west to the Los Angeles area when he was a kid. Cathy, who hails from the Seattle area, had a long career in nursing, specializing in neonatal intensive care, and eventually created a widely used educational program.

Anyway, we decided to spend ten days on the road with them, starting from Los Angeles and ending in Las Vegas, where we would fly back to New Jersey and they would drive back to Culver City. Before leaving we would spend four days at their home, so we made up an itinerary. We would fly out to the west coast on Tuesday, April 11, and return on Tuesday, April 25. United Airlines was in the midst of a sale, so we bought our tickets expeditiously, in December, 2016.

We elected to rent a car with sufficient trunk space to keep our four suitcases. Prices from LAX were in the $600 range, but investigating further we found a Chevrolet Impala from Hertz in nearby Culver City with a $312 all-inclusive rate for 10 days, and not much more for 11. We quickly signed up for that offer and I made hotel reservations to support our itinerary. Now it was just a matter of waiting for our departure date.

In making my plane reservations I had selected two seats on the aisle opposite each other, as that would fit Clare's needs in that she uses a cane for walking — and besides, nobody likes a middle seat. But when it was time to check in and obtain boarding passes, 24 hours before our scheduled departure, we found our seats for the westbound flight had been changed to a window and middle further back in the B-757 — without any explanation or notification. I asked for a change to at least one aisle seat, explaining why it was necessary, but United's telephone clerk said it had to be done at the airport. Of course, when we arrived at EWR, well before our departure time, we were told that the plane was sold out and it was impossible to change seats. To put this into perspective, this was two days after the infamous incident when United dragged a passenger off one of its flights.

Tuesday, April 11

Our daughter-in-law dropped us off at Newark's Terminal C a little before 10 AM (we left home at 9:20, stopping at the Post Office en route) and after we tried and failed again to get our seats changed, we were in a security line. Unfortunately, the x-ray machine must have broken down (or the operator needed to have a potty break) just after we put our belongings on the conveyor belt, and the TSA became confused as to how to accommodate those like us without breaking into another line, as all the adjacent ones were already long. We just waited, as I did not want to cut in front of anyone else, which is what some others did. Meanwhile I already had given my film to an attendant for hand-checking, and at least that was accomplished, so that when our machine's operation finally resumed, we were able to proceed immediately to our gate. Our 11:25 AM flight loaded smoothly by zone a few minutes later, at 10:45. There was plenty of room for our carry-on bags and we got settled in our seats quickly; the plane actually began pushing away early, at 11:18, and we were in the air by 11:30.

The view from United Airlines flight 1960 through the window of our Boeing 757 jet airliner.

We flew at 32,000 feet and were treated to free entertainment (movies, TV, music) on the screens on the back of the seats in front of us. We were given soft

(Continued on page 16)

Southwest United States

(Continued from page 15)

drinks on two occasions, after the sale of food was touted. There were clouds hiding the Grand Canyon, but they disappeared as we reached the San Bernardino mountains. We touched down at 2:05 and reached the gate early at 2:20 (44). It was a good flight.

I had obtained a smartphone the previous year, which I use only on trips, and we called Cathy and Sig upon exiting the terminal at the nearest roadway; they arrived a few minutes later to pick us up and we were at their home in Culver City by 3:30. I had made tentative plans to spend Wednesday and Friday riding and photographing the Azusa and Santa Monica ends of Los Angeles' Gold and Expo Lines, as I had covered the sections that were completed earlier on previous trips. The Santa Monica extension would be easy, as it was just a hop, skip, and a jump from where we were staying near the Sony Studios (formerly Metro-Goldwyn-Mayer) and close to the line's old terminal, Culver City. And, I would take either Thursday or Saturday (depending on the weather forecast) to go to San Diego. While there are no new lines there, I had missed riding the PCC "heritage" service on two previous attempts, several years apart, because of "mechanical difficulties" causing the cancellation of such operation in the days when only one car was available. I would spend the other day with Clare, Sig, and Cathy, visiting touristic locations in the Los Angeles area.

Wednesday, April 12

The day dawned cloudless and I decided this would be the best opportunity to cover the Azusa extension of the Gold Line. I got up early, and after Cathy prepared an excellent breakfast, was driven to the Culver City station of the Gold Line, reaching it at 9 AM, the trip having taken less than 5 minutes. According to timetables, an LRV train on the Expo line would get me to 7th and Flower in 18 minutes; and a connecting Red or Purple Line heavy rail train would take only 5 minutes to get me to Union Station. From there I could board the Gold Line at about 9:30, and it would take me but a half hour more to get to Sierra Madre Villa, the former terminal of that route, where my exploration of the extension would begin.

It turned out that I could not purchase a $2.50 Senior Citizen day ticket from the machines at the station, as they issue only regular TAP cards (as opposed to special Senior TAP cards, which have to be applied for with proof of age and photo), so I spent $8 for a regular $7 day ticket (with the extra dollar as payment for the actual card itself). Interestingly, I could have bought a one-way senior fare on a regular TAP card at the machine, which would have cost (in addition to the dollar for the card) either $.35 off-peak or $.75 peak, depending on the time of purchase. But then I would have to do this over and over again every time I wanted to board, which would be annoyingly time-consuming.

As it was, the time I took figuring all this out was just long enough that as I got to the platform, the 9:06 train pulled away. With a 6-minute headway at this time of day, I would not have to wait too long for the next one. But the next eastbound train did not come for another 12 minutes. I wondered if this was going to be a portent for my day — and it turned out it was! I boarded the 9:12 (or was it the 9:18), which consisted of three bright and shiny, brand new P3010 cars from Kinkisharyo. I got a good window seat and was soon sailing down the line.

I will provide a little more description of the route in the segment of the report that corresponds to my ride to Santa Monica, but for those who are not familiar with the general aspects of the rail system, which is operated by the Los Angeles County Metropolitan Transportation Authority (Metro), here are some brief notes (for a map see http://www.urbanrail.net/am/lsan/los-angeles.htm):

There are two heavy rail routes, totally underground, that run predominantly westward from Los Angeles Union Station. The Red Line, which also turns northward to North Hollywood (15 miles) and Purple Line, an offshoot to Wilshire and Western (5 miles), were opened in portions between 1993 and 2000. An extension to the Purple Line is currently under construction. As of 2017*, ridership on this typical subway system ran about 140,000 on weekdays. *(*All ridership numbers in this article refer to average weekday totals for the year 2017.)*

There are four light rail lines, all with high-level platforms, allowing floor-height loading (like Calgary, Edmonton and St. Louis, to name a few similar operations). The first to open was the Blue Line, which runs from an underground station at 7th and Flower Streets (Metro Center) almost due south for 22 miles to Long Beach, with much of it along or parallel to original Pacific Electric Railway interurban rights-of-way. It opened in 1991 and has been incredibly successful, with weekday ridership running about 75,000 (that is more than some heavy rail lines, like those in Cleveland and Baltimore). The Green Line came next, in 1995, operating between Redondo Beach and Norwalk, south of the city. Its 20-mile-long route runs predominantly east to west, and it does not serve Los Angeles' downtown area, instead crossing the Blue Line at the Willowbrook/Rosa Parks station. It is entirely grade-separated, with its westernmost portion, near Los Angeles International Airport (reachable from the Aviation Boulevard station by shuttle bus), elevated, while the balance of the line is located in the center of the Century Freeway (I-105). The Green Line has had its ups and downs in ridership, mainly due to the fortunes of the aerospace industry, which it serves. There are about 33,000 riders each weekday. Interestingly, when it was planned, the grade crossing-free Green Line was supposed to be an entirely automated operation.

The first portion of the Gold Line opened from Los Angeles Union Station to Pasadena and Sierra Madre in 2003, covering a distance of 14 miles in a generally northeasterly direction. Its inner terminal was integrated into the historic railroad terminal, occupying Tracks 1

(Continued on page 17)

Southwest United States

(Continued from page 16)

and 2 of the 14-track facility atop a passenger concourse, way above the underground Red/Purple Line station. The line was extended from Union Station virtually due east for another 6 miles to East Los Angeles in 2009. The newest extension, built on the Pasadena end for an additional 11 miles, was opened on March 5, 2016, and will be discussed in detail in a forthcoming section of the narrative. Ridership over the entire 31 miles runs about 53,000 per day.

Lastly, the Expo Line began operating in 2006 from a junction with the Blue Line shortly south of the tunnel portal leading into Metro Center for about 8.5 miles to Culver City. It was extended for another 6.5 miles further to Santa Monica on May 20, 2016, less than a year before this visit. Ridership on the 15-mile-long line (1.5 miles shared with the Blue Line) was about 60,000 as of 2017. Additional details will follow in the report segment that covers my journey to Santa Monica.

Rail transportation has certainly made a remarkable comeback in Los Angeles, after its virtual elimination when the construction of freeways for personal automobiles weaned away many of its previous riders. Who ever thought that this sprawling area of concrete, asphalt, and smog would ever see such a resurgence, manifested by the construction of over 100 miles of route carrying about 360,000 passengers each weekday? This progress was brought on by the realization that we cannot pave our way out of congestion, that widening existing highways and building more of them is not a solution for declining mobility and air quality. Between 1991 and today six busy lines have been built, and more are poised to be added. Work is proceeding on extending the heavy rail Purple Line westward for 9 more miles, and there is also much activity on the light rail system. The 8.5-mile-long north-south Crenshaw Line, connecting the Expo and Green Lines, is well under construction and slated for completion in the next few years, and will be followed by a 12-mile-long Foothill extension of the Gold Line, while an underground connector in the center of Los Angeles will through-route the Blue, Gold, and Expo Lines, thereby eliminating annoying transfers and inefficient stub-end terminals.

Plus I have not mentioned Metrolink, a diesel-operated push-pull commuter rail system centering on Union Station, which was introduced in 1992. The 59-mile-long system now has 7 lines (one of which is cross-country and does not operate into downtown Los Angeles) and carries a little over 40,000 people under the aegis of the Southern California Regional Rail Authority, which is totally separate from Metro. Rail has successfully returned to Los Angeles.

Getting back to the day's activities. The speedy sail along the Expo rail did not last very long. After coming to a halt at the 23rd Street station, just before the route merges with the Blue Line, we did not move forward for a good 15 minutes. Finally we began crawling, and eventually arrived at the Metro Center terminal. My two-car train crossed over to the outbound track, which is unusual as normally the LRV trains lay over beyond the platform. In making the transfer to the Red/Purple Line, I got to the platform just as an eastbound train closed its doors. But not to worry, another one came six minutes later.

When I finally got to Union Station it was already almost 10:30. I stopped briefly at Metro's Customer Service Center to see if I could get a senior TAP card, but found out I would need to supply a photograph, and was not about to arrange obtaining one. As it was I missed the end of the Gold Line's 6-minute rush hour headway period, but I was happy to settle for the base 12-minute frequency, which I knew would have been suitable for most of my activities anyway. Not! The platform was crowded and the countdown clocks were blank. But temporary signs were posted indicating that because of track work service would be running over this portion of the line only every 24 minutes. This would be in effect from Tuesday to Thursday. So because I would also be around on Friday, I scrapped my plans to cover the Gold Line today. I did, however, stay on the platform in order to take a photo, figuring that a train of LRVs would be coming through soon because of the large number of people waiting. Also not!

I eventually gave up on that as well, while I was seeing a great deal of activity on the other Metrolink tracks that were not being photographed. So I did just that, going to a couple of other platforms to take pictures of the diesel push-pull trains (from which I finally did see some activity on the Gold line). After those photos I decided to ride the Expo Line out to Santa Monica. However, to keep my report in some sort of coherency based on subject matter, I am going to devote the rest of this segment to Union Station and the area surrounding it, and will continue with the Expo Line in the next chapter.

Union Station, a beautiful railroad terminal built in a combination of Mission and Art-Deco styles, was constructed as Los Angeles Union Passenger Terminal in 1939. Terminal is the operative word, as all trains enter from the north side and there are bumper blocks and a layup yard to the south of the facility. In the glory days of lightweight steel streamliners, it hosted the First Class all-Pullman *Super Chief*, *City of Los Angeles,* and *Lark*, as well as many of the other famous trains operated by its three (very competitive) owners, the Atchison, Topeka & Santa Fe Railroad, the Union Pacific Railroad, and the Southern Pacific Railroad, respectively. These trains were used by glamorous Hollywood stars and were featured in many movies. If I am not distracted while walking through the station's art-deco corridors, I can almost hear Mel Blanc announcing "train leaving on track 5 for Anaheim, Azusa, and Cucamonga." Listeners to the Jack Benny radio show would always wait for that frequent line when one of his broadcasts would involve travel, and studio audience laughter would follow immediately.

(Continued on page 18)

Southwest United States

(Continued from page 17)

With the advent of Metrolink in 1992, there is now a great deal of activity in the station's corridors, also augmented by an increasing frequency of Amtrak *Surfliner* trains to and from San Diego, and I had no trouble getting onto the appropriate platforms for photos. Here are some views of the rail activity I encountered.

Two views of EMD-built locomotives preparing to pull Metrolink trains from the platforms of Los Angeles Union Station. 874 on the left is an F-59-PHI built in 1994, while 18552 was leased from Montreal-based Rosen Beaudin, who acquired the 1990-built Transit F-59-PH from GO Transit. Note the totally different styling of engines, whose class identification differs only by the letter "I" at the end.

A cab car leads as a Metrolink train is being pushed into Union Station. The two Bombardier-built bi-level GO Transit-type cars are sandwiched between two newer Hyundai-Rotem units. Note the two different color schemes, white and "aquawave." Because of the results of 2005 and 2008 collisions, all of Metrolink's cab cars are now Hyundai Rotem "Guardian" units, built from 2010 to 2013, which were specified to incorporate anti-crumpling Crash Energy Management features. Metrolink's regular coaches come from both the "Guardian" and original "Sentinel" orders. The poles and catenary in the background serve Metro's Gold Line, which uses Tracks 1 and 2 of the station, and then rise to an elevated structure as the trains make their way to the Chinatown station and then all the way to Azusa.

(Continued on page 19)

Southwest United States
(Continued from page 18)

I also took the following photos on Friday, of the outside of the station and of the Gold Line light rail viaduct that swings across the Santa Ana freeway (U.S. 101) toward Little Tokyo, en route to East Los Angeles.

Two photos of the Mission-style Los Angeles Union Station. The left view is from a garage at the corner of East Commercial and Alameda Streets. The twin towers are atop the U.S. Post Office adjacent to the depot.

After stopping at the westernmost platform of Union Station, Metro's Gold Line uses an elevated structure to surmount the Santa Ana Freeway (U.S. 101). It will turn south and parallel Alameda Street until it reaches Little Tokyo, where the line turns east on First Street heading for East Los Angeles. After the Regional Connector is built these tracks will be used by the Long Beach Line trains en route to Union Station and Azusa. The left side view is from the same vantage point atop a garage as the photo of Union Station above it. The right hand view is from East Commercial Street at the foot of the garage. The rolling stock shown are Kinkisharyo-built P3010s from 2014, and Breda-built P2550s from 2007, respectively.

(Continued next issue)

SUBDIVISION "A" CAR ASSIGNMENTS

CARS REQUIRED NOVEMBER 17, 2019

LINE	AM RUSH	PM RUSH	LINE	AM RUSH	PM RUSH
1	10 R-62, 300 R-62A	10 R-62, 300 R-62A	5	350 R-142	360 R-142
2	360 R-142	350 R-142	6	370 R-62A	370 R-62A
3	260 R-62	260 R-62	7	418 R-188	407 R-188
4	170 R-142, 180 R-142A	170 R-142, 160 R-142A	S (42nd Street)	7 R-62A	7 R-62A

Around New York's Transit System

OMNY Expanded to 48 More Stations

OMNY, the replacement fare collection system for the current *MetroCard* on the MTA's subways and buses, was expanded to 48 additional stations in Manhattan, the Bronx, Brooklyn, Queens, and Staten Island during December, 2019. OMNY had only been available (beginning in May, 2019) on the 4 5 6 lines from Grand Central-42 St to Atlantic Av-Barclays Ctr. During December, 2019, modified turnstiles equipped with OMNY were activated at the following stations:

- 34 St-Penn Station 1 2 3 A C E
- Whitehall St- South Ferry R W
- South Ferry 1
- 86 St R
- Sutphin Blvd-Archer Av-JFK E J Z
- 51 St to 125 St 4 5 6
- 138 St-Grand Concourse 4 5
- 149 St-Grand Concourse to Woodlawn 4
- Rector St to 59 St-Columbus Circle 1

In addition, St. George and Tompkinsville on the Staten Island Railway were activated.

Riders opting to use OMNY will be able to "tap" the screen with their credit or debit cards if they are equipped with an RFID (radio-frequency identification) chip to pay for single rides Users can also "tap" their smart phones (equipped with "smart pay" apps) or continue to use *MetroCard* for 7-day and 30-day unlimited passes. The full roll-out of OMNY is expected by October, 2020, after which, the *MetroCard*, like its predecessor, the brass token, will begin the process of being phased out, vanishing from the scene in July, 2023. In 2021, the MTA will also sell plastic OMNY cards with an embedded chip (like London's Oyster Card, for example) for those without the ability to use credit cards or phone apps and the phone apps will have the ability to handle weekly and monthly unlimited passes. OMNY will cover all city buses by December, 2020 and the LIRR and Metro-North Railroad in 2021.

MTA and TWU Reach Contract Agreement for NYCT

MTA New York City Transit and Transport Workers Union (TWU) Local 100 came to an agreement on December 5, 2019 on a four-year contract that, once ratified by the rank and file membership, will head off any possibility of a labor action that had loomed over the city since talks had broken down in early 2019 and were unable to restart in a meaningful manner until November, 2019. This new contract covers the over 30,000 TWU employees working for NYC Transit and 6,600 employees of the Manhattan and Bronx Surface Transit Operating Authority (MaBSTOA), who include Bus Operators, Maintainers, Cleaners, and other employees who work out of seven bus depots in Manhattan and the Bronx.

The unionized workforce will get a contract that is retroactive to May of 2019, with annual wage increases of 2%, 2.25%, 2.5%, and 2.75%. There will be no increase in employee health benefit contributions from the current level of 2%. As a cost-saving measure, the TWU contract provides for better overtime management, allowing workers to swap shifts for the first time, potentially saving over $10 million a year. Through an incentive program, the union will share in the savings as well. In addition, the TWU has agreed to work with MTA management and disability advocates to speed up elevator installation and maintenance and other accessibility projects. Operators of articulated buses will get a $1 per hour increase over and above the aforementioned raises. The tentative labor agreement also allows third-party contractors to provide a one-time deep cleaning of up to 180 subway stations. The MTA and TWU will work together to increase public awareness of assaults on transit workers, press forward with increased enforcement of existing rules, and classify assaults on transit workers as a felony. NYC Transit and the TWU will also cooperate to explore the use of new technologies to increase track worker and flagger safety. The TWU's Board recommended, by a vote of 42-4, that the agreement should be ratified by the rank and file membership.

Slush Delays 7 Trains

Flushing 7 Line service was significantly impacted on Wednesday morning, December 11, 2019 when the CBTC (Communications Based Train Control) transponders mounted midway between the running rails along the line became covered by a light snowfall. Since full cut-in during early 2019, the $600 million CBTC project has permitted higher speeds and closer train spacing on the 7, allowing NYC Transit to operate 29 trains per hour, four more than under the previous manual operation with the original wayside signals, with an on-time performance exceeding 90%. However, it appears that even a coating of snow (less than one inch) inhibits the ability of the track-mounted transponders to relay information to passing trains. This was seen on December 2 and 11 when about an inch of snowfall snarled the line. On December 11, eight trains became "delocalized," meaning that the CBTC system had lost track of them when the trains could not receive data from the snow-covered transponders. As a precaution, all trains on the line were ordered to slow to a maximum of 25 mph, half the normal maximum speed.

NYCT president Andy Byford has notified Thales, the contractor that designed the CBTC on this line, that a solution must be found by Saturday, December 14, 2019. Failure to do so could result in Thales being excluded from future CBTC contracts with NYCT. It appears that there may be a solution to this issue in the form of a rounded top plastic cover over the vulnerable

(Continued on page 14)