

The Bulletin



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The Bulletin

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

Editorial Staff:

Jeff Erlitz
Editor-in-Chief

Ron Yee
*Tri-State News and
Commuter Rail Editor*

Alexander Ivanoff
*North American and
World News Editor*

David Ross
Production Manager

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This Month's Cover Photo:

M-7 7675 (Bombardier
Transportation, 6/2006)
leads a short six-car consist
on Train #751 from Hemp-
stead bound for Atlantic
Terminal, Brooklyn as it
crosses Hilton Avenue, just
east of Garden City station
on 2/3/2020. (Jeff Erlitz
photograph)

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24-HOUR-A-DAY NEW YORK CITY SUBWAY SERVICE DISCONTINUED

In an unprecedented move, New York Governor Andrew M. Cuomo ordered the end of 24-hour, 7-day-a-week service on the New York City subway system with a daily shut-down of the entire system between 1 and 5 AM beginning at 1 AM Wednesday, May 6. A long-standing tradition since its opening day in October, 1904, New York City's subway was one of the rare systems that never shut down overnight. Unfortunately, such an operation severely hampers, if not makes it impossible, to perform any kind of thorough cleaning and now urgently-needed daily sanitizing of the subway train fleet as well as its stations.

(Editor's Note: In actuality, the subway trains are continuing to operate through the night, just not in revenue service. They are available to carry employees and emergency service workers.)

The 24-hour operation also attracted a larger-than-normal number of homeless people to take up residence on trains and in the stations. With the overnight shutdowns, the homeless population could now be ordered by the police to exit the system, clearing out all trains and stations to facilitate nightly sanitizations. The objective was to enable the thorough cleaning and sanitizing of every subway car's interior surface with an even greater focus on all surfaces that riders make frequent contact with: poles, railings, handholds, doors, door frames, and flooring.

Governor Cuomo has gone on record that the 24-hour service will resume once the pandemic crisis is over. The MTA website and notices will inform passengers of the scheduled times of the last and first trains at each station. After 1 AM all stations become exit-only. An enhanced "night bus" system (Essential Plan Night Service) replaces the subways during this time period and where

substitute bus services cannot be provided, riders will have the ability to hail a "for hire car" at the MTA's expense under the "Essential Connector" program. MTA Bus and NYCT added 1,168 additional bus trips (76% increase) and 344 buses on top of the 235 buses that normally operate during this time period (150% increase in the scheduled overnight operating fleet). Metro-North and LIRR cross-honor subway fare riders on their trains, although Metro-North services end around 2 AM as well.

As this issue goes to press, it appears that the overnight shutdowns have been a success, enabling NYCT cleaning crews to provide both the riding public and operating employees with cleaner and more sanitary subway cars to ride and work aboard. The same can be said of the stations. Early on in the program, some minor glitches had occurred, namely the inability of cleaning crews to fully clean a subway car or cars because of the occasional unavailability of police, the only persons legally authorized to remove persons from the system. Data collected by MTA Outreach workers show that the forced exit of the homeless from the subways has had a net positive effect on their population. Of the 1,682 homeless removed from the system, 930 people (55%) agreed with the outreach staff to try another venue instead of returning to the subways. Of these people, 824 were referred to shelters and over 100 others who needed medical care were taken to hospitals for treatment. (MTA press release, May 1; **New York Daily News**, May 18)

The Metropolitan Transportation Authority (MTA) launched the "Essential Connector" app to help essential workers plan their alternative travel to or from work during the over-

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24-Hour-A-Day NYC Subway Service Discontinued*(Continued from page 1)*

night subway closure from 1 to 5 AM. Essential workers can use the new app to navigate and take advantage of the MTA's significantly enhanced bus service schedule – a 76% increase in overnight bus trips and 150% boost in the operational bus fleet – or book an eligible for-hire-vehicle where bus service is not workable - at no cost. Tapping a station on the new app's map allows the user to see live bus and train departures, including the last train arrivals of the night and available buses nearby. The app will also provide info on current service disruptions and upcoming service changes. People can download it from Google Play for Android devices or the Apple App Store. (MTA press release, May 17)

MTA Chairman Patrick Foye revealed that he is considering all options available in an effort to promote or even enforce social distancing on the NYC Transit subways and buses, even during New York's famous rush hour peak ridership periods with packed trains. Already, six-foot "distancing markers" in the shape of an "X" have already been placed on the station flooring at the Queens-bound platform of the Lexington Avenue-53 Street **E****M** station and on the 51 Street platforms of the **6** line as a test. (1010/WINS News Radio, *Wall Street Journal*, May 13)

(Writer's Note: One zany idea is to use the new OMNY system turnstiles to operate in conjunction with a reservation system where riders would make reservations for space on subway trains similar to Ticketmaster, a truly unworkable idea as the NYC subway system is filled with interchange transfer points offering a multitude of routings. And once admitted by an OMNY turnstile into a station for boarding, how would anyone of authority possibly enforce loading standards, who had tickets for a particular train or a subsequent train, short of putting a Platform Conductor positioned next to each door to check a phone app's bar code, like the ushers do at major Amtrak stations such as New York-Penn Station, Washington DC and Philadelphia-30 Street? Imagine using a "Ticketmaster" type system at least twice a day to go to and from work! That fact that Mr. Foye is even considering this gives the impression that the MTA is grasping at straws to manage an impossible situation, and such an impression could even cause a loss of confidence by the public to use the subways once the city goes through its stages of re-opening, despite the Herculean efforts of cleaning and sanitizing the system to make it as safe as possible. The only realistic way is to order businesses and schools to stagger their hours throughout the day to try and spread out the crowds and operate rush hour frequencies most of the day to offer more space aboard the trains and buses. How NYCT would "staff-up" for such an increase in service frequencies would be another "tough nut" to solve.)

Around New York's Transit System

Pilot Project to Sanitize Subway Using UVC Lighting

The MTA and NYCT began a pilot program after the Memorial Day weekend to sanitize its buses, trains and stations using specialized Ultraviolet-C (UVC) lighting. Denver-based PURO Lighting is providing equipment to be utilized in a pilot program to sanitize surfaces using UVC to eradicate COVID-19 in rolling stock, including car classes R-46, R-62, R-68, R-160, and R-188, stations, and yards at Corona, Coney Island, Jamaica, and Westchester. Occupational facilities, including mainte-

nance areas, crew rooms, operations and technology centers, and offices, will also be included in the pilot. If successful, Phase 2 will expand the pilot program to LIRR and Metro-North. The UV light treatments can only be done on empty trains and buses, as well as stations when the system is shut down from 1 to 5 AM. UVC has already proven itself to be effective at sanitizing surfaces and rooms at hospitals treating COVID-19 patients.

LIRR MAIN LINE THIRD TRACK PROJECT UPDATE

by **Jeff Erlitz**
(Photographs by the author)

In late March or early April, an additional bridge was installed over Plainfield Avenue in the village of Floral Park for the third track. Unlike the new bridges that have been constructed elsewhere along this project corridor, this bridge has a height clearance of only 12'9" instead of the new 14' standard. This was done, if I am not mistaken, because the existing two-track bridge was

not replaced.

There are now three separate bridges over Plainfield Avenue: the existing two-track bridge built in 1962 for the Main Line, the new single-track bridge for the third track, to the south of the existing, and a single-track bridge, immediately to the north and also built in 1962, for the abandoned Creedmoor Branch.

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LIRR Main Line Third Track Project Update

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Looking north up Plainfield Avenue in Floral Park at the newly added bridge, May 17, 2020.



The architectural finishes of the new bridge abutments match as closely as possible those of the original bridge abutments from the 1962 grade crossing elimination project. The combination retaining wall and sound barrier extending to the right are also newly constructed.

On Monday, May 18, the Long Island Rail Road permanently closed the School Street grade crossing east of the Westbury station, on the border of the village of Westbury and the hamlet of New Cassel.

This makes the fourth grade crossing that has been

closed as part of the Main Line Third Track project. The previous three were at Urban Avenue in New Cassel and Covert Avenue and New Hyde Park Road, both in New Hyde Park.



The last day of street traffic for yet another grade crossing on the LIRR Main Line. M-7 7073 (Bombardier Transportation, 5/2003) trails Train #7700 from Penn Station to Huntington across the School Street crossing east of the Westbury station, on the border of Westbury and New Cassel, May 17, 2020 at 12:37 PM.

Just past midnight on Tuesday, May 26, after the Memorial Day weekend, the platforms at the Mineola station were extended to the west, away from the station building. Platform A on the north side was extended 520 feet while Platform B on the south side was extended

656 feet. These platform extensions were constructed the same as the other ones on this project, of wood on aluminum footings. The east ends of both platforms were cut back the corresponding amounts to enable the reconstruction of them to begin.

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LIRR Main Line Third Track Project Update

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M-7 7712 (Bombardier Transportation, 7/2006) is leading Train #7630 (Penn Station to Huntington) into the Mineola station on May 4, 2020 at exactly 12 noon. These ends of both platforms are now out of service. The pedestrian overpass from which this view was taken is also scheduled for demolition.



Construction is nearly complete in this view west of the temporary platform extensions at Mineola station on May 4, 2020. Note the shift in the track alignment in the distance. This was done during the Herricks Road grade crossing elimination project back in 1998.

About $1\frac{1}{3}$ miles to the east of the Mineola station is where the Main Line passes over Glen Cove Road, in the hamlet of Carle Place. This bridge was built in 1942, before which there was a grade crossing. As was done at Nassau Boulevard at the Merillon Avenue station and

at Post Avenue in Westbury, a new three-track bridge was built nearby and will be rolled into position after the existing bridge is cut away. This is all scheduled to occur over the weekend of June 6-7.



Looking north on Glen Cove Road on May 17, 2020. The west bridge abutment has already been extended while the east abutment is still being worked on.



The new three-track bridge has already been built and is awaiting installation, scheduled for the weekend of June 6-7.

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LIRR Main Line Third Track Project Update

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Construction has been moving forward at the Carle Place station, also. The platform canopy and permanent railings are being installed, mostly on the westbound platform. In addition, brickwork is being applied to the

canopy supports. Over on the eastbound platform, the steel structure for the future overpass and elevator shafts is now almost complete.



View east of the westbound Carle Place platform. Brickwork is being added to the canopy supports and permanent railings are being installed, May 17, 2020.



M-7 7669 (Bombardier Transportation, 6/2006) is heading Train #8055 from Ronkonkoma to Penn Station through the Carle Place station on May 17, 2020 at 3:22 in the afternoon. The ballasted area to the right is where the new third track will be laid. The platform supports for the new eastbound platform are to the right of that. On the extreme right is the temporary walkway from the existing eastbound platform to Carle Road. The temporary pedestrian access from Garden Avenue on the south side of the station to the eastbound platform is now closed due to the construction of the new overpass.



The steelwork for the south side of the future overpass, with elevator shafts, is nearing completion. Those are the canopy supports for the future eastbound platform extending out from this structure. May 17, 2020.

Commuter and Transit Notes

by Ron Yee, Alexander Ivanoff, and Jeff Erlitz

MTA LONG ISLAND RAIL ROAD

The next timetable change (employee Timetable #6/ General Order #601) went into effect, as scheduled, on Monday, May 18. Having said that, the Essential Service Plan that has been in effect since late March remains as the actual schedule in effect. It is the weekend service with some limited additional train service in what would normally be the peak hours.

Not a lot has changed. There is a single-track operation for track work on the Main Line on normally westbound Track 1 between Beth Interlocking (east of the Bethpage station) and Farm Interlocking (east of the Farmingdale station) 24 hours per day, every day. The change to Ronkonkoma to Penn Station Train #8007, which used to leave Ronkonkoma at 5:35 AM and had been moved 27 minutes earlier to 5:08 AM under the Essential Service Plan, was made permanent. It now arrives Penn Station at 6:28 AM.

Penn Station to Ronkonkoma Train #2100 is now built into the schedule (it had been running by a special program every time it had been used thus far). This is one of the “holiday eve” trains that only operates on specific dates. It leaves Penn Station at 12:43 PM and arrives at Ronkonkoma at 2:12 PM. This is now the second “holiday eve” train for Main Line passengers to Ronkonkoma.

The usual extra summer service is back to Montauk and Greenport, but the four weekend-only superexpress trains between Penn Station and Long Beach (Trains #6896/6897/6898/6899) are not returning. There are, however, two new Friday-only Speonk trips, scheduled to operate from May 22 through October 9. Eastbound Train #2736 leaves Jamaica at 12:31 PM and operates express via the Montauk Branch to Babylon, after which it makes all local stops to Speonk, arriving there at 2:30 PM. Westbound Train #2745 leaves Speonk at 3:05 PM, makes all stops to Babylon, then runs express to Jamaica, also via the Montauk Branch, arriving there at 4:39 PM.

As of press time, however, normal weekday service is still not operating.

MTA METRO-NORTH RAILROAD

Editor Ron Yee was told by several Engineers and Conductors during mid-May that their labor union has informed them of upcoming crew run changes effective around June 1. Rumors have it that Metro-North Railroad intends to enhance train service frequencies during weekday peak periods to handle an expected start of re-opening in June of Westchester, Putnam, and Dutchess Counties as well as New York City. There are also rumors of furloughs as the reduced service schedules, while beefed up for June, require nowhere close to the number of train and engine service employees on the roster. At press time, no details for the new schedule rumored to become effective in June have been made

public.

NJ TRANSIT

The Board of Directors approved a contract valued at \$4.1 million for design and engineering work toward the Central Concourse Extension project that will add new passenger access/egress from Tracks 1 through 12 at Penn Station New York. It is slated for completion in 2023 and would improve connectivity within the station complex as well as to and from street level. (Al Holtz, May 14)

To facilitate nightly cleanings, Penn Station Newark was closed to the public every night from 11 PM to 4:30 AM beginning Sunday, May 3. Passengers for trains that continue to stop at the station during those hours will be ushered into and out of the Raymond Plaza East entrance/exit. PATH customers will disembark from Track 2 and board on Track 1 (also known as Track B). Track H will not be utilized during these time periods. (NJ Transit press release, May 1)

AMTRAK

President Donald J. Trump appointed Sarah Feinberg, Interim President of MTA New York City Transit, to the Amtrak Board. This will be her second stint on the Amtrak Board, having served 2015-7 while heading the Federal Railroad Administration. (*New York Post*, May 18)

In anticipation of increased demand, Amtrak announced the restoration of *Acela* service on the Northeast Corridor with three round trips on weekdays. Amtrak regional services will increase the number of trains on the Northeast Corridor from eight to ten round trips. On the *Acela* and regional services, all trains will be limited to 50% capacity in advance reservation sales to insure social distancing amongst passengers. No cash will be accepted on-board trains and at station ticketing windows. (Amtrak press release, May 8)

MISCELLANEOUS

The Federal Railroad Administration (FRA) reported that the process of fully implementing Positive Train Control (PTC) on all required main lines has reached 98% as of March 31. With just nine months to go before the December 31, 2020 congressionally-mandated deadline, only four commuter railroad operators have been classified by the FRA as being at risk of failing to meet the deadline: NJ Transit, Metra (Chicago), TEXRail, and New Mexico RailRunner Express. Locally, Metro-North Railroad has 74.6% of its route miles already governed by PTC while the LIRR is at 69.6%. 100% of the locomotives and EMUs of both railroads are equipped with certified PTC hardware, software, and control components as well as 100% of all track miles with 100% of all train crews fully trained and certified on PTC. On Metro-North, only the New Haven main

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line and the Danbury and Waterbury Branches remain to be fully tested and certified by the FRA. The entire Hudson and Harlem Lines already have fully operational PTC. (**Railway Age**, May 15)

OTHER TRANSIT SYSTEMS**BUFFALO, NEW YORK**

The Federal Transit Administration has directed the Niagara Frontier Transportation Authority to take a second look at a "bus rapid transit" option centering around priority buses and a much lower price tag than the \$1 billion estimated for extending Metro Rail.

While the federal agency that approves such projects has embraced the basic concept of upgrading mass transit through Amherst, it is now imposing a step backward in the seven-year rail extension effort by also urging study of the bus rapid transit concept that the NFTA has already rejected.

NFTA officials emphasize that extending Metro Rail almost seven miles to UB-North via Niagara Falls Boulevard and Maple Road remains a viable option that could still gain federal approval. They also note FTA now becomes the "lead agency" to guide the project through the federal bureaucracy, allowing for required environmental studies and a path to eventual funding.

Federal sources, meanwhile, point out that localities decide what transit mode they will ultimately pursue. They also note that federal environmental review guidelines require the NFTA to include bus rapid transit, even though its initial study selected rail.

The NFTA chose rail over bus in its latest study, citing the attraction of a "one-seat ride" that precluded the need to transfer from bus to rail or rail to bus to get from Buffalo to Amherst or vice versa. It estimated that ridership would more than double with an additional 24,000 daily passengers, hinging on UB students and staff connecting with North, South, and downtown campuses.

A \$1 million study supporting the project's inclusion in FTA's "New Starts" program predicted \$1.7 billion in development along the entire route from downtown to Amherst, an increase in daily ridership from 20,000 to about 45,000 trips, and a \$310 million increase in nearby property values that would raise tax revenues 32% for Buffalo and Amherst. (**The Buffalo News**, May 3)

(Editor's Note by Alexander Ivanoff: I think the move to bus rapid transit in this instance neglects to note the value of the existing rail line. Rail is always psychologically more appealing, and Buffalo has something going for it that few light rail systems in North America have: high ridership per mile of light rail line. BRT in this instance makes little sense and would not help the existing LRT line. The higher costs of rail would be far outweighed by increased LRT ridership. Even CDTA (Capital District Transportation Authority) in Albany has admitted that its BusPlus network is only the first step in bringing rapid transit to the Capital Region.)

PHILADELPHIA, PENNSYLVANIA

The Southeastern Pennsylvania Transportation Au-

thority (SEPTA) resumed service to most of its rail lines in a phased effort starting on May 17. The Market-Frankford and Broad Street main line and spur lines as well as Route 100/Norristown Line resumed normal service schedules in effect immediately prior to the COVID-19 pandemic-related closures. However, some stations on the Broad Street and Market-Frankford Lines will remain closed. Open stations on the Broad Street Line are: Fern Rock, Olney, Hunting Park, Erie, Allegheny, North Philadelphia, Cecil B Moore-Temple U, Girard, 8 Street on the Spur, Race-Vine, City Hall, Walnut-Locust, Ellsworth-Federal, Snyder, Oregon, and NRG. Open stations on the Market-Frankford Line are: Frankford Transportation Center, Arrott Transportation Center, Erie-Torresdale, Allegheny, Huntington, Berks, Girard, Spring Garden, 8, 11, 15, 30, 34, 40, 46, 52, 56, and 60 Streets and 69 Street Transportation Center. Subway-Surface (trolley) Routes 10, 11, 13, and 36 resumed regular service headways on May 17 with four subway trolley stations (13, 19, 33, and 36 Street) remaining closed until further notice. Front door loading and fare collection resumed on May 17. Route 100/Norristown resumed normal service May 17 with front door boarding and a capacity limit of 30 riders per car. Suburban Trolley Route 101 will continue as a bus service and Route 102 will remain suspended thru May 30. It is expected that Suburban Trolley Routes 101 and 102 will resume rail service starting June 1 with a capacity limit of 25 riders per car. SEPTA Regional will continue to operate its "Lifeline" basic schedule through the end of May and then resume normal service schedules (including the totally suspended Wilmington Line) on June 1. (SEPTA press release, May 17)

DEBARY, FLORIDA

SunRail resumed regular service between DeBary and Kissimmee on May 11. To facilitate social distancing aboard its trains, longer consists are being operated when possible. Intensified nightly sanitizing efforts are being made and hand sanitizer dispensers have been mounted in every car. (**Progressive Railroading**, May 11)

SACRAMENTO, CALIFORNIA

The Sacramento Rapid Transit District (Sacramento RTD/SacRT) announced on April 22 a major replacement of its aging light rail fleet by issuing a notice to proceed on the purchase of 20 low-floor light rail vehicles from Siemens, using the S700 car design. This is the first time in nearly 20 years SacRT has purchased new light rail vehicles.

The purchase of the new vehicles is part of SacRT's overall light rail modernization plan, which also includes converting light rail stations to accommodate the new low-floor design and adding a passing track at two locations to provide 15-minute frequency to Folsom stations.

SacRT was awarded \$150 million in funding from the Transit and Intercity Rail Capitol Program and Proposition IA to modernize the light rail fleet, including the purchase of the 20 low-floor light rail trains, which will pro-

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Commuter and Transit Notes*(Continued from page 7)*

vide better accessibility for passengers with disabilities, bicycles and strollers. In addition, it will save SacRT money in high maintenance and repair costs that are associated with keeping light rail cars in service past their 30-year useful life.

The 20 new trains will be manufactured by Siemens Mobility, Incorporated at its Sacramento factory and the first vehicles are expected to be delivered in 2022. The contract, including the 20 trains, spare parts, and tools, is approximately \$100 million. The remaining funding will be used for the modernization of the stations and supporting infrastructure.

As part of the announcement and decision to proceed with the order, the SacRT Board announced that the order contains options to purchase another 56 light rail vehicles. SacRT continues to pursue all funding sources with the plan of exercising the option for all 76 light rail vehicles. (Sacramento Rapid Transit District press release, April 22)

SAN FRANCISCO, CALIFORNIA

Sonoma Marin Area Transit (SMART) is contemplating service cuts stemming from financial shortfalls resulting from the on-going COVID-19 crisis and the failure of a recent ballot initiative. It is now seeking public input on where these cuts will be made. (Al Holtz, May 14)

Bay Area Rapid Transit (BART) and the Santa Clara Valley Transportation Authority (VTA) announced that the Milpitas and Berryessa rail stations will open for BART service on June 13.

The station openings are part of the \$2.3 billion, 10-mile Berryessa extension in San Jose. VTA was responsible for station construction, communications, signal, and track testing.

BART General Manager Robert Powers and VTA GM and Chief Executive Officer Nuria Fernandez signed the project safety and security certificate at a local press event, the last project milestone before the system can begin serving passengers. The certificate documents that no safety hazards or vulnerabilities are known to exist that would prevent the extension from being utilized for passenger service, BART officials said in a press release.

On May 22, Powers signed a notice of intent to operate and present it along with the safety certificate to the California Public Utilities Commission (CPUC), the regulatory agency for utilities in California. The CPUC has 14 days to approve the verification of safety. BART and VTA expect the review period to be successful and receive a certification to operate, BART officials said. (*Progressive Railroading*, May 20)

LOS ANGELES, CALIFORNIA

LAMTA has a four phased plan to gradually restore its rail services to pre-COVID-19 levels. Phase 1 will occur in June to enable the system to accommodate modest increases in ridership in addition to the basic service designed to meet the transportation needs of essential workers. Phase 2 is expected to go into effect July

through August, Phase 3 will span September to November, and Phase 4 covers December, 2020 and January, 2021. Phase 4 will also be coordinated with a planned restructuring of local bus services. (Al Holtz, May 14)

VIA RAIL CANADA

VIA announced the cancellation of all runs of the *Canadian* and the *Ocean* and sleeping car services on its Winnipeg-Churchill service until November 1. (VIA Rail Canada, May 7)

MONTREAL, QUEBEC, CANADA

Société de Transport de Montréal resumed regular commuter train and metro services on May 19 when the lockdown was ended. (*Progressive Railroading*, May 11)

LONDON, ENGLAND

“Coronavirus poses monumental challenges to our city’s complex public transport network,” said Mayor of London Sadiq Khan on May 18, when Transport for London began increasing its services to accommodate growing ridership as coronavirus lock-down measures are eased.

The increase in services is a requirement of a financial support package on which the government has agreed for TfL, after the authority saw a 90% drop in its operating income. TfL has not received any central government support for several years, relying on revenue from its metro and bus services as well as the congestion charge road tolls to fund all operations and maintenance.

The capital is heavily dependent on public transport, and social distancing guidelines requiring people to remain 2 meters apart pose major difficulties in limiting the capacity that can be provided.

“TfL is working hard to increase services to pre-Covid levels, despite staff being ill, shielding, or self-isolating,” said Khan. “But even when services are running at the highest possible frequency, the need to maintain safe social distancing will dramatically reduce capacity on the Tube to just 13% to 15%.”

The Mayor urged people to “only use public transport as a last resort,” suggesting that those who cannot work from home should walk or cycle where possible; new cycling lanes and widened pavements are being provided.

Those who have no choice but to use public transport are being asked to wear face coverings, although this is not a legal requirement. They should also try to avoid travelling at peak times between 5:45-8:15 AM and 4-5:30 PM.

A communication campaign including radio and newspaper advertising is being used to provide travel advice and promote walking and cycling, while TfL has sent 10 million e-mails to customers in the past week. It has also been engaging with businesses to encourage home working and staggered start and finish times.

Posters, announcements, and social media channels are reminding people to wear face coverings on public

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transport, 20,000 social distancing stickers are in place at stations and markers are being installed at bus stops.

A list of the 20 busiest stations has been published to help people avoid them where possible. One-way and queuing systems have been introduced at some stations to help keep passengers apart, with signs on escalators asking people to stand six steps apart and imposing a limit of four people per lift.

More than 500 hand sanitizers have been installed in London Underground ticket halls, with platform areas, bus stations, and selected railway and light rail stations to follow.

TfL is using “enhanced anti-viral fluid” for cleaning in public and staff areas, with particular attention to touch points including poles, handles, and drivers’ controls. A long-lasting anti-viral disinfectant offering up to 30 days of protection is being used on trains and stations, applied directly with a cloth or sprayed from a backpack.

On May 18 Transport for London aimed to operate:

- 85% of bus services
- 75% of Underground services, with the Circle Line reinstated and seven of the 37 stations that had been closed reopened
- 80% of London Overground and Docklands Light Railway services
- 100% of TfL Rail services
- 95% of London Trams services
- 95% per cent of cycle hire services, with two hubs added to accommodate additional demand
- the Emirates Airline cable car
- a one-boat service on the Woolwich Ferry

(Metro Report International, May 19)



Metro Report International photograph

BRAUNSCHWEIG, GERMANY

Braunschweig city transport operator BSVG has put the first of seven Tramino II trams into regular service.

“We are very happy that our fleet is now even more modern,” said Managing Director Jörg Reincke on May 6, noting that the fleet would be completely low-floor

once all of the new trams had entered in service.

“This is another milestone in our strategic project to make our tram system ready for the future,” added Mayor Ulrich Markurth.

BSVG ordered the Tramino II trams from a joint venture of Stadler Pankow and Solaris in June, 2017. They have electrical equipment supplied by Kiepe Electric. Niedersachsen transport agency LNVG funded 50% of the €18.9 million cost, while BSVG covered the remaining 50%.

The first vehicle was delivered in August, 2019, but its entry into service was delayed by technical problems.

The 1,100-millimeter-gauge Tramino II is 35.74 meters long and 2.3 meters wide, with a capacity of 205 passengers including 80 seated. The trams are equipped with supercapacitors for energy storage. *(Metro Report International, May 15)*



BSVG Tramino S110b 1951 (Solaris, 8/2019). *Metro Report International* photograph

SWITZERLAND

Swiss Federal Railways, Thurbo. and RegionAlps have jointly called tenders for the supply of 194 single-deck regional trainsets of a “tried and tested platform already in use in a European country.”

The order, worth up to SFr1.5 billion, which was announced on May 18, would allow the three operators to standardize their regional fleets and to take advantage of common design features.

There would be options for a further 316 sets, taking the total to 510 units. The first trains would enter service in December, 2025, and deliveries would continue until 2048.

Applications to participate must be received by July 3. The prequalification process would run to November 2, after which up to three bidders will be asked to submit tenders by March 26, 2021.

Contracts for the 194 trains are to be placed in 2022, with 106 sets going to SBB, 70 to Thurbo, and 18 to RegionAlps.

SBB is also representing Transports Publics Fribour-

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geois, Transports Publics Neuchâtelois, and Compagnie des Chemins de Fer du Jura in the procurement. The trains should be suitable for operation in Switzerland, Germany, and Austria, and there is an option to obtain approval for use in France.

SBB envisages two builds of stock. The first would replace the 98 trains in its Domino fleet and Flirt units acquired up to 2011, with delivery stretching from 2024 to 2035. A second type would then replace all other single-deck regional stock still in use, with deliveries scheduled between 2037 and 2048.

Thurbo, which operates services in the Winterthur-Schaffhausen-St. Gallen area, also envisages two builds in order to suit different platform lengths, reflecting its current fleet, which consists of long and short versions of the Stadler GTW design.

RegionAlps will replace all its current fleet of 13 Domino trainsets and the four Nina sets that operate St. Bernard Express services between Martigny, Orsières, and Le Châble.

The procurement includes options for service contracts covering power converters, ETCS, train radio, remote diagnosis, and control system technology. (*Railway Gazette International*, May 19)



A Swiss Federal Railways (SBB) Stadler Flirt EMU. *Railway Gazette International* photograph

TORINO, ITALY

"This is great news that bring us into the future," said GTT Chief Executive Giovanni Foti, announcing that the Torino city transport operator had finalized a framework agreement for Hitachi Rail to supply up to 70 trams, with a firm order for an initial 30 vehicles.

Hitachi Rail had beaten four other bidders to be named preferred bidder last September.

The contract signed on May 15 is split into two tranches. The first covers the supply of 30 vehicles at a cost of €63.4 million and is being entirely funded by the Ministry of Infrastructure & Transport as part of the "rail cure"

program to enhance transport in large cities. The city and GTT have jointly applied to the ministry for financing for the remaining 40 trams.

The vehicles will be produced at Hitachi Rail's Napoli, Pistoia, and Reggio Calabria sites for delivery from late 2021. The manufacturer will provide a 4½-year warranty.

The low-floor trams will be an evolution of the Sirio family, offering "a synthesis of new technologies and ever higher performances in terms of safety, sustainability, comfort and travel experience," explained Hitachi Rail Chairman Maurizio Manfellotto.

The 28-meter cars will be shorter than the GTT's current trams, but a reconfigured interior will provide a greater passenger capacity and two areas for wheelchair users. They will be more comfortable, with air-conditioning, large windows and transparent areas at the sides of the roof to provide more light inside and more visibility outside.

The styling and the interior have been designed by Giugiaro Architettura, with a yellow and blue livery matching the city's colors, which is also consistent with GTT's bus fleet.

Mayor Chiara Appendino said public transport was a priority for both the present and the future of Torino. Placing the order was "an important sign of progress and vision of the future for our whole community in the time of emergency that we are living in."

Finalization of the order followed four years of hard work, the Mayor said. It would "relaunch this fundamental service" to provide "ever safer and more sustainable" transport. (*Metro Report International*, May 18)



Rendition of new Hitachi trams for Torino. *Metro Report International* photograph

WIEN (VIENNA), AUSTRIA

Wiener Lokalbahnen has unveiled the interior design for the 18 TW500 bidirectional low-floor light rail vehicles it has ordered from Bombardier Transportation for use on the 27-kilometer Badner Bahn interurban line under a 2018 contract with options for up to 16 more.

Developed by Bombardier in partnership with industrial design agency Moodley, the interiors are intended to meet the needs of different types of passengers on the route, including wheelchair users and these with push-

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Commuter and Transit Notes

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chairs.

The bidirectional LRVs will be almost 28 meters long with a capacity of 160 passengers. There will be a folding access ramp and multi-purpose areas with space for up to two wheelchairs or pushchairs, twice the capacity of the current TW400 LRVs. These areas will be equipped with an intercom for emergency communication with the driver, as well as stop request button, USB charging sockets, and a belt.

Passenger facilities on the air-conditioned LRVs will include Wi-Fi, power sockets, and a modern passenger information system.

Sustainability features will include regenerative braking, LED lighting, and double-glazed windows for provide heat retention in winter and protection against summer sun.

The first of the TW500 vehicles is due to be delivered from Bombardier's Wien plant in the first quarter of 2021, and they will gradually replace WLB's older high-floor LRVs from the second half of 2021. All will be in service in 2023, supporting plans to increase services to run every 7½ minutes.

The manufacturer will undertake repairs under warranty in the WLB workshops at Inzersdorf, which opened in 2018. **(Metro Report International, May 19)**



Interior of new Bombardier TW500 LRV.
Metro Report International photograph

PLZEŇ, CZECH REPUBLIC

Plzeň city transport authority PMDP has ordered another five Type EVO2 trams from Krnovské Opravny a Strojírny for delivery by the end of the year.

The order confirmed on April 24 has been placed within a KC524 million framework contract for up to 16 trams which was signed in November, 2017. Nine have already been delivered and are in use on Route 1 from Slovany to Bolevec, where they have replaced older Škoda-built 03T Astra trams.

On the same day Brno transport authority DPMB put into revenue service the first two EVO2 trams delivered

under a KC1.3 billion framework agreement for up to 41 which was signed in September, 2018.

The trams are being assembled at DPMB's own workshops at Medláňky, with bodysells, trucks, and assembly tools supplied by KOS in kit form.

The first air-conditioned trams in the city are mostly being used on routes 4 and 10, replacing ČKD-built Type K2 vehicles. The whole fleet is due for delivery by the end of 2024.

KOS is a member of the Alliance TW Team along with Pragoimex and VKV Praha. It has also produced one EVO2 tram for Liberec in 2012 and three for Most-Litvínov in 2019-20. The 100% low-floor 21.9-meter-long two-section design has a capacity of 170 passengers (50 seated), and maximum speed is 70 kilometers per hour. **(Metro Report International, May 11)**



EVO2 tram in Plzeň.
Metro Report International photograph

KRAKÓW, POLAND

A framework agreement for the supply up to 60 Tango Kraków Lajkonik II trams worth SFr120 million was signed by city transport operator MPK Kraków and Stadler on April 29, along with two initial firm orders for 10 and 25 vehicles for delivery in mid-2023.

Two of these trams will be equipped with batteries for operation without an external power supply, while the others will have provision for this functionality to be retrofitted. This is intended facilitate plans to remove overhead electrification from the historic city center and would also provide power during any supply failure.

Stadler was the sole bidder for the latest framework agreement, which follows from a previous agreement for 50 trams which it signed in January, 2018.

The latest trams will be a continuation of the Tango Kraków Lajkonik series cars which are currently being produced. The three-section low-floor trams have four trucks and 1.4-meter-wide doors, offering 75 seats and 163 standing places. The front end is designed to protect pedestrians in the event of a collision.

The vehicles to be supplied under the new framework agreement will offer a greater proportion of low-floor space, giving more room for people in wheelchairs and

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Commuter and Transit Notes

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backrests for standing passengers. They will be equipped with air-conditioning, a ticket vending machine, a passenger information system, USB charging points, and a passenger counting system. (*Metro Report International*, May 5)



Kraków's new Stadler Tango tram.
Metro Report International photograph

GORZÓW, POLAND



Type 2015N (Twist) 310 (PESA, 2019).
Metro Report International photograph

Testing running has started on the 12.2-kilometer tram network in Gorzów Wielkopolski, which has been closed since October 1, 2017 to enable an extensive modernization to be undertaken.

The 225 million złoty modernization project is being supported from the national budget (160 million złoty) and the European Union (37.5 million złoty).

The first section to be completed is the 9.5-kilometer east-west corridor from Wieprzyce to Katedra and Siłwana, which is scheduled to reopen for revenue service on July 2.

The next phase of the project will cover the 2.7-

kilometer route from Katedra to Piaski. This is to be modernized over 18 months by a consortium led by ZUE at cost of 69 million złoty.

In addition to the infrastructure works, city transport operator MZK is refreshing its rolling stock fleet. In September, 2017 it ordered 15 bidirectional Pesa Twist 100% low-floor trams, which are 24 meters long and 2.4 meters wide, for 115.2 million złoty, under a contract which includes an option for six more. The EU's Infrastructure & Environment Operational Program is funding 75% of the cost.

The operator has also begun to refurbish 18 second-hand trams which it acquired from Kassel in the 1990s. Nine cars have so far been refreshed with new interiors and a green livery. (*Metro Report International*, April 27)

YEKATERINBURG, RUSSIA

Uraltransmash has begun trials with its Type 71-418 tram design in Yekaterinburg.

The Type 71-418 was unveiled at the INNOPROM exhibition last year, and has been entirely developed and manufactured in Russia.

The three-section 100% low-floor vehicle is 27.8 meters long with a capacity of 320 passengers. It is equipped with a retractable ramp and area for wheelchair users and meets all current Russian accessibility laws.

The interior is fully air-conditioned, and equipped with CCTV as well as a GPS and Glonass-based passenger information system.

"The tram was extensively tested on test tracks in the factory, but current trials in an urban context will show how it acts in the real environment," said Andrei Makarov, Deputy General Director for non-military products at Uraltransmash. (*Metro Report International*, May 18)



Yekaterinburg's new Type 71-418 tram.
Metro Report International photograph

TIANSHUI, CHINA

Gansu province's second city Tianshui opened a light rail line on May 1, running west from the mainline sta-

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Commuter and Transit Notes

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tion to Wulipu.

The 12.9-kilometer line built by China Railway Signal & Communications Group runs on segregated alignment along the north bank of the Wei and Jei rivers. There are 11 stops, with one more to follow later.

The line is catenary-free, with power supplied by onboard batteries recharged at stations from a pantograph and overhead power rail. The city began feasibility studies in late 2014, with approval given in 2015. Trial running began on March 24, 2019. Services now run from 6:30 AM to 9:30 PM with a 9-minute headway.

Work is to follow on a 7.3-kilometer extension west to the western bus station at Jihe Beilu with five stops, and a branch south from Yangpodong across the River Jie to the high-speed station at Tianshui South.

A network of over 90 kilometers with five lines is envisaged.

The Pioneer LRV design was developed in conjunction with Inekon Group, in which CRSC bought a 51% stake on July 23, 2014. The first of 17 five-section 70 kph cars was delivered on March 24, 2019.

The cars are 100% low-floor with a capacity of 370 passengers, of whom 58 can be seated, and have four double-leaf and two single-leaf doors per side. As well as passenger information and CCTV equipment, the trams also have onboard payment facilities and tickets can be purchased through apps such as WeChat or Alipay. **(Metro Report International, May 4)**



Metro Report International photograph

TAIYUAN, CHINA

CRRC Dalian has delivered the first of 24 six-car Type A trainsets equipped for GoA4 unattended automatic operation on the future Taiyuan metro Line 2, which is nearing completion for opening this year.

The 23.6-kilometer Line 2 will cross the city from north to south with 23 stations.

The trains will have a capacity of 2,520 passengers, a maximum speed of 80 kph and a design life of 30 years. **(Metro Report International, May 22)**



Metro Report International photograph

DHAKA, BANGLADESH

Dhaka Mass Transit Company has given the go-ahead for production of three more trainsets for the capital's first metro line, although the planned delivery of the first set in June has been delayed by the coronavirus pandemic.

The 24 six-car trainsets for 1,500-volt d.c. operation are being supplied from Japan by Kawasaki Heavy Industries and Mitsubishi under a ¥40 billion contract which includes fitting out of the depot.

Construction of the 19.9-kilometer elevated Line 6 from Uttara to Motijheel has continued at five sites with coronavirus safety measures in place, and DMTC reports that around 45% of the work is now complete. Large scale construction was expected to restart in mid-May, and opening is now planned for December, 2021. **(Metro Report International, May 19)**



Rendering of Kawasaki's metro cars for Dhaka. *Metro Report International* photograph

WELLINGTON, NEW ZEALAND

Greater Wellington and Horizons regional councils have been awarded funding from the New Zealand Transport Agency to develop the final business case for a fleet of hybrid multiple-units to replace aging loco-

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Commuter and Transit Notes

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hailed stock used on two regional commuter routes.

Citing the regions’ growing population, the councils last year announced plans for a NZ\$415 million modernization of the Wairarapa Connection service linking Wellington with Featherston and Masterton, and the Capital Connection from Palmerston North.

Run by Wellington suburban operator Metlink using diesel locomotives leased from KiwiRail, the Wairarapa Connection has seen a 24% increase in ridership in the past decade; the service currently runs five times a day with a journey time of 1 hour 45 minutes. Palmerston North lies in the neighboring Horizons region, and the daily Capital Connection is operated by KiwiRail, offering a two-hour trip into Wellington in the morning and returning in the evening.

On January 24 the government awarded NZ\$211 million for track improvements in the region as part of a NZ\$1.35 billion infrastructure investment package. GWRC Chair Daran Ponter said this was “a solid green light for getting regional passenger rail moving,” as it “funds most of the track improvements put to government in the recent business case. The next step is to sit down with government and secure urgent funding for new hybrid trains to stop passengers being packed like sardines within the next five years.”

The intention is to buy a fleet of at least 15 four-car multiple-units for the Wairarapa Connection, and two

more trains to allow a doubling of the service to Palmerston North. The dual-mode trains would use the existing 1,500-volt d.c. suburban electrification as far as Upper Hutt or Waikanae, switching to “alternative energy sources” for the remaining non-electrified sections.

The councils have been awarded NZ\$5 million to fund completion of the detailed business case, including a market study and risk assessment. The new fleet is provisionally priced at around NZ\$300 million, with entry into service envisaged around 2025. (*Railway Gazette International*, May 22)



Railway Gazette International photograph

SUBDIVISION “A” CAR ASSIGNMENTS

CARS REQUIRED APRIL 27, 2020

LINE	AM RUSH	PM RUSH	LINE	AM RUSH	PM RUSH
1	310 R-62A	310 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	180 R-142, 170 R-142A	170 R-142, 160 R-142A	8 (42nd Street)	7 R-62A	7 R-62A

SUBDIVISION “B” CAR ASSIGNMENTS

CARS REQUIRED APRIL 27, 2020

LINE	AM RUSH	PM RUSH	LINE	AM RUSH	PM RUSH
A	216 R-46, 110 R-179	224 R-46, 8 R-68A, 110 R-179	L	176 R-143, 16 R-160A	176 R-143, 16 R-160A
B	48 R-68, 152 R-68A	40 R-68, 144 R-68A	M	192 R-160A	184 R-160A
C	72 R-46, 72 R-179	64 R-46, 72 R-179	N/W	144 R-46, 24 R-68, 16 R-68A, 100 R-160B-2	144 R-46, 24 R-68, 16 R-68A, 100 R-160
D	232 R-68	224 R-68	O	168 R-46	168 R-46, 8 R-68
E	260 R-160A	260 R-160A	R	16 R-46, 80 R-160A, 190 R-160B-1, 20 R-160B-2	16 R-46, 80 R-160A, 190 R-160B-1, 20 R-160B-2
F	210 R-160A, 140 R-160B-1, 100 R-160B-2	210 R-160A, 140 R-160B-1, 110 R-160B-2	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-160A, 72 R-179	80 R-160A, 72 R-179			

SOUTHWEST UNITED STATES

by Jack May

(Continued from May, 2020 issue)
(Photographs by the author except where noted)

Saturday, April 15 (Continued from Last Issue)

San Diego's Silver Line was opened on August 27, 2011 with beautifully restored St. Louis Public Service PCC 1716 built by the St. Louis Car Company in 1946. SLPS sold the streamliner to San Francisco's Municipal Railway in 1957, and it became car 1123, where it operated on Market Street for 37 years. With the conversion of Muni's five streetcar lines to the Muni Metro, operating with a new fleet of Boeing Vertol LRVs, it was among many cars sold to Gunnar Henriouille in South Lake Tahoe. It finally came to San Diego in 2005, and was totally reconstructed and repainted into the colors of San Diego's original 25 PCC cars, which had been purchased in 1936-7 and operated until 1949. It received the number 529, one above the highest numbered original San Diego PCC. 529 is among three such cars acquired from Henriouille.

The second car restored for the Silver Line is 530 (ex-Minneapolis 329, Newark 10), which was built in 1946 and was the one operating on this date. It hit the streets in March, 2015, leaving 6 additional PCCs to be restored: Two more ex-SLPS cars (1728 and 1777 — Muni 1123 and 1170), two PTC/SEPTA cars (2186 and 2785), and two ex-Newark cars (16 and 24, which are stored elsewhere). Ex-PTC 2186 from 1948 is currently undergoing restoration and will become car 531.*

The Silver Line operates every half hour between traditional rush hour periods over a clockwise loop and uses track shared with San Diego Trolley's three light rail lines. Starting at the shops at 12th & Imperial, it first runs northwestward with the Green Line on ballasted rails parallel to Harbor Drive and Kettner Street (alongside the pedestrian Martin Luther King, Jr. Promenade) to an intersection between the Santa Fe Depot and America Plaza. Then after turning sharply right onto C Street, it follows the route used by Orange and Blue line LRVs, via C Street and Park Boulevard (formerly named 12th Avenue) to return to the Transit Center at 12th & Imperial, the location of SDT's shop, yards, and headquarters. Running time for the 2.7-mile, 9-station line is 20 minutes, which leaves 10 minutes for cars to lay over at the three-track station. See <http://www.urbanrail.net/am/sdie/san-diego.htm> for map of the light rail lines and <https://www.sdmts.com/schedules-real-time/vintage-trolley> for further information about the Silver Line trolley.

*A good part of the work in restoring these cars was undertaken by the San Diego Electric Railway Association, both via funds it raised and the efforts of its railfan volunteers. SLPS 1177/Muni 1170 was given to the SDERA and is now at its site in National City. It will be renumbered 539. (The SDERA also owns three ex-Vienna Stadtbahn cars, obtained by the Metropolitan Transit System in 1992 through the efforts of Senator Jim Mills, the "father" of the San Diego Trolley, for its first attempt at building a heritage streetcar line.)

Many of the 25 original air-electric San Diego PCCs have been saved. Seventeen of them were sold to El Paso in 1949, where they began operating a year later, mostly on an international streetcar line to Ciudad Juarez, Mexico. A group of these cars were held in storage after they were retired in favor of buses in 1974, and now, miracle of miracles, Sun Metro returned six of them to the streets of El Paso in on November 9, 2018, on a five-mile long loop route. I hope at least one of the others finds its way to San Diego.

I spent some of the waiting time at Civic Center and at the layover point getting acquainted with the friendly operator, a Mexican-American born in 1971 in Mexico City. With my new smartphone I showed Adolfo a photo of Mexico City's PCCs, but he indicated he was probably too young to have seen them in operation (the last PCC line, Xochimilco, was converted to LRV operation in 1984). He appreciated my interest, especially after I told him I traveled all the way from the New York City area to ride with him and that I was sure I had ridden the car he was operating on the Newark City Subway. I



Shooting into the sun, a head-on view of San Diego Vintage Trolley 529. Formerly St. Louis Public Service 716 and then Muni 1123, the PCC is resting in a small section of the shops near 12th & Imperial Transit Center.

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Southwest United States*(Continued from page 15)*

continued aboard the car for another journey around the downtown loop, noting that its 11:30 AM trip had become very popular. I counted a total of 37 riders aboard at various times; there were plenty of ons and offs along the circular route. During his layover just before 12 noon, Adolfo took me into the shop so I could take photos of 529, which also looked like it was in perfect condition.

After I thanked him and we said our goodbyes, I walked portions of the line for additional photos.

With plenty of time left before I had to drive back to Culver City, I then headed to my auto at Old Town via the long way around. I first rode a two-car train of short S70s on the Orange Line to its terminal station at El Cajon, and then continued outbound on a three-car train (short S70, SD100, short S70) on the Green Line to Santee Town Center. Ridership was moderate; Sunday service on the Orange (and Blue) Lines runs on a 15-minute headway. Although it also operates every 15 minutes during weekdays and Saturdays, the Green Line's outer end to Santee sees service only every half-hour on Sundays. Thus I had to wait at El Cajon for quite a while for a train to the end of the line.

I have to say I always enjoy riding the San Diego Trolley, with each of the three lines having certain particular portions that I find especially interesting. For the Orange Line it is the street running on Commercial Street (with fewer and fewer freight sidings), then the ride through Mt. Hope cemetery, and finally climbing the long curving grade along Imperial Avenue to Lemon Grove (which basks in the glory of its iconic "world's largest" lemon statue). Beyond El Cajon I enjoy observing the line's freight trackage (San Diego & Arizona Eastern — operated by the San Diego & Imperial Valley/Genesee & Wyoming) as it leaves the light rail line just beyond the Arnele Avenue station and then parallels it on the surface. I also like the single track in the center of Cuyamaca Street in Santee, leading into the line's terminal, in the center of Santee Trolley Square, a large outdoor mall. I recall riding the line right after it first opened and the grounds surrounding the isolated "Town Center" terminal was just a large expanse of barren scrub and dirt.

My favorite parts of the inner portion of the Green Line (west of its junction with the Orange Line near the Grossmont station in La Mesa) are the elevated Mission San Diego station, just east of Qualcomm Stadium (Jack Murphy Field) and especially the way it is positioned along the side of a tall wooded plateau just west of San Diego State University (where the Green Line's station is in a subway). I will skip the highlights of the Blue Line here, as I did not ride it this time.

Since I mentioned some of the different types of San Diego LRVs, I should mention that there are now three types of equipment on the roster. The first group, 71

high-floor Duewag U-2 1000s from 1981, have been replaced by the newest arrivals. Eleven were sold to Mendoza, Argentina and are operating there, while at least five more were saved, 1001 on the San Diego Trolley property and the others at various trolley museums (I have already ridden 1019 at Orbisonia). Another group of high-floor cars began appearing in 1993, the Siemens SD100s, of which there are 52 numbered in the 2000-series. The 3000s, San Diego's first low-floor cars, were next to arrive. These 11 70-percent low-floor Siemens S70s were added to the roster in 2004. They were quite a bit longer than the previous units (at about 90 feet) and it soon became obvious that they could not be operated in three-car trains, as they would block intersections when stopping at downtown stations. Thus the next S70s that came in, starting in 2012, are only 81 feet long. There are 65 such units, numbered in the 4000-series.

From Santee Town Center I rode back on the same 3-car (4xxx-2xxx-4xxx) train in which I had arrived. The entire trip from 12th & Imperial to Old Town took just under two-and-a-half hours, and with shadows getting long, I did not stop for photos. I was a bit hungry by this time (5:30) and grabbed a hamburger and iced tea at a fast food outlet before setting off on my return trip. The drive turned out to be as easy as the going portion (including some slight congestion in the same area), and I arrived in Culver City a little bit before 8 PM. It was a great day.

Another couple of remarks about San Diego. I have heard a great deal of talk about extending the PCC operation to Balboa Park, which seems like an excellent destination in terms of ridership generation, and is also where the city's first streamliners operated. I do not know the status of that project. But I do know about the 11-mile-long Mid-Coast light rail extension, from Old Town to the La Jolla area, which will probably be operated as a northern extension of the Blue Line.* It will follow the Amtrak/Coaster line in the I-5 corridor northward to a point slightly short of La Jolla Village, where it will continue along I-5 (the railroad turns inland) to serve the University of California-San Diego campus, operating on an alignment that looks like an inverted "U." It will terminate at a large mall in University City, with the final portion located in the median of a street. Construction began over a year ago, and the line is scheduled to open in 2021.

*Running the Blue Line through as a long north-south interurban service probably explains the reason for the construction of a separate terminal for the Orange Line. When the Green Line first opened, its western terminal was Old Town, and since the Blue line also operated to Old Town, both lines turned there. At that time the Orange Line circumscribed the loop now used by the Silver Line, but in both directions (inbound trains operating counter-clockwise through 12th & Imperial and then terminating there as well).

To complete displaying the San Diego Trolley roster, I have added a photo showing the 2000- and 3000-series plus two photos of San Diego's original Duewag cars operating in new homes.

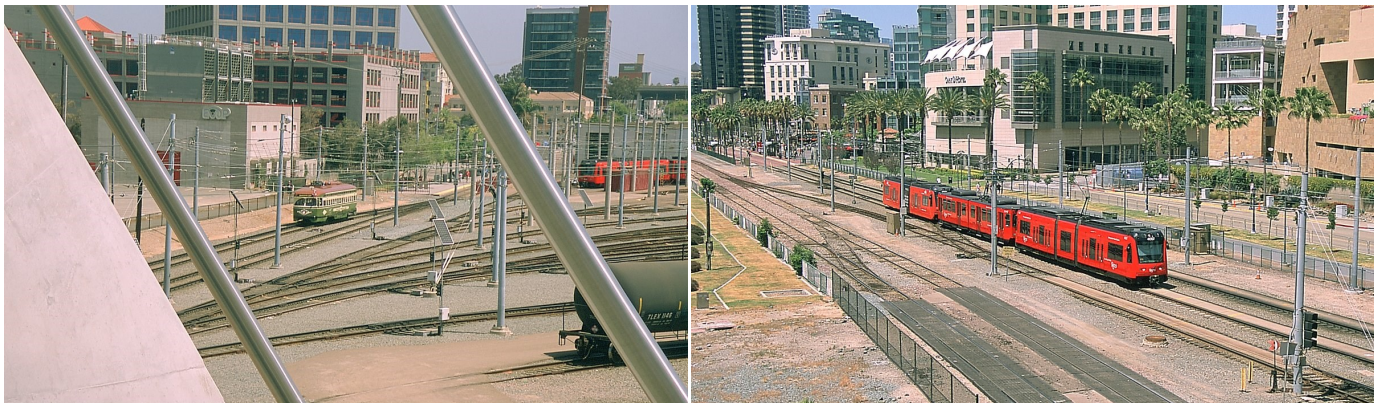
(Continued on page 17)

Southwest United States

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PCC 530 pauses at the City College station, on a diagonal that runs from C Street and 11th Avenue to Broadway and Park Boulevard. One of the busiest stops along the loop, it is surrounded by new high-rise development, showing how the San Diego Trolley has transformed the city center into a vibrant location for both habitation and commerce. Among the other new developments along the line are San Diego's new central library and Petco Park, home of the San Diego Padres. Interestingly, the numbered north-south roads in the city are called "Avenues" from 1st to 12th and "Streets" from 13th and up (to at least 73rd Street). Part of the city's redevelopment plan was changing the name of Twelfth Avenue to Park Boulevard.



Two views from the new pedestrian bridge, connecting Petco Park with the Bay front. It crosses over Harbor Drive, the tracks of the San Diego Trolley, and the leads to both a yard used by Coaster trains and the Trolley's shops. The left photo looks northeastward, and shows both Silver Line PCC 530 and a low-floor car in the shop area. At right, looking toward the northwest, a three-car Green Line train from Santee is shown approaching its 12th & Imperial terminal alongside the non-revenue track used by Coaster trains between rush hours for access to its layup yard. That trackage is also used by an occasional Burlington Northern Santa Fe freight train, serving the harbor and connecting with the San Diego & Imperial Valley Railroad.

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Southwest United States

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PCC 530 is shown just south of the Park & Market station. In addition to the trackage being traversed by the Silver Line (only southbound), it is used by both Orange Line and Blue Line trains.



An inbound Orange Line train on Commercial Street has just left the 25th Street stop and is heading for the 12th & Imperial Transit Center station. A great deal of residential development is underway along this street, which has resulted in the removal of many freight sidings leading from the "mainline" tracks. San Diego & Imperial Valley freight service, on its line between Tijuana, Mexico and El Cajon, operates along this street during the midnight hours.



The Santee Town Center Green Line terminal in 2013, with a "long" 70-percent low-floor S70 to the left of a high-floor SD100.



San Diego's original U-2 Düwag cars operating in new locations. 1019 at the Rockhill Trolley museum in 2015 (although its trolley pole is not clearly evident) and an internet view of 1005 in Mendoza, Argentina. The 7½ -mile-long tramway in the Andean mountain city was built over a railroad right-of-way and opened in 2012.

(Continued next issue)