



\$14 billion in capital investments aim to increase reliability, expand capacity

Transforming the Long Island Rail Road

Port Washington-bound LIRR M-7s arrive at Woodside with the Woodside and New York skylines in the background on Jan. 29, 2005. ©JOSEPH M. CALISI

BY ELLIS B. SIMON

Every weekday 300,000-plus passengers use the Long Island Rail Road, mostly to travel between their homes in suburbia and their jobs in New York City. That has been its *raison d'être* ever since 1910, when the first trains of electric multiple-unit (EMU) cars rolled under the East River to reach the newly opened Pennsylvania Station on Manhattan's West Side.

Over the decades, the villages and hamlets along the LIRR right-of-way swelled as developers erected tract homes, strip malls and schools on what was once farmland. Today, Long Island's eastern counties, Nassau and Suffolk, are home to nearly three million people. Yet much of the LIRR's infrastructure is essentially unchanged from a century ago.

If all goes according to plan, by 2023 the LIRR will be a transformed carrier, less vulnerable to disruptions and better able to handle large traffic flows in both directions during rush hour. Projects underway or in the pipeline represent the largest capital investment in the railroad's history, approximately \$14 bil-

lion. Among them, a new station beneath Grand Central Terminal (GCT), a third track between Floral Park and Hicksville, a second track from Farmingdale to Ronkonkoma, improvements at Jamaica and an expanded Penn Station.

MTA Capital Construction, a unit of the Metropolitan Transportation Authority, the LIRR's parent, is managing most of the projects.

"For a very long time, capacity constraints have been the biggest challenge to our day-to-day operations," said Patrick Nowakowski, LIRR president. "Not just in Jamaica, but also along the Mainline corridor and as far east as Ronkonkoma—and that's before East Side Access [Grand Central] even comes into play. These projects are absolutely essential to the LIRR's future, particularly at a time when our daily ridership numbers are establishing new modern-day records for growth."

Chartered in 1834, the Long Island Rail Road is the oldest U.S. railroad still operating under its original name, and the busiest. [See *PTJ* 2010-4 and 2011-1 for map and a complete history of the railroad.—*ed.*] Its original main line, running from the Brooklyn waterfront to

Greenport, some 90 miles east, was part of a land-water route between New York and Boston that failed when an all-rail line opened in the 1850s. The LIRR was left with a straight, flat route that served a sparsely populated area. To survive, it built branches to coastal communities and acquired smaller rivals.

In 1900, the Pennsylvania Railroad acquired the LIRR in order to gain rights to build tunnels to Manhattan and a new station. When Pennsylvania Station opened in 1910, the LIRR became a tenant and its passenger traffic began to soar. Ultimately, by the 1960s, the Pennsy soured on the passenger business and demolished Penn Station. Office towers and a new Madison Square Garden rose in its place, with a smaller station below street level to serve the remaining trains.

However, PRR managers failed to foresee a series of developments that, over the next three decades, would strain the capacity of the station and the six tunnels funneling traffic to and from Long Island and New Jersey. Electrification of the Long Island's Huntington and Ronkonkoma lines, Amtrak's Northeast Corridor improvements, and NJ Transit's connec-

tion to its Morris & Essex lines brought hundreds of more trains and tens of thousands of additional passengers into the cramped facility.

With no room to expand at Penn Station, the Long Island needed an alternative that would not only increase capacity but afford it greater reliability and operating flexibility. New York State, which acquired the LIRR in 1965, had built a tunnel under the East River with space for the Long Island to run to Manhattan's East Side. However, the tunnel was mothballed in the 1970s when the state was in the throes of a fiscal crisis. Thirty years later, the project, called East Side Access, was resurrected.

East Side Access will shorten commutes by as much as 40 minutes for passengers who now take one or more subways from Penn Station to reach their jobs. When completed, Long Island trains will run to a new eight-track station 90 feet below Grand Central Terminal via a branch that will cut off the Northeast Corridor at Harold Interlocking in Queens and run underneath Amtrak's Sunnyside Yard. During midday, the trains will be stored in a new yard being built adjacent to Sunnyside.

Construction has been slow and costly. The first excavation work began in 2006, and service is now scheduled to begin in late 2022 or early 2023. The project budget exceeds \$10 billion.

To connect the East River tunnel at 63rd Street to the GCT area, contractors had to dig through more than a mile of Manhattan bedrock. Underneath Grand Central they carved out a cavern large enough to house the new station and lined it with concrete. Debris from the work had to be hauled to Queens because trucks could not be loaded on Manhattan's congested East Side.

On the Queens side, soft-bore techniques were deployed to dig under Amtrak's Sunnyside Yard. Connecting the tunnels to the existing tracks at Harold has been particularly tedious, with tunneling, track work, and signal installation and other phases done "piece by piece" to

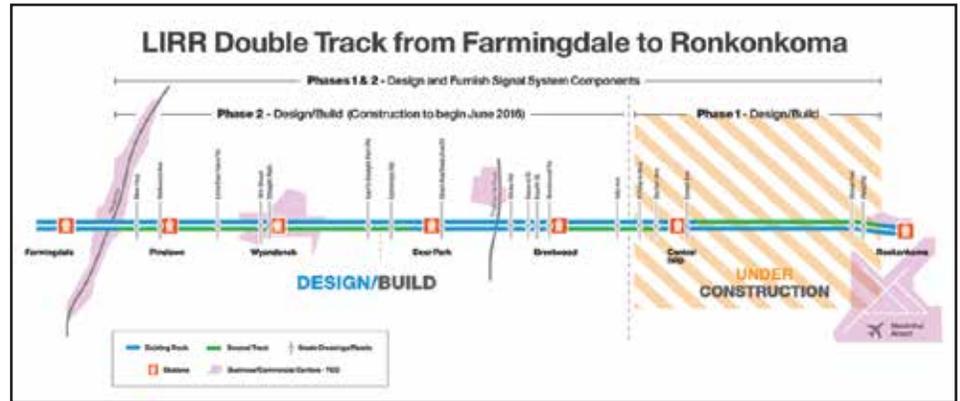
avoid interference with operations at the largest and busiest interlocking complex in the United States.

Several ancillary projects are part of the program besides the new yard at Sunnyside. A small car-maintenance shop in Long Island City opened several years ago. Farther east, the LIRR plans to double the size of its Mid-Suffolk Yard in Ronkonkoma and construct a new yard along the Huntington/Port Jefferson branch at an as-yet-to-be determined location. In addition, a new pocket track will be built at Massapequa on the Babylon line, and an existing reversing track at Great Neck on the Port Washington branch will be ex-

tended for train storage.

Mr. Nowakowski called East Side Access a "game changer" for the railroad. The LIRR forecasts a 28 percent increase in ridership by 2040, and it is planning for service expansions. The first of 92 new EMU cars, the M-9 series being built by Kawasaki, are expected to arrive in mid-2018. The railroad has options to order an additional 324 cars for fleet expansion and to replace its aging M-3 cars.

Operations will change significantly, as well. Almost all trains serving the LIRR's suburban routes will use either Penn Station or Grand Central. The only exceptions will be diesel-powered runs that will



UPPER SCHEMATIC: Long Island Rail Road double track project between Farmingdale and Ronkonkoma. MTA IMAGE

SCHEMATIC ABOVE: Diagram for LIRR third track between Floral Park and Hicksville. MTA IMAGE

LEFT: Weekend action at Mineola, on the Main Line Corridor and the junction with the Oyster Bay branch. A set of M-7s heads to Penn Station. The bilevel train to the right is headed to Oyster Bay. ELLIS B. SIMON

terminate at Hunterspoint Avenue (Long Island City) or Jamaica. The railroad will increase the number of trains hauled by dual-mode locomotives using Penn Station. However, those trains cannot run to the East Side because they do not fit in the new tunnels.

The famous “change at Jamaica” that is the bane of Long Island commuters will change, as well. Between Brooklyn and Jamaica all service will be provided by shuttle trains called “Scoots” that will run at 7½-minute intervals during peak periods and 15 minutes off-peak. This will eliminate the backups that occur when a train headed to one terminal must wait for a late connection bound for another.

A new platform dedicated to the Scoots will be built at Jamaica as part of an upgrade and expansion project designed to get trains through the station faster and bring the 103-year old complex to a state of good repair. Program elements include streamlining track configurations, installing high-speed switches and extending platforms to accommodate 12-car trains so passengers will no longer have to walk through cars to disembark.

The Mainline Corridor across Nassau County is a critical route in need of additional capacity not only to reduce delays but to enable trains to run against the prevailing direction during rush hour. In January 2016, New York Gov. Andrew Cuomo announced plans to add a third track between Floral Park and Hicksville, a distance of 9.8 miles. The estimated cost is \$2 billion and the railroad says it is needed to make East Side Access work.

The route feeds the Oyster Bay, Huntington/Port Jefferson and Ronkonkoma lines and the Central Branch, which runs to the South Shore. It is the busiest two-track line on the system and carries 107,000 passengers—41 percent of total ridership—each weekday. Every 24 hours approximately 250 trains use its tracks.

Due to congestion, mainline trains are late more often than other routes. Major disruptions are frequent. Between January 2013 and September 2016, 110 incidents—about one every two weeks—resulted in 10 or more trains on the line

being delayed or cancelled. A collision east of the Merillon Avenue station in August 2016 in which 33 passengers were hurt closed the line for three days.

The MTA proposed a third track in 2005. However, that plan, which extended from Queens Village to Hicksville, a distance of 12 miles, was withdrawn in the face of fierce opposition from villages along the route, especially Floral Park, New Hyde Park, and Garden City.

The project was revived after an economic impact study, released in 2014, showed a third track would yield significant benefits to Long Island including \$69.9 billion in gross regional product and 25,000 new jobs by 2040. A draft environmental impact statement (DEIS) released in November 2016 said the new proposal would have “minimal” environmental impact and could actually improve air quality, noise and parking along the route.

The new plan eliminates seven busy grade crossings. This would reduce traffic congestion, noise and engine exhaust, and improve public safety. In addition, the railroad would build six parking garages and one surface lot that would yield 2,490 new spaces. Stations platforms at New Hyde Park, Merillon Avenue, Mineola, Carle Place and Westbury would be renovated and lengthened to handle 12-car trains. The Hicksville station is being remodeled through separate project already underway.

The third track would come off the railroad’s Hempstead branch just east of the Floral Park station. Unlike the previous plan, no residential properties would need to be acquired through eminent domain because the tracks would be confined to the existing right-of-way by containing the roadbed within retaining walls. Some commercial properties are in the project’s path, however.

The LIRR and MTA are making an unprecedented community outreach effort for the project, holding more than 100 meetings with residents and local officials in communities along the route. “It’s important for us to work with the community because there are details that would



Installing support beams in the cavern for the new station beneath Grand Central Terminal. MTA

be missed if we don’t listen to them,” said John J. McCarthy, MTA special advisor for agency operations and initiatives.

The MTA scheduled public hearings on the DEIS for January 2017. The next steps are issuing a final environmental impact statement, amending the MTA capital plan to fund construction, pre-qualifying bidders and issuing a request for proposals leading to a design-build contract. If the project stays on schedule, construction could begin by the end of 2017 with completion within three to four years.

Significant opposition to the project remains, especially in villages in western Nassau County. “We’re going to bear all of the burden and get none of the benefit,” said Floral Park Mayor Thomas Tweedy. His concerns include traffic disruption, project duration, access to construction sites, and the appearance of finished retaining walls. In addition, at present there are no plans to improve the Floral Park station, which is in need of repairs and handicap accessibility.

A little more than 15 miles east, progress is well underway on a second track between Farmingdale and Ronkonkoma. Since it was electrified in 1988, ridership on the Ronkonkoma Line has doubled. Currently it handles approximately 48,000 riders on weekdays, making it the system’s fourth busiest route. The once-sleepy Ronkonkoma station is now the railroad’s second busiest suburban station, after Hicksville.

The Ronkonkoma line’s capacity constraints are similar to those on the Main Line. Reverse commuting is impractical and riders are subject to lengthy delays when trains stall. Its October 2016 overall on-time rate was 87 percent, second lowest on the system and well below the railroad’s 92.1 percent rate.

Double-tracking presents an opportunity to not only reduce delays and add service but also improve overall resiliency. When the project is finished in late 2018, off-peak service will be doubled from hourly to every 30 minutes. In addition, the line could serve as a relief valve by handling extra trains if service is disrupted on the Montauk or Port Jefferson Branches.

Nowhere on the LIRR is there greater

Rendering of mezzanine level at new LIRR East Side Station at (and below) Grand Central. The gently arched ceilings harken to some architectural elements in GCT itself, such as at the Oyster Bar Restaurant. EMPIRE STATE DEVELOPMENT, COURTESY MTA





Opening for crossover just east of the new station at Grand Central Terminal. MTA

need for a relief valve than at Penn Station, which each day serves 650,000 travelers on three railroads. When service is disrupted during the evening rush hour its cramped concourses are packed with commuters waiting out the delay. East Side Access will provide some of that relief and offer an alternate route home when Penn Station has problems. Improvements at Penn Station that could reduce crowding and resurrect the feel of the original station are also in the pipeline.

In the 1990s, the late Sen. Daniel Patrick Moynihan proposed building a new Penn Station in the Farley Post Office building on the west side of Eighth Avenue. After several false starts, work on the project began in 2010. The first phase, which is nearing completion, will widen a concourse between tracks 13 and 19 on the station's west end that was built

RIGHT: Rendering of widened Long Island Rail Road concourse at Penn Station. EMPIRE STATE DEVELOPMENT, COURTESY MTA

BELOW: How the main concourse of Moynihan Station might appear. The vaulted, glass ceiling mimics that of the 1910 Pennsylvania Station. EMPIRE STATE DEVELOPMENT/ COURTESY MTA

by the LIRR and extend it from Track 13 to Track 1.

In September 2016, Gov. Cuomo revealed a \$1.6 billion development plan for Phase II. It calls for a 250,000-square-foot train hall with a glass skylight inside the Farley building to be called Moynihan Station and shared by Amtrak and the LIRR. Approximately 588,000 square feet of retail and commercial space would surround the hall. The goal is to start construction in 2017 and finish in 2020.

Private and public sources would fund the project. The developers, Related Cos., Vornado Realty and Skanska AB, would contribute \$600 million. The Empire State Development Corp. would provide \$570 million. The remaining \$425 million would come from the Port Authority of New York and New Jersey, Amtrak, the LIRR and federal grants.

In a related project, the LIRR will spend an additional \$170 million on improvements to its existing facilities, in-

cluding widening the busy east-west concourse under 33rd Street and extending it into Moynihan Station. The New York City Transit Authority plans to improve the Penn Station stops on its Seventh and Eighth Avenue lines, as well.

When the projects are completed, Penn Station will have more capacity, easier and more-visible ingress and egress, and a new train hall designed to evoke the feel, if not the look, of the original. Better signage, lighting, and public address systems will improve the passenger experience, as well.

New York State, the MTA, and the LIRR are making a big bet that an expanded network, increased track capacity, new and improved stations and new rolling stock will improve service and remove some of the constraints on the railroad's growth. If the bet pays off it will increase customer satisfaction and make the railroad more important to Long Island's economy than it currently is. *MTA*

