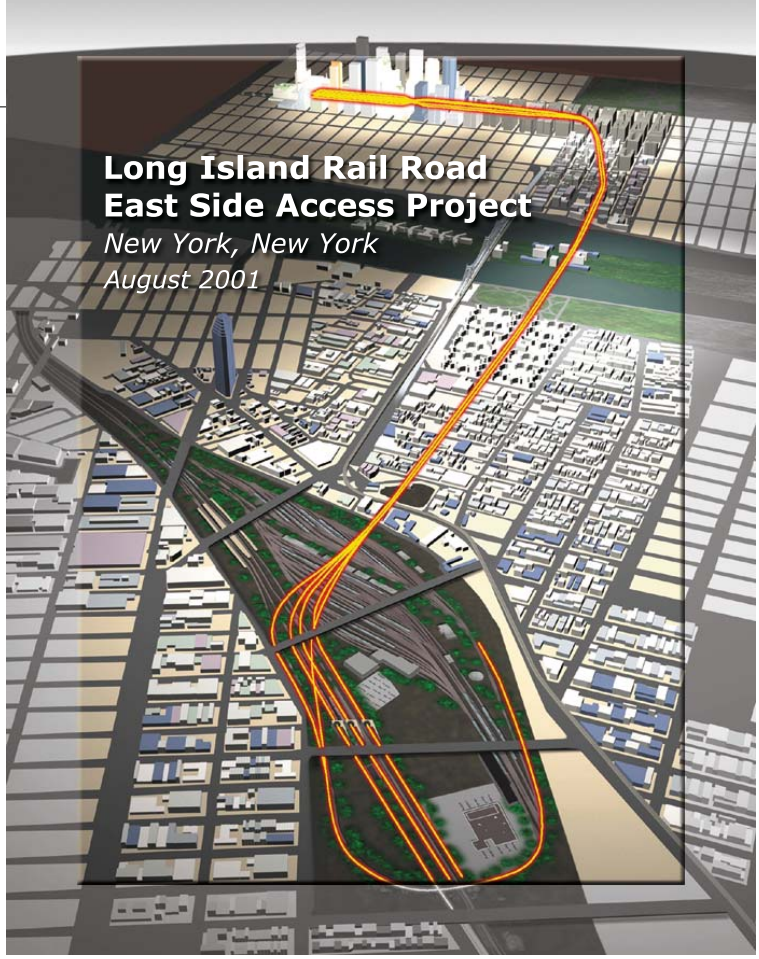


Client:
Metropolitan Transportation Authority/Long Island Rail Road

Project Value:
$4.35 billion

Project Duration:
1999–2011

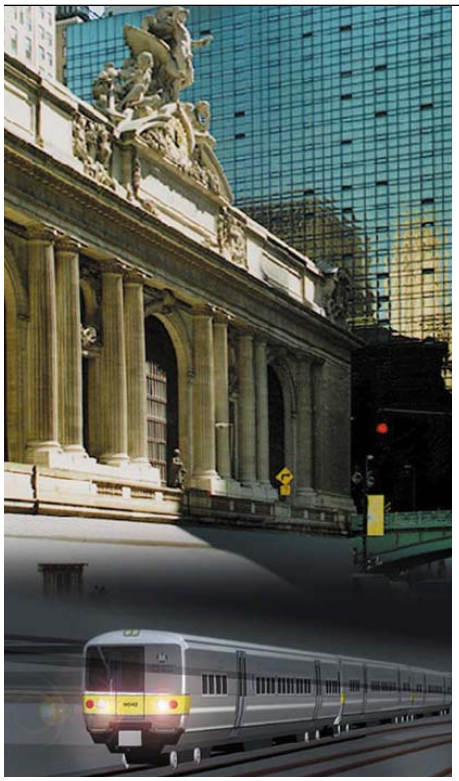
Parsons' Services:
Systems engineering including track, signal, traction power, fire/life safety, and communication system design; terminal design; electrical and ventilation design; storage yard and maintenance facility design; regulatory and environmental services; and systems integration

The Long Island Rail Road (LIRR) carries an average of 270,000 passengers each weekday and has been an essential regional landmark since it began service in 1834. Through the LIRR East Side Access Project, LIRR is realizing its 30-year-old goal to provide passenger service to Grand Central Terminal, which will improve access between the Long Island transportation corridor (Suffolk, Nassau, and Queens counties) and the east side of Manhattan. The roadways, transit system, and Penn Station, which serve this area, have reached capacity, thus restricting travel options for residents and commuters.

Above: *Overall LIRR alignment drawing showing new and existing tunnels*

Parsons, a world leader in transportation system design, is the systems engineering design consultant to the Metropolitan Transportation Authority for this project, which is the first significant transit expansion program in New York in nearly 50 years. In addition to greatly enhancing New York's commuter rail network, the East Side Access Project will contribute significantly to regional growth and development by expanding the transportation capacity required to support job growth and the demand for travel into Manhattan's business district.

LIRR is the busiest railroad in North America. Even without the introduction of new service, ridership is projected to reach 127% by 2020. The addition of 24 proposed new peak-hour trains into Grand Central Terminal would alleviate current and future crowding on LIRR



Above: *Composite of Grand Central Terminal facade and arriving LIRR train*

Bottom: *Cross-section of tunnels under Park Avenue facing south toward Grand Central Terminal*

trains. Service to the terminal would also ease overcrowding in Penn Station and allow the expansion of other rail lines including Amtrak, New Jersey Transit, and Metro-North Railroad. The new service is scheduled to start in 2011 with over 60,000 passengers expected to commute into Grand Central Terminal and another 60,000 passengers using Penn Station during morning peak periods. This ridership represents an increase of 33% over the current 90,000 commuters using Penn Station. To preserve the historic and aesthetic aspects of Grand Central Terminal and surrounding buildings, Parsons is designing six new entrances to the terminal in a complementary architectural style. The new 270,000 square foot terminal concourse, also designed by Parsons, will be temperature controlled. Over 50 new escalators and more than a dozen new elevators will bring over 60,000 morning peak period commuters out of a 170-foot-deep terminal to street level safely, quickly, and comfortably.

The new project infrastructure connects to the LIRR in Queens at Harold Interlocking, the busiest commuter rail switching location in the country. Harold Interlocking serves LIRR, Amtrak, New Jersey Transit, and freight rail traffic with over 700 trains daily. Parsons is designing major changes to this complex switching station, including a new control system. One of the biggest challenges is to plan and design these major changes with minimal impact to LIRR customers.

In addition to designing six new traction power substations amid congested infrastructure under Manhattan and in Queens, Parsons is designing all the track, communications, tunnel lighting, train control, and fire-life safety systems in three and one-half miles of underground tunnel. Parsons will also design a modern train car maintenance facility and storage yard to maintain and service up to 24 LIRR trains at one time, each over 1,000 feet long. The facilities include a new car wash, interior cleaning facilities, and a maintenance repair shop.

This new Grand Central Terminal service will improve commute times, reduce traffic congestion, and improve air quality. Long Island commuters to Manhattan's east side will enjoy commute times as much as 30 minutes shorter each way. Travel time for many subway riders will also improve, with about 8,000 fewer people riding the subway from Queens to Manhattan daily and 19,000 fewer people transferring to Penn Station during peak hours. In addition, the corresponding reduction in highway congestion will mitigate air emissions and support the region's clean air goals.

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