

Jacobs Rail & Transit



ABOUT JACOBS SOLUTIONS

Our 1,500 Rail and Transit professionals worldwide support over 230 clients with the right mix of engineering, program delivery, and operations management expertise. We design and help deliver the most challenging capital improvement and expansion projects, to keep people and goods on the move while enhancing customer experience and environmental sustainability.

As a global leader in transportation, we embrace our position as a leading consultant and seek to be the trusted partner of choice. We work with our clients to create transportation solutions

that deliver value for society in a more sustainable world, with a focus on Rail and Transit owners and operators in the United States, Canada, United Kingdom and Europe, the Middle East, Asia-Pacific, and Australia / New Zealand.



Jacobs

Challenging today.
Reinventing tomorrow.

JACOBS SERVICES

Whether your journey includes keeping pace with capacity demand, accelerating technology innovations, ensuring safety and security, or maintaining existing transport networks, we are on board to serve all aspects of high-speed and conventional passenger rail, freight and logistics, mass/public transit, and innovative bus solutions.



PROGRAM AND CONSTRUCTION MANAGEMENT

As the top ranked Program Management firm⁽¹⁾, Jacobs provides program and construction management services for complex transportation and transit programs worldwide. We draw on our integrated processes and databases, refined through delivering award winning projects. Our multidiscipline approach takes advantage of best practices developed across large, complex transportation programs.

MAJOR PROGRAMS

At Jacobs, we work with our clients to deliver some of the largest and most complex infrastructure programs. Our work spans the full range of services from Staff Augmentation to full Delivery Partner approaches. We tailor our support to each client's requirements. Among the major programs we support in North America are:

- **Chicago Transit Authority** – Program to rehabilitate and separate the CTA Red and Purple Lines, including stations, track, and systems.
- **Long Island Rail Road 3rd Track** – Very complex project to add capacity to the LIRR which was delivered \$100 million under budget.
- **Metropolitan Atlanta Rapid Transit Authority** – Jacobs is supporting MARTA with Program Management services for both its State of Good Repair programs and for its planned expansion program.
- **Metrolinx** – Multi-billion-dollar investment in LRT, BRT and Commuter Rail, including Alternative Financing and Procurement (AFP) delivery strategies.



Note: (1) by Engineering News-Record



PROCUREMENT OF SYSTEMS ELEMENTS

We support bus and rail system projects with a focus on requirements definition, procurement, testing and commissioning, technical advisory services, condition assessments, manufacturer auditing, maintenance planning, and major overhaul and modification programs.

VEHICLE PROCUREMENT



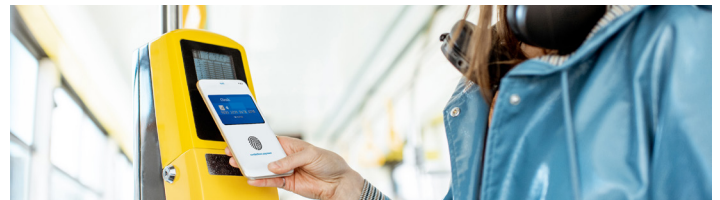
New York City Transit – Jacobs evaluated and defined the design concept for the NYCT R211 fleet (up to 1,612 cars), developed the technical specifications, and supported the procurement. We are currently supporting project implementation, including project management, engineering review, inspection, and testing, with the first trains entering service in 2023.

SIGNAL AND TRAIN CONTROL

Port Authority Trans-Hudson – Jacobs supported PATH to deliver and implement a CBTC and Secondary Train Detection System on the entire PATH network, providing Project Management to oversee the delivery of the entire

ATC system through a robust process, Engineering support services to review the design, oversee installation, testing and commissioning, and supported documentation required to obtain approval of the PTC functionality mandated by the FRA.

PAYMENT SYSTEMS



TriMet – Jacobs supported the planning, design, procurement, and implementation of the eFare system, branded as Hop™ Fastpass. We provided technical and management services in support of the new system, including development of a Concept of Operations, procurement alternatives, cost estimates, partnership agreements, and technical specifications, and we later supported procurement, vendor selection, test witnessing and installation oversight.

DESIGN SERVICES

Among our specialized services, we offer design for signals, communication systems, mechanical and electrification systems; and ballasted, direct fixation, and embedded trackwork including special trackwork, down to the supporting structures including bridges and tunnels for all bus and rail modes.

- **Dallas Area Rapid Transit** – Jacobs served as the Principal Design consultant to the Design-Build Joint Venture for the DART Silver Line Project, providing design and oversight services for track alignments, drainage, bridges, retaining walls, stations, and signaling.
- **Norfolk Southern** – For more than 20 years Jacobs has supported NS on public improvement, bridge and structures, environmental engineering, and design and construction projects nationwide.
- **Northern Indiana Commuter Transportation District** – Jacobs is the designer for the eight-mile West Lake Corridor (WLC) extension of the South Shore Line, including final design of track, OCS, traction power, civil, bridge, signal and communications systems, parking lots, park-and-ride areas, and station access.
- **Sound Transit** – Jacobs delivered final design services for the South Bellevue to Overlake Transit Center segment of Sound Transit's East Link light rail extension. This included civil, mechanical, electrical, and structural engineering; as well as environmental, architectural, and other final design services.





CONSULTING AND ADVISORY SERVICES

We are a diverse, global team of technical experts, advisors and practitioners who work collaboratively across all market sectors. We work throughout the infrastructure lifecycle from strategy, financing and economic advice, business case and planning advice, through to capital and operational delivery improvements across our client's organizations. Our ability to provide real and robust, deliverable solutions and trusted advice leads to better, more certain outcomes and greater sustained value.

ASSET MANAGEMENT

Jacobs provides expert condition assessment, forecasting, and decision support for major capital programs. Our capabilities include specifying, procuring, testing, commissioning, and supporting major Enterprise Asset Management (EAM) systems.



- **Federal Transit Administration** – Jacobs originally developed the Transit Economic Requirements Model (TERM) with the FTA to forecast national transit State of Good Repair (SOGR) requirements. Ongoing work includes producing a biennial report to Congress that is used to support transit funding requests.
- **Washington Metropolitan Area Transit Authority** – Jacobs has supported WMATA's EAM system for more than 15 years, including upgrades, assessing data integrity, and developing tools to support decision making. We also worked with WMATA to develop a long-range financial forecast of capital needs which helped to support the agency's efforts to secure required funding.

PLANNING AND ENVIRONMENTAL

Jacobs works with transit and rail clients from project inception through delivery. We have led Alternatives Analyses, Environmental Assessments, Public Outreach and Preliminary Engineering for BRT, light rail, and passenger rail and freight programs throughout North America.

- **Class 1 Railroads** – Jacobs evaluated and designed improvements for oily industrial wastewater collection and treatment at numerous rail yards. We conducted site reviews and evaluated the contaminant loading associated with rail operations and designed improvements to mitigate problems.
- **Federal Railroad Administration AMTRAK Long Distance Service Study** – under the Infrastructure Investment and Jobs Act (IIJA) Congress mandated that FRA conduct a business case analysis to assess the feasibility of returning services to long-distance passenger rail corridors that were either abandoned or have less than daily service. Jacobs is conducting this analysis with the FRA, including outreach to stakeholders throughout the U.S.
- **King County Metro Rapid Ride I Line** – We worked with King County Metro to develop the preferred solution for the RapidRide BRT system. Our work included concept development, final design, and construction management services.



ADDITIONAL SERVICES

In addition to our core Program Management, Construction Management and Design services Jacobs is investing in new technologies and capabilities to help our clients take on their biggest challenges. Among the new capabilities that Jacobs can deliver to rail and transit clients are:



StreetLight – Using our proprietary data processing engine RouteScience® to algorithmically transform trillions of spatial data points over time, StreetLight measures vehicular, transit, bicycling, and pedestrian travel patterns, making them available on-demand via the world's first SaaS platform for mobility, StreetLight InSight®.



Artificial Intelligence – Jacobs has recently expanded our partnership with Palantir, focused on leveraging Palantir's AI capabilities to commercialize new



AI solutions spanning critical infrastructure, advanced facilities, supply chain management and more.

PA Consulting – Jacobs 65% stake in PA Consulting unlocks expert support grounded in a deep understanding of the systems and technology that shape the rail and transit sector. No other combination can offer the same mix of technology and consulting expertise.

SUSTAINABILITY AND RESILIENCE

Jacobs delivers resilience through comprehensive infrastructure, technology, intelligence, and operational solutions that help governments, cities and private sector clients survive, recover, adapt, and thrive regardless of the chronic stresses and acute shocks they experience. Jacobs is supporting our clients as they make investments to address long term resiliency, including flood modeling services, flood mitigation designs and carbon reduction/green energy related projects.

- **Delaware River Port Authority (DRPA) PATCO Solar Program** – Jacobs is working to implement a comprehensive, large scale, renewable energy program that reduces the cost of electricity, supports DRPA's sustainability goals and improves the customers' experience by providing solar canopies for 10,000 commuter parking spots. The program will provide over 21 megawatts of clean energy to the Port Authority with no capital cost to DRPA.
- **Los Angeles Metro River Path** – Jacobs led the LA River Path Project to create a bicycle and pedestrian path along an 8 mile stretch of the Los Angeles River, closing the largest remaining continuous gap of the LA River Bike Path. The Project provides a seamless 32-mile grade-separated regional corridor for walking and bicycling from Long Beach to the San Fernando Valley along the river. Our work included environmental review and clearance under NEPA/CEQA. Engineering design and specifications were developed in concert with the environmental review process to a level sufficient to secure environmental clearance.
- **Washington Metropolitan Area Transit Authority Flood Plan and Flood Mitigation** – Jacobs worked with WMATA to investigate the causes of flooding and develop solutions for the issues and vulnerabilities at 16 locations on the rail system. The project included flood modeling, site investigation, design analysis report, concept design, estimation, scheduling and finally construction documentation at selected stations.



Reducing global transportation sector emissions is a top priority, and the greening of public and private vehicle fleets is one way for entire populations to take steps towards reducing their carbon footprint and environmental impacts. Fleet owners worldwide are under pressure to decarbonize their operations, and shifting to zero-emissions vehicles is a key element of this effort.



- California Department of Transportation** – Jacobs is supporting zero-emission train projects including a multiple unit trainset powered by hydrogen fuel cells, and development and procurement of a zero-emission passenger locomotive. Jacobs manages stakeholders, researches tunnel safety risk mitigations, examines vehicle design options, develops safety hazard analyses, models fuel use, as well as writing technical specifications and managing project delivery.
- Irish Rail** – Jacobs developed the overall Rail Fleet Strategy with a focus on DART services in the Dublin area. We analyzed passenger flows, solutions for capacity increase and trade-offs between rolling stock and infrastructure to give the best electrified rail outcome. We developed requirements, supported procurement, and are supporting the implementation of a fleet of Battery Electric Multiple Units, using intermittent on-route charging.

- Massachusetts Bay Transportation Authority** – Jacobs is the Program Manager for the MBTA's Bus Facility Modernization Program, a multi-stage effort to deliver a network of modernized bus maintenance facilities, right sized to support current and future operations and MBTA's ability to transition its bus fleet to battery electric buses.
- New York Metropolitan Transportation Authority (MTA)** – Jacobs is helping MTA achieve its ambitious goal of transitioning its 5,800 buses to a zero-emissions fleet by 2040 by conducting a study to evaluate existing facility conditions at MTA's 28 bus depots along with the improvements/modifications needed and the technologies necessary to implement the transformation.



JACOBS TECHNICAL CAPABILITIES



Please visit the link in the QR code to learn more about our capabilities or contact railandtransitinfo@jacobs.com

- Environmental
- Track and Civil
- Stations
- Maintenance Facilities
- Rail Systems
- Payment Systems
- Systems Assurance and Security
- Vehicle Engineering
- Operations
- Bus and Bus Rapid Transit Systems
- High Speed Rail
- Management Consulting
- Intermodal facilities

