Rail & Transit

HATCH

Ride the rails to the future

In today's world, businesses and communities are connected by intricate, multimodal networks that bring trade and travel closer together. The healthiest centers for livability and workability are those that plan, design, and integrate numerous modes of travel to offer a robust network of transportation options. Roads, rail lines, and marine corridors create greater connectivity between cities, states, provinces, and countries.

An important part of these networks is rail and transit infrastructure. Often considered the backbone to efficient travel, modern modes of rail and transit have become the focus of project owners, government officials, and community stakeholders. Rail and transit are key to unlocking congestion, maintaining efficient movement of goods and people, and exploring opportunities for sustainable and greener system design.

Throughout North America, communities recognize the positive impact a well-designed passenger rail system has on their quality of life and environment, and its strong relationship to economic success.

Whether a new-start program, an expansion, a series of extensions, or a major upgrade to an existing rail system, we have the experienced team that can ensure successful project delivery.

Our multidisciplinary staff has worked with all kinds of passenger rail and transit infrastructure, from subways and light rail corridors to tunnels, bridges, and signaling systems. Drawing on a broad range of skills, we can carry out large and complex projects in-house, freeing up your staff to perform its day-to-day work.

Green Line LRT, Calgary, Alberta, Canada

Our Capabilities

As the need for transit projects increases, so does the complexity of the project. From the initial project phases — conceptual engineering, project alternatives, right-of-way, and environmental mitigation — through design, construction, and commissioning, we provide clients with vital support. Our services cover all aspects of rail engineering, plus associated services such as value engineering, risk assessment, quality assurance and control, constructability reviews, and community relations.

The depth of knowledge and experience of our staff enables us to integrate existing systems with those that are more technologically advanced. Our knowledge of your operations and maintenance needs, and our familiarity with relevant codes and specifications, often result in reduced life-cycle costs for the equipment.

As systems integration specialists, we ensure full integration for various systems components, from the conceptual design phase through the entire development, procurement, and testing process.

If you are considering any of the following, we can support you:

- Intercity & High-speed
- Commuter Rail
- Light Rail & Streetcars
- General Freight
- Rail Stations & Multimodal Terminals
- Heavy Rail & Subways
- Air/Rail Connections
- Vehicle Maintenance Facilities & Operations Centers
- Rail Corridor Development
- Technical (EPCM): Design & Implementation
- Bridges & Viaducts
- Grade Crossings & Separations
- Tunnels & Trenches
- Signaling & Controls
- Electric Traction
- Environmental Remediation

Go Transit, Ontario, Canada

Commuter Rail

Efficient and cost-effective commuter rail is vital to economic development in urban areas. In Toronto, the biggest city in Canada, Union Station supports 250 GO Transit commuter train movements, links GO Transit to the city's subway system, and serves Canadian Pacific, Canadian National, VIA, and ON Rail operations.

As a key member of the HDI Joint Venture, Hatch was responsible for overall program management for the $750 million Union Station Rail Corridor Infrastructure Improvement Program, including trackwork, electronic systems, fire and life safety, and a heritage train shed.

According to the City of Toronto, "Union Station's revitalization will result in many benefits to commuters, including bigger, brighter transit concourses, more exits and entrance to the station, new PATH connections, repair and rehabilitation of an aging facility, and the introduction of an exciting and revitalized retail presence."

Hatch's participation helped minimize disruption to train service and inconvenience to passengers, and ensure that the new Union Station will not only be beautiful but safe, efficient, sustainable, and highly functional.

VIVA Next Vaughn Metropolitan Centre, Toronto, Ontario, Canada

West LRT 45th Street Station, Calgary, Alberta, Canada

Light Rail & Streetcars

More flexible than heavy rail and less expensive to build, light rail transit (LRT) has become a popular and important transportation alternative in North America.

In 1981, Calgary launched its rail system with the first line of C-Train, making the system among the first in North America to use LRT. A second C-Train line was completed in time for the 1988 Olympics.

Calgary's West Line was the first new line to be added to the C-Train in 25 years. As Owner's Engineer, we responsible for the preliminary design of all project elements and for developing schedules, cost estimates, contracts, proposals and proposal reviews, and constructability reviews.

We also were responsible for public engagement support, risk management, construction monitoring and administration, and quality auditing. Riders can now travel from downtown Calgary to the 69th Street Station in only 18 minutes.

In the US, we play a leading role in projects for major clients such as the Santa Clara Valley Transportation Authority and Seattle's Sound Transit. Hatch is the prime designer for LA's Regional Connector LRT project, a design-build initiative with a budget totaling almost a billion dollars. We are also providing engineering services for the Crenshaw/LAX Transit Corridor, extending the corridor approximately 8.5 miles from the existing Metro Green Line.

We also helps cities make use of streetcars, an energy-efficient and increasingly popular element of urban revitalization initiatives.

2010 Olympic Streetcar, Vancouver, British Columbia, Canada

LA Metro Regional Connector, California, USA

Division 16: Southwestern Yard – Crenshaw/LAX Transit Corridor, Los Angeles, California, USA

Heavy Rail & Subways

Almost two dozen North American cities, from New York City to Atlanta, Montreal, and San Francisco, rely on rapid transit systems to move people quickly and safely through the urban environment. Transit systems give commuters the option of moving easily around a city and suburbs. It entices people to forgo their cars, in turn reducing emissions and traffic congestion.

The extension of Toronto's Spadina subway line outside the city limits is the biggest expansion project ever undertaken by the Toronto Transit Commission. The Spadina extension includes two 18-foot-diameter tunnels, six emergency exit shafts and buildings, seven cross-passages, two launch shafts for tunnel boring machines, and a 919-foot section of triple tunnel. Hatch, a leader in tunneling technology, designed the twin tunnels using a six-segment universal ring arrangement.

Service on the new Spadina subway extension is expected to begin the fall of 2016, using comfortable new Toronto Rocket trains. Trains will run every four to five minutes.

The extended line will save 30 million car trips a year to and from the city. It will provide convenient, energy-efficient public transportation for more than 60,000 students and faculty at York University. The project is expected to generate about 20,000 jobs during the course of construction.

Spadina Subway Extension, Toronto, Ontario, Canada

Intercity & High-Speed

High-speed rail offers potentially major benefits in traveler convenience, economic stimulation, and environmental protection. The California High-Speed Rail project is expected to reduce greenhouse gas emissions by 12 billion pounds per year — the equivalent of one million cars — and cut consumption of foreign oil by 12.7 million barrels.

From 2007 to 2015, we provided project management, preliminary design, environmental engineering, permitting, and right-of-way acquisition services for three segments of the system, including Palmdale to Los Angeles, the most difficult section in the system. This 65-mile section covers challenging terrain, including rivers, steep mountains, sensitive ecosystems, three major seismic fault lines, and densely populated cities.

When the project is complete, a passenger will be able to board an express train in San Francisco and step off the train in Los Angeles 2 hours and 40 minutes later. That's three to four hours less than a driver would need to cover that distance — even without traffic.

High-speed rail offers potentially major benefits in traveler convenience, economic stimulation, and environmental protection.

California High-Speed Rail Train, Fresno to Orange County, USA

Air/Rail Connections

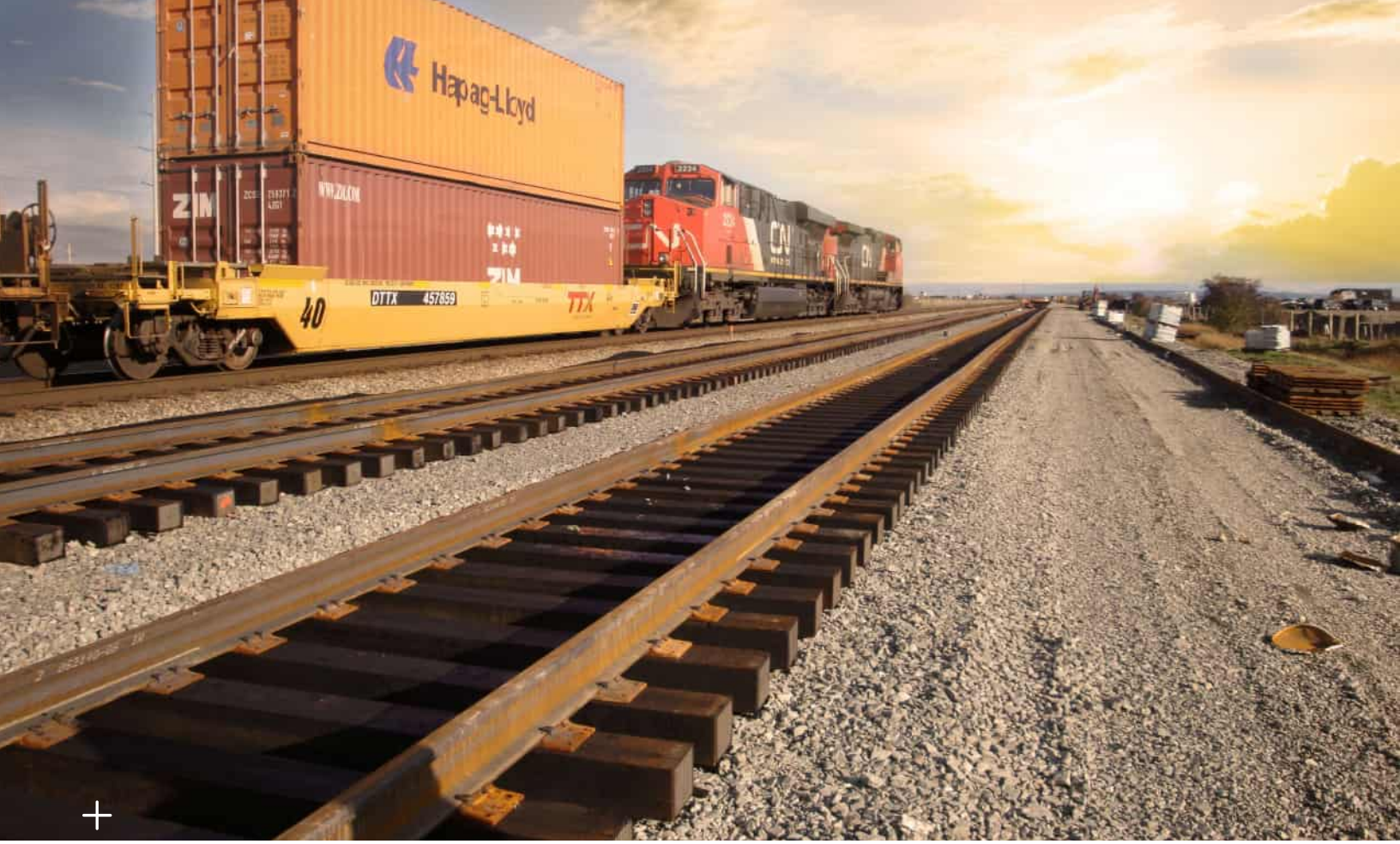
Air/rail connections are among the most complex multimodal challenges faced by designers. In Greater Seattle, where hilly ground makes road development difficult and expensive, the first planned line of the city's light rail system was the Sound Transit Central Link, connecting downtown Seattle with the city's airport.

In 2000, Sound Transit retained Hatch to provide engineering services for the 5-mile Tukwila segment of the Central Link. Hatch's successful performance led it to be hired for additional work on the Central Link, including Section 755 between S. Boeing Access Road and S. 154th Street, and Section 770, known as the Airport Link.

Our value engineering on Section 755 saved the client approximately $23 million and shortened the duration of construction by eight months. Using an innovative approach, guideway runoff was directed to longitudinal diffusers along the low deck edge, allowing runoff to be dispersed to the natural environment. Flared piers and tulip-shaped columns added to the elevated guideway's aesthetic appeal.

Sound Transit Central Link, connecting downtown Seattle with the city's airport

Canada Line, Vancouver, British Columbia, Canada



A preferred engineering firm for Canadian National Railway, Canadian Pacific Railway and British Columbia Railway Properties Ltd.

Guided by your vision, we challenge conventional thinking. We innovate together to create a better future.

General Freight

General freight rail corridors transport a multitude of commodities in different train configurations, running at different speeds, in a time and cost-efficient manner. Our clients have reaped the benefits of integrated and optimized solutions that we have developed in conjunction with operating staff and management teams.

Rail Stations & Multimodal Terminals

Efficient and cost-effective commuter rail is vital to economic development in urban areas. Efficient and cost-effective commuter rail is vital to economic development in urban areas. In Toronto, the biggest city in Canada, Union Station supports 250 GO Transit commuter train movements, links GO Transit to the city's subway system, and serves Canadian Pacific, Canadian National, VIA, and ON Rail operations.

As a key member of the HDI Joint Venture, Hatch was responsible for overall program management for the $750 million Union Station Rail Corridor Infrastructure Improvement Program, including trackwork, electronic systems, fire and life safety, and a heritage train shed.

According to the City of Toronto, "Union Station's revitalization will result in many benefits to commuters, including bigger, brighter transit concourses, more exits and entrance to the station, new PATH connections, repair and rehabilitation of an aging facility, and the introduction of an exciting and revitalized retail presence."

Our participation helped minimize disruption to train service and inconvenience to passengers, and ensure that the new Union Station will not only be beautiful but safe, efficient, sustainable, and highly functional.

Union Station Rail Corridor Infrastructure Improvement Program, Toronto, Ontario, Canada

HATCH

About Hatch

Whatever our clients envision, our engineers can design and build. With over six decades of business and technical experience in the mining, energy, and infrastructure sectors, we know your business and understand that your challenges are changing rapidly. We respond quickly with solutions that are smarter, more efficient and innovative. We draw upon our 9,000 staff with experience in over 150 countries to challenge the status quo and create positive change for our clients, our employees, and the communities we serve.

20160401

This publication contains information in summary form, current as of the date of publication, and is intended for general guidance only. We make no guarantees, representations, or warranties of any kind, expressed or implied, regarding the information including, but not limited to, warranties of content, accuracy and reliability. Any interested party should undertake their own inquiries as to the accuracy of the information. Hatch Ltd. excludes unequivocally all inferred or implied terms, conditions and warranties arising out of this document and excludes all liability for loss and damages arising therefrom. This publication is the copyrighted property of Hatch Ltd. ©2017 All rights reserved.