NO LITTLE PLAN:

Electrifying GO Transit

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clean train coalition
TRANSIT FOR A HEALTHY CITY

Transport Action Ontario

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BY

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PART 4 of 4: APPENDICES B - D, BIBLIOGRAPHY, and ABOUT AUTHOR

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Appendix B: U.S. Commuter Rail Electrification Projects

Every railway approaches electrification in its own way, tempered by its physical, operational and fiscal environment. At the same time, there are common threads that run through every electrification program. Acquiring knowledge from by these experienced electric railroaders must be a key component of any GO electrification plan.

In fact, there appears to have been little outreach by Metrolinx to experienced electric rail operators and manufacturers in North America or Europe. This is shocking considering the magnitude of the GO electrification project and the willingness of seasoned operators to share their knowledge with others. Proof of the latter is contained in this report, which has benefited tremendously from the data and guidance received from active and retired railway professionals in North America and Europe.

A favourite response by Metrolinx to suggestions that European experience may have relevance on this continent is that conditions are so different as to make any comparisons impossible. But Bombardier and Siemens are increasingly adapting European technology to meet North American needs for a wide variety of clients. This includes the $280 million rebuilding of the Union Station Rail Corridor with a Siemens “European architecture” rail traffic control system and the use of advanced Bombardier and Siemens electric locomotives of European design by New Jersey Transit and Amtrak.

Even accepting the increasingly hollow argument that European solutions won’t work in North America, there are 11 electric rail passenger operators in North America. The GO Electrification Study Team made contact only with Montreal’s AMT, which operates a single, 31-kilometre electric commuter line from downtown Central Station to suburban Laval.

In an October 21, 2010, e-mail response to this author regarding electrification initiatives elsewhere, Metrolinx president and CEO Bruce McCuaig wrote, “We absolutely should look at other case studies and see what might be applicable to our situation here, but should not assume that there is a 1:1 comparison.”

If Metrolinx is truly willing to learn from working examples elsewhere, then they should be liaising with the two North American operators currently engaged in designing and building new electric commuter rail services: San Francisco’s Caltrain and Denver’s Regional Transportation Authority.

North American Electric Rail Passenger Systems

CITY OR MAIN LINE ROUTES	OPERATOR	ROUTES	ROUTE-KM.	TRACTION POWER
Northeast and Keystone Corridors	Amtrak	2	895	12/25 kV AC catenary
Montreal	AMT	1	31	25 kV AC catenary
New York	Metro-North/ Connecticut DOT	2	131	12 kV AC catenary/ 750 V DC third rail
New York	Metro-North	2	130	750 V DC third rail
New York	Long Island RR	10	237	750 V DC third rail
New York	NJ Transit	6	240	12/25 kV AC catenary
Philadelphia	SEPTA	13	224	12 kV AC catenary
Baltimore	MARC	1	120	12 kV AC catenary
Chicago	Metra	3	62	1.5 kV DC catenary
Chicago	South Shore Line	1	118	1.5 kV DC catenary
Mexico City	El Tren Suburbano	1	27	25 kV AC catenary
		42	**2,223**	

B.1 Caltrain 2025 Plan

B.1.1 Background

Caltrain is the San Francisco equivalent of GO Transit. The 125-kilometre San Francisco-San Jose-Gilroy commuter operation harks back to the line's opening in 1864. Under the private ownership of the Southern Pacific Railroad, ridership peaked during the Second World War and then began a long decline as the San Francisco Bay Area, in common with all major American cities, sprawled and became more dependent on automotive commuting. Service quality rose and fell many times, even after the State of California agreed to subsidize and modernize the operation in 1980, rebranding it as Caltrain. Even this failed to revive it decisively.

In 1982, a group of commuters, independent transit planners and environmentalists founded the advocacy association Peninsula Rail 2000 (becoming the BayRail Alliance in 2001) because they were concerned "Caltrans lacked vision to realize the full potential of the Caltrain service." They devised a five-point plan to transform Caltrain into a frequent rapid transit system. Their objectives were:

- The formation of a new transit district to own and operate Caltrain;
- Extend service further downtown with a new terminal on Market or Mission streets;
- Increase frequency and service hours to approach or match those of BART;
- Implement self-service, proof-of-payment (POP) ticketing; and
- Convert the operation from diesel to electric.

A California Senate study determined these measures would more than double ridership and improve cost recovery. Although political and bureaucratic foot dragging has led to many delays, the BayRail Alliance's dogged determination has aided immeasurably in producing an impressive list of improvements.

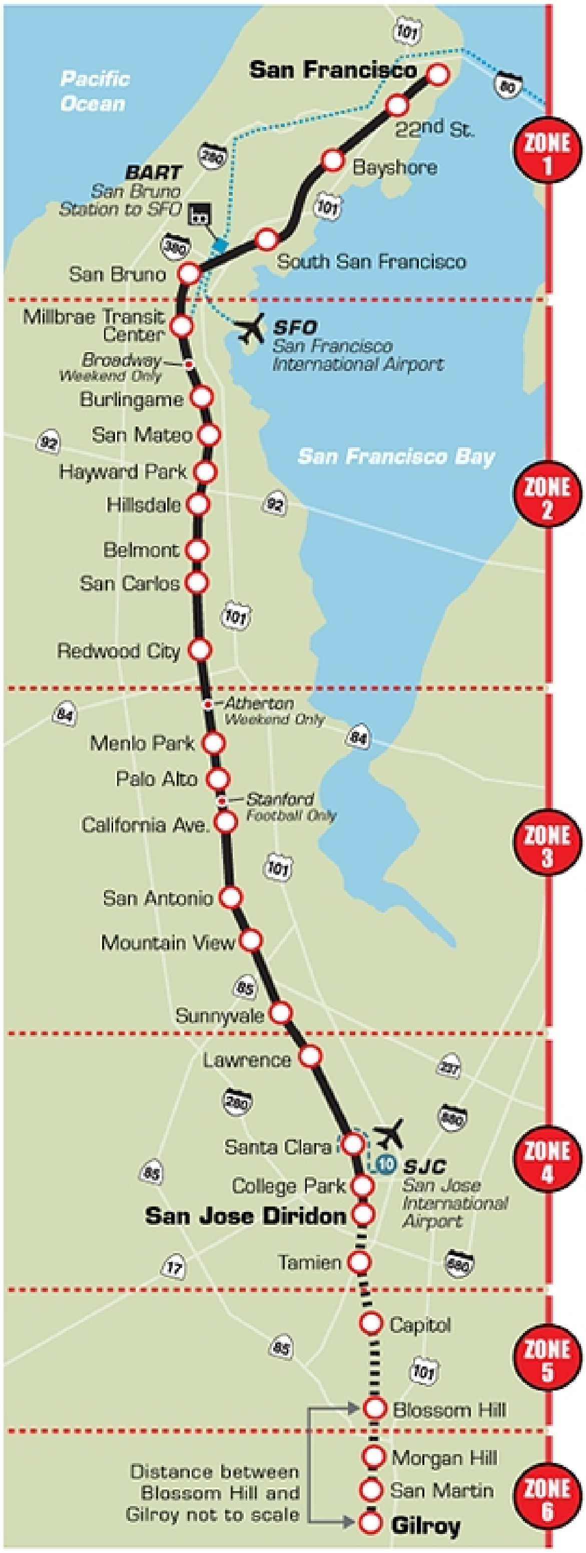
Now owned and operated by a public agency, the Peninsula Corridor Joint Powers Board, Caltrain posted average daily ridership of 36,778 in 2010 – a 74 per cent increase over 1992. While this is still far from realizing the BayRail Alliance's full vision of converting Caltrain into a European-style urban rapid railway similar to the Paris RER or the German S-Bahns, it is impressive. Also encouraging is that advocates and managers have found ways to work together to realize improvements for the benefit of all.

B.1.2 Commitment to Electrification

Although construction has yet to begin, electrification as far south as San Jose is at the top of the "to do" list for Caltrain. This has been a key element of the BayRail Alliance's agenda since its founding. In 1992, the group succeeded in getting Caltrain electrification included in Santa Clara County's T2010 transportation plan and in the Measure A half-cent sales tax, as well as convincing San Mateo County voters to support its vision for electrified "rapid rail" Caltrain service in preference to the expensive BART subway construction option.

It took time, but the group finally got Caltrain's directors on board. In 1999, the Peninsula Corridor Joint Powers Board voted to drop their staff's "go-slow" approach and made electrification a near-term priority. The BayRail Alliance also successfully campaigned that year to convince San Francisco voters to approve a ballot measure that included Caltrain electrification.

With this board and voter support, Caltrain staff bowed to the inevitable and committed to electrification. The result was Caltrain's 2025 Plan, which has three key objectives:



- Electrification;
- Electric multiple unit (EMU) rolling stock; and
- Positive train control for safety and capacity expansion.

The rationale behind the adoption of the 2025 program is:

> *... to attract and retain the maximum level of future ridership by "unconstraining" the Caltrain system (capacity) while providing a measurably safer transportation network in the most financially effective manner. To achieve this goal, Caltrain is pursuing a methodical, holistic approach in developing safety enhancement strategies that not only consider rail passengers, but the entire transportation environment....*
>
> *Between the years 2009 and 2014, the Capital Program will be focused on the most significant systems enhancements to date – primarily a new signal system and electrification – that will add even more capacity and enable the use of high-performance rolling stock. In order to achieve these stated objectives and maximize the benefits of the 2025 Program, Caltrain is focused on using proven methods and technologies that reduce the risks and costs associated with implementing the improvements and operating the system.*

Under Caltrain's 2025 Plan, the service from San Francisco to San Jose will be electrified and completely re-equipped at a cost of $1.3 billion. Of this amount, $785 million is for the infrastructure, including catenary, transformer stations and distribution system. The 48-km. section of the route south from San Jose to Gilroy will remain diesel operated for the foreseeable future using the locomotives and Bombardier bi-level rolling stock now employed in the Baby Bullet Express service.

The commitment to the 2025 Plan set Caltrain staff on a worldwide investigation of electric traction technology and the means of implementing it in a cost-effective manner to deliver maximum financial, service, safety and environmental benefits. The research has been both exhaustive and evolutionary.

Unlike Metrolinx, the planners and consultants began with no preconceived assumptions or bias towards any one technology or technique. They relied extensively on the evidence of other operators of electrified services and then sought to adapt their best practices to Caltrain's environment, market and finances. To their credit, Caltrain staff hasn't been afraid to modify some of their original opinions.

B.1.3 Rolling Stock Selection

The flexibility of Caltrain staff is particularly apparent in their analysis and selection of rolling stock. At the outset of their studies, much like the GO Electrification Study team, Caltrain staff and its consultants examined the locomotive-hauled and self-propelled EMU concepts alongside diesel to determine which would provide the maximum benefits. Originally, locomotive-hauled operation with existing and/or new bi-level rolling stock was favoured. But further investigation revealed so many long-term benefits to bi-level EMUs that it has now become the preferred option.

Caltrain's oft-stated reasons for selecting of bi-level EMUs are:

- Each EMU set has its own power supply, so trains stop and start quicker, reducing travel time.
- Without the need for a locomotive, train sets are more flexible and easier to interchange.
- Much like today's automobiles, EMUs are designed to absorb energy in a collision, increasing safety for train crews and passengers.
- The switch from diesel locomotives to EMUs will reduce air pollutant emissions from trains by up to 90 per cent and decrease power consumption significantly.

In the Caltrain studies, the role models have been the electrified, high-frequency urban rail systems of Europe, such as the German S-Bahns and Paris RER cited previously in this report and detailed in Appendix A. However, the use of proven, off-the-shelf European designs brings with it regulatory and safety challenges. That Caltrain's directors and staff would take on this complex and groundbreaking project is the highest tribute that can be paid to their commitment to electrification.

An artist's rendering of what Caltrain will be following electrification and the adoption of European-style bi-level EMUs engineered with crash energy management technologies. Courtesy of Clem Tillier, BayRail Alliance.

B.1.4 Crashworthiness and Advanced Train Control

The complication in Caltrain's proposed use of European rolling stock centres on the design standards applied by North America railways versus the rest of the developed world. North American equipment is built to regulations set by the U.S. Federal Railroad Administration (FRA), many of which pertain to crashworthiness, aimed at minimizing damage and injury in case of an accident. In Europe, these crashworthiness standards allow for much lighter equipment.

In North America, it is assumed accidents will happen and motive power and rolling stock are designed accordingly. This makes them much heavier than in Europe, where the supposition is that technologies and techniques will be employed to ensure accidents don't happen. A key component of this European strategy is advanced rail traffic control, particularly systems that automatically apply a train's brakes if its crew does not respond to the signals governing the movement of their train.

This is not the case throughout North America, where most rail traffic control systems are rudimentary by comparison with those found on the main lines of Europe because they are fully dependent on the proper observance of signal and radio commands by the crews. A train that passes a stop or restricting signal because of crew failure is, quite simply, a runaway. Only on Amtrak's Northeast Corridor and a few densely-trafficked U.S. lines that host passenger trains at speeds of more than 79 mph is any form of automatic train stop (ATS) or positive train control (PTC) to be found.

One of the additional benefits of such technologies is that they improve operational efficiency and boost line capacity. But the implementation of advanced rail traffic control systems lagged for more than 80 years in the U.S. It was mandated by the Interstate Commerce Commission in the 1920s, but the railways found ways to avoid implementation on a cost basis. Only where passenger trains operated in excess of 79 mph was ATS mandated and installed.

On September 12, 2008, this changed forever when the locomotive engineer of a Los Angeles Metrolink commuter train ran past a yellow cautionary signal and then a red stop signal, crashing head-on into a Union Pacific freight train near Chatsworth. The accident killed 25 and injured 135. This was the third major Metrolink accident that involved loss of life and might have been prevented with ATS or PTC. It unleashed a raft of changes throughout the U.S. rail industry. One of these was the legislated requirement by the U.S. government that PTC be adopted for all lines hosting passenger trains and/or dangerous goods traffic by 2015. This is expected to cost the railways as much as $10 billion.

North America's first commuter rolling stock incorporating crash energy management technologies are these Hyundai-Rotem bi-level coaches and cab cars for the Los Angeles Metrolink service. Image © 2010 by cz17.

Rather than resist this capital intensive add-on to its system, Caltrain has embraced it. By adopting PTC, they are now proposing to make use of North America's first fleet of non-FRA-compliant, European-designed bi-level rolling stock. This equipment will employ crash energy management (CEM), which prescribes that a car's structures crushes in a controlled manner and absorbs energy, significantly improving crashworthiness. CEM cars have energy-absorbing retractable couplers, a controlled crumple zone and interior fittings designed to minimize passenger injuries in the event of a sudden stop. An EMU with CEM features is more crashworthy than a conventional locomotive-hauled train.

Caltrain's proposed combination of electrification, PTC and CEM rolling stock will create North America's first advanced, European-style urban railway. The implications are massive, producing benefits impossible to achieve without such "out of the box" thinking that includes a commitment to maximum service and safety. The GO Electrification Study team rejected such a game-changing approach to electrification and future equipment design.

It is true Caltrain enjoys certain benefits many other commuter operators don't, including GO. Caltrain has to deal with but one line and owns the San Francisco-San Jose portion of it; only the light-density segment south to Gilroy operates on a line owned by a freight railway. While some freight trains are allowed on Caltrain's portion of the line to serve local industries, they do so at its discretion under a technique known as temporal separation. This allows freight trains to have track access only when the commuter trains aren't operating, preventing commuter and freight trains from ever being in close proximity to each other.

A contributing factor in this package of electrification, revised equipment standards and advanced operational practices is the fact that Caltrain will also provide the San Francisco gateway for the upcoming California high-speed rail passenger service linking San Diego, Los Angeles, San Francisco and Sacramento. It, too, will be an electrified, PTC-equipped system employing rolling stock built to non-FRA European crashworthiness standards using CEM. The electrification will allow both Caltrain and high-speed intercity trains to use a 2.1-km. tunnel under downtown San Francisco to the new multi-modal Transbay Transportation Center, which its proponents refer to as "the Grand Central Terminal of the West."

Although there are some differences between Caltrain and GO, they are not altogether dissimilar. While it is true Caltrain is dealing with a line largely under its own ownership, the 2025 plan does not eliminate FRA-compliant equipment from the mix. The commuter trains operating south of San Jose will remain diesel hauled and equipped with existing FRA-compliant Bombardier bi-level rolling stock. On May 27, 2010, Caltrain received an FRA waiver to pursue this plan, subject to nine conditions.

B.1.5 Moving Electrification Forward

Moving Caltrain electrification forward has not been easy and the journey is far from over. It has been complicated by state funding problems, objections to aspects of the California High-Speed Rail Authority (CHSRA) intercity passenger project and other issues. Originally scheduled to be fully implemented by 2014, the $1.3 billion plan is now slated for completion by 2020 in conjunction with the high-speed project, which will cover $516 million of its costs.

The electrified Caltrain Regional Rail plan will result in a weekday schedule of 172 trains with peak service operated on five-minute headways. The EMU trains will operate at up to 150 km/hour on an electrified corridor shared with the CHSRA trains, which will be fully grade separated from intersecting streets and highways.

It should be noted that all work will be undertaken with the Caltrain corridor under full traffic. Work blocks on the line will be arranged so as to keep commuter traffic flowing to the maximum extent possible.

Caltrain management asserts this plan will be implemented. In fact, the agency says the alternative is to shut down Caltrain altogether because the current diesel operation is financially unsustainable. Without electrification, Caltrain's deficit at the current service level would exceed the available funding by 2019. With electrification, the deficit will be a manageable $27 million and will drop to $14 million by 2035.

Caltrain's executive officer for public affairs, Mark Simon, says:

> *"We've maximized out the way we run Caltrain and the only way it's going to survive is if we change the way we run it – if we electrify it. Without these improvements, the service that we provide today – the service that keeps 37,000 daily commuters off our already congested freeways – is at risk. An electrified Caltrain will be a Caltrain for the next generation – entirely new and able to accommodate future job and population growth in the region."*

Caltrain proves that electrification of a diesel commuter system that has reached a mature and robust level of service and traffic – much lower than what now or will soon exist at GO – is not only feasible, it is desirable financial, operationally and environmentally. The difference is that Caltrain's directors and managers are thoroughly committed to electrification. It would be difficult to make the same claim of Metrolinx and GO management.

B.2 Denver RTD FasTracks Project

B.2.1 Background

That San Francisco should have finally embarked on a program to improve, expand and electrify its historic Peninsula Commute service does not surprise many long-time rail and transit observers. San Franciscans are noted for their high reliance on and commitment to – even affection for – their transit systems.

Not so in Denver, Colorado. Beginning in 1950 with the abandonment of the last streetcar lines, its began a long slide that made it one of the poster children for public transit deterioration and urban planning stupidity. By the 1980s, Denver was at its nadir in every respect. But a wide array of residents, politicians, planners and businessmen were not willing to accept the depressing status quo. One of the urban renewal visions that finally gained traction was the recreation of Denver's rail-based electric transit system in modern guise as LRT. Between 1994 and 2006, RTD opened four modern LRT lines totalling 40 kilometres.

The successful application of LRT to Denver's transportation needs led to the current and highly ambitious $6.5 billion FasTracks project. This will expand the system through the Denver-Aurora and Boulder metropolitan areas with seven new lines totalling 192 km. using LRT, electric commuter and diesel commuter technology. It also includes the $300 million reconstruction of historic Denver Union Station as the multi-modal heart of the region, LRT extensions, expansion of the current LRT stations, 21,000 additional station parking spaces and increased bus service. Denver's first four conventional commuter rail lines will be supported by a maintenance facility located on the Northwest Corridor.

When commuter rail was selected for these routes, it was assumed they would be built – as with every other North American light-density, start-up system – with diesel locomotives hauling single-level coaches or self-propelled diesel multiple unit (DMU) cars. All options were fully investigated by RTD.

ROUTE	TERMINALS	LENGTH (KM)	COST ($ MILLIONS)	COMPLETION DATE
East Corridor	Union Station-Denver Int'l. Airport	38	1,140.0	2016
Gold Line	Union Station-Wheat Ridge	12	552.5	2016
Northwest Corridor	Union Station-Longmont	66	684.4	2016
North Metro	Union Station-Broomfield	45	637.2	2017
TOTAL		**161**	**3,014.1**	

However, RTD's financial consultants subjected the traction power and equipment options to the same unbiased analysis that led to the selection of commuter rail instead of LRT or bus rapid transit on these routes. RTD reports:

> *"Decisions on rail technology are based on several factors, including the length of the corridor, projected ridership, the characteristics of the vehicles, cost, technical and environmental feasibility, and public input. These factors help determine which mode will be the most operationally efficient, cost-effective and feasible for each corridor."*

The result of this rigorous examination led to the selection of electric traction for the East Corridor and Gold Line with diesel for the two other lines. As well, the first 8.4 km. section of the Northwest Corridor will also be electrified and operated as a short-turn service augmenting the diesel operation over the route's full 66 km. The primary factors in selecting electric operation with EMUs were the long-run operating and maintenance cost reductions, as verified by RTD's financial advisors, Goldman Sachs and J.P. Morgan.

RTD fully explored its equipment options, spending much time analyzing electric rolling stock that was or would soon be on order by other North American electric commuter rail operators. With specifications in hand, RTD called for bids on a 50-car EMU order. The winner was Korea's Hyundai-Rotem, which had previously received a $275 million order for 120 single-level Silverliner V EMUs from Philadelphia's Southeastern Pennsylvania Transportation Authority (SEPTA). The firm also landed equipment orders for Vancouver's electric intermediate capacity Canada Line and the Los Angeles' Metrolink commuter rail system. Rotem was required to establish U.S. assembly facilities to meet the 60 per cent Buy America content requirements attached to any projects involving Federal Transit Administration (FTA) funds.

B.2.2 Denver's Airport Rail Link

On August 26, 2010, RTD and its partners broke ground at Denver International Airport on the $1.14 billion East Corridor project, the first phase of the region's commuter rail project. Built largely along an existing freight railway right-of-way, the 38-km. line will serve seven stations and seamlessly connect at Union Station with the other RTD commuter rail, LRT and bus services, and Amtrak's daily intercity passenger service, the Chicago-Oakland *California Zephyr*.

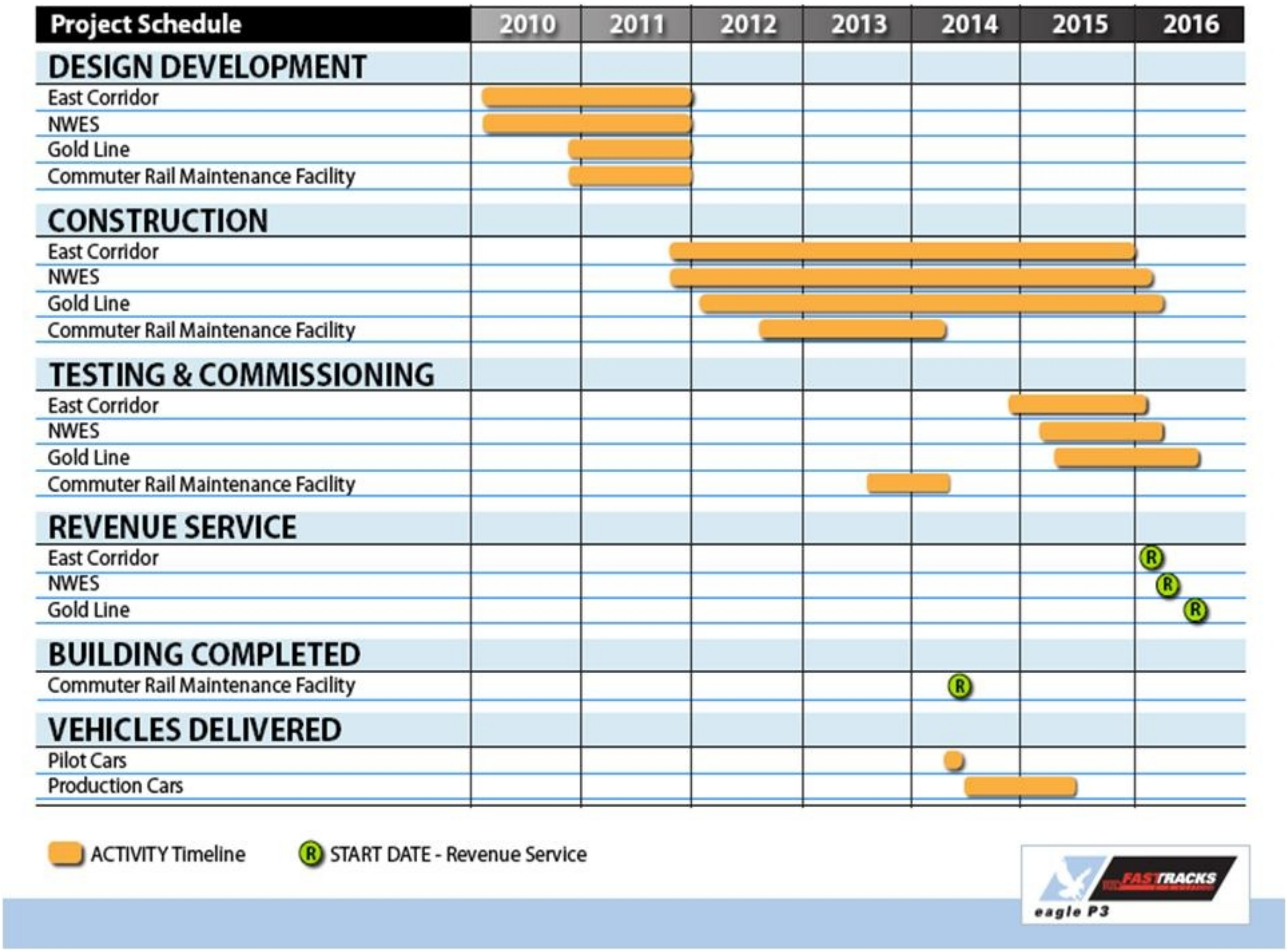
Unlike Metrolinx's ARL, the East Corridor will not be a premium-priced service, but will operate as a component of the RTD network and within its regular fare structure to provide direct and intermediate service between Denver Union Station and Denver International Airport. Completion is scheduled for 2016.

The East Corridor, the other two electrified lines and the commuter rail maintenance facility – which will also stable and maintain the diesel equipment for the Northwest and North Metro lines – are being built under a public-private partnership known as the Eagle P3 Project, which is a component of FasTracks.

Denver Transit Partners (DTP), led by Fluor Corporation, will design, build, operate, maintain and finance the Eagle P3. DTP has arranged $452 million in private funding. The contract stipulates a six-year design-build phase with a 30-year period of operations and maintenance. Fluor has a 50 per cent share of the engineering, procurement and construction contract, a 33 per cent share in the operations and maintenance contract, as well as a 10 per cent equity share in the concession's "special purpose vehicle," which raised the financing to fund the project. The DTP team includes a group of global suppliers, including electrification specialist Balfour Beatty Rail and carbuilder Hyundai-Rotem USA.

While Denver's Eagle P3 appears to be working well and will deliver the city's electrified airport rail link in January, 2016, two to four years before Torontonians may be riding on their equivalent electrified service, one note of caution should be sounded. As is typical with P3 projects, it is contingent on a large percentage of public sector funding. On May 2, 2011, the FTA sent a Full Funding Grant Agreement for $1.03 billion for the East Corridor and Gold Line projects to Congress for its mandatory 60-day review prior to approval. This is approximately 60 per cent of the full cost for the two lines.

Denver RTD FasTracks Commuter Rail Implementation Timetable



Airport Rail Links

Compiled by Daniel Hammond, Transport Action Ontario

CITY/AIRPORT	TYPE OF RAIL SERVICE*	MOTIVE POWER
EUROPE		
Amsterdam	Commuter and Intercity	Electric
Athens	Commuter	Electric
Barcelona	Commuter	Electric
Berlin	Commuter and Intercity	Electric
Brussels	Commuter and Intercity	Electric
Budapest	Commuter and Intercity	Electric
Cologne	Commuter and Intercity	Electric
Copenhagen	Commuter and Intercity	Electric
Dresden	Commuter	Electric
Dusseldorf	Commuter and Intercity	Electric
Frankfurt	Commuter and Intercity	Electric
Friedrichshafen	Commuter	Electric
Geneva	Commuter and Intercity	Electric
Hamburg	Commuter and Intercity	Electric
Helsinki	Commuter (opens 2014)	Electric
Kiev	Commuter (opens 2012)	Electric
Krakow	Commuter	Electric
Leipzig-Halle	Commuter and Intercity	Electric
Lyon	Intercity	Electric
Lübeck	Commuter and Intercity	Electric
Malaga	Commuter	Electric
Milan	Commuter and Intercity	Electric
Moscow Sheremetyevo International	Commuter	Electric
Moscow Domodedovo International	Commuter	Electric
Moscow Vnukovo	Commuter	Electric
Munich	Commuter	Electric
Oslo	Commuter	Electric
Paris Charles de Gaulle	Commuter and Intercity	Electric
Paris Orly	Commuter	Electric
Palermo	Commuter	Electric
Pisa	Commuter and Intercity	Electric
Rome	Commuter and Intercity	Electric
Sochi	Commuter and intercity (opens 2014)	Electric
Stockholm	Commuter	Electric
Strasbourg	Commuter	Electric
Stuttgart	Commuter	Electric
Trondheim	Commuter and Intercity (to be electrified)	Diesel
Vienna	Commuter and Intercity	Electric
Warsaw Frederic Chopin	Commuter	Electric
Warsaw Modlin (under construction)	Commuter (opens 2012)	Electric
Zurich-Kloten	Commuter and Intercity	Electric

**Does not include numerous airports worldwide served by electric light and heavy rail transit*

Airport Rail Links

CITY/AIRPORT	TYPE OF RAIL SERVICE*	MOTIVE POWER
UNITED KINGDOM		
Birmingham	Commuter and Intercity	Electric
Glasgow	Commuter	Electric
London Heathrow	Commuter	Electric
London Gatwick	Commuter	Electric
London Luton	Commuter	Electric
London Stansted	Commuter	Electric
Manchester	Commuter and Intercity	Electric
Southampton	Commuter	Electric
AFRICA		
Johannesburg	Commuter	Electric
ASIA		
Bangkok	Commuter	Electric
Chennai	Commuter	Electric
Delhi	Commuter	Electric
Hong Kong	Commuter	Electric
Izmir	Commuter	Electric
Kuala Lampur	Commuter	Electric
Nagoya	Commuter	Electric
Osaka	Commuter and Intercity	Electric
Sapporo	Intercity	Electric
Soeul Gimpo	Commuter	Electric
Soeul Incheon	Commuter	Electric
Taipei	Commuter (opens 2013)	Electric
Tel Aviv	Commuter (to be electrified)	Diesel
Tokyo Narita	Commuter	Electric
OCEANIA		
Brisbane	Commuter	Electric
Sydney	Commuter	Electric
NORTH AMERICA		
Anchorage	Tourist/Special Events (intermittent)	Diesel
Baltimore-Washington International	Commuter and Intercity	Electric
Burbank	Commuter and Intercity	Diesel
Chicago O'Hare	Commuter (with bus connection)	Diesel
Dallas-Fort Worth International	Commuter (with bus connection)	Diesel
Denver	Commuter (opens 2016)	Electric
Miami	Commuter (with bus connection)	Diesel
Milwaukee	Intercity (with bus connection)	Diesel
New York Kennedy International	Commuter (with airport circulator)	Electric
Newark	Commuter (with airport circulator)	Electric
Philadelphia	Commuter	Electric
Providence	Commuter and Intercity	Electric and Diesel
South Bend Regional	Commuter	Electric
Toronto Pearson International	Commuter (opens 2015)	Diesel

**Does not include numerous airports worldwide served by electric light and heavy rail transit*

Appendix D: Canada Transportation Act (S.C. 1996, c. 10)

Division VI.1
Public Passenger Service Providers
Dispute Resolution

Application

152.1 (1) Whenever a public passenger service provider and a railway company are unable to agree in respect of any matter raised in the context of the negotiation of any agreement concerning the use of the railway company's railway, land, equipment, facilities or services by the public passenger service provider or concerning the conditions, or the amount to be paid, for that use, the public passenger service provider may, after reasonable efforts to resolve the matter have been made, apply to the Agency to decide the matter.

Application

(2) Whenever a public passenger service provider and a railway company are unable to agree in respect of any matter raised in the context of the implementation of any matter previously decided by the Agency, either the public passenger service provider or the railway company may, after reasonable efforts to resolve the matter have been made, apply to the Agency to decide the matter.

2007, c. 19, s. 44.

Amount to be fixed

152.2 (1) If, pursuant to an application made under subsection 152.1(1), the Agency fixes the amount to be paid by the public passenger service provider for the use of any of the railway company's railway, land, equipment, facilities or services, that amount must reflect the cost associated with the public passenger service provider's use of that railway, land or equipment or those facilities or services.

Factors

(2) In determining that amount, the Agency must take into consideration, among other things,

(*a*) the variable costs incurred by the railway company as a result of the public passenger service provider's use of the railway company's railway, land, equipment, facilities or services, including, but not limited to, its variable costs incurred to maintain safe operations and to avoid congestion and undue delay;

(*b*) the railway company's cost of capital, based on a rate set by the Agency, applied to the net book value of the assets to be used by the public passenger service provider, less any amount to be paid by the public passenger service provider in respect of those assets;

(*c*) the cost of any improvements made by the railway company in relation to the public passenger service provider's use of the railway company's railway, land, equipment, facilities or services;

(*d*) a reasonable contribution towards the railway company's constant costs; and

(*e*) the value of any benefits that would accrue to the railway company from any investment made by the public passenger service provider.

2007, c. 19, s. 44.

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About the Author

The CTV television program, *W5*, described Greg Gormick as a Toronto consultant "with a client list that reads like a *Who's Who* of Canadian transportation."

A member of the fourth generation of his family to work in Canada's railway industry, Gormick has served as a writer, researcher, strategic analyst and policy advisor in the railway and transit fields since his 1978 graduation from Ryerson Polytechnical Institute's School of Journalism. He has reported on, for and to these industries extensively and contributed his knowledge to numerous public agencies and the officials connected with them.

The basis of Gormick's expertise is a solid grounding in real-world operations, planning and policy, gained from those veterans of the rail and transit industries who have tutored him throughout his career. His affiliation with these professionals results from frequent and lengthy assignments with the Canadian Pacific Railway, Canadian National Railways, VIA Rail Canada, the Toronto Transit Commission, the Electro-Motive Division of General Motors, Bombardier and Skoda Transportation.

As a reporter and commentator, Gormick has used his experience to inform the public and the media on transportation developments and opportunities. For 21 years, he served as Canadian contributing editor of the trade magazine, *Railway Age*, which included his production of the *Passenger Rail Planner's Guide*, an annual review of every rail-based passenger system in North America. He is also a frequent contributor to *The Toronto Star*.

One of Gormick's most notable public sector roles was as transportation policy advisor to Toronto City Council, Mayor Art Eggleton and the Coalition of Corridor Mayors, providing strategic guidance on intercity rail passenger, commuter rail and urban transit issues. Most recently, Gormick has served in a similar role for Dean Del Mastro, MP for Peterborough and chair of the House of Commons All Party Rail Caucus. His work has included the concept plan for the re-establishment of the CPR's Toronto-Havelock-Blue Mountain route as a municipally-managed short line railway and restoration of Toronto-Peterborough passenger service.

Gormick is the author of the Toronto Railway Club's 75th anniversary book, *Wheels of Progress: Toronto Moves by Rail*. His next book will be *The Canadian: The Life and Times of the Last Streamliner*.

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