Ontario Report

Transport Action Ontario

(Formerly Transport 2000 Ontario)

Paris Gare du Nord has turned 150 years old. Story on Page 4.

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➢ The need is there and Ontarians want more rail-based transit. Our headline story looks at what the Wynne government has promised.

➢ The situation is not well between VIA and GO at Toronto's Union Station, Greg Gormick finds. Read his op-ed analysis on page 7.

➢ Peak oil has passed and the world is not replacing what it is using. Alan Drake delves into the dim prospects of finding new oil (p. 5).

➢ Railway building frenzy seized Britain in the 1840s, then spread around the world. That means some railway landmarks are 150 years old or older. We take a brief look at Europe's busiest station, Paris Gare du Nord (p. 4).

Transport an issue in Ontario's election

The June 12th Ontario provincial election returned the Liberals to governing, this time with a majority. Surprisingly, in this election transport issues loomed large. Premier Wynne rolled out a program - "Moving Ontario Forward" - promising a $29 billion investment in transportation over 10 years, $15 billion for the Toronto region, and $14 billion for the rest of the province. The funding sources were largely from repurposing the existing gas tax currently going into general government revenue. While this funding includes all forms of transportation, in particular highway and transit, the flagship project, involving the conversion of the GO commuter rail system into an electrified all-day two-way rail network - extending as far as Kitchener on the west - was a remarkable step to take.

Unexpectedly, Transportation Minister, Glen Murray announced a "back of

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FROM THE PRESIDENT - PETER MIASEK

New direction for investing in transportation infrastructure

July 6, 2014 marked the one year anniversary of the Lac Megantic, Quebec tragedy where a 72 car freight train carrying volatile crude oil became a runaway before derailing and exploding in the centre of the town, with a loss of 47 lives. The national media gave the anniversary a lot of attention. I had several interviews, including a long one on Canada AM, CTV's flagship morning show. The interview can be seen on the Transport Action Ontario website.

The media questions were along the line of "what has the government done in the past year to correct the safety problems, and what more needs to be done?" My answers went beyond the safety question and spoke to a number of major issues faced by Canada's railways.

After the incident, Transport Canada immediately mandated a series of changed operating procedures. In early 2014, Transport Canada followed up with regulations to phase out the problematic thin-walled DOT-111 cars.

In our view, these changes only go a short distance to curing the ills of Canada's railway system. To quote our

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colleague Greg Gormick, "that tragic accident really resulted from decades of failed federal and provincial transportation and the public spending decisions that flowed from them."

Since World War II, all levels of government have invested heavily in roads and highways. Although trucks and buses pay higher license fees, numerous studies have shown that these do not cover the high cost of publically-funded highway construction, operations and maintenance. In contrast, the railways must cover all their fixed infrastructure costs – tracks, crossings, bridges, security, maintenance – and deliver a profit to their shareholders. In view of this non-level playing field, despite numerous advantages such as fuel efficiency and worker productivity, railways have been losing market share to trucking for decades.

A presentation by CP Rail to Transport Action Ontario in 2009 gave a glimpse into the seriousness of the problem. In the 1960's CP had a substantial intermodal business in Ontario. In 1965, CP moved 63,000 trailers by rail, for a market share of 33%. Ten years later (1975), after Highway 401 had been continually improved and widened by the Province, intermodal movements dropped by half, to 30,000.

Our railway system is showing numerous symptoms of being in trouble, due to an inability to raise sufficient capital funds. There are four large problems:

• Safety Issues – the Quebec incident, together with others such as Gainford, AB and Plaster Rock, NB point to an industry where the physical and human assets are constantly being squeezed to wring out necessary profits. Important safety improvements such as Positive Train Control, long recommended by the Transportation Safety Board, cost money that is hard to find.

• Capacity Issues – the difficulties for the industry to handle Western Canada's bumper grain crop during the severe winter earlier this year again shows that assets are being squeezed with no surge capacity. The government responded with strange legislation ordering the railways to move the grain, but this does not address the fundamental problem.

• Secondary and Branch Line Maintenance and Abandonment – As freight traffic shifts from rail to truck, rail lines with lower densities of customers become uneconomic. This results in lower maintenance levels and track speeds or, in the long run, abandonment of the line. The poster child for this problem is the recent abandonment of both CN and CP lines in the Ottawa valley. This results in all East-West Canadian freight traffic being routed through Greater Toronto, past millions of residents and numerous important assets such as nuclear power plants. Any incident on this line would completely sever east-west rail connections in Canada..

• Decline of Passenger Rail – the decline of VIA Rail Canada is well known to readers of this newsletter. There are numerous causes, including inadequate government investment over the decades in passenger rail, increased freight/passenger conflicts on undersized railway corridors which limits ability to increase service, and schedule challenges on under-maintained secondary lines.

In our view, the root cause of all these issues is a lack of money in the freight railway system, caused largely by subsidized trucking.

We believe the issue can be addressed by taking a page from our USA neighbours. The US rail industry faced similar issues to Canada's in the 1970's. It has made a lot of progress but still faces a capital shortfall of $39B to fund required improvements on the core rail freight system. The USA has instituted a series of Public Private Partnerships (PPP) where the federal and state governments, along with the private railways, jointly invest in improved infrastructure. Current examples include:

• Chicago Region Environmental and Transportation Efficiency Program (CREATE), a partnership between 6 freight railways (including CN), 2 passenger railways and 3 levels of government. Seventy projects to improve freight movement in the Chicago region are completed or planned, costing $3.8B. The benefits to government include improved economic vitality, reduced traffic congestion, better passenger rail service, reduced highway maintenance, reduced air pollution and increased public safety.

• Heartland Corridor, a PPP between Norfolk-Southern Railway, the federal government and three states to improve railroad freight operations between Norfolk, VA and the US Midwest. It includes higher tunnel clearances to allow double stack intermodal trains and new intermodal shipping yards.

In all cases, the improved infrastructure will continue to be owned by the private railways.

There is limited but growing recognition among Canadian provincial and federal governments that rail is in trouble. In February, 2014, Ottawa and New Brunswick announced financial grants to allow CN to upgrade a branch line in New Brunswick, enabling VIA Rail to continue service on this line. In March, Ottawa announced a one year delay for elimination of the subsidy for the Algoma Central Railway passenger service in Northern Ontario.

In June, Transport Minister Lisa Raitt announced a statutory review of the Canada Transportation Act, one year ahead of schedule, using a panel of eminent Canadians. The early review was triggered by the grain transportation issue, but will also cover numerous other areas, including: international competitiveness, improved transportation policies, innovative financing mechanisms for infrastructure, northern transportation systems, railway safety, gateways and corridors and federally regulated passenger rail services. The review is to be completed by spring, 2016. Transport Action Ontario intends to make a submission to the panel, including the points in this article. ■

Transport an issue in Ontario's election

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the serviette" high speed rail line from Toronto to London and beyond, panned by critics as out of step with what had been proposed, and with a high price tag that would divert funding from projects better meeting mobility needs in southwestern Ontario.

Now that the election is past, the government must choose the transportation projects that will go forward first. For the GTHA, the deciding body is nominally Metrolinx. It has been reviewing the next wave of transit projects with minimal public input. When Metrolinx was created in 2006, it adopted review procedures to estimate project benefits, allowing it some objectivity in comparing projects to fix a priority.

In 2009 the McGuinty government removed elected representatives from Metrolinx's board. Supposedly to take politics out of transit planning, most observers agree that it politicized Metrolinx even more by moving decision-making into the premier's office. In 2010, Premier McGuinty slowed down funding for four Toronto LRT projects, crippling them severely. The next blow to GTHA transit planning was the election of Rob Ford as Toronto mayor in October 2010. Early in his reign, the Province caved to Ford's exclusively subways plan. It took courageous efforts headed by the TTC chair Karen Stintz to blow the whistle on Ford's transit fantasies. His subway extensions were rejected, and the Eglinton-Crosstown line went forward as LRT with only its central section in a subway, as originally planned.

Throughout these events, TAO stood by LRT for Sheppard and Finch Avenues, engaged in significant efforts of public outreach advocating Regional Rapid Rail (electrification of GO rail and all-day, two-way service with EMUs), and supported a downtown relief subway line (DRL) on the east side of Toronto to reduce overcrowding on the Yonge subway. The operative principle for TAO was the adoption of a particular mode of transit technology that would best meet the needs of the larger transit network and that matched expected ridership demand locally.

In April 2013, data-based transportation planning took another blow when Councillor Karen Stintz, the TTC chair, and Scarborough councillor Glen De-Baeremaeker came out blazing for cancelling the conversion of the Scarborough RT to LRT. They asked for a three-station subway extension of the Bloor-Danforth subway on a very different alignment to the Scarborough Town Centre, a transit option not previously studied that would cost $3 billion. Unfortunately, over the year, this project got Toronto council support, and then even the support of the Wynne government. To knowledgeable observers, this appeared as pandering to Scarborough voters as municipal and provincial elections were on the horizon.

So here we are in the aftermath of the provincial election with three big questions to be answered:

(1) The Liberal's transportation investment numbers don't add up. Some $15 billion is set aside for GTHA projects over the next 10 years. But the electrification of GO rail in one Metrolinx estimate totals $15 billion alone. And the DRL - the studies are underway - will be a very expensive piece of infrastructure, with this project now having a high priority. Metrolinx itself has proposed priority projects totalling $34 billion. Given a sluggish economy, a period of austerity will be an added limit to spending on transportation.

The Province has generated two reviews of new revenue tools (taxes) to support transit infrastructure and expanded transit operations, reports going back to 2012 and 2013 and on the back burners during the past election. TAO has joined with other GTHA public policy groups to support new revenue streams dedicated to transit for the GTHA. The Liberal government now must decide on this matter, difficult as raising taxes always is. Still, even some new revenues for transit, combined with the monies announced during the election, are only a beginning to take Ontario to the goal of sustainable transportation and substantially cutting our carbon emissions.

(2) The politicizing of transit planning is a serious problem. Vanity transit projects and gold plating are not unknown in Ontario. For example, when the DRL should be given some priority, the Scarborough subway extension diverts scarce capital resources. The Province needs to take leadership in this regard.

The Province now has a new transportation minister, Steven Del Duca (MPP Vaughan). He recently declared it is time for building and not planning. Writing for the *Torontoist*, an on-line Toronto newspaper, Steve Munro and Hamutal Dotan interviewed Minister Del Duca (July 23, 2014) for clarification. Getting projects built sooner rather than later gets everyone's thumbs up. "Despite its eagerness to begin construction, Del Duca says, the government will look at the planning 'evidence' when setting priorities," Munro and Hamutal write. "But what if," they ask, "that evidence does not support parts of the government's proposed network?" Munro and Hamutal add that the Scarborough subway extension is a case in point, with the government's own advisors saying that it was a poor use of public funds creating far greater transit capacity than needed in the area. Why have transit planning capacity at Metrolinx if only the projects announced at the time of the election will go forward?

Munro and Hamutal then make a very important observation. The Regional Express Rail priority of the Wynne government (GO electrification) really does change the big picture. It would bring what TAO has been calling "surface subways" to much of the GTA, Scarborough in particular. Metrolinx has not been putting such a GO rail network into its assessments of transit projects, nor have the city of Toronto and the TTC. Munro and Hamutal's conclusion is strongly worded: "Circumstances may finally have brought us a government that is willing to spend real money on transit—no small improvement, to be sure—but this does not make Premier Kathleen Wynne infallible, and it ought not to make her plan immutable."

(3) Finally, where is the federal government when it comes to transport infrastructure in Ontario? After all, it is the federal level that has the superior taxing powers and the responsibility for the progress of the nation. Harper's ideologically-driven quest for smaller government seems to exclude building sustainable transportation for the nation. The absence of a national transit strategy has long been noted by the provinces and cities. But this is not all. There is an absence of a national transportation policy in general. In this newsletter, readers will find that the TAO's President's Message and op-ed writer Greg Gormick continue the conversation on federal policy shortfalls. ■ -Tony Turrittin

References

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Karl Junkin, "Greater Toronto and Hamilton Area Regional Rapid Rail: A Vision for the Future," July 15, 2012, available on Transport Action Ontario's website (Urban Transit).

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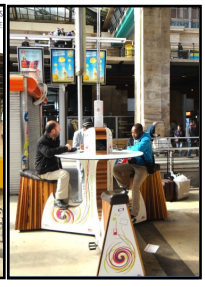
International rail news

Paris Gare du Nord celebrates its 150th anniversary

The Chemins de Fer du Nord was a railway serving cities in northeast France, connecting to railways of Belgium, the Netherlands, and northern Germany. Its first line, Paris-Lille, opened in 1846 with trains starting in Paris from the Gare du Nord. Traffic increased so much that the railway began constructing a new and grander Gare du Nord. opening in 1864, utilizing cast iron pillars. This station, of neo-classical design with much statuary ornamentation, has survived to this day, and is now a listed heritage structure. It was expanded several times, in 1900 reaching 28 tracks. The station is served by several Metro lines. A large underground station opened in 1981 serving RER Line B. (The regional railways of France were nationalized into the Société Nationale des Chemins de F er Français or SNCF in 1937.)

The station serves some 450,000 patrons daily with 1900 trains of which 200 are long-distance, making it the busiest station in Europe. TGV service to Lille started in 1993. Four tracks (#3-6) serve Eurostar trains exclusively and these tracks are in a secure area as Gt. Britain is outside of the passport-free Schengen Zone of the EU. Two tracks are set aside for Thalys TGV service to Brussels and beyond. Aside from mainline trains, the station serves Île-de-France suburban trains (Transilien) and TER Picardy regional trains.

Large train terminals have distinct personalities. At the Gare du Nord, the giant departures and arrivals boards, using decades old split-flap technology, have avoided being replaced by LEDs. The sound of these boards changing their information is unforgettable and unique. Tucked at the side of the main walkway near track 12 is an upright piano available for anyone inclined to play, and nearby, though on the other side of the walkway. is a station where patrons can recharge their cellphones using pedal power, getting a workout as well.



Extensive renovations of the Gare du Nord are ongoing including reorganizing pedestrian paths and squeezing in more commercial space. An above street level "skywalk" passage is to be built between the station and the nearby Gare de L'Est. ■

Celebrating the Orient Express

The Compagnie internationale des wagons-lits (CIWL) was founded by Belgium banker's son and civil engineer Georges Nagelmackers in 1876 to provide sleeping and dining car service on Europe's railways following George Pullman's model. Its most famous train was the Orient Express, operating between Paris and Istanbul (2,000 km) three times a week in each direction on a three night schedule starting in 1883. The original route included Strasbourg, Munich, Vienna, Budapest, and Bucarest. The train was discontinued in 1962, though some through sleeping car service to Istanbul lasted to 1977.

In celebration of the train, the Institut du Monde Arabe of Paris and the SNCF, owner of the Orient Express brand, have mounted an indoor/outdoor exhibition entitled "Once upon a time the Orient Express" from April 4 to August 31 at the IAM. The exhibit is in two parts. Outdoors is the 4-6-0 steam locomotive that pulled the train used in the film *Murder on the Orient Express* (1974) based on the 1934 mystery novel by Agatha Christie. Four restored CIWL cars are on display, two sleepers, a salon car, and a restaurant car serving meals by chef Yannick Alléno. The indoors exhibit includes photos, maps, posters, guide books, and more. Western stereotypes of the Near East are explored.

The age of haute rail travel during the 1920s and 1930s was epitomized by the Orient Express which hosted business men, the wealthy, royalty, diplomats and other government officials. Agatha Christie traveled on this train with her archaeologist husband Max Mallowan whose digs included Ur and Nineveh in Iraq. From 1930 travel further east was possible by a transfer to Haydarpasa Terminal across the Bosphorus in Istanbul to board the Taurus Express to Baghdad (1,600 km). Connections from this train were possible to Teheran, Basra, andCairo. ■

CIWL diner. Photo: SNCF/Jérôme Galland

Turkey opens Bosphorus rail tunnel linking Europe and Asia

On October 29, 2013, the Maramay rail tunnel under the Bosphorus straits opened in Istanbul linking the European and Asian sides of the city by Metro. The 13.6 km twin bore tunnel took nine years to complete at a cost of $4 billion. The 1.4 km central section was placed in a trench under 60m of water, the world's deepest undersea tunnel. The tunnel serves as a Metro line capable of 75,000 passengers per hour with multiple stations. It will also serve suburban and long-distance trains, with non-hazardous freight trains moving through it at night. The tunnel has been called "the iron silk road." ■

Turkey high speed rail project completed

Turkey has a population of 76.7 million and the 15th largest GDP in the world. Istanbul is its largest city (14.2 million) with Ankara (4.6 million) its capital 533 km away. Turkey's first high speed rail line (250 km/h) connects these two cities. Construction began in 2003. The first stage of HSR connected Ankara with Eskisehir (and also Konya), half way to Istanbul, this segment opening in 2009. The final leg to Istanbul opened this July 26, cutting travel time between Turkey's two main cities to 3.5 hours from more than six by bus or car. By 2023, Turkey's goal is a 3,500 km high speed network. The distance between Istanbul and Ankara equals the distance between Toronto and Montreal, but Turkey is almost entirely mountainous.

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Peak oil

Future oil supply cliff approaching

by Alan S. Drake

In the last 18 months, trends have developed that imply a coming oil supply cliff. We can put an approximate date on it: 2020 to 2024. There are a number of recent trends that indicate that a severe supply cliff is coming in a few years.

(1) A record amount of money was spent on oil exploration in 2013, with very disappointing results. The least oil found since 1995 - about one barrel found for every three burned. This is not quite as bad as it sounds, but it still disconcerting. Oil fields routinely produce more oil than it was thought that they would when discovered. Example: Prudhoe Bay in Alaska was expected to produce eleven billion barrels when discovered, but is now expected to produce thirteen billion barrels. So finding four barrels should about balance five barrels of production. One barrel found in 2013 should be weighted against over two barrels burned in 2013. Even with this understanding, there is far more oil being burned than discovered in new fields in 2013 and so far in 2014.

The head of exploration for the most aggressive major oil company in the world in 2013 exploration - StatOil (Norway) - was very pessimistic in his assessment of the future, despite StatOil finding two of the ten biggest new oil fields in 2013. He believes that the oil left to be found is small in magnitude, difficult (expensive and time consuming) to develop, and often not profitable at today's oil prices.

(2) As a consequence, 2014 exploration budgets were cut significantly. On the theory that "If you do not look, you will not find," the new oil fields discovered in 2014 are likely to be as disappointing as those of 2013; perhaps more so, as results to date (June 2014) confirm. The only significant oil find so far in 2014 was in 7,000 feet of water off-shore from the Ivory Coast.

(3) It takes 5 to 12+ years from discovery to full production. So the weak "Class of 2013" will not be noticed at all until 2018 - and it will not be significant till 2020 or later. Add a year of low yields for a weak "Class of 2014" and another for the weak "Class of 2015" and each weak "class" following. For example, the Ivory Coast discovery a few months ago will be one of the more difficult new oil fields to develop and is unlikely to go into production before 2025.

(4) Past history has shown that oil exploration budgets are increased when either the price of oil jumps up significantly, or a major new oil province opens up. The potential "new oil provinces" of today do not show as much promise as new oil provinces of the past have. Here are some examples.

The South China Sea and the Yellow Sea around China likely have significant oil deposits, but there is no political agreement as to whose oil this is. Any production from oil development in the seas around China is likely decades away.

Kurdistan (northern Iraq) appears to be a "new" province that has not been drilled in 30+ years. However, with modern technology, any billion-barrel-plus oil fields in Kurdistan have probably already been located and drilled in recent years. It is hard to miss giant oil fields with modern seismic technology.

Some of the most remote areas of Siberia are finally being drilled. But, again, it is likely that modern seismic surveys would have already located any giant oil fields and they have been drilled.

One medium size oil field has been found off-shore from the Falkland Islands, but the results from Greenland have been disappointing.

Today, almost the deepest depths where one might expect to find oil can be drilled. As noted earlier, the largest oil find so far in 2014 is in water 7,000 feet deep, off the Ivory Coast in West Africa.

So there are unlikely to be any exciting new provinces to stimulate more oil exploration. As a glance above shows, almost every corner of the world is now within reach of a drillbit. An increase from 2014 levels of exploration will take significantly higher oil prices - and that may not happen until 2020 or so.

Renewed exploration at 2013 levels, or higher, may not get the results of 2010, but rather the disappointing results of 2013. "Looking" does not guarantee "Finding."

(5) Saudi Arabia will finish developing their last "on-the-shelf" oil field - Manifa - in 2017. After that, they plan to increase production from oil fields that have been very well-managed, but in production for 50 to 80 years.

Some are skeptical of getting much more oil from such depleted oil fields, in part because they are extremely well-managed. Unlike Iraq, there are no petroleum engineering "oversights" to correct in Saudi oil fields that will increase production.

The existing oil fields of Saudi Arabia are depleting by at least 4% per year, and domestic oil consumption in Saudi Arabia is steadily increasing. Without new oil fields coming on-line, it will be difficult for Saudi Arabia to maintain their current level of oil exports (production net of growing domestic consumption) after 2017.

The days of Saudi Arabia as the swing producer, filling interruptions in global oil supply, are rapidly fading. Their surplus oil production capacity is going away.

(6) Oil production growth in the Bakken oil field of North Dakota is losing steam. In the last six months, the number of producing wells in the Bakken has increased by 10% but Bakken oil production has only increased 2.7% and all of North Dakota by 2.3%. The reason for the differential is non-Bakken oil production continues to drop in North Dakota.

A closer examination of the data reveals that all of North Dakota's oil production increase comes from one county, McKenzie. And reports from the field say that almost all new oil wells in McKenzie are in-fill drilling. That is new wells located between old oil wells, increasing the density of oil wells in the "sweet spots."

One has to wonder how long such production increases can last.

Taken together, there should be a significant drop in world oil supply starting in 2020 to 2024, plus or minus. This drop will likely worsen until at least 2026 and quite probably beyond. If the United States is to deal effectively with this drop in oil supply, it will be necessary to make some significant changes in policy.

The most effective public policy responses are to use less oil and to create an oil-free transportation system, in parallel with our existing oil-dependent transportation system. This policy

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Future oil supply cliff

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option has been overlooked, but it will have very positive implications for climate, in addition to conserving oil.

More efficient new cars and trucks are already mandated, but the fleet (average age 11+ years, implying a 22+ year turnover) will take time to roll over.

Electrifying our freight railroads and expanding capacity will provide an oil-free means of moving essential goods and some people cross-country without oil.

In almost every city and town, increased bicycling can provide an oil free alternative for some percentage of our citizens.

The French are in the midst of building 1500 km of new tram lines in almost every town of 100,000 and larger, in a dozen years. Already, daily tram ridership in that country is up from just over 1 million in 2007, to 3 million today. Multiply by 4.75 for an equivalent percentage of the United States population.

Even the French take almost 4 years to plan and build a tram line, and almost every town is getting at least a couple of new tram lines by 2020. The Conservatives planned to double the Paris Metro (adding 208 km and 2 million new daily riders) in twelve years (2013/4 to 2025). The Socialists have pushed that timetable back five years, but added other projects that will add an additional 900,000 daily riders.

Given that Americans cannot work with the speed, efficiency and determination of French bureaucrats, we will be in a reactive mode as our economy and "Drive Everywhere to Everything" lifestyle is stressed.

What we can do is prepare good and useful plans for that stressed future. Any plans should consider a much higher transit riding and bicycling habit. The demand for Transit-Oriented Development (TOD) will skyrocket as well, adding more transit demand. ■

Alan S. Drake is an energy analyst and rail consultant, based in New Orleans. He is currently working with veteran transit manager Ed Tennyson to develop a plan for enhancing and expanding Washington D.C.'s Metro Rail system in anticipation of the increased transit ridership expected as the predicted oil supply cliff comes closer to reality. This article,courtesy of the author, was prepared on June 20, 2014.

Transit worth several oil fields

"There is another type of oil field that the French and Danes are investing heavily in, but BP and Exxon ignore.

This type of oil field "delivers" refined... products directly where needed, it lasts for well over a century and does not deplete over time - in fact...production does not deplete but tends to grow over time and [it]... surges in a crisis.

An American example is Washington DC's Metro. It saves about 200,000 barrels/day - half from transportation substitution, half from changes in the urban fabric, i.e. TOD. It cost about $12 billion in old dollars.

WMATA Metro compares favorably with Kashagan, where Exxon et al invested $50+ billion over 15 years in Kazakhstan to produce 350,000 barrels/day of low quality crude oil remote from major markets...Kashagan will produce low quality crude oil in a remote foreign location, it is subject to prolonged interruptions, it increases carbon emissions and it will start depleting in a few decades."

Alan Drake, guest commentary, E-Zine of the National Corridors Initiative, Inc.,June 16 issue. NCI is a highly respected rail advocacy group based in Boston (www.nationalcorridors.org).

Technology

Wireless electric bus

Advancement in battery and battery charging technology may bring a revolution in transit buses. Most of this technology development is taking place in Europe. Recently an all-electric Optare Solo bus went into service at Heathrow Airport shuttling British Airways employees between Terminal 5 and BA's headquarters at Waterside. Bus batteries are recharged when laying over at the Heathrow bus base, and also utilize electric power from regenerative braking.

In the UK city of Milton Keynes, diesel bus route #7 (25km) has been converted to wireless electric buses. The new electric buses are built by Wrightbus and the experimental operation will be managed by a Mitsui-Arup joint venture. The lithium batteries on these buses will be plugged in for recharging overnight, but will utilize contactless induction coil charging at the route's endpoints during the 10 minute layovers. The wireless charging equipment is provided by the German firm of Conductix-Wampfler. Contactless charging uses the fluctuating magnetic field of the primary coil (AC current) to induce a similar current in the onboard secondary coil of the bus mounted on the receiver plate lowered over the charging plate in the road at the terminal stations.

Volvo, the Swedish bus builder, has developed a plug-in hybrid (diesel) bus for urban transit service, the first version of this bus appearing in 2009. The main source of power are the on-board batteries which receive plug-in recharging at the ends of their routes and overnight. Three of these buses have been tried out in Gothenburg, and will be tried out in Stockholm with eight buses in 2014.

In May 2013, the Zurich headquartered multinational ABB announced development of an articulated "trolleybus" that employs batteries that take power from power sources at every other or every third stop. Aside from depot and regen charging, this bus uses flash charging of its batteries obtained through an arm that rises to a receptacle built into the overhang of some stop's shelter for passengers. Only 15 seconds is necessary to take on a charge that provides the bus with sufficient topped-up power to travel to the next bus stop with a charging facility. The bus is being tried out in service in Geneva, Switzerland. This project has multiple sponsors besides ABB, including Geneva, its regional transit agency, its publicly-owned power utility, a regional development agency, and several Swiss technical institutes.

On July 21, 2014, ABB and Volvo Bus jointly announced a partnership to "to co-develop and commercialize electric and hybrid buses with open standards-based direct current (DC) fast charging systems."

It should be noted that little information is available on the internet about the ABB fast charging technology and its battery pack. It is not evident that there are capital and operational savings in adopting these new e-bus innovations over conventional trolleybuses. Battery life remains unknown, battery pack replacement is very expensive, flash charging stations may be costly as well, induction charging may carry power losses, and there are still electrical grid costs associated with e-buses. Nevertheless, these electric bus developments deserve trials and our attention. ■

Experimental flash charged electric bus taking on power at an overhead charging facility in Geneva, Switzerland. Image: EPFL, 2014.

Op-Ed Analysis

Terminal blues - Ontario's public railway turf war

by Greg Gormick

In a land of bizarre transportation practices, the spectacle of one publicly-funded rail service trying to shove another out the back door of the nation's busiest passenger facility represents a dysfunctional low. Sadly, that's exactly what is occurring at Toronto Union Station.

Opened in 1927 by CP and CN as a convenient, efficient facility for the mutual use of their passenger trains, its operation under the jointly-owned Toronto Terminals Railway (TTR) was a model of cooperative planning, coordinated service and public utility. Although built solely for intercity trains, Union Station was gradually transformed with the launch of the first GO commuter line in 1967. The two types of trains – with different operating characteristics, servicing needs and passenger flows – peacefully co-existed, even as GO grew into a seven-line system and the contracting network of intercity trains was transferred to federally-owned VIA.

Things began to go off the rails when CP and CN, through their TTR partnership, sold Union Station and its related facilities in 2000. Instead of it passing into the hands of a new public agency representing the mutual interests of VIA and GO, it was bought by the City of Toronto and the Government of Ontario. The city got the Beaux-Arts station and the province took the platforms and the sprawling rail plant that stretches from the Don River to Bathurst Street, entrusting these to GO. This was a deal bound for conflict, especially after GO was swallowed by the province's politically-empowered Metrolinx in 2009.

With the full support of premiers Dalton McGuinty and Kathleen Wynne, Metrolinx has been spinning out a series of GO expansion plans that continue to grow ever grander and more geographically wide ranging. A larger system running more trains naturally results in landlord Metrolinx coveting every inch of Union Station. As a tenant, that puts VIA in its crosshairs.

For its average of 44 trains daily, VIA uses six of Union Station's 16 tracks, located in the middle of the trainshed. Metrolinx wants them. The agency is proposing to cut VIA back to three tracks and two platforms at the southernmost end of the station – as far away from the main action near Front Street and the subway as you could possibly get. Metrolinx is spinning this as a big win for VIA by offering to make one of the two platforms high level. Big deal.

Metrolinx itself has proved the importance of platform location by building its mini-terminal for the upcoming UP Express service to Pearson International Airport alongside Union Station's northernmost track, just steps from Front Street. In the competitive game of intercity travel, where convenience and ease of access are selling points, the long walk to the inferior location Metrolinx is proposing for VIA is not apt to help lure passengers aboard.

Furthermore, the reduced and relocated VIA piece of the Union Station pie will make it difficult to expand service. A longstanding VIA plan would double the number of Montreal trains and add several more on the Ottawa route. How are these to be handled at the pint-sized VIA facility proposed by Metrolinx?

Even more disturbing is the fact that this turf war between GO and VIA over Union Station is only the tip of a very dangerous iceberg.

While GO was created to deliver a regional service for the Greater Toronto Area, it has expanded well beyond that role in recent years and intruded into VIA's intercity markets. Seasonal service to Niagara Falls and the Georgetown Line extension to Kitchener have turned GO and VIA into competitors. The Wynne's government's overblown pre-election promise of a provincially-funded high-speed service to London would only notch this up further.

These GO incursions into VIA territory are the result of the two levels of government failing to develop logical transportation plans and synchronizing them. If they did, we wouldn't have two publicly-owned rail agencies using public funds to compete with each other.

This contrasts with the formula that has worked successfully in the U.S. for more than 40 years. When Amtrak was established by the federal government in 1971 to take over the remaining passenger trains from the freight railways, it came with a cost-effective legislative mechanism to allow for other levels of government to cooperatively fund rail services outside Amtrak's basic national network.

The joint funding provisions in Section 403(b) of the *Rail Passenger Service Act of 1970*, which were expanded in the *Passenger Rail Investment and Improvement Act of 2008*, have led to partnerships between Amtrak and 19 states for the joint operation of 28 routes that bridge intercity and regional travel markets. This avoids service duplication that would cost the two levels of government more to deliver on their own. Travellers get better service and taxpayers get a bigger bang for their transportation dollar.

Where Amtrak and commuter rail agencies share major stations, cooperation is also the rule. A perfect example is Los Angeles Union Station. Although owned by the Los Angeles County Metropolitan Transportation Authority, Amtrak is an important component of the plan to make this the busiest public transportation hub on the Pacific coast. Amtrak's trains, those it operates in partnership with the State of California, Metrolink commuter trains and Metro Rail's LRT services all have their place within this impressive Mission Revival-style terminal. Working as partners, not competitors, the various transportation agencies are luring Californians off the highways and back to the rails.

Having VIA and GO squabbling over tracks at Union Station and competing in southwestern Ontario for passengers is a waste of public funds, a disservice to travellers and a fine way to not realize the full benefits of rail transportation. The U.S. experience proves we can do better. ■

Toronto's mayoralty race - the transportation issues

Transportation issues loom large in Toronto's fall municipal election. We take a brief look at the websites of five candidates.

Mayor Rob Ford is running for re-election. His website extolls his accomplishments, but there are no policy statements whatsoever. His verbal comments at debates and reports in the media suggest he is running on his platform of four years ago – canceling proposed on-street LRT lines on Eglinton (outer portions), Sheppard and Finch, all of which are fully funded. Instead, he offers subways to be built at someone else's expense. He supports retention of the Gardiner East expressway, and supports bringing jets to Billy Bishop Airport (opposed by TAO).

John Tory's website lays out some specific transportation proposals. He would keep the Gardiner Expressway but rebuild and move its eastern connection with the DVP. Tory supports the Downtown Relief Line (DRL) subway, and the Scarborough subway extension. A major plank is the SmartTrack Line. Tory has embraced the Province's plan to electrify GO rail with frequent EMU trains (TAO calls this the "surface subway" solution). Tory chooses to make the first GO conversion a route from Unionville to Union Station through Scarborough, continuing on the GO Georgetown line to Eglinton Avenue, then veering off onto Eglinton and west to the Matheson Corporate Centre south of the airport, 53 km of track and 22 stations. This last branching is curious as it would require an entirely, and thus costly, new right-of-way. To the editor, this is a device to take SmartTrack out of competing with the soon to open Union-Pearson Express. Tory will have to convince the Province to change preliminary GO Regional Express Rail plans. He anticipates the city taking up a one-third cost share of SmartTrack, to be financed by tax increment financing. Tory also advocates more express bus transit routes for Toronto.

Olivia Chow knows what she will not support on transit, and also has some more general transit proposals. In the short-term she is calling for more buses across the city, increasing capacity by 10%. In the medium term, Chow is opposed to the Scarborough subway extension, returning to the original LRT plan. Her slogan: 4 more stops, 4 years faster, $1 billion less. Funding is in place for LRT, contracts were signed, and studies completed. Overground rail transit is world class as it is widely used in cities globally. She also would work to provide more bike lanes and increase pedestrian safety across the city. Chow supports the DRL. She would join with other big cities across Canada to get better funding for transit from senior levels of government. Chow has not pronounced on the Province's Regional Express Rail or on her preferred future for the downtown Gardiner Expressway. Chow appears to be positioning herself as a careful money manager, linking the Scarborough subway to Rob Ford and calling its funding a billion dollar tax hike.

Two other candidates, David Soknacki and Karen Stintz, are seen by pundits as long-shots for mayor. David Soknacki's candidacy is interesting because, as a former Scarborough councillor, he has come out against the Scarborough subway. His position is that the city and Scarborough would be better served by the DRL subway, and the completion of the already funded LRT lines for Sheppard and Finch Avenues, and as the Scarborough RT replacement. He believes transit can be much improved by timely implementation of a smart card that will permit all-door loading/unloading of transit vehicles, and use of fare incentives to flatten out rush-hour travel peaks. He supports a new alignment for the east end of the Gardiner Expressway. Boldly, Soknacki has pointed to a reduction in the city's police budget as a funding source.

Karen Stintz backs the Scarborough subway and the DRL. She was the first to support the realignment of the east end of the Gardiner responding to a proposal from lakefront developers First Gulf. Controversially, Stintz is proposing to sell off Toronto Hydro to help pay for the DRL, fulfilling the aim of former premier Mike Harris who reformed hydro in 1998 to prepare it for privatization. Even more controversially, she has proposed a "Transportation Czar" for the city, an official who would solve the city's gridlock by being in charge of the TTC, the city's roads department, and taxi licensing. The Czar would report to a Board of Directors which would be responsible to Council. Critics see serious problems with this proposal. It assumes there is a silo problem in Toronto's city government rather than the more obvious fault of an incompetent mayor. Moreover, her organizational scheme would actually reduce city council control over transportation. Enough said.

With two months to go, there are likely still more major developments in candidate platforms and funding schemes. TAO is not endorsing a mayoral candidate. TAO is pleased that transit is a focus in the election and that actions TAO has advocated are getting attention.

- Tony Turrittin

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Board meetings: Sept. 4, Oct. 2, Nov. 6 at 5:30pm at CSI, 215 Spadina Ave., Toronto. If you wish to participate, contact Peter Miasek to confirm as date, time and location may change.