AIMS Commentary

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Increasing the Iron Horse Population in Buffalo

How a multi-modal yard could greatly improve national trade

By Stephen Kymlicka

Introduction

Atlantica is region with a shared social, historical, economic, and cultural heritage.[1] One possible explanation for this common heritage is the fragmented role the region plays in continental transportation. While different parts of Atlantica sit on major corridors, these corridors are not connected. Furthermore, the corridors are express routes and offer little opportunity for economic development. Take, for example:

- the Montreal to New York City corridor, which crosses the Canadian border at Champlain and goes straight south
- the Quebec to Boston corridor, which enters in Vermont and travels directly south
- cargo entering the continent at Halifax, which then travels directly up to Quebec, down the corridor to Windsor and through to Chicago

A naïve view would hold that these corridors arose as a function of economies of scale, in this case of distance. However, sober second thought shows this view to be false. Surely not all traffic between Canada and the U.S. mid-Atlantic most logically flows through Montreal. Is there not a quicker route for traffic from Ontario, from the Maritimes, or even from Maine?

There are many proposals currently on the table for streamlining traffic flows in or through Atlantica. This paper focuses on the role of Buffalo and why the area has strategic importance both regionally and nationally. Specifically it demonstrates the advantages of a multi-modal facility (ideally an inland port) to increase cross-border rail traffic.

Why Buffalo?

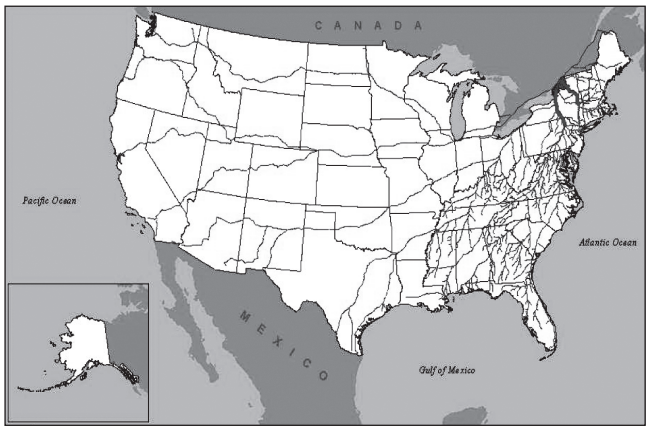
1) Buffalo is central to all of Atlantica's major markets; It is the only place in the region that has continuous, Class 1 rail service to:
   - New York
   - Boston
   - Montreal
   - Toronto
   - Detroit
   - Philadelphia
   - Pittsburgh
   - Chicago

2) It is the second busiest border crossing for trucks, the fourth busiest border crossing by rail, and the busiest border crossing for passengers between Canada and the U.S.[2]
3) It is strategically located on the Continental One Corridor[3] from Toronto to Miami and adjacent to the North American SuperCorridor (NASCO).[4]

[1] See http://www.atlantica.org for a complete description of the region.
[2] 2004 data. Bureau of Transportation Statistics (TranStats), http://www.transtats.bts.gov/bordercrossing.aspx
[3] See http://www.continental1.org/
[4] See http://64.182.25.2/

Maine

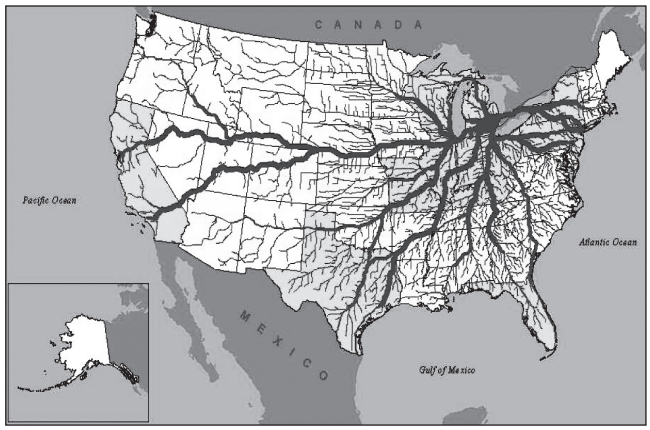
Vermont



I-81 Area

Champlain Area

Buffalo



Detroit

Compare the border-crossing maps above. These are 1998 international truck border-crossings maps from the U.S. Department of Transportation's Federal Highway Administration.[5] The arteries are scaled for volume. The highlighting indicates the volume of trade; the darker the shading, the greater the volume.

The traffic flows show that most ports have evolved to serve particular markets. As one moves west from the Atlantic coast, Buffalo is the first real hub. For example, the traffic from Champlain to Boston is dramatic in its absence. Detroit is a larger hub than Buffalo, but many of destinations reached from here are not traditional Atlantica markets. There is also easier

[5] See http://ops.fhwa.dot.gov/freight/freight_analysis/state_info/index.htm

port access elsewhere, and if one wishes to reach markets in the U.S. northeast, it makes no sense to go to Detroit; Buffalo is closer and a much less congested border crossing.

Buffalo is Underutilized

Despite its obvious benefits, Buffalo is underutilized. Indeed, U.S. highways leading out of the city are not congested. There are three major reasons for this:

1) There is no east-west highway corridor back into northern New England. Other papers have addressed this issue at length. The situation should improve with the development of the Calais, ME, to Watertown, NY, congressional high-priority corridor. Not only will this provide Buffalo with direct access to northern New England, but it should also provide load balancing on existing north-south arteries.

2) There is highway congestion in Canada leading to Buffalo, especially in the Oakville area where volume overwhelms the current four lanes prior to the split of traffic heading west to Detroit and south to Buffalo. Even if capacity was added in Oakville, the bottleneck would move to St. Catherine's where the QEW cannot be widened.

3) Rail connections are underutilized. Full container crossings by truck outnumber those by rail 8.4:1.[6] There are several reasons for this:

   a. The southern approach. Until recently, the Port of New York/New Jersey did not have on-dock rail service and removing containers directly by truck reduced lift costs in the port. As well, trucking companies are not offering substantial discounts for loads from Buffalo (versus NYC) making the rail leg to Buffalo uneconomical. Yet there are several reasons why forces at the Port of New York and New Jersey are pushing for a multi-modal yard in Buffalo. These will be examined later.

   b. The northern approach. There is no sizeable multi-modal yard in Buffalo. As such, most containers that land in Canada destined for the Buffalo area either arrive directly by truck from Montreal or arrive in Toronto by rail from Halifax or Vancouver and are then loaded onto trucks for final delivery.

   c. The eastern approach. Norfolk Southern offers a service from Buffalo back into Maine (partially through haulage rights).[7] However, this service does not serve as a gateway corridor as it goes via Boston and requires two train connections to reach Halifax. In fact, there are no direct east-west rail lines independent of haulage rights. Traffic must either go up through Quebec or down through Boston.

   d. Freight forwarders (third-party logistics firms) are slow to change modal partners.

Lost Opportunities

If freight to Buffalo was increased, where would it go? One obvious opportunity would be to build on existing markets located in the thickest arteries. The opportunity for rail or truck business can be measured by comparing weights travelling on the trade lane.[8] Consider the freight flows in the following table. You

Top 20 Trade Lanes using the Buffalo Border Crossings

Origin	Destination	Value (M USD)	Weight (K Tons)	Rank (Value)	Rank (Weight)
Canada	NY Buffalo	3,555.85	4,101.43	1	1
Canada	IL Chicago	867.16	3,368.54	13	2
Canada	IL (other)	639.81	3,319.54	22	3
Canada	IL St. Louis	611.58	3,289.24	24	4
Canada	PA (other)	2,202.77	2,863.58	4	5
NY Buffalo	Canada	3,217.36	2,223.85	2	6
Canada	PA Pittsburgh	819.81	1,875.82	17	7
PA (other)	Canada	1928.52	1,866.22	6	8
Canada	PA Philadelphia	567.66	1,470.69	29	9
NJ New York	Canada	1558.1	1,051.92	8	10
MI Detroit	Canada	473.31	946.03	36	11
OH (other)	Canada	1,723.79	742.41	7	12
PA Pittsburgh	Canada	715.19	711.68	19	13
Canada	OH Cleveland	628.7	711.4	23	14
Canada	NJ New York	1,181.90	687.73	10	15
Canada	OH (other)	812.61	586.51	18	16
OH Cleveland	Canada	1,417.84	564.11	9	17
Canada	MI Detroit	2,903.65	426.26	3	18
NJ Philadelphia	Canada	230.71	404.59	60	19
Canada	NY (other)	842.58	399.39	16	20

[6] 2004 data. Bureau of Transportation Statistics (TranStats)
[7] See http://www.newtonchamber.com/IMAGES/Norfolk-Southern-Map-large.gif
[8] Light, expensive items (e.g. diamonds) travel by air.

will see, for example, that the ninth largest trade lane carries 1.47 million tons of goods worth $567 million (USD) from Canada and going to Philadelphia.[9]

It is clear that serving Buffalo and adjoining markets (e.g., Cleveland and Pittsburgh) is the most important role of the border crossing. Providing an alternative route to Detroit and Chicago is a strong secondary role as an alternate route to the North American SuperCorridor. Also important, albeit less so, is serving Canadian traffic moving from and to NYC. This traffic ranks tenth and fifteenth by weight, respectively, (eighth and tenth, respectively, by value).

This focus on local markets is seen also in both Halifax and Vancouver, which serve as entry points for freight headed tothe Buffalo market. This entry role is facilitated by an efficient rail system into Toronto. For incoming goods on the Great Circle Route, it is not unusual for cargo to arrive in Buffalo (via Halifax and Toronto) before the ship docks in New York.

The Solution

The competitive advantages of Halifax should serve as a great opportunity not just for the region as a destination but also for Buffalo as hub. The challenge here, however, is to avoid handling costs by delivering freight directly to Buffalo rather than transferring in Toronto. There is optimism that plans for a large, multi-modal yard for all carriers in Buffalo will help. The benefits include:

- Possible cost reductions by shipping freight across the border by rail. These savings derive from the resistance of drivers to cross the border, fuel costs and other border costs.
- Avoidance of congestion on the interstates out of NYC since traffic can come in from Halifax and because with the new on-dock rail service, CSX can bring freight up directly by rail.
- No need to change modes since trucking firms simply change the pick-up location from Toronto to Buffalo.
- Relief of QEW capacity concerns.

There is some question as to the configuration of such a yard. Proposals have ranged from a single-carrier rail-truck yard to a large third-party multi-modal port complete with customs facilities and other support services.[10]

A NAFTA Issue

The economies of both Canada and the United States have been growing rapidly. The effects of this growth have been felt most dramatically in the center of the continent. In fact, between 1999 and 2004, the U.S. regions with the largest compound annual GDP growth rate were the inland Southwest and the Rocky Mountains at 5.72 per cent and 5.42 per cent, respectively.[11] In Canada, between 1998 and 2002, Newfoundland and Labrador topped the list at 7.6 per cent, but this was built on the strength of oil revenues. Newfoundland and Labrador was followed by Canada's largest economic region, Ontario, at 5.58 per cent.[12]

At the center of this growth has been increasing trade. However, this growth is at risk as a result of substantially increased costs related to border crossing between Canada and the U.S., and clogged ports. According to Drewry Shipping Consultants, the West Coast ports are already at, or near, capacity. Likewise, the Panama Canal is near capacity. Moreover, few of North America's East Coast ports can handle the new container ships because of their immense size. If North America wishes to continue to enjoy its recent prosperity, it is essential that cargo flow quickly and easily.

The Port Authority of New York and New Jersey comes to Buffalo

Support from the State of New York and the Port Authority of New York and New Jersey (PANYNJ) for a multi-modal yard in Buffalo is a good thing. However, an understanding of why the Port Authority is interested in Buffalo is required.

From the point of view of the PANYNJ, it is top dog; the market is its to lose. PANYNJ has looked at global trade trends and calculated that if the port retains its current market share, it will more than double capacity between 2003 and 2010. This is a problem because the port is clogged.

Some of the performance targets[13] that have been set, with varying dates, include:

- Lifts/Acre: 3,500 (versus current 1,500)
- Land: 2,400 acres (versus current 680, by reclaiming 600 acres and acquiring 1,120 acres)
- Depth: dredge to 50'
- More options for removing cargo: Move from a Truck/Rail/Barge modal split of 84%/14%/2% in 2001 to 67%/23%/10% in 2020. Note: PANYNJ believes so strongly in its growth that truck trips are predicted to grow from 1.6 million to 3.3 million over the same period despite the overall percentage drop.
- Reduce on-dock time from six days to two days.

The estimated cost for the redevelopment is $3.4 billion.

These targets exist because they address where bottlenecks can occur. Traffic flows at the slowest of the rates through these processes:

1) Unloading ships

[9] Freight Analysis Framework – 2002, available from the U.S. Department of Transportation's Federal Highway Administration. See http://ops.fhwa.dot.gov/freight/freight_analysis/faf/

[10] See, for instance, http://www.gbnrtc.org/Pdf/Newsletter/2006%20First%20Quarter%208%20pgColor.pdf

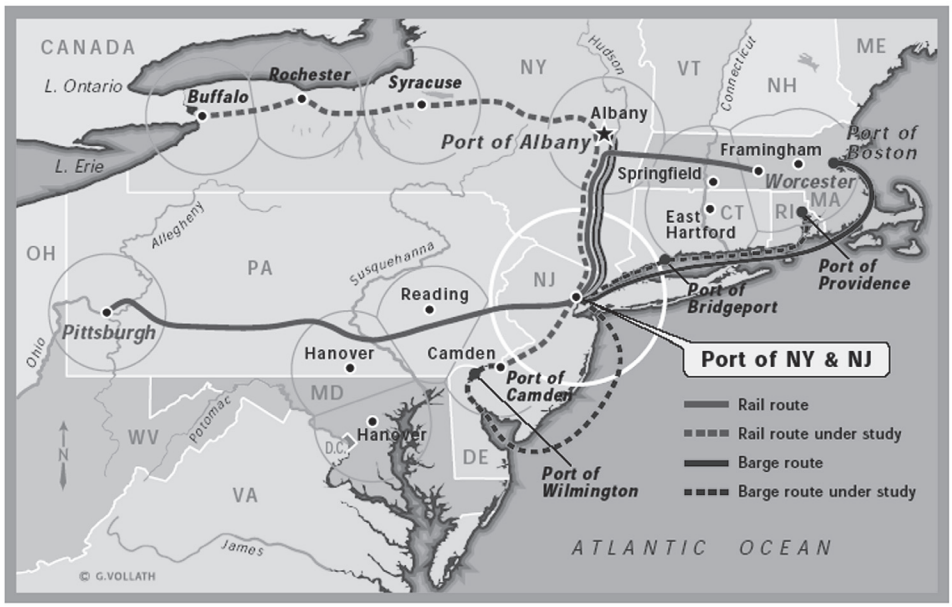
[11] Derived from http://www.bea.gov/bea/regional/gsp/

[12] Derived from StatsCan data at http://flash.lakeheadu.ca/~mshannon/Prov_GDP_industry_0000115-203-XIE.pdf

[13] Moffat & Nichol, 2004, http://www.iwr.usace.army.mil/newpianc/PIANCThompson.pdf See also Ellis, 2001, quoted in Sara Jean Leitner and Robert Harrison, The Identification and Classification of Inland Ports, August 2001 available at http://wwwhost.utexas.edu/research/ctr/pdf_reports/4083_1.pdf

a. Unload rates for Post-Panamax ships are greater than for Panamax ships because fewer ship moves are required. So, PANYNJ is dredging.
b. Panamax cranes are slower than Post-Panamax cranes. So although the port does not yet have the depth to service them, the PANYNJ already has eight Post-Panamax cranes! [14] It is also upgrading other equipment, improving electronic data interchange, etc. to expedite unloading.
c. Even so, the faster ships are unloaded, the more space is needed, so the PANYNJ is getting more land.

2) Moving containers out of the port.
a. PANYNJ has built some in-city, in-land terminals to get cargo off the docks. The on-dock rail service is actually a joint effort feeding the other rail lines.
b. The Authority is also building the Port Inland Distribution Network (PIDN). (See below)[15]



PIDN Service Map: Most barge or rail feeder terminals are at or near the center of existing oceanborne cargo customer distribution locations. Trucks would provide the local delivery link.

Albany was the test case for the PIDN. To get this service working, stevedoring was offered near cost, NY State channeled federal Congestion Mitigation and Air Quality funds, and PANYNJ subsidized each container by $25 (eventually believing that after a few years it would be able to reduce the subsidy to $5).[16] The "Albany Express" eventually got enough traffic to move to two trips per week;[17] however, it struggled with a number of problems, and according the PANYNJ website, the service has been temporarily suspended.

Thinking Small

The State of New York and Port Authority of New York and New Jersey have proposed a smaller facility that would revitalize CSX's Seneca Yard.[18] From the point of view of PANYNJ, this makes some sense: its objective is to replace trucks with rail for traffic headed to the Buffalo market. Furthermore, an arrangement with the rail company that services the port would make the initial subsidy on containers easy to manage.

However, there are three major problems. First, the size of the facility suggests it is not adequate to support CSX, Norfolk Southern, CN, and CP together with supporting services. Second, other rail carriers would need to have confidence that opportunity is allocated fairly. As such, a set cost-per-lift would be required. Conversely, it is likely the port would prefer a volume deal to help establish the NYC-Buffalo run. Lastly, rail works best when there is balanced traffic; a railcar is far more costly to have idle than a container. A CSX-only yard runs a higher risk of returning to NYC with empty railcars.

Thinking Big

Buffalo should be thinking big. It is clear that there is an opportunity for growth that far surpasses that from NYC alone. The region can only benefit from an increased role as a transportation and logistics hub. Furthermore, enhanced rail access with reduced costs will help the area be more competitive. While inland customs would help throughput, and Homeland Security is under pressure to allow customs facilities at other inland ports (e.g., Kansas City and Detroit), this feature is not required for success.

The good news is that everyone seems to want a multi-modal facility in Buffalo. The challenge is for industry and government to step up and support a proposal that maximizes the opportunities for trade and regional development.

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[14] Derived from StatsCan data at http://flash.lakeheadu.ca/~mshannon/Prov_GDP_industry_0000115-203-XIE.pdf
[15] http://www.panynj.gov/DoingBusinessWith/seaport/pdfs/PIDN.pdf
[16] Moffat & Nichol, 2004
[17] http://www.dot.state.ny.us/i87study/documents/chapter_2-7_waterborne_network-port_facilities_and_operation.pdf
[18] The Buffalo civic council approved the change in land use in 2004; however no activity has taken place.

A high-resolution version of this commentary is available on the AIMS website at http://www.aims.ca.

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