



CTR/ GTRC ROUNDTABLE SUMMARY JANUARY 30TH, 2012

This document summarizes the CTRF Roundtable that was held at the University of Toronto's Hart House on January 30th, 2012. The theme of the Roundtable discussion was "Innovation in Urban Freight Transportation." **Vijay Gill (Principal Research Associate, Conference Board of Canada and President, Canadian Transportation Research Forum)** and **Susan Spencer (Director, Intelligent Transportation Systems, Transport Canada)** opened the day by explaining the format and context for the Roundtable. As a part of the development of their innovation strategy, Transport Canada has held several workshops across the country with participants from industry, academia and government stakeholders. A common theme has been a lack of formal opportunity to share priorities and identify the current state of knowledge, best practices and any research gaps. Transport Canada (TC) hopes to foster collaboration between these communities by continuing to facilitate discussion and partnerships through a number of avenues. For example, some of these collaborations can take the form of data sharing.

The events for the day were broken up into a morning and afternoon panel based on distinct, but related themes.

RECAP OF THE MORNING PANEL DISCUSSION - HOW INNOVATION CAN BE USED TO IMPROVE EFFICIENCY, EFFECTIVENESS AND SUSTAINABILITY OF URBAN FREIGHT MOVEMENT.

The morning panel was moderated by **Marc-André Roy (Vice-President for North America, CPCS Transcom)**. A key point was that we cannot build our way out of urban congestion problems and as a result, we need to think innovatively and strategically in order to address related issues. This includes optimizing the use of the assets that we already have in place.

Prior to the panel discussion, each panelist was provided with an opportunity to present some of their views on the panel theme. Their key points are summarized below. **In addition, PowerPoint presentations are available for download from the CTRF website (www.ctrf.ca).**

The first panelist to present was **Tom O'Brien (Director of Research Center for International Trade and Transportation, California State University, Long Beach)**.

Innovation is often driven by necessity. A case in point is the Port Authorities of Los Angeles and Long Beach where the highly competitive environment, regulatory pressures, and the absence of federal leadership resulted in an innovative response from the private sector terminal operators.

The competition began with a health issue arising from truck traffic in an area around Los Angeles known as the Diesel Death Zone. Although the ports operate under California state law, the port

authorities are actually city departments. When the federal government passed air quality standards, the state began a series of failed attempts to pass legislation to manage truck emissions at the ports. Concerned over the rising cost of doing business, due to truck traffic congestion and emissions, the marine terminal operators decided to take matters into their own hands and devised a method of voluntary self-regulation. They created PierPass, a not-for-profit company that implemented a traffic mitigation fee for peak hour container operations. Although the model has been adopted elsewhere, the absence of political pressure and the volume of traffic at the LA ports limited its success. Other measures included the successful phasing out of old and heavy emitting trucks for drayage operations in and out of the Ports of Los Angeles and Long Beach.

The next presenter was **Randy Blankenhorn (Executive Director, Chicago Metropolitan Agency for Planning)**.

The Agency was created in 2006 to combine transportation planning and comprehensive land use/environmental planning. The Board has a unique structure of elected and appointed officials as well as business partners and a broad context of education, taxation and economic development. The Agency recognizes the need for local planning within a federal context.

CREATE is an example of a strategy with national and regional significance, that involves both public and private partners. Driven by the pressing need to address rail capacity needs in Chicago, Mayor Daley asked the federal Surface Transportation Board to convene a task force to address the problem. The resulting plan has maximized infrastructure and changed the landscape of how traffic moves in Chicago, although there are conflicts between regional economic benefits and community impact. Federal governments have a role to play to balance national and state needs, assign costs and benefits and consider economic activity in a broader context.

Lisa Salsberg (Manager of Strategic Policy and Systems, Metrolinx) was the next presenter.

Metrolinx was created in 2006 to provide an integrated transportation system for the GTHA. The Big Move is the regional transportation plan and includes a strategy for goods movement. To address issues of capacity, competitiveness and environmental impact, Metrolinx conducted an urban freight study, which includes intermodal connections as well as road freight, and focuses on the "last mile". Working with the University of Toronto, Metrolinx is developing a baseline of information to better understand freight movements.

Other initiatives include partnering with The Transportation Association of Canada (TAC) on a truck lane study; supporting feasibility studies for freight consolidation centres; and a graduate student research fellowship program. In the interests of increasing efficiency for the procurement of transit vehicles and parts across the region, Metrolinx created the Transit Procurement Initiative and Transit Inventory Management Services which has significantly reduced inventory and deliveries of parts.

The last panelist to present was **Scott Irvine, (Vice President of Business Development, Nulogx)**.

Freight movement is recovering from the recession although total costs are increasing, largely as a result of fuel costs. Smaller companies are leaving the industry and larger ones are growing. There is a new discipline in the system, focusing on core networks and managing costs. Business process innovation is being adopted by the retail industry resulting in a focus on supply chain, inbound

freight management and increased shipment size. Shippers are focusing on flow management to reduce costs and placing compliance demands on the carriers.

A discussion period among the panelists and delegates followed.

MORNING QUESTIONS AND DISCUSSION

Gaps in Data Knowledge

The data itself is not always the issue – there are gaps in the systems and technologies used for managing data. Partnerships are critical to collecting statistically reliable data at a micro level. To reach conclusions, data needs to be aggregated in a consistent form. There is a leadership role for government to create an integrated data plan. Government can also leverage public funds to collect private sector data, notwithstanding issues of data commercial sensitivity. .

US Commodity Flow Survey

At a macro scale, the US survey (Freight Analysis Framework) is useful but it has less value at the regional and local levels. The same is true for information from the Canadian federal government that lacks the regional component. On the other hand, continental-wide data is needed that looks at goods arriving on our coasts and moving across the US border (i.e. Prince Rupert to Chicago).

Partnerships for Supply Chain Best Practices

The Asia Pacific Gateway was the first example of all partners in the supply chain coming together to look more broadly at issues. There is a leadership role for government to bring all partners to the table and make investments that meet both national and regional goals. Efficiencies are developed through integration and ITS has a role to play.

Congestion Pricing

Trucking companies are learning to price congestion into their cost formula. There are a number of congestion models in use in Europe, most of which have been created from necessity. A common driver is the need to manage demand without adding capacity. Revenues for infrastructure require new pricing mechanisms. North American solution is to use toll highways. Truckers and railways are more responsive to the challenges than they were a few years ago and want to be part of the solution.

De-centralization

All high growth metropolitan areas in Canada want to be logistics hubs,, but railroads are where they are and some locations, such as Chicago, will always be hubs. There is a need to take a national perspective and consider the most efficient way to move freight, including intermodal. Higher weights offer incentives to use intermodal transport and move to rail.

National Framework

A national, multimodal, policy framework is needed, utilizing public and private partnerships to identify benefits and gather reliable information.

MORNING PANEL AND DISCUSSION: KEY TAKEAWAYS

The morning panel presentations and discussion explored good urban planning policy and best practices, as well as catalysts for innovation. It is interesting to note that in the case of LA-Long Beach, local industry took the lead in helping to create an innovative collaborative policy in the absence of strong leadership from public authorities. On the other-hand, strong municipal leadership in Chicago led to greater coordination between the Class I freight carriers in order to mitigate rail-related congestion concerns.

Perhaps a conclusion that can be drawn from these cases, as well as the points made by the other panelists, is that industry participants are unlikely to jump into leadership roles as long as business is moving “reasonably” well. However, as problems grow in importance and have significant negative impacts on day-to-day operations, industry may be forced to move in the presence of policy vacuums. In all cases it was clear that the urban freight issues have regional impacts but are of national importance, implying a greater role at for senior levels of government.

RECAP OF THE AFTERNOON PANEL DISCUSSION - EFFECTIVE USE OF TECHNOLOGY FOR DATA COLLECTION, MEASUREMENT AND DISSEMINATION

Clarence Woudsma (Director, School of Planning, University of Waterloo) moderated the afternoon panel discussion. He highlighted some of the key barriers to leveraging technology for the purpose of data collection, such as privacy concerns (both perceived and real). After the introduction, each panelist took some time to present some of their views.

Susan Spencer provided an overview of the importance of data and described some of Transport Canada’s perspectives on the issue.

ITS is the mechanism used to collect data and system intelligence to inform policy, planning and operations. TC is focusing on bringing connectivity throughout the supply chain, through technology referred to as Smart Corridors. The goal is to maximize the capacity of existing systems to improve optimization of freight movement.

At the moment, there is no consistency in the technology used to generate data which results in different levels of sophistication. Developing ITS architecture not only ensures consistent data but brings all stakeholders – shippers, carriers and all levels of government – together to share plans, objectives and to maximize interoperability.

Privacy issues result from the huge wave of data that is being generated and requires ongoing due diligence especially at the beginning stages. Encouraging sharing – Open Data – will bring about greater levels of connectivity spread the costs out among the players.

Transformational change is coming and we need to be prepared to take advantage of the tsunami of information available by building links among stakeholders, and being innovative about business, research and governance.

Following Susan, **Ben Miners (Director of Product Development and Planning, Intelligent Mechatronic Systems)** described some of the challenges associated with harnessing the power of Intelligent Mechatronic Systems is not so much building something new in data collection but exploiting the technology that exists in new ways. The challenge is to extract meaningful data from

what is available to make informed decisions. Understanding the context around the data is as important as the data itself - referred to as metadata – what is happening outside the data point.

GPS and cell phone probes are both valuable sources of data but vary in precision. Where GPS begins to degrade, cell phone probes gain in accuracy. Understanding the differences, building on their strengths and having verifiable data sources is critical to developing a reliable dataset and selecting which technologies are the most useful for urban freight. As information from data and metadata increases, key questions around distributing and disseminating the data arises. For example, how can real time data be provided to drivers without creating a distraction/safety issue?

To optimize the system, the key beneficiaries and partners need to be involved. Open standards are as important as open data and ensures that data can be collected and used, even before partnerships and technologies are employed.

Next, **Matt Roorda (Associate Professor, Civil Engineering, University of Toronto)** provided an overview of some of his ongoing research with respect to urban freight data collection and modeling.

The Centre for Urban Freight Analysis at the University of Toronto collects data to better understand how the urban freight system works and develops models that can be used to inform decision making around issues such as facility location, supply chain management, and contractual arrangements for transportation of freight. The framework for the research is agent-based modelling of freight: why does each agent in the freight chain behave as they do? Is this optimal behaviour?

One particular project – Stop Duration – employed an innovative use of passively collected GPS truck data. One of the challenges was the sheer volume of data – one set alone had 7 million data points. Without contextual information, it was challenging to determine the nature of the stops, the locations in relation to delivery points and the location of the depot. Modelling enabled researchers to coordinate stop times with the type of establishment, the size (as measured by volume of sales) and whether it was a manufacturing or retail business. However even with the large dataset, the most obvious step forward would be accessing more employer databases and linking datasets. The feedback this project provides to freight agents is the value that employers can get back from this private sector-academic partnership.

There is a temptation to abandon other forms of data, such as direct communication, in favour of technology based data. However, having the context is important to deriving the maximum benefit from the data collection

Wrapping up the panel presentations was **Joseph Lam (Managing Director, Delcan International Corporation)**. Joseph described some of the data needs, obstacles and recent innovative initiatives related to urban freight data.

Technologies for data collection exist in a variety of arrays of on and off the street data – GPS, bluetooth, mobile phones. Each of these technologies has their own strengths and weaknesses which makes it challenging to coordinate, ensure accuracy and interpretation. Future issues associated with the volume of data available include privacy, ownership, standards, and regulations. Third party ownership ensures that data can be widely accessed.

Several examples were provided of how data can be used in an urban context:

- MTO installed queue warning systems to notify car drivers of truck queues ahead and avoid potential collisions in bad weather.
- TransLink recently launched the iMove® system as a “one-stop” transportation portal to provide multi-modal, real-time and static traveller information via the World Wide Web using 22 traffic cameras located at airports, marine terminals, etc.
- Los Angeles County built ITS architecture around the issue of bus hijackings, providing each municipality with a private website to access broadcast data from a single hub.
- When a small town in Holland wanted a local manufacturing plant to cease operations, the trucking companies joined with the plant to create a signalling system that provided priority for trucks and limited speed for safety, GHG emissions, noise reduction and fuel savings.

AFTERNOON QUESTIONS AND DISCUSSION

Privacy Issues

In response to a query about privacy issues among private sector companies that provide data, the panel emphasized the importance of ensuring that privacy concerns are managed carefully from the beginning and that confidentiality agreements are often employed. Transparency and awareness of the intent and use of data helps to reassure potential partners.

ITS Champions

The importance of engaging politicians to be champions of the use of technology was expressed. Opportunities such as this roundtable provide excellent feedback for all levels of government. Leadership is required to ascertain and share the risks between governments and the private sector and to ensure the benefits are accessible to all. An open data policy was advocated.

Measuring the Value of ITS

Technology provides the access to data but doesn't give all the answers. ITS is a means to an end, not an end in itself. The value of demonstration cannot be overestimated. Providing seed funding to help demonstrate the benefits, especially to smaller companies, is one approach. Collaboration and sharing of data is required to maintain interest over the long term. The cost of the data may not be a dollar value but simply access to the data itself.

Truck only or Truck Managed Lanes

The technology is available but political will is required to adopt programs and make them mandatory. Implementation in the US is generally restricted to short routes around bottlenecks rather than long corridors. TC is currently engaged in a study with TAC to examine the potential for urban truck lanes that should be completed this year. Consultants are looking at international examples and considering the economic as well as safety implications.

Consistency of Data

Each forum will provide a different measure and to make comparisons, different data sources have to be brought into a common framework. Some research has been conducted on data fusion to arrive at a common estimate. Selecting the appropriate metric is difficult and requires a

harmonized definition but, it is important not to get caught up with selecting the lowest common denominator and sacrifice results.

AFTERNOON PANEL AND DISCUSSION: KEY TAKEAWAYS

It was clear from the panel presentations and discussion that new technologies have allowed for a far greater flow of information on urban freight movements than ever before. While privacy and other barriers persist, it is not yet clear that we are even leveraging the data that do already exist to their best use. Collecting information is one thing, but managing and using data is another.

Providing a direct return to users in exchange for their data is one way to manage privacy concerns. For example, those who provide location data can be given access to the aggregated information from all users. This provides an incentive for buy in from the users. Transparency regarding what is being collected and how it is being stored is also key.

In order to make use of the tsunami of data that is coming (and to a large extent already exists), we must emphasize the context (surrounding) data. In addition, data fusion (combining different datasets) opportunities exist as some technologies have strengths where others have weaknesses. For example, GPS data become less accurate in urban areas, exactly where cell phone location data become more accurate.

Acknowledgements:

This Roundtable Summary was prepared by Sandi London and Lakhveer Manku, with input from Vijay Gill, Chris Higgins, Aarshabh Misra and Erin Toop. Special thanks goes to the panelists and moderators as well as Glareh Amirjamshidi, Keith Cochrane and Toka Mostafa.