Submission to *Canada Transportation Act* Review Panel With a Focus on Rail Transportation Policy, Governance and Regulation

John Coleman and Dr. G. Bruce Doern

School of Public Policy and Administration
and Regulatory Governance Initiative
Carleton University

January 20, 2015

PREFACE

ABOUT THE AUTHORS

John Coleman is a Senior Fellow at Carleton University's Regulatory Governance Initiative ("RGI") in the School of Public Policy and Administration. In 2011 he retired from the National Research Council of Canada, where he had been acting Vice-President of Engineering and for nearly two decades before that Director General of NRC's surface transportation institute.

Bruce Doern is Distinguished Research Professor at Carleton University's School of Public Policy and Administration and Professor Emeritus at the Politics Department of the University of Exeter in the UK. From 1968 until his recent retirement he was Professor at the School, and latterly also Director of the Carleton Research Unit on Innovation, Science and Environment. He is co-editor of *How Ottawa Spends,* the School's annual publication on national priorities and public spending, and is author of many books, journal articles, and other publications on public policy, governance, and regulatory and fiscal issues in several Canadian and comparative policy fields including energy, transportation, environment, and science and technology.

Our Thanks and Appreciation

This paper represents the views of the two authors only. But we acknowledge with gratitude and thanks several other individuals in the rail and broader transportation field whom we interviewed on a confidential basis or with whom we have had off-the-record discussions during the preparation of this Submission. We have also drawn on the findings of the 2014 RGI Critical Conversation on Railway-Shipper Relations.

John Coleman and G. Bruce Doern
January 2015

CONTENTS

INTRODUCTION

This Submission examines and proposes changes to the current National Transportation Policy as expressed in the *Canada Transportation Act*, and deals in particular with issues emerging from developments over the past several years in the national rail transport system, while also taking into account certain related intermodal issues such as those involving trucking and ports. The Submission does not deal with air or marine transportation or with passenger rail services in Canada.

Section 5 of the *Act* establishes the following policy goals and positions:

"It is declared that a competitive, economic and efficient national transportation system that meets the highest practicable safety and security standards and contributes to a sustainable environment and makes the best use of all modes of transportation at the lowest total cost is essential to serve the needs of its users, advance the well-being of Canadians and enable competitiveness and economic growth in both urban and rural areas throughout Canada. Those objectives are most likely to be achieved when:

a) competition and market forces, both within and among the various modes of transportation, are the prime agents in providing viable and effective transportation services;

b) regulation and strategic public intervention are used to achieve economic, safety, security, environmental or social outcomes that cannot be achieved satisfactorily by competition and market forces and do not unduly favour, or reduce the inherent advantages of, any particular mode of transportation;

c) rates and conditions do not constitute an undue obstacle to the movement of traffic within Canada or to export goods from Canada:

d) the transportation system is accessible without undue obstacle to the mobility of persons, including persons with disabilities; and

e) governments and the private sector work together for an integrated transportation system" (*Canada Transportation Act*, 5)

The Submission is structured in the following manner: First, we set out our core argument and diagnosis in brief about the rail sector. Second, we take note of the broader historical context for the current policy. Third, we set out in more detail recent developments in rail policy and rail-shipper relations. And fourth and finally, we recommend changes to stated national transportation policy.

1. Our core argument and diagnosis in brief

Ever since governments made regulatory reforms in the 1980s, railways have been striving to shed unproductive assets, money-losing operations, and inefficient practices. All freight railways in North America have been doing it.

Railways' concept of optimization is now based on what used to be counter-intuitive principles of lean production, as manifested in certain things like removing locomotives and especially freight cars from the network to drive out (and prevent) congestion, especially in classification yards. The concept also includes driving relentlessly to keep the freight cars moving to destination and back for reloading faster and faster. This new model has turned conventional thinking about railway optimization upside-down. Some players and observers demand governments instruct railways to add more cars onto their networks, anticipating it will increase their capacity and improve service when in all likelihood it will do exactly the opposite.

Maximizing "fluidity" and "velocity" has been part of the railway lexicon for at least a decade-and-a-half. The concept is not new. In the early years after regulatory reforms in the 1980s it was manifested in what railways called "the scheduled railway" and "precision railroading". Those metaphors referred to a state in which the historic randomness of train schedules and freight car movements was replaced by planned and disciplined execution in much-more-tightly-choreographed rail operations than ever before.

But with a new generation of managers, railways' concept of optimization in 2015 has progressed well beyond that, to one of striving for *uniformity* and *consistency* in everything railways do, especially traffic movements. The degree to which that has taken freight railways in new directions for the 21st Century is only starting to be understood outside of railway circles. It certainly does not seem to have been reflected in recent legislation, as we show further below.

Probably the most basic index of railway performance along those lines is this: volume of traffic moved through a corridor per unit of time, per amount of money invested (especially in infrastructure), while driving to keep customer service as high as possible, e.g., as measured by the overall rate of order-fulfillment. The net effect of optimizing towards that index is to drive railway infrastructure and other assets towards their *maximum utilization* at all times, but crucially *without triggering congestion*. In other words, the ideal is to have no spare capacity, except to meet shipper forecasts for growth in which railway managers have confidence, and to provide the minimum reasonable cushion to absorb daily perturbations that otherwise would trigger congestion along the lines that can be seen every day with automobile traffic on expressways at rush hour.

There are major financial benefits to railways and their shareholders from optimizing in this direction. There are also major benefits for railway customers and Canada's economy. Shippers get their goods moved at low cost because inefficiency in railway operations is driven out. Transit time to destination is, on average, less variable and generally faster because delays from congestion are systematically removed. And railways attract private investment for recapitalizing their plant and

equipment that increases their capacity to meet growth opportunities in trade that builds the national economy.

Unfortunately this particular model does not provide a great deal of *surge capacity* to handle unexpected sharp upswings in various kinds of traffic; nor does it do a particularly good job of serving individual shippers whose needs are well off the norm, or who are unable (or unwilling) to provide forecasts in which railway managers as businesspeople have confidence.

Canadian railways were driven to invent and adopt this 21st Century model of optimization—for purposes of this Submission we will call it "Model 21"—by two things over which no one has much control:

- the reality of *capital markets* demanding that corporate executives maximize shareholder returns, and of railways having to compete for investment capital with all manner of popular and diverse competing stocks;
- the reality of just-in-time production, and the growth in the length and complexity of *supply chains* that depend on clockwork deliveries and un-congested handling of cargo at ports.

It seems that some shippers have not adjusted to the reality of this particular model (and perhaps they cannot), and they appeal to government to support them in resisting its effects on them. And the two major railways, acting as a rail oligopoly, also may be paying less diligent attention to the changing array of shipper needs and their (the railways') relationships with at least some of their customers.

Government lately has been responding sympathetically to some shippers; but it also has been slow to see what railways are doing in this changed model of operations. The railway-shipper relationship, always complex, has become politicized as a result (see more below).

Equally unfortunately, this government/market space in Canada lacks good enough tools for decision-making by government in the legislative and regulatory sphere; in evaluating operational planning at the railway-shipper interface; and in evaluating the performance of the carriers that move the goods.[1] Governments and their regulatory arms today are too far removed from the operational dynamics of the transportation system to be able to design or apply micro-level regulatory measures to deal with what they perceive to be problems.

The regulatory framework seems to be stuck in a time-warp that focuses on adversarial behaviour and believes, seemingly, in the premise of "no shipper left behind". That is a remarkable frame of mind for government to have.

---

1. To the best of our knowledge there is no broad agreement in Canada on what the primary goal of rail freight carriers should be. We elaborate on this later in this Submission. In the absence of such a goal, no tool can possibly measure railways' performance against indices of greatest importance to the nation because nobody knows what those indices actually are.

As discussed below, the spate of recent legislation of railway-shipper relations is fundamentally flawed. It has not caught up to "Model 21". Some of the old but still-present statutory provisions such as the common carrier principle seem unlikely to serve the nation's needs very well going forward. And of course, the rail sector also consists of more than just railways and shippers. (See discussion of third parties and of railways' social license, below).

In retrospect there were bound to be casualties and complaints as railways made such a massive overhaul in their business in response to their changing external environment—changes first occurring in the freight marketplace starting in the 1950s, and second in the regulatory reforms starting two decades later. But perhaps most surprising is that the regulatory framework seems to have assumed that shippers should be exempt from having to adapt to consequences of that transition.

In no way does any of this rationale excuse Canadian railways from their well-documented shortfalls in their treatment of, and in their communication with, their own customers. This is hugely important and railways absolutely must do far better. Valuable work along those lines is already underway, like CN's first-mile / last-mile initiative. That is welcome and should be encouraged. But it is not the primary issue in regulatory governance. The primary issues are capacity, financing, and what railways do with their earnings. The three are interconnected.

In this Submission we demonstrate seven things:

1. There is a core *failure mechanism* going on today in rail freight transportation. The failure mechanism refers to the recent practice of some shippers with political and ministerial clout converting their dissatisfaction with rail service into the separate regulatory adoption of measures that give them potentially-unlimited access to a finite network—and head-of-queue positions that benefit themselves at the expense of other shippers, traffic patterns, and railway capacity. Unless stopped, the failure mechanism will reverse two-and-one-half decades of regulatory reforms.
2. Briefly, it can be thought of as a vicious circle in which additional regulation will cause poorer performance by railways, which in turn will lead to yet more micro-regulation. This will drive railways backwards to their low-productivity state of the 1970s; it will dry up capital re-investment and bring about serious deterioration of their plant and infrastructure; and it will render them unable to serve current let alone the growing future needs of large segments of the Canadian economy to move their products to a fast-changing and complex global market. This is not in the public interest.
3. The failure mechanism, particularly recently, is a direct result of the government's *response* to complaints by shippers who are aggrieved by the way in which railways serve them. The pattern of this response by government violates all manner of basic principles and practices of good public policy relating to a complex industry and a complex rail network.
4. Government has inadequate diagnostic, data, and mediation tools and policies at its disposal to deal with the problem effectively, and to stop the failure mechanism from progressing quickly to a very serious state.

5. Effective new tools and approaches are needed. They must be rooted in the marketplace, and be *about* the marketplace; and they must become far more commonly used than any tools rooted in more direct government regulation. They are a form of co-governance with social license features as discussed further below.
6. The design of those tools and approaches will demand new thinking and new paradigms, which will call for a new national consensus on what railways exist to do—and what they *do not* exist to do.
7. It will take considerable analysis and public-policy deliberation to bring about that consensus.

In this Submission we recommend two main things:

First, that **government** take immediate steps to prevent railway-shipper relationships from further deterioration. It should do this by:

1. Placing a temporary moratorium on further direct statutory or delegated law measures in economic regulation[2], measures that are causing a failure progression as described in this Submission.
2. Reviewing and researching the role and governance of (not by) the Canadian Transportation Agency, its degree of independence, and the usefulness of its case-by-case approach, its interventions, and its involvement in these kinds of current problems and practices.
3. Redefining and documenting what the social license truly involves in the "Model 21" rail sector. This needs to include an explicit review and discussion of the place of various third parties—those beyond railways and shippers who are strongly affected by what those two parties do.

Second, that the **Review Panel** itself should:

1. Determine a research-informed answer to the main policy goals and questions we pose in this Submission, which is the crux of finding the sought-for consensus discussed above.
2. Identify, independently research, and establish the basis for a broad understanding of what is meant by the rail sector's social license, including a comparative analysis of practices in other federal regulatory governance fields in Canada and the principles of sound public policy.
3. Recommend in its report that government launch a process to deal expeditiously with the remainder of the issues discussed, including by engaging the private sector in the creation and ongoing use of new tools for managing railway-shipper relationships under much more market-based conditions.

---

2. By this we mean *economic* regulation—government involvement in railway-shipper relationships. We are not referring to safety regulation. Note that both types of regulation can be affected simultaneously by developments in railways' social license.

2. Transportation policy in brief historical context

In this section, we highlight four historical features and periods or changes: first, interventions by government in early railway monopolies, and other forms of regulation and intervention; second, the deregulation era; third, the larger regulatory climate of the last twenty years, which can be described as an era of "rules and unruliness" and of "regulatory capitalism"; and fourth, an era strongly affected by third parties and the social license of individual players in rail transportation.

a) The era of interventions arising from early railway monopolies.

The relationship between railways and many of their customers has been strained since railways first appeared in North America. The railways have inherently dominated some segments of the marketplace for most of their existence (and in their early years, virtually all the marketplace). The regulatory response to these cases of market monopoly and dominance proceeded in several steps. The first regulatory agency to limit railways' monopoly power was the U.S. Interstate Commerce Commission (ICC), created in 1887. The first independent federal regulatory agency in Canada, the Board of Railway Commissioners, was established in 1904 and its descendent, the Canadian Transportation Agency ("the Agency"), remains the government's primary instrument for this kind of economic regulation (Hill 1999; Janisch 1977; Langford 1976). Transport Canada and the Transportation Safety Board of Canada have corresponding regulatory powers for safety—the former by setting and enforcing regulations and the latter by investigating accidents. Both of these agencies regulate many modes of transport, not just rail.

The level of economic regulation has ebbed and flowed over the decades. Regulation and its economic burden grew to a high level in the first half of the 20th Century. Some of these issues related to increasingly uneconomic railway branch lines that served smaller communities and sub-markets. But latent monopoly issues are always present on at least some railway lines and routes (as noted further below). And if CN and CP were to propose or attempt to merge, Canadian authorities almost certainly would not approve it under federal competition law.

b) The deregulation era

Beginning with the *National Transportation Act* of 1967, and then further advanced by the 1985 "Freedom to Move" framework (Canada 1985), the rail sector was significantly deregulated[3] and the regulatory burden on railways has significantly declined. Revisions to the law in 1988 and 1996 continued this trend. Not everyone is consistently happy with the results.

During the 1960s, 70s, and 80s the railways lost significant market share to other modes, primarily trucking, but certain types of cargo did not (and could not) shift in that direction and so the railways continue to carry it. This means that much existing rail traffic is inherently "rail-based", and shippers of those products have few if any affordable transportation alternatives.

---

3. Other utility-like sectors, including energy and telecommunications, were also deregulated in this era and CN was privatized.

But not all of it is. The railways have built a significant amount of business transporting intermodal containers that usually carry high-value manufactured goods (Canada 2011). Some of this could go by truck. The customers, often large retailers, tend to be more satisfied than other customer groups with their rail carriers in terms of both price and service. The same is true of passenger automobiles. Carmakers ship most of their newly-manufactured vehicles to market by rail, even though many of them could go by truck.

One possible reason for this greater satisfaction is the presence of competition in these markets and the railways' response to it. Railways are efficient at moving goods over long distances from A to B, but much less so in servicing locally—when they are actually *at* A or B. This means that most service problems seen by shippers are "first-mile / last-mile". For example, railways work 24/7 on their main lines, but not on branch lines or switching leads where pick-ups and deliveries occur. The service problems seen by shippers are usually not network-based, but local servicing (Canada 2011).

In fact, the two are interconnected. Whenever freight cars are picked up or delivered at customers' sites, they enter or leave the main-line network. The full effects of this intermixing of traffic are not very well understood outside the railways themselves.

Most shippers have little or no interest or concern about the specifics of "network operation", or the train on which their traffic is carried. And they readily accept differences in service levels for various classes of shipper. For example, in mid-2013 when CPR announced transit-time improvements for intermodal trains between Vancouver and Chicago / Toronto, and then between Toronto and Calgary, no complaints arose from the classes of shipper who did not benefit from the changes.

c) The era of "rules and unruliness" and of "regulatory capitalism"

It may be tempting to argue that the era of deregulation continues in the Canadian economy but this has not been the case for the past twenty years in Canada, or in many other countries either. A recent review of 50 years of Canadian regulation by Doern, Prince and Schultz (2014) demonstrated that recent history can be characterized by the growth of rules and unruliness. Here, unruliness consists of a growing inability on the part of governments to make effective rules and to enforce them. Regulation also extends well beyond statutes and delegated law. It also includes codes, guidelines, and standards, both domestic and international.

Other findings have cast this era, accurately in our opinion, as one with a strong element of what has become known as regulatory capitalism. The concept emerged conceptually and empirically (Braithwaite 2008; 2005; Levi-Faur 2005). It consists of the involvement of large numbers of companies in setting and enforcing rules over the behaviour of their respective industry sectors and the players in them. Enforcement usually consists of applying marketplace tools. Granting or withholding influential certifications is one of many examples. It reflects the fact that regulation is growing markedly, but not so much by rules and their enforcement by governments alone, but increasingly as a system of co-regulation that involves governments and businesses, and non-government interests and networks as well (Grabosky 2012). The distributed (unruly) nature of this co-regulation

does not mean it is any less authoritative than government rule-making and enforcement alone. And it provides a wider range of tools for dealing with complex situations, including those which governments acting alone as regulators often have difficulty discovering or using.

d) The era of third parties and social license in rail transportation.

Third parties are also involved in the rail-shipper domain. They include tens of thousands of large and small firms and industries which are the shippers' customers. And they include many communities served by, or not served by, the rail-shipper sector and its intermodal connections. In social license terms, they also include communities located near railway tracks who are concerned about rail safety in general and the routes taken to ship dangerous goods in particular.

In terms of political and market power, one can certainly have an interesting discussion about the role of the dozen or so Class II short-line railway companies. Are they also third parties, relatively speaking? There are more of them than previously, but they are small in relation to the CN and CP oligopoly with its political and market power. But they may also be factors in the provision of needed "surge" capacity.

The current statutory common carrier concept (see more below) may not properly capture these kinds of realities but there are still bound to be other related norms and ideas including notions of a social license. Social license is also related to concepts of public trust in all of the players involved. The social license is often ill-defined but is still hugely important. In earlier eras in rail and other industries, such ideas and provisions were often just broadly (and vaguely) referred to as "the public interest" (Pal and Maxwell 2003). But the concept of social license has taken greater form and it now seems the preferred umbrella of discourse, practice, and advocacy. That has important implications for government.

It extends to rail safety and increasingly to rail security which is not the same as safety alone (Doern 2010). It is worth noting that some social and environmental aspects are already in the goals stated in the current *National Transportation Act*. And CN and CP also often aspire to norms of corporate social responsibility and/or sustainable development when dealing with their shareholders and with the media. Indeed, in an era of a vastly-expanding Internet-centred social media, the social, environmental, and consumer pressures and views cannot wisely be ignored in either market or related non-market transactions and communication (Dahlgren 2013).

3. Developments in railway-shipper relationships: a closer look

Canadian freight railways have staged a remarkable recovery from the hardscrabble years of the 1960s and 1970s when their infrastructure almost collapsed from lack of re-investment. Following the reduction of regulatory constraints, their productivity rose, freight-rates declined in real terms, and traffic climbed as shippers voted with their wallets. Today the North American freight railway system, including Canadian railways, is the envy of the world.

As government contemplates an update to the *Canada Transportation Act* we see no grounds for thinking the freight railway system needs a major overhaul.

What *does* need a significant revision is the regulatory framework governing the relationship between railways and shippers. The current regulations, and the way in which they are enforced, focus on managing the system's individual elements at a micro level—in other words between one shipper and one railway at a time. But government's interest should primarily be elsewhere, on the *health and well-being of the overall system.*

That has not been happening. As we show in this section, the result of that mis-directed focus neither helps to improve railway-shipper relations (and there is surely some need for improvement) nor helps to sustain the health and well-being of the system as a whole. The result is likely to be a serious and rapid degradation of railway performance to the detriment of supply chains in Canada, the players that participate in them or otherwise depend on them, and the economy.

a. Determining the goals

Canadian transportation policy has a fundamental problem in understanding "the goals". Once a primary goal is set, it becomes the key driver for the optimization of any system with constraints (Goldratt, 1984). That includes railways. Good public policy expects railways to optimize their system of production. But for a complex system that can be achieved in more ways than one, and with more purposes in mind. It depends on the "primary goal". It also depends on the choice of broader goals and how they are managed. Some of those goals partly conflict with one another, and some must be "balanced" against each other and/or ranked.

A certain amount of this can be done by evaluating intra-system options. But it needs to extend beyond that, to include goals and purposes connected with the social license of third parties (see below).

If the primary goal of railways is to maximize on-time and reliable service to the greatest number of customers all the time, then the ideal operating-point for railways occurs considerably below maximum utilization of the network's assets. In other words, there needs to be a fair amount of spare capacity in the system to deal with inevitably-occurring variations, including variations in the level of traffic.[4] But if the primary goal is to maximize utilization of railway assets, the ideal operating-point is closer to running at full capacity. That translates into letting spare capacity in the railway system remain at a relatively low level, and living with the consequences.

The former tends to make shippers happy. But it is not the lowest-cost way to operate a railway, so shippers should anticipate higher prices. The latter tends to make railway shareholders happy (unless the railway goes too far in filling its network with traffic and congestion sets in).

---

4. The probability that variation will occur is 100%. Principles discovered by Edwards Deming and others in manufacturing-optimization and quality engineering are based largely on understanding the causes of variation and dealing with them. The point here is that variation is a statistical certainty.

The significance is this: the way in which railways deal with capacity considerations, and the decision-rules they use for accepting and managing traffic from shippers, depend on the primary goal to which they are managing.

In other words, it depends on whether transportation policy should be aimed at railways keeping the greatest number of shippers satisfied with reliable and on-time service (and occasionally turning some shippers away if necessary to prevent congestion in the network), or whether it wants railways to get the greatest possible amount of freight through their network. Transportation policy in Canada has not reached a conclusion on this. It needs to, because railways can't do both.

b. Growth in length and complexity of supply chains

Since the advent of containerization and the opening of Asian economies to manufacturing, supply chains have grown in length and complexity worldwide. Transportation has been pulled into all of them—goods need to be moved from one place to another. None of the players in a supply chain gets a free pass from failing to satisfy "lean production" principles. The chains perform to a level of rigour never before seen.

Some premises that we take into account in understanding the role and potential of railways and rail-shipper relations are centred on the growing imperative of supply chains, both in Canada and cross-border internationally and in North America. Here are the main ones:

- Transportation is a value-added service, but nevertheless it represents overhead. Every participant in the supply chain receives a fair slice of the margin that is present between the cost of input-factors at the raw material stage, and the selling price at the end-customer stage. If not, the chain withers and collapses. In this context "fair" means that the size of each participant's slice is negotiable (unless it is regulated by government[5]) and, no matter what, the size of the slice must meet the expectations of every participant's shareholders. Those involve complex relationships of trust and contract agreements and law, not just economics.
- Every participant in the supply chain delivers his share of "The Deal" that is expected by end-customers including price and delivery. If there is a serious non-performer anywhere in the chain, either he is replaced or the chain will eventually collapse.
- The supply chain keeps improving. If it fails to do that, another supply chain will emerge to take its place.
- Many supply chains do not end in the same country in which they start. Participants in the chain are usually subject to the needs of players upstream and downstream who are located in other countries, and to other jurisdictions' policies and regulations.

---

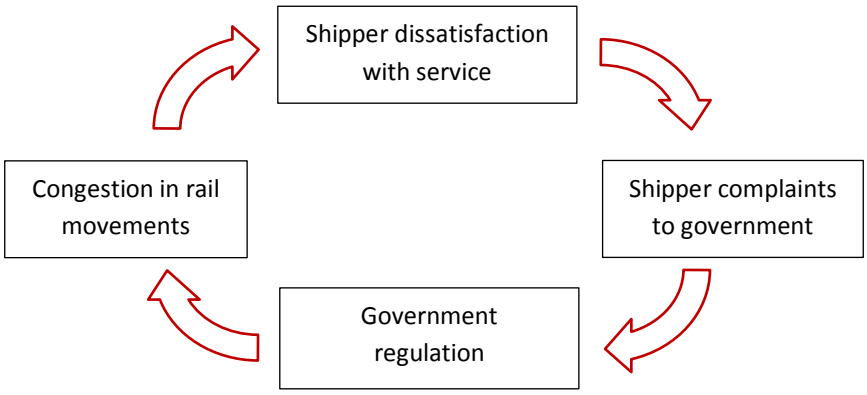
5. The revenue cap on grain movements by rail is tantamount to a regulated limit on the size of the railways' share of the margin that is available in the supply chain. That is the margin between all the input-factors used to get grain into the hands of consumers of products that use grain, and the price those consumers actually pay.

- Freight railways are meaningless outside the context of supply chains. And because railways participate in so many different ones, the impact of significant changes in one supply chain will reverberate up and down all the others. This is both marketplace complexity and policy complexity incarnate.

c. Failure mechanism

Canada's transportation network involving railways and shippers is a large, complex system. With government regulation, it contains what is known technically as a "positive feedback loop".[6] Such loops are part of their system's architecture. Their main feature is that the system's performance—its output—gets "fed back" to the input. In other words, the output drives the input. That can make it inherently unstable.

A system with a positive feedback loop may *appear* to be stable. That can be deceiving. If failure begins, it will speed up exponentially. At first it will be hard to detect. But by the time the progression becomes apparent it is often too late to recover. Unless there are robust safeguards built into the system's architecture, it will progress to a state of collapse. With the railway-shipper-government relationship, the positive feedback loop looks like this:



Government regulation contributes to the failure because it empowers a party, the Canadian Transportation Agency, to instruct railways to add traffic to their networks—at times, and over corridors, where the railway may well be rationing its services to avoid congestion. But the Agency does not know about the susceptibility of the network to congestion and it is likely to misjudge situations.

As long as there is a positive feedback loop in the system of railway-shipper relationships—and with government regulation there is—the performance of the railway system in serving the needs of shippers is at risk of falling with a swiftness that takes everyone by surprise. The system may not collapse entirely to zero, but it could drop to the point of damaging the Canadian economy for a sustained period of time.

---

6. The term probably originated in electronics engineering but it applies to a large number of other fields including psychology and economics. A run on the bank is a good example. The phenomenon is sometimes called a vicious circle or a self-fulfilling prophesy.

The failure mechanism has already begun. There are two causes. First is the recent practice of some shippers with political and ministerial clout to convert their dissatisfaction with rail service into the separate regulatory adoption of measures that give them potentially-unlimited access to a finite network and head-of-queue positions that benefit themselves, but at the expense of other shippers, traffic patterns, and railway capacity. And second is the *response* by government in enacting such measures.

We do not doubt that the dissatisfaction of many shippers is real and legitimate. That is a serious problem and it needs to be fixed. But transportation policy does a poor job of establishing what constitutes legitimacy. It is not within the scope of this Submission to answer that question. Our purpose is to demonstrate that the current process for dealing with such questions, being so dependent on government intervention, is causing a failure in the system of governance. It will have serious consequences for Canadians. Our purpose is also to recommend a path for improving it.

The failure progression now underway began with Bill C-52. It opened the door to a downward spiral. You can see it with a brief look at Bill C-52, Bill C-30, and decisions rendered by the Agency under those two pieces of legislation, namely the Dreyfus decision, and the Viterra and Richardson decisions.

(i) Bill C-52—the *Fair Rail Freight Service Act*

This legislation arose from shipper complaints. It contained two main features: mandatory service agreements if a shipper asks for one, and third-party arbitration if a shipper insists on it. Neither shippers nor railways claimed to be particularly satisfied with the legislation. It has left room for abuse because the *Act* has at least two non-trivial loopholes. One is that arbitrators are obliged to take into account the effect of a decision on other users of the rail network.[7]

That is a critical provision. It is about the only safeguard in the legislation to prevent individual shippers from over-accessing the network at their own volition, and driving it to the point of congestion.

But it is a meaningless provision. No independent arbitrator can ever have sufficient system-level understanding about the way in which a given railway has been designed to function, nor the data to know what cross-coupled effects are likely to occur at any given time.

That puts arbitrators in a tricky spot because they have to rely on receiving detailed information from the railway being arbitrated. That means they are not independent. And they cannot know whether the information being given to them is accurate.

Probably just as important, a shipper whose case is being arbitrated will not know whether the information is accurate. Therefore he cannot know whether the arbitrator's decision is based on fact. That is a huge problem because it means trust in the system of arbitration is impossible. The only remedy is for arbitrators to ignore the effect of their decisions on other users of the network when-

7. Canada 2013, §169.37 (d) and (f).

ever they decide in favour of a shipper. But that would contravene the requirements in the *Act* and it would push railways towards congestion on their networks. Either way, the failure progression will accelerate.

No one knows where Bill C-52 will cause the relationship between railways and shippers to settle down. Some shippers may seek arbitration for no other reason than to see what kind of decisions and results show up, or to establish precedents.

The idea behind Bill C-52, that arbitration can encourage a viable agreement by resolving outstanding difficulties in the event a negotiation breaks down over the terms of service, is as yet untested. Ironically, failure is likely to give rise to pressures for yet more regulation—even if regulation contributed to the failure. It seems almost certain to do exactly that.

(ii) Bill C-30—*The Fair Rail for Grain Farmers Act*

Bill C-30 obliged railways to double their weekly grain movements. It sets up the "head of queue" dynamic. The tonnage is subject to revision by Cabinet on advice from the Canadian Transportation Agency. The *Act* has ancillary provisions giving every railway access to business in certain regions from shippers on any competing railway's tracks up to 160 km away; and making railways liable to pay penalties for breaching the terms of a service agreement without the complainant having to make his case in a commercial court.

Some of the obligatory grain movements will come at the expense of other shippers if railways cannot maintain their capacity high enough to handle whatever surges may occur in grain traffic. Shippers whose traffic is displaced by the extra grain movements seem likely to feel aggrieved.

The benefits conferred on grain farmers have not gone unnoticed by other shippers. Human nature being what it is, they surely will be tempted to seek front-of-the-queue advantages for themselves. But not everyone can be at the head of the line, so the most recent legislation seems likely to create a push for yet more legislation. That would accelerate the failure.

This *Act* comes before much, if anything, is known about how Bill C-52 will affect railway traffic or the relationship between railways and shippers. In other words, the dynamics of this market space were changed before the effects of the previous change are understood. It looks like a recipe for confusion. When designing an experiment or troubleshooting a problem, it is advisable to change only one parameter at a time.

Quite apart from whether the legislation is intrinsically good public policy, it has two characteristics of major significance. First, it is substantially more flawed than its predecessor, Bill C-52. That contributes further evidence of an accelerating failure progression.

And second, C-30 creates a trigger for non-grain shippers to accelerate the failure mechanism yet again. Grain shippers got to the head of the queue by pressuring the government to put them there. The fact that their non-grain colleagues have not done the same thing is attributable to luck—luck that they are showing so much self-restraint. That could change at any moment. Surely

it is unwise to base so important a matter of public policy on the hope that a fortuitous situation will prevail indefinitely. Hoping for sustained luck does not seem like a very robust strategy.

Bill C-30 represents a second significant step (after C-52) in the failure progression.

(iii) Dreyfus decision

In April 2014 a grain company, Louis Dreyfus Commodities Canada Ltd., filed a complaint with the Canadian Transportation Agency against CN over the railway's failure to supply as many cars as this shipper had requested in the preceding Winter to carry all of its grain to destination. Viterra and Richardson, two large grain companies, requested intervener status, with a view to arguing against Dreyfus's position because of its effect on them. The Agency denied the request. In a decision rendered in October 2014, after Bill C-30 had taken effect, the Agency decided in favour of Dreyfus.

The decision has several key features. It concludes that Dreyfus had a right to what amounts to preferential treatment over other shippers, *even other grain shippers*, by virtue of being entitled to be furnished all the grain cars it requested. There was no indication that the Agency had taken into account three vital considerations, despite being obliged by law to do so:

- whether or not CN had enough "corridor capacity" to serve Dreyfus as requested.
- whether or not those cars were needed for CN to meet its obligations to other grain shippers.
- whether or not CN could meet Dreyfus's request within its (CN's) operational requirements and restrictions.

The Agency's decision in the Dreyfus case acknowledges, but only in a token way, that both the size of the crop and the severity of the Winter were exceptional. It concludes that CN could, and should, have avoided the problem of insufficient capacity by investing in surge capacity needed to handle Dreyfus's business.

The decision has two features of major significance. First, it is substantially more flawed than its predecessor in the failure progression, Bill C-30. And second, shippers will have grounds to conclude that the Agency:

- is in no position, and appears to have no willingness, to enforce the safeguards in Bills C-52 and C-30 to ensure the railway's performance *as a system.*
- does not intend to defend the interest of a railway to meet its fiduciary obligations to its shareholders.
- is likely to support all manner of future complaints that will oblige railways to invest potentially-unlimited amounts of money expanding their capacity without earning a return on it.

It would be surprising if shippers did not see new opportunities for themselves in this decision, and pursue them accordingly. If they do, the failure progression will accelerate dramatically. The decision represents a third significant step in the failure progression.

(iv) Viterra and Richardson decisions

We understand that in the Summer of 2014, Viterra filed a complaint with the Agency over CN's behaviour during the preceding Winter. Even though CN had sent Dreyfus fewer grain cars than it had requested (and CN was found in breach of its obligations for that), Viterra pointed out that CN had furnished the small company more than its historical share of cars, and therefore CN had proportionally short-changed Viterra as a result.

We understand the Agency found in favour of Viterra. That conflicts with the Agency's own Dreyfus decision. And the two decisions taken together mean that the Agency is compelling CN to provide grain shippers with more than 100% of the cars it has available. That violates the laws of physics.

More recently, Viterra and Richardson filed parallel complaints with the Agency over CN's past and anticipated future behaviour in obeying the Agency's order in the Dreyfus decision. The Agency found the complaints were not adjudicable and dismissed them. The effect is to uphold CN's obligation to treat shippers unequally, and to override the car-sharing formula that has worked reasonably well since the late 1980s. That seems likely to open the door to further complaints. Chaos in this part of the system is a clear possibility.

From a public policy standpoint the Dreyfus, and the Viterra, and Richard decisions represent a case-by-case approach to regulatory enforcement via new micro rules without regard to the Agency's own previous decisions or their cumulative effect on the rail transport system. It is hard to know what the various players will be motivated to do as a result, but one thing is clear: these combined decisions represent a fourth significant step in the failure progression.

d. Congestion, capacity, and "surge capacity"

The movement of traffic on a railway is similar to that of automobiles on an expressway. As the volume of traffic increases, so does the possibility of a minor random event bringing everything to a standstill. Congestion on an expressway at rush hour is a familiar example. It takes little or nothing to trigger it. The closer the artery is to operating at capacity, the less it takes.

Railways are susceptible to all manner of minor events. If they (the railways) had infinite spare capacity the perturbations would do no harm. But their "Model 21" concept of optimization keeps spare capacity at a judicious minimum.

That makes railways cautious about approaching the capacity limit of any of their corridors. As of today, CN and CP are not operating at capacity in most parts of their networks—at least, most of the time. But the limit of a corridor's capacity is hard to determine with precision. It can be reached without warning in certain places if conditions permit. If congestion occurs, it is liable to spread to other parts of the network. Then the volume of traffic that can move on the railway plummets, and the transit-time for shipments to reach destination can easily double or triple.

Avoiding congestion is one of the trickiest problems faced by railway operating managers. They have four main ways to prevent it:

1. operate their rail networks according to principles of traffic-movement that keep things flowing smoothly.
2. keep the volume of traffic on their rail networks below a threshold at which congestion starts to occur spontaneously.
3. avoid accepting any kind of traffic that synchronizes poorly with the characteristics of the majority of traffic.
4. expand the throughput capacity of the rail network by investing in plant, equipment, and capacity-enhancing technologies.

Method 1 amounts to railways avoiding self-induced congestion. No one argues against the principle of railways doing that.

Methods 2 and 3 amount to railways avoiding customer-induced congestion. But these two methods violate their common-carrier obligations, so their flexibility in that regard is highly constrained. Still, railways go part-way down this slippery slope by rationing their services at least some of the time. But that is a grey zone shippers find hard to distinguish from railways having simply denied them service at all.

That raises tricky policy questions about how much latitude railways should be allowed in rationing their services. It raises even trickier questions for transportation policy about how much latitude railways should be allowed in letting any part of their networks ever reach such a busy state that rationing becomes necessary to begin with. (But with their statutory common-carrier obligations, how much latitude do railways really have?)

Method 4 amounts to railways avoiding congestion of both kinds—self-induced and customer-induced. But it needs to be planned far in advance because it is too slow-acting to deal with temporary causes of congestion, like rockslides, snowstorms, equipment failures, derailments, sudden upswings in traffic volume, delayed arrival of ships in port, or changes in the mix of traffic. The conundrum is that if railways are obliged to stick 100% to the letter of the common-carrier law—in other words, never to go down the slippery slope of rationing—Method 4 is the only one railways have for dealing with customer-induced congestion.

Canadian transportation policy has put railways in a bit of a box. Unless everyone is prepared to look the other way and not insist on 100% adherence to common-carrier law, railways seem to have only two ways out: let customer-induced congestion occur (by allowing traffic to grow unrestrained, and by refraining from rationing); or invest however much money it takes to continuously expand the capacity of their networks in anticipation of demand and perturbations, so that congestion never occurs and rationing is never needed.

Spare capacity costs money. Under “Model 21” railways try to keep just enough to handle random events, and upswings in traffic, at a certain level of probability. That is influenced by their confidence in forecasts, including forecasts provided by shippers. Railways pay for that spare capacity

from earnings and with financing from capital markets. How lean they should be is a matter of debate. It is also a matter of "unruly" public policy that defies regulation by government alone.

At some point, the size of an upswing in traffic extends beyond statistical expectations and becomes a surge. To handle it, railways need "surge capacity" at a quantum above what "Model 21" provides. If a railway tries to handle the full amount of a surge on its existing network, congestion is almost certain to occur. Then everyone loses. And the failure progression will accelerate.

Surge capacity costs a quantum more than spare capacity does. The infrequency of surges means that all surge capacity sits idle most of the time. Under "Model 21", railways will not voluntarily pay for it from their earnings, or with financing from capital markets, and their shareholders will not voluntarily let them.

Some shippers have argued lately that railways should bear the cost, for example to handle the unprecedented crop of grain in 2013. But pay for it how? It is not clear that grain companies or anyone else is prepared to see freight rates increase to cover it. In fact, the revenue cap prevents railways from passing on the cost of unused surge capacity to grain farmers or grain shippers. So who should pay? Non-grain shippers? Railway shareholders? Government and the taxpayer? That is even more of a matter of public debate.

Meanwhile, the phenomenon of congestion remains poorly understood—even by the Canadian Transportation Agency. Shippers sometimes demand more than the system can deliver. Government regulation sometimes makes it possible for them to get it. Through legislation, Cabinet and the Agency are taking on a *de facto* role of railway network traffic managers without the slightest possibility they could ever know enough about the job.

e. The Canadian Transportation Agency

In the failure mechanism we describe in this Submission, the Agency has been drawn into being an integral part of the positive feedback loop referred to earlier. How it discharges its mandate will influence the speed at which the failure progresses. So far the signs are not encouraging. In the months following the passage of Bill C-52 the Agency has been drawing up "operational terms" and incorporating them in new regulations. There are serious flaws.

Probably the most serious flaw is the list of situations a railway is allowed to claim in its own defence for not meeting its obligations towards a shipper. There must have been a "superior force" at work. The Agency lists the situations that meet this test: flood; fire or other natural disaster; war or insurrection; riot, strike, or lock-out; blockage of rail lines due to an accident; a demonstration; a natural cause or another cause (Frid 1). Unless the railway demonstrates that one of these occurred it will be found in breach.

It does not take a vivid imagination to think of situations the list fails to include, that will cause railways to be found in breach when they should not be. Here is one:

> the railway's traffic was habitually delayed by congestion caused by the railway having followed an arbitrator's previous order to carry more cargo than the corridor could handle.

Railways are liable to be found in breach of their obligations if a disruption occurs in the portion of a supply chain located abroad, or in the marine portion, that caused Canadian shippers to experience the ripple effects through no fault of the railway. Such disruptions occur regularly.

Flawed determinations of "breach" are a direct result of the regulatory framework focussing its enforcement efforts on the determination of guilt or innocence of a single player in a given relationship, usually the railway, rather than focussing on the dynamics of a complex system with multiple players. Section 5 of the *Canada Transportation Act* calls for a broad perspective. The regulatory framework is not providing one. It needs to.

By taking the resolution of these issues out of the marketplace, where railways and shippers negotiate business dealings with detailed, first-hand knowledge of the situation in each and every case, Bill C-52 invites the Agency to micro-manage railway-shipper disagreements using a set of flawed proxies for what is really desired.

There are broader problems. According to the Agency, the confidentiality provisions in law prohibit it from divulging facts surrounding a given arbitration (Frid 2). So nobody outside the Agency will be able to review the circumstances of a given case and determine whether the arbitration made a difference in railway-shipper relations—and if it did, whether that was helpful or unhelpful.

That in turn will make it impossible for anyone to evaluate the performance of Bill C-52 and Bill C-30 using direct evidence from the cases at hand. It will also make it impossible for anyone to evaluate the performance of the Agency in discharging its duties under the law. Why? Because if it is not possible to evaluate any given case, it will be impossible to evaluate the aggregate of all the cases, except perhaps by such imprecise and subjective means as surveying shippers for their opinions. But a survey like that will drive the regulatory process even further to politicization.

It is not clear to us that there is a governance regime for the Agency that is capable of detecting and measuring these things and of holding the Agency accountable for its own performance. The absence of transparency in cases that will come before the Agency—whose absence the Agency supports in the name of confidentiality—make the prospects of good governance and accountability seem remote. We believe that, if left to its own devices, the Agency will cause significant damage to the rail transportation system by its process of enforcing the recent legislation.

There is a fundamental flaw in the premise that government can draw up legislation like Bills C-52 and C-30, and hand it to the Agency for enforcement, and necessarily get beneficial results. The Agency's role and performance need to be examined. More pressingly, the scope of its decision-making under the two recent Bills needs to be circumscribed.

Even if the next iteration of the *Canada Transportation Act* explicitly instructs the Agency to take the overall efficiency of the entire transportation system into account in its consideration of any matter before it—and we think it should be so instructed—it is not clear that would be enough.

There is a dearth of mechanisms in Canada for any party but railways to understand the system-wide implications of capacity and traffic demands on the national railway network. Such a mechanism probably needs to be built. Having been entrusted for years by many supply-chain players to respect the confidentiality of their data, Transport Canada might be the place to do it.

f. The "common carrier" principle

This principle had its origins in the 1820s, when railways were first being built. The main idea is that railways (and all carriers) offering their services to the public must have permission from government to operate. Permission comes with certain conditions: the railway must serve all shippers who bring goods for carriage, and it must not discriminate against any shipper in favour of another.

The principle was embodied in statute. It gave protection to shippers from the possibility of targetted abuses by railways. It almost certainly was a net benefit in public-policy terms during the first century of rail transportation. But that was when railways were operating considerably below capacity for much of the time. They had the *means* to carry every shipper's traffic.

The principle appears to have negative effects, now that railways sometimes operate at capacity on at least some parts of their networks. To avoid congestion, railways must ration their services at least some of the time. That contravenes the common carrier principle.

Besides rationing, railways avoid congestion by planning their capacity and their operations based on forecasts of traffic. But some shippers interpret common-carrier provisions in the law as giving them a dispensation for not providing railways any forecasts at all. This complicates the planning and management of the rail system, with negative consequences for everyone who uses it or depends on its performance.

The common carrier principle embodied in law has been contravened by Bill C-30. It (the Bill) instructs railways to give priority to some shippers over others. If government can ignore this feature of the law at its pleasure, how legitimate can the principle really be?

The common-carrier principle as originally conceived may have outlived its usefulness. As mentioned, it was intended to prevent targetted abuse by railways of selected shippers. It would be naïve to think the potential for abuse has disappeared. That in itself would make an important study. But the common-carrier principle has become at least as dysfunctional as it was meant to be helpful. It contains the premise that there should be no casualties of the transition made by railways over the past two decades in response to the massive changes in their external environment—no casualties regardless of whether a given shipper adapts to the new realities in transportation.

Of course the public interest would be well-served if every shipper *were* accommodated in the transition. But legislation that attempts to guarantee such an outcome is certain to be fraught with serious unintended consequences. The common-carrier principle needs to be re-thought in these terms. And it needs to take into account what is involved in the social license of railways—and the social license of the parties that use, and are affected by, this system of freight transportation.

4. Main arguments and key recommendations in transportation policy for the rail sector

a. Rethinking the model; preparing for the future

It seems likely that railways and shippers will soon be back in front of government, with similar problems as before but no additional insight about how to resolve them.

We need a new paradigm. Policies and regulatory measures recently introduced by government appear doomed to disrupt and distort rail operations over time. Railways have been driven to a 21st Century model of optimization ("Model 21") for which the tools available to government to regulate this market space are counterproductive and risk bringing the rail system to a point that it (a) cannot recapitalize itself; (b) cannot provide the level of service all shippers are given to understand by common-carrier law they are within their rights to expect; and (c) cannot grow to meet Canada's expanding opportunities in trade and economic development.

Government faces a choice between:

- Changing railways' current "Model 21" concept of operations—and therefore changing the railways' economic construct[8];

  OR

- Changing expectations on the part of Canadians and Canadian shippers who believe every shipper has a right under the law to be served by a railway on terms that support that shipper's business model—independent of the consequential effects on (a) railway network operations; (b) performance of the railway system as a whole; and (c) performance of all other supply chains served by the same railway.

This is the crux of the issue. Should government allow market forces to let certain shippers (mainly small ones) go under if they cannot adapt to the railways' business model? Government cannot regulate its way out of this box. It has to make a choice. It does not have adequate diagnostic, data, and mediation tools and policies at its disposal. And it cannot solve the problem by compelling railways to invest in however much capacity is needed to satisfy all shippers under all conditions, while at the same time expecting them (the railways) to use only marketplace financing to do so.

Nor does the Canadian Transportation Agency have the tools to find a solution to the conundrums inherent in the way "Model 21" is currently regulated. That should not be a surprise. The fact that Bills C-52 and C-30 were silent on how the Agency was supposed to deal with these conundrums signifies that government did not express what kind of solution it actually wanted, and probably did not know whether such a solution even existed.

---

8. This almost certainly would usher-in a new era in which public sector co-funding of railway infrastructure is needed to provide the desired surge capacity.

That is almost *prima facie* evidence the regulatory paradigm as currently constructed does not work, and in our judgement, no longer *can* work without serious unintended consequences—most notably in an accelerating degradation of the rail system's performance across much of Canada, and concomitant damage to the competitiveness of Canadian supply chains and all the companies that participate in them.

b. Key recommendations

We argue overall that **government** take immediate steps to prevent railway-shipper relationships from further deterioration. It should do this by:

1. Placing a temporary moratorium on further direct statutory or delegated law measures in economic regulation, measures that are causing a failure progression as described in this Submission.[9]

2. Reviewing and researching the role and governance of (not by) the Canadian Transport-ation Agency, its degree of independence, and the usefulness of its case-by-case approach, its interventions, and its involvement in these kinds of problems and practices.

3. Redefining and documenting what the social license truly involves in the "Model 21" rail sector. This needs to include an explicit review and discussion of the place of various third parties, as discussed in this paper—those beyond railways and shippers who are strongly affected by what those two parties do.

In this context, the **Review Panel** itself should:

1. Determine a research-informed answer to the main policy goals and questions we pose in this Submission, which is the crux of finding the sought-for consensus discussed above.

2. Identify, independently research, and establish the basis for a broad understanding of what is meant by the rail sector's social license, including a comparative analysis of practices in other federal regulatory governance fields in Canada and the principles of sound public policy.

3. Recommend in its report that government launch a process to deal expeditiously with the remainder of the issues discussed, including by engaging the private sector in the creation and ongoing use of new tools for managing railway-shipper relationships under much more market-based conditions.

---

9. "Economic regulation" refers to intervention (by government) in railway-shipper relationships. It does not refer to safety regulation.

References

Braithwaite, John. 2008. *Regulatory Capitalism*. Edward Elgar.

Canada. 1985. *Freedom to Move: A Framework for Transportation Reform*. Minister of Transport.

Canada. 2011. *Rail Freight Service Review: Final Report*. Transport Canada.

Canada 2014. Asia-Pacific Gateway and Corridor Initiative website, 10 March 2014. Government of Canada.

Doern, G. Bruce. 2010. *The Relationships Between Regulation and Innovation in The Transport Canada Context.* A Paper Prepared for Transport Canada.

Doern, G. Bruce, Michael J. Prince and Richard J. Schultz. 2013. *Rules and Unruliness: Canadian Regulatory Democracy, Governance, Capitalism and Welfarism*. McGill-Queen's University Press.

Coleman, John, and G. Bruce Doern. 2014. *Railway-Shipper Relations in a Networked Governance Model*. Regulatory Governance Initiative. School of Public Policy and Administration, Carleton University.

Dahlgren, Peter. 2013. *The Political Web: Media, Participation and Alternative Democracy.* Palgrave MacMillan.

Dinning, Jim. 2012. *Facilitator's Final Report: Service Agreement Template and Commercial Dispute Resolution Process*. May 12.

Frid, Nina. 2014. "Bill C-52 and Bill C-30: New Rail Provisions". Presentation to the Chartered Institute of Logistics and Transportation in North America, Ottawa chapter, on behalf of the Canadian Transportation Agency, 11 September 2014.

Frid, Nina. 2014. "Bill C-52 and Bill C-30: New Rail Provisions". Oral session following presentation to the Chartered Institute of Logistics and Transportation in North America, Ottawa chapter, 11 September 2014.

Goldratt, Eliyahu. 1984. *The Goal.* North River Press.

Hill, Margaret M. 1999. "Recasting the Federal Transport Regulator: The Thirty Year's War". In *Changing the Rules: Canadian Regulatory Regimes and Institutions*. 57-81. Edited by Bruce Doern, Margaret Hill, Michael J. Prince and Richard J. Schultz. University of Toronto Press.

Janisch, Hudson. 1977. *The Regulatory Process of the Canadian Transport Commission*. Law Reform Commission of Canada.

Langford, John. 1976. *Transport in Transition: The Reorganization of the Federal Transport Portfolio*. McGill-Queen's University Press.

Murray, Tom. 2011. *Rails Across Canada: The History of Canadian Pacific and Canadian National Railways*. MBI Publishing.

Pal, Leslie, and Judith Maxwell. 2003. *Assessing the Public Interest in the 21st Century: A Framework*. Paper prepared for the External Advisory Committee on Smart Regulation, Ottawa.

Ruppenthal, Karl, and W.T. Stanbury, eds. 1976. Transportation Policy: Regulation, Competition and the Public Interest. Centre for Transportation Studies. University of British Columbia.

Stanbury, William T. 1980. *Government Regulation: Scope, Growth and Process*. Institute for Research on Public Policy.

Statistics Canada, CANSIM Tables 029-0033 and 029-0012, supplemented by data from Railway Association of Canada *Rail Trends 2013* and from CN and CP Annual Reports.

Statutes of Canada 2013. *Chapter 31: An Act to Amend the Transportation Act*. Parliament of Canada.

Statutes of Canada 2014. *Chapter 8: An Act to Amend the Grain Act and the Transportation Act*. Parliament of Canada.

Transportation Safety Board of Canada. 2014. *Railway Investigation Report R13D0054*. Transportation Safety Board of Canada.