

A New Vision of Mobility:

Guidance to Foster Collaborative, Multi-modal Decision Making:

The Case for Freight

Requested by:

American Association of State Highway
and Transportation Officials (AASHTO)

Standing Committee on Planning

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The work was guided by a task group of three individuals with many years of experience. It included Christina Casgar, George Stern and Alex Taft. Christina Casgar currently serves as a senior policy advisor in the Secretary's Office of Freight and Logistics at USDOT. Her background includes many years' work with freight and intermodal issues—with rail, trucking, and ports, in both private and public sectors. Ms. Casgar served as the founding director of a private foundation to promote intermodal transportation, the Foundation for Intermodal Research and Education (FIRE). George Stern has spent most of his 40-year transportation and logistics career with freight railroads, including being president of two short-line railroads, vice-president of operations of the Detroit, Toledo and Ironton Railroad, and assistant vice-president intermodal of the Illinois Central Gulf Railroad. He currently consults as an internal consultant for the logistics subsidiary of GM Corporation. Alex Taft worked for more than 30 years in the urban transportation arena including serving as transportation director in Boston, Massachusetts and Wilmington, Delaware. He retired in 2004 as Executive Director of the AMPO.

The project was managed by Dianne Schwager, NCHRP Senior Program Officer.

TMI, the lead firm for the collaboration project, has led a number of TRB projects exploring multimodal planning and implementation, as well as a number of collaborative projects helping diverse interests work together on transportation issues. One of these was a five-year effort in Wilmington, Delaware which brought together the state DOT, the MPO, the city and private interests on a series of planning and capital improvement projects aimed at supporting redevelopment objectives in the downtown and targeted neighborhoods.

The principal investigator for the project is Diane Pecor, who worked on freight issues and transportation collaboration at the international level for 12 years as a program and policy analyst for both the Federal Railroad Administration and the Federal Highway Administration (FHWA). Ms. Pecor has supervised numerous rail finance and operations contracts, including completing and interrelating a 48-contract body of work that became *A Prospectus for Change in the Freight Railroad Industry*. She has held officer positions with the Transportation Research Forum and the Citizens Advisory Committee of the Transportation Planning Board (TPB) in Washington DC. In a ten-year association with the TPB, she has championed the inclusion of freight in regional transportation plans. Her most recent work for TMI was, over a period of three years, as a senior analyst on a

series of management reorganization assessments for Amtrak, including re-organization of its mail and express service.

The senior analyst is Sarah Campbell, president of TMI, who has served on many NCHRP and TCRP teams, including *A New Vision of Mobility: Guidance to Foster Collaborative, Multimodal Decision-making*. Ms. Campbell started her career in national transportation policy as an industry analyst for the Federal Railroad Administration and subsequently served as Special Assistant for Urban Programs to the Assistant Secretary of Budget and Programs, USDOT. For the last three years, she has worked with the non-profit research organization, Reconnecting America, on intercity passenger and freight issues. She recently served as a member of the team for NCHRP 8-47, developing a *Guidebook for Freight Policy, Planning, and Programming in Small and Mid-Sized Metropolitan Areas*.

Disclaimer

The opinions and conclusions expressed or implied are those of the research agency that performed the research and are not necessarily those of the Transportation Research Board or its sponsors. This report has not been reviewed or accepted by the Transportation Research Board's Executive Committee or the Governing Board of the National Research Council.

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PREFACE

The growing effects on the Nation's transportation system from global trade are elevating the debate among the U.S. and state Departments of Transportation (DOTs) and other experts on how the system will accommodate the demands of expanding trade. Because freight transportation is predominantly a private sector operation, many public agencies are new to considering freight in their investment planning and private companies are equally unaccustomed to working with DOTs. Moreover, where the infrastructure – rails, yards, terminals, docks, etc – are private, there is a concern about the effect of public dollars “helping” private enterprise. In the case of rail, the major carriers, which own the rail system, have been reluctant to take public dollars for fear that conditions placed on receiving public money may affect their business practices.

At the same time, rail rights-of-way and waterways offer capacity opportunities and cost- and energy- efficiencies, increasing their potential role in freight transportation. Motor carrier operations, however, are facing many challenges to expansion: driver shortages, increased energy costs, and new hours-of-work rules, to name a few. As a result, rail intermodal traffic is up substantially, registering a 13.1 percent gain in 2004 and a 6.4 percent increase in 2005 according the Association of American Railroads. The potential for rail expansion, however, in many corridors is hindered by years of disinvestment, and by freight chokepoints at rail-highway grade crossings, short sidings, inadequate terminals and deteriorated bridges. Environmental and community impacts from increasing traffic need to be addressed as well. Fixing these conditions will require substantial investments that often do not produce a sufficient return on capital to justify the cost to private investors. In these cases, without public sector investment nothing will get done.

The case examples of public-private freight collaboration documented in this report illustrate why investing in a private good has public benefits, and why these ventures are worth the effort involved to both the public and private sectors. The four examples range from a simple state/railroad partnership around a single rail line and port to much more complex multi-state, multi-modal collaborations involving hundreds of millions of dollars in improvements. In each case, money served as an early catalyst for getting the parties to the table, but each collaborative mechanism was unique. Other important ingredients to these projects were strong leadership and respect among the participants, attributes that built trust and kept collaborators together, leading to success for all the partners. One unexpected finding is that once trust is established, partners in successful collaborations go on to take on other tasks for their mutual benefit.

CHAPTER 1. RESEARCH APPROACH AND MAJOR THEMES

We cannot solve today's problems with the same level of thinking that created them. (Albert Einstein)

Background

Between 2001 and 2004, *TransManagement, Inc.* (TMI), in association with Christina Casgar, Matthew Coogan, and Dr. Michael Meyer, undertook a series of studies on collaboration in transportation under the general title, *A New Vision of Mobility: Guidance to Foster Collaborative, Multimodal Decision-making*. That research effort resulted in several products as described in the accompanying text box.¹ Five focus groups, including a panel of experts from state departments of transportation attending the 2003 annual meeting of the American Association of State Highway and Transportation Officials (AASHTO), reviewed the concepts for the handbook.

A New Vision of Mobility: Guidance to Foster Collaborative, Multimodal Decision-making

TCRP H-29 and NCRHP 8-45 consists of three reports:

- *A Research Results Digest*, summarizing an extensive review of examples of collaboration in passenger transportation and published in February 2004.
- *A Compendium of Research Results* is a description of numerous cases of collaborative planning and implementation efforts in the U.S. and Europe. This was published as a Compact Disk (CD) and included in the third publication.
- *From Handshake to Compact: Guidance to Foster Collaborative, Multimodal Decision Making*, a practitioners' handbook for conducting collaborative activities, including a self-assessment of the status of a collaboration. This document and accompanying CD was published in 2005.

Overall, participants affirmed the value of the handbook to the profession, except that some AASHTO and Association of Metropolitan Planning Organization (AMPO) participants expressed concern about the lack of freight examples in the final product. The project panel overseeing the collaboration studies concluded, however, that this project should exclude freight examples because they did not fit the project's focus on urban mobility and because of the already large number of projects

included in the compendium. As a result, the freight effort was postponed. Now, TMI has conducted the research and documented the role of collaboration in advancing worthy freight projects through the development of four case studies.

With the growing effect of global trade on our transportation system and the emphasis being placed by the U.S. DOT on freight planning and freight action plans, this research is both timely and useful to transportation agencies. These case studies will

¹A summary of the compendium and the project's goals is provided in the *Research Results Digest* (http://www.trb.org/news/blurb_detail.asp?id=2632).

provide DOTs, MPOs, and other stakeholders with guidance and advice on how to incorporate freight representatives in collaborative efforts, including in funding these complex, multimodal projects. For example, recent research in several states has highlighted the important role that rail can play in reducing highway congestion and improving air quality, but to achieve these benefits it is generally the case that multiple states and several railroads must act together to undertake capital and service improvements. The challenge involves building and sustaining complex relationships as much as (and perhaps more than) it involves identifying funding sources.

Research Objective

The goal of the proposed project is to complete the research conducted earlier on collaboration in passenger transportation with four new case studies on successful collaborations involving freight. We believe they will contribute substantially to the body of knowledge on how to undertake complex, intermodal, freight projects. The earlier research results appear in a separate CD-ROM, but this freight research effort also can serve as a companion to the larger compendium: *A New Vision of Mobility: Guidance to Foster Collaborative, Multimodal Decision-making*.

Research Approach

The investigators began by reviewing the literature that had been documented by draft and final reports produced by the TRB, Federal Highway Administration (FHWA), and interest groups such as the American Trucking Association and Association of American Railroads. Next, through interviews with experts in the field, including personnel in consulting firms, trade associations and universities, the team updated the information on projects identified in the initial collaborative research carried out by TMI, as well as other projects identified by the study team. The Review Committee added two new potential candidates for investigation, the Heartland Improvement Project and the New Orleans Carrollton Curve, to the original list of ten. These initial projects were summarized in a matrix and presented to the Review Committee members who were asked to select examples for further investigation as case studies. A summary of these 12 examples considered as potential case studies follows as an attachment to this report.

In reaching its decision, the Review Committee considered variety, complexity, geography, types of organization or governing structure, and transportation modes involved in the collaboration. Taking all these characteristics into consideration, they selected these four projects: Shellpot Bridge in Delaware, the Kansas City Flyovers in the Greater Kansas City region of Missouri and Kansas, the Freight Action Strategy for Seattle/Tacoma/Everett (FAST) in the state of Washington, and the Niagara International Transportation Technology Coalition (NITTEC) in the Niagara Region of western New York state and southern Ontario as best meeting the selection criteria.

While the attributes of the four case studies are quite different, the investigators directed their case study efforts to identifying key elements of the project, documenting what led to the collaboration and what kept it going. They also addressed what were the primary reasons for the

success of these efforts, as well as challenges to the project and lessons learned that might be applied to other efforts. The case studies are included as Chapters 4 through 7 of this report.

CHAPTER 2. GLOBAL TRADE AND GOODS MOVEMENT

*It is the interest of the commercial world that wealth
should be found everywhere.* (Edmund Burke)

Trends in Freight Transportation

As the U.S. economy expands, the demand for freight transportation services—local, national, and increasingly international—expands with it. The U.S. DOT Bureau of Transportation Statistics reported that in 2002 the U.S. freight system moved 43 million tons of freight over 12 billion miles.² According to AASHTO, freight tonnage will increase by 57 percent by 2020 and import-export tonnage will increase by nearly 100 percent, growing at a modest three percent each year.³ If mode-split remains the same as today (trucks, 78 percent; rail, 16 percent; and barges and coastal shipping, six percent), freight needs will soon outpace the available capacity in the freight system.

As **Table 1** shows, between 1990 and 2003, U.S. exports (based on the value of shipments), grew almost five percent per year from \$393 billion to \$724 billion. Over the

TABLE 1. U.S. International Merchandise Trade, 1990–2003
(Current \$, billions)

Year	Total	Exports	Imports	Exports as % of Total
1990	889	393	496	44.2
1991	911	422	489	46.3
1992	980	447	532	45.7
1993	1,045	465	580	44.5
1994	1,176	512	664	43.6
1995	1,327	583	744	44.0
1996	1,414	623	791	44.0
1997	1,558	688	870	44.1
1998	1,594	680	914	42.7
1999	1,718	693	1,025	40.3
2000	1,997	780	1,217	39.1
2001	1,873	731	1,142	39.0
2002	1,857	693	1,164	37.3
2003	1,983	724	1,259	36.5
Change 1990-2003 (%)	123.1	84.2	153.9	
Average. Annual Growth (%)	6.4	4.8	7.4	

SOURCE: U.S. Department of Transportation, Bureau of Transportation Statistics, based on data from U.S. International Trade Commission, (USITC) Interactive Tariff and Trade Dataweb, available at <http://dataweb.usitc.gov/> as of Sept. 15, 2004.

² USDOT/BTS, http://bts.gov/programs/freight_transportation/html/more_freight.html, accessed November 19, 2005.

³ *Transportation: Invest in America, Freight-Rail Bottom Line Report*, AASHTO, page 2.

same period, imports grew even more, from \$496 billion to \$1,259 billion.⁴ These products used the transportation network, often several times each, as they moved from raw materials to producer to final user.

The freight system has grown to include a complex of tracks and roadway, terminals, and distribution and warehousing facilities. Trade gateways serve local and regional markets, but increasingly handle traffic that originates and terminates far from local markets. For example, at Detroit, the nation's busiest land port, 70 percent of the value of shipments originate or terminate somewhere outside Michigan. At Laredo, Texas, currently the busiest port between the United and Mexico, 75 percent of shipments by value begin or end outside Texas. **Table 2** identifies the top 10 international gateways, based of value of shipments, for 2004.⁵

Table 2. Top U.S. International Freight Gateways, 2004

2004 Rank	2003 Rank	Gateway Name	Billions of U.S. Dollars		
			Total Trade	Exports	Imports
1	2	John F. Kennedy Int'l Airport, NY (air)	125.3	52.7	72.6
2	1	Los Angeles, CA (water)	121.4	16.4	105.1
3	5	Long Beach, CA (water)	121.3	18.6	102.8
4	3	Detroit, MI (land)	113.8	58.2	55.6
5	4	New York and New Jersey, NY/NY (water)	113.5	23.1	90.4
6	6	Laredo TX (land)	89.5	38.4	51.1
7	7	Los Angeles Int'l Airport, CA (air)	68.7	33.9	34.8
8	9	Buffalo-Niagara Falls, NY (land)	68.3	31.7	36.6
9	11	Houston, TX (water)	66.4	29.2	37.2
10	8	Port Huron, MI (land)	65.9	23.6	42.3
		TOP 10 Gateways	954.2	325.8	628.4
		Top 10, percent of total trade	41.7	39.9	42.8
		Total trade, all gateways	2,286.2	816.5	1,469.7

Source: USDOT/BTS

Changes in the structure of the U.S. economy, shifts in relationships with major trading partners, and modal trends all affect the freight transportation system. As the U.S. moved from being a manufacturing to a service economy, the need for local production shifted to goods produced in other countries, especially China, Canada and Mexico. As will be shown in the case studies and immediate two sections that follow,

⁴ *America's Freight Transportation Gateways*, USDOT/BTS, page 1.

⁵ Taken from "Moving the American Economy," USDOT Office of Public Affairs, November 28, 2005. This chart updates information maintained by the Bureau of Transportation Statistics. It relies on information from a variety of sources. Some caution is required in year-to-year comparisons. For example, ports/gateways once combined in reports, e.g., Los Angeles and Long Beach, are now disaggregated.

these shifts have and will require a change in the relationships in the government agencies, between these agencies and the private sector, and in the traditional planning and funding arrangements.

Changes to Freight System to Accommodate Trade Shifts

Not any one thing caused these major trade shifts, but many conditions influenced the changes and the rate at which they proceeded: advances in science and telecommunications, technological advances in the transportation industry, regulatory relaxation and restructuring, treaties to reduce trade barriers, population growth, and what might be called the “internationalization of the U.S. economy.”⁶ As **Table 1** showed, the U.S. need for manufactured goods from abroad increased and the level to which this is true can be observed in the growing trade deficit. Not only is the fact of these trade relationships important, the source of merchandise is critical in terms of understanding new freight transportation requirements. As U.S. DOT reports, “While the pace of trade with Canada and Mexico will affect the relative roles of trucking and rail, growth trends with the Pacific Rim nations will impact U.S. containerized cargo throughput and intermodal traffic.”⁷ **Figure 1** provides a visual reference for the location of the top international gateways ranked by shipment value.⁸

Under its current configuration the system is less than ideal for addressing future needs and accommodating these needs warrants substantial investment across the board in the freight system. To name a few, marine ports already need improvements to local access roads and deeper channels. Rail freight would benefit from improved at-grade rail crossings. With highways, addressing congestion, border crossings, and community and environmental concerns would improve goods movement. Transportation security considerations affect all modes. The only way to meet the growing all-mode cargo demand is through an aggressive improvement program. Such a prospect poses unique challenges and will only be met through new policies and collaborative thinking.

The Need for Collaborative Models

While the *Intermodal Surface Transportation Efficiency Act (ISTEA)* set the stage for an “intermodal transportation system,” as such, none exists today. Instead, what predominates is an aggregation of private and public individual modes, each “stove-piped” within its own individual areas of interest.⁹ Evidence exists that, in small pockets across the U.S., transportation providers have expanded their deliberations and actions to include new ways to solve problems. The four case studies under consideration in the remainder of this report have all moved beyond “stove-pipe” thinking. They vary in location, mode, kinds of inclusion, complexity, and solution, but each adds to the literature as a source for collaboration and creative problem-solving.

⁶ *U.S. International Trade and Freight Transportation Trends*, USDOT/ BTS, page 3.

⁷ *Ibid*, page 3.

⁸ *America’s Freight Transportation Gateways*, page 3.

⁹ That is, each mode has a vertically integrated information system, vertically integrated planning, development and management programs, and vertically integrated funding mechanisms with virtually no “cross-walk” between modes.

**Figure 1. Location of Top US International Freight Gateways
Ranked by Value of Shipment Value: 2003**



NOTES: See table C-17 on page 134 for the data. All data-Trade levels reflect the mode of transportation as a shipment enters or exits a border port. Flows through individual ports are based on reported data collected from U.S. trade documents. Trade does not include low-value shipments (in general, these are imports valued at less than \$1,250 and exports that are valued at less than \$2,500). Air-Data for all air gateways include a low level (generally less than 2%-3% of the total value) of small user-fee airports located in the same region. Air gateways not identified by airport name (e.g., Chicago) include major airports in that geographic area as well as small regional airports. In addition, due to U.S. Census Bureau confidentiality regulations, data for courier operations are included in the airport totals for JFK International Airport, New Orleans, Los Angeles, Cleveland, Chicago, Miami, and Anchorage. Water-Data are preliminary.

SOURCES: Air-U.S. Department of Commerce, U.S. Census Bureau, Foreign Trade Division, special tabulation, May 2002. Water-U.S. Department of Transportation, Maritime Administration, Office of Statistical and Economic Analysis, personal communication, May 2002. Land-U.S. Department of Transportation, Bureau of Transportation Statistics, Transborder Surface Freight Data, 2002.

CHAPTER 3. COLLABORATION: WHAT IT IS, WHAT IT ISN'T

Even in the flattest landscape there are passes where the road first climbs to a peak and then descends into a new valley. Most of these passes are only topography, with little or no difference in climate, language, or culture between the valleys on either side. But some passes are different. They are true divides. . . .History, too, knows such divides. They also tend to be unspectacular and are rarely much noticed at the time. But once these divides are crossed, the social and political landscape changes. . . .There are new realities.

(Peter F. Drucker, *The New Realities*)

Introduction

Peter Drucker, regarded by many as the foremost business management leader of the 20th century, believed that a global paradigm shift began to occur sometime between 1965 and 1973. Drucker predicted the fall of the Soviet Union and the resulting international realignments, the 1990s technology explosion, and the evolution of management practices from hierarchical to more collaborative approaches. In his 1989 book, *The New Realities*, Drucker concluded that a new world view was coming alive. New organizational forms and functions would replace mechanized ones. Centers of learning would change their focus from mere credentialing to being places for knowledge growth. Business managers would need entrepreneurial and collaborative skills, as well as a world-wide view, to succeed.

Paradigm shifts represent a major change in systems, thought, organizations and structures, or beliefs. They take a generation or more before becoming fully integrated into the new policies that affect the fabric of social, economic, and environmental life in the Western world. Many of the current ideas, organizational decision models, and infrastructure arrangements for the freight transportation system in the United States originated in another era.

ISTEA represents another major change and is part of the paradigm shift. This landmark legislation accomplished several things, among them:

- *Mandated* planning at the regional and state levels.
- Allowed *flexibility* in transportation funding within and between many programs.
- *Mandated* public participation.
- Specifically *linked* air quality, land use, planning and transportation.
- Designated *consequences* for failing to meet air quality goals (potential loss of Federal transportation funding).
- *Created* several new transportation funding programs.

While evidence of change in the freight delivery system does exist, new policies and relationships will be required to meet current and future demands for freight from the paradigm shift. U.S. demand for foreign goods, emerging freight delivery patterns, and capacity constraints demonstrate a need for new partners, new ways of thinking, and creative solutions. To resolve these problems, some in the freight community have initiated new relationships to solve problems. Businesses and governments have made many more attempts to collaborate, but so far finding the traction needed for a full-fledged collaboration has proven to be elusive for many. Importantly, some efforts have succeeded and this document provides several examples and four case studies that discuss the role of multi-party collaboration in improving freight transportation.

What Exactly Is Collaboration?

Dictionaries define “collaboration” rather loosely, usually simply as a joint working together. In the applied sense, however, collaboration includes a number of attributes that distinguish it from other forms of group interaction. In the body of research about collaboration carried out for TRB, the term is used this way:

Col·lab´o·ra´tion: A purposeful process of working together to plan, to create, and to solve problems and/or manage activities.

A purposeful . . . Successful collaboration must be serving a clearly articulated need. Thus, in the early stages of a collaborative effort, goals must be defined and agreed to. Not only does this keep subsequent activities targeted on the ultimate aim, but it provides a means of measuring progress toward this aim.

. . . process of . . . Collaboration is, at its fundamental level, a process. This process usually involves understanding the need for collaboration, identifying common goals, putting in place common communication strategies, and using feedback mechanisms that allow for collaboration strategies to be evaluated and modified over time in order to better respond to changing decision-making demands.

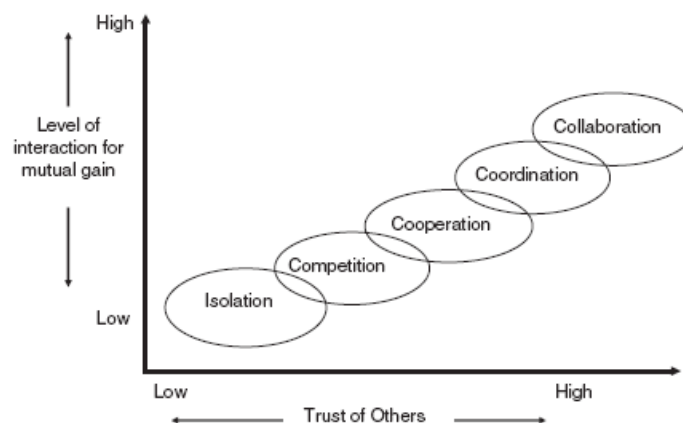
. . . working together to . . . Collaboration is a process of interaction among a group of individuals, groups, or organizations. However, collaboration is more than just interaction, it is a process of working toward commonly held goals. Thus, collaborative interaction implies working with others to achieve the goals articulated at the beginning of the process.

The collaborative process is carried out in a supportive environment. Participants are respectful and can freely express alternative points of view, all valid and none having superiority over another. Participants are reflective as well as critical, of

themselves and each other. Differences are not downplayed, the goal being to learn from each other, not dominate. Even though consensus is not likely to be reached on every issue under consideration, the product of the collaboration would reflect the full range of discourse that occurred. The most important attribute in any collaboration is trust.

In many organizations, attempts at collaboration never seem to get past the level of meetings. In the predecessor research on collaboration that TMI carried out for the TRB (see box, Chapter 1), collaboration was described as occurring at several levels of complexity and commitment. That research proposed a scale, shown in **Figure 2** below, that identifies the level of interaction among the involved parties as trust increases.

Figure 2. Collaboration on a Scale of Trust and Mutual Interaction



Source. *From Handshake to Compact: Guidance to Foster Collaborative, Multimodal Decision Making*, p. 6.

The scale moves from isolation and competition to cooperation and coordination, and finally to collaboration. The competitive nature and private sector dominance of the freight industry has traditionally resulted in freight issues remaining at the lower end of the scale: isolation and competition. Single-mode transportation funding was a major contributor to this decision-making environment, but globalization and other forces are combining to compel both public and private interests up the scale to cooperation, if not yet full-scale collaboration.

A serious question needs to be raised about the price to be paid for not collaborating, of remaining isolated or competitive in a world moving in a different direction. Each organization needs to ask this question in its own way, but it should not remain as the unasked question everyone fears raising. History provides lessons about being left behind—technologically, institutionally, and economically.

With the right leadership, information, and tools, additional efforts about collaboration in the freight environment might advance. Because almost all freight

collaborations involve large investments, complex situations, and multiple players, collaboration in the freight environment is defined, for the purposes of this research and for the selected case studies, as those efforts that are structured in terms of commitments (resources and other inputs) and that result in changed relationships and altered ways of behaving within the structure of the partners doing business together. In this view of collaboration, leadership and trust play essential roles.

Characteristics of Multi-Modal Projects and Investments¹⁰

Common conditions or characteristics drive freight collaborations, in particular those for intermodal freight corridors and terminals. First, the problems they face are collective and can fall into the category of a “tragedy of the commons,” where improvement to and investments in infrastructure are owned by all but managed by none. These make for complex institutional arrangements and can involve private sector freight carriers (rail & truck), port and truck terminal operators, multiple local jurisdictions, and in some cases, regional commuter rail transit operators, Amtrak, MPOs, and state DOTs. Resolving such complexity commonly takes years from the time of idea to implementation.

Drivers of Intermodal Freight Collaborations

- **Complex institutional relationships that take a long time (5-10 years and more)**
- **Localized effects but distributed benefits**
- **Massive capital needs, exceeding the financial resources of any one entity**
- **Concentrated freight volumes, which have increased at key gateways and corridors across the U.S.**
- **Co-location of major freight gateways and corridors in metropolitan areas.**

More so than with passenger, or “people” transportation, the potential issues faced by the freight collaborators tend to be localized but the benefits from potential solutions tend to be widely distributed. Noise, congestion, emissions, and failing infrastructure are best seen and experienced at the local level, but fixing these problems, while having some local benefit, are best evidenced downstream. For example, the Chicago transportation hub includes 18 major intermodal terminals that link to six Class 1 railroads. Two railroad switch/belt

lines, Metra commuter rail, and Amtrak also operate in Chicago. 1,500 trains approach the Chicago hub each day. Massive cross-town trucking operations are needed to move freight within the city. The configuration of the Chicago hub greatly affects

¹⁰The discussion that follows in the remainder of this chapter relies heavily (though not wholly) on an unpublished paper prepared for the predecessor TRB study on collaboration, TCRP H-29/NCHRP 08-45 by Tina Casgar entitled, *Institutional Collaboration to Support Multi-Modal Freight Investments*. This paper was not completed for publication due to the decision not to incorporate detailed case study material on freight in that series, as described in Chapter 1.

transportation and the environment in the Chicago region. That said, while streamlining the hub operation would produce some local effects, the main benefits would be national in scope: reduced shipping times and improved function and distribution at coastal ports and intermediate terminals.

In general, freight investments require major amounts of capital, funding that in most cases falls outside of the bounds of the state and national surface transportation funding programs. Though the situation is changing, at present, both rail and ports are not fully recognized by national surface transportation policies nor supported by specific funding programs. In the most recent reauthorization of highway and transit legislation, *SAFETEA-LU*, programs originally proposed for competitive funding among freight projects with national implications were fully earmarked and several nationally acclaimed projects such as the Seattle region's FAST became ineligible. As such, a large percentage of the country's international trade and long-haul freight traffic is not addressed at the national level. Individual states vary widely in their capacity to address these modes. To the extent that intermodal freight issues are addressed, these tend to occur in states with ongoing rail and port programs.

Last, the times have changed. Intermodal collaborative projects face an aging infrastructure which was built when modes functioned on a fairly discrete basis. Trade once having a local focus has been replaced by a global market, a permanent change. Today's trade volumes have increased exponentially and delivery times, once not especially time sensitive, have been overtaken by on-time, next-day, just-in-time, and express delivery expectations.

Kinds of Collaborations or Partnerships

Because collaborations need to meet the requirements of the partners to the collaboration, no single model will serve for all situations. Often, the collaborative idea or seed for germinating a solution begins at the local level, but because of the systems-nature of freight transportation projects, solutions will tend to be at least regional in character. It is useful to look at examples of collaboration grouped in three categories: those organized on the regional level, the state level, and those that cover multi-state corridors. As **Table 3** shows, the full range of options was explored in the case study list assessed by the review committee and the review team.

So Why Do It?

Expectations are often high and failure all too common, so why do so businesses, governing authorities, and organizations even attempt these freight collaborations? Frustration and simple need are commonly the initial drivers, but real collaborations are motivated by any number of other characteristics:

- *A mutual perception of need* from multiple institutions.

Table 3. Types of Intermodal Collaboration

Project	Project Geography	Breadth of Participation
Alameda Corridor	region	federal, region, private
CREATE (Chicago Regional Environmental and Transportation Efficiency Project)	region, city	federal, state, region, city, private
FAST (Freight Action STRategy for Seattle - Tacoma – Everett)	region	state, region, local, private
Global Gateways Development Program (GGDP)	state	federal, state, local, private
Heartland Improvement Project	multi-state	multi-state, private
I-81 Truck Toll- Lanes Project	state	state, private
Kansas City Flyovers	city	multi-state, county, private
MAROPs (Middle Atlantic Rail Operations Study)	multi-state	multi-state, private
Michigan (SE)-Ontario (SW) Bi-National Planning Partnership	region, bi-national	federal, state, region, bi-national
New Orleans Carrollton Curve	city	region
1. Niagara International Transportation Technology Coalition (NITTEC) - or- 2. Commercial Vehicle Processing Center & US Customs Service Pre-Arrival Processing Center)	region, bi-national region, bi-national	state, region, bi-national state, region, bi-national
Shellpot Bridge	region	state, private

- A *problem* (or complex of problems) that *exceeds* the financial *resources*, *authority*, or *scope* of any one entity.
- A realization that absent a collaborative approach, *problem(s) will only worsen*.
- *Early participation* in the collaboration helps one institution and others see similar *benefits to other institutions*. Given the highly competitive nature of freight service providers, this is particularly significant in the freight context.
- Collaborating parties recognize that *business as usual has to change*. Policy makers, the public, and private sector shareholders have to believe that collaborations are sincere and sustainable.

- Faced with broad challenges, collaborating organizations come to realize the importance of jointly conveying their story. Because program funding only occurs if the planning effort is substantive and convincing, collaborating parties come to realize that *demonstrated need precedes a policy response*.

Sometimes, and fortunately, a visionary individual or organization propels the collaboration forward. Especially with freight projects, the collaboration will require time, trust, patience, and a long-term commitment among the partners, making the role of a leader all the more prominent. In today's world, because public investment is often a factor, policy-makers and the public need to believe in the sincerity and sustainability of the collaborative effort. Collaborators need to demonstrate the basic viability benefits of the collaboration.

CHAPTER 4. SHELLPOT BRIDGE, WILMINGTON DELAWARE: A PARTNERSHIP WITH GROWING BENEFITS

Type of Collaboration: Bi-lateral partnership between a state DOT and a private rail carrier with multiple stakeholders and beneficiaries.

Key Points

- In 1994, due to its deterioration, Conrail closed a century old rail line with a swing bridge known as the Shellpot Secondary Line and bridge (Shellpot). The action left the Port of Wilmington and the rest of the Delmarva Peninsula (Delmarva) with limited rail service. About 20,000 rail cars annually went over the bridge at the time of closure.
- The City of Wilmington and State of Delaware objected to the action and a long period of negotiation with the owning railroads ensued.
- Through a unique partnership struck in 2002, the Delaware Department of Transportation (DelDOT) and the new rail owner, Norfolk Southern Corporation (NS), assumed certain risks and the line and bridge were rehabilitated. The State contracted with NS to do the work for \$13.5 million. Eventually, NS also contributed an additional \$1.5 million to a program to include additional line- and supporting yard- improvements.
- The Shellpot Bridge is the first railroad toll bridge in the country. NS pays a toll to DelDOT for each car (sliding scale – more cars, smaller per car charge) crossing the bridge and this is made possible with standard barcode technology.
- In its first 12 months of operation, over 100,000 cars were transported over the bridge, generating more than \$1.5 million in tolls for the State and attracting new business for the railroad and for the Port.

Background

Freight Environment

Some 23.5 million tons of freight—440,000 carloads—were carried by rail in Delaware in 2003 according to Association of American Railroads reports. The vast majority of this traffic was through-freight; only about 7 million tons, or some 90,000 carloads, either originated or terminated in the state. Rail freight represents less than nine percent of freight traffic that originates, terminates or both within Delaware. That nine percent, however, provides an essential means of access to the Port of Wilmington and to the Delmarva Peninsula. Additionally, all of Maryland's Delmarva rail lines and its poultry industry are dependent on rail access through Delaware. According to DelDOTs

freight plan, rail is “absolutely critical for economic sustainability of the auto, poultry, and power production industries”¹¹ in the state.

In 1994, Conrail made a unilateral decision to shut-down the Shellpot bridge, which served as the freight-rail connection over the Christiana River to and from the Port and the Maryland and Delaware portions of Delmarva region. The City of Wilmington, which owned the Port at the time, and the State protested the action, but had little bargaining power with the private carrier. Rail traffic using the bridge was relatively light, less than 20,000 carloads annually, and the Port’s future development was uncertain due to lack of funds for improvements. The most direct means of rail access to the Port is the Shellpot line, but both NS and CSX Corporation (CSX) have other, more circuitous routes, so that rail service continued after the bridge was closed.

At the time of the closure, Conrail’s focus was not on north–south traffic, but its east-west connections between the Midwest and Northeastern states. The merger battle with CSX was brewing and was a much greater concern to Conrail than holding or increasing its business in Delaware, a state that has been highly dependent on trucking for most freight needs.

Catalyst for Action

The State, on the other hand, considered the Port an important economic asset in need of good rail service. Moreover, DelDOT was concerned about the loss of shipper options from a degraded rail connection between the Delmarva’s agricultural economy and its markets, which are primarily in the mid-Atlantic region. At the same time, the State was in discussions with the City to buy the Port and to make necessary improvements to ensure its future viability. As the State’s transportation agency, DelDOT was concerned about the impact of increasing truck traffic on nearby I-495, I-295 and other connecting highways and streets.

Another concern was the effect of rail-freight traffic on the Wilmington Amtrak station. The circuitous routing of most of the rail traffic after the bridge was closed included use of the Northeast Rail Corridor (NEC), owned by Amtrak, for almost 23 miles, including a long section of only two tracks (one-way, each direction) that caused potential conflicts with the passenger trains. This section included going through the Wilmington station, which is built under and around the rail line. The State had worked since the mid-1990s with Amtrak on improving the station, which has been described by several Governors as “Delaware’s airport.” The heavy freight traffic was causing damage and increasing maintenance costs for the station.

The NS also wanted to reduce its dependence on the NEC so that it could operate service at more convenient and frequent times than the 10 p.m. to 6 a.m. window allowed by Amtrak, when intercity and commuter rail traffic was minimal. By restoring the Shellpot connection, NS could connect to its main network and only be on the Northeast

¹¹ Delaware DOT, “Delaware Freight and Goods Movement Plan, Executive Summary,” available on <http://www.deldot.net> under Publications and Forms.

Corridor (NEC) for several miles – all of which have four tracks so that there is no need for time restrictions. Moreover, at \$1.10 per car mile, reduced use of the NEC represents a real savings to NS.

Discussions between the rail owners and DelDOT were episodic. In 1998, Conrail was acquired in a joint stock purchase by CSX and NS. The resulting division of the railroad ended up in NS owning the Shellpot and the rights to operate over the NEC. At this point, NS had expended its cash resources on the purchase/merger and did not have the funds to rehabilitate the bridge. The State, noticing that reopening Shellpot had been part of the NS submission to the Surface Transportation Board (STB)¹² on the purchase of Conrail, wanted to force the issue.

Over several years and many revisions to cost estimates for the work, the NS and DelDOT began to see an array of benefits to each party. However, the key interested party was the State, which had in the meantime purchased the Port from the City of Wilmington. The State had an economic agenda for the Port and the Delmarva peninsula and the bridge was seen as an important link to those interests. By 2001, the state offered \$5 million to pay for the work on the bridge.

NS wanted to improve its connection to the Delmarva and the Port, but was in no cash position to put money on the table. This would have been necessary because a revised estimate for the work envisioned at that time came to \$9 million, creating a \$4 million gap above what the Legislature had authorized DelDOT to invest.

The Collaboration

Who

DelDOT is a multimodal transportation agency with responsibility for both people and goods movement, including highways, transit service, water and rail transportation. As a member of the Diamond State Port Corporation, its Secretary of Transportation plays a critical role in the development of the Port of Wilmington. The key partner at DelDOT was the Secretary, Nathan Hayward, who also has considerable credentials in economic development in the state, including serving as a former director of the State development office and as a founding member of the Delaware Economic and Financial Advisory Council.

NS is a holding company which owns a major freight railroad, Norfolk Southern Railway Company. NS gained ownership of the Shellpot and trackage rights on the NEC, connecting to the Shellpot as part of the purchase arrangement for Conrail. Since the Conrail purchase, NS has owned about 75 percent of the rail lines in the State, some 237 miles. Prior to the restoration of the Shellpot, NS carried 90 percent of the rail cargo (tonnage basis) that originated or terminated in the state, with the majority of the through traffic being carried by CSX on its east-west mainline north of Wilmington.

¹² Federal regulatory agency with authority over rail mergers.

There are numerous **stakeholders and ultimate beneficiaries** of this project. Certainly the Port and its major shippers were direct beneficiaries. Amtrak and the State benefited by the elimination of freight traffic through the Wilmington station. However, the project also has meant substantially reduced fees from NS to Amtrak. Other stakeholders included: the City of Wilmington, the County of New Castle, the Wilmington Metropolitan Planning and Coordinating Council, and local and state business interests, including other shippers who benefited from substantially improved service. Over 30 percent of the originating freight and 41 percent of the terminating freight involve Pennsylvania, Maryland and New Jersey. As a result, these states also have been important beneficiaries and non-participating stakeholders in this project.

What

The project ultimately involved total rehabilitation and reconstruction of the swing bridge and the rail line connecting the Port and nearby rail yard (Edgemoor), as well as substantial improvements by NS to the Edgemoor yard to upgrade service. The bridge section is 725 feet with a movable portion 242 feet. Additionally, the line was equipped with bar code readers and other equipment to allow cars to be counted, and thus enable the tolling.

Prompted by DelDOT's interest, the two organizations came to agreement that there could be mutual benefits from restoring the Shellpot. They worked together for more than a year to scope the project, to identify their roles, related interests and risks, and to determine a means of sharing the costs of implementing the project. During that time, more detailed engineering determined that much more extensive work was needed on the bridge than had been originally proposed in the late 1990s. Ultimately the state authorized NS to undertake \$13.5 million of work (by contract), slightly less than the amount appropriated by the state legislature in two different sessions.¹³

As part of the State's benefits, the Agreement included access and operational rights to the rail line at no cost to the State should it decide within 20 years to institute commuter rail service on the NS line between Wilmington and Dover, DE. Should this occur, necessary capital improvements would be the responsibility of the state and a joint operational plan would be required.

How

In 2002, NS proposed an agreement whereby the state would cover the up-front costs of the improvements and NS would pay a toll for the use of its rail line over a period of 20 years. This arrangement provides a cost-effective solution for the project as the NS cost of capital at the time was approximately 11 percent, while the State's was less than half that rate, thus the State up-front investment reduced the overall cost.

The original proposal was based on a per car fee (not including the locomotive). However, DelDOT sought to minimize risk should rail traffic not re-emerge and asked

¹³ DelDOT Press Release, December 20, 2002 available at <http://www.deldot.net>.

for a minimum guarantee. The agreement that was eventually reached was an annual, minimum payment that represents annual rail traffic of 12,500 cars, with a toll per car on a sliding scale beyond the 12,500. This number was assumed to be traffic that remained or could be expected to return with the establishment of more frequent and reliable rail service than had been available since the closing of Shellpot. The arrangement served as an incentive to NS to ensure basic service levels and to market the line.

Cost

The final cost of the improvements was \$14 million exceeding the contract by \$500,000, which NS agreed to cover. Additionally, NS made a number of improvements to the Edgemoor Yard, so that NS's contribution to the capital improvements was \$1.5 million, or 10.7 percent of the total. The cost of a new, dedicated merchandise train connecting the Edgemoor yard with the major NS classification yard in Harrisburg, Pennsylvania is borne by NS, along with other improved and increased services between Edgemoor and the Delmarva.

Barriers

Two primary barriers to this collaboration are evident:

- Cost was a barrier to private carrier participation at the time DelDOT sought a solution. (However, as circumstances improved the railroad also provided some of the capital required.) The toll arrangement addressed this barrier and created certain incentives that also helped insure the state the benefits of improved service that it sought.
- Political perception that a private entity might benefit from public funds was a concern on both sides. The sharing of risks and the payback provisions through the tolls helped address these concerns.

Results and Benefits

The response to the restored and improved rail service can be seen in the level of traffic over the Shellpot line, which at more than 100,000 carloads in calendar year 2005 is at least 300 percent more than NS's optimistic estimate, according to Craig Lewis, a principal negotiator for NS. The increased traffic comes from new traffic in aggregates and other construction materials for southern Delaware, increased business from existing customers along the line and new customers at the Port, as well as rerouting of traffic that is more efficient with the improved line. The railroad also is enjoying substantial savings in avoiding the per car charge on the NEC for its base traffic (prior to re-opening of the Shellpot) amount to about \$25 per car.

For the state, new customers at the Port such as the Swedish firm, Holmen Paper, is evidence of the economic benefits of the collaboration. Holmen is expected to

generate over 750 carloads annually.¹⁴ The Amtrak train station is no longer impacted by the heavier freight trains, shippers have a better, more reliable option, and a viable commuter rail option exists when ridership estimates can justify the service.

The State paid a price for these benefits, but assuming continued toll revenue in the \$1.5 million range, the investment will be amortized in about 11 years. The increased economic activity evident from new shippers and increased tax revenues will boost the State's financial return. At the current level of traffic, both collaborators have very substantial benefits from their willingness to assume the risk of collaboration.

As an added benefit, the mutual success of the partners in the Shellpot project has encouraged more cooperation. Recently, NS and DelDOT settled a long-standing issue that was headed to prolonged litigation. Under Delaware law, five highway bridges over railroad tracks are owned by the railroads (four by CSX and one by NS). All these bridges needed rehabilitation in the last decade, but the railroads have little interest in spending the money to maintain the highway. The trust built up through the experience of Shellpot has allowed the NS bridge question to be settled by agreement between the two organizations. Under the agreement, NS paid DelDOT \$825,000 for the maintenance and transferred ownership of the bridge to DelDOT. The issue of CSX-owned bridges required extensive litigation, with the State eventually prevailing.

Lessons Learned

Unlike other collaborations discussed in this report, the negotiations and agreement were largely worked out between senior officials of the two organizations: DelDOT and NS. In that sense it may have been simpler to manage than other projects, but there are many such other opportunities for "in-state collaborations" for which this effort can serve as a useful model. Other important lessons include:

- New partners can give impetus to stalled projects.
- Government agencies often have a capital advantage over a private entity that can benefit their partnership.
- Allowing the private operator to pay its share of the capital over time through its operating savings provides an affordable solution to meeting capital needs.
- A relatively small, discrete investment in rail can greatly expand capacity to serve freight and passenger needs.
- Where a public agency has a charter that includes freight and an interest in economic development of the state, such partnerships are more likely and they can become a catalyst for collaboration.

¹⁴ Port of Wilmington, *Port Illustrated*, "Rail Freight Over Shellpot Bridge Swings Into Action", Winter 2005, p. 12.

- As NS's Lewis points out, each party to these public-private partnerships represents different constituents and each of these needs "to think he or she (the representatives of their organization) has done the right thing."
- Overall, this project reflects the drivers of collaborative projects set out in the text box in Chapter 3 of this report.
- Finally, a successful collaboration leads to trust that makes possible other cooperative efforts to benefit both parties.

CHAPTER 5. THE KANSAS CITY FLYOVERS¹⁵

Kansas City owes much of its historical growth to its strategic position as a major trans-shipment point for freight, and remains an important center for rail, truck, barge and air freight industries . . . Perhaps most importantly, Kansas City is well positioned to take advantage of major national trends toward intermodal freight movement, and to benefit from international trade. MARC, *Transportation 2030*.

Type of Collaboration

The collaboration for the Flyover projects¹⁶ resulted in creating two separate public-private partnerships between the Kansas City Terminal Railroad (KCTR)¹⁷ and its member railroads and government agencies in Kansas and Missouri. The partnerships were formalized in creation of two new organizations called the Kansas City Intermodal Transportation Corporation (KCITC) and the Westside Intermodal Transportation Corporation (WITC).

Introduction: Success Begets Congestion Begets Success. . .

Since the 1980s, the KCTR and its member railroads had pursued the idea of building a railroad bridge over its existing track at Sheffield Junction, which is located on the east side of Kansas City. The business climate for railroads across the country improved dramatically following the *Staggers Rail Act of 1983*, and there was no exception in Kansas City. As 2000 approached, growth generated from improved financial and management practices, deregulation, and international trade increased rail freight traffic to such a degree that congestion and bottlenecks on the BNSF and UP mainlines in the Kansas City area had reduced train speeds through Sheffield Junction to between 15 and 20 miles/hour. The collaborative effort that resolved these problems is the focus of this case study.

Following success of the Sheffield Flyover project in July 2000, the KCTR next looked to correct congestion and capacity problems on the west side of Kansas City, an

¹⁵ “Flyover” is a British term that means “overpass,” a term typically restricted to highways in the United States. In *Freeway Terms*, Donovan Martin defines a flyover as “an elevated connecting ramp between two sections of a railroad or between railroads. A flyover track may pass over one or more railroads or even other flyovers, forming a ‘stack’ or ‘echelon.’”

¹⁶ The Kansas City “Flyovers” are actually three separate projects: the Sheffield Flyover, the Argentine Connection (Sky Bridge), and the High Bridge. The High Bridge is part of the overall Argentine project, but is often discussed separately in the literature as a separate project, as is its funding. All three projects are covered in this chapter. The Argentine Connection is itself referred to by many different names (see later footnote).

¹⁷ KCTR is the carrier most central to this case study. The railroad is jointly owned by Burlington Northern/Santa Fe (BNSF), Union Pacific/Southern Pacific (UP), Kansas City Southern (KCS), Norfolk Southern (NS) and the Iowa, Chicago & Eastern Railroad Corporation (ICE). KCTR operates 86.83 miles of track and is responsible for the efficient movement and interchange of rail traffic for the more than 350 trains arriving or departing Kansas City each day.

area that covered over a two-mile stretch between its mainline tracks in Kansas City, Missouri and BNSFs Argentine Yard in Kansas City, Kansas. This collaborative resolution resulted in building a second flyover, the Argentine Connection, and rehabilitating the High Line Bridge.

Both flyover efforts contributed to and benefited the general economic renaissance of the Kansas City region. Located just over 200 miles from the population- and the geographic- centers of the United States, the Kansas City region has a long and rich history as an important hub in commerce and distribution of goods within the United States. Given this advantage, during the 1990s Greater Kansas City government officials and local businesses, separately and together, undertook a serious examination of Kansas City's demographic and business environment and potential. These efforts included goods movement task forces and focus groups, as well as numerous studies which resulted in providing a broad set of agreed-on strategic plans to position the Greater Kansas City region as one of the key national intermodal hubs. One study, the *Intermodal Freight Strategies Study*, recommended that its findings be incorporated in the regional planning organization's (Mid-America Regional Council or MARC) long-range plans.¹⁸ Numerous agencies participated in and funded the study.

Both Kansas and Missouri continued to address freight issues through ongoing processes and regularly updated plans over the next ten years. The Kansas City region used the planning mandates and new flexibility provisions included in *ISTEA* and the freight planning requirements from the *Transportation Equity Act for the 21st Century (TEA-21)* to address goods movement and access to ports, airports, intermodal transportation facilities and major freight distribution routes.

In addition to the momentum provided by *ISTEA* and *TEA-21*, *North American Free Trade Agreement (NAFTA)*, which was ratified in 1994, proved to be influential for the region. Mexico is the second largest trading partner of the United States, second only to Canada. Over the last decade, local Kansas City government officials have forged a new set of relationships with Mexico to potentially improve movement of goods originated in Asia and Central America. They have established the Kansas City, Missouri (KCMo)-Mexico Business Development Corporation. In 2002, it formalized relationships with three Mexican states and Mexico established a Consulate in Kansas City; the next year, Kansas City developed a Mexiplex to house the Consulate and related trade and economic development activities.

In 2004, the city of Kansas City, Missouri, signed a non-binding trade agreement with the western port city of Manzanillo, Mexico—Mexico's largest deepwater port—to jointly market their transportation companies to Asian, Central American and other international businesses. In 2005, it signed an agreement with the State of Michoacan and the City of Lazaro Cardenas to promote inbound transfers and establish innovative freight security systems. KCMo partners believed that because these Mexican ports are as many as 500 miles closer than Los Angeles and Long Beach, companies in Asia and

¹⁸ Mid-America Regional Council, *Transportation 2020*, "Chapter 9.0: Goods Movement Element" and *Transportation 2030*, "Chapter 8.0: Goods Movement Element."

Central America could substantially improve distribution time and costs over other capacity-constrained west-coast ports, including Los Angeles, Long Beach, Oakland, and Seattle. KCMo plans include expanding discussions to develop additional agreements; forging alliances with shipping lines, railroads and trucking companies; and establishing a Mexican customs office in Kansas City, which would be Mexico's first U.S.-based inspections office,¹⁹ an action which the Mexican government has formally approved. Also in 2005, the Kansas City Southern (KCS) completed its purchase of the Mexican Railroad TFM, S.A. de C.V. (TFM), positioning itself to provide seamless rail transportation between Mexico and the U.S.²⁰

The Freight Environment in the KC Region

As is true with most regions in the United States, goods consumed in the Kansas City area come from outside the region and many of the goods produced there are consumed someplace else. What was exceptional about Kansas City was its foresight to establish the institutional and physical structures to take advantage of its freight environment and to create the mechanisms that will be needed to accommodate expected growth, especially growth that results from technology improvements, foreign trade, and collaborative relationships in the future.

For all modes, inbound/outbound shipments in the Kansas City region have increased from 78.9 million tons to 136.8 million tons between 1992 and 2000. Perhaps because of a changeover to being a service economy, inbound freight shipments have shifted from rail to truck, but this position is reversed for through-shipments. Between 1998 and 2000, rail freight through-shipments increased from 118.3 million tons to 150.1 million tons, while truck through-movements declined from 68.8 million tons to 67.7 million tons.²¹

Nine federally classified intermodal connection facilities are located in Kansas City, six of which are wholly freight-dedicated:²²

¹⁹ The goal is to move goods safely and securely and to remove bottlenecks at the U.S.-Mexico border. According to plans, packaged freight would come to Kansas City, be inspected by Mexican officials and then placed in sealed containers and moved, via rail and trucks. Mexico formally designated Kansas City as this site in 2005.

²⁰ Headquartered in Kansas City, Missouri, KCS is the transportation holding company that includes the Kansas City Southern Railway Company (KCSR), the Kansas City Southern de Mexico, S.A. de C.V. (KCSM), and the Panama Canal Railway Company (PCRC), and controlling interest in the Tex-Mex Railway (TMR). On August 16, 2004, KCS purchased 51 percent of the shares of Mexrail, Inc., the parent of TMR, and placed them in a trust pending Surface Transportation Board approval. That approval was given, and on January 1, 2005, the KCS took control of TMR. With its trackage rights, this 157-mile railway operates over 557 route miles. TMR is the bridge carrier between KCSR and TFM. TFM serves the northeast and central portions of Mexico, as well as ports on both its coasts. Taken together, KCS calls these carriers the "NAFTA Railway." While the KCS is part of this Flyover case study only through its ownership relationship with the KCTR, its business expansion into Mexico is part of the larger Kansas City freight collaboration story.

²¹ Mid-America Regional Council, *Transportation 2030*, Chapter 8.0.

²² The remaining three are Kansas City International Airport, Kansas City Amtrak Station, and Kansas City Greyhound Terminal.

- Kansas City Southern – Knoche Yard
- Union Pacific – Neff Yard
- Norfolk Southern/Triple Crown Truck/Rail Facility
- Burlington Northern – Murray Yard
- BN/Santa Fe Terminal – Argentine Yard
- Southern Pacific Intermodal Facility – Bayard Yard

Currently, three major interstate highways serve the region: Interstates 29, 35, and 70. Kansas City area airports²³ move more air cargo for a six state area than any other region in the U.S. Significant barge traffic travels over the Missouri River.

The Kansas City region counts, behind Chicago, as the second largest rail hub in the country. In addition to smaller carriers,²⁴ four Class I railroads serve the area: UP, BNSF, KCS, and NS. BNSF, which operates 33,000 miles of track nationally, moves more intermodal traffic than any other rail carrier in the United States. Kansas City serves as a central base of its operations. On its routes through Kansas City, BNSF carries coal, grain, merchandise and intermodal traffic on its north-south Fort Scott subdivision route and carries some of the highest value intermodal traffic in the country on its mainline Transcon route between Chicago and southern California.

Having anticipated annual growth rates greater than 10 percent, Kansas City positioned itself as an inland port for international trade and transcontinental shipments and largely succeeded in that goal. Now, the region is expanding its intermodal services to include many levels of warehousing, manufacturing, and re-distribution. Organizations such as Kansas City SmartPort,²⁵ were formed to attract transportation and logistics businesses to Kansas City and to “make it cheaper, faster, more efficient, and secure for companies to move goods into, from, and through the Kansas City area.” SmartPort reports the following about Kansas City’s position in the freight market:²⁶

- Rail tonnage in the U.S. - #1
- Truck center in the U.S. - #3
- Free trade zones – most space in the nation
- Underground warehouse space – most space in the world
- Air cargo – largest in six states

²³ Kansas City International Airport, which opened in 1972, and Charles B. Wheeler Airport are both located in Missouri. Both are operated by the Kansas City Aviation Department. Charles B. Wheeler is located adjacent to the downtown business district.

²⁴ ICE, KCTR, and Missouri and Northern Arkansas (MNA).

²⁵ Interactive maps showing trade corridors and all elements of intermodal services can be found at http://www.kcsmartport.com/sec_corridors/flash_KC/KC_maps.htm and http://www.kcsmartport.com/sec_corridors/flash_cont/cont_maps.htm.

²⁶ Can be found at <http://www.kcsmartport.com/index.htm>.

- Inland waterway – largest navigable
- Intelligent transportation systems – implementing.

An important aspect to Kansas City's freight environment is its creation and use of Foreign Trade Zone (FTZ) space, sites spread across the Greater Kansas City region (in both Kansas and Missouri) and totaling more than 10,000 acres of space that can be used for storage as well as processing. Four additional manufacturing sub-zones that house facilities for assembling automobiles, automobile parts, and agricultural chemicals, are scattered across the region. These trade zones handle more volume than those of Chicago, Dallas, Denver, Minneapolis, and St. Louis.

While no longer absolutely unique, Kansas City's FTZs have chalked up a number of firsts: first inland trade zone, first city in the country to establish FTZs, and first private, not-for-profit corporation to administer operations of the trade zones. Storage space in the zone sites is modern, above ground, and energy efficient as well as complementary to the varying needs of the transportation sectors, especially distribution. Important to the success of the Flyover projects, the zone layout provides a simple structure to overlay projects and assess user charges.²⁷

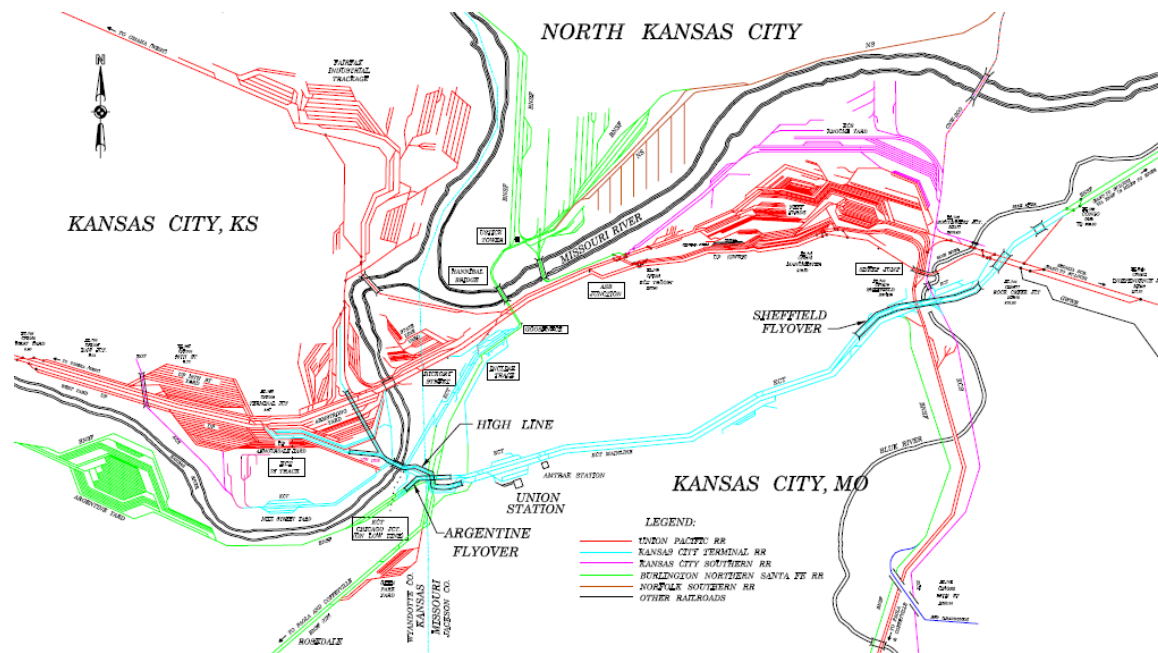
The Flyovers: Sheffield Flyover, the Argentine Connection and High Line Bridge

Introduction and Background

While the Flyovers are three distinct projects that were conceived, designed, and constructed between 1995 and 2003, they are best thought of as one project. In the literature, these projects are called by many different names—a matter not unusual in the railroad industry, but one that can be vastly confusing. Where known, these alternative names will appear in the footnotes, but in the discussion that follows, the most commonly used reference will be used. All three projects involved the engineering, project management, and design services of TranSystems Corporation in Kansas City. TranSystems devised the unique public-private partnership that made these projects possible. In the discussion below, the projects will be separately discussed, except for the section on “lessons learned.” Here comments will be aggregated unless they belong to only one of the projects and that fact will appear in parentheses. For reference, **Figure 3** provides detail about the area under discussion. Sheffield Junction/Flyover appears on the right; the Argentine Flyover/High Line Bridge, as well as Argentine Yard on the left.

²⁷ Information can be found at http://www.kcsmartport.com/sec_corridors/flash_KC/KC_maps.htm.

Figure 3. Central Kansas City, Showing Sheffield and Argentine Flyovers



Source. TranSystems Corporation

Types of Collaboration

The collaboration for the Sheffield Flyover resulted in a new public-private partnership sponsored by the KCTR and its member railroads with the State of Missouri under the auspices of the Missouri Highways and Transportation Commission (MHTC). Under arrangements allowed by Missouri corporate law, the new quasi-governmental partnership was formalized in an organization called the Kansas City Intermodal Transportation Corporation (KCITC).

The collaboration for the High Line Bridge and Argentine Connection projects resulted in a similar public-private partnership between the KCTR and its member railroads, the State of Missouri (through MHTC) and the Unified Government of Kansas City, Kansas. The Unified Government includes both the city of Kansas City, Kansas and Wyandotte County, Kansas. This partnership was formalized through creating a new not-for-profit organization called the Westside Intermodal Transportation Corporation (WITC). The state line between Kansas and Missouri is located in the middle of the Argentine projects. Essentially, each state entity sponsors those bonds that were sold for the portions of the projects in their individual states.

Sheffield Flyover: Key Points

- Due to traffic growth and resulting problems with capacity, congestion and pollution, for more than 20 years KCTR and its member railroads pursued the

idea of building a bridge over its existing track at Sheffield Junction on the east side of Kansas City, Missouri.

- In 1995, KCTR hired TranSystems to develop a solution for the problems at Sheffield, including separating east-west from north-south traffic, chiefly on the BNSFs and the UPs mainlines.
- The Flyover is double-tracked and can handle the weight of two trains moving at the same time, allowing for a free flow of traffic. With an average height of 35 feet, the Flyover reaches as high as 80 feet in some areas. In total, the bridge spans over four railroad intersections that are used by six different carriers.
- Actual construction of the \$74 million project began in October of 1998 and was completed in July 2000.
- The Sheffield Flyover affected three different cities located in Jackson County, Missouri, (east, or Missouri side, of Kansas City). To undertake this project, the Class I railroads who are members of the KCTR formed a new not-for-profit entity called the KCITC. KCITC entered into an agreement with the state of Missouri to issue 20-year industrial revenue bonds which were sold in the open market. Bondholders were paid back with revenue generated from wheelage charges. These payments have followed a consistent positive payback schedule.
- The BNSF and UP railroads each pledged its own assets and guaranteed the needed funds to cover bondholder payments in the event that user fees did not generate enough money to pay back bondholders.

Sheffield Flyover: The Project

For more than 20 years, the KCTR and its members railroads pursued the idea of building a bridge over its existing track at Sheffield Junction which is located on the east side of Kansas City, Missouri. By 1995, growth generated from improved business practices, deregulation, and international trade had expanded rail traffic in the region to such a degree that the area had become a challenging warren of congestion. Movement speeds through the Sheffield Junction hovered between 10 and 15 miles/hour and constituted the chief bottleneck on the BNSF and UP mainlines, in particular. Besides train delays, the area was dangerous, including for workers and businesses located near Sheffield Junction who had to wait for stalled or delayed trains to move.

In 1995, KCTR hired TranSystems to develop an engineering, planning and business-structure solution for the freight problems at Sheffield Junction, including separating east-west from north-south traffic. The \$74-million project that resulted from this collaboration extends over three miles and includes a rail bridge with two tracks that rises above ground level for 1.5 miles—from I-435 west to Wilson Road. TranSystems' design team used a variety of innovative techniques with this project, including three-dimensional modeling software. It managed an extensive planning, communications, and coordination process that actually allowed construction to go on without disrupting daily

rail traffic or stopping neighborhood and commercial activity in areas immediately surrounding the project. The team also devised the precedent-setting financing arrangements.

Because of the space constraints at Sheffield location, TranSystems developed its own unique cantilevered piers that were installed over the existing tracks. With an average height of 35 feet, the Flyover rises as high as 80 feet in some areas. The bridge is double-tracked, allowing two trains to operate at the same time. Chuck Mader, a principal at TranSystems Corporation and the project manager for all three Flyover projects, notes that while a flyover solution at Sheffield Junction seemed simple enough, the combined engineering, financing, and organizational challenges needed to realize this project was anything but simple: “It took a lot of teamwork. The Sheffield Flyover bridge spans over four railroad intersections that are used by six different carriers. Historically, these railroads were competitors, not collaborators, and a lot of resistance needed to be overcome.” The project has received several awards, including an Honor Award from the American Consulting Engineers Council’s 35th Annual Engineering Excellence competition (2001).

Sheffield Flyover: Catalyst for Action

Above all else, increased rail traffic—and the delays and congestion that came with it, challenged KCTR to seek a solution for the freight problems that had developed on the east side of Kansas City. If the railroads wanted to remain competitive in a growing transcontinental and international market, they needed to resolve its problems.

Sheffield Flyover: The Collaboration

Who: The Partners to the Collaboration

To undertake this project, the four Class I railroads and two smaller carriers who are owners of the KCTR sponsored creating a new quasi-governmental partnership with the State of Missouri under the auspices of the MHTC. The new entity, called the KCITC, could issue industrial revenue bonds to be paid back over a 20-year period.

In general, KCITC board members serve 6-year terms and are drawn from the railroads who are members of the KCTR. Board members rotate from among the railroads and must be individually approved by the MHTC. The current Board members include representatives from the KCTR, the BNSF, and the UP. The most current board was approved by the MHTC at its March 9, 2005 meeting. A representative from the State of Missouri serves on the KCITC Board in an advisory capacity.

What, How and Costs: The Agreement, Institutional Arrangements, and Financing

The Sheffield Flyover affected three different cities located in Jackson County, (Missouri side of Kansas City), but individually the cities lacked the resources to fund or otherwise guarantee funding for the entire project. Jackson County lacked the authority to issue bonds for city-owned property. KCITC entered into an agreement with the Missouri DOT (MoDOT, represented by MHTC), to issue 20-year industrial revenue

bonds which were sold in the open market. Interest rates in 1998 were exceptionally low and proved fortuitous to the project: the KCITC issued bonds received a bond-rating close to the federal line of credit at the time. Also important to this arrangement, BNSF and UP pledged their own assets and guaranteed funds to cover bondholder payments in the event that user fees did not generate enough to pay back bondholders.

A subsequent agreement, the *Facilities Use Agreement*, assigned the KCTR the responsibility for managing, maintaining, operating and billing the railroad users of the Sheffield Flyover. Flyover users pay wheelage charges to the KCITC which, in turn, it uses to repay the industrial bonds.

Sheffield Flyover: Barriers to Collaboration

As noted above, the idea for a Flyover existed for almost 20 years before a collaborative approach moved the project from idea to fruition.

- The railroads operating in the Kansas City area had, for many years, believed that a flyover bridge project *could not be completed by any one railroad acting alone*. Issues of engineering, finance, and governance stood in the way of advancing the idea.
- Initially, *jurisdictional conflicts* proved difficult to resolve, even when the governing authorities were willing to advance the project. The project involved three cities, none of which had adequate funds for the project. Similarly, the county lacked legal authority to advance the project. In this instance, governing statutes in the State of Missouri made possible the creation of a quasi-governmental organization with private bonding capability.
- The partners, including MoDOT, did look at Federal transportation programs as a potential resource for this project but, in the end, determined that the neither the *Federal funding programs nor state gas tax funds could be used as a funding source*, a barrier commonly true with freight projects.
- As private entities and as *competitors with each other*, the railroads were initially resistant to participate in projects that didn't provide an identifiable business benefit.

Sheffield Flyover: Results and Benefits

- *Increased rail traffic speed and reduced delays*. Railroad officials estimate that along with reduced delays, the Sheffield project alone would increase train speeds through the area from 15 to 50 miles per hour (the maximum allowable). That project reduced or eliminated at-grade intersections of several railroads. Delays for more than 250 trains per day were reduced.

- *Met or improved on project budgets and timelines.* The two-year schedule set for the Sheffield project was completed on time and under budget.
- *Minimized or improved effects on local communities.* Prior to building the Sheffield Flyover, trains often blocked local street intersections, disrupting business for local merchants, and created challenging—even dangerous—safety situations for workers and merchants. The congestion added to local air pollution. Once built, the Flyover eliminated train queues at local street crossings, improved access to local businesses and reduced release of pollutants into local air.
- *Created cost savings.* The project is expected to save shippers millions of dollars in shipping costs, enhancing the Kansas City region as an international and transcontinental shipping center.
- *Future Collaborations.* Perhaps most noteworthy, the success of this collaboration laid the foundation for resolving other rail problems in the Kansas City area.

Argentine Connection and High Line Bridge²⁸

Argentine Connection: Key Points

- Following the success of the Sheffield Flyover project in July 2000, the KCTR next looked to correct congestion and capacity problems over a two-mile stretch between its mainline tracks in Kansas City, Missouri and BNSFs Argentine Yard in Kansas City, Kansas.
- Again KCTR contracted with TranSystems to address problems with the High Line Bridge and a connection into BNSFs Argentine Yard. After looking at several alternatives, the option deemed most feasible from a combined engineering, economic and operational viewpoint was to rehabilitate the High Line Bridge and add two flyover levels of track above the bridge.
- KCTR sponsored a second public-private partnership with government authorities to sell \$120 million in industrial revenue bonds, split roughly 50/50 between the Bridge and the two Flyover levels of track. The new entity, called the Westside Intermodal Transportation Corporation, included KCTR

²⁸ In the literature, these projects appears under many different names, some location specific, some providing a descriptor for only a part of the project. Besides Argentine Connection, names include Argentine Sky Bridge, Argentine Skyway, Argentine Flyover, Chicago Connection, Santa Fe Connection, Kansas City Junction, Kansas Connection, Transcon Project, and High Bridge Project. The name Argentine Sky Bridge best describes all three levels of the bridge, the bottom level of which is the UPs High Line Bridge. The more generic Argentine Connection name includes the bridge aspects as well as the entire two miles of track included in the project. Those aspects of the at-grade High Line Bridge that are unique are discussed separately.

and its member railroads and the State of Missouri (through MHTC) for the bonds governing projects pieces located in Missouri and the Unified Government of Kansas City, Kansas, for the bonds covering projects in Kansas.

- The KCTR Board authorized TranSystems to proceed with both projects in 2000. Both were carried out using techniques that allowed train service to continue without disruption throughout project construction. Begun in 2000, the High Line Bridge was completed in December 2003. BNSF rolled out the first train on the Flyover spans in September 2004.
- Both projects were completed ahead of time and under budget, chiefly to accommodate the requirements of railroad operations. “Trains move. Contractors wait.” was the prevailing philosophy throughout.

Argentine Connection: The Project

The Argentine Connection stretches two miles through a highly congested area from the KCTR's mainline tracks in Kansas City, Missouri west to BNSF's Argentine Yard in Kansas City, Kansas, with 1.2 miles of the connection in Kansas and .8 miles in Missouri. It includes a three-level sky bridge at Santa Fe Junction which is located on the Missouri-Kansas state line and was considered to be the major “choke point” in Kansas City's rail network. The Flyover elevates traffic from BNSF's east-west Transcon route (top level) over BNSF's north-south Fort Scott subdivision (middle level) at Santa Fe Junction. Both levels soar over the at-grade High Line Rail Bridge (bottom level; discussed below) which was newly rehabilitated by the UP beginning in 2001.

As with the earlier Sheffield Flyover project, KCTR hired TranSystems to undertake the bridge rehabilitation and flyover projects, manage their construction, and conceptualize and structure the financing package—estimated to cost \$120 million, split roughly 50/50 between the High Line Bridge rehabilitation and the two flyover levels. The firm put several strategies in place to maintain service during the entirety of the construction, chief among them constructing the bridge portion of the project in stages and having materials delivered directly to the owner (KCTR). Begun in 2000, the first phase of the Argentine Connection project, the High Line Bridge, was completed by December 2003. In February 2002, KCTR and BNSF announced its intentions to build its second flyover at Santa Fe Junction. The first BNSF train rolled across the newly constructed flyover on September 8, 2004. The three-level flyover is the world's largest rail flyover and was completed with an estimated \$8.1 million in cost savings.

According to Chuck Mader, in addition to engineering challenges the projects presented schedule, communication, and construction challenges. The prevailing philosophy—“Trains move. Contractors wait.”—informed all activities, but there were many groups of individuals that needed to be updated constantly to make the elements of the projects work together. Rather than confuse, however, the integration of ideas, schedules, and materials resulted in a delivered project that was completed ahead of time and under budget. For example, six months was cut from the High Line Bridge project to

accommodate a request from the UP (to meet its own new coal contract deadlines). Later, BNSF asked that the project be accelerated because its intermodal business out of Los Angeles had grown so drastically.

High Line Bridge: The Project

Originally completed in 1917 at a design speed of 30 miles per hour, UP's steel High Line Bridge suffered from a combination of woes: age, deferred maintenance, removal of one of its two tracks, and trains now too heavy for the existing bridge structure. All these conditions resulted in congestion and capacity problems and real-world worries about safety. The safety engineers who investigated the bridge were not confident that in its condition at the time of inspection the bridge could much longer withstand the weight of the 150-ton cars going over it. In fact, when reconstruction of the bridge started, a front-end loader dropped through the deck on its first day of work.

Following the success of the Sheffield Flyover, in 2001, KCTR authorized an initial \$50 million to rehabilitate the bridge. BNSF had looked at several alternatives for bringing its tracks out of Argentine Yard to connect with the UP's High Line Bridge, including options for moving all traffic above grade. The option that proved to be most feasible from an operational and economic viewpoint was to rehabilitate the at-grade High Line Bridge with two-levels of BNSF track flying over the UP track.

Argentine Connection: Catalyst for Action

19th century infrastructure was proving to be inadequate for the weight, size, and frequency of 21st century traffic loads. As important, correcting congestion problems on the east side of Kansas City through building the Sheffield Flyover in many ways exacerbated rail traffic congestion on the west side, making these the most significant choke points in the Kansas City rail network. Success prepared the railroads for addressing the next major bottleneck: the 2-mile stretch of track between the rail yards in Kansas City, Missouri and BNSF's Argentine Yards in Kansas City, Missouri. As critical, in 1999 a bridge inspection of the High Line Bridge revealed several major structural issues that required attention. Failure to address these problems could have led to closure and fines—or worse.

Argentine Connection: The Collaboration

Who: The Partners

Modeling its efforts after the unique public-private partnership used to build the Sheffield Flyover, KCTR sponsored a new not-for-profit transportation partnership called the Westside Intermodal Transportation Corporation (WITC) to issue revenue bonds to cover project costs and to sell them in the private sector. In addition to the railroads, the Missouri DOT (through the MHTC) and the Unified Government of Kansas City, Kansas which include the Wyandotte County, Kansas and the City of Kansas City, Kansas are members of the quasi-government organization. In general, board members serve 6-year terms and are

drawn from the railroads who are members of the KCTR. Board members rotate and must be approved by government entities. The latest board was approved on March 9, 2005. A government representative serves on the WITC Board in an advisory capacity.

What, How and Costs: The Agreement, Institutional Arrangements, and Financing

Having two states with different laws and policies complicated the financing arrangements needed for the Argentine Connection and High Line Bridge. Also, the state of Kansas lacked the statutory authority to enter into a financing arrangement with a private entity or to allow the creation of the new partnership to sell bonds, as was done with Missouri in the Sheffield Flyover project. Consequently, the Kansas partner in this agreement is the Unified Government of Kansas City, Kansas. Once incorporated, WITC entered into an agreement with the government partners to issue \$120 million in 20-year industrial revenue bonds which were sold in the open market.

The project arrangements break down, essentially, into several kinds of 50/50 splits. The two Flyover levels of track are owned by BNSF; the at-grade High Line Bridge is owned by UP. In addition, the entire three levels are divided between Missouri and Kansas. BNSF and UP pledged their own assets to cover portions of the projects that involved their own rail lines and guaranteed funds to cover bondholder payments in the event that user fees (wheelage charges) did not generate enough to pay back bondholders. The WITC and the MHTC issued the industrial revenue bonds to fund projects in Missouri; WITC and the Unified Government of Wyandotte County and Kansas City, Kansas issued bonds to finance the Kansas portion.

Argentine Connection: Barriers

- Although less a problem than with the Sheffield Flyover (because of experience), the railroads believed that issues of engineering, finance, and governance stood in the way of advancing such complex arrangements and certainly *did not believe they could be carried out by only one party*.
- *Jurisdictional conflicts* again proved to be difficult to resolve, even when the governing authorities were willing to advance the project. These projects involved several locations in two states and the state of Kansas lacked the statutory authority that existed in Missouri.
- In general, while valuing collaboration, railroads remained reluctant to enter into public-private arrangements because they had historically operated as private entities and were concerned about the possible surrender of business control of their operations for public investment. They did agree to evaluate such projects on a case-by-case basis.

Argentine Connection: Results and Benefits

- Following completion of the projects, trains volumes increased 50 percent, from 80 to 120 trains per day, on average. In total, 135 or more trains can pass over each other at Santa Fe Junction—40 north-south trains and as many as 95 east-west trains. These results can be added to those at Sheffield, which improved service to a level of 250 trains/day.
- Being able to use lines they already owned, these projects provided railroads in the Kansas City area with long-term relief from escalating freight volumes that threatened to outstrip rail capacity.
- The Argentine/High Line projects demonstrated much in terms of engineering, communications, and priorities about what is important and essential. In the end, both projects were completed ahead of schedule and under budget. Construction on both projects was completed without closing down train service.

Lessons Learned

- Visionaries do exist. Don't be afraid to be one or to be first.
- To be successful, a collaborative effort needs trust. When it succeeds, it fosters additional collaborative efforts.
- Think creatively. When traditional organizations can't provide a structure for pursuing a project, develop new ones, e.g., a quasi-government structure.
- As private entities and competitors, railroads were resistant to participate in projects that didn't provide an identifiable business benefit or show direct improvements to their service. At the same time, acknowledge the reality of private company's interest in funding projects and in repaying its investment.
- In general, a good relationship between State DOTs and the railroad industry doesn't exist. State DOTs have operated as highway construction agencies and freight railroads across their history have operated in the private sector. It is possible, however, to overcome skepticism and come to agreement on projects of mutual benefit.
- True collaboration will require rethinking the merits of competition.
- "Trains move. Contractors wait." Deconstruct the myths. It is possible to undertake construction and carry out train-service business simultaneously.

- It is also possible for governments to forego tax revenue to gain improvements in other areas, such as pollution and congestion abatement and better access to businesses.
- Reluctance does not mean obstinacy. Railroads, while valuing collaboration, will likely remain reluctant to enter into these public-private arrangements until benefits are more clearly evident. Most likely they will evaluate such projects on a case by case basis.
- Collaborations almost always result in a unique solution, although lessons from them can be applied to new situations or serve as a starting point in a new situation.
- Beyond the railroads, but including them, a larger collaboration is evolving in the Kansas City region—strategic planning to establish Kansas City as the major mid-country port. If successful, it could lessen capacity problems at several ports; it could also alter major current freight delivery patterns. Some call this a “renaissance.” Others look to re-branding the region. Partners include the railroads and other freight service providers, city and county governments, the warehousing industry, as well as businesses involved in international trade, especially with Mexico.

CHAPTER 6. FAST CORRIDOR AND FREIGHT MOBILITY COMMUNICATIONS AND COMMITMENT

Type of Collaboration: The FAST collaboration is informal, continuing, and multi-modal. It involves partnerships among private and public agencies with a stake in freight mobility along the north-south transportation spine of the Puget Sound region.

Key Points

- The partnership began in 1994 with the Puget Sound Regional Council (PSRC), the MPO, seeking involvement of the private sector in development of freight issues in the metropolitan long range plan required by *ISTEA* and by the state's *Growth Management Act of 1990 (GMA)*.
- The PSRC's organizing efforts led to the Regional Freight Mobility Roundtable (Roundtable), involving a wide range of public and private organizations. The Roundtable serves more broadly as a "communications hub" on moving freight in and through the Seattle-Tacoma gateway region.
- The Roundtable helped identify issues impeding freight and needed improvements and has supported the resulting work program of capital projects referred to as the FAST Corridor (Freight Action Strategy for Seattle/Tacoma/ Everett). The Washington State DOT (WSDOT) cosponsors the implementation team with the PSRC. The FAST Corridor represents a partnership of partnerships in which management and cost-sharing arrangements are formed around each of 25 projects. Nine projects of the \$885 million program were completed by the end of 2005. Please see **Figure 4** showing the location and type of projects.
- Federal funding available from the *ISTEA* and the *Transportation Equity Act for the 21st Century (TEA-21)* served as a major catalyst for FAST Corridor, but the newest transportation funding law, *SAFETEA-LU*, provides very little financial support for the program.

Background

Freight Environment

The Puget Sound Region is home to 3.3 million people and 1.9 million jobs.²⁹ In Washington State, maritime trade supports 30,000 direct, indirect and induced jobs. An additional 300,000 jobs in the state are related to these activities. Trade of all kinds is related to one job in four statewide. With its three ports at Seattle, Tacoma, and Everett, the region is a major gateway for increasing trade with Asia and Australia. The Ports of Seattle and Tacoma have important advantages for container traffic including: shorter sailing time than Oakland from the Pacific Rim; natural deepwater; and public subsidy (a modest property tax) to support port maritime operations³⁰. Port activity has experienced double digit increases in each of the last three years due both to globalization , which has

²⁹ PSRC, *2003 Population & Employment Forecasts, Central Puget Sound Region*, November 2004

³⁰ Federal Highway Administration, *Case Study: Improving Mobility in the Puget Sound Region*, 1995, p. 2.

increased imports from traditional trading partners, and congestion at other ports that has rerouted some freight transshipments to the region. The million TEUs (20 foot equivalent unit) of containerized cargo handled by the ports in 2005 is expected to double³¹ in 10 years. Imports through the ports in 2004 were valued at some \$40 billion and exports at \$12 billion.³²

The tremendous growth in freight, along with the natural increases in transportation demand due to population and job expansion, has contributed to: tighter access to ports; growing conflicts at rail/highway at-grade intersections; and increased travel times in the I-5 corridor linking Everett, Seattle, and Tacoma. For example, two statewide surveys record a large increase in truck traffic between 1993 and 2003 along the I-5 corridor (varying depending on specific location) due to greater traffic from the ports, growing truck traffic from Canada related to *NAFTA*, and increased local distribution demands. These limitations add to transportation costs and impact reliability for shippers and carriers alike.

Catalysts for Collaboration

Several factors converged in the early 1990's to encourage collaboration:

Greater understanding of the economy and freight linkage - In the early 1990s, a growing number of the Region's leaders acknowledged that the area's economy was directly tied to the reliable flow of goods in and through the Region. The trend of growing port activity was already clear. Trade between the Pacific Rim and the west coast was up and the Region's ports had increased their market share of the trade flow from 23 percent in 1980 to 27 percent in 1990³³. Market share has since diminished, but this trend is eclipsed by the surge in total container volumes at all ports up and down the west coast.

Both the **tools and the policy direction to address freight were available** in the state growth management (*GMA*) and the federal transportation (*ISTEA*) laws. The first of these tools was a **requirement in both laws to strengthen long-range regional and state transportation plans**. Both plans required multi-modal analysis and involvement of public and private interests, including freight. An important institutional change partly attributable to these new directives was that attention no longer had to be just on publicly owned facilities, but should also consider such relationships as the state "interest" in other modes.³⁴

Figure 4. FAST project locations and types

³¹ PSRC, "Alignment for Action: Transportation, Freight Mobility and the Economy", Presentation to FAST Partnership, December 16, 2005.

³² PSRC, "Alignment", slide 12

³³ *Case Study: Improving Mobility in the Puget Sound Region*, p.2

³⁴ See footnote 6, page 4.



Source: Puget Sound Regional Planning Commission, "FAST Corridor Program Update, November 2005"

Building on the state-level work of a WSDOT freight advisory group to provide input on its state plan in 1992, the PSRC convened a similar group two years later for the development of the freight element to the Region's transportation plan. A participant in both groups was Dan O'Neal (former chair of the Interstate Commerce Commission), who also served on the PSRC's advisory Transportation Policy Board. Mr. O'Neal

became the chair of the public-private Roundtable, which was given a temporary mission. Twelve years later **he continues to chair the voluntary group, now known as the Roundtable**. Participants in the Roundtable help the PSRC frame freight issues for the Region, which then shape key elements of the PSRC regional plan and equally the needs of the several other participant organizations.

The second tool was special **funding available from ISTEA**, and later *TEA-21* (especially Sections 1118, Corridor Planning and Development; 1119, Coordinated Border Infrastructure; and section 1601, High Priority Projects) to support multi-modal and corridor-level solutions to the problems identified (the language for Section 1118 was based largely on the example of the FAST Corridor Partnership). Through the initial public-private collaboration of the Roundtable, and then the interagency FAST Corridor, a number of freight choke points were identified in the Region's rail and highway networks. Many of these were related to local rail/highway at-grade crossings, which impeded both freight and local traffic, adequate access to the ports. The top 15 projects were recommended in 1998 by the FAST partnership and reviewed by the Roundtable participants, many of whom were also FAST partners. The availability of federal freight funding was an important carrot to assembling broad funding partnerships (federal, state, local, ports and private carriers). During the late 1990's the State also developed special funds for freight and multi-modal projects that encouraged continued collaboration and led to a second phase of regional projects in 2002.

According to early interviews for a 1995 FHWA case study,³⁵ the **private sector participants were anxious to promote greater understanding of freight's importance to the Region and the impact of the transportation system on business costs** among both the public leadership and the public at large. The interviews also revealed a high sense of "corporate citizenship" and an interest in networking within the freight transportation community.

Both the private sector and public sector concerns can be seen in criteria that have guided the identification of projects. While these have shifted somewhat over time to reflect changing awareness and conditions, the following appear from documents over the period to be **continuing objectives³⁶ that also serve as reasons for both the public and private sectors to work together, then and now:**

- reducing impacts of freight on local communities
- linking I-90 to the waterfront
- enabling operational improvements
- reducing transportation costs
- improving transportation reliability
- improving safety

³⁵ Ibid, page 2.

³⁶ See especially, Alignment for Action, slide 21 and *Case Study: Improving Mobility in the Puget Sound Region*, page 7.

In addition to the infrastructure projects, FAST has been responsible for other collaborative ventures: changes in the institutions and working relationships among the organizations; operational changes for freight; and getting funding for the actions. FAST has had success in all three areas and has encouraged other supportive partnerships.

Compatible partnerships involving other organizations include a shared funding arrangement to improve port container operations and a related cost-sharing package for \$370 million in commuter rail improvements involving BNSF Railway/Sound Transit Commuter Rail/WSDOT. Roundtable members have helped to create an environment for, and to reinforce and promote, these issues and arrangements.

The Collaboration

What

For the last dozen years, the Roundtable has been the forum for both the “big picture” in freight and specific actions on the ground. The Roundtable does not make policy, but provides an opportunity that all interests related to freight want to use. This includes federal agencies such as FHWA, Federal Transit Administration, the Federal Maritime Administration, and the Department of Defense and its interests in quick access for deployment in times of national emergency. In addition to their own meetings every other month, participants tell the Region’s freight story and promote solutions to issues impacting freight and logistics as participants in workshops and regional planning. If the Roundtable is the vision for freight, then FAST is the implementation program to try to achieve the vision. For FAST, the current focus is on getting the marine gateways and landside railroad projects implemented in a way that also benefits the larger freight goals, as well as the local and individual participant goals. The commitment to FAST is documented in a Memorandum of Understanding (MOU) entered into by all partners in 2002.

FAST Phase I consists of 15 rail-highway grade crossing and port access projects. Nine of these projects were completed before 2005. Despite efforts to reconfigure projects to contain costs – also a collaborative effort – increased estimates and loss of anticipated federal funding has left three projects with funding gaps. The total cost of the 15 projects in late 2005 was \$570.7 million, approximately \$100 million more than the 2000 estimates³⁷. The funding gap for the Phase I projects in 2005 was \$102.5 million according to Tom Noyes, FAST project manager for WSDOT. Despite the gap, four projects are still under construction; and three have significant funding shortfalls.

Phase II began in 2002 with ten more projects, and seven others are considered as future candidates if and when new funding becomes available. In addition to rail and highway separation, the Phase II projects also focus more on truck mobility (e.g., the regional transportation model was improved to better reflect truck movements) and freight system management (intelligent transportation systems, ITS). The goal in the 2002 MOU was to complete the 10 projects in three years, at an estimated cost of \$262.8

³⁷ Beaulieu, Peter D., Puget Sound Regional Council, “The FAST Corridor: A Step into the Next-larger Questions”, presentation June 20, 2000.

million. The hope was for another significant federal contribution, along with new funding proposed by the State. Funding, however, has been elusive. The MOU outlined these projects, identified the lead agencies, and set funding commitments. At the end of 2005, less than 25 percent of the funding was on hand.

Who

So who are the collaborators?

From the beginning FAST has attracted key state, federal and local agencies (including the ports) and private sector interests concerned with freight or impacted by freight conditions. While specific partners in FAST may change as projects are completed, the MOU of 2002 was signed by principals of all 27 agencies. All were signatories to the first agreement, except for one, the Freight Mobility Strategic Investment Board. The latter agency was established after the organization of the FAST; its purpose is to fund freight projects across the State. The MOU signatories are predominantly capital implementing agencies, and thus predominantly public. The private sector ex officio members are: the BNSF Railway, the UP Railroad and the Washington Trucking Association.

Today, the Roundtable continues to engage a broad cross section of business interest as a forum on freight issues and as supporters of FAST. At a January 2006 meeting, the attendees³⁸ list shows that the full range of public and private interests that first collaborated together in the early 1990's continues to do so today. The meeting minutes also show that the group's interests now extend to linking up more with partnerships in the Mid-West for which the Puget Sound serves as an international gateway, and with the west coast states (the West Coast Corridor Coalition). The east-west alliance would include Chicago, Minneapolis – St. Paul, and Kansas City.

The PSRC and WSDOT have designated staff to assist and monitor the FAST program. The project-specific staff from implementing lead agencies, on the FAST Corridor Agency Staff Team (FAST CAST) members provide technical, organizational, and administrative support for each of their respective projects while also sitting together to promote the program as a whole. The public-private “enterpriseSeattle” co-sponsors the Roundtable, together with the PSRC which provides actual coordination and staff support. Beyond administrative oversight and fund management, which now resides with the PSRC (previously shared with WSDOT), the roles of the FAST CAST are flexible. In addition, to project development and management, the FAST CAST collaborates in data collection, corridor planning, message development, and major regional workshops on freight issues in the region.

³⁸ The most recent Roundtable meeting was attended by 55 individuals, including nine private shippers/carriers/logistics, three from the local union, seven from four ports (including Vancouver), three federal agencies, nine from four local/regional agencies, ten non-profit/educational, seven consultants, one citizen, and six from four state agencies including one state legislator.

How

The complex of partnerships and collaborations that make up the FAST/Roundtable activities around freight in the Region is both unusual and productive. The major institutional feature is a clear division between consultation (the Roundtable) and coordination for implementation (e.g., the FAST CAST). A common element is that the numerous activities and projects reflect an integrated agenda. Members describe the multiple institutions involved not as an organization chart, but as “a fabric” of mutual support. Each is important to achieving the overall goals for freight improvement in the Region.

But how was fabric woven from so many disparate elements and how does it hold together? In developing the Roundtable, Chairman O’Neal employed several simple practices to keep focused on issues that both private sector and government would find worthwhile. There are clear rules of conduct, where the forum is open to issues, but presentations are short and succinct. The meetings are run at a convenient time for business members, from 7:30 a.m. to 9 a.m. and the schedule is strictly maintained. The benefits include learning something new and having the opportunity to network with people who can produce results. Regarding the leadership style of the Roundtable, which is credited with its longevity:

*The standard and sometimes neglected rules of leadership apply: wide engagement, a sense of passion, even-handedness, a sense of timing, and sharing of the credit as well as the costs.*³⁹

FAST CAST is similarly focused on results: getting the projects done to everyone’s satisfaction, and not having one agency or group trump another’s interests. FAST employs a unique mix of individual partnerships with shared goals, management, cost, and credit. This has led to a collegial environment where agencies work together in good times and bad. Freight partners understand that community impacts are important to the local governments, and local governments understand that better freight mobility is important to the local and regional economy and the community’s welfare. As a result, the environmental process has been relatively smooth, with community concerns worked out within the project teams.

The commitment of both public and private sectors to work toward common goals and specific objectives can not be overstated. This commitment can be seen when anticipated dollars did not materialize. In 2003, when funding shortfalls for Phase I were clear, new partners were anxious to move Phase II projects along. Instead of ducking the issue and just seeing which organization could out maneuver the other, the FAST decided to work through these issues in an open forum. The two workshops convened in 2003, led to recommitment to the FAST core of important freight projects and to getting the whole job done, not just Phase I.⁴⁰ The second workshop focused on strategies to grow

³⁹ Peter Beaulieu, “the FAST Corridor: A Step into the Next-Larger Questions”, presentation to National Association of Regional Councils, June 20, 2000.

⁴⁰ PSRC, *FAST Workshops, Final Publication*, March 2003

the financial pie for FAST and on developing a long-term funding source dedicated for freight at the State level. In the absence of multiyear funding for freight at the federal level (the innovation of TEA-21, Section 1118, the catalyst for assembling project funding partnerships), the challenge of program continuity is to find other ways, at least until 2009 (federal reauthorization). This is the case in other regions as well. The benefit enjoyed in the Central Puget Sound Region is accumulated good will, a long track record, and the real possibility of inventing something new – within the shared fabric now in place.

Cost

The FAST expects funding partnerships, as well as working relationships. The MOU of 2002 spells out proposed funding shares for the major participants. The chart below shows the anticipated percentage in the MOU for Phase II for each category of partner, compared to the total Phase I and II funding commitments by end of calendar year 2005.

\$ Source	MOU 2002 for Phase II %	Phase I and II Committed %
Federal	35	33
State (all sources)	40	44
Local	(often lead)	11
Ports	7	7
Railroads	3	4
Lead for Project	10	NA
Other	5	1
TOTAL	100	100

Looking at Phase I and II together the total cost is \$880 million, of which \$312 million was unfunded at the end of 2005. This gap exists partly because the Federal funding share did not continue to flow as anticipated in 1998, and because support for the State share has varied.

Results and Benefits

The Puget Sound experience with freight issues can be seen as an example of planning leading to positive outcomes for the freight community. There is a significant problem in many regions in getting private sector interests to stay at the table. This is a result of the disparity between the long-term planning horizon in the public sector and the need for short-term results in the private sector. The combined Roundtable/FAST overcame this problem through the combination of big picture vision (the FAST “Corridor”) and specific actions on the ground (each with its own clearly responsible lead agency). This involved good management techniques and the initial infusion of special federal funds (and new state funds, also in 1998) that expedited the implementation process. These funds attracted commitments of local and private funds.

Despite garnering less funding for these projects than anticipated, it is hard to argue with the results of the Puget Sound's ongoing freight collaboration:

- completion of nine significant projects with four more underway and funding almost complete for three more
- continuing support from both public and private sectors for the FAST program
- sustained private participation in the Roundtable in the face of the loss of special dollars
- the value of FAST reconfirmed in many forums, including the most recent collaboration in Seattle, the Prosperity Partnership, an effort by the PSRC to broadly define strategies for improving the region's competitiveness in a global economy
- the establishment of other partnerships and collaboration on operational issues and other modal concerns. (As a virtual organization, the Roundtable serves in part to draw a variety of actions in toward a shared center – the “communication hub” – in a way that they all gain visibility and mutual support.)

Lessons Learned

Lessons from the FAST experience about building long-term collaborations are many. These are consistent with the collaborative driver's set out in Chapter 3. Chief among these:

- Collaboration can precede the determination of need, and can help define it.
- Strong, continuing leadership and interest are critical ingredients in establishing both (a) the broad partnership and (b) specific cost sharing partnerships necessary to make specific and meaningful improvements in freight mobility. From the beginning, the consultative Roundtable (public-private) and the coordinative FAST CAST (interagency), developed clear ideas of mutual benefit and the need to move quickly to action. They also understood that one organization could not solve the problems alone.
- In addition to leadership, the conduct of the Roundtable was geared to making the meetings as interesting, useful, informative, and convenient as possible. This was an important factor in building participation and establishing credibility.
- Public funds can serve as a critical catalyst; special federal money served as a significant carrot in getting other funding partners to the table. As a result of their early success in meeting key objectives, the lack of it later in the process did not derail FAST, but only slowed the speed of implementation and has caused them to work toward new funding strategies.

- To share costs, you need to share credit.
- Where a public agency has a charter that includes freight and an interest in economic development of the state or region, freight mobility partnerships are more likely.
- Involvement of community and other public interest groups can be a critical part of solutions.
- Understanding each partner's different "shareholders" has proven critical to support for the overall effort and the individual projects.
- Successful face-to-face collaboration among real people (not simply abstract organizations) leads to trust that makes possible other cooperative efforts to benefit both parties – and their shareholders.
- Non-freight groups have a great deal at stake in freight projects.

CHAPTER 7. NITTEC: THE NIAGARA INTERNATIONAL TRANSPORTATION TECHNOLOGY COALITION

Type of Collaboration: The Niagara International Transportation Technology Coalition (NITTEC) functions as a consortium among 14 different agencies, authorities, and municipalities in the Niagara region of the United States and Canada. It was formed in 1995 with a primary mission to improve safety and congestion at the four international border crossings in this region. Freight and passenger transportation providers and users benefit from the collaboration. NITTEC has been governed by a MOU from the very beginning. The MOU is updated every two years, the last being March 2004.

Key Points

- In 1994, the US Department of Transportation (USDOT) awarded the state of New York a \$5 million innovative-financing grant to develop and fund projects to improve the land-border crossings between the U.S. and Canada in the Western New York-Southern Ontario region. The New York State Department of Transportation (NYSDOT) used these funds to establish a revolving loan fund. Subsequent actions kept and stabilized the integrity of this early decision.
- Commercial, tourist and local traffic use the Niagara Gateway. Annual traffic there has increased each year since the mid-1980s.
- Leaders in the region recognized that solving safety and congestion problems at the border would require a regional solution. While NITTEC is not traditionally a freight-oriented agency, its actions to manage traffic and enhance safety substantially contribute to efficient and safe freight delivery.
- NITTEC was formally recognized as an organization in 1995. Currently there are 14 signatories to the coalition—7 from the United States, 5 from Canada, and 2 from the Buffalo-Niagara region.
- NITTEC operates as a multi-agency collaboration, serving alternatively as a data collector and clearinghouse, facilitator, planner, and direct service provider to its member organizations. It depends greatly on the work provided by members of its four subcommittees.
- NITTEC uses an array of intelligent transportation system tools to manage traffic and enhance safety and efficiency in the Buffalo-Niagara region. Its services provide agency partners and highway users with real-time information about conditions on the roadways in the region. These strategies reduce congestion associated with traffic delays, improve air quality, and contribute to a healthy economy.
- Canada and the United States are the world's largest trading partners. In terms of value of U.S. foreign trade shipments, the four land crossings that make up the

Buffalo-Niagara Gateway rank 8th. During 2004, \$31.7 billion in exports and \$36.6 billion in imports crossed the border at the Buffalo-Niagara Gateway.

- Traffic at this gateway evidenced substantial growth starting in the mid-1980s. In addition to commercial traffic, tourism and local traffic showed growth as well.

Background: The Region

Canada and the United States are the world's largest trading partners. Based on data from several sources, the U.S. DOT reports that, in terms of value of U.S. foreign-trade shipments, the four land crossings that make up the Buffalo-Niagara Gateway rank 8th.⁴¹ During 2004, \$31.7 billion in exports and \$36.6 billion in imports crossed the border at the Buffalo-Niagara Gateway.

The four international land crossings that make up the Gateway include the Peace Bridge, the Rainbow Bridge, the Lewiston-Queenston Bridge, and the Whirlpool Bridge. Almost all freight crosses at the Peace Bridge, which connects Buffalo, New York (NY) with Fort Erie, Ontario (ON) or at Lewiston-Queenston, which connects the town and village of Lewiston (NY) with the village of Queenston in the town of Niagara-on-the-Lake (ON). The Rainbow Bridge connects the tourist districts of Niagara Falls, NY with Niagara Falls, ON and is mostly, though not totally, used by tourists. The Whirlpool Bridge connects the commercial zones and downtown districts of Niagara Falls, NY with Niagara Falls, ON, however, the Whirlpool Bridge is reserved for subscribers to NEXUS,⁴² a program for pre-approved clearance, and commercial vehicles are not permitted on the bridge. **Figure 5** identifies the general geographic area of the NITTEC collaboration.

NITTECs early history dates back to 1994 when the USDOT awarded the state of New York a \$5 million innovative-financing grant to develop and fund projects that would improve passenger and freight crossings at the U.S.-Canada border in the western NY-southern ON region. Originally called MINITECH, the early partners included members from NYSDOTs Region 5 and other regional representatives. Their arrangement was formalized in a September 1995 MOU. The formal creation of NITTEC followed soon after, as did the opening of its first regional operations center.

NITTEC staff moved to its current location near the Peace Bridge in the Fall of 2000. In early 2001, NYSDOT entered into an agreement with the Niagara regional transit agency, the Niagara Frontier Transportation Authority (NFTA), to host NITTEC.⁴³ As is customary with such new organizations, NITTECs first employees were loaned from other organizations. It hired its first Executive Director, Tom George, in February

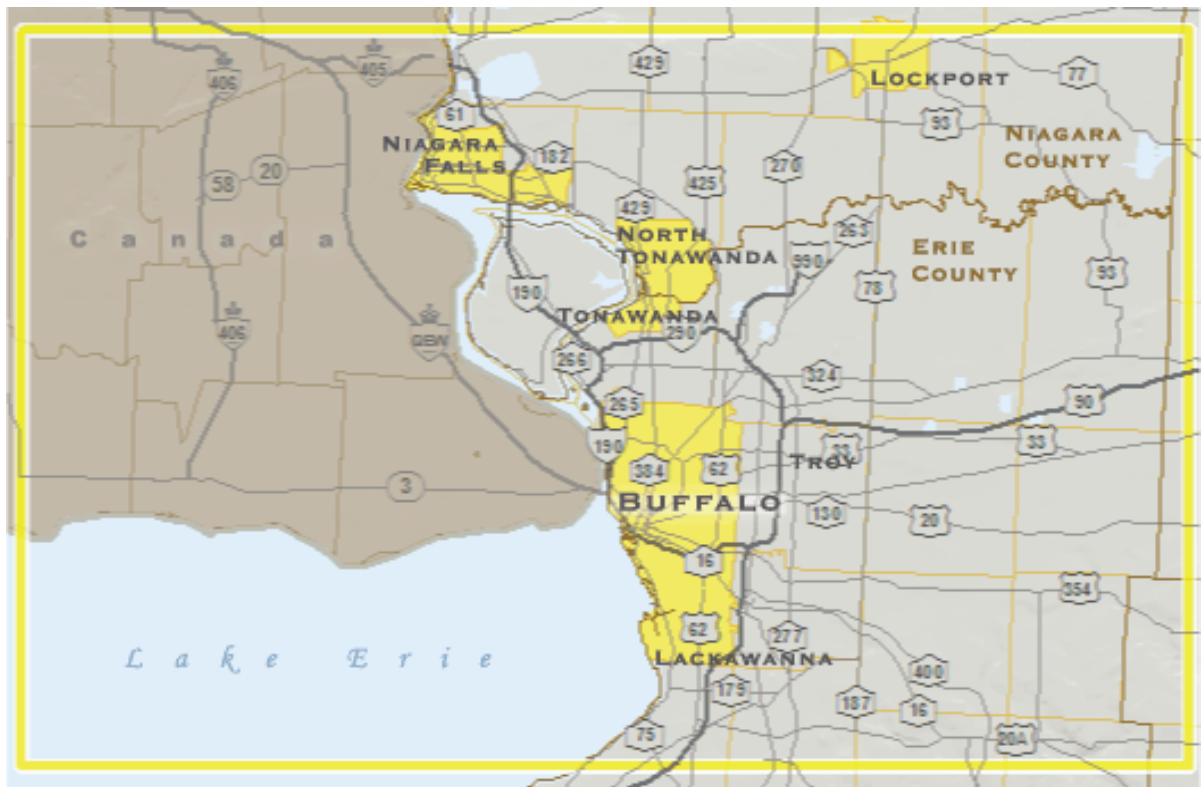
⁴¹ BTS, *National Transportation Statistics 2005*, http://www.bts.gov/publications/national_transportation_statistics/2005, Section D.

⁴² NEXUS is a program for pre-approved immigration and security clearance between Canada and the U.S.

⁴³ NFTA performs similar services for the regional metropolitan planning organization, the Greater Buffalo-Niagara Regional Transportation Council. NFTA charges NITTEC a negotiated administrative fee for which it carries out procurement, personnel, and similar administrative functions.

2003 and by March of the next year all personnel working at NITTEC were employees of NITTEC.

Figure 5. Niagara International Region



Source: New York State Transportation Federation

Freight Environment

Between 2003 and 2004, the Buffalo-Niagara Falls Gateway's rank rose from 9th to 8th, based on the value of shipments at U.S. international freight gateways. During 2004, \$31.7 billion in exports and \$36.6 billion in imports crossed the border at the Buffalo-Niagara Gateway, compared to \$27.4 billion in exports and \$32 billion in imports the previous year. Following the Port of Detroit and the Port of Laredo, Buffalo-Niagara is the nation's third busiest land bridge.

According to *America's Transportation Gateways*,⁴⁴ trucking's share of the value of goods passing through the gateway has remained relatively steady, between 75 and 79 percent, since 2000. Characteristics about mode-split are summarized in **Table 4**

⁴⁴ USDOT/BTS, *America's Transportation Gateways*, page 30.

below.⁴⁵ More than one million trucks use the Peace and Lewiston/Queenston bridges each year. Over the 10 year period between 1994 and 2003, trucks entering the U.S. at these two locations increased by 31 percent.⁴⁶

TABLE 4. Value of U.S. International Merchandise Freight: 2003

		\$ millions	
Overall and Land Modes	Total	Exports	Imports
Total U.S. trade by all modes (land, sea, air)	1,983,139	723,743	1,259,396
Total U.S. trade by land	562,776	240,486	322,291
Value of International Land Freight via Buffalo-Niagara Falls, NY			
Total land trade through port	59,369	27,367	32,002
Percent of total U.S. land freight value	10.5%	11.4%	9.9%
Value of International Land Freight by Mode via Buffalo-Niagara Falls, NY			
Truck	45,753	24,988	20,765
Rail	9,127	1,763	7,364
Pipeline	3,949	276	3,673
Other and unknown	541	341	200
Value of Land Freight O&D, All Modes via Buffalo-Niagara Falls, NY			
To and from New York	9,585	4,011	5,574
To and from other U.S. States	49,784	23,356	26,428
Other states' shipments as percent of freight value via port	83.9%	85.3%	82.6%
Value of Truck Freight O&D, via Buffalo-Niagara Falls, NY			
To and from New York	9,024	3,994	5,030
To and from other U.S. States	36,729	20,994	15,734
Other states' shipments as percent of freight value via port	80.3%	84.0%	75.8%

Source: USDOT/BTS

Catalyst for Action

Early leaders recognized that success would require several things: resolving problems at the regional level, a dedicated funding source, and a determined and dedicated champion. While most early leaders have moved on to other jobs or retired, several important leaders, even if now serving in a different capacity, have remained connected to NITTEC and continue to champion its mission.

While an important organization for improving general traffic management and flow for the Buffalo-Niagara region, NITTECs creation and early existence owes most to trade growth and the enormous traffic being generated between the U.S. and Canada.

⁴⁵ *Ibid*, page 30.

⁴⁶ *Ibid*, pp.30-31.

Daily merchandise traffic between the two countries exceeds \$80 million (\$US) and had stretched local agencies and existing road capacities well past their limits. By seeking mechanisms to streamline or harmonize functions where possible, chiefly through technology improvements and improved communication among members, the flow of traffic between the two countries has improved substantially.

NITTEC: The Collaboration

At this time, NITTEC focuses its efforts on four main transportation strategies for the Buffalo-Niagara region: improving safety and operations, reducing congestion, coordinating accident and incident notification and response, and strategically applying intelligent transportation system (ITS) tools among agency members and for the public. Using finely honed skills and advanced technology tools, its mission has evolved over time, from an early focus on safety and operations to being an organization that provides a broader and more interactive, integrated, and inclusive set of solutions. NITTEC now operates as a multi-agency collaboration, serving alternatively as a data collector and clearinghouse, facilitator, planner, and direct service provider to its member organizations. It depends greatly on the work provided by members of its four subcommittees.

In many ways NITTECs most important attribute is its capacity for generating an environment of trust among its members (who actually carry out much of the work through their own agencies). No other entity exists in the Niagara region where agencies having different, even conflicting, territory and transportation responsibilities can come together to accomplish a common task. NITTEC provides the information systems that enable commercial, local, and tourist travels to cross the border with a minimum of disruption while still maintaining safety and security. In the micro sense, it manages a system whereby an individual driver, by being informed about what's ahead, can make a decision well in advance of the border on both the U.S. and Canadian side. In the macro sense, NITTEC facilitates mobility—both regionally and internationally—by promoting economic competitiveness and cooperation, promoting energy efficiency, and abating environmental degradation.

The MOU Partners and How They Work Together

The 14 groups that form NITTEC function as a consortium whose mission is to “improve regional and international transportation mobility, promote economic competitiveness, and minimize adverse environmental effects related to the regional transportation system.” The following agencies, all of which are signatories to the latest MOU (2004), comprise NITTEC:

- Buffalo and Fort Erie Public Bridge Authority
- City of Buffalo (New York)
- City of Niagara Falls (New York)
- City of Niagara Falls (Ontario)

- Erie County (New York)
- New York State Department of Transportation
- New York State Thruway Authority
- Niagara County (New York)
- Niagara Falls Bridge Commission
- Niagara Frontier Transportation Authority
- Niagara Parks Commission (Ontario)
- Ontario Ministry of Transportation
- Regional Municipality of Niagara (Canada)
- Town of Fort Erie (Ontario)

The MOU covers all four international border crossings in the region.

NITTEC operates through an executive council which provides policy and program guidance to the organization and a regional-transportation, coordination and management council (Management Council). The Management Council facilitates collaboration about capital and operational issues among the members and has oversight and approval authority over NITTECs Director, its subcommittees, and its ad hoc project teams.

NITTEC depends greatly on the work provided by the members of its four subcommittees who serve in an advisory role: Strategic Planning, Traffic Operations Center (TOC), Technology and Systems (T&S), and Incident Management.

- *The Strategic Planning Subcommittee* advises NITTEC about long-term goals, use of resources, performance, and meeting public expectations. NITTEC has a consultant under contract to develop its next Strategic Plan, expected by mid-2006. This Plan will address several aspects about freight movements at the Niagara Gateway.
- *The TOC Subcommittee* establishes the operating procedures and protocols through which traffic is monitored and reported. When major incidents occur in the region, members of this subcommittee plan for and manage the regional transportation system.
- *The T&S Subcommittee* monitors and provides advice on the development, integration, compatibility and architecture of the intelligent transportation system tools that NITTEC uses.
- The overall objective of the *Incident Management Subcommittee* is to develop the policies, procedures and protocols that foster better cooperation and coordination among the regional agencies responsible for

transportation, public safety, emergency service providers, and traveler information. This subcommittee has under development a 2-3 hour highway safety-awareness training course that will be offered to fire, emergency, and police safety personnel across the Niagara region.

NITTEC's most important direct service activity is operating of the TOC itself, a centralized communication center that collects and analyzes real-time traffic information and makes it available to the public and agency members. Also, the TOC serves as a one-stop clearinghouse where the information it collects is passed on to the appropriate fire, police, emergency, and public works agencies and service providers. Located at NITTEC headquarters, the TOC uses, among many advanced technological tools, a system of *closed-circuit television cameras* stationed throughout the region to monitor conditions on the transportation network, *traffic-count stations* that relay real-time traffic information and assist in incident detection and response, *on-highway variable message signs* to inform drivers about upcoming traffic conditions, and *embedded pavement sensors* to gather and report weather and road conditions.

Institutional Arrangements and Financing

NITTEC operates with a staff of 14 (full- and part-time) and two interns and with an annual administrative and operating budget of approximately \$1.3 million, including the always-on operation of the Traffic Operations Center where eight (five full-time and three part-time) of the 14-member staff work. For a modest administrative annual fee, NFTA hosts NITTEC and performs many of its legal and administrative functions.

NITTEC projects, including staffing, are included in the Transportation Improvement Program for the Greater Buffalo-Niagara Regional Transportation Council, the region's metropolitan planning agency. Because NITTEC is not a legal entity, its projects appear under those of the NYSDOT. Its annual budget has been funded using Congestion (CMAQ) and Air Quality funds, though more recently, with Surface Transportation Program Flex funds. Because NYSDOT did not have a regional transportation center in its Region 5 before NITTEC was created, NYSDOT itself funds from state transportation funds the required local match for NITTEC.

NITTECs grant from USDOT in 1994 proved to be central to its long-term development and stability. NYSDOT treated the early grant assigned to them as a revolving loan fund⁴⁷ available for capital projects in the region and it entered into a series of agreements to ensure implementation of this plan. In early 2000, it executed a revolving loan fund agreement with the Federal Highway Administration (FHWA). In August, 2002, NITTEC gained approval for the first revolving loan fund project (and subsequent repayment to the loan fund) by the New York Thruway Authority. The second project, to interconnect and improve traffic signals with those at the NITTEC traffic operations center, was with the City of Buffalo. These two projects fully depleted

⁴⁷ It would actually take a series of legal actions over several years between and among FHWA, NYSDOT and NITTEC to formally and legally treat these funds as NITTECs.

the original grant from the USDOT. Payments back to the fund will ultimately enable NITTEC itself to gain future direct control and management over the fund.

Barriers to the Project

The NITTEC collaboration has been a successful one—not perfect, but successful. Given the complexity and long lead-time needed for transportation and technology projects, the organization has grown at a manageable rate over its history, filling a useful niche as collaborator and facilitator. After more than 10 years, some items remain on its wish list or face a degree of threat:

- *Organizational Structure.* NITTEC functions as a regional organization without being a legal entity or having funding authority. In addition, its region is international in scope. Because of the success of its collaboration, it stands out as an emerging structure, but it is one that now operates substantially on good will.
- *Operating Funds.* Because of the way Federal transportation funds flow to states, a project that is truly regional in character will have to compete for these funds in a way that could challenge its future. Historically, NITTECs annual operating funding has come from the CMAQ program. Over time, other New York state interests have competed for this money and, more recently, some of NITTECs annual budget has been switched to STP Flex funds. Questions related to the Federal transportation program exist about its long-range funding, potential dedicated sources of funds, and new sources of revenue.
- *Freight.* Because NITTEC members are mostly state and regional agencies (where freight and private interests are underrepresented), freight companies are not directly included in the collaboration, although they are clearly beneficiaries of it. NITTEC is hopeful this conflict can be resolved and is taking steps to do so, including making a place for freight interests in its forthcoming strategic plan.⁴⁸
- *Customs.* Similar to the freight situation, immigration and customs services still operate outside the NITTEC collaboration. Programs do exist designed to improve traffic flow: FAST and NEXUS being important and related tools.⁴⁹

⁴⁸ A planning goal in the MPO 2025 Plan is to “promote efficiency and reliability of freight movements (truck and rail) within and through the region and improve multi-modal facilities and system connections to capitalize on growing international and trans-border trade opportunities.” Another stated goal in the Plan is to “increase crossing capacity by 20 percent.” The MPOs Planning and Coordinating Committee includes a Subcommittee on Cross-border Planning.

⁴⁹USDOT and Canadian agencies are working on an entirely new generation of intelligent transportation system and electronic (paperless) initiatives to improve goods and vehicle movement. Two early programs are FAST and NEXUS. The FAST (Free and Secure Trade) Program is a joint U.S.-Canada initiative involving the U.S Bureau of Customs and Border Protection, Citizenship and Immigration Canada, and the Canada Border Services Agency. Under this program, shipments of pre-approved eligible goods carried by

- *Canada.* Currently, the systems being developed and used by NITTEC are funded and fully operational only on the U.S. side of the border (although Transport Canada does operate similar systems for traffic control on the Canadian side of the border). Collaboration among the NITTEC members is real, however, and it remains a goal of NITTEC members to establish or integrate systems on both sides of the border.

Results and Benefits

The very fact of collaboration and its positive results stands out most strongly with NITTEC. Nowhere else in the Buffalo-Niagara region are transportation and safety organizations and personnel able to come together to discuss problems and resolve them. For example, while police, fire, and emergency medical personnel are all involved in clearing accidents and incidents on the regional roadways, these separate organizations, except at NITTEC, operate as management silos, with no cross-sharing of work or information. Tom George says the NITTEC philosophy is to park egos at the door and, as a result, trust relationships develop that enable participants to search for new solutions to problems.

NITTEC is evolving as an organization and working toward a collaborative solution that is multidisciplinary and inclusive. This would include formal working relationships with customs organizations and freight service providers. Already, the smoother flow of people and goods at the border crossings means trucks and cars move more quickly and freely through the region. Improved mobility leads to better air quality, less energy use, and less stress on the road.

The intentional integrity of the early plans for and implementation of the revolving loan fund proved to be sound. Two projects—one for the New York Thruway Authority and other for the City of Buffalo—used these monies and are making payments back to it through negotiated arrangements. As these loans are paid back, NITTEC moves closer to the time when it will independently manage this revolving loan fund.

pre-approved drivers benefit from reduced information requirements for customs clearance and reduced border examinations. Accounting and payment processes are streamlined and actual trade compliance occurs away from the actual border. Available at many crossings between the U.S. and Canada, at the Buffalo-Niagara Gateway *FAST* is available at the Peace Bridge and Lewiston.

While not available to freight carriers, the *NEXUS* program clears traffic more quickly thereby improving flow for goods movement. Using advanced technology, a scanner at the inspection booths validates electronically the pre-approved *NEXUS* identification card for entry into each country. While conventional inspection by border officials, can commonly lasts several minutes (or more), the electronic inspection takes about 10 seconds. *NEXUS* cardholders can use all four border crossings and the Whirlpool Rapids Bridge is dedicated for *NEXUS* users only.

Lessons Learned

- NITTEC stands out as an *example of a new organization* that may become more common in the 21st century. It is regional and international in scope and geography. It functions through a network of horizontal rather than hierarchical relationships.
- *Synergistic effects* result from the collaboration, especially for freight movements. While it is an ancillary benefit to the project, trucks can move more quickly and freely through the region because of NITTECs work.
- Many organizations cooperate, but are unable to move beyond good intentions and meetings. NITTEC took this arrangement several steps further. First, it had *early champions* who remained tied to project over a long period of time. This not only provided institutional memory, it provided a sense of *needed consistency and sponsorship over time, and it facilitated trust relationships* to form.
- *Sufficient, early, and dedicated funding* proved to be essential to creation and evolution of NITTEC. That funding provided legitimacy and enabled it to evolve. Transportation projects, in general, don't produce easy and early results, meaning a funding source needs to be available for long periods of time. During times of crisis, deficits, and political change, these projects can have a hard time getting off the ground, not to mention completed.
- NITTEC early on developed a strong *sense about what it was and what it wasn't and was able to communicate how it was distinct*. It had what amounted to being a clear mission statement, provided essential services to the public and its members, and a clear "chain of command" on a regional level. Much of the work of its subcommittees involves establishing clear protocols, data requirements and system architecture for all the members to use.
- While not necessary creating a "vision," NITTEC did early on understand *how its mission was different from that of its member agencies*. It would be regional, collaborative, and highly information- and service-focused. Its strategies are developed as win-wins.
- NITTEC made no attempt to become overly large or take responsibilities and personnel away from other agencies. Given its budget and responsibilities, it operates as a *small and focused organization with a clear sense of mission*.
- NITTEC has also learned the lesson of having *one media contact, especially when reporting accidents and incidents*. Even when follow-up by other agencies is warranted, having one initial point of contact has eliminated confusion and conflicts, especially with reporting accidents and incidents.

CHAPTER 8. LESSONS LEARNED AND THEIR APPLICATION TO OTHER PROJECTS

Many of the ideas, business models, organization and governance structures, and physical infrastructure of the freight transportation industry stem from another era. They are ill-suited to solving today's freight-delivery problems: congestion, insufficient capacity, pollution, delivery delay, and loss of business among them. Albert Einstein advised: "We cannot solve today's problems with the same level of thinking that created them." Peter Drucker suggests a paradigm shift has occurred, one following a technology explosion that realigned businesses and markets. Nowhere is this more evident than with the growth of international trade, which since 1990 has had an annual growth rate of more than six percent according to the Bureau of Transportation Statistics, US DOT.

Solving these problems will require more collaborative and multidisciplinary approaches. This report includes four case study examples that used a collaborative approach to solve a freight-delivery problem. Each of these collaborations evolved along its own trajectory. Collaborations almost always result in a unique solution, although lessons from them can be applied to new situations or serve as a starting point in a new situation. We will call these "lessons learned."

General Freight and Business Climate

- As the U.S. economy expands, the demand for freight transportation services—local, national, and increasingly international—expands with it. According to AASHTO, domestic freight tonnage should increase by 57 percent between 2000 and 2020 and import-export tonnage would increase by nearly 100 percent, growing at a modest three percent each year. If mode-split remains the same as today, freight needs will soon outpace the available capacity in the freight system.
- The freight system includes a complex of tracks and roads, terminals, and distribution and warehousing facilities. Freight and trade gateways serve local and regional markets, but increasingly handle traffic that originates and terminates far from local markets.
- In large part because of the 1990s technology explosion that realigned trade markets and relationships, a paradigm shift has occurred.
- People involved in these case studies acknowledge that in the United States, reward systems are typically focused on narrow performance and goals that can be easily measured, not on broad or comprehensive goals or solutions. These case studies provide support for the role of the visionary, a person unafraid to be "first" or to overly focus on receiving personal credit.

Public Investment in Private Business

- At a minimum, money serves as a catalyst to a project and a useful Federal government role involves priming the pump. A small city or county, or even a business, commonly lacks sufficient funds to commit enough money to a complex freight project all at one time. These case studies found that having a stable source of funding for collaborative projects, especially early on and sufficiently large, was an element of their success. As important was using that early money wisely.
- Because public program funding only occurs if the planning effort for a project is substantive and convincing, collaborating parties come to realize that demonstrated-need precedes a policy response. Collaborating organizations come to realize the importance of jointly conveying their story, one that because of its complex nature typically involves substantial public benefit if resolved. Public benefits can include congestion relief, emissions reductions, travel time savings, and environmental upgrades.
- The skill mix for a successful collaboration that uses public funds includes more than public and private project “managers.” It will likely include planners, tax investment and financing experts, real estate experts, and other specialties.
- Because freight delivery problems can take a long time to resolve, it is important to acknowledge and build the potential political changes into the planning process from the very beginning. Being substantive and convincing can largely insulate a project from political challenges, as can having a collaborative “constituency.”
- In most instances, “money on the table” will be an aspect of collaborations involving freight delivery, because the freight industry is highly capital intensive.
- Government agencies commonly have a capital advantage over a private entity that can benefit their partnership. Allowing the private operator to pay its share of the capital over time through its operating savings provides an affordable solution to meeting capital needs.
- Sometimes a relatively small, discrete investment in rail can greatly expand capacity to serve freight and passenger needs.
- It is important to recognize the essential business nature of much of the freight industry. This translates into financing terms that seek repayment (loans vs. grants, guarantees vs. outright gifts, per car or wheelage charges as revenue sources) of the original source of funds so it can be used again.
- Federal transportation funds flow mostly from the Federal government to states. Freight transportation has traditionally fallen outside this source of funds, being more interstate or sub-state, and increasingly international.

- The case studies provide evidence for a high-level policy to resolve freight delivery problems, coupled with regional solutions. Because of the way funds flow, projects that are truly regional or international in character (as many freight projects will be) will have to compete with states for program funding that is only spent within that state.
- It is also possible for governments to forego tax revenue to gain improvements in other areas, such as pollution and congestion abatement and better access to businesses.
- The success of these collaborations opens the door for considering other kinds of partners, governance structures, and organizations.

Collaboration: What It Is, What It Isn't

- Much of what is termed “collaboration,” in fact isn’t. Collaboration involves a high degree of trust and interaction among all the parties. Collaboration is an ongoing, interactive process that is carried out in a supportive environment. Participants are respectful and can freely express alternative points of view, all of which are valid and none having superiority over another. Participants are reflective, as well as critical, of themselves and each other. Differences are not downplayed: the goal is to learn from each other.
- In each of the case studies, at least one interviewee admitted how important it was to “park your ego at the door.”
- Having a leader or a champion is another critical element of collaborative success. Leading an interactive process requires time, skill, and attention. In several of these case studies, early champions moved on to other endeavors but remained committed to the original project. Often the original collaboration expanded to solve other problems because of the networks of relationships that resulted from the collaboration.
- True collaboration will require rethinking the merits of competition. Collaborative relationships are always horizontal and require a broad network of participants, frequently from many different sectors or disciplines. They are not hierarchical or one-up, one-down relationships. In a business situation, it can be beneficial to have a single individual or organization in charge of a project, but only after the collaborative effort has identified a solution.

Collaboration in Freight Projects: Why Do It?

- Freight projects are typically capital intensive, complex, and difficult to carry out by any one entity acting alone. The problem, or complex of problems, can exceed the financial resources, authority, or scope of any one entity and can

take a long time to resolve, 5-10 years and more. Often, multiple institutions realize that problems will worsen absent a collaborative approach.

- When weighed against today's needs, because of the way freight systems have developed to solve local and regional needs, the negative effects from capacity constraints mostly occur at the local level and benefits from resolving these problems are mostly distributed downstream.
- Traditionally, freight service providers are competitive, not oriented to cooperation or collaboration. Early participation in a collaborative process can help an institution think more broadly and see how benefits from collaborating could accrue to them.
- Think creatively. When traditional organizations can't provide a structure for pursuing a project, seek ways to develop new ones.
- Historically, State DOTs and the railroad industry have had limited working relationships. Their different constituencies over their history have not always seen the mutual interest in working together. It is possible, however, to overcome skepticism and come to agreement on projects of mutual benefit.

APPENDIX A: THE ROLE OF COLLABORATION IN FREIGHT TRANSPORTATION IMPROVEMENT

Project	Location	Brief Description	Partners
Alameda Corridor	Southern CA – Los Angeles to Long Beach	This \$2.4 billion project, more than ten years in the planning, when fully complete and operational will consolidate freight railroad operations between the Los Angeles and Long Beach ports, shifting those operations to a single 20-mile, high capacity rail corridor. Newly built/improved intermodal yards likewise will streamline operations. Loans and bonds financed the project and the repayment schedule is based on revenues from corridor use. <i>This project is well documented.</i>	USDOT/FRA (\$400M loan), Ports of Long Beach and Los Angeles (\$394M), LA MTA and other public and private entities (loans, bonds, other Federal aid). While major loan amounts are noted here, collaboration in this project vastly exceeded the financial arrangements.
CREATE (Chicago Regional Environmental and Transportation Efficiency Project)	Chicago, IL	Chicago is, by far, the busiest rail gateway in the U.S, already carrying 38,000 rail freight cars/day and expecting that number to increase to double in 20 years. Freight with an annual value of \$350 billion/year travels through the Chicago area. CREATE is a \$1.5 billion rail improvement project whose plan anticipates creation of five rail corridors, including one primarily for passenger trains; 25 new grade separations to eliminate many commuter delays, and the opening of a key corridor in downtown Chicago for commercial development. The project was launched in 2003 and is expected to be complete in 6 years. <i>This project is well documented.</i>	Public-private partnership among the AAR (on behalf of six freight railroads and Metra), the State of Illinois (Illinois DOT), and the city of Chicago (Chicago DOT). More broadly, USDOT (FRA/FHWA/FTA) and the Chicago Area Transportation Intermodal Advisory Task Force (CATSIATF) have been involved in the broader collaboration. CATSIATF includes the parties to the partnership as well as other private, public and numerous civic interests.
FAST (Freight Action Strategy for Seattle - Tacoma – Everett)	Tacoma/Seattle WA	<p>The multimodal, FAST Corridor program was begun as a study effort by the Seattle MPO, Puget Sound Regional Council, and the Economic Development Council of Seattle and King County to consider access to the three area ports (Everett, Seattle, and Tacoma) and freight mobility throughout the region. 25 projects in the central Puget Sound area have been selected since the beginning of this highly successful partnership a decade ago. 11 are complete and at least four others are under construction. Phase II projects are in planning or even right-of-way stages.</p> <p>Although public money dominates, funding sources are varied and include the three ports, the two major railroads and business interests. Budget issues have slowed the planned implementation somewhat, but the program is remarkable for both its accomplishments and the continued support and enthusiasm it receives at the state, region, county and local levels.</p>	Numerous state, local, regional interests as well as a special state Freight Strategic Investment board, the two major rail carriers – BN and UP - and the Washington Trucking Association. As there are too many partners to list here, the link below provides details: http://www.wsdot.wa.gov/mobility/fast/partners.htm

**NCHRP 08-36 Appendix A: The Role of Collaboration in Freight Transportation Improvement
Updated Case Study List and Decision Matrix**

Project	Location	Brief Description	Partners
Global Gateways Development Program (GGDP)	California (various locations)	GGDP is a state of California planning effort that focuses on seaports, international airports, trade corridors, border crossings, major railroads and highways. Its mission is to address goods movement and California's important (and growing) place in the global economy. <i>This project is, in large measure, modeled after FAST and the Alameda Corridor is a part of it.</i>	CalTRANS, Federal and local transportation agencies, the California legislature, and the private sector.
Heartland Improvement Project	24 states in U.S. heartland	HIP functions as a regional forum where senior public and private decision-makers can explore the range of operating, policy and technology options for mitigating these technology options for mitigating these anticipated adverse impacts on the security, anticipated adverse impacts on the security, economy, and ecology of the United States. Its objectives include intermodal solutions (highway, rail, and maritime)	Partners are senior officials and leaders from the public and private sector. HIPs geographic coverage includes the entire "heartland" of the United States - all states from North Dakota through Texas on the west through parts of New York State and Florida on the east.
I-81 Truck Toll-Lanes Project	Virginia	The I-81 Truck Toll- Lanes project is a proposal from a private consortium of construction, finance and business interests (called "STAR") under Virginia's <i>Public Private Partnerships Act</i> to build truck toll lanes largely separated from smaller vehicles. The Virginia DOT is currently negotiating with STAR and is also conducting an independent environmental assessment of major improvements to I-81, including exclusive truck lanes. Rail system improvements are being discussed as part of the project, but STAR has said it wants to limit publicly funded improvements to rail and to many parallel roads that might facilitate more than a modest level of truck diversion.	The potential partners are the state of Virginia and its DOT on the public side and the private business consortium on the other. The role of the primary rail freight operator, Norfolk Southern Railroad (NS Corp) is not clear at this time.
Kansas City Flyovers	Kansas City, MO and KS	Opening in July 2000, the Sheffield Junction Flyover in Kansas City involves a unique public-private partnership and financing arrangement. Costing \$74 million, this 3-mile sky bridge reduces delays for as many as 250 trains/day by eliminating at-grade intersections. In September 2004, a second sky bridge, called the Argentine Connection opened. Costing \$60 million, this sky bridge carries BNSF trains on the top two levels of a triple-decker rail crossing. The bottom level, another \$60 million project, is UP's High Line Bridge. Under the financing arrangements the Kansas City Terminal Railroad Company pays back the bonds with revenues generated from wheel charges.	Sheffield: Kansas City Railroad Terminal Company and its member railroads (BNSF, UP, KCS, NS, ICE, and MNA) and the State of Missouri; Argentine and High Line Bridge: KCTR and the State of Missouri for Missouri portion; KCTR and its member railroads, and the Unified Government of Kansas City, KS, Wyandotte County, KS for the Kansas portion

**NCHRP 08-36 Appendix A: The Role of Collaboration in Freight Transportation Improvement
Updated Case Study List and Decision Matrix**

Project	Location	Brief Description	Partners
MAROPs (Middle Atlantic Rail Operations Study)	Mid-Atlantic states	The MAROPs study was initiated in 2000 by the coalition of state DOTs known as the I-95 Corridor Coalition. The final report provides an in-depth set of recommendations for immediate, mid-term and long-term rail improvements in five states and the District of Columbia. Some of the projects identified have been advanced by the individual states, but the broad improvement program envisioned by the study participants appears to be the victim of budget cuts and other changes in priorities. <i>A completed project is the Shellpot Bridge reconstruction, also included on this list.</i>	The five states are New Jersey, Pennsylvania, Delaware, Maryland, Virginia, along with the District of Columbia. The three cooperating railroads include: Norfolk Southern Railroad (NS Corp), CSX Railroad (CSX), and Amtrak, in addition to five commuter rail operators.
Michigan (SE)-Ontario (SW) Bi-National Planning Partnership	7 Counties in SE Michigan and 5 Counties in SW Ontario	This project focuses on the SE Michigan and SW Ontario region, which share an 87-mile international border. It seeks to expedite cross-border vehicle and cargo movements through bi-national coordination of planning and project implementation. Major tasks include developing institutional relationships, developing a database for regional infrastructure, identifying strengths and weaknesses, and developing a binational transportation position. The process involves committee one-to-one meetings, telephone conferences and the Internet for information and data exchange.	SEMCOG (SEastern Michigan Council of Governments) and a Coordinating Council of more than 50 members—bi-national, Federal, state, regional, local, and private.
New Orleans Carrollton Curve	New Orleans, LA	The State of Louisiana had decided to make changes to the transportation system in New Orleans (2001), changes that included rail lines and could have adversely affected low income communities. The MPO established an extensive community outreach process that ultimately reduced costs and addressed community and environmental justice concerns.	State of Louisiana, New Orleans Metropolitan Planning Commission (MPO), and citizens of New Orleans.
1. Niagara International Transportation Technology Coalition (NITTEC) Or 2. Commercial Vehicle Processing Center & US Customs Service Pre-Arrival Processing Center)	1. NY: Buffalo, Niagara Falls, Lewiston; ON: Fort Erie, Niagara Falls, Queenston Or 2. Peace Bridge, Fort Erie Canada (for US bound commercial traffic)	1. NITTEC coordinates operational planning, incident notification, and traveler information for the transportation agencies of western NY state and Southern Ontario. It has developed traffic management plans for border traffic—both passenger and freight, but not focused on freight. Or 2. The concept employed for inbound (Canada to US) traffic at the Peace Bridge is unique and the first of its kind. It is the product of a working group of trucking associations, customs brokers, the U.S. Customs Service and the Peace Bridge Authority. CVPC provides the Bridge Authority with bar-coded completed paperwork prior to a truck arriving at the border, thereby reducing transit times.	1. NITTEC. Useful example of multiple jurisdiction coordination. Or 2. Buffalo and Fort Erie Public Bridge Authority (Peace Bridge)

**NCHRP 08-36 Appendix A: The Role of Collaboration in Freight Transportation Improvement
Updated Case Study List and Decision Matrix**

Project	Location	Brief Description	Partners
Shellpot Line and Bridge	Wilmington, DE	<p>In 2003, DelDOT and the Norfolk Southern Railroad (NS Corp) entered into an agreement to rehabilitate a 116-year old rail bridge linking the Port of Wilmington with the NS mainline. DelDOT paid the upfront \$13.9 million capital cost for the necessary improvements and is being paid back by NS on a per car basis that declines as traffic grows.</p> <p>Revenues to the State for the first two months of operation were \$384,000. Now, approximately 1 of every 6 cars represents completely new business for NS. Overall, the project's early results show the success of this public-private partnership which could be replicated in other states. The State is getting paid back faster than anticipated; NS can operate much more efficiently and is gaining new business; and the NEC is no longer impacted by substantial freight movement. Another major winner in this arrangement is the Port of Wilmington which has been able to attract additional customers with the more efficient routing of rail traffic.</p>	The Shellpot project agreement involves only the state transportation agency (DelDOT) and NS Corp. However, the project's funding agreement required approval by the Delaware state legislature, and it is supported by a broad range of shippers, the Port and Amtrak.

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