
Addressing Freight in the Transportation Planning Process

■ 1.0 Introduction

In the Intermodal Surface Transportation Efficiency Act (ISTEA, enacted 1991) and the Transportation Efficiency Act for the 21st Century (TEA-21, enacted 1998), Congress encouraged the consideration of freight movement during statewide and metropolitan transportation planning processes. Congress emphasized the importance of freight movements because it had seen the impressive improvements in carrier productivity that resulted from deregulation of the freight transportation industry in the late 1970s and early 1980s and understood the opportunities that a cost-efficient and competitive transportation system created for trade and economic development. Deregulation had freed the freight transportation industry from many modal and jurisdictional barriers resulting in the creation of new, innovative services and increased productivity. By encouraging cross-modal coordination, Congress hoped to catalyze another advance in national freight productivity.

Freight was included among the planning factors in TEA-21, which helped focus federal, state, and metropolitan planning organization (MPO) attention on freight issues. There is a growing awareness at the state, metropolitan, and local levels of the importance of freight transportation and a corresponding push to link state and local transportation investment, especially freight transportation investment, to economic development. State DOTs, MPOs, and business leaders are much more mindful today of the need to maintain and improve the productivity of the transportation system as a strategic competitive advantage than they were 10 or 20 years ago. The lessons learned from the rapid expansion of the domestic economy over the last decade, the challenges of global economic competition, and the prospect of losing market advantage in a recession have brought home the message that the freight transportation system, as much as land cost, labor availability, and tax policy, is critical to economic success.

The MPOs in Chicago, Columbus, Ohio, San Francisco, and Portland, Maine are examples of MPOs who were early leaders in looking at local freight needs and reaching out to the freight community for advice and guidance on freight transportation improvements. In almost all these MPOs, the push to develop freight planning capabilities and programs grew out of the freight emphasis of ISTEA and TEA-21, but without dedicated funds for staff and projects. Highway and transit planners, engineers, and economists were re-treaded as freight specialists, and project funds were cobbled together from multiple public and private sources. The same has been true at the state level. Washington State, Wisconsin, California, Maine, Florida, New Jersey, Maryland, Texas, Ohio, and other

states have all started to build statewide pictures of freight movement and tie freight policy and transportation investments more closely to state economic development goals. Multi-jurisdictional coalitions, such as the I-95 Corridor Coalition, the Latin American Trade and Transportation Study (LATTs), and the CANAMEX Corridor have also begun to play a larger role in the identification of interstate and interregional freight needs and concerns.

The general process for planning transportation improvements in the public-sector is described in detail in 23 CFR 450.¹ These regulations give states and MPOs broad responsibility for planning and programming transportation improvement projects, including those projects that benefit freight movements. The process begins by first identifying the need for future transportation improvements. The strategies with which to meet these needs are then described in a statewide or metropolitan long-range transportation plan, a 20-year outlook of the area's transportation vision and goals, normally updated every three to five years.

Every two years, the proposed improvement projects, plans, studies, and other activities expected to occur over the next three to five years are taken from the long-range plan and enter the programming process, which culminates in the development of a Transportation Improvement Program (TIP) and Statewide Transportation Improvement Program (STIP). These statewide and metropolitan programming processes are closely coordinated, each MPO developing and approving a TIP which lists prioritized projects for consideration in the STIP which, in turn, is approved by the Federal Highway and Federal Transit Administrations (FHWA and FTA, respectively). TIPs and STIPs are fiscally constrained, so each project identified on these planning documents must include a cost estimate and an anticipated funding source. To aid in the development of these estimates, many potential projects undergo an initial assessment not only of their scope, but also of their anticipated environmental impacts. Once the STIP is approved by FHWA and FTA, improvement projects can move to the implementation stage, where detailed design and construction activities occur.

The public-sector planning process described above has proven to be slow, inflexible, and disjointed compared to the private sector's market-driven needs and expectations. The states and MPOs, which are accustomed to dealing with complex, long-term, and expensive highway and transit investments, have had difficulty responding to the private-sector freight industry's innovate-today-or-be-out-of-business-tomorrow environment. The problem has been compounded by the mismatch between the scale of private-sector transport operations, which are increasingly regional and global, and the fixed jurisdictions of state and local transportation agencies. These disparities have aggravated the difficulty of engaging private-sector freight representatives in state and MPO planning processes. A decade after ISTEA, freight industry representation and participation in planning and programming decisions at the state and MPO levels (and even at the federal level) is limited despite considerable efforts to bridge the two cultures.

¹ Code of Federal Regulations, Title 23, Chapter I, Part 450.

The purpose of this paper is to provide a critical review of the existing transportation planning processes at the state and metropolitan level; identify issues and problems in how these processes address current freight needs; and pose alternative policies and programs that could be included in future federal surface transportation programs to address these problems. The paper begins by summarizing the major trends and issues shaping freight transportation and why these issues are important to states and metropolitan areas. Next, the general process by which freight improvement projects are proposed, developed, approved, and implemented is described, and the common obstacles encountered by both successful and unsuccessful freight improvement projects as they navigate through this process are identified and analyzed. Using that information, examples of the types of actions that could be taken at the federal level are provided. These examples are not intended to be specific recommendations; rather, they are provided as a catalyst for discussions of how the federal government, states, MPOs, and the private sector can better integrate freight considerations into the transportation planning process.

2.0 Statewide and Metropolitan Freight Trends and Issues

■ 2.1 Overview

Several trends and issues are shaping freight transportation planning in the public sector, including the devolution of the public sector transportation planning process, the growth in freight traffic coupled with the stagnation of capacity improvements, and the increasing importance of freight transportation to local and regional economies. This section will briefly touch on each of these issues and their importance to statewide and metropolitan transportation planners.

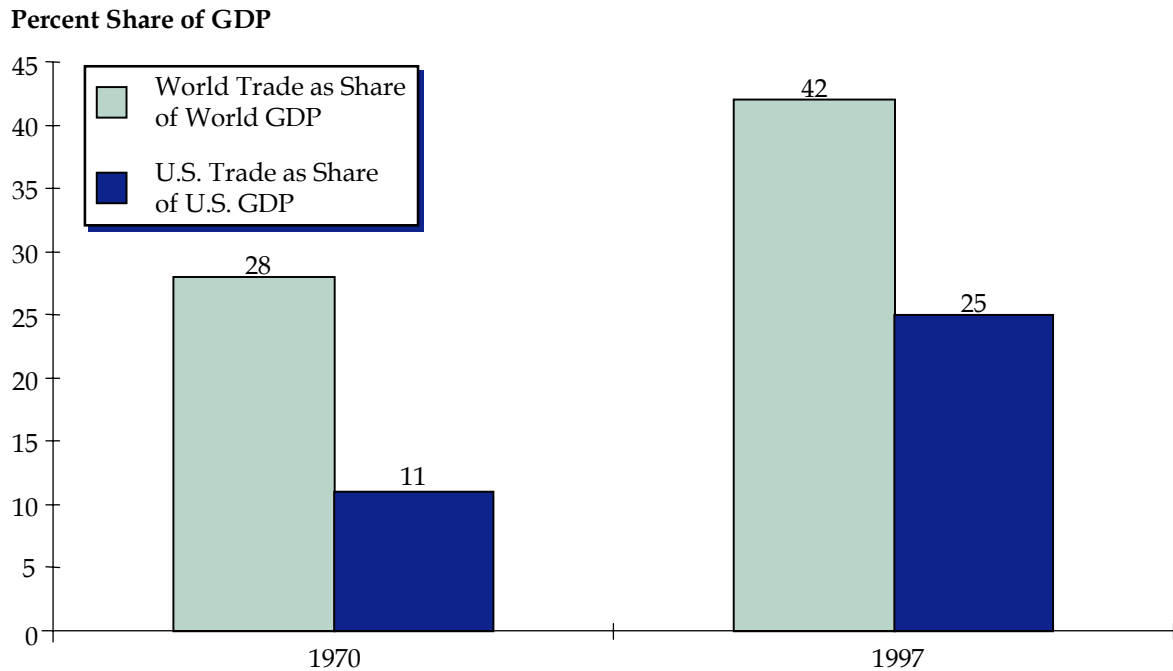
■ 2.2 Expansion of Trade and Devolution of the Transportation Planning Process

Freight movements are becoming increasingly national and global in scope, as many domestic companies are managing worldwide production and distribution systems, often locating their production facilities in areas around the world where goods can be produced more economically. This increases the need for an efficient, reliable transportation system, especially to and from international ports and at border crossings. While international movements only account for nine percent of the total tonnage shipped in the U.S. by weight,² this segment is growing rapidly and is accounting for a larger and larger percentage of both U.S. and World GDP, as can be seen in Figure 2.1.

In this increasingly global freight environment, however, addressing freight in the transportation planning process has become the responsibility of state DOTs and MPOs. While most states and MPOs are comfortable conducting passenger transportation planning, many are new to the area of freight planning. Unlike passenger transportation, many freight movements do not fit within the fixed jurisdictional boundaries of a state or MPO, making freight movements more difficult to plan for at the state or metropolitan level. Further complicating planning for freight movements is the rise of e-commerce and “just-in-time” inventory practices. Having a firm grasp on how freight movements fit into the regional, national, and international framework of transportation is key to the success of any statewide or metropolitan planning process.

² Reebie Associates.

Figure 2.1 World and U.S. Merchandise Trade



Source: World Bank, World Development Indicators 1999.

■ 2.3 Transportation System Capacity

The growth in freight traffic, especially intermodal shipments to and from marine ports and intermodal terminals, coupled with the pressure for improved transportation system performance, have triggered major concerns about the ability of the transportation system to handle the rapidly increasing volumes of freight traffic with existing capacities. Figure 2.2 shows the increases in transportation system capacity from 1975-1996.

During this 20-year period, highway capacity has increased by approximately six percent, while Class I (i.e., large railroad) track mileage has actually decreased. At the same time, truck VMT has more than tripled and Class I rail ton-miles have increased by 76 percent, as shown in Figures 2.3 and 2.4, respectively.

Figure 2.2 System Mileage within the U.S.

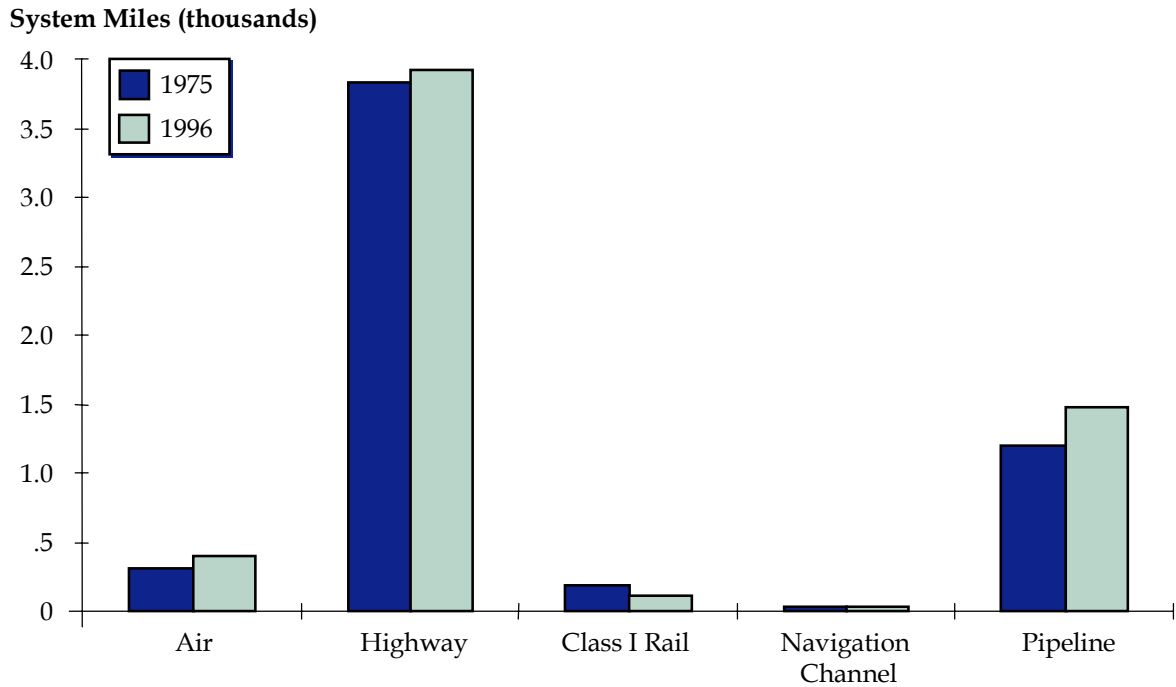
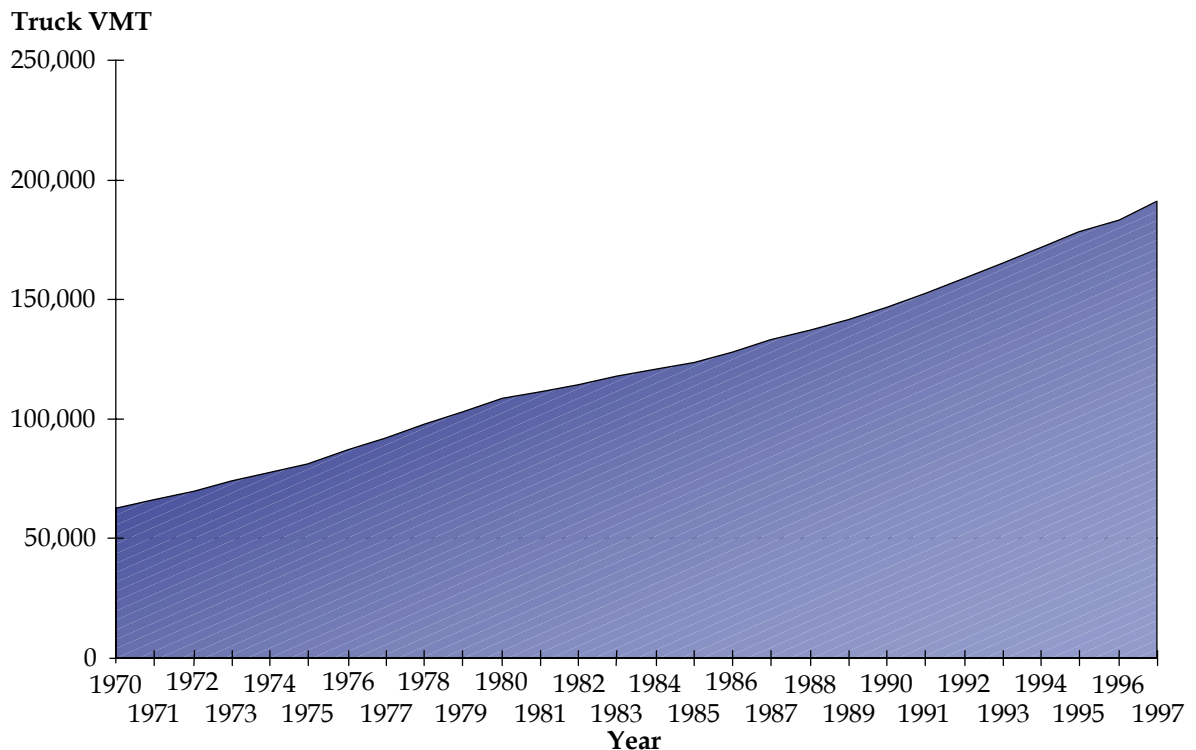
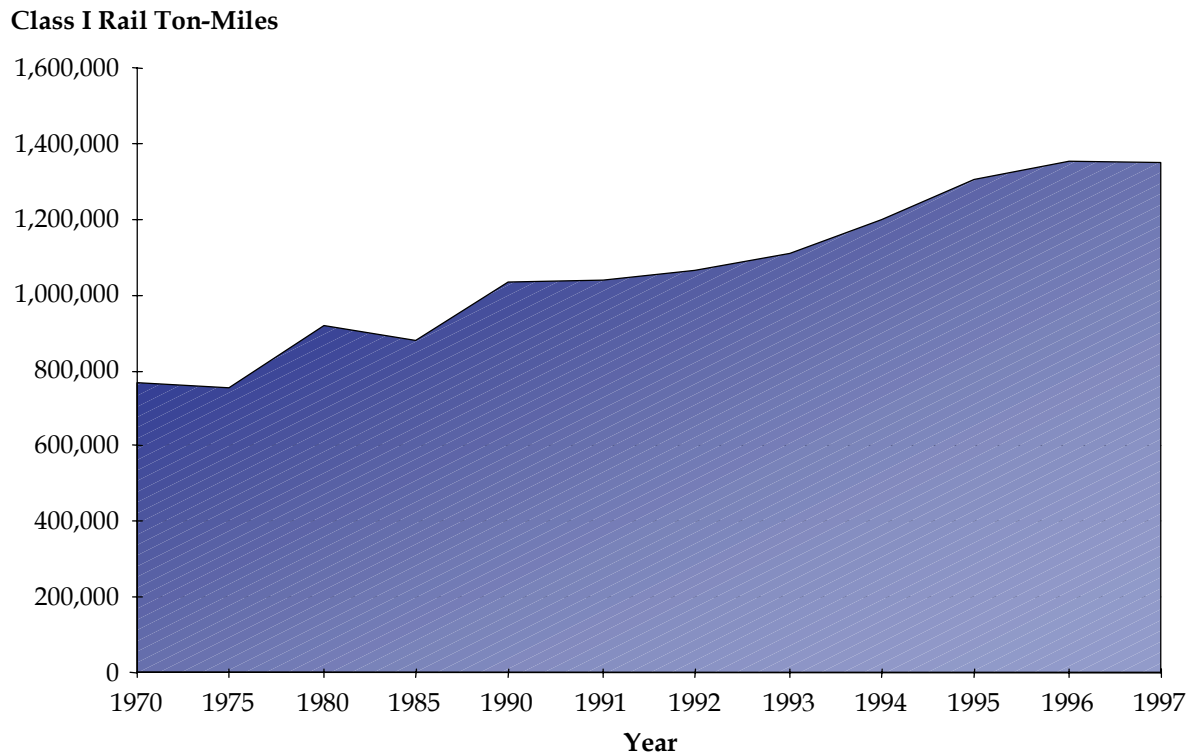


Figure 2.3 Truck VMT
1970-1997



Source: U.S. DOT, Bureau of Transportation Statistics, National Transportation Statistics, 1999

Figure 2.4 Class I Rail Ton-Miles
1970-1997



Source: National Transportation Statistics, 2000, U.S. Bureau of Transportation Statistics.

These limited highway and rail capacity increases, coupled with the large increases in annual truck VMT and Class I rail ton-miles and the globalization of freight transportation operations, has contributed to increased levels of congestion, particularly at landside access points to marine ports, airports, and intermodal terminals. While these choke points have a major effect on the efficiency of national and international freight systems, their impacts are felt locally through highway congestion, noise, and air pollution.

■ 2.4 Importance of Freight Transportation to Local and Regional Economies

There is a growing awareness at the state and metropolitan levels of the importance of freight transportation and a push to link state and local transportation investment, especially freight transportation investment, to economic development. Adequate transportation is considered to be one of several key factors considered in site location

decisions (e.g., utilities, work-force skills, and tax structure). These factors affect an area's business costs, markets, and overall competitiveness for attracting business investment. Essentially, all businesses require some level of transportation access to labor, materials, and customers in order to operate and survive. As such, transportation is a factor that influences the ability of local and regional economic development agencies to increase their areas' business attractions, expansions, retentions, and startups. Investments in transportation services and infrastructure may contribute to the economic vibrancy of a region by: 1) reducing business operating costs and increasing business productivity; 2) expanding the size of labor markets; and 3) increasing business access to needed labor, supplies, services, and materials.

Several recent findings address the linkages between public infrastructure and economic development, including:³

- **Public Infrastructure as a Business Location Incentive** – The quantity and quality of public infrastructure may attract new businesses and induce existing businesses in an area to stay or to expand. Transportation is a cost of doing business and locations that can effectively lower this cost (relative to taxes paid for the service) may develop a competitive advantage over regions unable to offer a similar savings in business costs.
- **Public Infrastructure Augments Productivity and Output** – In response to public infrastructure, businesses modify processes to increase labor and total factory productivity. As efficiency improves, unit costs decline and firm profits grow. The output elasticity associated with increased public infrastructure was found to be roughly double the estimated elasticity associated with increased private capital, although the exact causality and magnitude are debated. Public capital was also found to have a positive impact on investment and employment growth.⁴
- **Public Infrastructure Mitigates Negative Externalities** – Infrastructure investment aids businesses and adds to productivity if it successfully reduces negative externalities (e.g., traffic congestion) that aggravate business costs.
- **Infrastructure Investment Decreases Production Costs** – A study on the impact of infrastructure investment on production costs for various industries showed that the costs of doing business decrease by approximately four percent for every one percent increase in highway capital stock. The reduction in production costs induces output expansion in the studied industries.⁵

³ David Arsen, "Is There Really an Infrastructure/Economic Development Link?" in *Dilemmas of Urban Economic Development*.

⁴ D. Aschauer, "Is Public Expenditure Productive?" *Journal of Monetary Economics*, 1989. Presented in David Arsen, "Is There."

⁵ Nadiri and Mamuneas, *Contribution of Highway Capital to Output and Productivity Growth in the US Economy and Industries*, report to the FHWA, 1998.

In short, an efficient transportation system reduces costs, increases productivity, and is a key site location factor for new businesses, increasing the number of jobs available to local residents as well as the tax revenue collected by local governments. As domestic companies continue to operate in a competitive global environment, there will be more pressure on local decision-makers to improve the productivity and reliability of the transportation system in order to attract and retain such successful businesses.

3.0 The Transportation Planning Process and its Application to Freight Projects

■ 3.1 Overview

As discussed earlier, the requirements for statewide and metropolitan transportation planning are spelled out in 23 CFR 450. These regulations give states and MPOs broad responsibility for planning and programming transportation improvement projects, including those projects that benefit freight movements. Because many state and federally-funded transportation improvement projects occur in metropolitan areas, the state and MPO planning processes must be highly coordinated. While states and MPOs often have separate procedures for identifying the need for transportation improvement projects and developing long-range strategies to meet those needs, the programming processes of the metropolitan and state projects are intertwined, as projects that appear on TIPs are combined with other statewide and rural projects to form the STIP.

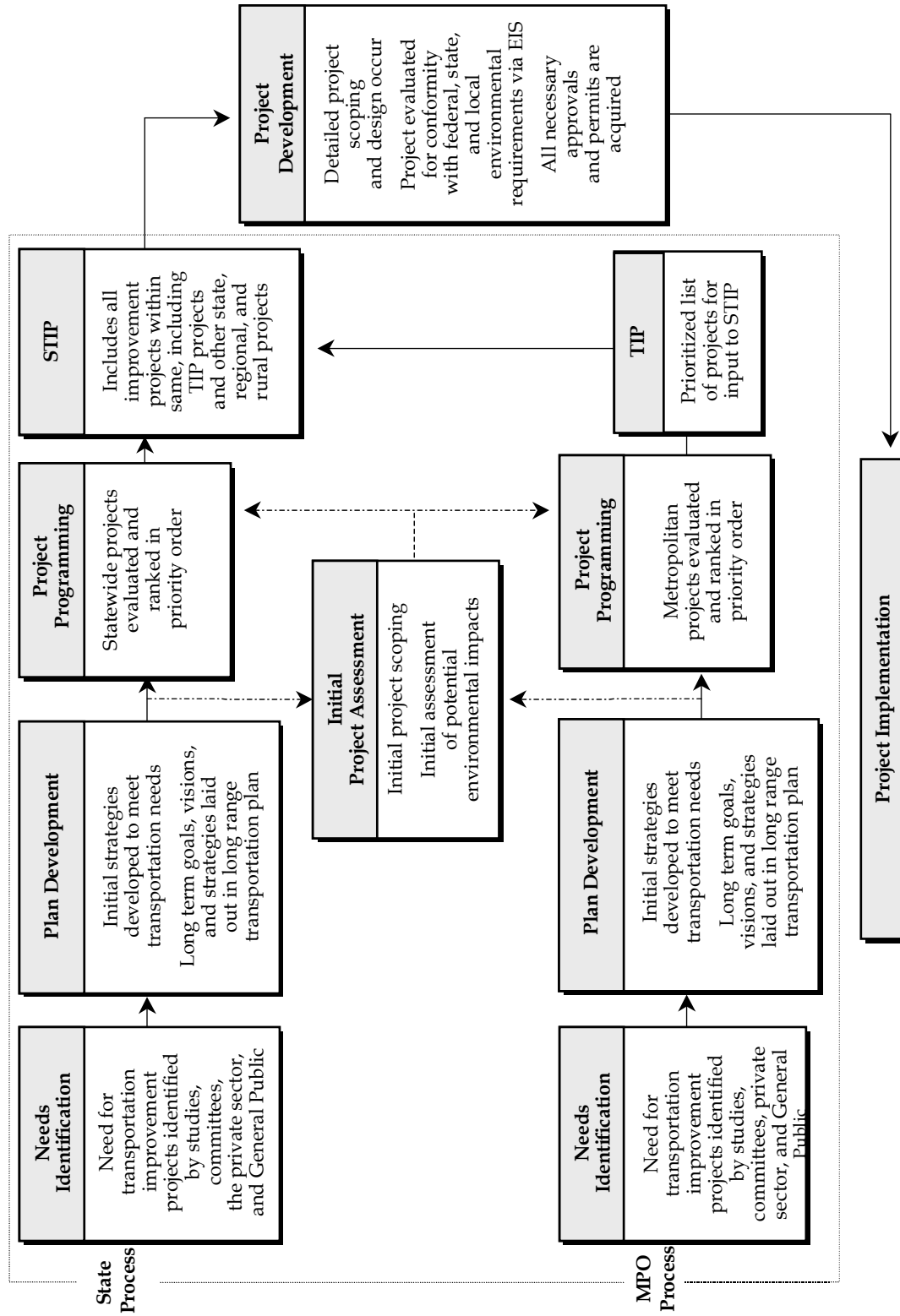
When looking at how effectively these existing state and MPO planning processes deal with projects that improve the movement of freight, it is useful to describe the entire planning process, from the initial generation of the idea for a project through full project implementation, in terms of a generic process framework. Though this process may vary among states and MPOs, it normally consists of the following major elements:

- Needs identification;
- Plan development;
- Project programming;
- Project development; and
- Implementation.

Figure 3.1 shows the major elements of the process framework. The details of how each step is accomplished depend on a number of factors, including:

- Source of funding for the project;
- Modes included in the project;
- Scale of the project;
- Jurisdictions affected by the project;
- Degree of control over the process exerted by the state DOT or the MPO; and
- Nuances of each state DOT's and MPO's regulations and procedures.

Figure 3.1 The Transportation Planning Process



In the sections of this paper that follow, we will describe each of the major steps in the planning process as well as the interface between freight improvement projects and this process. In order to illustrate key issues associated with this interface, we will present brief case study examples.

■ 3.2 Steps of the Transportation Planning Process

3.2.1 Needs Identification

Like most other types of transportation projects, there are a number of different ways in which projects that improve the movement of freight are identified, formulated, and take shape. Often, the ideas for projects that improve freight movements are identified by statewide or metropolitan freight movement studies, formal or informal consultation with private sector freight stakeholders, or other sources. This needs identification process is typically conducted by one of three different entities:

Local Implementing Agencies. Local agencies, such as public works departments of cities or counties, actually own and maintain roadways that are not part of the state highway system. Thus, these agencies are often responsible for the implementation of transportation improvement projects. When federal transportation funds (highway or transit) are involved and a TIP is developed, local implementing agencies are often the only agencies that are eligible to submit project proposals for consideration by an MPO. As local implementing agencies are normally member agencies of the MPO, they are generally familiar with all of the state DOT and MPO procedures for getting projects approved and funded in a TIP or STIP.

At the state level, state DOT district or regional offices often play an analogous role to local implementing agencies. District offices are generally the offices within state DOTs that are responsible for identifying potential projects and normally play a major role in the programming and implementation of STIP projects.

Projects initiated by local implementing agencies tend to be single-mode (generally roadway) and relatively small, with a fairly local focus. With the exception of a few of the larger cities and counties, local implementing agencies tend to view freight projects as ways to mitigate negative impacts rather than promote freight transportation efficiency. For example, the Miami-Dade MPO in Florida received a proposal for a truck parking program from a local elected official on the MPO board who was bothered by the large number of trucks he saw parked in his neighborhood. The needs identified by state DOT district or regional offices also tend to be small and locally-focused and often do not reflect the freight issues of the state as a whole.

While traditional transportation planning projects most often enter the state or MPO planning process when proposed by local implementing agencies or state DOT district or regional offices, this seems very rare in the case of projects that improve the movement of

freight and it was very difficult finding examples of projects that were brought into the process in this way.

Trunk 13 Highway Improvements, Savage, Minnesota

Trunk Highway 13 in Savage, Minnesota, provides access to several barge terminals, including Port Cargill, the flagship wholesale fertilizer terminal for Cargill, Inc. Port Cargill operates three high-speed truck load-out systems, serving 650 trucks per day – all of which enter and depart the facility via Trunk Highway 13 in Savage. The city of Savage was concerned about the high volume of truck traffic on the roadway and the potential impact that congestion on this critical access route could have to the local economy. The city hoped to get an improvement project included in the state's TIP but the project was ineligible because Trunk Highway 13 is not on a principal arterial (i.e., it does not meet eligibility criteria for state funding).

In order to address the problem, the city asked the MPO to hire a consultant to conduct an independent analysis of truck movements along the Trunk Highway corridor. The study showed that nearly five percent of national grain shipments travel along this road, thus demonstrating the economic significance to the state and the region of the facility. The MPO presented these findings to the State Freight Advisory Committee who, in turn, brought the issue to the state legislature. The state DOT and the MPO, with the support of state lawmakers, are currently investigating the use of a Transportation Infrastructure Finance and Innovation Act (TIFIA) grant to complete improvements along this roadway.

This case study illustrates several key points about the initiation of projects by local implementing agencies. The case study shows the importance of having a local implementing agency that understands both the economic significance as well as the traffic implications of freight transportation. It also shows the value of information that can demonstrate broad regional, statewide, and national significance of freight projects. This understanding of freight issues and the data to support the analysis of these issues rarely exists within local implementing agencies. State DOT headquarters or central offices and MPOs can provide this type of support to local implementing agencies, but these capabilities are often quite thin in these agencies, as well. Finally, the case study shows the importance of having a strong political constituency to act as an advocate for local projects because the process of getting projects funded at the local level often requires clear support from political decision-makers.

Some of the same problems exist in state DOT district offices. These offices generally do not include staff who focus on freight issues. As a result, freight issues and projects are not generally brought to the table, preventing projects that specifically improve freight movements from being mainstreamed in the district planning process.

While there are other ways to initiate freight projects, the fact that local implementing agencies and state DOT district or regional offices bring very few projects to the planning process is a concern given the current planning framework. As noted earlier, devolution of transportation planning responsibilities to states and MPOs has resulted in a planning process that favors projects that come up from the bottom. MPO boards are made up of

local elected officials from the implementing agencies and these officials often respond to local political concerns. Many MPOs even provide for a rough allocation of some portion of their federal highway or transit funds among member jurisdictions. In some states, localities have access to their own funding sources through sales tax revenues. The transportation funds that are awarded to local implementing agencies in response to their local priorities is a substantial fraction of the total available funding. In addition, while some freight projects are large, multimodal, and multi-jurisdictional, many are small, local roadway projects that can be implemented relatively quickly. If these types of projects do not come up through the normal needs assessment process, then state and regional freight transportation goals may not be met.

MPOs and State DOT Headquarters Planning Offices. MPOs identify and initiate freight projects in a variety of ways. Some MPOs have dedicated freight planning staff who look for regionally significant freight issues and needs around which to formulate projects. Frequently, regional freight studies are the starting point for the identification of these projects. Some MPOs actively engage the private sector in freight advisory committees or other mechanisms designed to identify regional freight issues and potential projects. MPOs, particularly larger ones, are sometimes able to take a broader regional perspective than are local implementing agencies. Projects that they identify may involve multiple modes and may be large, regionally significant projects.

State DOT headquarters planning offices may play a similar role to MPOs in terms of the identification of freight projects at the state level. As in the case of MPOs, some state DOT planning offices have dedicated freight planning staff who conduct special studies and identify needs, although this seems to be less likely than at the MPO level. However, freight-planning staff at the headquarters level are often not directly involved in proposing projects for the STIP. Often these freight staff exist at the periphery of the STIP process so their ability to generate ideas that advance to the next stage in the process may be more limited. In addition, state DOTs often have other modal offices, such as rail and aviation offices, that conduct their own planning activities. These offices may have access to special funds (such as grade crossing improvement funds) which are planned and programmed through a process that is completely independent of the planning processes for other modes.

There are many examples of cases in which MPOs or state DOTs have initiated freight projects. One of these is described below.

On-Dock Rail and Truck Access Improvements to Marine Terminal, Delaware Valley Regional Planning Commission (DVRPC)

The DVRPC established the Delaware Valley Goods Movement Task Force, a public-private advisory committee to the MPO. Access improvements to the local marine terminal was one of the potential freight improvement projects proposed by the Task Force. Unlike some MPOs, the DVRPC has staff assigned specifically to freight and intermodal issues that is constantly monitoring potential projects for consideration by the Task Force. The MPO staff has developed a substantial amount of data regarding local freight activity and is developing analytical tools for evaluating the potential benefits of freight projects. Because the region is focused on the importance of trade to the regional economy, gaining political support for projects such as the marine terminal access projects is not terribly difficult.

As the case study illustrates, when MPOs have staff and funding resources, they are able to generate ideas effectively that can move forward to the plan development and project programming stages. In these cases, the freight advisory committee becomes a valuable sounding board but not the primary initiator of projects.

Because of their multi-jurisdictional and regional nature, MPOs are often better able to think of the broad, long-term regional significance of projects than are local implementing agencies. Thus, large, multimodal, multi-jurisdictional projects that are regionally significant may be best initiated by the MPO. MPOs may identify these types of projects in regional freight studies. Both the Miami-Dade MPO and the Mid-America Regional Commission (Kansas City) described projects that were initially formulated as a result of their regional freight studies. The problems encountered by these larger, more ambitious projects generally occur at later stages of the planning process.

Along the same lines, state DOT headquarters or central offices also often have a broader perspective of the statewide significance of freight improvement projects than do individual district or regional offices. CalTrans, the California State DOT, for instance, is beginning to identify projects designed to improve the intrastate, interstate, and international movement of freight through its Global Gateways program. Because of its ability to look at freight movements across the state as a whole, state DOT headquarters or central offices are often better able to address the need for projects of statewide significance than are regional or district offices.

It should be noted that even with the freight emphasis of TEA-21, many MPOs have a difficult time initiating freight projects. Many of these MPOs do not generate many projects of any kind, acting more as a selector/evaluator of projects submitted by member agencies. Many MPOs have a difficult time trying to figure out what projects to consider because they do not fully understand how transportation problems impact freight operations. Without active participation by the private sector or outside funds to conduct freight movement studies, these MPOs find it difficult to move beyond the talking stage. The North Central Texas Council of Governments (Dallas/Ft. Worth) has a designated freight planner and has included freight elements and strategies in its long-range plan. However, staff are having a difficult time figuring out how to focus limited local funds on

the highest priority projects. They do not have an effective mechanism nor the analytical tools for evaluating their options and they are not yet convinced that the quality of methods and data for conducting these evaluations are really up to the job.

The same can be said about many state DOTs. Many state DOT Headquarters do not have staff dedicated expressly to identify freight needs. Like MPOs, many of these state DOTs act more as selectors/evaluators of potential improvement projects for consideration in a STIP, rather than proposers of projects that relate to freight needs. Again, while freight movements are addressed in many statewide long-range plans, they are normally discussions only and have not yet manifested themselves in the form of a systematic approach by which to address freight needs at the state level.

Private Sector. Private businesses, including shippers and transportation providers, also identify and initiate freight improvement projects. In some cases there are formal mechanisms for doing this, such as state DOT or MPO-sponsored freight advisory committees, and the impetus for creating these mechanisms can come from either the public or the private sector. Individual businesses also generate project ideas that may enter the process via political contacts. Obviously, there are cases where private businesses initiate, fund, and construct their own projects and simply deal with public permitting processes.

Projects that are initiated by the private sector often have a difficult time making it from needs identification phase to the TIP or STIP because many states and MPOs require that potential TIP or STIP projects come to them from eligible implementing agencies. This is an area where freight advisory committees can be particularly helpful to bring private sector officials together with local implementing agencies to discuss priorities and to identify projects.

The following case study illustrates some of the issues that are encountered with private sector initiated projects and why they are difficult to navigate through the rest of the process.

UP/Port of Oakland Planning Initiative, San Joaquin County, California

The Union Pacific (UP) railroad wanted to increase piggyback intermodal movements through the California Central Valley into the Port of Oakland. The financial risk was very high, however, because margins on the shipments were very low. Reasoning that there were potential benefits to San Joaquin County from reduced truck traffic (shifting intermodal truck traffic to rail), the UP approached the regional MPO (San Joaquin Council of Governments – SJCOG) to try to acquire federal funds for making improvements to rail lines in the area. Several meetings were conducted and there was much enthusiasm on both sides. As the planning process unfolded, the UP eventually pulled out of the project, saying that the margins were too tight, even with public funding assistance. The UP also voiced their frustration at how long the planning process was taking and how much energy it required. The MPO also had a difficult time convincing local decision-makers (and themselves) to use federal funds to subsidize a project they perceived to benefit only the private sector.

This case study effectively illustrates a number of issues associated with projects identified and initiated by the private sector. When the private sector can complete a project profitably themselves, they would generally prefer to do it that way. Hence, projects that are brought into the public sector planning process generally need some form of subsidy. An interesting aspect of this project is that a railroad proposed the project. In recent comments, railroad representatives seem to be indicating that railroads may increasingly turn to public sector entities to assist with projects because of the difficulties they are having attracting sufficient capital to meet all of their needs. However, the frustration that private businesses express over the long and cumbersome public sector planning process prevents many private businesses from becoming more engaged in the process.

The ability of private businesses to stay the course over the long haul, especially when the discussions are occurring at this early stage in the process, prevents many freight projects from ever being brought to the table. Some private businesses, particularly those in the trucking industry, would like to see their state and national associations become more involved in these advance planning activities. But staff resources, particularly for state associations, are already stretched very thin.

The case study also shows how difficult it is for MPOs to justify investments in infrastructure that primarily benefit commercial enterprises. This underscores the need to involve MPO staff and elected officials from implementing agencies in discussions with the private sector as early as possible in the planning process.

Although they are most often operated by quasi-public agencies, ports are often thought of as private sector entities in transportation planning. The degree to which the issues associated with private sector generated projects apply to ports depends on how formally the port is engaged in the statewide or metropolitan planning process.

3.2.2 Plan Development and Project Programming

The plan development and project programming phases of the transportation planning process are separate processes, as indicated in Figure 3.1. However, since many of the issues associated with these two separate phases are closely related, they will be discussed concurrently. The plan development phase occurs after the transportation needs of the area are identified. Once transportation needs are identified, initial strategies for dealing with those needs can be fleshed out. The identification of these strategies results in a long-term vision for the future of transportation in an area, whether a metropolitan region or the state as a whole. At the conclusion of the plan development stage, the area's transportation vision and goals are described in a long-range transportation plan. This plan covers a 20-year horizon and is normally updated every three to five years.

The development of state and MPO long-range plans is guided by the seven planning factors listed in TEA-21. While consideration of freight transportation needs is called out in several of these planning factors, states and MPOs have considerable latitude with respect to how freight issues are addressed in their respective long-range plans. While some state and MPO plans include clearly-defined freight elements, some do not; and the

format of these freight elements is often inconsistent among different states and MPOs. The approach used to characterize the current ability of the transportation system to serve freight needs in long-range plans also varies considerably. Some states and MPOs may conduct special studies to support their analysis of freight issues in the long-range plan, while some conduct formal needs assessments to support long-range plan development. In short, the consideration of projects that improve freight movements in long-range plan development varies from state to state and from MPO to MPO.

When projects are included in a long-range plan they may generate a variety of supporting studies that are designed to assist in the further definition of the project, the identification of alternatives, the project costs, and potential funding options. At the same time, many projects undergo an initial assessment of their potential environmental impacts. At this point, potential projects enter the programming phase.

The project programming phase occurs after long-range plan development and is the phase in which states and MPOs begin the process of actually implementing transportation improvement projects. First, however, proposed projects must appear on a TIP or STIP.

The TIP is a planning document developed by an MPO, which lists all metropolitan projects for which federal funds are anticipated, along with non-federally-funded projects that increase capacity or are otherwise regionally significant. This latter category allows MPOs to include in their planning documents a variety of different types of freight projects that might not otherwise be addressed formally in the MPO planning process.

Once the TIP is developed and approved by the MPO, it is sent to the state DOT. The state DOT is responsible for collecting all the MPO TIPs in the state as well as those transportation improvement projects proposed via other planning vehicles, such as the statewide long-range transportation plan, and other rural and regional planning documents. The state DOT then assembles all approved projects into the STIP for approval by FHWA and FTA. Like the TIP, the STIP must include all projects within the state for which federal funds are anticipated, along with non-federally-funded projects that increase capacity or are otherwise regionally significant.

Projects identified in TIPs and STIPs must be consistent with an approved metropolitan or statewide long-range transportation plan. These projects must also have an identified funding source, as TIPs and STIPs are required to be fiscally constrained. Thus, ideas that make it to this stage in the planning process are on their way to actual implementation. Some long-range transportation plans include projects that are considered “lower tier” because their funding sources are less certain; these are often longer-range projects. Because TIPs cover a three to five-year timeframe, they include activities that are nearer term than those in a long-range plan.

MPOs are required to provide an analysis of their proposed plan, but there is no requirement that these analyses include freight traffic. While some MPOs are moving towards the development of truck or freight modeling, many others are not.

Because TIPs and STIPs are financially constrained, they must identify the sources of funding, including local matches, that are anticipated to fund a project. This brings

consideration of the eligibility requirements of other funding sources into the picture. Freight projects that bring with them specially designated funding sources (e.g., TEA-21's Borders and Corridors Program) may be more likely to be included in the TIP than those that are competing for other more traditional sources of funds. Most MPOs and states have well-defined procedures for including projects in a TIP or STIP.

At the MPO level, projects generally must be proposed by an eligible implementing agency. This turns out to have significant implications for certain freight projects, depending on how the ideas were originally generated. In addition, the criteria used to select projects for inclusion in the TIP may or may not include special criteria that properly account for the benefits of freight projects. The tools available to evaluate freight projects with respect to a standard set of metrics that could be used in selecting projects are also quite limited.

Once freight improvement projects are proposed, they often encounter critical problems as they move from the plan development to the project programming process. One problem is the cost and scope of some freight improvement projects. Many freight projects are quite large in scale; a proposed harbor tunnel providing service to the Port of Miami, for instance, has been estimated to cost between \$400 and \$500 million. Many MPOs have a difficult time programming projects of this size, as decision-makers would often rather complete several smaller-scale projects than a single large scale project. Freight improvement projects can also be jurisdictionally complex, often requiring input and approval from other local, state, and federal agencies, the general public, and the private sector. These various approval layers can sometimes combine to further hinder MPO efforts. Finally, the long public planning and approval process required to list projects in a TIP encourages private sector and other project proponents to look for other ways of acquiring funding or, in some cases, to abandon the project altogether.

Some freight projects that do not use federal funds may never pass through this step in the planning process. Projects that are funded entirely by the private sector, those that use other state and local funding sources, and those that do not increase capacity, are not considered regionally significant, or are small enough that they can be funded from local maintenance accounts, are not required to be included in the long-range plan, TIP, or STIP. However, some states and MPOs may wish to include such freight projects in these planning documents as a way to coordinate the planning and programming of public-sector projects that may complement private sector improvements, improving the overall performance of the transportation system.

Freight Rail Double-stack Clearance Project, Pennsylvania DOT (PennDOT)

In 1993, PennDOT, in conjunction with Conrail, identified the need to remove impediments to double-stack rail operations on Conrail's east-west route from Ohio to the port of Philadelphia and on Canadian Pacific's north-south route from New York to Philadelphia. As this project began prior to the passage of TEA-21, this project was ineligible to use federal highway funding for construction, though federal highway planning and research funds were used to sponsor PennDOT's cost-benefit analysis of the proposed project.

PennDOT coordinated the entire project, contributing \$34M while placing highway and bridge improvements that coincided with the project on the STIP and accelerating their completion. Conrail added \$60M to adjust tunnel clearances along the corridor while several local municipalities spent \$4M constructing new intermodal facilities.

As described earlier, state DOTs have the overall responsibility for gathering potential transportation improvement projects from TIPs and other rural areas and developing a STIP. This case study demonstrates how states can manage the STIP by accelerating projects that coincide with private sector developments and benefit the state transportation system as a whole. It also highlights the potential benefits of working with the private sector to identify and complete transportation improvement projects of statewide significance.

As mentioned earlier, one of the biggest problems with keeping the private sector engaged throughout the transportation planning process is how long these processes take and the tremendous amount of attention and energy required to keep the project moving. A number of MPOs have looked for ways to engage the private sector with quick turn-around projects that have a high likelihood of success. These projects are often accomplished with a separate pool of funding and the project scale is generally very small.

Freight Forward Program, DVRPC

DVRPC operates the Freight Forward program, whereby the freight community can identify immediately repairable items, such as potholes and poor signage, and bring them to the attention of the MPO with a phone call. DVRPC, through the local public works agency, can then program maintenance and operation funding to immediately correct these problems.

"Jumpstart" Projects, Mid-America Regional Council (MARC)

In 1995, MARC attempted to reach out to the freight community by planning "jumpstart" projects, such as signal timing and signage improvements, designed to provide immediate benefits to the freight community. These projects did not fit neatly into the standard MPO planning process, however, and very few of these jumpstart projects were actually completed. The problem was that most of these projects were between \$20,000 and \$30,000 – too small and insignificant to be included in the TIP, but too large to be funded out of the local implementing agency's maintenance and operations budget.

These case studies illustrate clearly that doing quick turnaround projects outside of the TIP planning cycle can energize the freight community and give them the incentive to stay the course on longer-range projects. However, the case studies also point out that MPOs must be able to deliver these projects or risk alienating the private sector freight community.

It is also instructive to look at an alternative process for identifying freight transportation needs and planning the projects. The FAST Corridor project in the Seattle area provides a number of useful lessons. This also provides a sense of what a completely independent freight planning process might look like.

FAST Corridor Improvements, Seattle, Washington

The FAST Corridor project is a joint planning activity of the Washington State Department of Transportation (WSDOT), the Puget Sound Regional Council (PSRC), MPO for the Seattle-Tacoma area, the Ports of Seattle, Tacoma, and Everett, and other county and city governments.⁶ One of the objectives of the FAST program is to improve freight mobility along the corridor between Everett and Tacoma by formulating a package of 15 immediate-priority railroad grade crossing and port access projects. These 15 projects (12 rail grade separations and three port access improvements), totaling \$470 million, will help improve intermodal connections (ship/truck/rail) in the area.

Potential FAST Corridor grade separation and port access improvement projects were proposed by local cities, counties, and ports and were evaluated by FAST members using specifically developed measures of effectiveness. These measures of effectiveness considered the delay, cost, proximity to cross-corridor arterials, benefits to mainline rail operations, and community and environmental impacts. By developing freight-specific evaluation criteria, FAST members were better able to evaluate the potential costs, benefits, and impacts of proposed freight improvement projects and provide an accurate prioritized list of the projects most important to the region.

FAST Corridor improvements also have a dedicated funding source, eliminating the need for the proposed freight improvement projects to compete with passenger improvement projects for funding. Each of the members of FAST have approved a Memorandum of Agreement, which outlines the cost-sharing breakdown among each of the agencies involved. State funding is provided through Washington State DOT's Freight Mobility Strategic Investment Board (FMSIB), a state agency responsible for prioritizing freight improvement projects for funding by the state legislature. Proposed freight improvement projects can be submitted directly to the FMSIB for consideration.

⁶ "FAST Corridor: Partnering for a Healthy Economy in Washington State."

3.2.2 Project Development

The project development stage of the transportation planning process includes a more detailed scoping and design of the potential project along with a more formal assessment of the necessary permitting and approval activities. This includes activities such as project studies (e.g., environmental studies), preliminary engineering, design, National Environmental Policy Act (NEPA) reviews, and any local zoning and land use approvals. If this part of the process is not conducted properly, the result can be significant delays in the project programming and implementation phases as alternatives are re-reviewed and new stakeholders are brought into the process for the first time. Because large, regionally significant freight projects tend to be jurisdictionally complex and often occur in environmentally sensitive areas, the complexity of coordinating the activities at this stage in the process is heightened. Some examples of issues faced by freight projects as they move into the plan development phase are illustrated by the following case studies.

North Marine Drive Extension Project, Portland, Oregon

Marine Drive in Portland, Oregon, is a 2.5-mile corridor providing primary access to Terminal 6, the Port of Portland's international container facility; it is also a designated NHS Intermodal Connector. The Port of Portland, along with the City of Portland, has proposed projects to improve truck movement along the corridor, including the addition of a lane in each direction, the installation of new traffic signals, and the widening of an existing rail crossing. The Port of Portland is contributing \$10.0M toward the \$15.7M estimated cost of the project.

Several obstacles to the completion of this project were encountered during the plan development phase, where freight improvement projects are evaluated for conformity with federal and state environmental regulations. Like most ports, the Port of Portland is located in an environmentally sensitive area. The Marine Drive improvements, as originally proposed, would likely have negatively impacted a nearby wetland area, lake, and certain wildlife species.

In order to meet federal environmental requirements and assuage the public's concerns about the potential impacts of the project, the Port of Portland agreed to several additions to the project scope, including the installation of a noise wall along a wetland preserve, the construction of new pedestrian, bicycle, and transit facilities in the area, and the addition of hazardous spill response facilities. While these mitigation efforts added considerable cost and delay to the project, their successful negotiation allowed the project to continue.

This case study illustrates the difficulties some freight improvement projects encounter while attempting to conform to federal and state environmental regulations. Many freight projects, particularly those in and around marine ports, are more likely to encounter significant delays and cost increases due to environmental concerns, as ports are often located in environmentally sensitive and air quality non-attainment areas (along waterfronts, in metropolitan areas, etc.). In addition, projects that benefit truck movements, such as the Marine Drive widening, also raise noise pollution and hazardous material transport concerns in the affected communities. The potential environmental impacts

of these freight improvement projects often lead to more complex, time-consuming, and expensive permitting and environmental impact mitigation requirements.

The North Marine Drive Extension case study demonstrated how freight improvement projects can overcome environmental obstacles through close coordination among planning agencies, environmental agencies, and the general public during the plan development phase to highlight potential environmental concerns and possible mitigation activities. The following case study demonstrates how failure to address environmental concerns early in the planning process can derail potential improvement projects.

Sears Island/Mack Point Cargo Facility, Maine

As part of its three-port strategy, the Maine DOT proposed to develop a two-berth dry cargo port on Sears Island to complement activities at a nearby petroleum and cargo port at Mack Point. Though the original proposal was for a two-berth facility, it was expected to eventually expand to six berths. Sears Island consists primarily of forested land; Mack Point is 50 percent developed with industrial and port facilities.

Two Mack Point sites were originally included as potential sites for the proposed facility, but both were considered impractical given the projected need for six berths at the facility. As MDOT regarded the Sears Island site as the only viable alternative, it was the only site considered when developing the initial Environmental Impact Statement (EIS). After the Environmental Protection Agency (EPA), the National Marine Fisheries Service (NMFS), and the Department of Fish and Wildlife questioned the findings of the original EIS, a supplemental EIS, including a full analysis of the proposed Mack Point sites, was completed. At the same time, the EPA hired its own consultant to prepare a study on the viability of the Mack Point sites.

Despite the concerns of the EPA, NMFS, and the Department of Fish and Wildlife, MDOT's final EIS was accepted and necessary permits were obtained by FHWA, the Army Corps of Engineers, and the U.S. Coast Guard. Prior to construction of the Sears Island facility, however, another supplemental EIS was prepared, showing that the 6-berth facility would require 124 acres of upland, rather than the 50 acres originally estimated. Subsequently, the project was determined to be economically unfeasible, 14 years after it had been originally proposed.

This case study demonstrates two points. The first is the importance of considering the environmental impacts of potential improvement projects early on in the plan development phase. This is particularly important for port improvement projects which, as discussed above, often occur in environmentally-sensitive areas. Had the potential environmental impacts of the Sears Island facility and its Mack Point alternatives been assessed earlier in the transportation planning process, the resulting 14 years of environmental disputes may have been avoided. Secondly, the case study highlights the complex interagency coordination that must occur when planning and programming a major transportation improvement. In addition to the general public, no fewer than six federal agencies, including the Federal Highway Administration, the Environmental Protection Agency, the National Marine Fisheries Service, the Department of Fish and Wildlife, the U.S. Army Corps of Engineers, and the U.S. Coast Guard, were involved in the planning and approval of this project. Coordinating the activities of these agencies during the

planning process is a challenge often faced by state DOTs and MPOs when planning large freight improvement projects.

As noted previously, some projects, particularly those identified and initiated by the private sector, may bypass the identification of needs and development of strategies phase and move directly into the plan development step in the process. When this is the case, it sometimes happens that mitigation activities are identified as conditions to be met prior to the granting of the necessary project approvals and permits; these mitigations may generate new transportation projects or are themselves transportation projects that come back into the transportation planning process for funding and programming. While it may seem expeditious in the case of privately planned and funded projects to bypass the public transportation planning process altogether and simply apply for the required permits and approvals, the potential to “grease the skids” by working with state DOTs or MPOs during the plan development step in the process should be considered. The following case study examples illustrate these points.

UP and BNSF Intermodal Terminals – San Joaquin County, California

San Joaquin County, California is home to two major intermodal facilities, serving the Union Pacific (UP) and Burlington Northern-Santa Fe (BNSF) railroads; both intermodal facilities were privately planned and funded.

The **UP Intermodal Facility** was constructed near Lathrop, California in 1993. While San Joaquin County negotiated mitigation requirements for this project, the SJCOG was not consulted, as the project was happening outside of the normal metropolitan planning process. The new facility was a success, winning a National Transportation Design Award in 1995 for its efficiency and innovativeness. The facility’s efficiency, however, has led to large increases in intermodal traffic – much larger than either the UP or the county of San Joaquin anticipated – resulting in longer trains entering the facility. These trains are often delayed while entering the facility and because of their length, block two major intersections in the city of Lathrop.

As this project was being planned and funded outside the normal transportation planning process, the SJCOG had little opportunity to conduct the types of plans and studies, such as travel demand modeling and freight flow studies, that normally occur during the project preparation phase. While the MPO may not have anticipated the increases in intermodal traffic at the new facility, their regional perspective may have been helpful in addressing the potential regional impacts of such a project.

The **BNSF Intermodal Facility** was recently constructed along State Route 99, seven miles southeast of Stockton, California. Like the UP Intermodal Facility, this project was also privately planned and funded.

The BNSF Intermodal Facility was also planned and programmed outside of the traditional transportation planning process. In this case, however, SJCOG closely tracked the progress of the project and was heavily involved in the negotiation of mitigation requirements with the railroad. Anticipating the increase in truck traffic to and from the new facility, as well as the potential for increased rail grade crossing conflicts, the SJCOG recommended that BNSF be required to provide funding to complete interchange improvements in the area as well as include several grade separations in their construction plans. These improvements, when completed, may further enhance freight movements in the area.

3.2.4 Project Implementation

As discussed earlier, the first three steps of the generic process framework constitute the transportation planning process. The final step in the process framework is project implementation. After FHWA and state DOT approval of the proposed transportation improvement project is obtained, detailed construction plans are developed, and right-of-way (if necessary) and construction permits are acquired. Finally, a construction contract is let and awarded and work on the project begins. Though freight improvement projects often encounter obstacles during this phase of the process, those obstacles occur outside the scope of the transportation planning process and are best addressed in a separate discussion.

■ 3.3 Common Obstacles Encountered during the Planning Process

The case studies highlight several common obstacles and issues facing freight transportation improvement projects as they navigate through the transportation planning processes. To supplement the information provided by the case studies, interviews were conducted with statewide and metropolitan freight planning practitioners and private sector freight stakeholders. The purpose of the interviews was to further define the impediments to the consideration of freight in statewide and metropolitan planning processes; determine the extent of private sector understanding of and involvement in those processes; and discuss ways in which statewide and metropolitan freight planning could be improved.

An analysis of both the case study vignettes and the interviews with public and private freight stakeholders resulted in the identification of common issues which, individually and in combination, hinder the planning and programming of projects that improve the movement of freight. These issues are described under four broad areas: planning requirements, organizational and procedural issues, data and analytical tools issues, and resource issues.

3.3.1 Planning Requirements

TEA-21. The Transportation Equity Act for the 21st Century (TEA-21)⁶ emphasizes the consideration by states and MPOs of projects and strategies that “increase the accessibility and mobility options available to people and freight and enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.”

⁶ *Transportation Equity Act for the 21st Century*. U.S. Public Law 105-178. 105th Congress, Washington, D.C., 1998.

However, TEA-21 provides little specific guidance as to how or to what extent states and MPOs should consider freight interests when developing their transportation plans. As a result, many state DOTs and MPOs address freight generally in their long-range plans, but are uncertain about their role and responsibility for generating and championing improvement projects that specifically benefit freight movement. MPOs frequently look to states to generate ideas for freight projects, arguing that state DOTs have the proper scope and scale of perspective to understand freight movement. Conversely, state DOTs often look to MPOs to generate freight improvement initiatives, arguing that MPOs are more closely in touch with the freight movement needs of specific industries.

3.3.2 Organizational and Procedural Issues

Project Sponsorship. In many state DOTs and MPOs, freight improvement projects must be “sponsored” by an MPO member agency or developed in-house. This discourages private-sector freight stakeholders from proposing freight projects during the needs identification phase of the transportation planning process because it forces the private sector to lobby members of the state DOT or MPO in order to ensure that their project proposals are entered into the formal planning process. This adds an extra layer of work to a process that the private sector already perceives as overly bureaucratic.

Modal Office Coordination. Many state DOTs are organized modally, which hinders cross-modal communication and leads to fragmented freight planning. It is not uncommon to find significant variation with respect to freight improvements among the long-range plans and programs developed by state DOT statewide planning offices and state DOT modal offices. Further complicating freight planning efforts is that fact that some state DOTs and MPOs have very little influence over non-highway modes. Many MPOs, especially those in smaller metropolitan areas, deal strictly with highway improvement projects, leaving the responsibility for non-highway and multimodal planning to other (typically state) agencies.

Headquarters-District Communications. Interviewees cited communication between state DOT headquarters and local district offices, especially in large states, as sometimes ineffective and an impediment to freight planning. Local district offices play a large role in proposing, developing, and implementing transportation improvement projects; however, headquarters planning staff are normally limited to developing statewide planning and policy directives, and may have little direct influence over the types of projects being proposed and approved at the district level. Without frequent and strong communications to build a common understanding of freight needs, headquarters and district offices develop diverging visions of freight needs and improvements. Headquarters sees systemic improvements; divisions see spot improvements. Exacerbating the problem is the fact that local district offices are normally staffed by highway engineers, most of whom are not trained in freight logistics and freight economics.

Multi-Jurisdictional Coalition Programming and Implementation of Projects. Multi-jurisdictional coalitions, such as the I-95 Corridor Coalition, the CANAMEX Corridor, and the Latin American Trade and Transportation Study (LATTs), have been instrumental in

identifying regionally-significant transportation improvement projects. Though they are excellent forums for generating transportation improvement ideas, many of these regional coalitions find it difficult to actually implement improvement projects, as they often have little controlling authority to address the issues and concerns raised by coalition members⁷ or provide funding to projects that may address those concerns. This often limits the influence these coalitions wield in providing solutions to regional transportation issues.

Interagency Coordination. Finally, freight improvement projects are often delayed in the project development phase because of the need for elaborate interagency coordination. Intermodal freight improvement projects are often complex projects involving several agencies. Interlocking requirements for coordination, permit approvals, hearings, etc., can significantly expand the time required to plan and implement projects, often driving up the cost of a project significantly. Port projects, in particular, are complex and costly for public agencies. They are usually located in environmentally sensitive waterfront areas; are adjacent to older, often low-income communities; and may generate additional truck or rail trips in air quality non-attainment regions. The problems of managing freight improvement projects in these areas is further complicated by pressures to “reclaim waterfronts” by replacing low-revenue generating developments, such as warehouses and distribution centers, with higher-revenue generating development patterns, such as housing and high-value commercial/industrial land uses. Without effective interagency coordination, freight improvements in such complex areas often stumble and die.

3.3.3 Data and Analytical Tools Issues

Commodity Flow Data. Effective freight planning depends on the availability of good public and private sector data on freight flows. The lack of affordable, disaggregate, commodity flow data is a major concern for states and MPOs. The U.S. DOT Bureau of Transportation Statistics conducts and publishes the national Commodity Flow Survey (CFS). The CFS provides data on commodity flow patterns, but the data are often aggregated and reported for large areas (e.g., 83 national transportation analysis regions) to comply with Census regulations that data on individual businesses and facilities not be identifiable. This limits the usefulness of the data for state and metropolitan planning, especially for modeling and forecasting truck trips. To address this problem, several states and MPOs have supplemented the information provided by CFS by purchasing detailed commodity flow data from private sources. By using a combination of data sets, states and MPOs are better able to understand county- and local-level commodity flows, build local truck origin-destination tables, and understand local and regional logistics patterns. The more detailed data allows states and MPOs to pinpoint congestion and capacity problems, and identify needed freight improvements. However, the purchase of these privately maintained data sets is often costly, and some MPOs lack the funding and staffing resources to utilize them to their full potential.

⁷ “Challenges with Multi-State/Jurisdictional Transportation Issues” FHWA, May, 2001.

Freight Flow Modeling. Several states and MPOs have developed or are developing freight modeling techniques to estimate future commodity and vehicle flows; however, freight transportation modeling capabilities in many states and MPOs are still limited. Unlike passenger movements, the underlying factors driving freight shipment patterns and mode choice vary considerably across different industries and commodities. These factors are less readily understood than the factors that affect passenger travel. As a consequence, many states and MPOs find it difficult to adapt traditional automobile and transit modeling techniques to predict freight movements. Truck freight movements are often modeled as passenger car movements (with trucks counted as equivalent to two or three cars depending on the mix of truck types and sizes) rather than modeled as a separate mode. This approach is adequate for estimating overall volumes and travel time effects, but the impacts and benefits of transportation improvements cannot be traced back to specific types of trucks and the industries they serve.

Evaluation Criteria. Finally, most freight improvement projects are evaluated for inclusion in TIPs and STIPs using the same set of criteria that are used for evaluating non-freight improvement projects. These criteria typically consider how a proposed project will improve highway volume-to-capacity ratios, highway level-of-service ratings, and safety. Some freight improvement projects receive decent scores for these criteria, but most fail because, for example, a freight connector improvement project typically serves fewer total vehicles than a competing suburban intersection improvement. Missing are evaluation criteria that reflect the other economic and business development benefits of freight improvement projects such as how they may improve shipping-time reliability or the extent to which they may attract or retain businesses and jobs in an area. States and MPOs are beginning to consider such criteria during their project evaluation processes, but most do not do so today, with the result that many freight projects never appear on a TIP or are ranked very low.

3.3.4 Resource Issues

Staffing. The first resource issue is one of staffing. State DOT and MPO staff are an important resource in identifying potential improvement projects and moving those projects through the general transportation planning process. While most state DOT and MPO transportation planners hold advanced degrees in transportation or planning, few have formal training in freight planning. Rather, they gained their expertise through Transportation Research Board programs, FHWA and Eno Foundation continuing-professional-education courses, and on-the-job training. While state DOT and MPO technical staff may take advantage of the freight training courses, decision-makers do not normally receive training on freight transportation issues and often do not fully appreciate the complexity of freight movements and their associated local impacts.

Private-Sector Participation. The private sector freight community can provide the background, training, and expertise necessary to address freight in statewide and metropolitan planning processes. The public and private sector planning processes have vastly different timelines, however. The public sector thinks in terms of producing 10- and 20-year capital improvement plans while the private sector thinks in terms of a 12- to 18-month

operating horizon. This mismatch in planning horizons (“generational” versus “quarterly”), and the fact that the private sector perceives the transportation planning process as overly cumbersome and bureaucratic, makes it difficult to keep the private sector engaged in the public sector planning process. Further hampering private sector participation is the considerable time investment required to become full participants in the public planning process. Many potential private-sector participants do not have the staff time or resources to fully commit themselves to the process, preventing them from realizing the potential long-term benefits of participation.

Freight Project Eligibility and Funding. The final resource issue is funding. Some states and metropolitan areas commit a large portion of their budgets to the maintenance and preservation of their current highways systems. There are limited resources for freight-specific improvement projects. Highway-related freight improvement projects are usually eligible for funding under federal and state highway programs, but multimodal and intermodal projects must often be shoehorned into air-quality mitigation (e.g., CMAQ) or safety programs (e.g., highway-rail grade-crossing separation programs). Rail improvements to private rail terminals and lines are usually not eligible for public support except indirectly through loan credit-support programs. Despite the obvious link to economic development and jobs, some states and MPOs find it is difficult to justify spending money on non-highway projects, projects that are perceived to inordinately benefit the private sector freight community, or projects whose costs are local, but whose benefits accrue regionally or nationally. (The issues involved in funding freight improvement projects are discussed in more detail in a separate FHWA-sponsored paper.⁸)

⁸ Freight Financing Options for National Freight Productivity, prepared for the Federal Highway Administration, Office of Freight Management and Operations, by Cambridge Systematics, Inc, April 2001. Electronic document available at http://www.ops.fhwa.dot.gov/freight/freight_finance_report.htm.

4.0 Opportunities for Improvement

The federal legislation governing surface transportation must be reauthorized when TEA-21 expires in September 2003. Over the next two years, MPOs, the states, and the U.S. DOT will have an opportunity to explore and debate changes to the federal legislation that could improve and strengthen freight planning and programming. This section summarizes changes suggested in the literature and the interviews. The list is not exhaustive. The changes are ideas for discussion, not recommendations.

■ 4.1 Transportation Planning Requirements

Some states and MPOs find the freight elements of TEA-21 to be unclear. The states and MPOs may wish to consider one or more actions to provide more precise direction regarding freight planning:

- Reaffirm and strengthen the national emphasis of ISTEA and TEA-21 to address freight issues and link freight improvements to economic development and trade strategies.
- Define more specifically the freight transportation elements to be included in statewide and metropolitan long-range transportation plans.
- Require more and closer coordination of statewide long-range transportation plans and state rail, port, and air plans to encourage multimodal planning.
- Extend the freight mandate to cover explicitly freight operations, consistent with the U.S. DOT's emphasis on state and local leadership in operations and ITS (intelligent transportation systems).
- Create a freight transportation improvement program (FTIP). The FTIP would collate, consider, and rank all freight improvement projects before integrating them into the conventional STIPs and TIPs.

■ 4.2 Organizational and Procedural Improvements

The planning process used by states and MPOs to develop, fund, approve, and implement transportation improvement projects is relatively slow and complicated. The process

often does not encourage consideration of freight projects. Additionally, many state DOTs and MPOs are organized in ways that hinder cross-modal communication and planning. The states and MPOs may wish to consider one or more actions that address these organizational and procedural issues:

- Add private-sector freight representatives to MPO boards to ensure representation of freight issues and concerns.
- Encourage state DOTs to take a more pro-active role in analyzing freight flows and proposing specific freight improvement projects for inclusion in STIPs and TIPs, especially freight projects of statewide and national significance.
- Encourage states and MPOs to participate in multi-state/multi-jurisdictional coalitions examining freight flows and issues at the multi-state trade-corridor or trade-area scale. These coalitions may wish to work on developing a consensus to ensure proper follow-up and implementation of potential transportation improvement projects.
- Establish state and MPO freight advisory committees. The private sector is often discouraged from proposing potential freight improvement projects because such projects must be “sponsored” by an MPO member agency or the state DOT. All states and MPOs could consider establishing freight advisory committees with representatives from all appropriate modes to ensure that projects proposed by the private sector get at least an initial hearing.
- Establish a freight transportation office or group as an “umbrella office” (modeled after cross-cutting safety and environmental offices) with the responsibility of overseeing and coordinating the progress of freight projects as they move through state DOT (and large MPO) modal and planning offices.
- Provide for a separate approval and funding process for freight projects, modeled after Washington State’s Freight Mobility Strategic Investment Board (FMSIB). States could consider bringing together transportation, economic development, and trade interests to determine the need and feasibility of such a process.
- Institute a “short-range” freight transportation improvement program, listing only small projects that can be completed within 18 months, to narrow the gap between the public and private sector planning horizons.
- Institute a National or Regional Infrastructure Bank, modeled after the State Infrastructure Bank program in TEA-21. Such a program may encourage states and MPOs to plan and program freight improvement projects of regional or national significance.

■ 4.3 Data and Analytical Tools Improvements

The data and analytical tools necessary to conduct effective statewide and metropolitan freight planning are not readily available to state DOTs and MPOs. There are several ways by which the federal government actions might address this issue:

- Assign to the Bureau of Transportation Statistics and the U.S. DOT modal administrations an expanded role and responsibility for the collection, collation, and dissemination of more detailed commodity flow data for use by states and MPOs.
- Coordinate the purchase of commodity flow data from private sources and their distribution to state DOTs and MPOs. Consider using pooled-fund studies to encourage use and ensure equitable cost-sharing.
- Commission the U.S. DOT to develop freight analytical and modeling tools that can be transferred to state DOTs and MPOs. Again, consider using pooled-fund studies to encourage use and ensure equitable cost-sharing.
- Revise and re-weight project evaluation criteria to give more recognition of and emphasis to freight projects that advance metropolitan, state, regional, and national economic development and trade strategies.

■ 4.4 Resource Improvements

MPOs, states, and the federal government may wish to consider increasing the resources available for planning and programming freight improvement projects:

- Provide dedicated funding for state DOT and MPO freight planners. Over the years, states and MPOs have established disciplines in highway engineering, transportation planning, transit planning, environmental analysis, etc. For many state DOTs and MPOs it may be time to recruit, hire, and train freight planning specialists. States and MPOs may want to sponsor “team-training” for freight planning, whereby teams of DOT, MPO, and private-sector representatives are brought together as a group to receive training in both the public and private sector freight planning issues and operations. This type of training helps the private sector better understand the constraints of the public-sector planning process (and vice versa), fostering relationships that have long-term benefits.
- Establish “quick fix” freight improvement programs targeted at low-cost capital, operations, and maintenance projects. The private sector freight community often responds very well to “quick-fix” improvement projects that deal with issues such as fixing potholes, improving signage, optimizing signal timings, etc. These projects not only satisfy the need of the private sector to see immediate improvements, but also foster a positive relationship between the public and private sectors, increasing the chance that they will work together on more long-term issues.

5.0 Summary

ISTEA and TEA-21 were helpful in focusing federal, state, and local attention on freight transportation issues and concerns. Though many states and metropolitan areas have enhanced freight components of their long-range transportation plans and more actively consider freight movements during their transportation planning activities, there still exist many barriers that prevent the full integration of freight interests into the public sector transportation planning process and the proposal, approval, funding, and implementation of transportation improvement projects that specifically benefit freight movements. Through a literature review and interviews with public and private freight stakeholders, this paper identified those barriers and where they tend to occur within the general transportation planning process, while highlighting suggested changes that may improve freight planning and programming in the public sector. Again, while these changes are not recommendations, they are designed to launch further discussion by freight planning practitioners as to the best ways to improve the consideration of freight in the public planning and programming process.