

Lyndon B. Johnson School of Public Affairs  
Policy Research Project Report  
Number 130

**Multimodal/Intermodal Transportation  
in the United States, Western Europe, and Latin America:  
Governmental Policies, Plans, and Programs**

Project directed by  
Leigh B. Boske

A report by the  
Policy Research Project on  
Multimodal/Intermodal Transportation  
1998

This report on Multimodal/Intermodal Transportation in the United States, Western Europe, and Latin America: Governmental Policies, Plans, and Programs was conducted for the Texas Department of Transportation in cooperation with the U.S. Department of Transportation, Federal Highway Administration Project 0-1802: *Assessing Best Practice Intermodal Transportation Policies, Programs, and Planning Techniques for Texas*.  
Research Report 1802-1

Library of Congress Catalog Card No.: 98-67520

ISBN: 0-89940-743-9

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Cover design by Doug Marshall

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## Foreword

The Lyndon B. Johnson School of Public Affairs has established interdisciplinary research on policy problems as the core of its educational program. A major part of this program is the nine-month policy research project, in the course of which two or more faculty members from different disciplines direct the research of ten to twenty graduate students of diverse backgrounds on a policy issue of concern to a government or nonprofit agency. This “client orientation” brings students face-to-face with administrators, legislators, and other officials active in the policy process and demonstrates that research in a policy environment demands special talents. It also illuminates the occasional difficulties of relating research findings to the world of political realities.

This report is the product of a policy research project conducted in the 1997-98 academic year with funding from the Texas Department of Transportation, in cooperation with the Federal Highway Administration of the U.S. Department of Transportation. The study is part of a two-year project coordinated by the LBJ School and UT Austin Center for Transportation Research to investigate governmental multimodal/intermodal transport policies, plans, and programs in the United States, Western Europe, and Latin America.

The curriculum of the LBJ School is intended not only to develop effective public servants but also to produce research that will enlighten and inform those already engaged in the policy process. The project that resulted in this report has helped to accomplish the first task; it is our hope that the report itself will contribute to the second.

Finally, it should be noted that neither the LBJ School nor The University of Texas at Austin necessarily endorses the views or findings of this report. Moreover, the contents do not necessarily reflect the official views or policies of the Federal Highway Administration or the Texas Department of Transportation. This report does not constitute a standard, specification, or regulation.

Edwin Dorn  
Dean



## Preface

This policy research project was funded by and conducted for the Texas Department of Transportation, in cooperation with the Federal Highway Administration of the U.S. Department of Transportation. The research was performed during the 1997-98 academic year by 18 graduate students and a faculty project director at the Lyndon B. Johnson School of Public Affairs, The University of Texas at Austin. Its purpose was to examine global “best practices” in governmental multimodal/intermodal transport policies, plans, and programs. This task was accomplished by investigating supranational, national, state, and local government multimodal/intermodal transport activities in North America, Western Europe, and Latin America. The resulting research built upon and benefited from other policy research projects conducted at the LBJ School in recent years that addressed state multimodal/intermodal transport policies and programs that promote economic growth; port-related state programs and federal legislative issues; state rail policies, plans, and programs; and U.S.-Mexico trade and transportation.

Information on laws, public expenditures, policies, plans, and programs was obtained by reviewing published material already available or sent by mail, conducting long-distance telephone interviews, making field trips throughout the United States and to foreign countries for on-site interviews, or surfing the Internet. Included among the many agencies and organizations that provided assistance in one form or another are the U.S. Department of Transportation, the U.S. Department of Commerce, the Transportation Research Board, state and local transportation departments in the United States, the Pan-American Highway Institute, the Organization for Economic Cooperation and Development (OECD), the European Commission, foreign embassies and ministries of transportation, and the World Bank. Altogether, members of the research team had to sort out information written in English, French, German, Portuguese, and Spanish.

Leigh B. Boske  
Project Director



## Acknowledgments

This policy research project could not have been completed without the generous donation of time and information by hundreds of individuals, especially the report's primary editors, Mr. John Cuttino and Ms. Irene Aldrich. The names of many contributors are cited at the end of the various chapters that make up this report. However, the following individuals deserve special recognition for assisting members of the research team on various aspects of the study.

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# **Executive Summary**

## **Introduction**

One can point to governmental deregulation of different modes of transportation, beginning in the United States in the late 1970s, as the defining moment that spurred the modern development of intermodal transportation. Simply put, deregulation permitted the various modes to cooperate with one another and to coordinate their operations in meaningful and innovative ways. Other important developments include the removal of transportation restrictions and the privatization of state-owned transport enterprises within the European Union and Latin America in the late 1980s/early 1990s. Indeed, deregulation and privatization have become global phenomena.

Intermodality is a concept that can be thought of as a process of transporting freight and passengers by means of a system of interconnected networks, involving various combinations of modes of transportation, in which all the component parts are seamlessly linked and efficiently coordinated. It offers shippers and travelers a full range of options, within the context of a unified transportation system, from which to select preferred routings and method(s) of transport.

Intermodal transportation is rapidly gaining acceptance as an integral component of systems approach to conducting business in an increasingly competitive and interdependent global economy. This systems approach, commonly referred to as logistics management, involves the integration of supplier, production, storage, finance, and distribution functions so as to achieve efficient coordination of interrelated business activities within organizations. Innovations in telecommunications/information technology have served as the coordination tool. To properly fulfill its role in this coordination process, integrated logistics requires intermodal transportation to be both reliable and readily adaptable to taking advantage of alternative business opportunities in ever-changing markets.

Developments in traveler mobility, logistics management, and intermodal transportation are not the sole concern of the business community. Governments can play an important role in increasing the ability of private-sector firms to provide integrated logistics services and the ability of their employees to easily make work-related trips and to commute to/from their places of residence. And, since private-sector firms and their employees are customers (i.e., users) of government-provided infrastructure, transportation agencies of all levels of government around the globe are finding it necessary to fundamentally rethink their traditional ways of doing business. If the customers of government-provided transportation infrastructure view intermodal transportation as an integral component of a systems approach to conducting business, then public transportation agencies and other key players in the decisionmaking process need to confront the logic of planning,

programming, and implementing infrastructure projects on a unimodal, rather than an integrated, systemwide basis.

The primary public policy issue is not whether quality highways, for example, can be provided without consideration of their systemwide effects; indeed, they can be provided in such a fashion, as can other forms of modal infrastructure. Rather, the primary issue that ought to be addressed is whether customer transport needs are best served through the development and implementation of unimodal projects, independent of any coordination with or knowledge of other modal investment plans. To be sure, some types of infrastructure are privately financed and provided. This fact, however, serves to emphasize the need for public transportation officials to become better informed about private-sector transportation developments in much the same way as logistics managers and rail/air/truck/maritime executives do, and to involve private-sector representatives more directly in the ongoing planning and programming activities of transportation agencies.

## **Contents**

The purpose of this research report is to highlight global “best practices” in governmental multimodal/intermodal transport policies, plans, and programs. This task was accomplished by investigating supranational, national, state, and local government transport activities in North America, Western Europe, and Latin America. There is great diversity in the ways in which various levels of government (and their institutions) in different regions of the world have responded to the dynamics of worldwide trade liberalization and increasingly competitive markets in the provision of transportation infrastructure. And there is much to be learned from understanding what others are doing, how they are doing it, and why.

Since we are interested in governmental strategies and actions that take a systems approach to the provision of transportation infrastructure, we investigated both multimodal and intermodal aspects of transportation systems. In this context, “multimodal practices” refer to a process of collectively addressing all modes of transportation, whereas “intermodal practices” refer to a process of addressing the linkages, interactions, and movements among modes of transportation.

The report is composed of 18 chapters. Chapter 1 discusses global trade liberalization, the responsibilities of supranational institutions (such as the World Trade Organization, WTO), the formation of regional trade blocs and their levels of integration (in terms of free trade areas, customs unions, and common markets), global trends in governmental deregulation and privatization, the role of integrated logistics services, and the evolution of intermodal transportation.

Chapter 2 describes U.S. public-sector involvement in transportation in terms of the roles played by federal, state, and local governments. Topics covered include transport revenues and expenditures, general responsibilities of the three levels of government,

organizational structure of the U.S. Department of Transportation, and statutory transportation planning requirements. Special attention is given multimodal/intermodal transportation activities.

Chapters 3 through 9 examine state and local government involvement in transportation in seven U.S. states: Florida, Minnesota, Oregon, Pennsylvania, Virginia, Washington State, and Wisconsin. Topics cover state and local transportation issues, policies and goals, transportation plans and reports, transportation funding and programs, and the organizational structure and responsibilities of transportation agencies. Exemplary state and local practices in multimodal/intermodal transportation are delineated.

Chapters 10, 14, and 17 examine the European Union, MERCOSUR—the Southern Common Market, and the North American Free Trade Agreement (NAFTA), respectively. The purposes and objectives, institutional structures, transportation networks, and key transportation policies and provisions are detailed for each of the three regional trade blocs.

Chapters 11, 12, 13, 15, 16, and 18 are case studies of federal, state, and local government involvement in transportation in six countries: France, Germany, United Kingdom, Argentina, Brazil, and Mexico. Each case study describes the transportation infrastructure, transportation policies, transportation institutions, and transportation planning frameworks of the country in question. Governmental transportation deregulation and privatization activities are also addressed. Once again, governmental efforts to promote and implement multimodal/intermodal transportation projects are emphasized.

## **Highlights**

### **U.S. Public-Sector Involvement in Transportation**

The federal government's transportation responsibilities evolved as the various modes of transportation matured. Many of the nation's early efforts to open up its vast interior involved privately financed waterways and rail corridors. However, the U.S. government did provide land grants in its efforts to build a transcontinental railroad. And, from the late 1800s to the late 1970s, it was involved in the regulation of intercity railroads, airlines, motor carriers, and pipelines.

Even though the merits of deregulation and intermodalism were recognized and reflected in the 1940 National Transportation Policy Statement, issued by Congress, federal deregulation of transportation did not begin until the passage of the Air-Cargo Deregulation Act of 1977.

The federal government fully embraced intermodalism with the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. ISTEA provided for the establishment of an Office of Intermodalism within the U.S. Department of

Transportation. Intermodalism also has been the subject of the 1994 report of the National Commission on Intermodal Transportation, Principles of Federal Infrastructure Investment, issued in 1996, and the “National Freight Transportation Policy,” issued in 1997.

State and local governments also have roles to play in transportation. States formulate state transportation policies; are involved in the planning, financing, and construction of infrastructure projects; and regulate services, facilities, and safety. States tend to focus on functions directly related to their specific transportation needs, but they also undertake projects based on the amount of federal funding available. ISTEA required each state to implement a comprehensive statewide transportation planning process for all geographic areas and all modes of transportation.

At the local level, cities generally provide multimodal transportation services, such as parking, transit, and streets; and counties are mainly involved in highway projects. However, both cities and counties may operate airports while city, county, and state authorities generally administer public ports and develop cargo-transfer facilities.

Substate regional planning organizations, such as regional planning commissions (RPCs), councils of government (COGs), and metropolitan planning organizations (MPOs), increasingly plan and implement transportation projects. These organizations plan for and coordinate planning by local governments but generally have no implementation power themselves. ISTEA requires MPOs to develop a series of plans and programs in cooperation with the state and transit operators.

## **Florida**

Exemplary practices in Florida begin with its comprehensive, integrated, and ongoing planning process. All plans in the state, including transportation, must comply with the State Comprehensive Plan, which is written into the state statutes and primarily covers development issues, such as land use, transportation, and water. The transportation planning process is ongoing. Any given transportation plan is a “snapshot” of the planning process at the time the document is written. The Florida Department of Transportation (FDOT) feels this ongoing process is a strength, because the plan can be continuously updated and improved. *Connections Bringing Florida Together: The 2020 Transportation Plan*, which fulfills the ISTEA long-range planning requirement, is a long-range policy document, identifying four overarching policy goals. Annually produced short-range planning documents provide targeted goals and performance measures for a five-year planning horizon. The final exemplary element of the FDOT’s transportation planning process is its level of coordination with district offices, MPOs, and local governments. The department works with local governments extensively through FDOT’s seven district offices to make sure local-government plans comply with the State Comprehensive Plan. In addition, local government plans serve as inputs to FDOT’s planning documents.

Florida also established several funding programs to finance nonhighway projects. The Intermodal Development Program has provided approximately \$30 million per year since 1991 for intermodal projects, including access to seaports and airports, construction of intermodal terminals, and capital investments in fixed-guideway transportation systems and other intermodal passenger or freight movements. The Florida Seaport Transportation and Economic Development Program provides \$25 million per year from the state transportation trust fund to finance port-facility projects that improve intermodal movements around ports. Some \$15 million of this amount can be used as debt services on bonds so as to leverage additional funds; all money must be matched on a 50-percent state/50-percent port basis. These programs are testimony to the state's commitment to fund transportation beyond highways. By state statute, 15 percent of the transportation trust fund budget must go to public transportation programs, which include rail, ports, intermodal, aviation, and public transit. Aviation receives approximately \$90 million annually, transit receives approximately \$62 million, and rail, ports, and intermodal receive approximately \$164 million.

Partnerships with organizations are another notable aspect of FDOT. The Florida Seaport Transportation and Economic Development (FSTED) Council developed from a partnership between the FDOT and seaport interest groups. The FSTED Council membership includes the Florida secretary of transportation, the secretary of community development, a representative from the governor's office of tourism, trade, and economic development, and the directors of Florida's 14 deepwater ports. The FSTED Council assists in statewide planning efforts for the ports. Another example is the Continuing Florida Aviation System Planning Process Steering Committees. These committees were initiated by the FDOT in the mid 1980s to provide a forum for all parties interested in state aviation to meet and discuss issues and assist in statewide aviation planning. The meetings are now highly regarded and regularly attended by the directors of most of the state's airports and high-level managers of many local and regional governments.

## **Minnesota**

The Minnesota Department of Transportation (Mn/DOT) established Area Transportation Partnerships (ATPs) to broaden the base of financial responsibility, to expand political support for Mn/DOT, and to sustain and enhance intermodal transport planning. ATPs are variously composed of representatives of Mn/DOT, metropolitan planning organizations (MPOs), regional development councils (RDCs), city and county officials, tribal councils, transport modes, and the public at large. Representatives are meant to be regional partners in the planning process and to exhibit broad, multimodal, and multijurisdictional perspectives and sensibilities.

ATPs are responsible for producing Area Transportation Improvement Programs (ATIPs), which contain all regionally significant transport projects, the final drafts of which must be approved by Mn/DOT. ATIPs are then consolidated into the State Transportation Improvement Plan (STIP). In performing their duties, ATPs review various plans submitted to them by MPOs, RDCs, and other agencies, and then decide which projects will receive federal funding. The ability of ATPs to program and prioritize transport

projects has served to decentralize and open up the transportation investment process and to encourage communication and cooperation between Mn/DOT and other transportation entities in the state.

The Metropolitan Council (Council) is the designated MPO for the Minneapolis/St. Paul region. A November 1993 review of the transportation planning process in the Twin Cities metro area by the Federal Transit Administration found the Council to be exemplary in its efforts to encourage public participation. The Council delegates transportation planning to its 30-member Transportation Advisory Board (TAB), which has responsibility for guiding regional planning, reviewing transit plans, and setting funding priorities. This planning process served as a model for establishing the state's Area Transportation Partnerships. The TAB is supported by the Technical Advisory Committee, which provides technical support in evaluating TAB plans and programs.

Two major documents guide the transportation planning process. The *Regional Blueprint* is the Council's master plan, which provides the overall vision for the metro area, but does not make specific recommendations. The *Transportation Policy Plan* (TPP) adopts plans and programs to achieve transportation goals in a manner consistent with the *Regional Blueprint*. It contains a comprehensive analysis of the current transportation system and outlines changes, improvements, and adjustments needed to meet projected demand. The TPP also contains an analysis of forecasted freight needs, broken down by mode. Motor carrier, railroad, air, and waterborne freight are all considered in the analysis.

The Council is concerned with assuring the availability of good intermodal freight connections within the region. One example of this concern is the Minnesota Intermodal Railroad Terminal Study (MIRTS). Completed in January 1995, MIRTS is an excellent example of public/private partnerships in transport planning. The study, undertaken by the Council in collaboration with Mn/DOT, Burlington Northern Santa Fe Railway and the CP Rail System, determined that rail freight demand would continue to grow steadily and that existing terminal facilities are approaching their current, collective capacity.

## **Oregon**

Land-use planning requirements and economic development efforts largely drive Oregon's transportation initiatives. Oregon is a rapidly growing state experiencing a transformation from its rural heritage and a natural resource-dependent economy to a more diverse economy that includes the tourism, high technology, and manufacturing industries. These changes are stretching the state's transportation resources and infrastructure.

At the state level, Oregon's multimodal and intermodal transportation initiatives have occurred mainly in the policy and planning arenas, rather than in the implementation of projects. In keeping with the original ISTEA legislative mandates, the state has continued the development of an Intermodal Management System (IMS). Although the implementation and use of the system are not fully realized, the development of the IMS has shed new light on the issues related to freight planning and both freight and passenger intermodal facilities. Oregon's corridor planning provides the state with a tool to achieve



its efforts to formally link land-use planning with transportation planning, and to consider multimodal tradeoffs at the local level. Moreover, the Transportation and Growth Management Team provides the state and local communities with blueprints for developing and encouraging the use of nonhighway modes of transportation.

The most serious and interesting challenge facing Oregon is whether or not it can agree on a financing structure that will adequately address the needs of a growing population (particularly in the metropolitan areas) and a more diverse transportation system. Although the governor proposed a financing initiative in the most recent legislative session (1997), which provided for demand-management strategies and state funding for nonhighway transportation infrastructure, it did not pass. Hence, the state remains tied to a system that provides limited funds for highway improvement.

At the local level, Metro has been a flagship MPO with regard to its focus on multimodal transportation in the Portland metropolitan area. A strong light-rail system is currently in place, along with extension lines designed to provide relief to clogged highways and alternative modes of reaching the international airport. Metro is also considering and studying the use of demand-management strategies, such as peak-period pricing, for reducing highway congestion. Historically focused on passenger transportation issues, Metro is becoming increasingly involved in tracking and understanding freight movements within the region. The MPO systematically and routinely involves the public in planning and decisionmaking processes.

## **Pennsylvania**

Pennsylvania's transportation planning process is driven primarily by economic and demographic issues. The state is faced with a changing economy and a growing and aging population. Because of these issues, multimodal/intermodal transportation planning in Pennsylvania has focused on diversifying freight capabilities and increasing passenger transportation services. Although much of the multimodal/intermodal planning undertaken in Pennsylvania occurs at the local level, the state's intermodal coordinator ensures that state interests are represented in local projects. In recent years, the Pennsylvania Department of Transportation (PennDOT) has begun to undertake ambitious projects involving public/private partnerships. One of Pennsylvania's most successful MPOs, the Delaware Valley Regional Planning Council (DVRPC), is an excellent example of a regional agency that engages in intermodal planning, stakeholder involvement, and public/private partnerships.

Pennsylvania has been successful in transportation planning, because of the comprehensive systemwide approach it takes to transportation planning. By looking at transportation on a systemwide basis and including all stakeholders in its deliberations, the state has been able to meet most demands placed on it. One particular project of note has been the Doublestack Rail Freight Project. This project made the entire rail corridor, extending from Philadelphia to Pittsburgh, accessible to doublestacked-container rail freight trains. Its \$90-million cost was funded cooperatively on a 40-percent state/60-percent Conrail matching-fund basis. The success of the doublestack rail project has fostered new interest

at the state level in cooperative projects and land-use planning. Another exemplary project is the Goods Movement Task Force in Philadelphia. This effort, organized by the DVRPC, brings together numerous private and public groups in the Philadelphia area to address local intermodal transportation issues. The task force intends to improve the overall quality of transportation in Philadelphia and the efficiency of freight movements.

## **Virginia**

Virginia's multimodal/intermodal transportation planning efforts in the past four years have focused on corridor planning and the development of strategic intermodal centers. Virginia's corridor planning process considers multimodal/intermodal issues within the context of long-term regional transportation planning. The Virginia Department of Transportation (VDOT) and the Virginia Department of Rail and Public Transportation (VDRPT), the state agencies that sponsor Virginia's corridor plans, do an excellent job of working with local governments and the public to build consensus at all levels. The development of strategic intermodal centers is most successful in regions where it is widely viewed as a valuable tool for economic development. The VDOT takes an active role in the coordination of intermodal planning efforts, but, without strong local or regional cooperation, intermodal projects are far less likely to succeed.

The Hampton Roads area of southeast Virginia is the state's best example of regional cooperation and economic development through intermodal connectivity. The ports of Hampton Roads have used state-of-the-art intermodal facilities to connect ships, rail, and trucks. Hampton Roads is now a major east coast-shipping center. The Hampton Roads Planning District Commission (HRPDC), composed of officials from each of the 15 local governments in the area, coordinates all local transportation planning efforts. The HRPDC was involved in a recent corridor study, which recommended a three-tunnel, multimodal-tube crossing as a congestion-relief alternative for the I-64 Hampton Roads Bridge Tunnel. This project is now in the design phase. The HRPDC also works with state officials on high-occupancy vehicle lanes, intelligent transportation systems, and other projects to minimize traffic congestion in the Hampton Roads area. The HRPDC works closely with state and local officials, as well as local industries, to make transportation planning an important part of the region's economic strategy.

Individual agencies within an MPO can also make a difference in transportation planning. The Capital Regional Airport Commission (CRAC) in Richmond, Virginia, for example, has taken a leading role in intermodal planning for the Richmond area. CRAC has led efforts to develop better roads to and around the Richmond International Airport, including a proposed public/private partnership to build a stretch of highway that would improve the airport's passenger and freight connectivity. CRAC is also working to develop intermodal freight facilities to enhance the airport's freight-shipping potential. Finally, CRAC convinced local MPO officials to make an east coast regional intermodal study a top priority. A market-based study of mid-Atlantic regional freight systems is already underway, with the goal of positioning the Richmond region to compete with major east coast hubs for international and national transport.

## Washington State

The Washington State Department of Transportation (WSDOT) has a strong awareness of the necessity and usefulness of multimodal/intermodal transportation. The state's transportation planning and programming is driven by three principal factors: extraordinary population growth, particularly in the Puget Sound region of the state; trade and the need to facilitate easy access between ports and population centers; and the desire to protect the state's environment and quality of life.

Washington State has recognized the need to foster transportation planning at the regional level. WSDOT believes that the state's 12 regional transportation planning organizations are uniquely positioned to identify and respond to local and regional transportation needs. In addition to its efforts to implement multimodal planning at a regional level, WSDOT has created a unique transportation plan. Every two years the state defines all its transportation needs and desires. WSDOT then examines its budget and decides which programs to fund, based on a specific set of criteria. WSDOT revisits these programming and funding decisions biennially to make changes as needed.

Much of WSDOT's approach to multimodalism is based on policy multimodalism, as opposed to practical multimodalism. This approach to planning may change as the state fully implements its goal of regional multimodal planning. Washington State has a number of very interesting multimodal/intermodal regional projects in the planning and implementation stage. The Puget Sound region, in particular, has created an integrated intermodal planning process and has undertaken several innovative intermodal projects.

Selected in 1996 as the country's top MPO by the Association of Metropolitan Planning Organizations, the Puget Sound Regional Council (PSRC) is an association of cities, towns, counties, ports, and state agencies. The PSRC serves as a forum for developing policies and making decisions about regional growth management, economic, and transportation issues in the four-county Puget Sound region. It is the federally designated MPO for the region and one of 12 state-designated regional transportation planning organizations.

The PSRC divides all planning areas into three centers: urban centers, town centers, and manufacturing/industrial centers. Each area is defined by its density and socioeconomic characteristics, and transportation issues are addressed according to the particular needs of the center. Moreover, PSRC staff are not assigned to work on specific modal issues, but rather work in teams to develop fully connected regional and corridor plans. The teams are growth management, transportation planning, and research and forecasting—each working together to formulate intermodal activities.

To ease congestion, the PSRC coordinates with WSDOT to develop and finance improvements to port access, rail-grade separations, and designated roadways. This is called the Freight Action Strategy for the Seattle-Tacoma Corridor (FAST-Corridor). The program maintains a freight and goods database and helps identify options and issues regarding freight movement in the area. It is included in the *Metropolitan Transportation*

*Plan.* It is both innovative and intermodal, involving all levels of governmental transportation planning, and has had early and constant private- and public-sector participation.

## **Wisconsin**

Wisconsin faces several transportation challenges as it enters the next century. These include updating and upgrading an aging transportation network to meet the demands of a growing population and an expanding economy: coordinating all elements of the state's transportation network to achieve maximum efficiency at minimal cost and curtailing the negative impacts that transportation has on the environment and quality of life.

To achieve the state's goals, transportation planning agencies in the state have emphasized comprehensive planning and flexible funding mechanisms. Comprehensive planning is important on both the state and regional levels. The Wisconsin Department of Transportation (WisDOT) has created the *Translink 21* plan, wherein all aspects of the state's transportation system are examined, not just individually, but as a part of the entire transportation network. *Translink 21* also uses a new and innovative freight forecasting model, which was developed by one of the state's regional planning commissions, the Southeastern Wisconsin Regional Planning Commission (SEWRPC). This model allows planners to accurately forecast freight movements under a variety of different conditions, enabling them to predict what impacts their infrastructure decisions will have on the transportation network.

On the regional level, both the SEWRPC and the Dane County Regional Planning Commission (DCRPC) have implemented comprehensive planning processes, where land-use, quality-of-life, environmental, and transportation issues are all examined and their interrelationships and tradeoffs taken into consideration. These processes ensure that planning and spending are coordinated to strive toward a unified vision of what the communities desire for their futures.

Funding issues in Wisconsin are largely addressed at the state level, where all state transportation funding is channeled into a single transportation fund. This fund is intended to overcome the barriers to flexibility in spending often found in states with dedicated modal transportation funds. No moneys in this fund are explicitly dedicated to any mode or project, and moneys are theoretically available for any transportation use that the legislature sees fit to fund. A second program that lends funding flexibility to state transportation spending is the Transportation Economic Assistance (TEA) Program. Under the TEA Program, businesses, in addition to local and state agencies, are eligible for transportation improvement funds under the condition that the funds be spent on a project that is essential for economic development. The program enables the private sector to direct transportation spending to projects of immediate need, bypassing delays and tailoring them to fit their specific requirements.

## **European Union**

Across the European Union (EU), member countries have sought to deregulate transportation services and privatize state-owned transport enterprises to provide competition and increase efficiency within the transportation sector. Significant efforts also are being made to unify national transportation systems. The EU first issued a series of transportation harmonization policies in a 1992 document titled *The Future Development of the Common Transport Policy*.

Transportation services are linked to sustainable economic development, and, consequently, increased transportation efficiency is of primary concern. The integration of transportation modes is considered the best means of achieving this goal. The development of trans-European networks (TENs) for transportation, energy, and telecommunications is ongoing, and representatives from the EU member countries worked together to rank 14 TEN transportation projects. An underlying EU philosophy is that the growth of international trade will depend on a reduction in the dependence on roadway/highway travel and on a shift to the increased use of other modes of transportation. Perhaps most important is that the EU, in 1997, adopted an intermodal freight transportation policy and strategy to guide efforts for achieving a unified transportation system. The document is titled *Intermodality and Intermodal Freight Transport in the European Union—A Systems Approach to Freight Transport: Strategies and Actions to Enhance Efficiency, Services, and Sustainability*.

The EU has provided incentives to national governments for the development of multimodal and intermodal transportation. Primarily, multimodal/intermodal technological research and pilot projects have been subsidized with governmental funding. This funding is largely derived from taxes charged on agricultural products imported into the EU, levies on sugar companies, customs duties on trade with countries outside the EU, a value-added tax, and a contribution from each member country proportional to its gross domestic product (GDP). Yet, as the demand for transportation rises, the EU is increasingly relying on the private sector for both funding and specialized skills and knowledge.

The technological standardization process of the transportation system remains incomplete and impedes the “seamless” transfer of services across transportation modes. The EU is working to rectify these problems, particularly standardizing the pricing of transport and charging for the use of infrastructure. One outcome has been the innovation of “rail freeways,” which allows all state railway enterprises to compete and run freight services across Europe. A majority of transportation research is being devoted to integrated logistics development so as to more effectively link transportation modes. The EU’s transportation policy has also focused on the construction of intermodal freight/logistics centers to facilitate the transfer of goods from one mode of transport to another.

## **France**

The Socialist Party unexpectedly won a solid majority in the National Assembly in 1997. Since then, France has been in the process of a political transition from a conservative-led

government focused on France's role in the global marketplace to a left-wing coalition leadership primarily concerned with the country's labor and environmental disputes. Shortly after the 1996 elections, the newly elected left-wing coalition government curtailed many privatization plans and infrastructure projects started by the previous administration. For instance, it suspended the development of the Rhine-Rhône Canal, which proposed channeling the Rhine to permit year-round navigation for multibarge convoys.

The overall French privatization efforts are also unclear. Although the country is experiencing political pressure from the EU to privatize its state-owned enterprises, the failed privatization efforts of Air France demonstrate the country's uneven commitment to this goal.

Despite governmental resistance to privatization, the private sector continues to play a significant role in the development of the country's infrastructure. This involvement is partially due to a long tradition of "delegated management" in France. This principle requires public authorities that are responsible for public transport to delegate its management over the facilities to private firms, autonomous public corporations, or public/private ventures, once the government's financial support is no longer needed for its operation.

Since the early 1980s, regional authorities have also increased their participation in the planning process. Although the French planning process has traditionally been known for its high degree of centralization, the French government has gradually implemented policies to ensure more local participation. However, transportation planning is still very centralized insofar as all regional proposals must complement national long-term development objectives and subsequently receive the state's approval.

France has developed two different and independent types of public transportation distribution hubs, road haulage centers (centres routiers) and intermodal terminals (plate-formes intermodales). Haulage centers have been planned and financed by a combination of public and private entities, such as regional and local authorities, construction companies, and local chambers of commerce. They are a common element of regional and local land-use plans.

There were 56 regional haulage centers located throughout France in 1992. Their primary function is to concentrate transportation distribution activities in suburban locations to facilitate "break-of-bulk" between long-distance transportation and local distribution. Facilities and services typically include fueling stations, customs clearance, and both bonded and distribution warehouses.

Haulage centers have generally been developed separate from France's Combined Transport (CT) network. CT is defined by the European Conference of Ministers of Transport (ECMT) as "transport where the major part of European journey is by rail, inland waterway or sea and any initial and/or final leg carried out by road." CT usually refers to road/rail intermodal transportation movements.

This lack of coordination began to change in the early 1990s, when a number of cities and regions (e.g., Lille, Nancy, Avignon, Marseille, and Bordeaux) offered proposals to combine the relocation or expansion of terminals with the creation of larger intermodal terminals. These actions prompted the French transport ministry in 1993 to outline nine locations for larger intermodal terminals to serve European CT traffic. The proposed locations were Avignon, Bordeaux, Le Havre, Lille, Lyon, Marseille, Nancy-Strasbourg, Paris, and Toulouse.

CT in France amounted to 10 billion ton-kilometers in 1994. This level of traffic represented roughly 20 percent of total rail freight and 5 percent of total road freight. It is believed that the market-share potential for CT for freight movements more than 466 km is four times its actual figure. As a consequence, the French government announced a comprehensive CT development program in 1995, with a grant amounting to 300 million French francs. The government also established a Combined Transport Council to specifically plan and coordinate CT projects. The overall goal is to double the volume of CT traffic from 1995 to 2002.

## **Germany**

The *Federal Transportation Infrastructure Plan* (FTIP) is the primary document for transportation planning in Germany. FTIP '92 describes a comprehensive plan to upgrade and integrate the various modes of transportation within Germany and to integrate Germany's transportation system with that of the EU. Through this process of integration, united Germany hopes to secure a place for itself as the economic center of the EU.

Reunification of East and West Germany is the key issue in German transportation policy in the 1990s. Years of neglect and underinvestment during the Communist administration of former East Germany have left that region with transportation infrastructure far inferior to that of former West Germany. The need to bring eastern infrastructure up to western standards has encouraged massive investment programs in the east. Complementing the current north-south orientation of German rail lines with east-west lines is a particular concern, as is the creation of links across the former border between east and west. The German Unity Transport Projects, of which there are 17, are the highest-priority transport projects in this scheme of German reunification.

To integrate its transportation system successfully both within its national borders and internationally, Germany must cope with very high traffic volumes on its roadway network and in its airports. The opening of Eastern European economies has exacerbated this situation. Competition from Eastern European truckers on German soil has increased pressure on German trucking firms and contributed to Germany's having the highest volume of transit traffic (traffic both originating and terminating its journey outside national borders) in Europe. Air-traffic volume in Germany's already-congested airways is expected to more than double by the year 2010.

Part of Germany's response to high-traffic volumes has been a comprehensive privatization program of transport enterprises. The former state-owned German airline, Lufthansa, was fully privatized in 1997, as the German government sold its remaining shares of Lufthansa stock. The German government has privatized air-traffic safety services and is selling off its shares in Germany's airports, while encouraging state and local governments to do the same. The German railway, Deutsche Bahn AG, has been reorganized in order to pursue commercial objectives and adopt a competitive, market-oriented approach to the provision of rail transport services and is to be privatized in 1998. It is hoped that these changes will increase efficiency in these sectors and will make rail a more attractive transport option.

Finally, Germany is focusing on the development of a network of 42 Güterverkehrszentren (freight distribution centers), which typically include an intermodal terminal. Güterverkehrszentren are areas, typically on the outskirts of urban centers, where local governments and the center's management encourage transport service providers to locate and encourage cooperation among service companies. Germany hopes that the development of this network will cause a modal shift from road to rail and reduce urban congestion through coordination of the delivery of goods to the city. Although the German government hopes that completion of the network will double the portion of road traffic that is intermodal, studies indicate that this goal may not be realistic and that the actual degree of the modal shift may be quite insignificant.

## **United Kingdom**

The United Kingdom is currently in a process of transition regarding transportation policies. This transition coincides with the election of a new Labour government and the restructuring of the Department of Transportation in late 1997. The government has issued several policy documents outlining the rationale for encouraging intermodal transportation development. Formal guidance on how governments and the private sector should fund and coordinate intermodal transportation will be issued in an integrated transportation plan during the summer of 1998.

It is obvious that industry and government alike have given serious thought to intermodal transportation and have promoted public support for the increased use of transportation modes other than roadways. A large percentage of transportation legislation in the United Kingdom is a "reflection of" and modeled on broader EU strategies. On a national level, the United Kingdom has also linked transportation with social, environmental, and economic policies, which have been important in achieving public support for intermodal transportation. This linkage is of major significance, because intermodal passenger transportation can be successful only if individuals are willing to shift modes.

The role of the private sector in transportation planning in the United Kingdom is significant. The new Department of the Environment, Transportation, and the Regions (DETR) relies on transport operators to submit bids and proposals to the department. These entities, which also largely finance projects, therefore greatly influence the overall design of transportation projects. Comments from private organizations are also being



incorporated into the forthcoming central government policy. Organizations within the United Kingdom have successfully obtained EU funds to finance intermodal research and demonstration (R&D) projects.

EU funding has provided an appropriate incentive for private companies and universities to develop innovative solutions to intermodal transportation. Because the vast majority of railways, ports, and airports are privatized, operators have begun to invest in intermodal technologies. This investment has been further increased through the formation of private-company consortia, which are established as a means of pooling resources and finances.

In addition, the British government has begun to decentralize the transportation planning process, giving regional authorities greater responsibilities. These types of regional initiatives, rather than local-level planning, are better suited to guide integrated planning, which involves geographically diverse infrastructure facilities and regulations.

A substantial obstacle to the development and implementation of intermodal projects potentially is a “disconnect” in communication and coordination among key players. Relatively poor dialogue between local, regional, and state levels is still a weakness in the United Kingdom. In addition, the public coordination of intermodal transportation projects between the United Kingdom and other nations is in its infancy.

Yet, the United Kingdom’s administration and practices illustrate how infrastructure planning can be integrated. The government has successfully started a dialogue and political “backing” for intermodal transportation. The situation in the United Kingdom demonstrates how governments can assist in mobilizing the private sector, such as through public/private partnerships, to implement strategies for the “public good.” Both the EU and the British government successfully posed the idea that intermodal freight transportation can be more efficient and cost effective, which has increased participation in the private sector.

### **MERCOSUR: The Southern Common Market**

As of January 1995, the Southern Common Market (MERCOSUR—Mercado Comun del Sur) integrated a large regional market uniting Brazil, Argentina, Paraguay, and Uruguay. The four countries signed the Treaty of Asunción on March 26, 1991, establishing an imperfect customs union to accomplish the following goals:

- elimination of tariff and nontariff barriers;
- adoption of a Common External Tariff (CET) and a common external tariff policy;
- coordination of macroeconomic and sectoral policies; and
- member-country commitment to the free movement of services, labor, and capital.

The rapid growth of trade among MERCOSUR partners is taxing the transportation infrastructure and ability of member countries to deliver cargo. At the MERCOSUR annual meeting in August 1997, members discussed transportation goals designed to increase trade capacity within the customs union. The meeting established a protocol to consolidate and harmonize the laws governing transportation system access. The meeting also called for common inspection procedures and regulations among countries, a commitment to create standards for multimodal transportation, and an obligation of all member countries to ensure cargo safety within their borders. A standard form for customs declarations and joint customs operations potentially facilitates land transport, especially for trucking companies. The common form will shorten border-crossing times by requiring inspections only once upon entry.

Most of the transportation projects underway in MERCOSUR are specific to the country in which they are located. However, several key efforts involve the development of binational or multinational transportation corridors, which integrate the development of inland waterways, railways, and highways. The MERCOSUR Highway consists of creating a four-lane highway along a north-south corridor from Rio de Janeiro to Buenos Aires. The MERCOSUR Inland Waterway brings freight and passenger travel to Brazil, Argentina, Paraguay, and Bolivia. Several rail projects seek to consolidate freight traffic, creating corridors that span from the Atlantic to Pacific Oceans. Some existing institutions, such as the Brazilian Development Council of the South and the Northeast Argentina Commission for Foreign Trade, have added a supranational planning and coordination component to their functions. These institutions lobby their governments for a regional approach to transportation infrastructure investment.

While the mechanisms for integrated policymaking on a regional basis are not fully developed within MERCOSUR, the member countries realize the importance of reducing barriers to trade and improving intraregional transportation infrastructure. In order to maintain its track record of effectiveness, MERCOSUR countries will have to overcome two challenges. The first is to maintain macroeconomic stability. The second is to make an integrated market plausible by improving transport links and customs procedures.

These challenges require cooperation not only among member countries but also within the countries themselves. Not every Brazilian state and Argentine province can have its own cross-border route. Decisions will have to be based on logistics, financing, and common sense that takes into consideration political pressures. Nature has placed formidable obstacles, such as the Amazon and the Andes and long travel distances. Nevertheless, progress in areas, such as free-market energy integration, shows that improvements in the infrastructure will occur given sufficient traffic. It remains to be seen whether a customs union, such as MERCOSUR, will push South America toward a convergence of multimodal transportation planning.

## **Argentina**

Argentina has emerged from decades of economic turmoil to become one of the most powerful nations in Latin America. Liberalization of trade policies and the privatization

and deregulation of many former state-owned enterprises have helped Argentina attract private investment from both domestic and international sources, as well as reduce the national debt. A key component of this strategy has been the opening up of nationalized transportation enterprises to private competition.

With much of the transportation system having been owned by the government, the flow of investment for improvements and new projects has been erratic, rising and falling with the economy and political situation. The private sector was not given much input into the transportation planning process. Now the government is sponsoring numerous projects that involve private-sector investment, coupled with governmental administrative oversight.

The government-led initiatives for privatization have taken one of several forms. Concessions and licenses have been granted to private companies or consortia for the operation and maintenance of various transportation system components. In other cases, the government has sold transportation components or enterprises outright and retains administrative oversight for either a limited or indefinite period. To further encourage multimodal and intermodal planning, the Argentine government has enacted legislation mandating decentralization or consolidation (depending on the situation) of operations to maximize transportation efficiency. This intermodal planning focus has created benefits beyond financial gain.

Not only has the government realized billions of dollars in revenues from either selling parts of the transportation system (e.g., railroads) or granting concessions for operations (highways, airports), but it has also increased transportation efficiency and lowered costs by using contractual obligations to promote multimodal and intermodal projects. Including these obligations in the contracts themselves demonstrates the government's desire to rapidly improve the transportation infrastructure. Businesses have responded by devoting more investment to new ventures in Argentina, in particular to the transportation privatizations themselves. With regard to the concessions that have been offered by the Argentine government, officials have seen bidding for contracts at a higher level than anticipated.

However, this bonanza of free markets and free trade has emphasized the need for governmental oversight of operations and national-level involvement in the planning process. As successive projects are proposed and studied, it is clear that faster, more efficient transportation is necessary for the continued success of Argentina's economy. Obtaining financing for a myriad of projects designed to integrate the MERCOSUR common market through a transportation network is just one of the many challenges facing Argentine officials.

Other hurdles include balancing environmental and social concerns, with the desire to improve access to remote regions and decentralizing the country from the federal district surrounding Buenos Aires (in which 35 percent of the country's population lives). However, the municipal government of the federal district and the regional governments throughout the country recognize the necessity of diversifying the transportation

infrastructure to facilitate economic expansion and trade opportunities. To this end, many new projects involve areas of the country that have historically been ignored during transportation planning.

Argentina's planning process has shown that combining governmental policymaking with private investment can result in rapid change that reflects the overall goal of modernizing the country's infrastructure as the basis for economic development. While the country has massive investment needs to reach the infrastructure level of more industrialized nations, Argentina has set a high standard for itself with the rapid improvements it has achieved under President Carlos Menem. Maintaining a commitment to transportation infrastructure development will give Argentina the tools it needs to complete its economic transformation.

## **Brazil**

The Brazilian government has implemented privatization measures since the late 1980s; however, in 1995, Congress adopted constitutional amendments, that permitted investment opportunities for both foreign and domestic capital. With aggressive privatization and decentralization programs in place, the federal government is in the process of shifting its role in the transportation sector to adopt creative policies and to promote economically beneficial infrastructure, while limiting its participation in investment projects and commercial activities. The government's first priority is to establish an adequate transportation infrastructure, with intermodal links and container terminals. A "Master Plan" for infrastructure development has been adopted in President Henrique Cardoso's 1996 initiative, "Brasil em Ação," which introduced a list of 42 infrastructure projects. The initiative includes 14 transportation-related projects, funded by a combination of private and public investments. The 1998-99 budget appropriated approximately \$2.4 billion for transportation infrastructure projects. One of the government's priorities for the upcoming year is to coordinate between federal, state, and private transportation projects in developing a comprehensive transportation network.

Privatization has allowed the government to require specific improvements in performance and structural changes in current transportation projects, through clauses in concessions contracts. The federal government conducts a bidding process, in which potential investors compete for the concession. Each concession varies in terms of the concessionaire's obligations and the government's role in project development, depending on the sector of the privatization (rail operations, port terminals, and highway construction) and the bids received. With considerable investment in transportation projects in Brazil, the World Bank recommended that the Ministry of Transportation refine incentives for private investors in order to develop particular regions targeted for growth. Without these incentives, the level of transportation services will not be uniform throughout the country. The federal government's role should focus on communication between the public and private sectors to ensure that both areas share common goals and perspectives on future multimodal development. In 1997, the Ministry of Planning adopted an on-line planning system to coordinate federal, state, and private-sector activities on project development.

Another method for accomplishing this goal of communication between private and public sectors is the clarification and simplification of the rules governing public and private obligations in concessions. Reforming regulatory laws and providing the administrative support necessary to carry out those laws will facilitate trade and investment in the transport sector. The implementation of logistics systems, like SISCOMEX in the customs system, is a step in the right direction for monitoring and consolidating trade practices for multimodal transport. But a single, international bill of lading will further improve customs operations and uniform regulation of multimodal freight movements. Currently, Brazilian law separates freight transportation according to mode, unless a single contract explicitly includes several modes. In 1997, only two companies had been licensed by the government to operate as multimodal transport operators for domestic and international trade; therefore, the regulation of multimodal freight movements is piecemeal and complicated for the most part, divided according to each mode. If the government also allowed the private sector to negotiate labor contracts and prices for private terminal operations and shipping agents, then competition in the private sector may lower the current high costs of transport.

### **The North American Free Trade Agreement**

The North American Free Trade Agreement (NAFTA), which took effect January 1, 1994, is a detailed, broad-based pact governing trade between the United States, Mexico, and Canada. The objectives of the agreement are to eliminate barriers to trade, promote conditions of fair competition, increase investment opportunities, provide adequate protection for intellectual property rights, and establish effective procedures for implementation of the agreement and for resolution of disputes.

NAFTA created a timetable for the removal of barriers to the provision of cross-border trucking services. On December 18, 1995, the United States and Mexico were scheduled to allow delivery and backhaul of international cargo within border states of both countries. And, by the year 2000, U.S. and Mexican motor carriers were to be allowed cross-border access to any point in these countries. This liberalization process, however, does not extend to lifting prohibitions against the participation of foreign motor carriers in the domestic cargo markets of member countries.

December 18, 1995, also marked the date on which U.S. and Canadian motor carriers were to be allowed to make investments, equivalent to a 49-percent equity ownership, in Mexican motor carriers that transport international cargo. Permitted foreign equity ownership in Mexican trucking operations is scheduled to rise to 51 percent in the year 2001 and to 100 percent in the year 2004. Moreover, on December 18, 1995, the United States was scheduled to permit Mexican motor carriers to form Mexican-owned or -controlled subsidiaries in the United States to transport international (but not domestic) cargo.

Neither government has carried out the provisions that had been scheduled for implementation on December 18, 1995. Shortly before the implementation date, U.S. Secretary of Transportation Federico Peña announced that the U.S. government was

taking unilateral action to postpone increased cross-border access until U.S. concerns over the safety and security of Mexican trucks were addressed. Hence, Mexican trucks engaged in cross-border operations continue to have access only to U.S. commercial zones along the border.

At the beginning of 1994, the United States and Mexico eliminated all cross-border restrictions on charter and tour buses. The elimination of restrictions on regularly scheduled buses was to have occurred in January 1997, but this action also awaits resolution of motor carrier access to border states. Similarly, the Mexican government has delayed implementation of the bus investment provisions, which permit U.S. and Canadian investment in Mexican bus companies that follows the same NAFTA investment timetable applicable to motor carriers.

NAFTA grants U.S. and Canadian firms the right to own and operate rail terminals and some private spur lines, bring in their own locomotives, market their services, and finance infrastructure in Mexico. Mexico will continue to have full access to U.S. and Canadian rail systems. On the other hand, Mexico retains the exclusive right to operate, administer, and control traffic within the Mexican railway system; supervise and manage railway right-of-way; and operate, construct, and maintain basic railway infrastructure.

Mexico agreed to immediately allow 100-percent U.S. and Canadian ownership in, and operation of, Mexican port facilities: cranes, piers, terminals, and stevedoring companies that handle their own cargo. As for the companies handling cargo belonging to others, 100-percent U.S. and Canadian ownership is allowed after screening by the Mexican Foreign Investment Commission. In turn, Mexico continues to be allowed full participation in the U.S. and Canadian port activities.

## **Mexico**

Mexico continues to make strides toward overcoming the economic and social problems that have plagued the country for years. The success of Mexico's program of reform toward having a stable economy and being a country that is more democratic is tied closely with the efforts to creating an integrated transportation system. The Mexican government continues to show a commitment to modernizing infrastructure and services to create a more efficient, intermodal transport system to play a greater role in the global economy.

Since the first privatization statutes were implemented in the late 1980s, the federal government has attempted to modernize the country's infrastructure to facilitate economic growth, trade, and the movement of its citizens and cargo. Efforts to privatize various aspects of the country's transportation infrastructure include the construction of toll roads, and the privatization of principal ports, railroads, and airports. The peso-devaluation crisis in 1994 and loss of investment created problems for the toll-road program in particular, because it was perhaps the government's most ambitious privatization effort. As a result, the government increased its financial support in the toll-road program; and the Secretariat of Communications and Transportation (SCT), which grants concessions,

is using a variety of infrastructure funds along with private investment to improve Mexico's roads. For the 1998-2000 period, the SCT's Highway Modernization Program will concentrate on augmenting the capacity of Mexico's major highways. Some 11.2 billion pesos are needed for the road modernization process, an increase of 43 percent with respect to the 1997 budget. Deregulation of the motor carrier industry in 1989 was an impetus behind the Mexican National Railways' 1992 Structural Change Program, the results of which preceded efforts to privatize Mexico's four major rail segments and short lines. Mexico is continuing to privatize port operations, airlines and airport operations, and warehouses, all of which are vital links that will connect the future intermodal transportation network.

The federal government has not developed a "multimodal transportation policy plan." However, Mexico has made great advances in the past couple of years to set up a future "seamless" transportation network. The privatization process and the invitation for both foreign and domestic participation have only been underway for less than a decade. In order to be eligible to bid for many transport concessions, foreign investors must partner with a Mexican national company. These partnerships, along with governmental funding and retention of a certain percentage of concession rights, are and will continue to be the major tools for improving basic components of the country's infrastructure. Mexico should look to other financing possibilities, such as the World Bank or the International Finance Corporation, to augment future intermodal capacity. Mexico's encouragement of financing projects through public/private partnerships and concession projects complements its strong policy and planning process, which includes involvement from the federal and state governments and, in some cases, from municipalities.





# Chapter 1. Changing Global Economy and Trade

## Introduction

We are living at a time when powerful economic forces, such as the globalization of firms and the growing interdependence of national economies, are shaping an emerging global economy in profound ways. Technological innovation and the resulting increased productivity are working together to improve living standards and raise the level of total global economic welfare. In this environment, trade between nations represents one of the most dynamic components of the new economic reality. While the benefits of trade are now readily apparent to most governments, as well as to the vast majority of economists, this by no means has always been the case. Throughout the 20th century, there has been an intellectual and philosophical clash between proponents of free trade on one hand and proponents of various forms of protectionism on the other.

During this century, the United States emerged as the predominant economic power, one committed to the concepts of free trade and open markets. It has used its considerable influence, both political and economic, to promote the current liberal international economic order founded on the principle of trade liberalization.<sup>1</sup> Since the passage of the Reciprocal Trade Agreements Program in 1934, the central thrust of U.S. trade policy has been to achieve and maintain an open world economy through cooperation between nations in reducing and eliminating various barriers to trade.<sup>2</sup> Even as World War II raged, the United States and its allies began to plan for a new framework in global economic relations, one that would lead to the prosperity that, it was hoped, would prevent another worldwide conflagration.

In 1944, representatives from 44 countries met at Bretton Woods, New Hampshire, to devise a plan by which a regime of fiscal and monetary cooperation could be implemented—underwritten by the vast economic resources of the United States.<sup>3</sup> It must be remembered that in the immediate aftermath of the war, the American economy accounted for nearly one-half of the total world economic output; thus the United States was in a position of unchallenged economic supremacy.<sup>4</sup> The Bretton Woods accords established a system of fixed currency exchange rates based on the U.S. dollar, which was convertible at a rate of \$35 per ounce of gold. This international monetary system maintained relative stability in world financial markets, until it collapsed in 1971 and was replaced by a system of floating exchange rates.<sup>5</sup>

The planners at Bretton Woods also developed a blueprint for an institutional framework consisting of three economic pillars to manage this new regime. A fourth pillar of the international system emerged as the United Nations (UN). The International Monetary Fund (IMF) was established to “maintain orderly exchange arrangements among members” and to provide assistance in the event of short-term currency crises.<sup>6</sup> The

International Bank for Reconstruction and Development (IBRD), or World Bank, would provide funds in the form of loans to assist with economic development projects.<sup>7</sup> Also envisioned was the establishment of the International Trade Organization (ITO) to regulate trade. The ITO was not ratified by the U.S. Senate, and in its place the General Agreement on Tariffs and Trade (GATT) was created. GATT was a provisional agreement in which a process aimed at trade liberalization was established under a series of rounds of negotiations, beginning with the Geneva Round in 1947 and concluding with the Uruguay Round in 1986-94, which culminated with the establishment of the World Trade Organization (WTO).<sup>8</sup>

While GATT is a complex document containing numerous articles and annexes, including tariff schedules listing the thousands of concessions negotiated by member countries, it essentially comprises four basic elements: the rule of nondiscrimination with respect to trade between member countries, commitments to observe negotiated tariff concessions, prohibitions against the use of quantitative restrictions on imports and exports, and special provisions to promote trade in developing countries.<sup>9</sup> Other provisions outline conditions under which exceptions can be made to such general principles as nondiscrimination, as in the case of regional trade blocs. On the whole, GATT is concerned with maintaining and expanding a multilateral framework.

The heart of GATT is contained in article I, which deals with the most favored nation (MFN) principle of nondiscrimination. Under MFN, any tariff concession negotiated between two countries must be automatically extended to all other member nations.<sup>10</sup> Thus, a bilateral agreement to lower tariff rates is extended to all members, so that all benefit from the new, lower tariff. There is an escape clause whereby a member may modify or withdraw a tariff concession if it can demonstrate serious injury to domestic producers resulting from any given concession. Other exceptions to the principle of nondiscrimination include arrangements reached by regional trade blocs and the generalized system of preferences extended by developed countries to developing countries.<sup>11</sup>

In general, GATT prohibits the use of quantitative restrictions, or quotas, on imports and exports. However, there are several exceptions to this general principle. The most common pertain to agricultural products, as well as to issues of national security, balance-of-payment safeguards, and economic development.<sup>12</sup> While GATT negotiations have been extremely successful in reducing tariff levels worldwide, there continue to be examples of concealed barriers to trade. Disputes continue to arise between nations over trade issues, which are taken up for resolution by the WTO.

## **The Global Economy after GATT—The World Trade Organization**

The establishment of the WTO on January 1, 1995 ranks as perhaps the single most important development in the global economy in the 1990s. The *Final Act Embodying the Results of the Uruguay Round of Multilateral Trade Negotiations*, a 550-page document signed on April 15, 1994, marked the successful conclusion of negotiations on the most

recent round of GATT, begun in September 1986.<sup>13</sup> The agreement establishing the WTO calls for a single institutional framework encompassing all the provisions previously agreed to in the various rounds of GATT since its inception in 1947.

Located in Geneva, Switzerland, the WTO has a membership of 132 countries (as of September 1997) and an operating budget of \$93 million (for fiscal year 1996). Its administration is headed by a director general (currently Renato Ruggerio) and a secretariat staff of 500. The body's structure is headed by a Ministerial Conference, which meets at least once every two years. A General Council oversees operation of the agreement and ministerial decisions on an ongoing basis. The General Council also acts as the Dispute Settlement Body (DSB) and the Trade Policy Review Mechanism, which are involved in all aspects of the organization's monitoring and dispute-resolution activities.<sup>14</sup>

A fundamental difference between the WTO and GATT is that, while GATT served in a de facto capacity as an international organization of contracting parties, this role was always ad hoc without a clear legal institutional status recognized by international law.<sup>15</sup> The WTO qualifies as a genuine global supranational organization, with an institutional status paralleled only by the UN. Under the "single undertaking approach" embodied in the WTO framework, membership entails accepting all provisions of GATT as modified by the Uruguay Round without exception.<sup>16</sup> Thus, its decisions could well have greater impact on the international system and the behavior of member nations than resolutions passed by the UN, if for no other reason than the fact that the global economy is far more interdependent and interconnected than the political order of sovereign nations. Economic integration, both on a global and regional basis, is being driven by market forces that seek greater efficiency and by the increasing returns that are only possible by sweeping away the barriers to trade that inhibit the free flow of goods and the factors of production—capital, labor, and resources. International trade represents the most dynamic component of the global economy.

Mainstream neoclassical economics has long argued that the greatest gains from trade are to be realized through a system of global free trade. Acceptance of global free trade has been far from universal. Within every country, one finds powerful domestic forces that feel threatened by free trade and, therefore, have been opposed to it. On a more pragmatic level, given the absence of a global free-trade system, many nations have been reluctant to make the first move, even if they recognize its advantages. Since World War II, beginning with the multilateral international economic framework established at Bretton Woods, the United States has taken the lead in pushing for greater levels of free trade. Between 1947 and 1994, the GATT framework provided the process by which this was achieved. While global free trade is not at present a reality, the establishment of the WTO represents the triumph of the international consensus that has coalesced around the concept. This reality is perhaps best illustrated by the fact that those nations not yet members, most notably China, are making every effort to join.

Unfortunately, acceptance of an idea in principle is not the same thing as putting it into practice. While the GATT process has been extremely successful in reducing barriers to trade in the form of tariffs, there are any number of nontariff barriers (NTBs) to trade. In

a system encompassing 132 nations and nearly two dozen regional trade blocs, as well as nonstate actors such as multinational corporations (MNCs), disputes are bound to arise over issues such as market access, antidumping and countervailing duties, infringement of intellectual property rights, violations of rules of origin, and others.<sup>17</sup>

### **Institutional Framework of the WTO—Implementation and Enforcement of GATT**

The WTO mandate encompasses a mission that consists of the following six major functions:

1. Administering WTO trade agreements,
2. Providing a forum for trade negotiations,
3. Resolving trade disputes,
4. Monitoring national trade policies,
5. Providing technical assistance and training for developing countries, and
6. Cooperating with other international organizations.

While each of these functions is important in its own right, the primary task of the organization—which is arguably the most contentious—is its role in providing a dispute-resolution mechanism. As the *Understanding on Rules and Procedures Governing the Settlement of Disputes* states, “The dispute settlement system of the WTO is a central element in providing security and predictability to the multilateral trading system.”<sup>18</sup> When the Havana Charter in 1947 established the IMF and the World Bank, a third institution, the International Trade Organization (ITO), was also envisioned. This third pillar of the international trade structure was rejected because of fears in the U.S. Senate regarding the far-reaching powers inherent in a supranational institution devoted to providing a dispute resolution mechanism. At a time when U.S. economic power dominated the global economy, it was supposed that such an organization could be used to undermine and challenge that dominant position. The global economy has undergone vast changes since that time, with the rise of national and regional economic powers that have challenged the U.S. position of global economic supremacy. In an era when the United States has become first among equals, the calculus has changed so significantly that an institution such as the WTO is just as likely to protect U.S. economic interests as to undermine them. It is this changing reality that led to ratification of the *Final Act* by the U.S. Senate.

The aim of the WTO dispute mechanism is “to secure a positive solution to a dispute,” ideally by reaching a mutually acceptable settlement consistent with WTO provisions.<sup>19</sup> The first step is to engage in bilateral consultations with the governments involved. Should this fail to resolve the matter, the WTO General Council convenes as the DSB to enact the second step, which is to appoint a panel to examine the case in question. The panel must be constituted within 30 days of its establishment. The WTO Secretariat is

responsible for suggesting three qualified panelists to the parties involved in the dispute. If there is a serious difficulty in identifying panelists acceptable to the parties, then the director general can appoint a panel.<sup>20</sup>

Under normal circumstances, the panel's final report should be handed down within six months. In cases of extreme urgency, this time frame can be shortened to three months. Before the first substantive meeting (which represents the next step in the process), each party submits its arguments in the case. At the first substantive meeting, the complainant presents its case and the responding party presents its defense. Formal rebuttals are made at the second substantive meeting. There is an interim review stage when a descriptive report is submitted to the parties for comments, then an interim report is submitted whereupon the parties may request a review. A final report is submitted and circulated to all members. The DSB has 60 days in which to adopt the final report, unless one or more parties make an appeal notification or a consensus emerges within the DSB against adoption of the final report.<sup>21</sup>

Appeals are heard by three members of a seven-member standing Appellate Body established by the DSB. This body is empowered to uphold, modify, or reverse the findings of the panel. The Appellate Body's decision should be reached within 60 days, and in no case shall exceed 90 days. Thirty days after the Appellate Body issues its report, it is adopted by the DSB and is to be unconditionally accepted by the parties. Members are given a "reasonable period of time" to comply with the recommendations of the DSB. The DSB is also empowered to authorize retaliatory measures in the absence of full compliance.<sup>22</sup>

## **Integration Theory: Trade Liberalization and Regional Trade Blocs**

The global economic system established in the aftermath of Bretton Woods, while based on the premise of multilateral trade liberalization, has witnessed the emergence of a simultaneous parallel trend toward the integration of neighboring countries into regional trade blocs. Article XXIV of GATT permits such arrangements provided that all trade between member countries is liberalized and that external tariffs imposed by these countries are not higher, on average, than those prevailing before the formation of the regional arrangement or bloc.<sup>23</sup>

It is important to note that regional trade liberalization does constitute an exception to the GATT system in that member nations are treated more favorably than nonmember nations. There is a considerable debate among economists whether regional trade blocs represent a complement to the multilateral system or a substitute for global trade liberalization because of their discriminatory nature.<sup>24</sup> Nevertheless, between 1947 and 1990, more than 80 regional arrangements were registered with GATT (in its de facto institutional role) as specified under article XXIV. While many of these blocs have failed, generally for political reasons, at the establishment of the WTO nearly two dozen regional trade blocs, at varying levels of integration, were in existence—with more being planned.

Ensuring that these regional trade blocs play a complementary role to global trade liberalization will fall to the WTO as a forum for trade negotiations and in its role of monitoring national trade policies. Trade barriers between regional blocs must be lowered, as well as barriers within blocs, in order to maximize the potential benefits from trade. As we will see, intermodal transportation, resulting from current innovations in advanced logistics systems and communications technologies, will provide a key element in ensuring the success of the liberalization process by building bridges between regional entities. Regional blocs at differing stages of integration have different institutional frameworks, posing different challenges to policymakers concerned with reducing barriers to trade. The success of the WTO is dependent on the continued opening up of markets, not a retreat behind protectionist barriers by various regional blocs.

The rationale for the formation of regional trade blocs is fairly straightforward; there are undeniable benefits resulting from market expansion, as well as the increasing gains from trade. Economic integration facilitates the creation of larger competitive markets, which permit greater specialization, greater allocative efficiency of production factors, and the realization of economies of scale.<sup>25</sup> Economic integration is particularly attractive to smaller nations, where domestic demand for manufactured goods is simply insufficient to absorb the output necessary to establish a cost-effective industrial base or to attract the necessary private foreign direct investment in cases in which inadequate savings mean inadequate capital formation.

By removing external barriers and extending the market base, industrial manufacturing can be established at a level conducive to the realization of economies of scale (lower cost per unit of output and greater productivity per worker or unit of capital input), thereby achieving a more rational pattern of production—which also results in increased trade within the region. Secondary benefits include greater specialization through comparative advantage as well as more favorable terms of trade in a highly competitive global economy.<sup>26</sup> Nations enter into regional arrangements because they believe the outcome will be higher levels of welfare and improved standards of living. These potential gains outweigh any that might be realized through protectionist measures erected against neighboring countries. In effect, many of the same arguments used to advocate global free trade are used to justify regional integration. However, while regional integration serves to improve welfare within a region, does it increase global welfare? At the heart of the debate is the issue of trade creation versus trade diversion.

Trade creation takes place when regional integration results in the expansion of trade among member nations so that high-cost producers within the region are replaced by low-cost producers from outside the region.<sup>27</sup> This allocation of efficiency raises global welfare because the international division of labor is improved with the shift of resources into more efficient production. Consumers benefit from the lower prices they pay for imports of goods from low-cost producers. Trade diversion takes place when trade shifts from low-cost nonmember nations to high-cost member nations as a result of the imposition of a common external tariff. The international division of labor becomes less efficient, and global welfare is correspondingly diminished. Consumers pay higher prices for goods from high-cost producers.<sup>28</sup>

In most regional trade blocs, there is both trade creation and trade diversion so that it is necessary to calculate the magnitude of both and measure the net effect. If trade creation is greater than trade diversion, then the regional arrangement is considered beneficial to global welfare and a complement to multilateral trade liberalization. If the net effect is greater trade diversion, then the arrangement is considered a substitute for trade liberalization and is, therefore, harmful to global welfare. Other factors considered when analyzing a particular bloc include pre-union and post-union external tariff rates on nonmember nations, the demand elasticity for imports for which tariff barriers have been lowered, and the supply elasticity of exports from both member and nonmember countries.<sup>29</sup>

In reality, much of the impetus for integration is derived from political and cultural ties, as well as economic considerations. Regional integration almost invariably takes place between neighboring countries in what Paul Krugman terms “natural trading blocs.”<sup>30</sup> The controversy over regional trade blocs has subsided somewhat with the successful conclusion of the Uruguay Round of GATT. A positive development for those who believe these arrangements should be viewed as a complementary process to multilateral trade liberalization is the emergence of bilateral negotiations among regional entities and countries, which should help reduce the trade-diversion problem. MERCOSUR and the EU began such negotiations in 1994. Mexico and the EU just announced their intention to begin similar negotiations. Both Presidents George Bush and Bill Clinton have promoted the creation of a hemispheric free-trade area that would include the member states of the North American Free Trade Agreement (NAFTA) and MERCOSUR as well as nonmember states. From the perspective of economic theory, these intermediate steps toward free trade may appear unnecessary or even counterproductive; however, abstract theory is often at odds with political reality, which involves more pragmatic considerations.

Experience has shown that despite the advantages associated with regional integration, or for that matter free trade, achieving them is often far more difficult than might be imagined. Not only are there different levels of integration, but there are different institutional frameworks as well. Successful policymaking involves a clear understanding of the possibilities and also the challenges, involved in dealing with these very important components of the global economy.

## **Levels of Integration and Implications for Trade**

### **Free Trade Areas**

A free trade area is established when a group of nations agree to abolish restrictions on mutual trade between member countries, while each country maintains its own external tariff system on trade with nonmember countries. NAFTA represents such a system. As table 1.1 illustrates, in a free-trade area, tariffs are eliminated on the trade in goods and services. However, there is no common external tariff, there continue to be restrictions on the movement of labor and capital, there is no harmonization of economic policies among

member countries, and there are no supranational institutions.<sup>31</sup> As barriers to trade are lowered, facilitating greater trade between member nations, disputes that do arise have few established institutional arrangements to provide a dispute-settlement mechanism. The governments of member nations must try to resolve the dispute as best they can, subject to considerable domestic pressures. In the case of NAFTA, there are disputes over labor and wage policy as well as environmental issues. Interest groups, such as labor unions and environmental advocacy organizations, have no means of redress except to apply pressure on domestic lawmakers. Thus, a certain level of continual uncertainty exists because the gains from free trade may be obscured in acrimonious partisan debate.

### **Customs Unions**

A customs union is created when a group of nations agree not only to remove restrictions on mutual trade but also to establish a common external tariff system with respect to nonmember countries. Again, as shown in table 1.1, restrictions remain in place on the movement of labor and capital, member nations do not harmonize their economic policies, and there are no supranational institutions.<sup>32</sup> It is at this level of integration where the trade-diversion problem begins to manifest itself. It is the common external tariff that provides the incentive for trade to shift from low-cost nonmember countries to high-cost member countries. MERCOSUR represents an example of a customs union. Related to the customs union issue is the dilemma of Chile, which in general maintains a lower tariff rate than does the MERCOSUR customs union. Both NAFTA and MERCOSUR would like to bring Chile into their bloc.<sup>33</sup> There are both political and economic ramifications either way Chile decides to go. If a hemispheric free-trade area is established, then of course the issue is resolved. As it stands right now, Latin American governments are very sensitive to the possibility of the United States' disrupting their current arrangement, where, in effect, Latin American economies would become part of the domestic U.S. market. For its part, the United States has some reservations over negotiations between MERCOSUR and the EU. The newly liberalized Latin American markets offer huge future trade potentials, which both the United States and EU recognize.

### **Common Markets**

A common market is created with the removal of all restrictions on the movement of production factors, such as labor, capital, and resources. This free flow of production factors represents the most efficient allocation and production possibilities, allowing the greatest gains from trade to be realized. Common markets can then move toward full economic union, with the establishment of supranational authorities responsible for economic policymaking. Of course, this arrangement requires a considerable loss of national sovereignty. As table 1.1 shows, when full-economic union has been reached, virtually all restrictions on trade have been removed. The EU is currently in a transitional phase from common market to full-economic union. Table 1.2 lists supranational institutions established within the EU. European integration has required a difficult 40-year process in which the whole arrangement has been threatened with collapse at each new step forward. An economic union involves creation of a single monetary system, a central bank, a unified fiscal system, and a common foreign economic policy. The next



step will involve political union—or the creation of some type of federal system—for which Europe has already created an institutional framework, including a European Parliament, a Court of Justice, the European Council, and a Council of Ministers.<sup>34</sup>

History has shown that successful integration involves a step-by-step process toward ever-greater levels of integration. The experience of Europe has provided what is, in many ways, the paradigmatic model, in that European integration began at the lowest level of integration and has gradually progressed forward. At every turn in the road, the process has been declared dead, just before consensus emerges. The newest challenge is monetary union, which faces bitter opposition in the United Kingdom. Establishment of a unified fiscal system is extremely unpopular in France. Governments can rise and fall over these contentious issues. In the case of MERCOSUR, negotiations began with the intention of creating a full-fledged common market. What emerged is an “imperfect” customs union.<sup>35</sup> In the short run, political considerations can take precedence over economic considerations; in the long run, the economic advantages to integration seem irresistible.

**Table 1.1**  
**Forms of Regional Integration**

	Goods and Services Tariff	Common External Tariff	Labor and Capital Restrictions	Harmonization of all Economic Policies	Supranational Institutions	"Aid" vs. "Trade"
Free Trade Area	Yes	No	No	No	No	No
Customs Union	Yes	Yes	No	No	No	No
Common Market	Yes	Yes	Yes	Yes	Yes	Yes

Source: Data from Elsie Echeverri-Carroll, *NAFTA and Trade Liberalization in the Americas* (Austin, Tex.: Bureau of Business Research and IC2 Institute, The University of Texas at Austin, 1995).

**Table 1.2**  
**Examples of Regional Integration**

<b>NAFTA</b> (Free Trade Area)	<b>MERCOSUR</b> (Customs Union)	<b>European Union</b> (Economic Union)
<ul style="list-style-type: none"> <li>• goods/services</li> <li>• Labor Commission</li> <li>• Environmental Commission</li> <li>• capital (FDI)</li> </ul>	<ul style="list-style-type: none"> <li>• goods/services</li> <li>• common external tariff</li> <li>• harmonization of policies</li> </ul>	<ul style="list-style-type: none"> <li>• goods/services</li> <li>• common external tariff</li> <li>• supranational institutions:</li> <li>• trade policy toward the rest of the world is implemented on a regional basis—Brussels</li> <li>• European Court of Justice—internal commercial disputes</li> <li>• European Central Bank (1999)</li> <li>• large fiscal transfers (subsidies to smaller countries)</li> <li>• free movement of labor</li> </ul>

Source: Data from Elsie Echeverri-Carroll, *NAFTA and Trade Liberalization in the Americas* (Austin, Tex.: Bureau of Business Research and IC2 Institute, The University of Texas at Austin, 1995).

## **Privatization and Deregulation**

If the advent of the WTO ranks as the most important economic development in the 1990s, the most significant trend in the 1980s was the global move toward privatization and deregulation. Whereas former President Ronald Reagan and former British Prime Minister Margaret Thatcher are rightly seen as the greatest advocates of this trend, deregulation in the transport sector actually began during President Jimmy Carter's administration, with deregulation of the domestic airline and trucking industries. Both privatization and deregulation are continuing at present, not only in the developed market economies of the Northern Hemisphere but also in the emerging markets of Asia, Africa, and Latin America.

In a 1997 study on the continuing global trend toward privatization, the Organization for Economic Cooperation and Development (OECD) estimated that worldwide sell-offs of state-owned businesses may reach the \$100 billion mark for the year 1997, which will exceed the record \$88 billion mark achieved in 1996. The study projected that in the industrial nations, privatization may reach \$70 billion, while sell-offs in the developing world may reach as high as \$30 billion. In 1996, Brazil led all developing nations with \$3.7 billion in privatization, achieved in large part by the sale of utility companies. Much of the global activity has been in the telecommunications sector. The OECD also projected that the worldwide privatization trend will extend to South Africa in 1998. Its planned privatization program may begin with the sell-off of the national telecommunications company.<sup>36</sup>

Deregulation has also had a profound impact on the transportation sector and the agencies that regulate it. The greater reliance on market forces associated with deregulation has produced both winners and losers. Although there have been major players in every sector of the transportation industry who have not survived deregulation, new players have identified niche markets where they have been very successful. The removal of regulatory barriers to entry has led to increased competition in many lucrative markets; whereas, in many smaller markets, inadequate demand has led to service contraction.<sup>37</sup> Thus, regulatory agencies continue to serve an important role, even as their mission has changed in the face of a new economic environment. Microeconomic theory recognizes the potential dangers of imperfect competition, in which the behavior of monopolies and oligopolies can lead to underproduction and higher prices to consumers. The whole idea behind privatization and deregulation is to increase competition and provide greater choice to consumers, leading to lower prices. Proposed mergers and acquisitions in the transport sector require continued monitoring to ensure that the public, as well as firms and stockholders, benefits.

## **Globalization of Industry and Logistics**

Logistics can be defined as the process of planning, implementing, and controlling the efficient, effective flow and storage of raw materials, in-process inventories, finished goods, services, and relevant information from the point of origin to the point of consumption.<sup>38</sup> Advanced logistics is defined as the concept of synchronizing the activities of multiple organizations in the logistics chain and feeding back necessary information to organizations in production and/or physical distribution sectors on a real time basis, by fully using information technology and digital communication networks. By introducing advanced logistics, firms can respond quickly to changes in demand and, as a consequence, transport can now be regarded as an integral part of the production process.<sup>39</sup>

With the removal of trade barriers resulting from the advances made in multilateral trade liberalization and market integration, the global business environment has been one characterized by the development of trade relations that facilitate rather than constrain business activity. The trend toward increased trade and globalization of the world economy has been made possible through the development of new communication technologies, the growth of transport systems, and innovations in logistics systems. The development of new technologies has transformed the international economy into a global marketplace. This new global marketplace represents both cause and effect of a developing homogenization of demand for goods and services. There is a growing convergence of consumer tastes and preferences, with a concurrent expectation of high-quality, lower-priced products that are more standardized.<sup>40</sup>

As world trade increases, more and more companies are entering the global marketplace through export-oriented strategies, licensing, franchising, and joint-ownership ventures. Whereas multinational corporations have traditionally operated in several countries, adjusting prices and products in each according to local conditions, new global

corporations operate on the assumption that markets are similar everywhere, with customers exhibiting similar needs, tastes, and preferences. To increase efficiency and lower costs, global corporations generally procure materials and supplies in more than one country, spread out production and assembly facilities, and market products on a worldwide basis. Production factors flow to those locations where production occurs at the lowest cost, thus permitting lower prices as well as greater revenues and profits. Any consideration of costs must take into account transportation costs.

Advanced logistics technologies are critical to lowering transportation costs. A seamless intermodal transportation network provides the key to moving resources and intermediate goods to production points and, from there, moving finished goods to the marketplace. There are, therefore, powerful economic incentives for the development of logistics networks and harmonization of standards that facilitate the flow of resources and products across international borders. Not only do national economies benefit, but so do corporations and their stockholders. Specialization and competitive advantage are enhanced by speed of transport and improved communication technologies.<sup>41</sup>

Some of the consequences of globalization include increased distance from point of production to point of sale, increased complexity of logistics networks, and increased lead times that cause inventory levels to rise. Global corporations must develop strategies to deal with problems of time and distance in order to shorten lead times and reduce inventories. This development involves creation of advanced logistics systems designed to maximize production efficiency. Low-cost, reliable transportation networks are critical to successful logistics strategies. Benefits of the systems approach to logistics include better quality control, opportunities for more rapid product innovation, economies of scale, lower total costs, and longer production runs.

## **A Systems Approach to Logistics**

The phenomenon of globalization has not only changed the way firms conduct business but has also changed their requirements in terms of logistics and transport. New logistics technologies can increase competitiveness in the global marketplace in a number of ways, such as improved levels of customer service, implementation of integrated transport and order processing systems, establishment of specialized plants tailored to regional and local markets, rapid response to changing market conditions, and effective transfer of problem-solving information, as well as spreading out the costs of research and development.<sup>42</sup>

As global logistics systems become ever more complex, there is an emerging trend toward a systems approach to the analysis and control of transport logistics in the movement of both freight and passengers.<sup>43</sup> Freight transportation networks involve not only the flow of goods but also the flow of information necessary for the successful delivery of goods to their intended destinations. Logistics management involves maintaining efficient flow of physical goods and abstract electronic messages along the various links in the appropriate network. Buyer-supplier networks are concerned with the material flow of goods and products to market. Transportation networks are involved with the transport flow along

an infrastructure, such as roads or rail, or natural systems, such as rivers, lakes, and oceans. Financial networks handle the money flow. Finally, communication networks are responsible for information flow. All these networks depend on some type of physical links to achieve the actual transfer process.<sup>44</sup>

The greatest strides, in terms of technological advances, are being made in the areas of transport and communication systems, such as electronic data interchange (EDI). The systems approach to logistics is primarily directed at how these systems are interconnected. There are three fundamental components in both transport and communication systems: object, carrier, and infrastructure. With the development of just-in-time (JIT) production systems, it has become clear that these systems are not independent of the transportation infrastructure. The development of JIT delivery has had a significant effect on the transportation infrastructure, particularly the road and highway network. At present, expansion and improvement of road networks to increase capacity is occurring at a slower rate than the improvements in production systems because of JIT delivery. It is, therefore, important that a more efficient use of the existing road infrastructure is achieved through the application of emerging information and communication technologies as road traffic management tools.<sup>45</sup>

## **Evolution of Intermodal Transportation**

One can point to the deregulation of different transportation modes, beginning in the United States in the late 1970s, as the defining moment in the current trend toward intermodal transportation. Other important developments include the removal of transportation restrictions between member nations of the EU in the 1990s and the accelerated liberalization of markets in Latin America.<sup>46</sup> As the importance of international trade and the advantages of economic integration have become apparent to governments, so has the rationale for intermodal transportation. Both governments and private firms working together have created a demand for new communication and transportation technologies, which, in turn, has stimulated investment in research and development.

Intermodal transportation is rapidly gaining acceptance as an integral component of the systems approach to business in the increasingly interdependent global economy. It is a concept that can be thought of as a process of transporting passengers and freight by means of a system of interconnected networks, involving more than one transportation mode, in which all the component parts in the systems process are seamlessly linked and efficiently coordinated.<sup>47</sup> The objective of intermodal transportation is to maintain a continuous flow of goods and passengers throughout the transportation and transfer process. The challenge of intermodalism is to keep the flow of goods and passengers moving, reducing to a minimum any delay caused by the process of transferring freight or people from one mode to another.<sup>48</sup>

As a product of the trend toward greater privatization and deregulation, the development of intermodal transportation has been driven by the technological breakthroughs and

innovations that have transformed the American economy in the current decade. If intermodalism is a product of the changing way firms conduct business, it is also serving as a catalyst of that change. The future growth of intermodal transportation will be dependent on economic conditions, the level of government support, and the continuing development of logistics management as new technologies come on-line.<sup>49</sup> The trend toward intermodalism is expected to accelerate throughout the world as firms and governments recognize the competitive edge derived from its growth.

## Notes

<sup>1</sup> John Spanier and Steven W. Hook, *American Foreign Policy Since World War II*, 14th ed. (Washington, D.C.: Congressional Quarterly Press, 1997), p. 55.

<sup>2</sup> Franklin R. Root, *International Trade and Investment*, 6th ed. (Cincinnati, Ohio: South-West Publishing, 1990), p. 214.

<sup>3</sup> Spanier and Hook, *American Foreign Policy*, p. 55.

<sup>4</sup> Ibid.

<sup>5</sup> Root, *International Trade and Investment*, p. 458.

<sup>6</sup> Ibid., p. 459.

<sup>7</sup> Ibid., p. 194.

<sup>8</sup> Ibid.

<sup>9</sup> Ibid., p. 195.

<sup>10</sup> Ibid.

<sup>11</sup> Ibid., p. 196.

<sup>12</sup> Ibid.

<sup>13</sup> World Trade Organization (WTO), "A Summary of the Final Act of the Uruguay Round," WTO web site [cited November 29, 1997], available from: [http://www.wto.org/wto/legal/ursum\\_wp.html](http://www.wto.org/wto/legal/ursum_wp.html); INTERNET.

<sup>14</sup> WTO, "About the WTO," WTO web site [cited November 26, 1997], available from: <http://www.wto.org/wto/about.html>; INTERNET.

<sup>15</sup> Ibid.

<sup>16</sup> WTO, legal texts, WTO web site [cited November 29, 1997], available from:

[http://www.wto.org/wto/legal/ursum\\_wp.html](http://www.wto.org/wto/legal/ursum_wp.html); INTERNET.

<sup>17</sup> Ibid.

<sup>18</sup> WTO, "How the WTO Resolves Disputes," WTO web site [cited November 26, 1997], available from: <http://www.wto.org/wto/dispute/webds.html>; INTERNET.

<sup>19</sup> Ibid.

<sup>20</sup> Ibid.

<sup>21</sup> Ibid.

<sup>22</sup> Ibid.

<sup>23</sup> Michael J. Trebilcock and Robert Howse, *The Regulation of International Trade* (New York: Routledge, 1995), p. 428.

<sup>24</sup> Ibid., p. 24.

<sup>25</sup> Root, *International Trade and Investment*, p. 252.

<sup>26</sup> Gerald M. Meier, *Leading Issues in Economic Development*, 5th ed. (Oxford: Oxford University Press, 1989), pp. 427-29.

<sup>27</sup> Ibid.

<sup>28</sup> Ibid.

<sup>29</sup> Ibid.

<sup>30</sup> Paul Krugman, "The Move Toward Free Trade Zones" (paper presented at a symposium sponsored by the Federal Reserve Bank of Kansas City on "Policy Implications of Trade and Currency Zones," at Jackson Hole, Wyo., August 22-24, 1991), p. 20.

<sup>31</sup> Root, *International Trade and Investment*, p. 253.

<sup>32</sup> Ibid.



<sup>33</sup> Maria Beatriz Nofal, "The Economic Integration of Argentina and Brazil, MERCOSUR, and the Regionalization of the Southern Cone Market," in *NAFTA and Trade Liberalization in the Americas*, ed. Elsie Echeverri-Carroll (Austin, Tex.: Bureau of Business Research and IC2 Institute, The University of Texas at Austin, 1995), p. 217.

<sup>34</sup> Root, *International Trade and Investment*, p. 254.

<sup>35</sup> Nofal, *NAFTA and Trade Liberalization*, p. 203.

<sup>36</sup> John Zarcostas, "Global Privatizations May Reach \$100 Billion," *Journal of Commerce* (March 17, 1997), p. A-3.

<sup>37</sup> Gerhard Muller, *Intermodal Freight Transportation*, 3rd ed. (Lansdowne, Va.: Eno Transportation Foundation and Intermodal Association of North America, 1995), p. 236.

<sup>38</sup> Organization for Economic Cooperation and Development (OECD), Road Transport Research, *Integrated Advanced Logistics for Freight Transport* (Paris, 1996), p. 24.

<sup>39</sup> *Ibid.*, p. 15.

<sup>40</sup> *Ibid.*, p. 26.

<sup>41</sup> *Ibid.*, p. 27.

<sup>42</sup> *Ibid.*, p. 31.

<sup>43</sup> *Ibid.*, p. 21.

<sup>44</sup> *Ibid.*, p. 23.

<sup>45</sup> *Ibid.*

<sup>46</sup> Muller, *Intermodal Freight Transportation*, p. 236.

<sup>47</sup> OECD, *Integrated Advanced Logistics*, p. 69.

<sup>48</sup> Muller, *Intermodal Freight Transportation*, p. 1.

<sup>49</sup> *Ibid.*, p. 2.



## **Chapter 2. U.S. Public-Sector Involvement in Transportation**

### **The National Transportation System**

The U.S. transportation system, the largest transportation system in the world, provides for the movement of people and goods by various methods of travel. With its four million miles of road, 18,000 airports, and 170,000 miles of rail lines, among other components, its sheer physical extent can be hard to comprehend.<sup>1</sup> The U.S. transportation system affects many aspects of our lives, from personal daily routines to business and industry decisions—yet we often take it for granted. As the Bureau of Transportation Statistics (BTS) of the U.S. Department of Transportation (USDOT) points out:

As users and customers of the transportation system, few of us notice anything but small part of the system unless we are caught in a traffic jam, suffer or read about an accident, or sit in a plane delayed on the runway. We buy fresh fruits and vegetables in mid-winter, send packages on overnight delivery, fly cross country to solve a business crisis, move hundreds or thousands of miles to a new job knowing we can easily return often to visit family, send our children to distant colleges, and take it all for granted. Some of us even travel 1,000 miles on special flights to shop, or enjoy weekend respites half a continent away. None of this would be possible without a complex network of road, rail, water, pipeline, and air routes blanketing the country, which, for the most part, works well.<sup>2</sup>

The U.S. transportation system is composed of many elements, or methods of travel, usually called modes. Both the public and private sectors play an integral role in providing and maintaining the infrastructure and services required of the different modes. The following modes of transportation will be further described below: highways, air, rail, transit, water, and pipelines. These are the major elements of the U.S. transportation system as depicted in table 2.1. Unless otherwise noted, all statistics pertain to the 1995 calendar year.

#### **Highways**

The highway system consisted of approximately 3,912,226 miles of road. Of these, 45,744 miles were part of the U.S. Interstate Highway System, 111,237 miles were other National Highway System roads, and the remainder were other roads, such as urban and county roads. More than 200 million vehicles used the highways on a daily basis, logging almost 9 trillion miles in 1995.

#### **Air**

Airports in the United States totaled 18,224. Of these, 5,415 were classified by USDOT as public-use airports and 12,809 as private-use airports. Eighty-six passenger and freight

**Table 2.1**  
**Transportation Infrastructure in the United States**

Mode	Components	Statistics
Highways	Roads	45,744 miles of Interstate Highway System 111,237 miles of National Highway System roads 3,755,245 miles of other roads
	Vehicles and use	136 million cars, driven 1.5 trillion miles 58 million light trucks, driven 0.7 trillion miles 6.9 million freight trucks, driven 0.2 trillion miles 686,000 buses, driven 6.4 billion miles
Air	Public use airports	5,415 airports
	Airports serving certified carriers	29 large hubs (67 airports), 393 million enplaned passengers 33 medium hubs (59 airports), 86 million enplaned passengers 58 small hubs (73 airports), 34 million enplaned passengers
	Aircraft	561 nonhubs (593 airports), 14 million enplaned passengers
	Passenger and freight companies	5,567 certified air carrier aircraft, 4.6 billion miles flown 86 carriers, 506 million domestic revenue passenger enplanements, 12.5 billion domestic ton-miles of freight
	General aviation	171,000 aircraft, 2.9 billion miles flown*
Rail	Railroads	125,072 miles of major (Class I) 18,815 miles of regional 26,546 miles of local
	Equipment	1.2 million freight cars 18,812 locomotives
	Freight railroad firms	Class I: 11 companies, 188,215 employees, 1.3 trillion ton-miles of freight carried Regional: 30 companies, 10,647 employees Local: 500 companies, 13,269 employees
	Passenger (Amtrak)	23,646 employees, 1,921 passenger cars, 356 locomotives, 20.7 million passengers carried
Transit (1994 Data)	Vehicles	43,723 buses, 17.2 billion passenger-miles 9,046 rapid rail and light rail, 11.5 billion passenger-miles 4,349 commuter rail, 8 billion passenger-miles 86 ferries, 243 million passenger-miles 12,828 demand response, 377 million passenger-miles
Water	U.S.-flag domestic fleet	Great Lakes: 698 vessels, 60 billion ton-miles Inland: 31,910 vessels, 306 billion ton-miles Ocean: 7,033 vessels, 440 billion ton-miles
	Ports	Great Lakes: 362 terminals, 507 berths Inland: 1,811 terminals Ocean: 1,578 terminals, 2,672 berths
Pipeline (1994 Data)	Oil	Crude lines: 114,000 miles of pipe, 323 billion ton-miles transported Product lines: 86,500 miles of pipe, 269 billion ton-miles transported
	Gas	161 companies, 14,900 employees Transmission: 276,000 miles of pipe Distribution: 919,000 miles of pipe 19.7 trillion cubic feet, 150 companies, 187,200 employees

Source: Data from U.S. Department of Transportation (USDOT), Bureau of Transportation Statistics (BTS), *Transportation in the United States: A Review* (Washington, D.C., 1997), p. 3, table 1.

carriers made use of the airports, operating 5,567 aircraft and flying 4.6 billion miles. And as for general aviation, 171,000 aircraft flew 2.9 billion miles.

## **Rail**

A total of 541 railroad freight companies moved goods across the United States over 170,433 miles of track. The freight companies used 1.2 million freight cars and 18,812 locomotives to haul more than 1.3 trillion ton-miles of freight. Amtrak, the nation's only passenger rail carrier, provided service to 20.7 million people during the same time period.

## **Transit**

The transit system includes commuter trains, such as rapid and light rail, buses, vans and other demand-response vehicles, and ferryboats. In 1994, there were 43,723 buses accounting for 17.2 billion passenger-miles, while commuter trains accounted for 19.5 billion passenger-miles. Demand-response vehicles registered 377 million passenger-miles. Lastly, ferries traveled 243 million passenger-miles.

## **Water**

The water component of the transportation system is primarily involved in the movement of freight. The U.S. Corps of Engineers reported a U.S.-flag domestic fleet of 39,641 vessels. These vessels moved 806 billion ton-miles of goods to and from the 3,751 U.S. ports.

## **Pipeline**

The pipeline system is used to transport oil and petroleum products and natural gas across the country. More than 200,000 miles of pipeline carried 592 billion ton-miles of oil and petroleum products in 1994. Natural gas transmission and distribution pipelines totaled 1,195,000 miles and delivered 19.7 trillion cubic feet.

## **Transportation Revenues and Expenditures**

### **Public-Sector Revenues**

Public transportation revenues are generated primarily by user fees, taxes, and, to a lesser extent, general-tax revenues. Many funds are transferred among the three levels of government—local, state, and federal. These transfers account for most of the transportation revenue for state and local governments and significant expenditures at the federal and state level.

Federal, state, and local governments collected more than \$80 billion in revenues from gasoline and other transportation-related taxes and fees in 1992. Table 2.2 gives the revenues collected by each level of government from 1982 to 1992. In 1994, according to USDOT, approximately one-half of revenues were collected by states, one-third by the federal government, and one-fifth by local governments. Highways produced 70 percent

of transportation-related revenues, air transport 15 percent, transit 10 percent, and water 4 percent.<sup>3</sup>

**Table 2.2**  
**Transportation Revenues by Level of Government: 1982-92**  
**(millions of dollars)**

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
<b>Federal</b>	10,008	12,507	16,351	18,388	18,769	18,847	20,109	22,237	21,532	25,995	25,794
<b>State</b>	18,935	19,806	22,320	24,355	25,917	28,501	30,850	32,529	34,629	36,585	39,097
<b>Local</b>	7,228	7,716	8,243	9,294	10,112	11,058	11,862	12,813	13,740	14,832	15,306
<b>Total</b>	36,171	40,029	46,914	52,038	54,798	58,407	62,821	67,579	69,901	77,411	80,196

Source: Data from USDOT, BTS, *Federal, State and Local Transportation Financial Statistics: Fiscal Years 1982-1992* (Washington, D.C., 1995), p. 17, table 3.

### ***Federal Revenue***

Most federal transportation revenues are collected from users in the form of fuel and vehicle taxes, registration and licensing fees, and air passenger ticket taxes. These moneys are managed as trust funds. The four primary funds are the Highway Trust Fund, the Airport and Airway Trust Fund, the Inland Waterways Trust Fund, and the Harbor Maintenance Trust Fund. These funds are user financed, provide for investment in transportation infrastructure, and do not contribute to the federal deficit.<sup>4</sup>

The Highway Trust Fund (HTF) was created with the passage of the Federal-Aid Highway Act of 1956 and the Highway Revenue Act of the same year. Before these acts, funds for expenditures came from the General Funds of the Treasury. The 1956 highway act established the original HTF with an expiration date of 1971, but the life of the fund was extended several times. Currently, the fund's expiration date is September 30, 1999. The money in the HTF is earmarked mainly for the federal-aid highway program to fund federally sponsored highway projects, although the fund also has a transit account.<sup>5</sup>

The HTF is a pay-as-you-go fund—states pay for their transportation projects and then submit receipts to the Federal Highway Administration (FHWA) for reimbursement from the HTF. There must always be enough money in the HTF to make the requested reimbursements.<sup>6</sup> The largest source of income for the HTF is the excise tax on gasoline. Taxes on motor vehicles, tires, and parts and accessories for trucks and buses make up the rest of the revenue sources for the fund.

The Airport and Airway Trust Fund was created in 1970. Contributions to the Airport and Airway Trust Fund come from passenger ticket taxes and taxes paid by air-transport

users on air cargo and aviation fuel. Most of the money in the Airport and Airway Trust Fund is dedicated for airport improvements, such as new radar and traffic control towers. Excess funds may be used to cover Federal Aviation Administration operating and maintenance costs.<sup>7</sup>

The Inland Waterways Trust Fund was established in 1978 and is funded by an excise tax on fuel for vessels using commercial waterway transportation. The fund covers 50 percent of the construction and rehabilitation expenditures for navigation projects on inland waterways.<sup>8</sup>

Created in 1978, the Harbor Maintenance Trust Fund is funded by levies on the value of cargo loaded or unloaded from commercial cargo vessels (the harbor maintenance tax) and by a portion of the St. Lawrence Seaway tolls. The fund pays for maintenance of ports and harbors and costs of the St. Lawrence Seaway.<sup>9</sup> The fund also pays for dredging by the U.S. Army Corps of Engineers to maintain the depth and width of shipping channels.<sup>10</sup>

The Supreme Court, in a unanimous decision in March 1998, declared the harbor maintenance tax an unconstitutional tax on exports. Exporters have fought the tax since it was imposed in 1987. They argue that the maintenance levy is a tax, rather than a user fee, because the large amounts of money paid into the fund are not linked to identifiable expenses and have remained unused year after year. At the time of the Supreme Court decision, the fund had a surplus of over \$1 billion, part of which was expected to be refunded to exporters.<sup>11</sup> Lawmakers are considering several alternatives to the harbor maintenance tax, including user fees imposed by ports or carriers, paying for harbor maintenance out of general fund revenue, and imposing a true maintenance fee.<sup>12</sup>

### ***State and Local Revenue***

State and local transportation revenue comes from the operations of various modal facilities, such as bus stations, airports, and seaports, as well as from taxes and fees levied on the users of these facilities.

Most state transportation income is from highway user fees in the form of gasoline and vehicle taxes. Transit revenues include public mass transit system (subway, bus, rail) fares, fees, advertising, and other operations revenue. Local governments also finance local transportation projects from general fund revenues, which are obtained from property taxes and other special assessments.<sup>13</sup>

### **Public-Sector Expenditures**

An estimated \$113 billion was spent by all levels of government on transportation in 1992.<sup>14</sup> Table 2.3 illustrates federal, state, and local expenditures from 1982 to 1992 after grant transfers from the federal government to state and local governments. In addition to user fees, a portion of the total spent on transportation is paid for by general funds and debt financing, which account for the additional \$35 billion spent in 1992.

During this period, both state and local government expenditures have exceeded those at the federal level. Local expenditures have been consistently greater than state expenditures. Federal expenditures have remained fairly static, while state and local expenditures have increased at an annual rate of 3.24 percent and 2.89 percent, respectively.<sup>15</sup>

**Table 2.3**  
**Expenditures after Transfers by Level of Government: 1982-1992**  
**(millions of dollars)**

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
<b>Federal</b>	9,786	8,422	9,613	8,540	8,916	8,413	8,099	8,093	8,305	8,888	9,693
<b>State</b>	23,112	23,404	24,805	27,642	29,412	29,697	30,303	30,522	30,560	31,460	31,795
<b>Local</b>	27,499	28,664	28,678	29,249	30,877	32,139	32,682	32,733	34,028	35,650	36,567
<b>Total</b>	60,397	60,490	63,096	65,431	69,205	70,249	71,084	71,348	72,893	75,998	78,056

Source: Data from USDOT, BTS, *Federal, State and Local Transportation Financial Statistics: Fiscal Years 1982-1992* (Washington, D.C., 1995), p. 17, table 3.

### ***Federal Expenditures***

Federal expenditures, including transfers, totaled more than \$39 billion in 1994, as shown in table 2.4. A vast majority was spent on highways, followed by air and water transportation. Of the total, \$387 million was used to cover administrative and operating costs of several federal transportation-related agencies (categorized as unallocated) and cannot be attributed to a specific mode. There has been an increase in the amount spent on all modes except rail, which has declined considerably since 1980, falling from \$2.1 billion to \$832 million in 1994.<sup>16</sup>

### ***State and Local Expenditures***

As previously stated, state and local governments have outspent the federal government by a notable margin and their share of total transportation expenditures has risen considerably. From 1983 to 1993, their share rose 40 percent compared to a 15-percent increase in that of the federal government. Specifically, state and local expenditures, excluding federal grants, totaled \$64.9 billion in 1993.<sup>17</sup>



**Table 2.4**  
**Federal Expenditures by Mode**  
**(millions of dollars)**

<b>Year</b>	<b>Air</b>	<b>Highway</b>	<b>Transit</b>	<b>Rail</b>	<b>Water</b>	<b>Pipeline</b>	<b>Unallocated</b>	<b>Total</b>
1980	3,762	11,706	3,307	2,107	2,837	3	177	23,899
1985	4,947	15,031	3,427	1,057	3,065	4	182	27,713
1990	7,305	15,452	3,832	534	3,069	9	190	30,391
1991	8,282	15,860	3,917	779	3,355	9	270	32,472
1992	9,313	16,773	3,675	900	3,792	12	289	34,754
1993	10,049	18,081	3,517	814	3,865	14	333	36,673
1994	10,146	20,053	3,770	832	3,863	14	387	39,065

Source: Data from USDOT, BTS, *National Transportation Statistics: 1997* (Washington, D.C., 1997), p. 98, table 2-25.

### **Private-Sector Expenditures**

In addition to the public sector, it is important to recognize the expenditures made by the private sector, particularly in the movement of freight, although it is also involved in the movement of people.

In accordance with typical business practices, the performance of the transportation system is usually measured by the private sector in terms of the total costs of transporting goods, with reduced costs indicating improved performance. For this reason, it is difficult to discern the amount spent on infrastructure by this sector. However, we can still gain an appreciation of their contributions by examining the dollar figures associated with the total logistics costs of the industry.

Total logistics costs, which include inventory carrying costs and transportation costs, were \$797 billion, or 10.5 percent of GDP, in 1996. Total transportation costs accounted for \$455 billion, 80 percent of which involved the trucking industry. The remaining \$342 billion was used to cover inventory carrying costs, which involve costs of storage while at rest or in motion.<sup>18</sup> The BTS points out that “on a typical day in 1993, about 33 million tons of commodities, valued at about \$17 billion, moved an average distance of nearly 300 miles on the U.S. transportation network.”<sup>19</sup>

## **Federal Role in Transportation**

### **General Responsibilities**

The federal government, in addition to its responsibilities for maintaining the national transportation system, exerts a substantial influence on state and local transportation activities. It contributes to the financing of the nation's airport, highway, and urban mass transit systems and funds much of the states' planning activities in these areas. The federal government often bases eligibility for receipt of certain types of federal program funds on the establishment of particular local or state agencies, whereas federal environmental and energy regulations at times have motivated local governments to promote modes that pollute less or are more energy efficient. In addition, federal economic and safety regulatory agencies still regulate important aspects of the operating practices of most modes of transportation.

The federal government also develops or owns and operates most of the nation's airways and waterways and some roads on federal lands. It also owns and operates two airports in Washington, D.C. On the other hand, state and local governments own and operate most highways and most major commercial airports. Railroads and pipelines own their rights-of-way.

The federal government is heavily involved in some rail matters. The National Railroad Passenger Corporation (Amtrak) is directly subsidized by Congress and provides about 90 percent of the nation's intercity passenger rail service. Moreover, the federal government initially organized and financially supported the private Consolidated Railroad Corporation (Conrail), which operated most of the rail freight service in the northeast region of the nation.<sup>20</sup> Conrail was recently jointly purchased by CSX Transportation, Inc. and the Norfolk Southern Corporation.

### **Federal Role by Mode**

The role the federal government plays today in the ownership, operation, and maintenance of various types of transportation facilities differs greatly from one mode to another and is largely a function of the economic forces that brought these facilities into being. For example, seaports and airports have historically been financed by the local authorities that benefit from their commercial activity, and today most ports are owned and operated by local jurisdictions as opposed to federal or state governments.

Early rail infrastructure development was financed by the private sector. However, the federal government did become involved in the efforts to build a transcontinental railroad network in the mid 1800s. Later, the gradual decline of the rail industry prompted government subsidies for both passenger and freight rail. Federal, as well as some state and local, subsidies for passenger rail remain in place today. The rail freight industry no longer receives federal subsidies.

Highways, on the other hand, evolved in a quite different manner, because they were considered public goods. Consequently, the federal government came to be the major financial contributor for the construction and maintenance of the highway network. To finance the initial construction, subsequent maintenance, and operation of the highway network, the federal government established the federal-aid highway program (FAHP).<sup>21</sup>

Financing of the FAHP begins with the passage of authorizing legislation, often titled the Federal-Aid Highway Act of the year in which the bill is signed. These acts date back to the early 1920s. One particular act that deserves special mention is the Federal-Aid Highway Act of 1956. This act initiated the construction of the Dwight D. Eisenhower System of Interstate and Defense Highways (commonly referred to as the Interstate Highway System). It was the largest U.S. public-works program ever undertaken. The act also created the Highway Trust Fund as a means to finance the construction of the interstate system. Since 1978, highway legislation has been included in more comprehensive transportation legislation that covers not only highways, but highway safety and mass transit as well. The most current of these bills was the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, which is discussed in greater detail in a later section.

FAHP funds are administered by the FHWA and the Federal Transit Administration and funneled to the states primarily by formulas for highway projects or by discretionary grants for transit projects. Most federal funds require a state or local match, usually 20 percent of the total project cost.

### **Transportation Regulation**

Transportation was the nation's first industry to be regulated in the 1870s (by states) and, a century later, the first mode to experience significant deregulation. Historically, the regulation of each mode of transportation occurred at different points in time. Federal regulation began with the railroads in 1887, followed by steamship lines in the early 1900s, and then pipelines, motor carriers, and airlines in the 1930s.

Separate independent regulatory commissions, such as the Interstate Commerce Commission (ICC), the Federal Maritime Commission (FMC), and the Civil Aeronautics Board (CAB) were also established under separate acts to regulate each mode. Each commission was charged with the promotion and welfare of their particular mode(s), which put the commissions in competition with one another, rather than working cooperatively so as to achieve an integrated intermodal transit system. Commissions had the power to foster cooperative agreements between modes—they could even suspend anti-trust laws if they found cooperation among carriers to be in the public interest—but they rarely did so.<sup>22</sup>

Additionally, there were legislative prohibitions against the ownership of carriers of one mode by carriers of another. For much of this century, railroads could not own water carriers, freight forwarders could not own direct carriers, and surface carriers could not

own airlines. These prohibitions limited opportunities for developing intermodality through common ownership.

### **National Transportation Policy Statements and Studies**

In 1940, the first move toward intermodalism was reflected in the *National Transportation Policy Statement* issued by Congress. The statement referred to “all modes of transportation,” and “preserving a national transportation system by water, highway, and rail, as well as other means, adequate to meet the needs of the commerce of the United States, of the Postal Service, and of the national defense.”<sup>23</sup> The Congress recognized with this policy statement the need for integrating modes.

A new *National Transportation Policy Statement* was prepared by the USDOT in 1975. Although this policy statement was never adopted by Congress, it recommended less-economic regulation, more equitable administration of governmental subsidies to various modes, and the elimination of barriers to intermodal cooperation.

In 1979, the National Transportation Policy Study Commission issued its report titled *National Transportation Policies Through the Year 2000*. Among the commission’s several recommendations was a call for multimodal systems planning, rather than the single-mode approach, reducing governmental economic regulation, maximizing private-sector involvement and reliance on market forces, conducting economic analysis on governmental policies, and improving intergovernmental cooperation. These recommendations set the stage for deregulation and the growth of intermodalism.<sup>24</sup>

The USDOT submitted the *National Transportation Strategic Planning Study* to Congress in early 1990. The study provided an overview of the nation’s transportation system and identified future investments required to maintain and develop that infrastructure. It forecasted long-term needs and costs for facilities and services that would achieve a national transportation system for moving people and goods in the year 2015. The contents of the study were used in support of the *National Transportation Policy Statement* issued by USDOT in March 1990.<sup>25</sup>

### **Deregulation—Toward Intermodalism**

Beginning in the late 1970s, perceived regulatory failure became the catalyst for regulatory reform. Congress passed several deregulation acts that relaxed market entry and exit, increased freedom to set rates, permitted horizontal and vertical mergers, extended services, and increased competition within and between modes.<sup>26</sup> Some of the more important deregulation acts include:

- the Air-Cargo Deregulation Act of 1977;
- the Airline Deregulation Act of 1978;
- the Motor Carrier Act of 1980;

- the Staggers Rail Act of 1980;
- the Bus Regulatory Reform Act of 1982;
- the Shipping Act of 1984;
- the Freight Forwarder Deregulation Act of 1986; and
- the Interstate Commerce Commission Termination Act of 1995.

The first manifestations of deregulation took place in the air freight industry with the passage of the Air-Cargo Deregulation Act of 1977. Deregulation of the domestic air passenger industry followed, with the signing of the Airline Deregulation Act of 1978. In 1980, the Motor Carrier Act and the Staggers Rail Act provided for significant economic deregulation of trucking and rail industries. The intercity bus industry went through deregulation with the passage of the Bus Regulatory Reform Act of 1982. The Shipping Act of 1984 made it easier for water carriers and terminal operators to engage in collective rate making, confidential contracts with shippers, and cooperative activities. A rewrite of the Shipping Act of 1984, called the Ocean Shipping Reform Act and designed to provide greater flexibility in the U.S. system of international container shipping, was moving through the Congress as of April 1998. The Interstate Commerce Commission Termination Act of 1995 abolished the ICC and most of the vestiges of trucking regulation. In its place, the act created the Surface Transportation Board to rule on proposed rail carrier mergers and administer the market dominance provisions of the Staggers Rail Act.

Deregulation has not been total and varies from one mode to another. However, its net result has been positive for the growth of intermodalism. Liberalization of regulation has enabled an increase in the interaction between modes and allowed reorganization within the modes. Even though the federal government no longer has the economic regulatory role it once did, it is increasingly involved in regulatory measures pertaining to safety, noise, air pollution, economic disruption, and other externalities of the transportation industry. Most of these regulatory responsibilities fall on the U.S. Department of Transportation.

### **U.S. Department of Transportation (USDOT)**

The USDOT, created in 1966, administers federal transportation programs and promotes national policy for the transportation network. Many of the responsibilities held by transportation-related agencies in existence before 1966 are now held by USDOT. The department is primarily organized along modal lines. Currently, the department consists of the Office of the Secretary and ten operating administrations, with highly decentralized authority. Selected offices under the secretary and the ten administrations are highlighted below.<sup>27</sup>

### ***Office of the Secretary***

The office is headed by the secretary of transportation, who is the principal adviser to the president on all transportation-related matters. The deputy secretary of transportation assists the secretary and is charged with the supervision and coordination of department activities. The secretary and deputy secretary formulate policy, allocate resources, coordinate intradepartmental projects, and evaluate programs. Several offices within the Office of the Secretary deserve mention.

ISTEA created the Office of Intermodalism in the Office of the Secretary to provide leadership and coordination in the development of a national intermodal transportation system. The Office of Intermodalism coordinates intermodal transportation policy, develops and manages intermodal data, coordinates intermodal transportation research, and provides planning assistance on intermodal issues.

The Policy and International Affairs Office is responsible for the development, review, and coordination of domestic and international transportation policy under the direction of the assistant secretary for policy and international affairs. Some of the duties of the assistant secretary include overseeing department safety and regulatory actions, developing policies in dealing with foreign governments, and assisting the Agency for International Development on transportation-related matters in developing countries.

The Office of Governmental Affairs maintains effective communication and coordination among the three levels of government and the public in order to incorporate stakeholder needs into the department's decisionmaking process.

### ***Federal Highway Administration (FHWA)***

The FHWA administers the federal-aid highway program, which provides financial assistance to the states for highway construction and improvements. The program provides funding for improvements on the 155,000 miles that make up the National Highway System (NHS). The NHS provides an interconnected system of principal arterial routes that serve major population centers, international border crossings, ports, airports, public transportation facilities, other intermodal transportation facilities, and major travel destinations. The FHWA also manages several safety programs and has regulatory authority over commercial motor carrier safety. Lastly, the administration coordinates research, development, and technology transfer efforts.

### ***Federal Aviation Administration (FAA)***

The FAA regulates air commerce in order to promote its safety and development. It operates several traffic control towers, traffic control centers, and flight service stations. The FAA maintains a national plan of airport requirements, administers a grant program for public-use airports, evaluates environmental impacts of airport development, and administers an airport noise compatibility program.

### ***Federal Railroad Administration (FRA)***

Among other activities, the FRA publicizes and enforces rail-safety regulations, administers financial assistance programs for railroads, performs research and development pertaining to rail safety and national rail transportation policy, and fosters support for the rail transportation system.

### ***National Highway Traffic Safety Administration (NHTSA)***

The NHTSA implements programs concerning the safety of motor vehicles, drivers, occupants, and pedestrians, as well as that of the national speed limit. It also implements programs and conducts studies to reduce the economic losses associated with motor vehicle crashes. In addition, it is involved in the administration of federal odometer law, issuance of theft-prevention standards, and the development of fuel-economy standards for passenger vehicles and light trucks.

### ***Federal Transit Administration (FTA)***

In accordance with its mission, the FTA works toward the advancement of the mass transportation system. It provides grants for mass transportation capital improvements and the operation of the system. It also provides funds for research, development, and demonstration projects geared at improving the performance of both urban and rural area public transportation.

### ***Maritime Administration (MARAD)***

The MARAD manages programs relating to the U.S. Merchant Marine and is responsible for emergency merchant-ship operations. Its Maritime Subsidy Board grants subsidies to liner carriers and establishes subsidy levels for shipping services and routes. It operates the U.S. Merchant Marine Academy and maintains its Ready Reserve Force for national-defense purposes.

### ***St. Lawrence Seaway Development Corporation***

The Saint Lawrence Seaway Development Corporation is responsible for safe, efficient, and effective commerce along the U.S. territory of the St. Lawrence Seaway between the port of Montreal and Lake Erie. It works in cooperation with the Canadian St. Lawrence Seaway Authority. It also collects tolls from users of the seaway.

### ***Research and Special Programs Administration (RSPA)***

The RSPA consists of several offices and centers that conduct research, analyses, and technical development for the department. It has oversight of the University Transportation Centers (UTC) program, the purpose of which is to advance U.S. technology and expertise in the transportation arena through education, research, and technology transfer.

### ***Bureau of Transportation Statistics (BTS)***

Established by ISTEA, BTS is responsible for the compilation, analyses, and dissemination of information on the national transportation system and on intermodal transportation. The bureau is also responsible for ensuring the quality and effectiveness of the department's statistical program.

### ***U.S. Coast Guard (USCG)***

The USCG is the primary maritime law enforcement agency, whose mission is to preserve life and property in and over U.S. navigable waters. To do so, it has a system of rescue vessels, aircraft, and communication facilities. The USCG formulates, administers, and enforces various safety standards for the design, construction, equipment, and maintenance of commercial vessels of the United States and enforces safety standards on foreign vessels subject to U.S. jurisdiction. The USCG is a branch of the U.S. Armed Forces and is a service within USDOT, except when operating as part of the U.S. Navy in time of war.

### **Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991**

Intermodalism was the primary focus of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. Signed by President George Bush on December 18, 1991, the act provided authorizations totaling \$155 billion for six years (FY 1992 through FY 1997) to be spent on the national transportation system. Apart from providing funding, the act also sets the national policy framework for transportation "to develop a National Intermodal Transportation System that is economically sound, provides the foundation for the Nation to compete in the global economy and will move people and in goods in an energy efficient manner."<sup>28</sup> It further states, "The National Intermodal Transportation System shall consist of all forms of transportation in a unified, interconnected manner including the transportation systems of the future, to reduce energy consumption and air pollution while promoting economic development and supporting the nation's pre-eminent position in international commerce."<sup>29</sup>

The act consists of eight titles:

Title I—Surface Transportation;

Title II—Highway Safety;

Title III—Federal Transit Act Amendments of 1991;

Title IV—Motor Carrier Act of 1991;

Title V—Intermodal Transportation;

Title VI—Research;



Title VII—Air Transportation; and

Title VIII—Extension of Highway-Related Taxes and Highway Trust Fund.

Important aspects of ISTEA that are particularly relevant to intermodalism and deserve special mention include the metropolitan and statewide planning requirements and the increase in funding flexibility granted to state and local governments under Title I, as well as the creation of the Office of Intermodalism and the establishment of the National Commission on Intermodal Transportation under Title V.

Title I contains metropolitan and statewide planning provisions that required state and local governments to undertake specific types of planning activities. These planning requirements will be covered in later sections. Greater funding flexibility was also offered to state and local governments under this title of the act. For example, transit capital improvements can be funded under the Surface Transportation Program (STP); transportation planning and research and development can be funded under the National Highway System (NHS) and the STP; and improvements necessary to accommodate other transportation modes were also eligible for funding under the NHS and STP.<sup>30</sup>

The specific purpose of Title V was to promote intermodalism. The Office of Intermodalism, within the Office of the Secretary of Transportation, was created to pursue this task. Functions of this office include maintaining and disseminating intermodal transportation data and coordinating research on the same topic. Along the same lines, the National Commission on Intermodal Transportation, also established under this title, was tasked to study and report back to Congress on the status of various intermodal transportation issues. The commission issued its recommendations in its final report, titled *Toward a National Intermodal Transportation System*.

### **National Commission on Intermodal Transportation**

The National Commission on Intermodal Transportation issued *Toward a National Intermodal Transportation System* as its report to Congress in September 1994. The report contains “recommendations to improve intermodal transportation” and with it the commission sought to “help Congress develop greater understanding of the benefits of intermodalism and assist Congress as it reconsider[ed] the reauthorization of ISTEA.”<sup>31</sup> The two-part report first investigates the issues involved in expanding intermodalism and then presents the commission’s recommendations for advancing said expansion.

In its investigation, the commission found three significant barriers at the federal level to the development of a fully integrated intermodal transportation system. These barriers are listed below.

1. Planning and policies do not encourage and accommodate intermodalism.
2. Funding of transportation programs falls short of authorized levels and is directed modally.

### 3. Institutions are organized along modal lines.<sup>32</sup>

The commission offered a total of 12 recommendations grouped to deal with each of three significant barriers. The three sets of recommendations, in summary, are (1) to make efficient intermodal transportation the goal of federal transportation policy, (2) to increase investment in intermodal transportation, and (3) to restructure government institutions to support intermodal transportation.<sup>33</sup> Recommendations within the first set are geared at improving the links among all the individual modes to create a unified system. The second set deals with the need for increased investments and funding flexibility to allow for more intermodal projects. The last set calls for the restructuring of governmental institutions, the USDOT in particular, in order to best promote intermodalism.<sup>34</sup>

While the federal government has adopted a policy to “encourage and promote development of a national intermodal transportation system,” federal funding categories do not yet fully support intermodalism as these continue to be along modal lines.<sup>35</sup> USDOT remains organized along similar lines, although it has recognized the merit of integrating the various modal administrations. The department has stated that in the future it will become a redesigned and less-bureaucratic organization.<sup>36</sup>

### **Principles of Federal Infrastructure Investment**

The Principles of Federal Infrastructure Investment, Executive Order 12893 of January 26, 1996, established measures for the effective use of funds provided under ISTEA. The executive order required federal agencies with infrastructure responsibilities to develop and implement infrastructure investment and management plans. It called for systematic life-cycle analysis of expected benefits and costs, both quantitative and qualitative, of infrastructure investments. It required agencies to conduct periodic reviews of the operation and maintenance of transportation facilities and use the findings to improve management. Agencies were asked to seek private-sector participation in infrastructure investment and management. They were also called on to work with other entities to minimize legal and regulatory barriers to such private-sector participation. Finally, it requested that agencies encourage recipients of federal funds to implement planning and information systems to support the development of infrastructure investment and management plans at the federal level.

Plans were to be submitted to the Office of Management and Budget (OMB) by March 15, 1994. According to USDOT, all required agencies did submit a plan to OMB in 1994. At USDOT, the principles influenced the revision of the joint FTA and FHWA planning requirements, as well as the standards used in determining transportation needs at the federal level. Partially in response to this executive order, the use of cost-benefit analysis techniques received more emphasis in both of these instances.<sup>37</sup>

### **National Freight Transportation Policy**

Intermodalism was most recently reemphasized in the “National Freight Transportation Policy” statement issued by USDOT on January 6, 1997. The statement reads in part,

“Highways, airports, rail facilities, ports, pipelines, waterways, intermodal transportation, and the freight carriers and shippers all play a vital role in the Nation’s economic health. The integrated nature of the Nation’s transportation facilities and operations is an important feature that must be accounted for in the establishment of principles and actions that are directed at improving freight transportation.”<sup>38</sup> The policy consists of the following eight principles that are aimed precisely at improving freight transportation:

1. provide funding and a planning framework that establishes priorities for allocation of federal resources to cost-effective infrastructure investments that support broad national goals;
2. promote economic growth by removing unwise or unnecessary regulation and through the efficient pricing of publicly financed transportation infrastructure;
3. ensure a safe transportation system;
4. protect the environment and conserve energy;
5. use advances in transportation technology to promote transportation efficiency, safety, and speed;
6. effectively meet our defense and emergency transportation requirements;
7. facilitate international trade and commerce; and
8. promote effective and equitable joint utilization of transportation infrastructure for freight and passenger service.<sup>39</sup>

These principles reflect USDOT’s intent “to ensure the nation has a safe, reliable, efficient freight transportation system that supports economic growth and international competitiveness both now and in the future, while protecting and contributing to a healthy and secure environment.”<sup>40</sup> They reiterate many of the same issues found in ISTEA, such as funding, use of advanced technology, and trade. Additionally, they continue the economic deregulation of previous years, while preserving the social regulatory responsibilities of the federal government.

According to USDOT, there has been no explicit effort to measure the effectiveness of this policy. However, it stressed that the policy is meant to provide general guidance for the department and its administrations, when dealing with others on freight transportation matters.<sup>41</sup>

### **Reauthorization of ISTEA and Its Implications**

With the expiration of ISTEA at the end of FY 1997, Congress considered several multiyear reauthorization bills during the 1997 session. However, a compromise could not be reached on any of the proposed long-term bills, and, instead, stop-gap legislation—the Surface Transportation Extension Act of 1997—was passed by both the Senate and the

House of Representatives in mid-November. This six-month bill will provide \$11.9 billion for the continuation of ISTEA.<sup>42</sup> As of April 1998, Congress was still considering long-term authorization legislation.

The implications of the interim bill are minimal as it does not make any significant changes to ISTEA. The implications of a multiyear bill are uncertain at this time. The major obstacles to the passage of such a bill during 1997 revolved around funding equity among the states and the restructuring of highway and transit funding formulas.

## **State Role in Transportation**

### **General Responsibilities**

State governments formulate state transportation policies, undertake transportation planning and programming activities, finance and construct transportation infrastructure, and regulate the environmental, safety, and economic effects of transportation facilities. State transportation policies are developed by the governor through the state transportation agency and state legislators, who appropriate the funds to implement those policies.<sup>43</sup> States tend to focus on functions that directly meet their specific transportation needs, but they also undertake projects based on the amount of available federal funding.

A primary role of the state is the funding of transportation projects, which requires considerable intergovernmental cooperation. States may fund entire projects, as in the case of state highways, or they may provide financial assistance to local governments, often by matching federal funds. States also regulate various aspects of transportation activities through their agencies and commissions.

### **State Departments of Transportation**

Forty-seven states and Puerto Rico have established departments of transportation. Kentucky, Massachusetts, Nebraska, and Washington, D.C., have yet to establish a department of transportation. Instead, Kentucky has a Transportation Cabinet; Massachusetts has a Highway Department; Nebraska has a Department of Roads; and Washington, D.C., has a Department of Public Works.<sup>44</sup> Additionally, the states have established associations of both their highway safety representatives and motor vehicle administrators for monitoring and influencing federal highway policymaking.<sup>45</sup>

### **Statewide Transportation Planning Requirements**

Title I of ISTEA required states to develop and implement a statewide planning process for all areas of the state and all modes of transportation. In doing so, states must consider the 23 planning factors outlined in the act. The act mandated states to develop two products through the statewide planning process—a Statewide Transportation Plan and a Statewide Transportation Improvement Program (STIP). Coordination among transportation agencies and public involvement are important aspects of the statewide planning process that are required in the development of all plans and programs. To

implement these provisions, the FHWA and FTA issued joint regulations for statewide and metropolitan planning on October 28, 1993.

The Statewide Transportation Plan is intended to present a long-term vision of the state's transportation system. According to federal regulations, the statewide transportation plan, among other things, should

1. be intermodal and statewide in scope,
2. cover a period of at least 20 years,
3. coordinate with the metropolitan transportation plans, and
4. provide information on the resources needed to carry out the plan.<sup>46</sup>

The STIP is a list of projects that are planned for the state using FHWA or FTA funds. In accordance to the regulations, the STIP should (1) contain a list of prioritized transportation projects for the first three years of the program, (2) cover a period of no less than three years, (3) contain only those projects that are consistent with the statewide plan, and (4) be fiscally constrained.<sup>47</sup>

## **Local Role in Transportation**

### **General Responsibilities**

A variety of local governmental entities also participate in transportation service. Cities generally provide multimodal transportation services, such as parking, transit, and streets. Counties are involved primarily in highway projects. However, both cities and counties may operate airports, while city, county, and state authorities generally administer public ports and develop transfer facilities for handling cargo.

### **Cities**

Cities provide a wide variety of transportation services—such as city street construction and maintenance, parking facilities, and air, water, and public transportation—financed through general revenues and user fees. Cities also provide matching funds for state or federal projects within their city limits, usually 10 or 20 percent of the total project cost. Other costs related to these projects, such as right-of-way and utility relocation, are usually fully funded by the city. The degree to which cities undertake transportation planning activities varies according to its size and population, with larger cities playing a more active role.<sup>48</sup>

### **Counties**

Rural and urban counties are involved primarily in highway projects, with special districts or cities providing other transportation services. The size and population of the county

determine the type and extent of the transportation services it provides. Urban counties are more likely to plan and organize their own transportation systems and even have departments of transportation, whereas rural counties mostly undertake highway projects. Like cities, counties provide matching funds for state or federal projects within their boundaries while fully funding other project-related expenses.<sup>49</sup>

### **Special Districts**

Special districts provide a particular service that is not being provided by any other level of government, such as public transit. These districts are usually administered by an appointed or elected board of directors and may have taxing powers. However, these bodies typically depend on user fees as their primary sources of revenue. Port authorities are an example of a special district that may provide multimodal transportation services. One such special district is the Houston-Galveston Port Authority, which provides waterway, rail, and highway facilities for freight.<sup>50</sup>

### **Regional Bodies**

Regional organizations are increasingly involved in transportation planning and in the implementation of transportation projects. These organizations conduct planning in coordination or cooperation with local governments but usually have no implementation power. Three types of regional transportation planning organizations are regional planning commissions or agencies (RPCs or RPAs), councils of government (COGs), and metropolitan planning organizations (MPOs). Both RPCs and COGs were established by the Housing Act of 1954 and expanded their activities in the late 1960s. They perform comprehensive regional land-use and transportation planning. MPOs resulted from the Federal-Aid Highway Act of 1962 and were further defined by the 1973 Highway Act.<sup>51</sup> MPOs have received greater planning responsibilities in recent years and warrant further mention.

As stated by the U.S. General Accounting Office, “an MPO is best viewed as a consortium of governments and other bodies—such as transit agencies and citizens groups—that join together for cooperative transportation planning.”<sup>52</sup> Apart from their staff, MPOs usually consist of a policy board and a technical committee. In urbanized areas, MPOs are charged with establishing a “continuing, cooperative, and comprehensive transportation planning process that results in plans and programs that consider all transportation modes and supports metropolitan community development and social goals.”<sup>53</sup> It is known as the 3-C planning process and constitutes the MPO’s general mandate under ISTEA.

### **Local Transportation Planning Requirements under ISTEA**

ISTEA requires MPOs to develop, in cooperation with the state and affected transit operators, a unified planning work program (UPWP), a long-range metropolitan transportation plan (MTP), and a transportation improvement program (TIP) for the area. The end result of these plans and programs is the “development and operation of an

integrated, intermodal transportation system that facilitates efficient and economic movement of people and goods.”<sup>54</sup>

In transportation management areas (TMAs), which are urbanized areas with populations of more than 200,000 (as determined by the latest decennial census), the designated MPO is required to develop a UPWP in cooperation with the state and local transit operators. This program is basically a document in which the MPO describes how it is going to spend federal planning funds, often referred to as PL funds, during the next one- or two-year period. In non-TMAs, the MPO can prepare a simplified statement of work instead of a UPWP.<sup>55</sup>

The MTP is a long-range plan covering at least a 20-year planning horizon. It should include short-term and long-term strategies and actions that will result in the development of an integrated and efficient intermodal transportation system. Areas not meeting federal air-quality standards are required to review and update the plan every three years, whereas other areas must do this every five years. The MTP should address important transportation issues, such as congestion, air-quality concerns, land use, and transportation-system preservation.<sup>56</sup>

The TIP is a short-term (no less than three years) list of transportation projects that receive federal funding or have regional significance regardless of funding. These projects must be consistent with the long-range MTP. The TIP is financially constrained by year in that all the projects listed must be covered by anticipated available funding. The plan must be adopted by the MPO and the state’s governor and, in some cases, by various federal agencies. Upon receiving final approval, it is included without modification in the STIP.<sup>57</sup>

Another important metropolitan transportation planning requirement is the major investment study (MIS). Metropolitan areas undertake an MIS for all identified major metropolitan transportation investments that might be financed with federal funds.<sup>58</sup> The MPO usually leads the study and works in cooperation with all the appropriate agencies. A major investment is a highway or transit project of substantial cost that is expected to have a significant mobility impact within the metropolitan area. Deciding which projects constitute a major investment is often a collaborative process.<sup>59</sup> MISs should “evaluate the effectiveness and cost-effectiveness of alternative investments or strategies in attaining local, state and national goals and objectives.”<sup>60</sup> Ultimately, MISs are decisionmaking tools designed to provide information on which better transportation investment decisions can be made.

## Notes

<sup>1</sup> U.S. Department of Transportation (USDOT), Bureau of Transportation Statistics (BTS), *Transportation in the United States: A Review* (Washington, D.C., 1997), p. 1.

<sup>2</sup> Ibid.

<sup>3</sup> Ibid., p. 14.

<sup>4</sup> Congress of the United States, Committee on Transportation and Infrastructure, Fact Sheet on the Transportation Trust Funds (Washington, D.C., February 8, 1995), p. 1.

<sup>5</sup> USDOT, Federal Highway Administration (FHWA), *Financing Federal-Aid Highways* (Washington, D.C., 1992), pp. 27-28.

<sup>6</sup> Ibid., p. 29.

<sup>7</sup> USDOT, BTS, *Federal, State and Local Transportation Financial Statistics: Fiscal Years 1982-1992* (Washington, D.C., 1995), p. 6.

<sup>8</sup> Congress of the United States, Fact Sheet on the Transportation Trust Funds, p. 1.

<sup>9</sup> Ibid.

<sup>10</sup> Tim Sansbury and Gregory S. Johnson, "Harbor tax unconstitutional: Supreme Court ruling ends 11-year battle," *Journal of Commerce* (April 1, 1998), p. 1A.

<sup>11</sup> Ibid.

<sup>12</sup> Ibid.

<sup>13</sup> USDOT, BTS, *Federal, State and Local Transportation Financial Statistics*, p. 6.

<sup>14</sup> Ibid., p. 17, table 3.

<sup>15</sup> Ibid., p. 21.

<sup>16</sup> USDOT, BTS, *National Transportation Statistics: 1997* (Washington, D.C., 1997), p. 98, table 2.25.



<sup>17</sup> Ibid., p. 99.

<sup>18</sup> Robert V. Delaney, *8th Annual "State of Logistics Report: " Improving Productivity, Competitive Positioning, and the Outlook for NAFTA Growth* (Washington, D.C.: National Press Club, 1997), p. 4.

<sup>19</sup> USDOT, BTS, *National Transportation Statistics Annual Report 1997: Mobility and Access* (Washington, D.C., 1997), p. 193.

<sup>20</sup> Lyndon B. Johnson (LBJ) School of Public Affairs, *State Multimodal and Intermodal Transportation: An Overview of Policies and Programs Promoting Economic Growth*, Policy Research Project Report Series, no. 90 (Austin, Tex., 1989), p. 9.

<sup>21</sup> Transportation Research Board (TRB), *National Conference on Setting an Intermodal Transportation Research Framework: Conference Proceedings* (Washington, D.C.: National Academy Press, 1997), p. 42.

<sup>22</sup> Gerhardt Muller, *Intermodal Freight Transportation*, 3rd ed. (Lansdowne, Va.: Eno Transportation Foundation and Intermodal Association of North America, 1995), p. 25.

<sup>23</sup> Ibid., p. 26.

<sup>24</sup> Ibid., p. 27.

<sup>25</sup> USDOT, *National Transportation Strategic Planning Study* (Washington, D.C., 1990), preface.

<sup>26</sup> TRB, *National Conference on Setting an Intermodal Transportation Research Framework*, p. 44.

<sup>27</sup> Except where otherwise noted, the information was obtained from the Eno Transportation Foundation's *National Transportation Organizations*, 1994 edition. A wealth of additional information is also available on USDOT's web site, available from: <http://www.dot.gov>.

<sup>28</sup> USDOT, *Intermodal Surface Transportation Efficiency Act of 1991: A Summary* (Washington, D.C., 1992), p. 1 (Pamphlet).

<sup>29</sup> Muller, *Intermodal Freight Transportation*, p. 240.

<sup>30</sup> Ibid., p. 14.

<sup>31</sup> Letter from Robert D. Krebs, Chairman, National Commission on Intermodal Transportation, to Albert

Gore, President, United States Senate, and Thomas S. Foley, Speaker, United States House of Representatives, September 29, 1994.

<sup>32</sup> National Commission on Intermodal Transportation (NCIT), *Toward a National Intermodal Transportation System*, final report to Congress (Washington, D.C., September 1994), p. 3.

<sup>33</sup> *Ibid.*, p. 25.

<sup>34</sup> *Ibid.*, pp. 24-25.

<sup>35</sup> USDOT, *Strategic Plan 1997-2002* (Washington, D.C., 1997), Appendix A, p. 1.

<sup>36</sup> *Ibid.*, p. 4.

<sup>37</sup> Telephone interview by Mayela Sosa with Gary Andrews, Program Analyst, Office of Budget and Program Performance, Office of the Secretary, USDOT, Washington, D.C., March 3, 1998.

<sup>38</sup> USDOT, "National Freight Transportation Policy," *Federal Register*, vol. 62, no. 3 (January 6, 1997), p. 786.

<sup>39</sup> *Ibid.*, p. 787.

<sup>40</sup> *Ibid.*, p. 786.

<sup>41</sup> Telephone interview by Mayela Sosa with Carl Swerdloff, Chief, Economic Studies Division, USDOT, Washington, D.C., March 3, 1998.

<sup>42</sup> USDOT, "Statement by Transportation Secretary Slater on a Compromise Agreement to Extend Surface Transportation Programs," press release, Washington, D.C., November 13, 1997, p. 1.

<sup>43</sup> LBJ School of Public Affairs, *State Multimodal and Intermodal Transportation*, p. 14.

<sup>44</sup> American Association of State Highway Officials (AASHTO), "American Association of State Highway Officials," AASHTO web site [cited April 16, 1998], available from: [http://www.aashto.org/info/a\\_info.html](http://www.aashto.org/info/a_info.html); INTERNET.

<sup>45</sup> Eno Transportation Foundation, *National Transportation Organizations*, 1994 edition, p. 10.

<sup>46</sup> Title 23 Code of Federal Regulations (CFR) chapter 450, section 214.

<sup>47</sup> Title 23 CFR chapter 450, section 216.

<sup>48</sup> Interview by Mayela Sosa with Dale Spitz, Transportation Planner, Metropolitan Planning Branch, Transportation Planning and Programming Division, Texas Department of Transportation (TxDOT), Austin, Texas, April 16, 1998.

<sup>49</sup> Ibid.

<sup>50</sup> Ibid.

<sup>51</sup> "Transportation Planning," in *The Practice of Local Government Planning*, 2nd ed. Judith Getzels and Frank S. So (Washington, D.C., 1988), p. 148.

<sup>52</sup> U.S. General Accounting Office, *Urban Transportation: Metropolitan Planning Organizations' Efforts to Meet Federal Planning Requirements*, report to congressional requesters (Washington, D.C., September 1996), p. 10.

<sup>53</sup> Title 23 CFR chapter 450, section 300.

<sup>54</sup> Ibid.

<sup>55</sup> Title 23 CFR chapter 450, section 314.

<sup>56</sup> Title 23 CFR chapter 450, section 322.

<sup>57</sup> Title 23 CFR chapter 450, section 324.

<sup>58</sup> Title 23 CFR chapter 450, section 318.

<sup>59</sup> TxDOT, *The Texas MIS Process Guidelines* (College Station, Tex., January 1997), p. 10.

<sup>60</sup> Title 23 CFR chapter 450, section 318.



## **Chapter 3. Florida**

### **Overview**

Florida is the fourth most populous state in the nation, with an estimated population of 14,411,563 in 1996.<sup>1</sup> The state has the tenth highest population density of 258.4 people per square mile.<sup>2</sup> The major metropolitan areas are Jacksonville, Miami, Fort Lauderdale, Orlando, Tampa, and St. Petersburg.<sup>3</sup> The state's population is projected to grow to 20 million in the next 20 years.<sup>4</sup>

Florida, a peninsula jutting southward 500 miles between the Atlantic Ocean and the Gulf of Mexico, ranks 22nd in the nation in total area with 58,664 square miles. Its topography consists of flat or rolling land.<sup>5</sup>

The principal industries of the Florida economy include international trade, agriculture, government, light manufacturing, and tourism. Chief agricultural crops of the state are citrus fruits, vegetables, potatoes, melons, strawberries, and sugarcane. Its primary manufactured goods include electronic equipment, transportation equipment, food, printing and publishing, and machinery.<sup>6</sup> Additionally, tourism and international trade account for roughly one-third of Florida's economy.<sup>7</sup>

### **Transportation Infrastructure**

Florida has a multimodal transportation network that includes

- 4,171 miles of interstate highways, 12,000 miles of state highways, and 100,000 miles of local roads (1995);
- rail passenger service in north, central, and southeast Florida;
- commuter rail in southeast Florida;
- 18 local and regional transit systems operating 10,000 route miles (1995);
- 19 commercial airports (1996);
- 60 publicly owned general aviation airports (1996);<sup>8</sup>
- 14 deepwater seaports (1995);
- 48 specialized systems serving the transportation disadvantaged (1995);
- 36 Amtrak stations (1995);

- ten rail-highway intermodal terminals (1995);
- 39 bulk cargo-transfer facilities (1995);<sup>9</sup> and
- 2,988 miles of rail and 14 rail carriers, including three Class I carriers, Burlington Northern Santa Fe Railway Company, CSX Transportation, Inc., and Norfolk Southern Corporation (1996).<sup>10</sup>

## State Issues, Policies, and Goals

Primary issues that affect transportation in Florida are international trade, tourism, population growth, land-use patterns, demographics, and the environment. The state identifies four tools for dealing with these issues: integrated planning, mobility, transportation-systems maintenance, and adequate transportation funding.<sup>11</sup>

International trade and tourism generate roughly one-third of Florida's economic activity, with trade accounting for 16 percent and tourism representing 17 percent of the economy in 1995. International trade grew by 70 percent in Florida between 1987 and 1992.<sup>12</sup> Approximately \$56 billion of international trade flowed through Florida in 1996, with seaports handling \$31.9 billion.<sup>13</sup> Additionally, 40 million people, approximately three times the state's population, visit Florida each year, with half arriving by automobile and half by air.<sup>14</sup> Florida's Port of Miami is the world's busiest cruise port, serving 2.9 million passengers in 1994.<sup>15</sup> Florida recognizes that the strengths of these industries are highly dependent on the state's transportation infrastructure, and interconnectivity of modes is of utmost importance. For Florida's ports to be competitive with other East Coast ports, freight must move efficiently from dock-to-rail-to-truck and on to its final destination. Tourists require hassle-free connections from airports to cruise ports or other vacation spots.

Florida manifested its commitment to control growth in the state with the enactment of the 1985 State Comprehensive Plan and Growth Management Act. Despite the measure, Florida's transportation system faces significant challenges because of the state's population growth patterns. Florida's population has doubled since 1970. Lifestyle changes have resulted in decreasing household sizes and increasing numbers of licensed drivers and vehicles per household. Florida has the nation's highest ratio of licensed drivers per resident. While 85 percent of residents live in urban areas, only about half live in the primary municipality, with the other half residing in suburbs. During the 1980s, 17 of Florida's 25 metropolitan areas experienced much higher growth in their suburbs than in central cities. These growth patterns lead to increased automobile usage and subsequent traffic congestion. Florida views transportation as a tool to manage growth and requires integrated land-use and transportation planning.<sup>16</sup>

Florida is unique among U.S. states in its high percentage of elderly and disabled residents. Eighteen percent of its residents are 65 or older, compared to a national average of 12 percent; and there are an estimated two million Floridians with disabilities. These

residents have special needs, including more legible signs and instrument panels and more choices for personal mobility.<sup>17</sup>

Floridians view the environment as an important part of their quality of life. However, rapid growth patterns are creating pressure on the habitats of endangered species, wetlands, and water supply. Florida believes that integrated, flexible, and coordinated land-use and transportation planning are vital to protect the state's ecosystem. Similarly, six of Florida's urbanized counties were designated as nonattainment areas under the federal Clean Air Act Amendments of 1990. The state aims to reduce vehicle emissions and maintain air-quality standards by "encouraging more efficient use of land resources, improving mobility and providing alternative transportation facilities and services."<sup>18</sup>

Integrated planning and increased mobility are important goals for the state, as indicated in this section. Integrated planning refers to Florida's mandate that all land, water, and transportation plans be compatible and comply with the State Comprehensive Plan. There is also a strong commitment to integrated planning among state, regional, and local levels of government and private interests. Mobility refers to providing travel choices besides the automobile, such as transportation by bus, bicycle, paratransit, rail, and foot. The challenges to improved mobility are efficient connections and widespread availability.<sup>19</sup>

Transportation-systems maintenance and secure funding are staples of the transportation industry that Florida takes very seriously. The state recognizes that its first step in meeting its transportation needs is to preserve the investments already made in infrastructure by improving the performance of facilities and extending their useful lives. Although funding for transportation has increased significantly beginning in 1990 because of greater state transportation revenues and Intermodal Surface Transportation Efficiency Act (ISTEA) appropriations, estimated long-term needs far exceed expected revenues. In addition, future levels of funding are uncertain as motor fuel taxes are used for federal deficit reduction, and the increasing use of alternative fuels and more fuel efficient vehicles are shrinking the pool of available funds. Florida believes that creative funding mechanisms, careful planning, effective management, and innovative approaches are essential to stretch the transportation dollar further.<sup>20</sup>

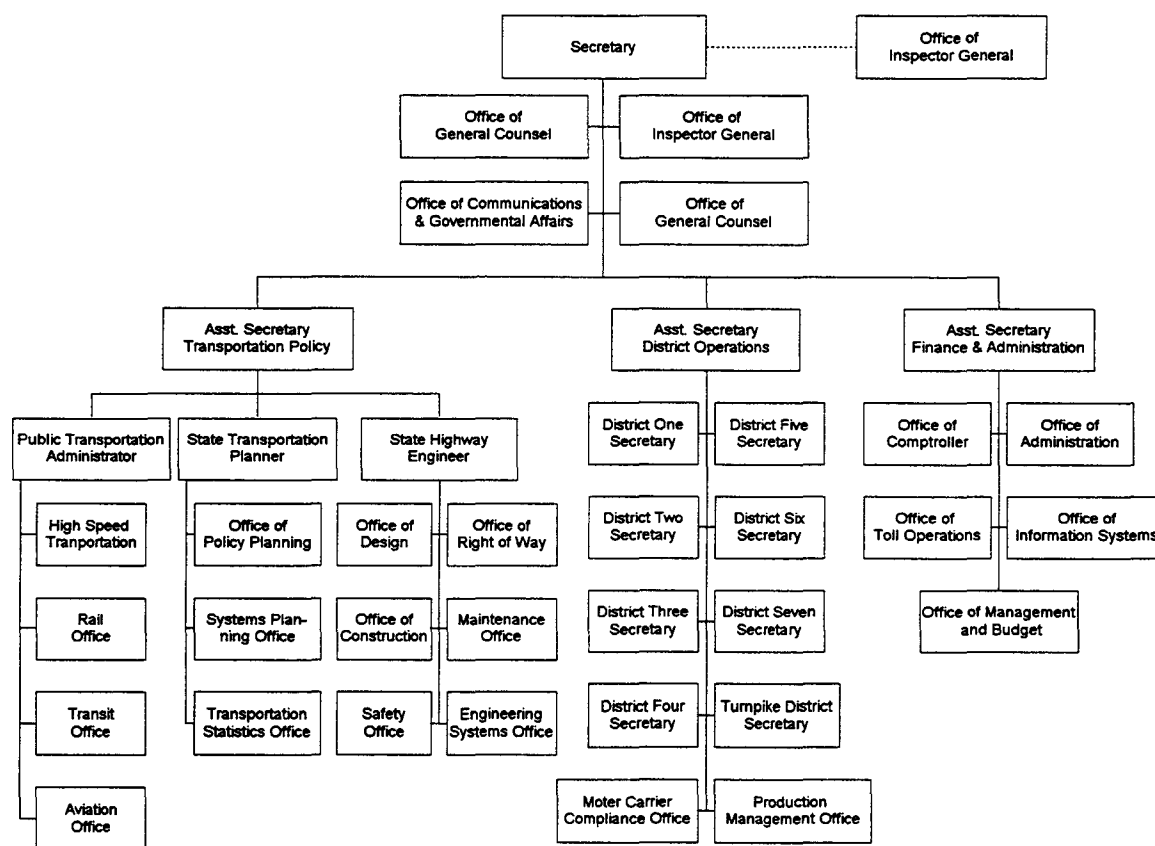
## **State Agencies Involved in Transportation**

The Florida Department of Transportation (FDOT) is the primary agency involved in transportation planning and funding at the state level. The Florida Department of Community Affairs (FDCA) is another state agency that influences transportation planning and initiatives. Several public and private groups, such as the Enterprise Florida Corporation and the Florida Ports Council also influence transportation decisionmaking in the state.

## Florida Department of Transportation

FDOT has primary responsibility for developing the state's transportation network in compliance with the State Comprehensive Plan. The network includes highways, roads, bridges, aviation, transit, passenger and freight rail, and deepwater ports.<sup>21</sup> The agency is also in charge of transportation safety programs, motor carrier compliance, toll operations oversight, and the generation of transportation statistics.<sup>22</sup> FDOT's mission is "to provide a safe, interconnected statewide transportation system for Florida's citizens and visitors that ensures the mobility of people and goods, while enhancing economic prosperity and sustaining the quality of the environment."<sup>23</sup>

**Figure 3.1**  
**Organizational Structure**  
**Florida Department of Transportation**



Source: Adapted from Florida Department of Transportation (FDOT), FDOT Organizational Chart, Tallahassee, Fla., May 19, 1997.



FDOT has 10,425 employees and an annual budget of \$3.5 billion (1997-98 legislative year).<sup>24</sup> The agency is led by the secretary of transportation, who is appointed by and reports to the governor. The secretary oversees the Office of General Counsel, the Office of Inspector General, the Office of Communications and Governmental Affairs, and the Quality Management Office, as well as supervising three assistant secretaries for transportation policy, district operations, and finance and administration (see figure 3.1).<sup>25</sup>

FDOT considers itself a decentralized agency, with eight district offices (seven regional and one turnpike office) under the jurisdiction of the assistant secretary of district operations. While the Central Office in Tallahassee is responsible for policy, procedure and quality assurance, the eight district offices actually build and maintain facilities. This process allows local governments and planning organizations direct input into agency operations.<sup>26</sup>

Transportation planning and policy for the state as a whole and each mode fall under the jurisdiction of the assistant secretary for transportation policy, who manages the state transportation planner, the state public transportation administrator, and the state highway engineer.<sup>27</sup> The Office of Policy Planning, under the state transportation planner, establishes goals and direction for the entire agency through its planning process. The Office of Policy Planning produces and periodically updates agency long- and short-term plans and evaluation reports. Other important functions of the office include ensuring consistency of all transportation planning documents for the state; assessing trends, conditions, problems, and opportunities; performing economic analyses; and updating performance-monitoring data.<sup>28</sup> The Systems Planning Office, primarily involved in highway-system planning, and the Transportation Statistics Office are also responsibilities of the state transportation planner. Planning and coordination for all modes except highway is the duty of the state public transportation administrator, who oversees the Rail Office, the Transit Office, the Aviation Office, and the High Speed Rail Transportation Program. The Rail Office, staffed by four persons, is the primary entity involved in freight transportation and also oversees port and intermodal activities.<sup>29</sup>

The Florida Transportation Commission was created by the 1987 Florida Legislature to serve as a citizens' oversight board for FDOT. The commission recommends major transportation policy to the governor and legislature and serves as a nominating committee in the selection of the secretary of transportation. Its oversight duties for FDOT include assessing performance, monitoring financial status, and reviewing work programs, budget requests, and long-range plans. Composed of nine commissioners appointed by the governor and confirmed by the Florida Senate for four-year terms, the commission meets monthly. Its members are legally required to "equitably represent all geographic areas." Typically, members are selected from each of the FDOT districts with two at-large members, each of whom has either rail or port expertise.<sup>30</sup>

### **Florida Department of Community Affairs**

The FDCA coordinates growth management and sustainable community development. Primary issues of concern to the FDCA are natural resource and energy conservation,

development of affordable housing, community development, and emergency preparedness. The department accomplishes its goals by working closely with its many partners including FDOT.<sup>31</sup> The FDCA has a staff of 510 and a FY 1997-98 operating budget of \$754.7 million, of which 2.67 percent comes from state general revenues, 31 percent from various state trust funds, and 66.33 percent from federal trust funds.<sup>32</sup>

The secretary of community affairs is appointed by the governor to lead the FDCA. The FDCA is organized into three divisions that report to the secretary. They are the Division of Emergency Management, the Division of Housing and Community Development, and the Division of Resource Planning and Management. Two special programs are also run by the FDCA, the Florida Coastal Management Program and the Florida Communities Trust.<sup>33</sup>

Within the Division of Resource Planning and Management is the four-member Transportation Planning Group, which performs a number of transportation-related activities. The Transportation Planning Group's responsibilities include reviewing metropolitan planning organizations' (MPOs') five-year transportation improvement plans, FDOT's five-year work programs, and other transportation plans, projects, and proposals to determine consistency with adopted local comprehensive plans. The group also conducts transportation research, provides training and technical assistance to local governments, and assists in the review of local plan amendments involving transportation issues. Though located within the FDCA, the Transportation Planning Group receives its funds from the transportation trust fund to cover its staffing and administrative needs.<sup>34</sup> In addition to the Transportation Planning Group's involvement in transportation issues, the secretary of community affairs serves on the Florida Seaport Transportation and Economic Development Council.

## **Other Entities Involved in Transportation**

### ***Florida Seaport Transportation and Economic Development Council***

The Florida Seaport Transportation and Economic Development (FSTED) Council was formed in 1990, pursuant to chapter 311 of the Florida Statutes, to oversee several services and programs involving ports.<sup>35</sup> The FSTED Council is a 17-member council comprising the directors of Florida's 14 deepwater public ports as voting members and the state secretary of transportation, secretary of community affairs, and a representative of the Governor's Office of Tourism, Trade, and Economic Development as nonvoting members. The council is charged with producing the Florida Seaport Mission Plan, which includes annual five-year work plans for Florida's ports; reviewing annual project requests with individual port's master plans to ensure compliance with local and state comprehensive plans and environmental legislation; and distributing state funding through the FSTED Program. The FSTED Council receives no state funding for these administrative services. All FSTED money goes directly to on-port projects. Therefore, the FSTED Council relies on another organization, the Florida Ports Council, to provide staffing and administrative services.<sup>36</sup>

### ***Florida Ports Council***

The Florida Ports Council (FPC) is a strong trade association for Florida's ports. Like the FSTED Council, the FPC is composed of the directors of Florida's 14 public deepwater ports. Staff members for the organization consist of a president, vice-president, a secretary, legal counsel, and an intern. Offices are located in both Miami and Tallahassee. Funding for the FPC comes from dues paid by each of the member ports.<sup>37</sup>

The FPC works with consultants, who provide services in four areas: environmental and growth management evaluation, planning, seaport training and employment, and legislative lobbying. Environmental and growth management evaluation and planning are both state-mandated responsibilities of the FSTED Council, which are carried out by the FPC staff.<sup>38</sup> The FPC has been a powerful lobbying group in the state for many years. In 1990, it was the primary agent behind the legislature's passage of statutes that initiated the FSTED Program. Since then, the FPC lobby has succeeded in increasing state funding for the FSTED Program from \$10 to \$25 million and passing legislation allowing part of that funding to be bonded.<sup>39</sup>

### ***Florida Airport Managers Association***

Since 1970, the Florida Airport Managers Association (FAMA) has represented the interests of Florida's airports before state agencies and committees. FAMA comprises members from 81 of Florida's 103 publicly owned and operated airports and approximately 100 members from corporations that provide airport products or services. An elected board of directors, including the president, vice-president, secretary/treasurer, immediate past president, and seven members of the board, lead the organization. Members of the board must be executive-level airport managers and are elected by nomination at the annual meetings to serve three-year terms. Two full-time staff members, the executive vice-president and the director of operations, handle daily activities. FAMA meetings are held twice per year.

FAMA's purpose is to establish positions on legislative policies that affect airports and to represent their positions in front of state agencies and legislative committees. They have been especially successful at lobbying for land-use and zoning regulation around airports. Much of FAMA's work takes place within its 18 committees. One committee of note is the Intermodal Liaison Committee, which was established in 1997 to work on intermodal access issues. Currently, the committee is working with the high-speed rail project to provide airport connection and planning for the Miami Intermodal Center (discussed later).<sup>40</sup>

## **Transportation Plans and Reports**

### **Statewide Plans**

#### ***The State Comprehensive Plan***

The State Comprehensive Plan is the master of all planning documents. It is written into the state statutes in accordance with the 1985 State Comprehensive Plan and Growth Management Act to simultaneously address the factors that affect and control population growth around the state. All other plans in the state, most notably transportation, land, and water, must support and comply with this document.<sup>41</sup>

The State Comprehensive Plan is very amenable to intermodal and multimodal transportation. Its stated goal for transportation is that “Florida shall direct future transportation improvements to aid in the management of growth and shall have a state transportation system that integrates highway, air, mass transit, and other transportation modes.” A number of the specified transportation policies are intermodal in nature; the most important provisions are to

- coordinate transportation investments in major travel corridors to enhance system efficiency and minimize adverse environmental impacts;
- ensure that existing port facilities and airports are being used to the maximum extent possible before encouraging the expansion or development of new port facilities and airports to support economic growth;
- ensure that the transportation system provides Florida’s citizens and visitors with timely and efficient access to services, jobs, markets, and attractions; and
- promote effective coordination among various modes of transportation in urban areas to assist urban development and redevelopment efforts.<sup>42</sup>

The 1985 State Comprehensive Plan and Growth Management Act also requires local governments to develop comprehensive plans for their areas. FDOT is required to incorporate the local governments’ strategic plans into their agency work programs, requiring coordination between FDOT and the local governments.

#### ***Agency Long- and Short-Term Plans***

The state legislature requires that all state agencies produce long-term and short-term plans. FDOT’s long-term *2020 Florida Transportation Plan* is intended to address the transportation needs of the state over the 25-year period from 1995 to 2020. It defines FDOT’s mission and identifies transportation goals and objectives, as well as relaying factors that affect transportation planning in the state, describing FDOT’s public-involvement process, categorizing projected expenditures, and detailing Florida’s transportation planning process. The *2020 Florida Transportation Plan* is intended to be a directive policy document only and does not contain information on specific projects or

funding. The stated theme of the document is in the title of the document, “Connections Bringing Florida Together.” The plan is meant to emphasize

- connections between residents, visitors, businesses, and government;
- connections between quality of life, economic prosperity, and environment;
- connections between major transportation facilities; and
- connections between Florida’s past, present, and future.<sup>43</sup>

The heart of the document outlines four goals and specific objectives to meet those goals, all of which support the agency’s mission: “The Department will provide a safe, interconnected statewide transportation system for Florida’s citizens and visitors that ensures the mobility of people and goods, while enhancing economic prosperity and sustaining the quality of our environment.”<sup>44</sup> The four goals are

1. safe transportation for residents, visitors, and commerce;
2. protection of the public’s investment in transportation;
3. a statewide interconnected transportation system that enhances Florida’s economic competitiveness; and
4. travel choices to ensure mobility, sustain the quality of the environment, preserve community values, and reduce energy consumption.<sup>45</sup>

Goals 3 and 4 are intermodal in nature. Five objectives are identified under goal 3. They are to

1. place priority on completing the Florida Intrastate Highway System;
2. complete a statewide high-speed rail system;
3. improve major airports, seaports, railroads, and truck facilities to strengthen Florida’s position in the global economy;
4. improve connections between seaports, airports, railroads, and the highway system for efficient interregional movement of people and goods; and
5. manage and preserve designated transportation corridors in cooperation with local governments and through advance acquisition of rights-of-way.<sup>46</sup>

The objectives identified under goal 4 are to

1. reduce dependency on the single occupant vehicle;

2. provide accommodation for transit vehicles, bicyclists and pedestrians wherever appropriate on state highways;
3. increase public transportation ridership;
4. expand public and specialized transportation programs to meet the needs of people who are transportation disadvantaged;
5. minimize the impact of transportation facilities and services on the environment; and
6. increase energy conservation and the use of recycled materials, native vegetation and wildflowers.<sup>47</sup>

General information is given explaining why each objective is important and what the department is doing to address each.

The *Short-Term Component of the 2020 Transportation Plan* identifies strategies necessary to implement the goals and objectives established in the long-term component over a five-year planning period. It is often referred to as FDOT's "Agency Strategic Plan." This plan is updated annually. A follow-up document is published the year after each short-term report, which evaluates the department's progress in meeting the objectives outlined in the original plan. It is a type of performance evaluation for FDOT.<sup>48</sup>

In the follow-up document, a chapter is dedicated to each goal. For every objective, key indicators of performance are given along with the most recent statistics for that performance measure. For instance, key indicators for "Connections Between Transportation Facilities" contain the following:

- passenger enplanements (47 million passengers in 1994),
- cargo shipped by air (700,000 tons in 1994),
- rail cargo originating/terminating on the Florida Rail System (165 million tons in 1995),
- total waterborne trade (108 million tons in 1994),
- cruise embarkations and disembarkations at Florida ports (7.3 million in 1995-96),
- aviation project funding– state aid (\$87.5 million in 1995-96), and
- level of investment in the intermodal access program (\$31.0 million in 1995-96).<sup>49</sup>

Sections describing the current state of the transportation facilities involved, future predictions, and FDOT's role in promoting change precede the statement of a short-range objective. The short-range objective is a quantifiable measure intended to mark progress

toward the long-range objective and goal. For example, “Through 2006, continue to improve intermodal connections and access by annually allocating approximately \$30 million in state funds for the intermodal access program.”<sup>50</sup> Parties involved in carrying out the objective are also listed. Each strategic objective section ends with “Department Strategies.”

### ***Other Agencywide Plans***

Each short-term component plan is followed up with an evaluation document called an “Annual Performance Report.” The report is intended to measure FDOT’s progress toward achieving the goals outlined in the *2020 Florida Transportation Plan*.<sup>51</sup> Organization of the “Annual Performance Report” corresponds to the short-term component plan it evaluates. Each objective is addressed with current statistics and a report on what the agency did to accomplish each objective, how successful it was and what its future direction should be. This policy-guiding document does not address specific functional areas within FDOT.<sup>52</sup>

The Program and Resource Plan establishes funding levels and performance targets over a ten-year period for all the department’s activities. This plan is also updated annually and is balanced with estimates of available state and federal financial resources.

The 5-Year Work Program is a detailed list of programs, projects, and services that will be prepared and constructed in each district over the next five years. It is based on allocations of the program levels established in the Program and Resource Plan. The document is a result of collaboration between FDOT, MPOs, local authorities, and others.<sup>53</sup>

The Florida Transportation Commission produces a performance and production review each year for FDOT. The commission keeps track of a series of performance measures for specific functional areas that it develops with help from FDOT authorities. Targets are set by those FDOT personnel involved at the beginning of each year. The review reports whether the department achieved these targets for each performance measure.<sup>54</sup>

### **Corridor Plans**

Action plans and master plans are multimodal studies that select and evaluate various alternatives for provision of mobility within highway corridors. Action plans are associated with Florida’s intrastate highways, while master plans evaluate interstate highways and meet the federal requirements for major investment studies. These plans represent an extensive investigation of a corridor’s condition, level of service, and expected future demand, as well as presenting multimodal alternatives to meet transportation needs. They serve as the primary highway planning documents for the state and are also used by the transit office, MPOs, and local governments in their planning efforts.

FDOT first began to develop action plans and master plans in 1992 and hopes to have these plans for the state's entire interstate and intrastate highway network by 1999. The process for the development of these plans begins with a model scope produced by the FDOT Systems Planning Office suggesting a format and elements to include in the plans. FDOT's district offices are responsible for developing the plans and may modify the model scope outline as necessary. Plans must be approved by the Systems Planning Office.<sup>55</sup>

### **Intermodal Plans**

Following the passage of ISTEA, Florida was one of six states in 1992 to receive \$450,000 in federal funding to develop an intermodal plan. To be consistent with FDOT's planning philosophy, the agency contracted with Wilbur Smith Associates to design an intermodal transportation planning process, instead of just a plan. The result was a detailed planning document, called *A Model Intermodal Transportation Plan: Florida's Intermodal Planning Process*, which was supported by eight technical memoranda.<sup>56</sup> Key features of the memoranda include specifications for an intermodal planning framework placed in context with FDOT's overall planning process, an intermodal data management system, a demand forecasting process, possible funding mechanisms, and suggestions for identifying strategies and actions and for prioritizing and planning.<sup>57</sup>

The consultant's report defines intermodal planning as "a process of addressing the linkages, interactions and movements between modes of transportation" and multimodal planning as "a process of collectively addressing all modes of transportation."<sup>58</sup> It recommends a planning structure that begins with establishing criteria for programs and projects that will be the basis for project selection and evaluation. The intermodal data system is designed to monitor an inventory of the intermodal transportation system and bring to light areas of needed improvement. Revised demand forecasting models will help the state identify future areas of trouble. After needs are identified, funding sources and possible applications of advanced technology should be evaluated before moving on to defining actions and strategies. Prioritization and plan development are the final stages.<sup>59</sup> Detailed recommendations are given for each stage.

According to FDOT personnel, these documents are meant to represent the ideal intermodal planning process. Their primary function has been to give the agency direction on how to begin planning for intermodalism. Although the plan has not been implemented in full, elements of the plan have been tried and evaluated.<sup>60</sup> The agency's current status in intermodal planning is discussed further in a later section.

### **Modal Plans**

In support of the Florida Transportation Plan, each modal subset has its own planning documents that help identify needs and future projects. Modal plans exist for rail, ports, aviation, and transit. All these plans address intermodal issues.<sup>61</sup>



### ***Rail Plan***

The Florida Rail System Plan, which is updated every two years, concentrates on maintaining essential rail services and preserving facilities and corridors for future transportation uses. To accomplish these activities, it identifies endangered services and lines, evaluates and determines problems and possible solutions, and coordinates funding for acquisition, rehabilitation, and new facility construction. Intermodal aspects include the promotion of joint-facility use to increase mobility and revenues or to reduce costs and the evaluation of intermodal linkages and facilities.<sup>62</sup>

### ***Ports Plan***

The FSTED Council is charged with producing an annually updated five-year plan for Florida's 14 public deepwater ports. The state's primary roles in seaport support are providing intermodal planning, landside access, and limited state capital support.<sup>63</sup> In 1997, as part of its 5-Year Work Plan, the FSTED Council published a lengthy document that specifically addresses the intermodal access needs of each of Florida's ports. Produced by consultants Post, Buckley Schuh & Jernigan, Inc., the report is called the *Strategic Investment Plan to Implement the Intermodal Access Needs of Florida's Seaports*, or the *Landside Access Study*. It focuses on road and rail improvements needed to help Florida's ports keep up with the growth of the maritime shipping industry. The report estimates that \$441.2 million will be needed between FY 1997-98 and FY 2001-02, of which \$319.7 million represent currently unfunded projects.<sup>64</sup>

### ***Aviation Plan***

The *Florida Aviation System Plan* was published in 1992 by FDOT and the aviation community. It serves as a long-term policy document to guide airport development. The report attempts to forecast funding needs and the timing of airport enhancements, provide justification for budgeting and appropriation of funds for planned enhancements, and guide investments of public funds for airports. The document also outlines the Continuing Florida Aviation System Planning Process, a formal, ongoing process between all agencies involved in aviation development.<sup>65</sup> A new aviation system plan is expected to be published in 2000.<sup>66</sup>

### ***Transit Plan***

FDOT's *Transit 2025: A Strategic Transit Plan for Florida* is still in the draft phase but will present FDOT's vision and long-term goals for transit. The plan will provide a snapshot of current transit operation; explore strengths and weaknesses; examine key issues affecting transit; set broad goals, objectives, and strategies for services, funding, and planning; and present an action plan including tasks, schedules, responsibility, and monitoring.<sup>67</sup>

## ***Highway Plans***

Highway planning in the state is primarily done through corridor action plans and master plans. As discussed above, FDOT began preparing these plans in 1992 and hopes to have action or master plans for all interstate and intrastate highways in Florida by 1999. In addition to the action and master plans, the Systems Planning Office submits annual status reports on the conditions of the Florida Intrastate Highway System to the Florida Transportation Commission. These reports are used for identifying needs that can be included in future five-year work programs.<sup>68</sup>

## **Transportation Funding and Programs**

The Florida Legislature appropriated \$3.5 billion to the Florida Department of Transportation for FY 1997-98, representing 8.25 percent of the total state budget of \$42.4 billion.<sup>69</sup> This figure is a 7.4-percent increase over the FY 1996-97 funding levels of \$3.26 billion.<sup>70</sup>

State revenues are derived from gasoline taxes (8.8 cents per gallon state tax; FDOT receives 91.2 percent); motor vehicle license fees (ranges from \$5 to \$979 per vehicle per year; FDOT's percent varies); initial vehicle registration fees (\$100 per new automobile, light truck, or recreational vehicle; FDOT receives 70 percent); motor vehicle title fees (\$24 per title; FDOT receives 87.5 percent); rental vehicle surcharges (\$2 per day; FDOT receives 75 percent); and aviation fuel taxes (6.9 cents per gallon; FDOT receives 92.7 percent).<sup>71</sup>

Transportation revenues are allocated to the State Transportation Trust Fund (Trust Fund), which is FDOT's funding source. Trust Fund moneys can be used for any FDOT projects or programs, and none of the Trust Fund is diverted to any other purposes. By statute, 14.3 percent of all FDOT revenue must be used for public transportation purposes (i.e., transit, aviation, rail, ports, or intermodal funding).<sup>72</sup> Legislative requirements mandate that funding be allocated according to FDOT's five-year work programs.

The Trust Fund moneys are divided between several FDOT departments and specific programs. Programs of note include the Florida Seaport Transportation and Economic Development Program and the Intermodal Development Program. In addition, allocations are given to the Aviation, Transit, and Rail Offices to fund their programs. State funding for highways also comes from the Trust Fund.

### **The Florida Seaport Transportation and Economic Development Program**

The FSTED Program was created in 1990 by the state legislature to finance port transportation or port facility projects that will improve the intermodal movement of freight and passengers within the state. A 17-member FSTED Council directs funds and implements the program. The council grants funds to seaports for capital improvement projects on a one-to-one matching basis between the state and local port authority.<sup>73</sup>

Originally, the FSTED Program allocated \$10 million per year out of the Trust Fund, which was matched on an equal basis with port authorities to provide \$20 million in port funding. In 1996, new legislation granted an additional \$15 million per year to the program and allowed the FSTED Program to bond and match funding using a triple-A-rated insured bond issue. In the first year of implementation, this legislation allowed the FSTED Council to parlay the \$15 million appropriation into \$222 million, which represented almost half a billion dollars when matched by the seaports.<sup>74</sup>

### **Florida Intermodal Development Program**

The Intermodal Development Program was also passed by the Florida Legislature in 1990 in recognition of the state's need to provide better access to its international trade gateways and create an integrated transportation system with modal choices. Funds can be used for capital investments in fixed-guideway transportation systems, access to seaports and airports, and construction of intermodal terminals or other purposes that facilitate the intermodal movement of people or goods.<sup>75</sup> FDOT's Rail Office oversees a formal application process involving FDOT district and MPO personnel for discretionary Intermodal Development Program money for statewide significant projects.

Although funding levels vary annually, approximately \$30 million in state money has been dedicated to the program each year since 1991. New 1997 legislation calls for an additional \$10 million to be provided to the program annually starting in 2001.<sup>76</sup> The additional money will be available for bonding of seaport-related access projects. Fifty percent of total allocated funds go directly to the seven districts based on formula, while the other 50 percent are used on a statewide discretionary basis as needed. Statewide discretionary funds can be used to fund intermodal projects of statewide significance up to 100 percent. For local projects, statewide discretionary funds can be committed at matching-fund ratios determined by the district secretaries.<sup>77</sup>

### **Aviation Funding**

Airports receive approximately \$90 million annually from state grants for capital development, land acquisition, and planning.<sup>78</sup> The Aviation Office distributes these funds through its district offices to five programs: airport improvement, land acquisition, economic development, discretionary capacity improvement, and aviation planning. Funding levels for FY 1997-98 are listed for these programs in table 3.1. Currently, the Aviation Office distributes these funds to the airports in a somewhat ad hoc fashion based on each airport's master plan requirements. However, the Aviation Office is working with the FAA under a Joint Automated Capital Improvement Program (JACIP) to develop a database of airports' capital needs, which will help the Aviation Office distribute funds more appropriately to the projects of greatest need. The database is scheduled to be operational in March 1998.<sup>79</sup>

**Table 3.1**  
**Aviation Program Funding Levels for FY 1997-98**

<b>Funding Program</b>	<b>Funding Level (millions of dollars)</b>
Airport Improvement Program, Economic Development Program, and Aviation Planning Program	50.13
Airport Land Acquisition Program	21.41
Airport Discretionary Capacity Improvement Program	24.7
Aviation consultants and system planning	2.43
Total state aviation funding	98.67

Source: Data from FDOT, "Schedule B—Public Transportation Program Targets for Fiscal Years 97/98 Through 02/03: Aviation," Tallahassee, Fla., December 22, 1997 (computer printout).

The Airport Improvement Program helps local governments maintain and enhance capacity and airport safety at commercial service, reliever, and general aviation airports by providing state grant funds to maximize federal apportioned and discretionary aid for capital improvements at these airports. It also provides funding for state and local projects of high priority, which are either not federally eligible or are low on the federal priority system. Funding for all projects is 50 percent of the nonfederal share for federally funded projects and up to an 80-percent share at general aviation airports when federal funds are not available.

The Land Acquisition Program allows Florida's publicly owned airports to acquire land for additional capacity or to protect clear zones and approach areas from development. Funds are provided at a 75-percent state/25-percent local matching ratio through a loan program to be repaid to the normal statutory share of the Airport Improvement Program in ten years or when federal funds become available, whichever comes first.

The Economic Development Program grants money to public airports to build revenue-producing facilities that provide a cash flow that can be used to operate and further develop airports. Funds are granted on a 50-percent state/50-percent local matching basis.

The Discretionary Capacity Improvement Program provides additional funding to airports that meet the following three criteria:

1. They must be international airports with U.S. Customs Service.

2. They must have had one or more regularly scheduled intercontinental flights during the previous calendar year, or a written agreement for installation of one or more regularly scheduled intercontinental flights upon the commitment of fund for stipulated airport capital improvement.
3. They must have available or planned public ground transportation between the airport and other major transportation facilities.

Funding ratios are identical to those for the Airport Improvement Program.

The Aviation Planning Program provides funds to local governments to aid their development of appropriate master plans, airport layout plans, and noise studies. Funds are available at the same level as for the Airport Improvement Program, or at a 50-percent state/50-percent local matching ratio for commercial airports when federal funds are inadequate, or at an 80-percent state/20-local matching ratio for general aviation airports.<sup>80</sup>

### **Transit Funding**

The transit office oversees a number of programs that provide state funding to transit operations. State-initiated programs are the Public Transit Block Grant Program (Block Grant), the Transit Corridor Program, the Service Development Program, the Commuter Assistance Program, the Park-and-Ride Lot Program, and the State Bus Fleet Program. The state also adds money to several Federal Transit Administration (FTA) programs, including the Non-Urbanized Area Formula Program (FTA section 5311), the Intercity Bus Program (FTA section 5311f), the Elderly and Handicapped Program (FTA section 5310), the Urbanized Area Formula Program (FTA section 5307), and the Capital Program (FTA section 5309).<sup>81</sup> FY 1997-98 projected funding levels for these programs are listed in table 3.2. The six state-initiated programs are described below.

The state legislature enacted the Public Transit Block Grant Program to provide a stable source of funding for public transit systems in the state. Block Grant money can be used for capital and operating assistance, transit service development, and corridor projects. By legislative mandate, 85 percent of Block Grant money goes to public transit providers, who receive FTA section 5307 funds, and 15 percent is provided to the Commission for the Transportation Disadvantaged for distribution to community transportation coordinators. State participation is limited to 50 percent of the nonfederal share of capital projects and up to 50 percent of eligible operating costs.

The Transit Corridor Program allocates money to transit operations in corridors that FDOT's action and master plans consider "constrained." These are corridors in which transit is identified as the most cost-effective method of relieving congestion and improving capacity. The state may provide up to 100 percent of the cost of eligible grant activities.

**Table 3.2**  
**Transit Program Funding Levels for FY 1997-98**

<b>Funding Program</b>	<b>Funding Level (millions of dollars)</b>
Public Transit Block Grant	47.8
Transit Corridor	4.8
Service Development	2.3
Commuter Assistance	2.6
Park-And-Ride Lot	0.79
State Bus Fleet	0.54
Non-Urbanized Area Formulation	0.63
Elderly and Handicapped	0.435
Urbanized Area Formulation	2
Other FTA program additions, transit consultants, and planning	1.27
Total state transit funding	62.6

Source: Telephone interview by Valerie Briggs with Pollie Howell, Work Program and Budget Administrator, Office of Public Transportation, FDOT, Tallahassee, Florida, February 19, 1998.

The Service Development Program provides initial funding for special projects, including operating, maintenance, marketing, and technology demonstration projects. FDOT will contribute up to 100 percent of net project costs for projects of statewide significance or up to 50 percent for other projects. Money is allocated through an application process.

The Commuter Assistance Program attempts to decrease peak-hour, single-occupant commuter trips by encouraging public/private partnerships to provide brokerage services to employers and individuals for carpools, vanpools, buspools, express bus service, subscription transit service, group taxi service, and heavy and light rail. The program also promotes the use of transportation demand-management strategies, including employee trip-reduction planning, transportation management associations, alternative work hour programs, telecommuting, parking management, and bicycle and pedestrian programs. FDOT district offices coordinate the Commuter Assistance Program with MPOs, local agencies and private-sector partners.

The Park-and-Ride Lot Program provides for the purchase and/or lease of private land for the construction of park-and-ride lots, the promotion of these lots, and the monitoring of their usage. Park-and-ride facilities may be funded in part or totally by FDOT and are designed to facilitate transfer between modes. Site selection, sizing, and improvement and promotional efforts are aimed at achieving 60-percent occupancy at each lot.

The State Bus Fleet Program provides buses and vans on a lease basis to transit operators in the state. Leased vehicles are primarily used for filling service gaps, testing service expansion, and responding to emergency conditions on a short-term basis. The program has also been involved in group purchases of vehicles, bus rehabilitation, and research in the use of methanol fuel for buses.<sup>82</sup>

### **Rail Funding**

The FDOT Rail Office administers funds for high-speed rail, branchline rehabilitation, fixed guideway, passenger service development, the Railroad Crossing Program, and the Intermodal Development Program. Budgeted funds for these programs total \$163.4 million for FY 1997-98, as shown in table 3.3.

**Table 3.3**  
**Rail/Intermodal Program Funding Levels for FY 1997-98**

<b>Funding Program</b>	<b>Funding Level (millions of dollars)</b>
Intermodal Development Program	60
High-speed rail	30
Branchline rehabilitation	2
Fixed guideway	6
Passenger service development	48
Railroad Crossing Program	16
Total state rail/intermodal funding	163

Source: Data from FDOT, "Rail Program Overview," Tallahassee, Fla., January 1998 (computer printout).

Although FY 1997-98 state funding for high-speed rail is only \$30 million, FDOT is expected to spend approximately \$70 million per year during the next 30 years on the development of a high-speed rail project under a public/private partnership to connect Tampa, Orlando, and Miami.<sup>83</sup> Branchline funding is designed to facilitate light-density freight rail service. Outlays on fixed guideways are for the completion of facilities in Miami and Jacksonville. Passenger service development funding is used for Tri-Rail (South Florida's commuter service) operating funds and development of the South Florida Rail Corridor Development. The Railroad Crossing Program maintains active warning devices, works to eliminate high-speed crossing hazards, and addresses other rail safety issues.<sup>84</sup>

## Highway Funding

Highway funding in the state can be divided into several categories: construction of interstate highways, construction of other arteries, right-of-way acquisitions, resurfacing, bridge construction and improvements, and routine maintenance. Actual funding levels for these activities for FY 1996-97 are given in table 3.4. These funds are out of a total FDOT budget of \$3.26 billion for FY 1996-97.<sup>85</sup>

**Table 3.4**  
**Highway Funding Levels for FY 1996-97**

<b>Funding Category</b>	<b>Funding Level (millions of dollars)</b>
Interstate highway construction	449.8
Arterial construction	328.2
Right-of-way acquisition	314.7
Resurfacing	279.1
Bridge construction and improvements	208.6
Routine maintenance	289.6
Total highway construction and maintenance funding	1,870.2

Source: Data from FDOT, "1998 program and Resource Plan Summary Fiscal Years 1998/99 to 2006/07," Tallahassee, Fla., February 13, 1998 (computer printout).

## Exemplary Practices in Multimodal/Intermodal Transportation

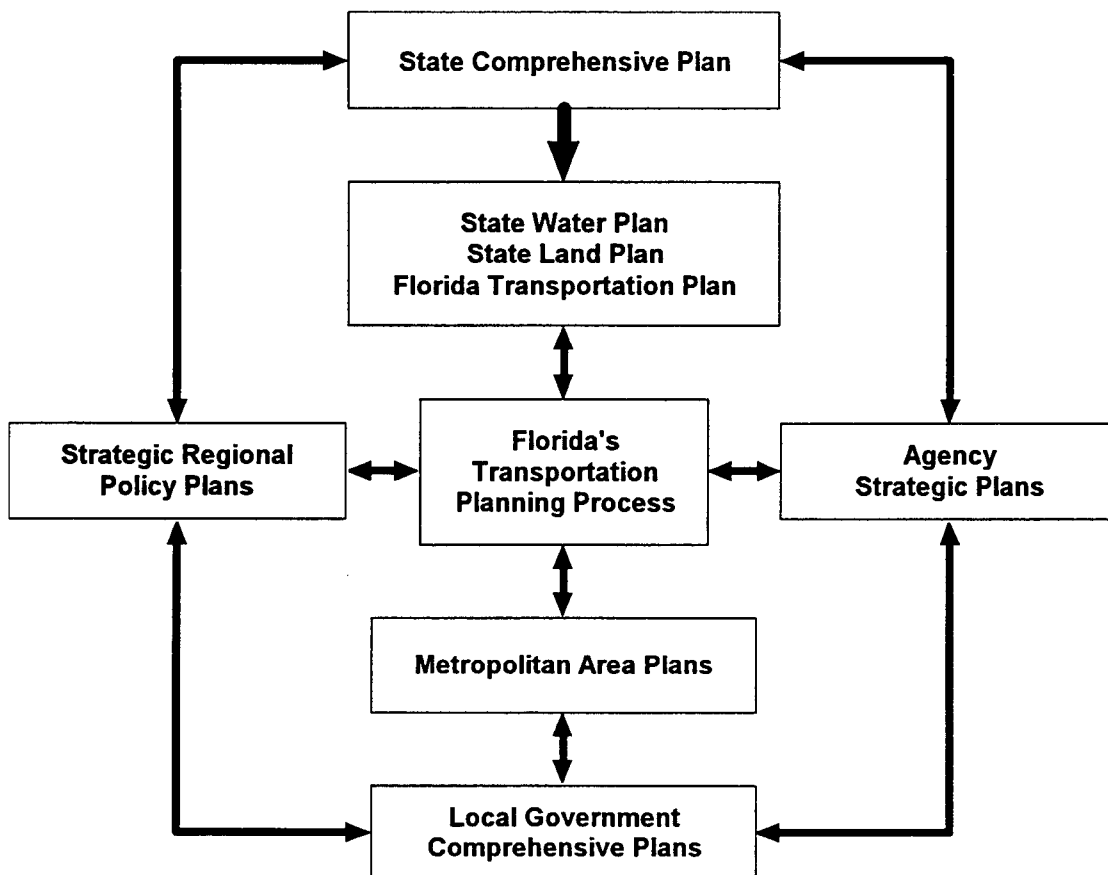
Many of the exemplary practices in intermodal transportation in Florida are a result of FDOT's planning process. This section outlines this planning process and shows how it fits into the state's overall planning framework. Specific elements of the planning process are discussed, such as the development of an intermodal planning process that includes the Intermodal Management System, public and private involvement, and the use of performance measures as evaluation tools. The final section addresses creative funding mechanisms for intermodal projects.



## **The Transportation Planning Process in Relationship to Florida's Planning Framework**

Florida's legally determined planning framework is comprehensive and interrelated. All plans, from the State Comprehensive Plan to local government comprehensive plans, have a place within the overall planning framework and a defined relationship with other plans. Figure 3.2 shows how the transportation planning process fits into Florida's planning framework.

**Figure 3.2**  
**Florida's Transportation Planning Framework**



Source: Adapted from FDOT, *Connections Bringing Florida Together, 2020 Florida Transportation Plan* (Tallahassee, Fla., March 1995), Appendix A, p. 9.

The State Comprehensive Plan is the highest-level planning document with which all other plans must comply and support. It was developed in the mid 1980s in response to burgeoning population growth and a desire to harmonize distinct and often conflicting state agency plans. Its effect is to emphasize that all plans are not independent entities but integrated tools used to improve the quality of life of Florida's citizens. The plan recognizes that growth management, land use, transportation, water management, environmental protection, and economic growth are inherently intertwined and should work together, not independently. It allows the state to place statewide goals above those of each individual planning group and acts as a target to which agencies must aim.

As shown in figure 3.2, the state's land plan, water plan, and transportation plan are derivatives of the State Comprehensive Plan. They serve to "translate" the State Comprehensive Plan into more specific goals, objectives, and policies. The *2020 Florida Transportation Plan* serves as the state's mandated transportation plan. FDOT's transportation planning process establishes a procedure for transportation decisionmaking that supports the policies defined in the *2020 Florida Transportation Plan*.

Although metropolitan area plans and local government comprehensive plans appear at the bottom of the figure, they are considered no less important than the other plans. In fact, the State Comprehensive Plan and Growth Management Act recognizes that local governments are the most highly involved entities in comprehensive planning, because local governments are involved in the implementation of programs to a greater degree than is the state. Therefore, by legislative authority, state agencies, including FDOT, must consider and support local government comprehensive plans in their own planning processes.<sup>86</sup>

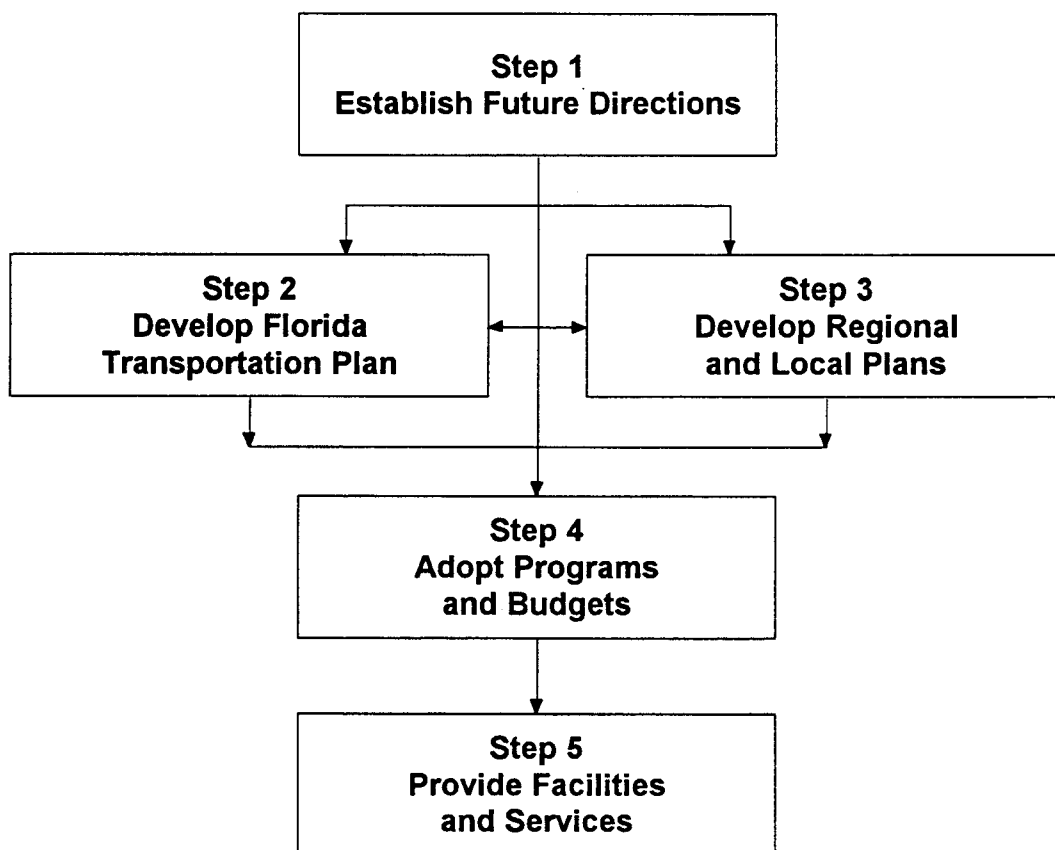
### **Florida's Transportation Planning Process**

Florida's transportation planning process refers to an ongoing system of planning meant to guide transportation decisionmaking. The purpose of the transportation planning process is to ensure that all transportation decisions be policy driven rather than project driven. Florida views transportation planning as an ongoing process. Any one transportation plan is a "snapshot" of the transportation planning process as it exists at that point in time. The concept of a transportation planning process allows for flexibility. A planning process may change over time, whereas an individual plan must remain fixed. Thus, plans must be continually updated. Previous plans serve as inputs for future plans.<sup>87</sup> The transportation planning process is developed according to the model shown in figure 3.3.

"Establish Future Directions" entails gathering data and examining factors that will affect transportation in order to set a future course for transportation policy. Applicable laws, policies, goals, issues, and trends are studied. Data and strategies from the state's management and monitoring systems and measures of performance are key inputs to the process. In this step, input from the public and private sectors and interaction among the state, local, and regional levels are vital to the creation of plans that are compatible and inclusive of all parties' needs.

Agencywide transportation plans are then written based on the directions established. These plans include FDOT's long-term and short-term transportation policy plans and others described previously. Policy plans serve as a guide for developing modal system plans. The modal system plans incorporate outcomes of major investment studies performed by FDOT and MPOs and provide additional details about the needs of specific modes. Elements from the modal plans also serve as inputs for future years' transportation policy plans, in a type of feedback cycle.

**Figure 3.3**  
**Florida's Transportation Planning Process**



Source: Adapted from FDOT, *Connections Bringing Florida Together, 2020 Florida Transportation Plan* (Tallahassee, Fla., March 1995), Appendix A, p. 13.

The development of regional and local plans happens simultaneously with the development of statewide transportation plans. These include strategic regional policy plans, MPO plans, the transportation elements of local government comprehensive plans, local downtown area plans, travel corridor plans, transit plans, and private-sector plans (e.g., railroads). The state works closely with MPOs in helping them determine the highest priority for transportation projects that can be funded with available revenues. It is

recognized that local and regional authorities play a key role in defining land-use and transportation relationships, and each is required to address this fact in their plans and policies.

Next, state work programs and budgets are adopted based on both the statewide plans and the regional and local plans. Specific projects and their expected costs for FDOT are identified in ten-year work program and resource plans, five-year work programs, legislative budget requests, and State Transportation Improvement Program documents. MPOs also prepare Transportation Improvement Program (TIP) and annual planning work program documents at this point.

The final product of the planning process is the provision of transportation facilities and services to the public. The state, regional, and local levels all provide facilities and services. Private partners are often involved as well. The transportation planning process ensures that all transportation facilities and services in the state are elements of a cohesive and efficient transportation network, regardless of what entity provides them.<sup>88</sup>

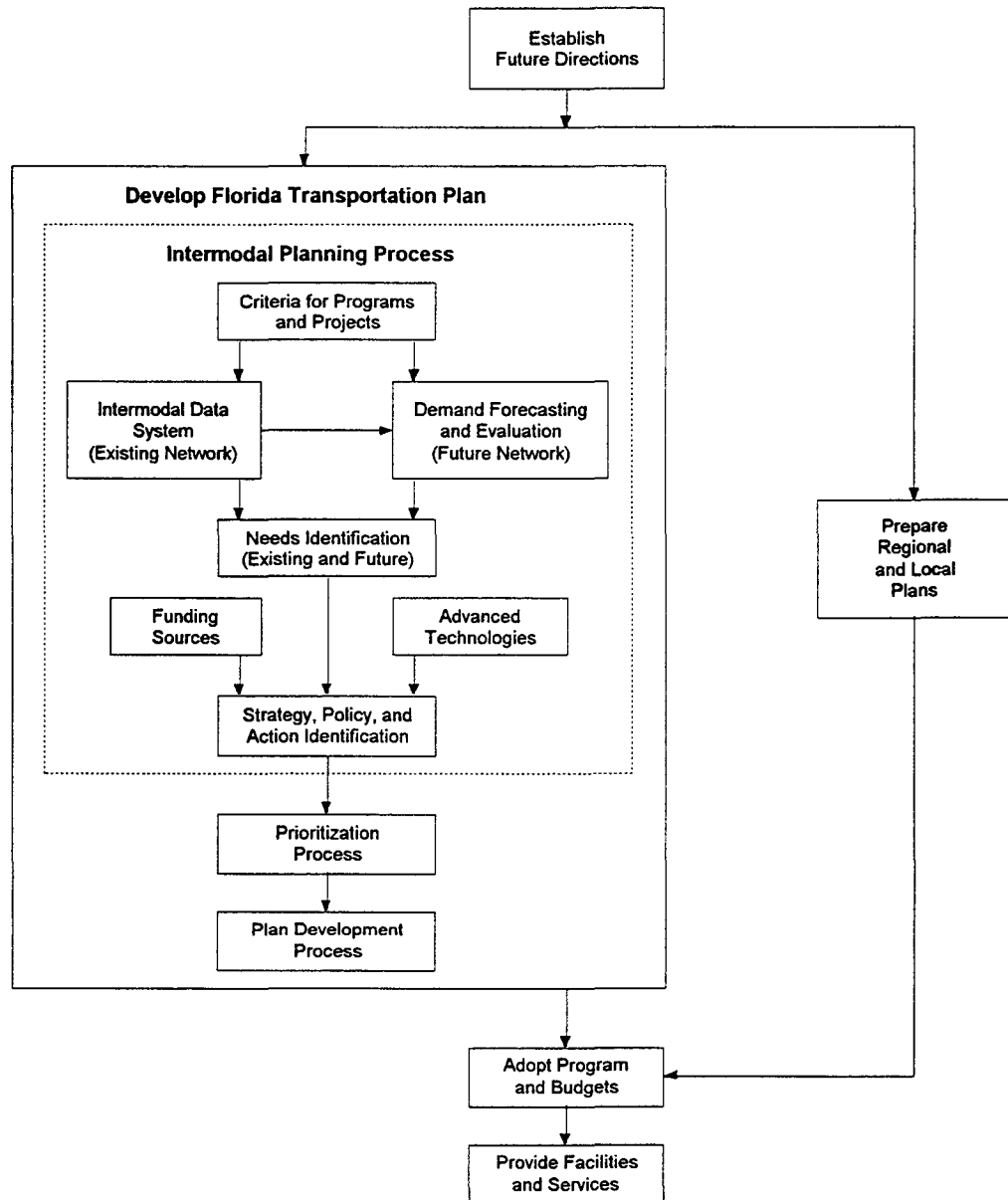
### **The Development of Florida's Intermodal Planning Process**

The development of intermodal planning in Florida has been an evolutionary process. The process began when Florida received federal ISTEA funding to develop a model intermodal transportation plan, which resulted in the detailed reports by Wilbur Smith Associates titled the *Florida Intermodal Planning Process*. These reports present what was believed at the time to be the ideal planning process. They gave FDOT direction and vision to start its intermodal planning process.

One of the most important elements of the Wilbur Smith Associates' reports was the placement of the intermodal planning process within the context of Florida's transportation planning process. As indicated in figure 3.4, Wilbur Smith Associates considered intermodal planning to be on the same level as modal strategic plans. The intermodal planning process takes place after strategic policy documents are written but before specific programs are planned. The intermodal strategic planning process will also influence and serve as a source of information for future short-term policy plans.

With the intermodal strategic planning process placed in context, FDOT commenced trying to implement elements of the planning process. It began with a major element, the development of a prototype intermodal management system (IMS). FDOT personnel believed that if the system was successful, they could design the entire intermodal planning process around the system.

**Figure 3.4**  
**The Intermodal Planning Process in Context with Florida's**  
**Transportation Planning Process**



Source: Adapted from FDOT, *A Model Intermodal Transportation Plan: Florida's Intermodal Planning Process*, prepared by Wilbur Smith Associates (Tallahassee, Fla., March 1994), chapt. 2, p. 3.

### ***Intermodal Management System (IMS)***

In response to original ISTEA mandates, Florida began planning for an IMS in 1992. The ISTEA requirement was later abandoned, but FDOT continued its efforts to develop the system, hoping that it would aid intermodal project evaluation and performance measures. During 1995, the FDOT Rail Office designed an IMS based on suggestions in reports of the intermodal planning process. A pilot study was performed in 1996 and evaluated in April and June of 1997.<sup>89</sup>

The pilot project entailed a massive data collection effort on 95 intermodal facilities around the state. Data were gathered that would allow planners to compare passenger, freight, and joint-passenger/freight facilities and evaluate the linkages between intermodal facilities or with the nearest limited-access transportation facility. FDOT District Public Transportation Office personnel compiled data between February and September 1996, during site visits to all the facilities using a form generated by the state Rail Office.<sup>90</sup> The average evaluation time per facility was 19.7 hours.<sup>91</sup>

The data were then entered into a database that was developed in conjunction with Wilbur Smith Associates. The database was meant to be a tool to aid policymakers by identifying key interactions between modes, defining strategies for improving the effectiveness of modal interactions, and evaluating the effectiveness of these strategies.<sup>92</sup> It was also designed to monitor the performance of the existing system and help identify necessary improvements.<sup>93</sup>

In a post-project evaluation, the pilot IMS received mixed reviews. There was a problem with the consistency of data collected by different districts, making comparisons among facilities statewide inconclusive. In a case study of the Port Canaveral and the CSX Intermodal Terminal, state experts carefully reviewed the data collected by the district personnel, revealing that data collected for complex sites tended to be inaccurate and required more compilation time than originally thought.<sup>94</sup> These factors eroded the database's primary purpose of monitoring and calculating performance measures. In addition, 48 percent of district personnel involved in the pilot evaluations did not give the system a generally positive rating. Many felt it required too much time and effort to justify the results.

The general consensus from the IMS pilot project was that an alternative intermodal planning vehicle should be developed. Intermodal facilities were so different that their data could not be standardized into a realistic and useful database form. The pilot project did provide valuable inventory data on the state's intermodal facilities that proved helpful in determining future directions for the intermodal planning process.<sup>95</sup>

### ***Emerging Intermodal Planning Techniques***

Following the discontinuation of the IMS, the Rail Office examined more flexible ways to handle intermodal planning. One option currently under consideration, and endorsed by the state legislature, is to base planning efforts around outcome-oriented performance

measures (performance measures are discussed in more detail in the next section). FDOT has typically viewed performance measures as only one element of the planning process. Performance measures direct outcome but do not define current conditions, examine trends, or encourage specific actions. Therefore, the Rail Office is looking at assigning these responsibilities to the intermodal facilities and private-sector stakeholders. Instead of FDOT producing an intermodal strategic plan, public and private entities, who own or operate intermodal facilities, would provide a consensus strategic intermodal plan every five years for the state, similar to the Continuing Florida Aviation System Planning Process (CFASPP) used for aviation planning. As of April 1998, these proposals were still under consideration by the legislature.

Although defining an intermodal planning process has been difficult for FDOT, the Rail Office believes that it is on the correct path. Robert Hebert, administrator of ports/intermodal within the Rail Office, explains that every step in the development of an intermodal process has been necessary. He indicates that the only way to develop a useful process was to start with an idea and to make changes when necessary. Every step has produced valuable information that aided the development of the next step. Although Mr. Hebert is positive about the progress that has been made in developing an intermodal planning process, he concedes that there is still a long way to go before the system is perfected.<sup>96</sup>

## **Public- and Private-Sector Involvement**

### ***General Public Involvement in the 2020 Transportation Plan***

Florida's primary public interaction programs at the beginning of the planning process are aimed at identifying the needs and the general direction for FDOT. Before the development of the *2020 Florida Transportation Plan*, FDOT held 50 public events, including workshops, exhibits at malls and transportation terminals, and brainstorming and focus-group meetings. More than 2,000 residents and tourists participated in these events. A statewide workshop was then held with 200 representatives from MPOs, local governments, environmental interests, private-sector interests, and state and regional agencies to review and summarize the public comments and define strategic actions to address them. A summary of the public comments is included in the *2020 Florida Transportation Plan*.<sup>97</sup>

### ***Public and Stakeholder Involvement in the Transit Strategic Plan***

A public-involvement campaign was launched in the recent development of the Transit Strategic Plan. It included interviews with stakeholders, focus groups with selected citizens held in each district, telephone interviews featuring structured questions with large random samples of people, and highly publicized public hearings at the end of the process to receive evaluation of the plan. In addition, eight advisory committees, one for each district and a statewide committee, comprising invited members met periodically throughout the plan development process.<sup>98</sup>

## ***Stakeholder Involvement in the Continuing Florida Aviation System Planning Process Steering Committees***

In the mid 1980s, FDOT initiated the Continuing Florida Aviation System Planning Process (CFASPP) to involve all aviation stakeholders in the state's aviation planning process. FDOT divided the state into nine aviation regions and sought steering committees to perform airport planning for each region and for the state as a whole. All parties involved in aviation in each region were invited to committee meetings. Though early committee meetings were composed primarily of FDOT employees, today's CFASPP steering committee meetings are highly regarded and attended by directors of most airports and high-level managers of many local and regional government entities. CFASPP committee members view the meetings as valuable opportunities to coordinate aviation activities, learn about aviation activities around the state, and market Florida's airports. Each regional committee and the FDOT committee meet three times per year. The CFASPP steering committees assisted in producing the *1992 Florida Aviation System Plan* and will provide similar assistance in updating the next publication, scheduled to be released in the year 2000.<sup>99</sup>

## **Performance Measures**

### ***Performance-Based Program Budgeting***

Florida is one of five states that use performance-based program budgeting at the legislative level. FY 1997-98 is the first year that FDOT has used performance-based program budgeting. Performance-based program budgeting implies that next year's budget appropriations will be based on FDOT's ability to meet targeted goals it set for itself this year.<sup>100</sup>

FDOT selected and set targets for 37 measures that were approved by the legislature. Only one of the 37 measures directly addresses intermodalism, "number of intermodal projects funded." For this measure, FDOT set a target of 40 projects. Eleven other related measures address transit ridership and project funding and rail, port, and aviation project funding.<sup>101</sup>

Offices within FDOT are responsible for collecting and reporting data pertaining to budget measures concerning their offices. FDOT's Office of the Inspector General then audits the divisions to make sure the reported data are both valid and accurate and afterward sends a report to the legislature. The measures are also subject to review by the Office of Program Policy Analysis and Government Accountability (a part of the legislature).<sup>102</sup>

Because FY 1997-98 is the first year of performance-based program budgeting, many of the measures have not been perfected. The legislature is pushing for measures to be outcome-based, meaning they indicate what benefit the user receives. The current intermodal performance measure, "number of intermodal projects funded," is not outcome-based. The Rail Office is considering one of three possibilities as a replacement: (1) incremental time savings from project implementation, (2) incremental cost savings



from increased throughput, and (3) economic benefits. The problem with these measures is that they are difficult to calculate accurately. Of the three, the first is the easiest to calculate and, therefore, the one most likely to be implemented.<sup>103</sup>

### ***The Florida Transportation Commission's Performance and Production Review***

The Florida Transportation Commission prepares an annual performance and production review for presentation to the governor and the legislature. The purpose of the review is to determine whether FDOT carried out the funded actions from the work program. Measures for the performance and production review are based on dollar amounts committed versus dollar amounts planned. There is no specific measure for intermodal transportation programs. The only measure that pertains to intermodal programs is "dollar amount committed to public transportation capacity improvement projects vs. dollar amount planned."<sup>104</sup>

### ***Annual Performance Reports***

A legislative mandate requires FDOT to publish the *Annual Performance Report* evaluating FDOT's progress toward achieving the goals and objectives stated in the previous year's strategic plan (short-term component of the *2020 Florida Transportation Plan*). The purpose of this report is to provide feedback information to aid decisionmakers in future planning efforts. The report gives information on the status of each strategy addressed in the strategic plan, with the intention of identifying factors that facilitated or hindered accomplishment of the objectives. The report also includes a summary of the financial operations of FDOT.<sup>105</sup>

The Office of Policy Planning produces this report. After the short-term strategic plan is developed, Office of Policy Planning personnel assign specific responsibilities for every goal and objective to program managers in the FDOT central office or district offices. Program managers are informed of their responsibilities and, at the end of the year, must send reports to the Office of Policy Planning concerning what they accomplished. The Office of Policy Planning personnel then compile the information into the *Annual Performance Report*.<sup>106</sup>

### ***Intermodal Funding Initiatives***

#### ***Florida Intermodal Development Program***

The Intermodal Development Program was passed by the legislature in 1990 as part of the Omnibus Transportation Bill. Its stated intent is to "provide for major capital investments in fixed-guideway transportation systems, access to seaports, airports and other transportation terminals, provide for the construction of intermodal or multimodal terminals; and to otherwise facilitate the intermodal or multimodal movement of people and goods."<sup>107</sup> The legislation requires all projects to be consistent with local and comprehensive plans for the unit of government in which the project is located and must be included in the MPO's Long Range Transportation Plan. Major public rail and fixed

guideway facilities and projects providing intermodal access are subject to the department's Major Capital Investment Policy.<sup>108</sup>

Although program funds vary from year to year, \$205.6 million in intermodal development funds have been allocated to more than 200 access-improvement projects from 1991 to 1997. Funds are allocated from the State Transportation Trust Fund. Fifty percent of total allocated funds go directly to the districts, while the other 50 percent are used on a statewide discretionary basis as needed. Statewide discretionary funds can be used to fund intermodal projects of statewide significance up to 100 percent. For local projects, statewide discretionary funds may be committed at matching-fund ratios determined by the district secretaries. High-profile intermodal development projects for FY 1996-97 include the Miami Intermodal Center (\$2.3 million), the Port of Miami Traffic Operations Improvements (\$1 million), South Florida Rail Corridor Double Tracking Project (\$3.9 million), Port Everglades Southport Land Acquisition (\$1.2 million), Miami Fixed-Guideway Improvements/East-West Corridor Project (\$3 million), and Metro-Dade/Metrorail Extension Project (\$6.2 million).<sup>109</sup>

In March 1997, FDOT approved a procedure to be used for managing the Intermodal Development Program funding allocations. The plan stipulates that FDOT district office representatives meet with local government, county, and MPO officials to identify intermodal needs and affirm compliance of possible projects with applicable comprehensive plans. The district offices, in coordination with local governments, then each submit up to five candidate projects to the state Rail Office every year for review by a five-member Intermodal Project Review Committee. The committee approves a program of intermodal projects based on available funding, degree of project's statewide significance, anticipated benefits, and construction readiness. Next, the Rail Office develops a work program for discretionary allocation. District offices must include the approved projects and funding in their annual work programs.<sup>110</sup>

### ***Florida Seaport Transportation and Economic Development Program***

The Florida Seaport Transportation and Economic Development (FSTED) Program was created by the state legislature to finance port transportation or port facility projects that will improve the intermodal movement of freight and passengers within the state. A 17-member FSTED Council directs funds and implements the program. This council comprises the directors of the fourteen publicly owned deepwater ports as voting members and the secretary of FDOT, the secretary of the FDCA, and the director of the Governor's Office of Tourism, Trade, and Economic Development as nonvoting members. The FSTED Council grants funds to seaports for capital improvement projects on a 50-percent state/50-percent local port authority matching basis.<sup>111</sup>

The FSTED Program is annually allocated \$25 million from the Transportation Trust Fund.<sup>112</sup> Legislation in 1996 allowed \$15 million of the FSTED Program for bond and match funding using a triple-A-rated insured bond. In the first year of implementation, this legislation allowed the FSTED Council to leverage the \$15 million appropriation into

\$222 million in bond financing. This amount represented almost half a billion dollars for capital construction when matched by the seaports.<sup>113</sup>

FSTED recently developed a *Strategic Investment Plan to Implement the Intermodal Access Needs of Florida's Seaports*. This report stressed the importance of rail and road access in helping Florida's seaports maintain competitiveness in the international trade market. It also acknowledges the detrimental impacts a large port can have on the surrounding traffic systems, especially in urban locations. The report details the intermodal infrastructure needs for each of the public ports over the next five years. It estimates that \$441.2 million will be needed between FY 1997-98 and FY 2001-02 for identified road and rail improvement projects around the ports, of which \$319.7 million represents currently unfunded projects. Another \$700 million in intermodal road improvement and \$330 million in intermodal rail improvement needs are estimated beyond the five-year planning horizon.<sup>114</sup>

## **Metropolitan Planning Organizations and Local Involvement in the Transportation Planning Process**

### **Metro-Dade: MPO for the Miami Urbanized Area**

#### ***Municipality Overview***

Dade County is situated on the southeast tip of the state of Florida, encompassing more than 2,000 square miles. One-third of the county is located in the Everglades National Park (its westernmost boundary), and it is bounded by Broward County to the north, the Florida Keys region to the south, and Biscayne Bay and the Atlantic Ocean to the east.<sup>115</sup>

The Greater Miami planning region is defined by the boundaries of Metro Dade County, home to the largest government in the Southeast United States, and is composed of 29 municipalities, the largest being the city of Miami. Currently, 2.06 million residents live in Greater Miami, with more than one million in unincorporated Dade County and nearly 400,000 in the city of Miami proper (1997).<sup>116</sup> The four next most populous municipalities are Hialeah (202,904), Miami Beach (93,681), North Miami (50,405), and Coral Gables (40,813).<sup>117</sup>

The Greater Miami area is a gateway to the Caribbean and Latin America and a burgeoning center of international commerce. "The Miami Free Trade Zone, the first and largest privately-owned and operated trade zone in the world, provides importers and exporters with a secure area to...display and ship commodities to and from almost 100 countries." Processed exports have increased nearly 100 percent over the last five years and imports have grown more than 50 percent over the same period. Miami-Dade is an international center of finance, produces more tropical vegetables than any county in the country, and is home to almost 3,000 manufacturing firms.<sup>118</sup>

## ***Transportation Infrastructure***

The metropolitan Miami region has a multimodal transportation network as outlined below.

- **Highways:** Metro-Dade County has approximately 2,930 lane-miles of state roadways and many more county and local roads.
- **Transit:** Metro-Dade Transit Authority (MDTA) operates all Dade County public transit, including<sup>119</sup>

Metrorail—a 21.5-mile/21-station heavy rail system representing the longest elevated rapid transit system in the country;

Metromover—a 1.9 mile, rubber-tired, automated guideway, ten station loop, which serves the downtown area and connects to the rail system;

Metrobus—a 576-bus, 63-route system;

Paratransit specialized-demand-response services; and

Tri-County Commuter Rail Authority (Tri-Rail)—the 65-mile and 15-station system of heavy rail operated throughout Dade, Broward and Palm Beach Counties.

- **Air service:** Greater Miami is served by three airports—Opa-Locka Airport, Tamiami Airport, and the Miami International Airport (MIA). Miami International Airport (MIA) includes the following:

**Passenger:** More than 99 commonly scheduled air carriers, serving 176 cities and five continents with annual passenger travel of 33.5 million. In 1996, MIA was the second busiest airport in the United States for international travel and the sixth busiest in total passengers. It currently is the tenth busiest passenger facility in the world.

**Freight:** More than 400 freight forwarders serviced the MIA, transporting 1.4 million tons of international cargo in 1996. Total freight was 1.8 million tons in 1996 and is expected to reach 1.9 million for 1997. International freight cargo rose 27 percent in 1996.

Estimates for 1997 predict that the airport will exceed 40 million passengers and 2.9 million tons of cargo by the year 2000. The economic impact of the MIA is estimated at \$13.2 billion annually.<sup>120</sup>

- **Port:** The Port of Miami includes the following:

**Passenger:** Five major cruise lines service the Port of Miami with an annual passenger capacity of 3.2 million people, making it the world's busiest cruise port.

Freight: More than 47 shipping lines out of 287 ports of call from 95 countries service the port. It is the eighth largest U.S. general-cargo facility, moving more than 6.7 million tons of freight in 1997. The economic impact of the Port of Miami is estimated to be \$8.3 billion annually.<sup>121</sup>

- Bicycles/pedestrians: Dade County currently has more than 100 miles of separated or “off-road” bike paths, 11.7 miles of designated “on-road” bike lanes, and 125 miles of “on-road” bike paths.<sup>122</sup>

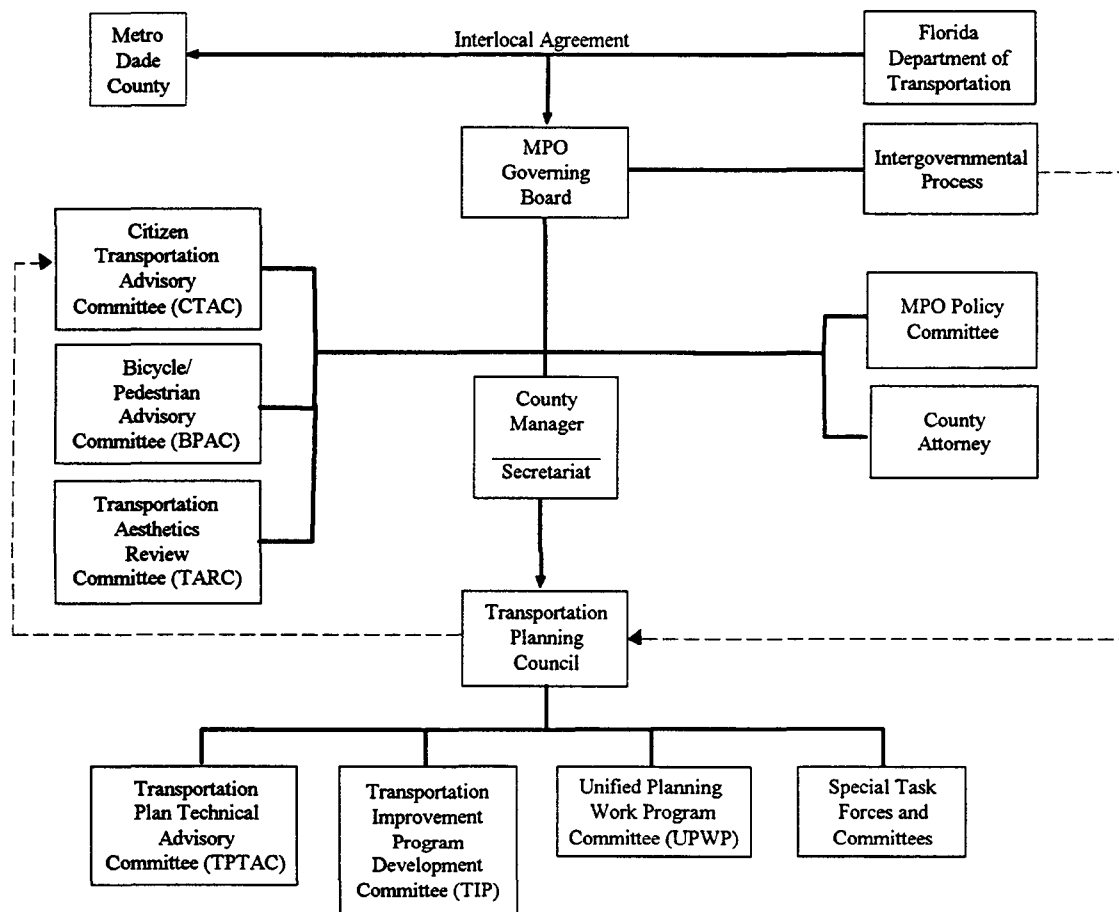
### ***Organizational Structure***

The metropolitan planning organization (MPO) for the Miami region, Metro-Dade, is responsible for the coordination of transportation planning in Dade County. The MPO was first organized on March 23, 1977, under the authority of chapter 163 of the Florida Statutes and established by interlocal agreement between Dade County and FDOT as one of 26 state MPO agencies. Metro-Dade “is the authority on all local transportation planning matters and ensures that all entities engaging in transportation-related activities conform with federal laws.”<sup>123</sup> Metro-Dade, along with its various advisory, planning, programming, and financing committees, operates under a management services agreement with the Metro-Dade Board of County Commissioners (BCC). The county manager is responsible for the coordination of the organization and to this end appoints the director of the Metro-Dade Secretariat, whose full-time equivalent staff include 18 members of the MPO coordinating body.

The MPO structure includes a governing board, the MPO staff, the Transportation Planning Council (TPC), the Citizen’s Transportation Advisory Committee (CTAC), the Bicycle/Pedestrian Advisory Committee (BPAC), and other pertinent and temporary subcommittees. The MPO governing board is responsible for reviewing and approving all plans and is composed of 16 voting and two nonvoting members (designated by the governor), as follows

1. all 13 Dade County commissioners,
2. one elected local municipal official,
3. one citizen representative of unincorporated Dade County,
4. one member of the Dade County School Board, and
5. two nonvoting members of FDOT.<sup>124</sup>

**Figure 3.5**  
**Metro-Dade Organizational Chart**



Source: Adapted from Dade County, Metro-Dade Metropolitan Planning Organization, "Unified Planning Work Program for Transportation, 1998," Miami, Fla., May 1997.

The Transportation Planning Council (TPC), the technical advisory board of the MPO, is intrinsic to the planning process and evaluation of technical adequacy; its members consist of the following:

- chair, the assistant county manager;
- county manager-appointed representatives from various county departments, including the Dade County Aviation Department, the Dade County Expressway Authority, Planning Development and Regulation, the Dade County Seaport

Department, Environmental Resources Management, and the Dade County Public Works Department;

- representative of the Florida Department of Environmental Protection;
- two representatives of FDOT District 6 Office;
- director or designee of the Metro-Dade Transit Agency;
- representative of the Dade League of Cities;
- director or designee of the Tri-County Commuter Rail Authority;
- director or designee of the Dade County School Board;
- representative (nonvoting) of the South Florida Regional Planning Council (SFRPC); and
- director of the MPO Secretariat (nonvoting).<sup>125</sup>

### ***Budget***

The overall operating budget for Metro-Dade's full-time staff is \$1.9 million allocated from the County Manager's Office and the District 6 Office of FDOT.<sup>126</sup> Funding for transportation improvements varies over the 20-year period of planning and is distributed from a variety of sources including FDOT, the federal transit funding formula and other discretionary funds, Dade County, user fees, dedicated revenues, and local gas tax revenues.<sup>127</sup>

### ***Staffing for Transportation***

Metro-Dade develops all transportation plans for the Dade County region. The MPO has two departments: the Administration/Board Support/Public Outreach Department and the Transportation Planning/Program Development Department. All planners are fully integrated and multimodal, with no subspecialties beyond technical skills. There are six principal planners responsible for modeling, projecting, analysis, and subcommittee coordination. Only the bicycle/pedestrian specialist works with the Public Outreach Department; all others coordinate activities in the Planning Department.<sup>128</sup>

### ***Other Agencies/Organizations Involved in Transportation***

The Metro-Dade staff functions as the planning skeleton on which all other transportation and transportation-related agencies are built. This staff approach is reflected in its operating budget allocation: 32 percent of all operating funds are designated for other agency support, and 21 percent is for outside consulting services. Personnel from outside agencies are assigned various tasks according to need. Each agency is responsible for specific duties outlined in Metro-Dade's prospectus. These outside agencies include Dade

Public Works Department, MDTA, Dade Planning Department, Dade County Aviation, Dade County Port Department, Dade County Environmental Resource Management Department, Tri-Rail, FDOT, SFRPC, and local municipalities.<sup>129</sup>

### *Issues, Policies, and Goals*

The goal of Metro-Dade, as stated through its Long-Range Transportation Plan (LRTP) “is to provide for a safe, efficient, economical, attractive and integrated system that offers convenient, accessible and affordable mobility to all people and for all goods, conserves energy and protects the natural and social environment.”<sup>130</sup>

Between 1990 and 2020, the population of Dade County is projected to increase by 70 percent, a total of more than three million residents.<sup>131</sup> While figures vary, the Metro-Dade MPO has used the Florida Standard Urban Travel Model Structure (FSUTMS) to model travel needs for this expected growth. Population increases and continued expansion into the western part of the county have put increasing pressures on FDOT and the local MPO to alter policy regarding transportation planning and expansion. An anticipated increase of 35 percent in daily trips has forced the MPO to address congestion issues beyond the federally regulated guidelines of ISTEA or the Clean Air Act Amendments of 1990 (CAAA).<sup>132</sup>

The MPO’s role in transportation is to plan and oversee the development of roads and transit, and other transportation-related services in order to alleviate congestion and synchronize land development in accordance with the needs of the county, federal, and state regulations.<sup>133</sup> Legislative requirements on the state and federal level, ISTEA, the CAAA, the public-involvement process, demographic forecasts and anticipated growth within the South Florida region, financial constraints, nonmotorized transport, and all locally implemented projects are coordinated through the MPO’s planning policies. Metro-Dade addresses all planning policy and transportation goals under five major guidelines (all of these guidelines address the fifteen requirements for ISTEA).

- Transportation development
  1. placing special emphasis on alternative transportation methods and multimodalism,
  2. anticipating land-use issues and impacts on existing system,
  3. creating transportation that meets population needs, while adhering to regulation,
  4. establishing a mass transportation network that provides easy transfer within and without the system and encourages ridership, and
  5. maintaining upgrades in designated corridors to improve traffic affected by increased population.
- Traffic flow and mobility



1. maintaining existing highways and transit and improve safety and efficiency;
  2. adhering to state level-of-service standards, and
  3. maximizing existing transportation capacity to relieve and prevent future congestion.
- Social issues

Every project proposed by the MPO is evaluated in the context of preservation and enhancement of the social and economic integrity of Dade County and its communities.

- Environmental

Transportation growth is considered in light of impact on air quality, natural environment, natural resources, and conservation, including beautification projects.

- Economic

Every project should ensure the operation and maintenance of all facilities and future projects with a sound funding base composed of both public and private sources.<sup>134</sup>

In addition to the impact of growth, Metro-Dade must contend with densely populated areas in northern Dade County and those areas with unique access restrictions (Miami Beach and the Miami International Airport) when contemplating transportation expansion and planning.<sup>135</sup> “Proposals for new highways are relatively insignificant when compared to other types of projects, reflecting the fact that the urban area has matured and that the necessary space to build new major highways is either no longer available or extremely costly.”<sup>136</sup>

### ***Transportation Plans and Reports***

*2015: Metro-Dade Long-Range Transportation Plan (LRTP)* is the MPO’s 20-year, federally required blueprint that addresses projected transportation needs in Dade County through the year 2015. “The LRTP outlines specific goals and objectives designed to improve transportation for residents, business, employees and visitors of Dade County.”<sup>137</sup> Amendments to the LRTP, which involve many steps, are considered including plan models, databases, socioeconomic forecasts, travel forecast models, goals and policies, and service criteria. Plans in the LRTP are ranked along four timelines: (1) 1995-2000, (2) 2000-05, (3) 2005-10, and (4) 2010-15.<sup>138</sup>

*Transportation Improvement Program: Fiscal Years 1998-2002 (TIP)* is the MPO’s federally required systemic forecast of funding needs during a three-year cycle. While emphasis is on the first three years, Metro-Dade presents a five-year span. Included in TIP are highway, transit, aviation, and seaport improvements costing in excess of \$2 billion, with aviation representing more than 25 percent of the funding. Funding for the

implementation of intermodal projects is also included (as a separate category) in TIP.<sup>139</sup> TIP is updated annually, and project proposals are solicited and evaluated by the TIP Development Committee. The approved TIP (the responsibility of the MPO governing board) contains three parts: (1) federally funded projects required by ISTEA, (2) all projects by subcategory funded through state and local initiatives and private development, and (3) all projects that are needed and slated to be developed as funds become available.<sup>140</sup>

The 1998 Unified Planning Work Program (UPWP) is an annual program of technical studies that supports the LRTP and TIP. All studies for the Miami metropolitan area are included annually in this report, and funding sources for each individual plan or study are highlighted. All transportation-related air-quality planning and improvement activities are also included in this document as are all ISTEA-related programs and citizen participation programs.

A component of the planning process for the LRTP involved the development of a draft needs plan, financial resources plan, and a cost feasibility plan. In addition to these multimodal plans, Metro-Dade is responsible for designing the Bicycle Facilities Plan, which includes maps, projects, funding, and legislation pertinent to nonmotorized travel in Dade County.

### ***Transportation Funding and Programs***

Most highway funding comes from a combination of state and federal funds in conjunction with user fees. User fees include gasoline taxes, motor fares, tolls, and other automobile-related sources. For rail and bus endeavors, funding is sought through federal and state grants. Transit funding derives from a host of local, state, and federal programs, whereas operating expenses are supported largely through local revenue sources.<sup>141</sup> All funding allocations are accounted for by project in TIP.

### ***Exemplary Practices in Multimodal/Intermodal Transportation***

#### ***Organizational Structure and Integrated Planning***

“The organizational structure of the MPO is designed for the administration, coordination and monitoring of a cooperative venture of participating agencies.”<sup>142</sup> Metro-Dade is a highly integrated agency that approaches transportation planning from an intermodal and multimodal perspective and encourages the participation of various entities—public and private, state, and local—in the planning process. The structure of Metro-Dade includes the MPO governing board, the director and staff of the MPO, the Transportation Planning Council (TPC), the Citizen’s Transportation Advisory Committee (CTAC), the Bicycle/Pedestrian Advisory Committee (BPAC), and various other subcommittees (see figure 3.7).<sup>143</sup>

The overlapping membership of the MPO governing board and the Board of County Commissioners (BCC) enhances coordination between the two boards, expediting the

implementation of plans. The dual role of members allows them to ensure that the priorities and concerns of the local transit agency, MDTA, are fully integrated into county-wide transportation planning because they serve on both boards. Some county commissioners sit on the boards of the SFRPC and the board of Tri-Rail as well, providing even more regional coordination with local agencies and the MPOs in other counties.<sup>144</sup>

The structure of the MPO and its various councils and subcommittees reflect the true spirit of ISTEA by including representatives from all agencies in the transportation planning process: FDOT; MDTA; Dade County Departments of Aviation, Seaport, Planning, and Public Works; Tri-Rail; SFRPC; the Dade County League of Cities; and the public. Other agencies are involved in various projects and planning endeavors and range in interest from the Dade County School Board to the chambers of commerce. The Metro-Dade planning process successfully integrates state, regional, county, and local agencies with shared responsibility in the planning process. "These results are particularly apparent in the innovative approach to intermodal project development."<sup>145</sup>

Federal evaluators for the FTA-sponsored Enhanced Planning Review (EPR) cited these four examples as successfully implemented comprehensive and coordinated planning:

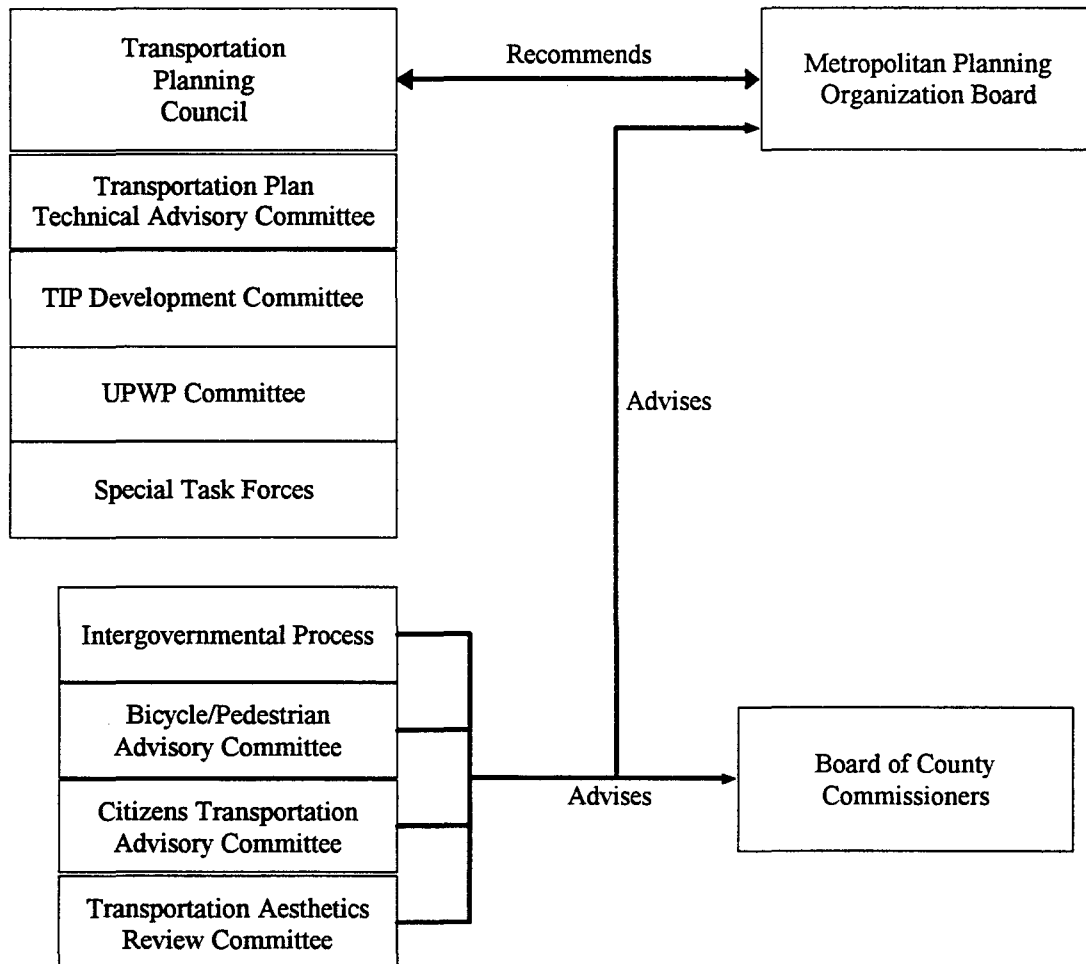
1. cooperation among MPO, local, and state agencies;
2. multimodalism;
3. development of integrated management systems (IMS); and,
4. public involvement process (PIP).<sup>146</sup>

### *Innovative Intermodal Projects*

Three projects are currently underway that exemplify the guidelines set forth in ISTEA regarding intermodalism. They are in different stages of development, funding, and planning, but they represent permanent projects in the evolution of South Florida's transportation system. The Miami Intermodal Center (MIC), the East-West Multimodal Corridor Project, the North Corridor Project (sponsored by Metro-Dade Transit), and the series of corridor studies in the Greater Miami area are all excellent examples of intermodal planning and all have different levels of state, local, and federal participation.

Planning for MIC and the East-West Multimodal Corridor Project began before the required major investment study (MIS) process, while under the guise of the National Environment Policy Act (NEPA).<sup>147</sup> Currently, MIS and the DEIS have been completed and the projects are under federally required Environmental and Engineering Impact Statement (FEIS) consideration.<sup>148</sup>

**Figure 3.6**  
**Local Transportation Planning Process**



Source: Adapted from Metro-Dade MPO, 2015: *Metro-Dade Transportation Plan Long-Range Element*, Miami, Fla., December 1995.

### *Miami Intermodal Center*

To anticipate and serve the needs of passenger travel that is expected to more than double over the next 25 years, state planners, in conjunction with Metro-Dade and federal agencies, have developed a project that will link all forms of transportation with the Miami International Airport (MIA). In addition to providing transportation to MIA, while avoiding further congestion on Miami's highways, the MIC will provide much-needed connectivity to the central part of the county, serving as linkage between various modes of transportation. Perceived as a "Grand Central Station" for South Florida, MIC is a state-of-the-art project that will be a regional hub for Amtrak, Tri-Rail, Metrorail, a proposed future high-speed rail from Tampa and Orlando, a proposed east-west rail line, bus,

private automobile, taxi, bicyclists, and pedestrians. Landside airport services will be performed; consumer facilities will be developed; and car-rental storage facilities and terminals, baggage services, and people movers will be established on fixed-guideway transit systems. Included in the MIC design is a six-lane extension of highway that would connect State Road 112 with State Road 836, making north-south access to the MIC for two of Dade County's largest and most congested east-west routes. The MIC also proposes to provide an airport/seaport rail connector for premium travel for Miami's large passenger cruise industry.<sup>149</sup>

The capital cost of the MIC is estimated at \$1.8 billion (1995 dollars) and is slated as a 20-year project based on patronage-demand projections. The cost of building and operating rail services is not included in the project (save the MIA/MIC connector) and will be borne by the tenant modes. Construction of the first phase of the MIC project will be complete by the seventh year of the 20-year plan (estimated by 2000) and will coincide with the start of the state's high-speed rail program.<sup>150</sup>

### *East-West Multimodal Corridor Project*

The longest east-west expressway in the Miami area is State Road 836, providing accessibility to downtown from the densely populated western part of the county.<sup>151</sup> This expressway also connects such centers in Dade County as the Civic Center, MIA, shopping malls, major office and residential complexes, the Orange Bowl, Miami's beaches, and the seaport. It is a major artery in Florida's hurricane evacuation route and provides access to Interstate 95 from the west. Currently, the only modes of transportation serving this facility are the automobile and local buses that use county roads.<sup>152</sup> "Most of SR 836 and its interchanges with local arteries are functionally obsolete and cannot accommodate current traffic volumes."<sup>153</sup> Short of widening the highway to eight lanes in each direction (environmentally, economically, and socially unacceptable options), the only solution was to make this major east-west corridor a multimodal operation.

In addition to modernizing the highway with upgraded traffic management systems, standard shoulder widths, and improved interchanges, planning has involved the implementation of new modes of transit to connect the corridor. Linking new rail with existing Metrorail stations is a priority. The locally preferred alternative includes a tunnel access to the downtown Miami area, preserving several historical sites, providing fast access, and causing the least disruption to the Overtown neighborhood, a historically African-American community. (The alternative selected was in accordance with ISTEA legislation and was locally designated.) Finally, the rail was designed to connect with the MIA/MIC systems, and bus improvements have been slated to connect with new and existing rail facilities along the corridor.<sup>154</sup>

Capital cost of the East-West Multimodal Corridor Project is estimated at \$1.7 billion (1995 dollars) and will be funded through a combination of federal, state, and local funds. Local matching funds are expected to come from toll revenues, seaport charges, and

private sources. Design is underway, and highway construction will begin in 1998 and transit construction in 2002.<sup>155</sup>

### *North Corridor Project*

Metro-Dade has just completed the final analysis on the locally preferred alternative for the North Corridor Project. This project is unique in that it originated endogenously at the local level. Most intermodal projects receive funding from the usual state and federal sources, begin at the state level, and are implemented locally. Remarkably, this project started and will end locally.<sup>156</sup>

The north corridor is populated with a working-class community (one of the more impoverished in South Florida) and is heavily dependent on public transportation. This project will improve bus access, link county rail systems with high-speed rail facilities, improve and connect existing Metrorail stations, and extend service to connect with downtown and other important sites in Dade County. The MDTA is the lead agency in the North Corridor Project, with the scope of the project extended to the proposed MIC. Early in FY 1996, the MPO adopted a resolution selecting the NW 27th Avenue alignment as the preferred alternative connecting to the MIA via the MIC. The 9.5-mile rail extension within Dade County is expected to be completed by 2004.<sup>157</sup> The area is the lowest in automobile dependency and represents an opportunity for Metro-Dade and the state of Florida to improve economic development, introducing intermodal transportation. It will likely serve as an exemplary model of extensive public transportation improvements.<sup>158</sup>

The Metro-Dade MPO is also undertaking a number of other studies that could be considered MIS but are not designated as such. The Biscayne Boulevard/U.S. 1 Transportation Enhancements Project (1995 UPWP) is “essentially a corridor study which considers all modes, access and land use issues, mobility issues for various groups and aesthetic improvements.”<sup>159</sup>

### *Creative Public/Private Involvement*

Miami's port operates under the “landlord” system. The local government leases out two-thirds of its docks to private operators and the rest to private stevedoring firms. Under the tenant system, all equipment, terminals, storage facilities and other properties are leased under contract.<sup>160</sup> This system yields Miami more than \$8 million annually.<sup>161</sup>

Currently, the representatives of the cruise, freight, and car-rental industries are involved in the planning process of both the MIC and East-West Corridor Projects. “Given the pivotal role that the seaport and airport play in the current and future economic vitality. . . regional success will depend on collaborative . . . public and private partnerships.”<sup>162</sup>

Public involvement in the planning process of the MPO is extensive as well. A 32-member committee, known as the Citizen's Transportation Advisory Committee, acts as the primary mechanism to solicit public opinion. The Dade County Public Involvement

Process (DCPIP) produces a planning document with guidelines, methodology, events, federal requirements, and public comments. The MPO defines the major roles of the three segments of public involvement. First, the general public is provided access to all meetings. Second, agencies involved in planning are required to work with and inform the public regarding procedures. Finally, decisionmaking officials are to ensure that federal requirements are being met regarding public involvement.<sup>163</sup> Both large-scale intermodal projects mentioned have involved extensive public-involvement processes, with more than 20 public hearings per month to approve proceedings.<sup>164</sup>

Coordination with local agencies is equally comprehensive and involves several public entities in the consultation and planning process. These agencies include but are not limited to City of Miami Departments of Parks and Recreation, Fire and Rescue, Planning; the City of Hialeah Department of Water and Sewer and the Office of the City Clerk; Metro-Dade County Department of Historic Preservation and Office of Emergency Management.<sup>165</sup>

#### *Intermodal/Multimodal Planning Processes*

Metro-Dade has undertaken several studies that highlight the multimodal planning process and the region's understanding of the scope of multimodal transportation issues. The following studies are underway or have recently been completed and were included in several versions of the UPWP:

1. Freight Movement Study for Dade County,
2. Congestion Mitigation: Public Private Partnership Study,
3. Transit Corridor Investment Study,
4. County Wide Parking Policy Study,
5. CSX Transportation, Inc. Rights-of-Way: Rails to Trails Study, and
6. Comprehensive Bicycle/Pedestrian Planning Programs.<sup>166</sup>

The current LRTP includes new capacity standards developed to enable alternate combinations of modes to be used to meet demands in a corridor. On a county level, Dade County has adopted new capacity and level-of-service standards in its County Development Master Plan, which takes transit availability into account.<sup>167</sup>

Innovative approaches to the integration of the actual planning process take place as well. Amendments to the LRTP are made annually, although federal guidelines only stipulate five-year revisions. Thus, the state may evaluate and incorporate new plans with expediency and funding differences may be reflected in the following TIP.<sup>168</sup> Metro-Dade's UPWP includes a Regional Council Transportation Support Project intended to facilitate regional planning and encourage multijurisdiction multimodal networks and impact evaluation. Additionally, the UPWP includes "Multimodal Planning" as one of its

four project objective categories and includes all plans that promote a fully multimodal transportation system and promote efficiency and safety across all modes.<sup>169</sup>

### *Innovative Funding*

Preliminary estimates of available resources through the year 2015 equal \$14.4 billion. Twenty-five percent of all statewide intermodal/rail funds are available to FDOT District 6. Metro-Dade receives 40.2 percent of the District 6-designated \$597 million, which is a shortfall compared with the needs assessment through 2015.<sup>170</sup> To address the financial constraints of the 2015 LRTP, Metro-Dade hired consultants to evaluate funding and develop new resources for the enhanced transportation of the area. Several proposals were made and have yet to be adopted. One was to introduce a service contract bond allowing for the leverage of future intermodal/rail program bonds.<sup>171</sup> Another is shifting the full risk of projects to the private sector. “(DBOM) Design-Build-Operate-Maintain” private projects are suggested to relieve the high cost of capital investment.<sup>172</sup> Partial private-funding endeavors are already taking place throughout the county. Contributions from airport- and seaport-generated funds are proposed for ground transportation improvement projects directly affecting these ports.<sup>173</sup> In addition, the Public Lands Trust, a public/private partnership, is exploring ways to purchase the right-of-way outright for the MIC location site. The MIC project also includes heavy development interests in an effort to help finance the construction.<sup>174</sup> Other transportation funding derives from the following:

- Dade County is divided into nine road impact areas. Fees collected in each district are expended on improvements for that district.<sup>175</sup>
- Metro-Dade has decided to reserve 1.5 percent of all eligible surface transportation capital funds for nonmotorized modes of transportation.<sup>176</sup>
- Dade County has an ad valorem tax, which generates a relatively small fund. The capital outlay reserve funds total \$500,000 per year and are traditionally set aside for new bikeways and sidewalks. (This tax will likely be phased out.)<sup>177</sup>
- Finally, in 1993, the Florida Legislature passed legislation authorizing county governments to levy an optional gasoline tax, the capital improvements local option gas tax for a maximum six cents per gallon. Dade County exercises this right and allocates 74 percent to be retained by the county and the remaining 26 percent to be distributed to municipal governments. In FY 1995, the first full year with the tax, the revenue approximated \$26.7 million.<sup>178</sup>



### *Innovative Legislation*

The formation of the Dade County Expressway Authority, through legislation passed in 1994, has enabled the county to levy tolls and use the proceeds for transit and highway improvements including operating expenditures.<sup>179</sup>

The above-mentioned legislation, allowing the optional gas tax for counties, enables more funding in countywide transportation efforts.

## Notes

- <sup>1</sup> Memorandum from the Florida Department of Transportation (FDOT), Rail Planning Office, to Brent Riddle, Lyndon B. Johnson School of Public Affairs, The University of Texas at Austin, February 18, 1997.
- <sup>2</sup> U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States: 1995* (Washington, D.C., 1995), pp. 28-29.
- <sup>3</sup> *Information Please Almanac, Atlas, and Yearbook* (New York: Houghton Mifflin Company, 1996), p. 775.
- <sup>4</sup> FDOT, *Connections Bringing Florida Together, 2020 Florida Transportation Plan* (Tallahassee, Fla., March 1995), p. 4.
- <sup>5</sup> *The World Almanac and Book of Facts* (New York: Newspaper Enterprise Association, 1993), p. 641.
- <sup>6</sup> U.S. Bureau of the Census, *Statistical Abstract of the United States*, pp. 28-29.
- <sup>7</sup> FDOT, *Connections Bringing Florida Together*, p. 9.
- <sup>8</sup> FDOT, "State Aviation Role Programs Overview," Tallahassee, Fla., October 1996 (computer printout).
- <sup>9</sup> FDOT, *Connections Bringing Florida Together*, p. 12.
- <sup>10</sup> FDOT, *1996 Florida Rail System Plan* (Tallahassee, Fla., December 1996), p. 2-2.
- <sup>11</sup> FDOT, *Connections Bringing Florida Together*, p. 16.
- <sup>12</sup> *Ibid.*, p. 9.
- <sup>13</sup> Interview by Valerie Briggs with Robert Hebert, Administrator of Ports/Intermodal, Rail Office, FDOT, Tallahassee, Florida, February 6, 1998; and Florida Seaport Transportation and Economic Development Council (FSTED Council), *A Five Year Plan to Accomplish the Mission of Florida's Seaports 1995/6-1999/2000* (Tallahassee, Fla., 1996), p. 2.
- <sup>14</sup> FDOT, *Connections Bringing Florida Together*, p. 9.

<sup>15</sup> FSTED Council, *A Five Year Plan*, pp. 7, 49.

<sup>16</sup> FDOT, *Connections Bringing Florida Together*, pp. 7-10, 17.

<sup>17</sup> *Ibid.*, p. 7.

<sup>18</sup> *Ibid.*, pp. 18-19.

<sup>19</sup> *Ibid.*, p. 20.

<sup>20</sup> *Ibid.*

<sup>21</sup> *Ibid.*, p. 12.

<sup>22</sup> FDOT Organizational Chart, Tallahassee, Fla., May 19, 1997.

<sup>23</sup> FDOT, "Florida Department of Transportation Mission and Overview," FDOT web site (Tallahassee, Fla. [cited February 13, 1998]), available from: <http://www.dot.state.fl.us/moreDOT/mission.html>; INTERNET.

<sup>24</sup> FDOT, "Florida Department of Transportation 1997 Legislative Summary," FDOT web site (Tallahassee, Fla. [cited October 15, 1997]), available from: <http://www.dot.state.fl.us/moreDOT/legpak.html>; INTERNET.

<sup>25</sup> FDOT Organizational Chart.

<sup>26</sup> FDOT, "Florida Department of Transportation Mission and Overview."

<sup>27</sup> FDOT Organizational Chart.

<sup>28</sup> FDOT, Office of Policy Planning Organizational Chart, Tallahassee, Fla., December 22, 1997.

<sup>29</sup> FDOT Organizational Chart.

<sup>30</sup> FDOT, "Florida Transportation Commission," FDOT web site (Tallahassee, Fla. [cited October 15, 1997]), available from: <http://www.dot.state.fl.us/moreDOT/ftc.html>; INTERNET.

<sup>31</sup> Florida Department of Community Affairs, "Department of Community Affairs," Florida Department of Community Affairs web site (Tallahassee, Fla. [cited February 13, 1998]), available from:

<http://www.state.fl.us/comaff/dca.html>; INTERNET.

<sup>32</sup> Telephone interview by Valerie Briggs with Angela Scharwath, Informations Officer, Information Services, Florida Department of Community Affairs, Tallahassee, Florida, February 19, 1998.

<sup>33</sup> Ibid.

<sup>34</sup> Telephone interview by Valerie Briggs with Robert Arrendondo, Planning Manager, Transportation Planning Group, Florida Department of Community Affairs, Tallahassee, Florida, February 19, 1998.

<sup>35</sup> Florida Statutes, chapter 311.07 (West 1996).

<sup>36</sup> Telephone interview by Valerie Briggs with Nancy Leikauf, Vice-President, Florida Ports Council, Tallahassee, Florida, February 19, 1998.

<sup>37</sup> Ibid.

<sup>38</sup> Ibid.

<sup>39</sup> Hebert interview.

<sup>40</sup> Telephone interview by Valerie Briggs with Bill Coulter, Executive Vice-President, Florida Airport Managers Association, Tallahassee, Florida, February 19, 1998.

<sup>41</sup> FDOT, *Connections Bringing Florida Together*, Appendix A, p. 9.

<sup>42</sup> FDOT, *A Model Intermodal Transportation Plan: Florida's Intermodal Planning Process*, prepared by Wilbur Smith Associates (Tallahassee, Fla., March 1994), p. 2-3.

<sup>43</sup> FDOT, *Connections Bringing Florida Together*, inside front cover.

<sup>44</sup> Ibid., p. 30.

<sup>45</sup> Ibid., p. 5.

<sup>46</sup> Ibid., pp. 36-38.

<sup>47</sup> Ibid., pp. 39-41.

<sup>48</sup> FDOT, *Implementing the 2020 Florida Transportation Plan: Short Range Component for 1997-2006* (Tallahassee, Fla., n.d.), p. 2.

<sup>49</sup> Ibid., p. 56.

<sup>50</sup> Ibid., p. 58.

<sup>51</sup> Interview by Valerie Briggs with Daniel Cashin, Policy Analyst, Office of Policy Planning, FDOT, Tallahassee, Florida, February 6, 1998.

<sup>52</sup> FDOT, *Annual Performance Report: An Evaluation of the 1996-2005 Agency Strategic Plan* (Tallahassee, Fla., 1997).

<sup>53</sup> FDOT, *Implementing the 2020 Florida Transportation Plan: Short Range Component for 1996-2005* (Tallahassee, Fla., n.d.), p. 2.

<sup>54</sup> Cashin interview.

<sup>55</sup> Telephone interview by Valerie Briggs with Steven Sklute, Manager, Florida Intrastate Highway Systems Planning Office, FDOT, Tallahassee, Florida, February 20, 1998.

<sup>56</sup> Hebert interview.

<sup>57</sup> FDOT, *A Model Intermodal Transportation Plan: Florida's Intermodal Planning Process*.

<sup>58</sup> Ibid., p. 1-1.

<sup>59</sup> Ibid.

<sup>60</sup> Hebert interview.

<sup>61</sup> FDOT, *A Model Intermodal Transportation Plan: Florida's Intermodal Planning Process*, pp. 2-4—2-5.

<sup>62</sup> FDOT, *1996 Florida Rail System Plan*.

<sup>63</sup> FSTED Council, *A Five Year Plan*.

<sup>64</sup> FDOT, *Strategic Investment Plan to Implement the Intermodal Access Needs of Florida's Seaports*,

prepared by Post, Buckley Schuh & Jernigan, Inc. (Tallahassee, Fla., June 1996), p. viii.

<sup>65</sup> FDOT, *The Florida Aviation System Plan* (Tallahassee, Fla., 1992).

<sup>66</sup> Interview by Valerie Briggs with Chuck Arnold, Administrator of Aviation Development, Aviation Office, FDOT, Tallahassee, Florida, February 9, 1998.

<sup>67</sup> FDOT, "Transit 2025: A Strategic Transit Plan for Florida" (draft), prepared by ICF Kaiser Engineering Group (Tallahassee, Fla., January 1998).

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<sup>69</sup> FDOT, "Florida Department of Transportation 1997 Legislative Summary"; and telephone interview by Valerie Briggs with Mark Hopkins, Administrator, Budget Office, FDOT, Tallahassee, Florida, February 20, 1998.

<sup>70</sup> FDOT, "1998 Program and Resource Plan Summary: Fiscal Years 1998/99 to 2006/07," Tallahassee, Fla., February 13, 1998 (computer printout).

<sup>71</sup> FDOT, *Florida's Transportation Tax Sources* (Tallahassee, Fla., February 1997). pp. 1-7, 3-1—3-5, and 5-4.

<sup>72</sup> *Ibid.*, inside front cover.

<sup>73</sup> Florida Statutes, chapter 311.07(1) (West 1996).

<sup>74</sup> FDOT, *Strategic Investment Plan*, p. 2.

<sup>75</sup> Florida Statutes, chapter 341.058, section 82 (West 1996).

<sup>76</sup> Hebert interview.

<sup>77</sup> Letter from Robert Hebert, Administrator of Ports/Intermodal, Rail Office, FDOT, to Valerie Briggs, Lyndon B. Johnson School of Public Affairs, The University of Texas at Austin, October 29, 1997.

<sup>78</sup> FDOT, "Florida Department of Transportation Aviation Role," FDOT web site (Tallahassee, Fla. [cited October 15, 1997]), available from: <http://www.dot.state.fl.us/moreDOT/aviation/index.html>; INTERNET.

<sup>79</sup> Interview by Valerie Briggs with Russell Tagliareni, Administrator of Aviation Operations, Aviation Office, FDOT, Tallahassee, Florida, February 9, 1998.

<sup>80</sup> FDOT, "State Aviation Role and Programs Overview," Tallahassee, Fla., October 1996 (computer printout).

<sup>81</sup> FDOT, "Public Transit Program Overview," Tallahassee, Fla., February 1998 (computer printout).

<sup>82</sup> Ibid.

<sup>83</sup> FDOT memorandum.

<sup>84</sup> FDOT, "Rail Program Overview," Tallahassee, Fla., January 1998 (computer printout).

<sup>85</sup> FDOT, "1998 Program and Resource Plan Summary."

<sup>86</sup> Interview by Valerie Briggs with Terry Kraft, Administrator of Statewide Transportation Planning, Office of Policy Planning, FDOT, Tallahassee, Florida, February 9, 1998.

<sup>87</sup> Ibid.

<sup>88</sup> FDOT, *Connections Bringing Florida Together*, Appendix A, pp. 12-15.

<sup>89</sup> Memorandum to "All Interested Parties" from Robert Hebert, Administrator of Ports/Intermodal, Rail Office, FDOT, June 30, 1997.

<sup>90</sup> FDOT, *A Model Intermodal Transportation Plan: Florida's Intermodal Management System Pilot Project Evaluation White Paper*, prepared by Wilbur Smith Associates (Tallahassee, Fla., June 1997), p. 1.

<sup>91</sup> Ibid., p. 5.

<sup>92</sup> FDOT, *A Model Intermodal Transportation Plan: Florida's Intermodal Planning Process*, p. 4-1.

<sup>93</sup> Ibid., p. 4-21.

<sup>94</sup> FDOT, *A Model Intermodal Transportation Plan: Florida's Intermodal Management System Pilot Project Evaluation White Paper*, p. 1.

<sup>95</sup> Hebert interview.

<sup>96</sup> Ibid.

<sup>97</sup> FDOT, *Connections Bringing Florida Together*, p. 47.

<sup>98</sup> FDOT, "Florida Transit Strategic Plan," FDOT web site (Tallahassee, Fla. [cited October 15, 1997]), available from: <http://www.dot.state.fl.us/moreDOT/transit/index.html>; INTERNET.

<sup>99</sup> Arnold Interview.

<sup>100</sup> Telephone interview by Valerie Briggs with Jack Rendahl, Performance Audit Manager, Office of the Inspector General, FDOT, Tallahassee, Florida, December 1, 1997.

<sup>101</sup> FDOT, "Measures for Performance-Based Program Budgeting as Stated in the General Appropriations Act for FY 1997-89," Tallahassee, Fla., October 3, 1997 (computer printout).

<sup>102</sup> Rendahl interview.

<sup>103</sup> Hebert interview.

<sup>104</sup> Florida Transportation Commission, *Performance and Production Review of the Department of Transportation Year-End FY 1996/97* (Tallahassee, Fla., August 28, 1997), p. 82.

<sup>105</sup> FDOT, *Annual Performance Report: An Evaluation of the 1996-2005 Agency Strategic Plan* (Tallahassee, Fla., September 2, 1997), p. 8.

<sup>106</sup> Cashin interview.

<sup>107</sup> Florida Statutes, chapter. 341.058, section 82 (West 1996).

<sup>108</sup> Ibid.

<sup>109</sup> Hebert letter.

<sup>110</sup> FDOT, "Florida Intermodal Development Program," Tallahassee, Fla., March 7, 1997 (internal document).

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<sup>112</sup> FDOT, "Florida Department of Transportation 1997 Legislative Summary."

<sup>113</sup> FDOT, *Strategic Investment Plan*, p. 2.

<sup>114</sup> *Ibid.*, p. viii.

<sup>115</sup> Metro-Dade Metropolitan Planning Organization (Metro-Dade MPO), "Metropolitan Dade County: Statistics," Metro-Dade web site [cited December 15, 1997], available from: <http://www.metro-dade.com/factstat.html>; INTERNET.

<sup>116</sup> Greater Miami Chamber of Commerce, "Greater Miami," Greater Miami Chamber of Commerce web site [cited January 26, 1998], available from: <http://www.greatermiami.com>; INTERNET.

<sup>117</sup> Dade County, "Statistics," Dade County web site [cited January 26, 1998], available from: [http://www.state.fl.us/commerce/public\\_html/html/locatelocal/dade2.html](http://www.state.fl.us/commerce/public_html/html/locatelocal/dade2.html); INTERNET.

<sup>118</sup> Metro-Dade MPO, "Metropolitan Dade County: Trade, Industry, Commerce," Metro-Dade web site [cited December 15, 1997], available from: <http://www.metro-dade.com/tradeindustry.html>; INTERNET.

<sup>119</sup> Federal Transit Administration (FTA), U.S. Department of Transportation, "Enhanced Planning Review of the Transportation Planning Process in the Miami Metropolitan Area: May 1996," FTA web site [cited December 14, 1997], available from: <http://www.fta.dot.gov/fta/library/planning/plnrpt/Mia.html>, pp. 12-13; INTERNET; and Metro-Dade MPO, "Metro-Dade Transportation: Overview," Metro-Dade web site [cited December 15, 1997], available from: <http://www.metro-dade.com/transportation.html>; INTERNET.

<sup>120</sup> Miami International Airport, "MIA: Passenger Facts," Miami International Airport web site (Miami, Fla. [cited January 28, 1998]), available from: <http://www.miami-airport.com>; INTERNET.

<sup>121</sup> Metro-Dade MPO, "Port of Miami: an Overview," Metro-Dade web site [cited January 28, 1998], available from: <http://www.metro-dade.com/portofmiami/overview1/html>; INTERNET.

<sup>122</sup> Metro-Dade MPO, "Metro-Dade Bicycle Facilities Plan," prepared by Barton-Aschman Associates, Inc., Miami, Fla., July 1995, pp. 2-1—2-2.

<sup>123</sup> Metro-Dade MPO, "Metropolitan Planning Organization for the Miami Urbanized Area," Metro-Dade web site [cited December 15, 1997], available from: <http://www.metro-dade.com/mpo/MPOBRO1.html>, p. 1; INTERNET.

<sup>124</sup> FTA, "Enhanced Planning Review," pp. 13-14.

<sup>125</sup> Metro-Dade MPO, "Unified Planning Work Program for Transportation, 1998," (Miami, Fla., May 1997), p. 1.

<sup>126</sup> FTA, "Enhanced Planning Review," p. 15.

<sup>127</sup> Metro-Dade MPO, "Transportation Financial Analyses and Assessments: Executive Summary," prepared by KPMG Peat Marwick, LLP, in association with Sharpton, Brunson & Co. (Miami, Fla., July 1997), p. 3.

<sup>128</sup> Interview by Elizabeth Pleshette with Frank Baron, Principal Planner, Metro-Dade MPO, Miami, Florida, January 14, 1998.

<sup>129</sup> FTA, "Enhanced Planning Review," pp. 15-16.

<sup>130</sup> Metro-Dade MPO, *2015: Metro-Dade Transportation Plan Long-Range Element*, Miami, Fla., December 1995, p. 1.

<sup>131</sup> U.S. Department of Transportation et al., "Connecting People East-West: Project Description; Miami Intermodal Center," (Miami, Fla., September 1997), p. 3.

<sup>132</sup> FTA, "Enhanced Planning Review," pp. 15-16.

<sup>133</sup> Metro-Dade MPO, "What is the 2015 Metro-Dade Long-Range Transportation Plan," Metro-Dade web site [cited December 15, 1997], available from: <http://www.metro-dade.com/mpo/2015plan.html>, pp. 2-3; INTERNET.

<sup>134</sup> Ibid.

<sup>135</sup> Ibid.

<sup>136</sup> Ibid.

<sup>137</sup> Ibid.

<sup>138</sup> Metro-Dade MPO, "2015: Metro-Dade Transportation Plan Long Range Element," p. 9.

<sup>139</sup> Metro-Dade MPO, "Transportation Improvement Program: Fiscal Years 1998-2002," (May 1997), p.

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<sup>140</sup> FTA, "Enhanced Planning Review," pp. 19-20.

<sup>141</sup> Metro-Dade MPO, "What is the 2015 Metro-Dade Long-Range Transportation Plan," pp. 2-3.

<sup>142</sup> Metro-Dade MPO, "Prospectus for Transportation Improvements," 5th ed. rev., Miami, Fla., March 1995, p. 10.

<sup>143</sup> *Ibid.*, p. 9.

<sup>144</sup> FTA, "Enhanced Planning Review," p. 16.

<sup>145</sup> *Ibid.*

<sup>146</sup> *Ibid.*, p. 5

<sup>147</sup> *Ibid.*, p. 26.

<sup>148</sup> Interview by Elizabeth Pleshette with Jose Gonzalez, MIC Coordinator: District 6 Office, FDOT, Miami, Florida, January 22, 1998

<sup>149</sup> U.S. Department of Transportation et al., "Connecting People East-West," p. 2.

<sup>150</sup> *Ibid.*, p. 8.

<sup>151</sup> Metro-Dade MPO et al., "Dade County Transportation System Hurricane Emergency Preparedness Study," April 1995.

<sup>152</sup> Baron interview.

<sup>153</sup> FDOT, District VI et al.; "East-West Multimodal Corridor: Description of Project," (May 1997), p. 2.

<sup>154</sup> *Ibid.*

<sup>155</sup> *Ibid.*, pp. 5-7.

<sup>156</sup> Gonzalez interview.

<sup>157</sup> Metro-Dade MPO, "Transportation Improvement Program: Fiscal Years 1998-2002," p. 201.

<sup>158</sup> Metro-Dade Transit, with Parsons Brinkerhoff, "North Corridor Alternatives Analysis—Locally Preferred Alternative: Decision Document (Final Alternatives Analysis Summary Report)," December 1995.

<sup>159</sup> FTA, "Enhanced Planning Review," p. 26.

<sup>160</sup> Andre Henderson, "The Ports Go Private; In the Face of Rising Costs and Competition, More and More Ports Are Courting the Private Sector," *Governing*, April 1995, p. 37.

<sup>161</sup> Metro-Dade MPO, "Port of Miami: an Overview."

<sup>162</sup> FTA, "Enhanced Planning Review," p. 38.

<sup>163</sup> Metro-Dade MPO, "Public Involvement Process," Miami, Fla., February 1995.

<sup>164</sup> National Research Council, "National Conference on Intermodalism: Making the Case, Making it Happen," (New Orleans, La.; December 1994), pp. 72 and 74.

<sup>165</sup> FTA, "Enhanced Planning Review," p. 36.

<sup>166</sup> Metro-Dade MPO, "Unified Planning Work Program for Transportation, 1998."

<sup>167</sup> FTA, "Enhanced Planning Review," p. 37.

<sup>168</sup> *Ibid.*, p. 16.

<sup>169</sup> Metro-Dade MPO, "Unified Planning Work Program for Transportation, 1998."

<sup>170</sup> Metro-Dade MPO, "2015: Metro-Dade Transportation Plan Long Range Element," p. IV-2.

<sup>171</sup> Metro-Dade MPO, "Transportation Financial Analyses and Assessments: Executive Summary," p. 22.

<sup>172</sup> *Ibid.*, p. 19.

<sup>173</sup> Metro-Dade MPO, "What is the 2015 Metro-Dade Long-Range Transportation Plan."

<sup>174</sup> FTA, "Enhanced Planning Review," p. 36.

<sup>175</sup> Metro-Dade MPO, “Transportation Financial Analyses and Assessments: Executive Summary.”

<sup>176</sup> Metro-Dade MPO, “2015: Metro-Dade Transportation Plan Long Range Element.”

<sup>177</sup> Metro-Dade MPO, “Metro-Dade Bicycle Facilities Plan,” p. 7-7.

<sup>178</sup> Ibid.

<sup>179</sup> FTA, “Enhanced Planning Review,” p. 24.



## **Chapter 4. Minnesota**

### **Overview**

Minnesota, with 4.4 million residents, is the 20<sup>th</sup> most populous state in the nation (1994). By the year 2020, the state's population is expected to reach 5 million.<sup>1</sup> The major metropolitan areas are Minneapolis, St. Paul, Bloomington, and Duluth.

Minnesota has 84,402 square miles in total area. Its topography consists of central hills and lake regions that cover approximately half the state. Rocky ridges and deep lakes lie to the northeast, flat plains are located in the northwest, and rolling plains with deep river valleys are located in the south.<sup>2</sup>

The principal industries of the Minnesota economy are agriculture, forest products, mining, manufacturing, and tourism. Chief agricultural crops of the state are corn, soybeans, wheat, sugar beets, sunflowers, and barley. Its primary manufactured goods consist of food processing, nonelectrical machinery, chemicals, paper, electric equipment, printing and publishing, instruments, and fabricated metal products.<sup>3</sup> The state is rich in natural resources, particularly iron ore. A few square miles of land in the northern Mesabi, Cuyuna, and Vermilion ranges produce 75 percent of the nation's iron ore.<sup>4</sup>

### **Transportation Infrastructure**

Minnesota has a multimodal transportation network that includes

- 130,000 miles of streets and highways with 11,700 miles of state trunk highways (1996);
- 4,652 miles of rail with 22 carriers (1996);
- Amtrak service to six communities (1996);
- 51 counties with county-level transit service and 40 transit systems in the Minneapolis-St. Paul area (1996);
- 138 publicly owned and operated airports with 15 that offer commercial passenger service (1996); and,
- four major ports on Lake Superior that handle 59 million tons of freight, and six ports on Minnesota rivers that account for 18 million tons of freight (1991).<sup>5</sup>

## **State Issues, Policies, and Goals**

The demographics of Minnesota have been changing significantly as both jobs and people have been moving from the country to the city. Between 1980 and 1990, 18 counties experienced a decline in the total number of jobs and 33 counties experienced a loss in the number of households, while the 25 fastest growing cities were in the seven-county Minneapolis/St. Paul metro area. This migration to the city is straining the transportation infrastructure of the metro area. Minneapolis/St. Paul is now a nonattainment area in terms of air-quality standards set by the Clean Air Act Amendments of 1990. Moreover, congestion is increasing, and innovations, intended to improve the transportation system, have not been well received by the car-driving public.

Given the size and importance of agriculture to Minnesota's economy, maintenance of "farm to market" roadways is a crucial concern. In the larger context, Minnesota must ensure the viability of its transportation infrastructure to remain competitive in the global market. Future development may hinge not on paving more roads but on streamlining and modernizing the system that has already been built.

Public participation in the planning process is another major issue. Without adequate public participation, the Minnesota Department of Transportation (Mn/DOT) will be unable to determine the transportation needs of the state. Efforts to foster community involvement have taken place, but success remains elusive.

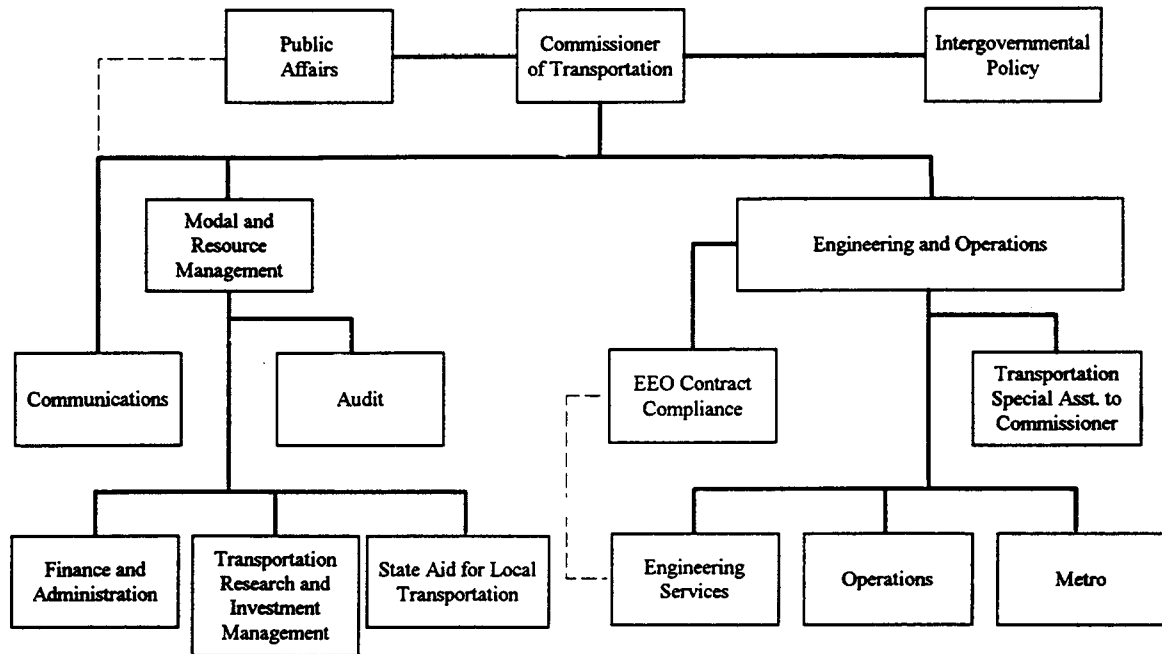
## **State Agencies Involved in Transportation**

### **Minnesota Department of Transportation**

According to chapter 174 of the Minnesota Statutes, Mn/DOT "is the principal agency for developing, implementing, administering, consolidating and coordinating state transportation policies plans and programs."<sup>6</sup> The department is headed by a commissioner and has a FY 1998 budget of \$748 million and a staff of about 5,000. Under the commissioner are five offices that carry out Mn/DOT's mission. The Office of Communications and the Office of Public Affairs address the transportation information needs and handle public relations, respectively. The Office of Intergovernmental Policy maintains liaison with both state and federal legislative bodies, provides information to elected officials and their staffs, and interacts with federal, regional, county, and municipal officials and transportation-related organizations. The Office of Modal and Resource Management oversees finance and administration; conducts research, planning, and policymaking; and administers and awards federal and state money. The Office of Engineering and Operations is responsible for implementation (see figure 4.1).<sup>7</sup>



**Figure 4.1**  
**Organizational Structure**  
**Minnesota Department of Transportation**



Source: Adapted from Minnesota Department of Transportation (Mn/DOT), Mn/DOT Organizational Chart, St. Paul, Minn., n.d. (computer printout).

Planning is done in the Division of Transportation Research and Investment Management, which is under the Office of Modal and Resource Management. This division “directs Mn/DOT’s strategic planning and statewide investment decision process; administers statewide modal programs including aeronautics, highways, railroads, waterways and transit; and is responsible for advancing research and new technology applications in transportation as well as enforcement of specific laws and regulations which ensure the safe movement of goods and people.”<sup>8</sup> Offices within this division are Advanced Transportation Systems, Alternative Transportation Financing, Management Data Services, Freight, Railroads and Waterways, Strategic Initiatives, Aeronautics, Investment Management, Motor Carrier Services, Research Administration, and Transit.<sup>9</sup>

The office primarily responsible for planning, directing, and coordinating intermodal development within Mn/DOT is the Office of Investment Management.<sup>10</sup> It is subdivided into three sections—Program Development and Project Authorization, Policy and Plan Development, and Economic Analysis and Special Studies.

### ***Program Development and Project Authorization Section***

This section's functions are to

1. develop and refine a fair and equitable statewide investment process driven by a federal and state goals and objectives;
2. develop, manage, and maintain Minnesota's Statewide Transportation Improvement Program (STIP) and Mn/DOT's Highway Improvement Program (HIP);
3. manage state funds in a manner that effectively supports the HIP;
4. recommend and prepare alternative strategies to address high-emphasis program areas and/or legislative funding requests;
5. manage federal-aid highway funding in a manner that effectively supports Mn/DOT's STIP and HIP;
6. provide essential liaison with the Federal Highway Administration to ensure effective use of federal funds;
7. provide guidance and technical assistance to local units of government and/or their consultants in meeting program and project funding criteria;
8. review proposed federal and state legislation that may affect transportation funding for Minnesota;
9. serve as the focal point for managing federal-aid emergency relief funding when national disasters are declared; and
10. coordinate and manage the Federal "402" Safety Program and the State Planning and Research Program (SP&R).<sup>11</sup>

### ***Policy and Plan Development Section***

The Policy and Plan Development Section is responsible for

1. developing the Minnesota Statewide Transportation Plan and Mn/DOT's Intermodal Management System;
2. coordinating planning activities with metropolitan planning organizations to maintain a federally certified cooperative and continuing planning process;
3. providing guidance and technical assistance to metropolitan planning organizations (MPOs);

4. working with Mn/DOT district and modal offices to develop frameworks for district planning and central office system planning studies; and
5. serving as the department's primary resource for assistance in administrative rulemaking proceedings, reviewing proposed federal rules that affect transportation agency activities.<sup>12</sup>

### ***Economic Analysis and Special Studies Section***

The Economic Analysis and Special Studies Section provides economic and investment analyses, technical services, and expertise to Mn/DOT's executive leadership team, districts, and transportation planning, programming, and project development units.

Services of this section include development of investment criteria and guidelines that encourage sound investment and pricing practices. The section conducts analysis of the economic returns of Mn/DOT's transportation investments in terms of benefits and costs and also evaluates equity impacts of the transportation investments and policies, especially on low-income groups. The office identifies major economic, business, and demographic trends that will affect long-term transportation demands and revenues and provides investment analysis tools, training, and techniques. The section is also responsible for highway functional-class documentation and updates, as well as special studies regarding highway characteristics, conditions, and investments.<sup>13</sup>

## **Transportation Plans and Reports**

The passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) required states to draft a transportation plan that is long term, multimodal, and statewide in nature. Minnesota, using ISTEA's guidelines, released its statewide transportation plan in 1995.

### **Statewide Transportation Plans**

Mn/DOT produced two documents that are at the core of statewide transportation planning. The first, *The Minnesota Statewide Transportation Plan: A Work in Progress* (MSTP), is a long-range (20-year) and broad-based intermodal planning guide. The second, the Statewide Transportation Improvement Program, is a detailed list of all programmed expenditures for all modes of transportation for a three-year period. Both are a result of ISTEA.

The MSTP serves two purposes. It consolidates technical and logistical information on all modes of transportation into one document and outlines the policy directions that will drive and direct the growth of those modes. The MSTP contains detailed descriptions of the investment process and financial resources available to each mode of transportation in the state highways, railways, ports and waterways, aviation, transit, and alternative transportation (bicycle and pedestrian traffic). Additionally, the demographics that are expected to affect the needs of Minnesota's transportation system are covered in great detail. Information is included on the physical geography of the state, changes in the

demographics of the population, commuting patterns, and industrial and agricultural trends.

The MSTP's policy directives are guided by a "vision statement," which reads:

The vision for the Minnesota Department of Transportation is to pioneer, from the customer's viewpoint, a seamless transportation system that offers more choice, flexibility and ways of moving people and goods. Fundamental to this vision is the need to provide connectivity to local, regional, national and international markets at the greatest possible cost advantage, consistent with the state's economic, social and environmental values. Our transportation system will foster connections and cooperation among rural and urban areas of the state, enrich our sense of community and enhance our quality of life.<sup>14</sup>

From this statement come ten strategic directions guiding "where transportation must go if it is to meet customer needs now and into the 21st century." These ten strategic directions cover access, energy and the environment, intermodalism, values, partnerships, education, government and policy, research and technology, finance, and planning.<sup>15</sup> From these, access, intermodalism, and values were singled out as being "especially timely and critical to achieving Minnesota's vision for transportation" and a 14-point outline was developed to implement those three strategic directions.<sup>16</sup>

The STIP is the list of all anticipated expenditures of federal funds over a three-year period. It is also the end product of the Area Transportation Partnership process and is covered in detail later in this chapter in the "Exemplary Practices" section.

## **Modal Plans**

### ***Rail Plan***

The *Minnesota State Rail Plan*, a document required by both federal and state law, was published in January 1994 and serves as a guide to state rail planning through the year 2000. It is separated into three parts. Part 1, "Rail System and Line Analysis," provides a comprehensive picture of Minnesota's rail system and serves as a guide and programming document to state investment in rail. The plan "provides information, establishes policies, evaluates the condition of the state's rail system, identifies program needs and assures that the state's rail transportation decisions are made in the public's best interest."<sup>17</sup> Part 2, "Freight Rail Issues," identifies immediate problems and issues facing railroads and rail stakeholders in Minnesota. Part 3, "Minnesota Rail Service Improvement Program: Evaluation and Inventory," serves as a critique and analysis of the state's efforts at improving and maintaining rail service.<sup>18</sup>

### ***Aviation Plan***

The *Minnesota State Aviation System Plan*, published in June 1991, serves as a guide to state aviation system planners. It is separated into two volumes. Volume A: "Plan Overview" lays out the purpose and objectives of the plan, provides background

information on the aviation system, and makes development recommendations. Volume B: "Recommended Airport Development" lists the "specific recommended airport development at each State Aviation System Plan airport."<sup>19</sup> Recommendations are divided into current, near, mid and long term. They are not intended to supersede local programming or planning.

### ***Transit Plan***

The *Greater Minnesota Transit Plan*, published in January 1993, was a response to a 1991 law that required transit services to be provided throughout the state. Nearly 40 percent of Greater Minnesota is without access to transit services, and the plan "provides a framework for a comprehensive, coordinated transit network serving the citizens of every county in Greater Minnesota."<sup>20</sup> Greater Minnesota was broken into 11 regions, and an analysis of current transit services and needs was done for each region. Various funding scenarios were taken into account.

### ***Bicycle Plan***

*Plan B: The Comprehensive State Bicycle Plan*, published in February 1992, serves as a "framework to support and guide the development of bicycling in Minnesota."<sup>21</sup> It is separated into two parts. Part 1 provides current statistics on bicycling in Minnesota, analyzes possible benefits of increased bicycle use, and identifies the growth potential. Part 2 deals with policy issues regarding bicycles. Goals and objectives are identified, program and policy recommendations are made, a fiscal summary is listed, and funding recommendations are provided.

## **Transportation Funding and Programs**

Minnesota, with total expenditures in 1992 of \$12.5 billion, spent about 10 percent of this amount on transportation. This expenditure transportation the third-largest budget item in the state, behind education (37 percent) and social services (32 percent).<sup>22</sup> Analyses of funding and programs will be broken down by modes.

### **Highway Funding**

During 1992, \$2.2 billion was raised by townships, counties, cities, and the state for streets and highways. Revenue sources are given in table 4.1. For FY 1992, Mn/DOT was allocated \$1.1 billion for county highways that are designated as county state-aid highways, city streets that are designated as municipal state-aid streets, and state trunk highways. This amount consisted of \$829 million in state highway user taxes and \$235 million in federal funds.

**Table 4.1**  
**Highway Funding Revenue Sources by Jurisdiction**  
**(millions of dollars)**

Revenue Sources	Townships	Counties	Cities	State	Total
Property tax	51	164	420	0	635
Other receipts	6	45	64	62	178
Bonds and notes	4	2	104	0	110
State General Fund	12	27	128	0	167
State highway user taxes	6	254	93	476	829
Federal	0	29	0	206	235
Total	79	522	809	744	2200

Source: Data from Mn/DOT, *Minnesota Statewide Transportation Plan: A Work in Progress, Final Draft*, (St. Paul, Minn., January 1995), p. 6-2.

State revenue sources for highways and streets are as follows: motor fuel tax, motor vehicle registration taxes, driver's license fees, federal aid, and other revenues, including investment income. Both the motor fuel tax and the motor vehicle registration taxes go into the state's Highway User Tax Distribution Fund (HUTDF). This fund is dedicated by the Minnesota Constitution exclusively to "highway purposes." The motor fuel tax is currently at 20 cents per gallon, and the motor vehicle registration taxes are based on value and age for automobiles, and on gross weight for trucks.

The HUTDF is distributed based on a formula written into the state constitution. Ninety-five percent of the net proceeds are allocated as follows:

- 62 percent to the State Trunk Highway Fund
- 29 percent to the County State-Aid Highway Fund
- 9 percent to the Municipal State-Aid Street Fund

The remaining 5 percent may be set aside by the legislature and reallocated but no more frequently than once every six years.<sup>23</sup>

The State Trunk Highway Fund totaled \$763 million in FY 1993. Expenditures were as follows:

- Highway Improvement Program: \$343 million for resurfacing, reconditioning, and reconstruction; major construction; right-of-way acquisition; bridge repair and bridge replacement; safety; and interstate construction, substitution, and maintenance.

- Operations: \$163 million for design engineering, construction engineering, administration, and research and traffic engineering.
- Maintenance: \$144 million for snow and ice management, minor road and bridge repair, roadside management, traffic services, and rest areas.
- Department of Public Safety and other departments: \$69 million primarily for expenditures by the Department of Public Safety.
- Debt service: \$44 million for the retirement of trunk highway bonds and repayment of local advances.<sup>24</sup>

### **Transit Funding**

Transit in Minnesota is divided into two geographic areas. The Mn/DOT Office of Transit is responsible for transit services in the 80-county geographic area of Greater Minnesota, and the Metropolitan Council manages transit services in the seven-county Minneapolis-St. Paul metropolitan area. Total operating costs for transit services were \$174.9 million in 1993. Of this total, \$19.6 million went to Greater Minnesota, and the Minneapolis-St. Paul metro area received \$155.4 million.

Transit revenues are appropriated from the General Fund for the Public Transit Assistance Program. Transit systems in both geographic areas receive funding from this program. Local revenues are usually composed of farebox receipts and tax levies, and make up the majority of transit funds. Finally, federal moneys are provided on both a discretionary basis and through funding formulas based on Title III of ISTEA. Of the \$19.6 million for Greater Minnesota, \$9.1 million came from local sources, \$7.6 million from the state, and \$2.9 million from the federal government. Of the \$155.4 million for the metro area, \$116.6 million came from local sources, \$28.9 million from the state, and \$9.9 million from the federal government.<sup>25</sup>

### **Rail Funding**

The Office of Freight, Railroads and Waterways addresses rail issues through three sections: Railroad Administration, Rail Planning and Program Development, and Logistics. Four full-time equivalent (FTE) staff members handle Minnesota's Rail Freight Planning and Programs and three FTE staff members manage the Passenger Rail Planning and Programs. For FY 1997, Mn/DOT budgeted \$8.5 million for rail activities in the Office of Freight, Railroads and Waterways, with \$770,450 spent on passenger rail activities and \$7 million on rail freight.<sup>26</sup>

The Minnesota Rail Service Improvement (MRSI) Program, established in 1976, helps prevent the loss of rail service on lines subject to abandonment by major railroads. The MRSI Program has five component programs: the Rail Purchase Assistance Program, Rail Rehabilitation Program, Capital Improvement Loan Program, State Rail Bank Program, and Rail User and Carrier Guarantee Program. Under the Rail Purchase Assistance

Program, regional railroad authorities can acquire rail lines to provide local rail service, with Mn/DOT providing up to 50 percent of the acquisition cost. State funds are secured with a lien on the property and must be repaid if the line is sold or ceases to serve a transportation function.<sup>27</sup>

The Rail Rehabilitation Program provides low-interest loans to rehabilitate and preserve rail lines that are deemed financially viable and have the potential for growth. The Capital Loan Improvement Program lends rail users moneys to improve rail service and strengthen the financial condition of the rail line. These funds go toward the purchase, rehabilitation, construction, or reconstruction of physical facilities or equipment. Rail users are eligible for interest-free capital loans for up to \$200,000, or 100 percent of the project cost, whichever comes first, if they meet the following criteria:

- They are part of an overall rail line rehabilitation, acquisition, or operational subsidy project that has been funded under the MRSI Program.
- They will strengthen the financial condition of the associated line.
- They will improve rail service and/or use.
- They are economically feasible and provide adequate collateral or guarantees.<sup>28</sup>

The Rail User and Rail Carrier Loan Guarantee Program assists rail users in obtaining loans for rail rehabilitation, rolling stock acquisition, installation, and capital improvements by guaranteeing up to 40 percent of a loan. It guarantees revenue bond issues by political subdivisions of the state and covers the user's share of line rehabilitation costs and capital improvements. This program ensures up to 40 percent of a loan obtained by a borrower from a state or federally chartered bank or by revenue bonds. The program will defer 4 percent of a borrower's interest payments on a loan exceeding 7 percent per annum.<sup>29</sup>

With its State Rail Bank Program, Minnesota can acquire and preserve abandoned rail lines for future use. Mn/DOT staff analyzes all lines in the existing system, and those previously abandoned, to determine which lines are likely candidates for rail banking. Input from the public and other governmental agencies have strongly influenced the development of this program. As a result of their efforts, the Abandoned Rail Corridor Preservation Process was developed. This process establishes roles and responsibilities to ensure that when all efforts to continue rail service have failed, coordinated efforts will continue to assess the value of preserving the corridor for the future.<sup>30</sup>

In 1993, 63 percent of MRSI funding was derived from federal sources, 35 percent from state funds, and 2 percent from private sources.<sup>31</sup> From 1978 to 1993, the MRSI Program funded 71 projects totaling \$76 million in investment from public and private sources. These projects retained 189 miles of rail line, rehabilitated 918 miles of rail line, upgraded grain elevators and warehouse facilities, and acquired 231 miles of rail line.<sup>32</sup>



### **Aviation Funding**

Assistance to publicly owned airports in the state of Minnesota is available through the Airport Capital Improvement Program (CIP). This program “identifies the improvement needs of municipally owned airports throughout Minnesota; prepares and maintains an Airport Pavement Management System that reflects the current conditions of all the airport pavements and the forecasted pavement rehabilitation needs for planning purposes.” For FY 1998, \$8.2 million was appropriated by the state for this program.<sup>33</sup> Revenue sources are the aviation fuel tax, airline flight property tax, and aircraft registration tax.<sup>34</sup>

### **Ports Funding**

The Minnesota Legislature, during its 1991 session, established the Minnesota Port Development Assistance Program (PDAP) “to expedite, retain or generally improve the movement of commodities and passengers on the commercial navigation system and enhance the commercial vessel construction and repair industry in Minnesota by providing state funds in a revolving account that may be used in establishing contacts between the state and eligible applicants for port development assistance.”<sup>35</sup> The program is under the administration of Mn/DOT’s Office of Freight, Railroads and Waterways. Eligible projects are those that benefit shippers and receivers by improving or developing a commercial navigation facility or its components. Specifically, these projects include dock and terminal repair, capital improvement to a commercial navigation facility, vessel loading and off-loading support equipment, disposal facility construction, disposal facility repair, and dredging to open a new commercial navigation facility.<sup>36</sup> The program has a \$3 million budget for fiscal years 1997-99.

### **Bikeways Funding**

There is no funding program dedicated specifically toward bicycle travel in Mn/DOT. There is, however, a bicycle unit in the Office of Advanced Transportation Systems. This unit engages in “comprehensive planning and program development, development of design standards and guidelines, providing professional training and technical assistance to local units of government and maintaining an inventory of the suitability of streets and highways for bicycling, which is used to help determine needs for improvement.”<sup>37</sup>

### **Exemplary Practices in Multimodal/Intermodal Transportation**

The groundwork for implementing a policy change or ideological shift often begins with an administrative and bureaucratic reorganization. Such a philosophy has definitely been the view of Mn/DOT, since a federal mandate for change came with the passage of ISTEA. Building upon the good planning being done in the metropolitan planning organizations (MPOs) and regional development councils (RDCs) around the state, particularly by the Minneapolis/St. Paul MPO, Mn/DOT created an administrative process, the Area Transportation Partnership (ATP), in which local and regional transportation

interests will have a say in the allocation of federal moneys. This process is intended not only to open up the transportation investment process but also to form a bridge of communication between Mn/DOT and other transportation entities in the state. In this manner, transportation investments are now able to be better coordinated and citizens' interests are taken into consideration.

### **Area Transportation Partnerships**

With the enactment of ISTEA in 1991, the Minnesota STIP became the basis for new regional partnerships between various transportation interests, partnerships that are intended to better incorporate societal factors into the transportation investment process. Included in ATPs are representatives from Mn/DOT, the various MPOs and RDCs, city and county officials, tribal representatives, modal representatives, and the public at large. These partnerships are based on previously established district state-aid boundaries.<sup>38</sup> They are each responsible for producing an Area Transportation Improvement Program (ATIP), the final draft of which must be approved by Mn/DOT. These ATIPs are then consolidated into the STIP.

Development of the ATIP is a complex and involved process, and guidance is provided to the ATPs in a manual titled *ISTEA Implementation Guidance for Development of Minnesota's State Transportation Improvement Program*. ATPs, in forming the ATIP, review various plans submitted to them by MPOs, RDCs, and other agencies and select which ones will receive federal funding. They are directed to develop the ATIP so that it contains all regionally significant transportation projects. Projects that receive no federal funds are included for information purposes but are not within the jurisdiction of the ATP.<sup>39</sup> The guide also lists and ranks the four basic investment goals of the STIP:

- Priority 1—Preservation Goal: 30 percent to 40 percent of investment
- Priority 2—Management and Operations Goal: 5 percent to 15 percent of investment
- Priority 3—Replacement Goal: 25 percent to 35 percent of investment
- Priority 4—Expansion Goal: 15 percent to 25 percent of investment

Preservation is defined as maintaining existing systems at a minimum level that will provide for the safe movement of goods and people. Management and operations is directed at safely and efficiently managing and operating existing systems and effectively addressing critical safety and operations programs through minor and moderate cost improvements. Replacement funding is meant to enhance economic development by replacing eligible system pieces or elements and reducing barriers, such as weight restrictions, bottlenecks, and system disruptions. Expansion dollars are designed to attain a competitive edge for Minnesota by reducing travel times and maintaining mobility. These goals and objectives were revised to include transit in 1995.<sup>40</sup>

ATP membership is also addressed in the guide:

The Executive Directors or Policy or Technical Committee Chairs of partnership MPOs and RDCs and the District Transportation Engineer should either comprise the minimal membership of the ATP or select the ATP membership, as well as establish basic rules regarding the tenure, replacement, etc. of the ATP membership. ATP members should be partners in the planning processes, and have broad, multimodal and multijurisdictional perspectives and sensitivities. Each District, RDC, and MPO shall be a member of an ATP. A transit representative should also be a member in the ATP 1996-1998 ATP process.<sup>41</sup>

Partnership is the basis for the ATPs, emphasized throughout the process as an overall vision set by Mn/DOT. Planning is performed on a local or regional level, and prioritization and programming are done by the ATPs. Emphasis is placed on the individuality of each ATP. Each is free to choose the kind and number of members, the frequency and conduct of meetings, the prioritization and ranking techniques, public-involvement practices, and the ways in which it solicits projects.

### **Goals of the ATP Process: Partnerships, Programming and Prioritization, Planning**

#### ***Partnerships***

Partnerships were occurring long before the ATP process came into being. The ATP process formalized existing partnerships and served to decentralize Mn/DOT, by turning over some decisionmaking to local and regional interests. It also created many new partnerships, especially with those who were not previously involved in the decisionmaking. These steps opened up the transportation investment process and encouraged communication and cooperation between those interests. Mn/DOT had three key reasons for these partnerships. The first reason was to broaden the base of financial responsibility as more demands are made on transportation funds. The second was to expand the political support of Mn/DOT, and the third was to enhance and sustain intermodal planning. It is important to note that Mn/DOT's ability to form partnerships was greatly enhanced by legislation, passed in 1993, which gave the agency more freedom to develop partnerships.

Naturally, these new partnerships have not been problem free. Many of the "partners" have lingering feelings of distrust from old political battles and have yet to overcome these differences. State and local funds are not in the ATP "pot." Some members claim a true partnership will be formed only when local, state, and federal moneys are all considered. The inclusion of elected officials as ATP members has been debated. Some believe that their inclusion is a way to have public representation, while others are concerned that they tend to politicize the process. The role of Mn/DOT's Central Office is still in flux as well, with some staff happy with current roles and others wanting even more decentralization. Public turnout at the meetings has been low, causing some to fear that the public is not involved. Many others argue that the place for public involvement is with the MPOs and

RDCs. Finally, many of the new members, especially private-sector members, have yet to be fully integrated into the process.<sup>42</sup>

### ***Programming and Prioritization***

The ability of the ATPs to program and prioritize projects is central to the whole process. By decentralizing these powers, the ATPs have been able to involve local officials and citizens in setting objectives and priorities. Thus, community concerns can be incorporated into ranking techniques, and the system can be made more accountable to the public. Better decisions are being made and more local projects are being funded.<sup>43</sup>

With the power to program and prioritize comes a host of issues and challenges. First, many ATP members report that they lack the tools to adequately compare different types of projects, with the result being that highway projects still dominate. Remaining “jurisdictionally blind” has also been a problem. Geographical and modal subtargets have both helped and hindered in both situations. The fiscal constraint and three-year cycles also prevent ATP members from considering “mega-projects” and hinder their ability to consider the big picture. Again, putting all funds on the table has been proposed as a solution. Finally, Mn/DOT’s modal offices are still responsible for prioritizing rail safety, highway safety, and transit projects. A lack of communication between the modal offices and the ATPs has been reported, hampering project coordination efforts.<sup>44</sup>

### ***Planning***

The ATPs are not planning organizations. They are, however, integral to the planning process. By leaving the planning to local and regional organizations, the ATPs force those same localities to scrutinize and improve their own planning efforts. Moreover, those same localities are generally more connected and open to the public, making them a more appropriate forum for planning. The STIP process itself prevents planning by the ATPs, as meeting deadlines on the submissions of various drafts of the ATPs dominates the agenda. Many ATP members believe that their role should be limited to looking at plans that have already been made and prioritizing them accordingly.<sup>45</sup>

## **Metropolitan Planning Organizations and Local Involvement in the Transportation Planning Process**

### **Metro: Area Transportation Partnership for the Minneapolis/St. Paul Region**

Metro is the name given to the ATP that encompasses the seven-county Minneapolis/St. Paul metro area and Chicago County, which borders the northern metro area. It is the largest ATP by far, serving a population of more than 2.5 million and commanding \$1.1 billion of the \$2.17 billion STIP budget.<sup>46</sup> The seven-county Minneapolis/St. Paul area is represented by the Metropolitan Council (Council), its MPO. Since the MPO’s history dates back to 1967, it has well-established relationships with Mn/DOT and has experience in both planning and programming. Chicago County is represented by its regional

development commission, the East Central Regional Development Commission (East Central RDC). Both the Council and the East Central RDC have five members on the ATP. The state aid engineer, assistant division engineer, and planner from Mn/DOT's Metro Division round out the ATP membership. Chicago County was allowed to choose between joining the Metro ATP or the Central Minnesota ATP. Given that the Central Minnesota ATP received \$63 million in FY 1998 compared to Metro ATPs \$412 million, the choice was obvious. Moreover, Chicago County controls 5 of the 13 ATP memberships. Mn/DOT has consistently rejected the Council's position that since Chicago County is not bound by the Council's planning framework, it should be a part of a different ATP.<sup>47</sup>

The ability of the Council and the East Central RDC to work together will make or break this partnership. Not only are these two organizations unfamiliar with each other, but they also use vastly different processes and techniques to rank their projects and have dissimilar goals. The Council deals with federal legislative, financial, and planning requirements for a metro area of its size. Important weight is placed on land-use strategies, congestion mitigation, air pollution, and quality-of-life indexes. Chicago County, on the other hand, is a largely rural area, whose main concerns are economic development and maintaining commuting routes into Minneapolis/St. Paul. Its project solicitation process and ranking techniques better suit the Central Minnesota ATP.<sup>48</sup>

In a sense, the Metro ATP experience is a metaphor for the ATP process. Though the merging of rural Chicago County with the Minneapolis/St. Paul metro area is the most extreme example of new partners having to work together, all ATPs must confront this issue. Groups with many different views and techniques on planning, prioritization, and transportation in general are being forced to come together and sit at the table. Conflicting political agendas and jurisdictional battles are inevitable, but the hopes are that the differences can be smoothed out, the public can be better represented, and a cohesive vision of transportation in Minnesota can be formed and acted upon.

### ***Municipality Overview***

The Minneapolis/St. Paul metro area has a population of almost 2.5 million people in an area encompassing over 3,000 square miles and 300 governmental units.<sup>49</sup> With an unemployment rate under the national average and a per-capita income over the national average, the region can be characterized as economically strong and diverse. Seven companies ranked among the top 200 of the *Fortune* 500 are located in the metro area—Dayton Hudson, Supervalu, 3M, Northwest Airlines, General Mills, Norwest Corp., and Honeywell.<sup>50</sup>

### ***Transportation Overview***

The Minneapolis/St. Paul metro area transportation network consists of

- a metropolitan highway system containing 657 miles of principal arterials, 1,550 miles of "A" minor arterials, and 11,600 miles of local streets;<sup>51</sup>

- Minneapolis-St. Paul International Airport;
- freight rail service from three Class I railroads (CP Rail, Burlington Northern Santa Fe Railway, and Union Pacific Railroad) and two regional railroads (Wisconsin Central and Twin Cities and Western), as well as Amtrak service;<sup>52</sup>
- a transit system composed of bus systems from the Metropolitan Council Transit Operations and various county, local, and private providers; and<sup>53</sup>
- four barge/truck river ports.<sup>54</sup>

### **Metropolitan Council: MPO for the Minneapolis/St. Paul Region**

The Metropolitan Council (Council) was designated by the governor to act as the MPO for the Twin Cities in 1973. Established in 1967, it has 17 members, who are appointed by the governor, with the advice and consent of the state senate. Sixteen members represent districts within the MPO area, with the chair representing the region as a whole.<sup>55</sup> The Council prepares a comprehensive development guide for the Twin City metro area, which includes direction for land use, parks and open space, airports, highways, transit services, public hospitals, libraries, schools, and other public buildings.

The Council delegates transportation planning to its Transportation Advisory Board (TAB). The TAB, with 30 members, has the responsibility for guiding regional planning, reviewing transit plans, and establishing funding priorities. The Council may approve or reject a program in part or in whole but cannot make any modifications. If modifications are required, the Council sends the program back to the TAB with its recommendations.<sup>56</sup> The TAB is supported by the Technical Advisory Committee (TAC). The TAC provides technical support in evaluating TAB plans and programs.

### ***Budget and Staffing for Transportation***

The 1997-98 budget for Metro is \$408 million, with \$186.7 million going toward transportation. Staffing for the agency is 3,642, with 2,380 staff members dedicated exclusively to transportation.

### ***Issues, Policies, and Goals***

The Minneapolis/St. Paul metro area is a nonattainment area under federal clean air standards. With congestion predicted to increase, action must be taken now to reduce future levels. The growth of suburbs around the Twin Cities has contributed to this congestion and drawn capital away from the “urban core.” Revitalization of this area is a priority, and land-use planning has become a major policy consideration. Transit ridership fell throughout the last decade, and reversing this trend is also seen as a priority. Finally, maintenance of an old and deteriorating highway system is costly, and, although financial resources are projected to meet needs, funds for new construction are unavailable.<sup>57</sup>

### ***Transportation Plans and Reports***

Two major documents guide the transportation planning process, the “Regional Blueprint” and the “Transportation Policy Plan.”

#### ***Regional Blueprint (RB)***

The RB is the Council’s master plan for the Minneapolis-St. Paul metro area. Short- and long-term investment strategies are designed to enhance economic growth, bolster reinvestment, strengthen environmental protections, and build stronger local and regional communities. The document provides an overall vision for the metro area but does not make specific recommendations.<sup>58</sup>

#### ***Transportation Policy Plan (TPP)***

The TPP adopts plans and programs to achieve transportation goals in a manner consistent with the RB. It makes a comprehensive analysis of the current transportation system, then outlines changes, improvements, and adjustments needed to meet future projected demand. Contained in it is the “2020 Regional Transportation Plan,” which has sections outlining a Metropolitan Highway Plan, a Transit System Plan, and a Financial Plan.<sup>59</sup>

In addition, the Council has these other major planning documents<sup>60</sup>:

- **Aviation Policy Plan (APP):** The APP is the 20-year master plan for aviation in the region. It establishes goals, policies, and guidelines and sets review criteria.
- **Congestion Management Plan (CMP):** The CMP evaluates and develops transportation strategies and plans for existing present and future traffic congestion.
- **Unified Planning Work Program (UPWP):** The UPWP is an annual description and documentation of proposed planning activities in the metro area.

### ***Transportation Funding and Programs***

In terms of direct funding for programs, transit is the only significant transportation activity handled by the Council. Expenditures on transit make up almost the entire \$186 million allocated toward transportation.

### ***Exemplary Practices in Multimodal/Intermodal Transportation***

#### ***Public Participation***

A November 1993 review of the transportation planning process in the Twin City metro area by the Federal Transit Administration found the Council to be exemplary in its efforts to encourage public participation in the planning process. TAB membership is an example of this. Of the 30 members, 17 represent local municipalities and counties, 4 represent state or regional agencies, and 9, including the chair, represent the general public. The

citizen appointments are made by the Council, with citizens representing the region's metropolitan districts.<sup>61</sup> Additionally, the TPP contains a Citizen Participation Plan designed to increase public participation in the planning process. This planning process served as a model for constructing the state's ATPs. This plan contains the following five goals:

1. ongoing citizen advisory process,
2. public information,
3. public participation and review,
4. communications with local governments, and
5. outreach to new participants in regional policymaking.<sup>62</sup>

### *Land-Use Planning*

A regional growth strategy has been identified as an essential element of the TPP, with land-use issues being the primary focus of this study. In this way, the Council can effectively plan economic growth, enhance the quality of life, reinvest in distressed areas, and preserve the natural environment. The seven-county metro area has been divided into policy areas, each representing a different strategy for land use. These areas are as follows:

- urban core—a major focus of reinvestment, which encompasses the downtown areas of Minneapolis and St. Paul;
- urban area—the area within and around the Interstate Highway 494/694 beltway, where emphasis is placed on developing the transportation system, especially transit, in order to bring about higher densities of business and housing;
- urban reserve—land reserved to accommodate the region's need for urbanization up to the year 2040 with its outer edge, which is based on watersheds, becoming the area's urban growth boundary;
- permanent agricultural area—a land reserve that is limited to an urban/rural threshold of one home per 40 acres; and
- permanent rural area—land reserved for farm and nonfarm uses limited to an urban/rural threshold of one home per ten acres.<sup>63</sup>

### *Corridor Studies*

The Council participates with other agencies and jurisdictions in metropolitan highway corridor studies. Studies usually focus on a segment of a particular highway, with focus being given to land use, access issues, capacity, level of service, geometrics, and safety



concerns. Recommendations for improvements are usually incorporated into the local entities programming process. Recommendations are also incorporated into the TPP. Thus far, two corridor studies have been completed and fully implemented, four have been completed and are in the process of being implemented, and two more have had preliminary studies done.<sup>64</sup>

### *Freight Planning*

As the Council states in its TPP, "Freight movements are provided by the private sector, but the Council is concerned with assuring that good connections between modes are available in the region to assure a seamless freight movement system."<sup>65</sup>

One example of this is the Minnesota Intermodal Railroad Terminal Study (MIRTS). MIRTS is a study undertaken by the Council, in collaboration with Mn/DOT, Burlington Northern Santa Fe Railway, and the CP Rail System. MIRTS determined that shipping demand would continue to grow steadily and that existing terminal facilities are bumping up against their capacity.<sup>66</sup> Completed in January 1995, MIRTS is an excellent example of public/private partnerships in transportation planning.

Additionally, the TPP contains analyses of forecasted freight needs and demands broken down by mode. Motor carrier, railroad, air, and waterborne freight are all considered.<sup>67</sup>

## Notes

<sup>1</sup> Minnesota Department of Transportation (Mn/DOT), *Minnesota Statewide Transportation Plan: A Work in Progress, Final Draft* (St. Paul, Minn., January 1995), p. 2-1.

<sup>2</sup> *The World Almanac and Book of Facts* (New York: Newspaper Enterprise Association, 1993), p. 633.

<sup>3</sup> Ibid.

<sup>4</sup> *Information Please Almanac, Atlas, and Yearbook* (New York: Houghton Mifflin Company, 1996), p. 763.

<sup>5</sup> Mn/DOT, *Minnesota Statewide Transportation Plan, A Work in Progress, Summary* (St. Paul, Minnesota, January 1996), pp. 5-10.

<sup>6</sup> Mn/DOT, "Mn/DOT Introduction," Mn/DOT web site (St. Paul, Minn. [cited June 15, 1998]), available from: <http://www.dot.state.mn.us/guidebook/intro.html>; INTERNET.

<sup>7</sup> Mn/DOT, "Office of the Commissioner," Mn/DOT web site (St. Paul, Minn. [cited June 15, 1998]), available from: <http://www.dot.state.mn.us/guidebook/commish.html>; INTERNET.

<sup>8</sup> Mn/DOT, "Modal and Resource Management Bureau," Mn/DOT web site (St. Paul, Minn. [cited June 15, 1998]), available from: <http://www.dot.state.mn.us/guidebook/modal.html>; INTERNET.

<sup>9</sup> Ibid.

<sup>10</sup> Mn/DOT, "Office of Investment Management," Mn/DOT web site (St. Paul, Minn. [cited June 15, 1998]), available from: <http://www.dot.state.mn.us/guidebook/invest.html>; INTERNET.

<sup>11</sup> Ibid.

<sup>12</sup> Ibid.

<sup>13</sup> Ibid.

<sup>14</sup> Mn/DOT, *Minnesota Statewide Transportation Plan*, p. 3-3.

<sup>15</sup> Ibid., pp. 3-6—3-7.

<sup>16</sup> Ibid., pp. 4-3—4-15.

<sup>17</sup> Mn/DOT, *Minnesota State Rail Plan* (St. Paul, Minn., January 1994), vol. 1, p. 1

<sup>18</sup> Ibid., vols. 2 and 3.

<sup>19</sup> Mn/DOT, *Minnesota State Aviation System Plan* (St. Paul, Minn., June 1991), vol. B, p. 1.

<sup>20</sup> Mn/DOT, *Greater Minnesota Transit Plan* (St. Paul, Minn., January 1993), p. 1.

<sup>21</sup> Mn/DOT, *Plan B: The Comprehensive State Bicycle Plan* (St. Paul, Minn., January 1993), inside front cover.

<sup>22</sup> Mn/DOT, *Minnesota Statewide Transportation Plan*, p. 6-2.

<sup>23</sup> Ibid., pp. 6-2—6-6.

<sup>24</sup> Ibid., pp. 6-6—6-9.

<sup>25</sup> Ibid., pp. 6-9—6-14.

<sup>26</sup> Memorandum from Sam Khan, Office of Freight, Railroads and Waterways, Minnesota Department of Transportation, St. Paul, Minnesota, to Brent Riddle, Lyndon B. Johnson School of Public Affairs, The University of Texas at Austin, March 27, 1997.

<sup>27</sup> Mn/DOT, *Minnesota Statewide Transportation Plan*, pp. 6-20—6-22; and Khan memorandum.

<sup>28</sup> Mn/DOT, *Minnesota Statewide Transportation Plan*, pp. 5-11—5-12; and Khan memorandum.

<sup>29</sup> Mn/DOT, *Minnesota Statewide Transportation Plan*, pp. 6-21 and 5-11—5-12; and Khan memorandum.

<sup>30</sup> Mn/DOT, *Minnesota Statewide Transportation Plan*, p. 5-13; and Khan memorandum.

<sup>31</sup> Khan memorandum.

<sup>32</sup> Mn/DOT, *Minnesota Statewide Transportation Plan*, p. 6-22; and Khan memorandum.

<sup>33</sup> Mn/DOT, "Office of Aeronautics," Mn/DOT web site (St. Paul, Minn. [cited June 15, 1998]), available

from: <http://www.dot.state.mn.us/guidebook/aero.html>; INTERNET.

<sup>34</sup> Mn/DOT, *Minnesota Statewide Transportation Plan*, p. 6-17.

<sup>35</sup> Mn/DOT, "Port Development Assistance Program Rules," St. Paul, Minn., 1992, sec. 8895.0200, subp. 1, p. 2

<sup>36</sup> Ibid., sec. 8895.0300, subp. 1, p. 3

<sup>37</sup> Mn/DOT, "Office of Advance Transportation Systems," Mn/DOT web site (St. Paul, Minn. [cited June 15, 1998]), available from: <http://www.dot.state.mn.us/guidebook/advance.html>; INTERNET.

<sup>38</sup> State-aid districts were not followed exactly. When such was the case, the affected county was allowed to choose which ATP it wanted to be in.

<sup>39</sup> Mn/DOT, *Minnesota's District/Area Transportation Process* (St. Paul, Minn., February 1997), p. 8.

<sup>40</sup> Ibid., p. 8.

<sup>41</sup> Ibid., p. 10.

<sup>42</sup> Ibid., pp. 23-28.

<sup>43</sup> Ibid., pp. 32-35.

<sup>44</sup> Ibid., pp. 35-39.

<sup>45</sup> Ibid., pp. 41-48.

<sup>46</sup> Mn/DOT, *Statewide Transportation Improvement Program* (St. Paul, Minn., August 1997), p. III-4.

<sup>47</sup> Mn/DOT, *Minnesota's District/Area Transportation Process*, pp. 143-51.

<sup>48</sup> Ibid., pp. 151-55.

<sup>49</sup> Metropolitan Council, "Metropolitan Council: Working for the Region, Planning for the Future," Metropolitan Council web site (Minneapolis, Minn. [cited June 15, 1998]), available from: <http://www.metrocouncil.org>; INTERNET.

<sup>50</sup> Ibid.

<sup>51</sup> Metropolitan Council, "Transportation Policy Plan" (Minneapolis, Minn., December 1996), vol. 1, p. 17.

<sup>52</sup> Ibid., vol. 1, p. 29.

<sup>53</sup> Ibid., vol. 1, p. 23.

<sup>54</sup> Ibid., vol. 1, p. 30.

<sup>55</sup> Federal Transit Administration (FTA), U.S. Department of Transportation, "Review of the Transportation Planning Process in the Twin City Metro Area," FTA web site [cited June 15, 1998], available from: <http://www.fta.dot.gov/library/planning/TPP/twincity.html>; INTERNET.

<sup>56</sup> Ibid.

<sup>57</sup> Ibid.

<sup>58</sup> Metropolitan Council, "Metropolitan Council."

<sup>59</sup> Metropolitan Council, *Transportation Policy Plan*, vol. 1, p. 1.

<sup>60</sup> Ibid., vol. 2, p. 39.

<sup>61</sup> FTA, "Review of the Transportation Planning Process in the Twin City Metro Area."

<sup>62</sup> Metropolitan Council, *Transportation Policy Plan*, vol. 2, p. 40.

<sup>63</sup> Ibid., vol. 1, p. 11.

<sup>64</sup> Ibid., vol. 2, p. 59.

<sup>65</sup> Ibid., vol. 1, p. 29.

<sup>66</sup> Mn/DOT, *Minnesota Statewide Transportation Plan*, p. 8-1.

<sup>67</sup> Metropolitan Council, *Transportation Policy Plan*, vol. 1, p. 80.



## **Chapter 5. Oregon**

### **Overview**

Oregon is the 29<sup>th</sup> most populous state in the nation with an estimated population of 3,086,000 (1994). The state has the 39<sup>th</sup> highest population density of 32.1 people per square mile.<sup>1</sup> The major metropolitan areas are Portland, Eugene, and Salem.<sup>2</sup>

Oregon ranks tenth in the nation in total area with 97,073 square miles. Two-thirds of the topography of the state consists of a plateau. The coastal mountain ranges lie along the Pacific coastline. The fertile Willamette River Valley is located just east of the coastal mountain ranges and the Cascade Mountain Range of volcanic peaks lines the Willamette Valley on its east.<sup>3</sup>

The principal industries of the Oregon economy are forestry, agriculture, tourism, high technology, and manufacturing. The chief agricultural crops of the state include hay, grass seed, farm forest products, wheat, potatoes, onions, and pears. Its primary manufactured goods consist of lumber and wood products, food, machinery, fabricated metals, paper, printing and publishing, and primary metals.<sup>4</sup> Oregon has the only nickel smelter in the United States.<sup>5</sup>

### **Transportation Infrastructure**

Oregon has a multimodal transportation network comprising

- more than 96,000 miles of state, city, county, and other agency-owned roads, of which 7,500 road miles and 2,700 bridges are operated and maintained by the state (1998);<sup>6</sup>
- 2,600 miles of passenger and freight rail track and 21 rail carriers (1994);<sup>7</sup>
- 23 ports (1996);<sup>8</sup>
- 400 public and private airports, of which 32 are state-owned (1998);<sup>9</sup>
- four scheduled intercity passenger trains (1998); and<sup>10</sup>
- 224 public transit operators, of which 4 are urban public transit systems, 20 are nonurban systems, and 200 are special transportation providers (1997).<sup>11</sup>

## State Issues, Policies, and Goals

Land-use planning and economic development are the most prominent issues that guide transportation policy and planning efforts in Oregon, and the two issues are closely linked with one another. While Oregon relies heavily on land-use planning and conservation efforts to protect its natural environment and quality of life, economic development has not been abandoned. In fact, the state's famed natural surroundings and quality of life have often spurred economic development.

Oregon's comprehensive land-use planning program began in 1973, with the legislature's adoption of the Oregon Land Use Act. The act created comprehensive guidelines and standards for planning throughout the state. The legislation established a planning partnership between the state and its cities and counties, created an agency for the administration of the comprehensive effort (the Oregon Department of Land Conservation and Development), and developed a grant program to assist local communities in the planning process.<sup>12</sup> The program is based on 19 goals, which articulate the state's planning priorities, including citizen involvement in the planning process, protection of natural resources and open spaces, high-density development in urban areas, economic diversification, and "convenient and economic transportation."<sup>13</sup>

Oregon's land-use plan is a comprehensive network of the local plans developed by the state's 276 cities and counties. Based on the 19 goals, each community must develop a long-term plan that designates areas slated for urban growth and development while protecting the state's natural resources, such as farm, forest land, and coastal areas.

State agencies with programs affecting land use, such as the Oregon Department of Transportation (ODOT), must also submit periodic reports to the Land Conservation and Development Commission for the State Agency Coordination Program (SACP). The SACP describes how an agency will "meet its obligation . . . to carry out its programs affecting land use in compliance with the statewide planning goals and in a manner compatible with acknowledged comprehensive plans."<sup>14</sup> In addition to the SACP, Oregon's current governor has implemented an additional program, the Community Solutions Team, to ensure that state agencies coordinate their efforts among one another and with local communities in managing growth and development throughout the state. The members of the Community Solutions Team are the directors of the following five state agencies: Transportation, Economic Development, Housing and Community Development, Environmental Quality, and Land Conservation and Development.<sup>15</sup>

In addition to a transportation goal articulated in the state's planning laws, an administrative rule was developed in coordination between the Department of Land Conservation and Development (DLCD) and ODOT. The emphasis of the Transportation Planning Rule (TPR) is to reduce Oregonians' dependency on the automobile and to "assure that the planned transportation system supports a pattern of travel and land-use in urban areas, which will avoid the air pollution, traffic and livability problems faced by other areas of the country."<sup>16</sup>



Although Oregon's strict land-use planning guidelines might appear to compete with the efforts of the state to attract economic development and growth, the planning effort is widely held to be one of the main factors contributing to Oregon's current economic growth. The state's planning program includes a goal for economic development and has resulted in increased amounts of planning and zoning of land for industrial development. Adequate amounts of housing and services must also be available to adequately support that development.<sup>17</sup>

Recent economic growth, no matter how well planned, still presents a challenge to the state. The movement of the high-tech industry and other businesses into the Willamette Valley and Portland metropolitan areas during the late 1980s and early 1990s has fueled congestion on state highways and city roads in the western portion of the state. This rapid growth is expected to continue into the next decade and poses a serious challenge to the state and the existing transportation infrastructure.

While significant growth has driven land-use planning and economic development efforts, Oregon is faced with another significant challenge. Unlike the expanding metropolitan hubs, the rural areas of Oregon have been adversely affected by the loss of intercity passenger transportation services by bus and rail. Although rail, trucking, and barges continue to serve the eastern and southern portions of the state, passenger services have been reduced dramatically over the past several years. Amtrak train service to eastern Oregon ended in May 1997, and Greyhound has reduced its service to isolated rural areas.

## **State Agencies Involved in Transportation**

At the state level, the ODOT is the agency responsible for transportation planning and projects throughout the state. Two other state agencies, the DLCD and the Oregon Economic Development Department (OEDD) also play roles in transportation efforts and work in partnership with ODOT on transportation initiatives.

### **Oregon Department of Transportation**

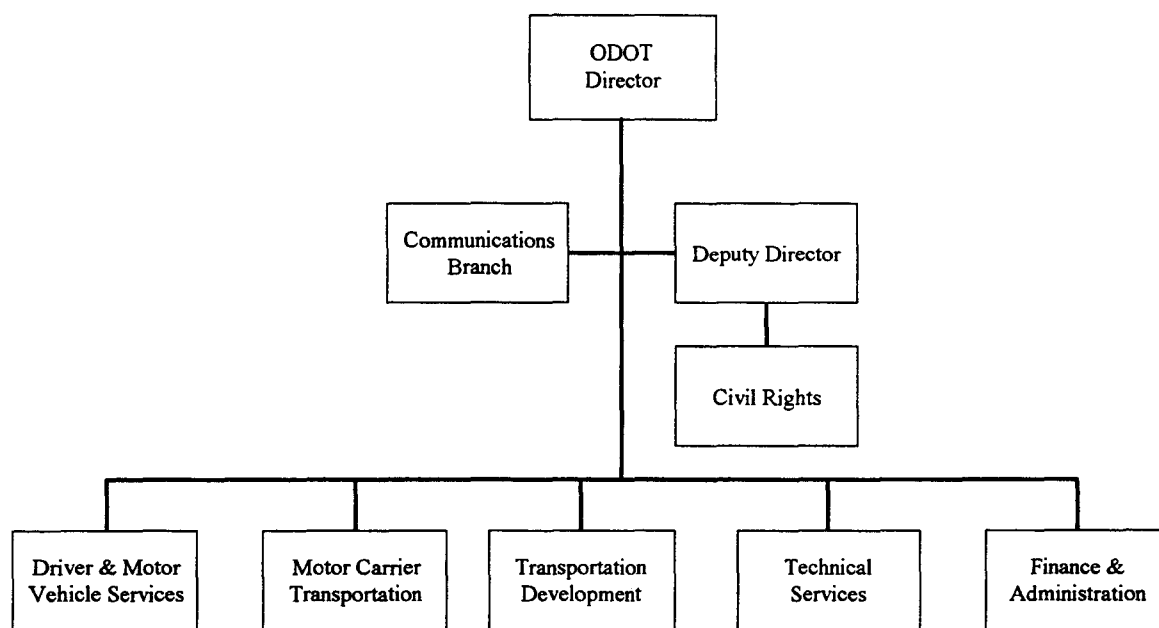
ODOT is the primary agency with responsibility for developing Oregon's transportation system of highways, roads, bridges, aviation, public transportation services, rail passenger and rail freight systems, bicycle and pedestrian paths, ports and marine transportation, and pipelines. In addition, the department is responsible for transportation safety programs, driver and vehicle licensing, and motor carrier enforcement. The department's mission is to develop and maintain an integrated, balanced, statewide transportation system that moves people, goods, and services safely and efficiently throughout the state.<sup>18</sup>

ODOT was established in 1969 and was reorganized by legislative action in 1973 and 1993. ODOT has 4,800 employees and a biennial budget of \$1.7 billion.<sup>19</sup> The director of ODOT is appointed by the Oregon Transportation Commission and approved by the Oregon Senate. The director oversees the duties of the deputy director and six branches: Communications, Driver and Motor Vehicle Services, Motor Carrier Transportation,

Transportation Development, Finance and Administration, and Technical Services (see figure 5.1). In addition to the department's main offices in the state capital, ODOT divides the state into five regions. Each has a local office and a regional manager, who oversees the local staff.

The Transportation Development Branch of ODOT is responsible for planning, policy, and research. The branch is led by a manager and comprises nine sections: Administrative Support Services, Planning, Policy/Research, Quality Communities/Growth Management, Transportation Data, Aeronautics, Public Transit, Rail, and Transportation Safety. Within the Planning Section, there are additional subdivisions: Transportation Planning Analysis, State Planning and Research, Corridor and General Planning, and Statewide Mobility.

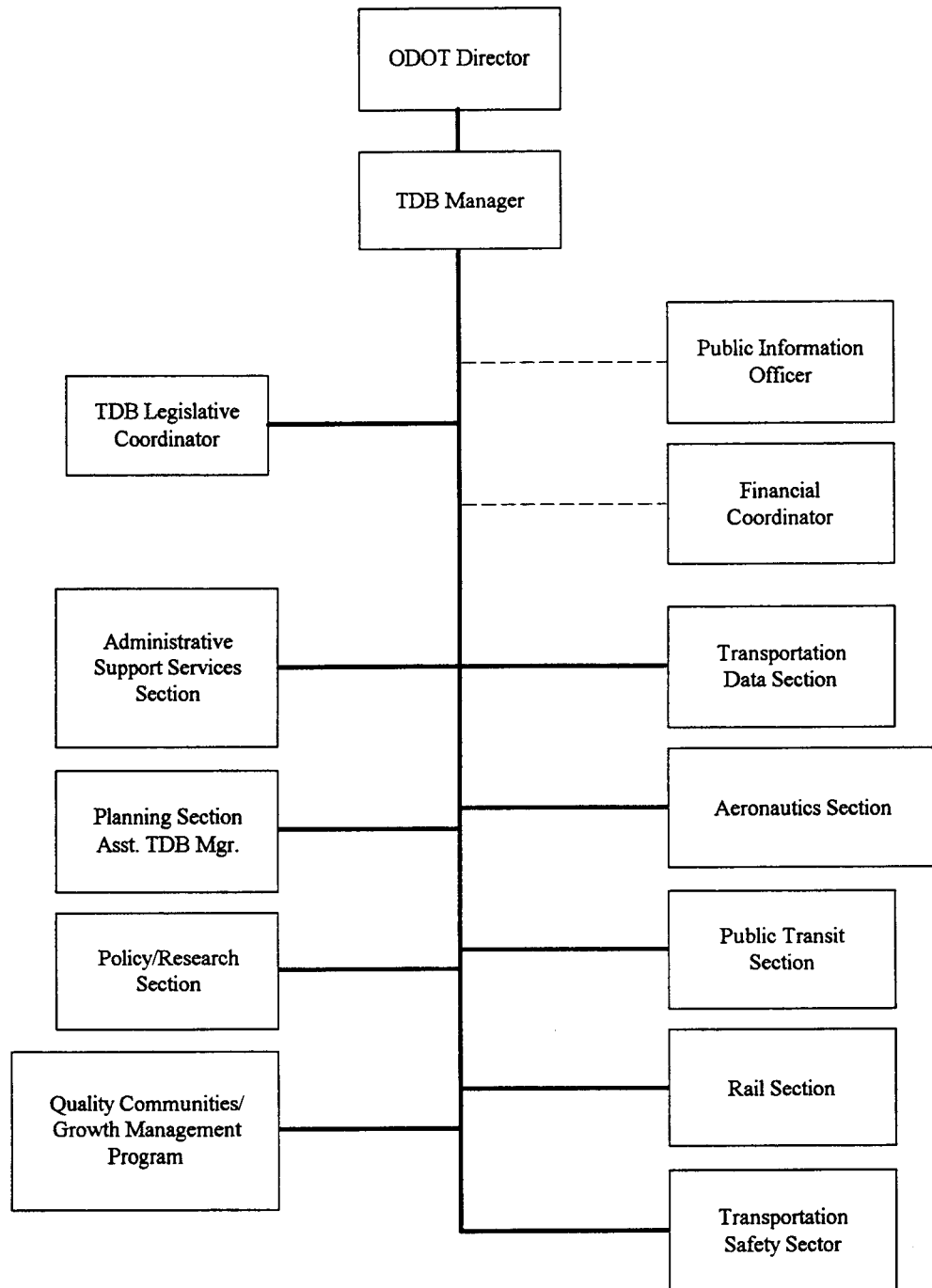
**Figure 5.1**  
**Organizational Structure**  
**Oregon Department of Transportation**



Source: Adapted from Oregon Department of Transportation (ODOT), ODOT Organizational Chart, Salem, Ore., 1996.

The Transportation Development Branch is ODOT's strategic policy and planning area, guiding overall statewide transportation development through the long-range Oregon Transportation Plan, individual modal plans, corridor plans, and transportation policy analysis and research.<sup>20</sup> In addition, the branch is involved in efforts to promote transportation safety and develop high-speed rail, intercity bus service, rail freight, aviation, and public transit.

**Figure 5.2**  
**Organizational Structure**  
**ODOT Transportation Development Branch**



Source: Adapted from ODOT, *Oregon Transportation Plan: The New Oregon Trail Leading into the 21st Century* (Salem, Ore., 1992).

The Oregon Transportation Commission is a citizen board charged with overseeing the activities of ODOT. The commission has legislative authority for the establishment of state transportation policy and guides the planning, development, and management of the statewide integrated transportation network. The five members of the commission are appointed by the governor and represent different geographic areas of the state. No more than three of the commissioners can belong to one political party. The commission meets monthly at sites located throughout the state.

## **Other State Agencies Involved in Transportation**

While ODOT has primary responsibility for transportation issues within the state, two other agencies play significant roles in transportation planning and programs.

### ***Oregon Department of Land Conservation and Development***

The DLCD is the state agency charged with comprehensive land-use planning. The agency has a staff of 50, and the budget for the 1997-99 biennium is approximately \$12 million.<sup>21</sup> The DLCD's main sources of revenues are federal funds (to administer the state's coastal management program), state lottery funds, and state general funds.<sup>22</sup>

The DLCD is governed by the Oregon Land Conservation and Development Commission, a seven-member citizen board, whose members are appointed by the governor and confirmed by the Oregon Senate. A Citizen Involvement Advisory Committee meets quarterly and advises the agency on issues related to citizen involvement in the land-use planning process.

As previously discussed in the "State Issues, Policies, and Goals" section of this chapter, the DLCD plays a significant role in the state's transportation planning process through the statewide transportation goal (goal 12) and the Transportation Planning Rule. ODOT must comply with the planning guidelines when engaging in transportation planning, policymaking, or project development. As part of the State Agency Coordination Program (SACP), ODOT must also periodically develop a document outlining its compliance with the state's planning program.

The DLCD and ODOT often engage in joint projects, the most recent of which is the Transportation and Growth Management Team. The mission of the program is to foster integrated transportation and land-use planning that will enhance livability in Oregon's communities through a grant program, "smart development" assistance, and design assistance.<sup>23</sup>

### ***Oregon Economic Development Department***

The OEDD is a state cabinet-level agency with direct accountability to the governor. Created in 1973, it is charged with helping Oregon's communities and businesses create better jobs and improve their economic opportunities. The OEDD's budget for the 1997-

99 biennium is \$59 million, and its main sources of funds are state lottery dollars and federal funds.<sup>24</sup>

The five-member Oregon Economic Development Commission is appointed by the governor to oversee the OEDD and develop long-term policies and strategies for the state's economic development. Regional development officers serve the OEDD throughout 12 regions in the state.<sup>25</sup>

The four-person staff of the OEDD Ports Division works to support the efforts of the 23 port districts in Oregon. Oregon's ports act as "quasi" private enterprises, but they are locally controlled public entities. Located along the Oregon Coast and the Columbia River, they serve as gateways to both rural communities and international markets. The mission of OEDD's Ports Division is to "act as the statewide coordinating, planning and research agency" for the ports.<sup>26</sup>

The Ports Division provides two major funding programs for local ports: the Oregon Port Revolving Fund and the Marine Navigation Improvement Fund. The \$12 million Oregon Port Revolving Fund provides long-term loans to ports at lower than market interest rates. These loans may be used as matching funds for other grants from federal, state, and local agencies. Funding is focused on port development and infrastructure projects or on business development projects on behalf of the port-related private businesses. The Port Planning and Marketing Funds are designed to improve a port's trade and commerce capacity. Individual grants do not exceed \$25,000 and cannot be used to subsidize a port's regular operating expenses.<sup>27</sup> In addition to these specific efforts, the Ports Division also coordinates efforts with ODOT. The state's network of ports is part of the overall transportation planning process.

## **Transportation Plans and Reports**

As part of its overall planning process, ODOT produces several documents. In the beginning stages of the development of the documents, policy advisory committees composed of members of the Transportation Commission, ODOT staff, consultants, and citizen representatives focus on certain areas of the plan. A draft plan is then shared throughout the state at a series of public meetings. Following final revisions, a public hearing is held, after which the plan is adopted by the Transportation Commission. The following discussion catalogs and describes the policy and planning documents that currently guide the work of ODOT. Comprehensive statewide documents are listed, followed by modal/topical plans and corridor plans.

### **Statewide Transportation Plans**

The *Oregon Transportation Plan* is ODOT's comprehensive statewide multimodal planning document. The purpose of the *Oregon Transportation Plan* is to "guide the development of a safe, convenient and efficient transportation system which promotes economic prosperity and livability for all Oregonians."<sup>28</sup> The transportation plan is broken

down into two main components: the Policy Element and the System Element. The Policy Element defines goals, policies, and actions for the state for the next 40 years. It then goes on to provide direction to the “coordination of transportation modes; the relationship of transportation to land use, economic development, the environment and energy use; the coordination of transportation with federal, state, regional and local plans; transportation financing; transportation safety and related matters.”<sup>29</sup>

The System Element of the transportation plan identifies the state’s multimodal system. The system is defined as the facilities and the services for air, rail, highways, public transit, pipeline, waterways, marine transportation, bikeways, as well as other modes to be developed during the next 20 years in order to implement the goals and policies of the plan. The System Element also includes an “inventory of existing facilities and services, a base forecast of transportation demands, identification of corridors and transportation facilities of statewide significance, a description of minimum levels of service, and an implementation strategy.”<sup>30</sup>

In addition to delimiting a minimum level of service, the transportation plan’s System Element outlines four different funding alternatives that could affect the state’s ability to implement and reach the goals outlined in the Policy Element: (1) funding decline, (2) continuation of existing programs, (3) continuation with modal shifts, and (4) livability approach. The livability approach was adopted by the transportation plan’s steering committee as the preferred plan for adoption. The preferred plan calls for more intensive management of the existing transportation system and encourages efforts to promote modal shifts and reduce single-occupancy vehicle use.<sup>31</sup> Finally, the *Oregon Transportation Plan* calls for the development of the following components of an integrated planning effort: modal and multimodal plans, system-management and metropolitan-area plans, and local-government and special-district plans.

## **Modal Plans**

ODOT has developed modal plans in the following areas: rail freight, rail passenger, highway, bike and pedestrian, and public transportation.

### ***Rail Freight Plan***

The *Oregon Rail Freight Plan* was adopted by the Oregon Transportation Commission in 1994 and represented the fifth rail freight plan issued by ODOT since 1978. Because of the adoption of the *Oregon Transportation Plan*, the 1994 plan also represents a shift to a broader perspective on rail freight issues. The purpose of the rail freight plan is to provide an overview of the current status of the rail system in the state, to outline the planning process, and to examine funding issues. Oregon’s rail freight policies, as identified within the plan, are to

- increase economic opportunities for the state by having a viable and competitive rail system,

- strengthen the retention of local rail service where feasible,
- protect abandoned rail rights-of-way for alternative or future use, and
- integrate rail freight considerations into the state's land-use planning process.

The rail freight plan ultimately recommends that funding be provided by the state to address the rail-related issues that ODOT is charged to address. In particular, the plan recommends funding for potential abandonment and light-density line assistance, such as acquisition, rehabilitation, equipment, planning, and grant and loan programs.<sup>32</sup> Finally, the plan calls for an increase in the public's role in freight issues beyond light-density line issues.

### ***Rail Passenger Policy and Plan***

The *Oregon Rail Passenger Policy and Plan* was adopted by the Oregon Transportation Commission in 1992 and is a comprehensive long-range plan for rail passenger service. Its development was coordinated with that of the *Oregon Transportation Plan*, also adopted in 1992. The plan's policy is to support an efficient, reliable, and accessible intercity rail passenger system for the state, taking into consideration the network, technology, cost, economic and environmental impacts, performance criteria, and implementation needs.<sup>33</sup> The conclusions of the rail plan state that

- passenger rail has a viable role in the Willamette Valley, particularly as part of a regional system linking to Canada;
- relatively inexpensive physical improvements to the rail line could improve passenger rail speeds and create an alternative to other modes of transportation (particularly in the Willamette Valley corridor); and
- interurban rail technology could be utilized between Portland and certain suburbs.<sup>34</sup>

### ***Oregon Highway Plan***

The most recent *Oregon Highway Plan*, dated 1998, is currently in public review draft form. It is scheduled to replace the 1991 *Oregon Highway Plan* in late 1998. In a format similar to the *Oregon Transportation Plan*, the *Oregon Highway Plan* will contain a Policy Element and a System Element. As of May 1998, the draft included only the Policy Element. Following review of the Policy Element, the System Element is to be drafted.<sup>35</sup> The Policy Element contains the following policies with supporting action plans:

- a reclassification of state highways, consistent with national classifications, to guide ODOT investments and priorities and a designation of some areas to favor local accessibility, while other areas will favor freight and through-traffic movement;
- an effort to work with local jurisdictions and federal agencies to develop an increasingly seamless transportation management system;

- additional access management strategies;
- an improvement to the efficiency of the highway system through supporting alternative transportation modes, high-occupancy vehicle facilities, and demand-management strategies; and
- a focus on protecting and enhancing the natural environment.<sup>36</sup>

### ***Bicycle and Pedestrian Plan***

The *Oregon Bicycle and Pedestrian Plan* was adopted by the Oregon Transportation Commission in 1995. One-half of the plan focuses on policies and implementation strategies, while the other half of the plan focuses on design, maintenance, and safety. The identified goal of the *Oregon Bicycle and Pedestrian Plan* is to “provide safe, accessible and convenient bicycling and walking facilities and to support and encourage increased levels of bicycling and walking.”<sup>37</sup> Achievement of this goal will occur in planning with local jurisdictions and corridor planning. The second half of the plan outlines standards for safe and attractive bikeways and walkways.<sup>38</sup>

### ***Public Transit Plan***

The *Oregon Public Transportation Plan* was adopted by the Oregon Transportation Commission in 1997. It provides a policy guideline for the state’s public transportation system, which includes three levels of implementation policy: maintaining the current system, keeping pace with growth, and creating a menu of service options designed to enable the public transportation system to respond to Oregon’s planning efforts. The plan analyzes overall goals for the system and catalogs current system characteristics. Finally, the plan addresses funding issues related to the implementation of each of the identified levels of service.

## **Multimodal Plans**

### ***The Willamette Valley Strategy***

The Willamette Valley Strategy is a coordinated transportation strategy for the Willamette Valley consistent with the *Oregon Transportation Plan*. “Guided by the *Oregon Transportation Plan*, the strategy is to diversify and interconnect the transportation system to serve the valley’s growing economy and protect its livability.”<sup>39</sup> The strategy is the result of the work of the Willamette Valley Policy Advisory Committee on Transportation (VPACT), composed of representatives of state agencies, metropolitan planning organizations, councils of governments, cities, counties, transit districts, transportation industry interests, general business, and citizens.<sup>40</sup> The strategy is based on three goals for the area: mobility, industrial growth, and livability. The focus of the strategy is to examine and identify the most cost-effective transportation investments for the valley. A transportation development strategy recognizes the role of highways in the valley’s transportation system, but calls for increased emphasis on urban transit, intercity



rail passenger systems, improved intermodal domestic freight facilities, travel demand management, and user fees. A transportation coordination strategy calls for a valley Livability Council composed of public- and private-sector representation.

### **Corridor Plans**

A key component of Oregon's integrated transportation planning process is "corridor planning." The statewide modal plans are integrated through corridor plans, which address all modes within specific geographic corridors throughout the state. Corridor plans specify a strategy for improvements and management activities within a corridor. Currently, there are several corridor strategies in place but no completed plans (although several are in progress). The corridor planning process will be further discussed in the "Exemplary Practices" section of this chapter.

#### ***Pacific Northwest Rail Corridor***

The *Options for Passenger Rail in the Pacific Northwest Rail Corridor* planning report is the result of a collaboration among the Washington State Department of Transportation, the ODOT, and the British Columbia Ministry of Employment and Investment. The report was released in 1995 and provides an overview and options report for the entire 466-mile corridor stretching from Eugene, Oregon, to Vancouver, British Columbia. The objectives of the report are to collect and summarize the relevant research into a single document and to lay out priorities, timing, and financial demands of a long-term strategy. The report uses an incremental approach in outlining the investment needs directed at improving existing facilities.

### **Transportation Funding and Programs**

The overall transportation funding picture in the state of Oregon is not particularly bright at present, as evidenced by recent efforts to make changes to the way the state funds transportation. A 1995 discussion paper produced for the Oregon Transportation Commission declared a need to more flexibly and adequately fund the state's transportation infrastructure.<sup>41</sup> In 1996, the Oregon Transportation Initiative, sponsored by the governor, examined current transportation issues facing the state and analyzed the strategies in place to pay for them, arriving at the conclusion that a new funding structure needed to be implemented to simply maintain the existing infrastructure. ODOT's *1996 Comprehensive Annual Financial Report and Summary of Operations* shows that when all state taxes and fees directed toward transportation across seven western states (Oregon, Nevada, Montana, Idaho, California, Arizona, and Washington) are compared, Oregon ranks last.<sup>42</sup>

ODOT's current revenues, based on the *1996 Annual Report*, break down as follows: 36 percent from fuels tax, 22 percent from weight-mile tax, 21 percent from federal revenues, 8 percent from vehicle registrations, 2 percent from drivers' licenses and the remaining 11 percent from other revenues, transfers, and certificates of participation. The funds raised

through vehicle fuels tax, commercial carrier weight-mile tax, and vehicle registrations are constitutionally directed to the State Highway Fund.

Other state funding provided for transportation programs is discussed below.<sup>43</sup>

### **Aviation Funding**

No state general-fund revenues are used for aviation activities. Activities are funded by user fees, such as aviation fuel taxes, aircraft registrations, and airport licensing fees.

### **Rail Funding**

The only state funds available for rail derive from the OEDD. The legislature has established a State Rail Rehabilitation Fund but has not made any budgetary allocations to that fund.

### **Transit Funding**

State money is available through the Special Transportation Fund to maintain, develop, and improve transportation services for people with disabilities and people older than 60 years. The Special Transportation Fund is financed by a two-cent tax on each pack of cigarettes sold within the state.

### **Port Funding**

State funding support for Oregon's ports is available through loan programs administered by the Oregon Economic Development Department (see the section, "Other Agencies Involved in Transportation," discussed earlier in this chapter).

## **Exemplary Practices in Multimodal/Intermodal Transportation**

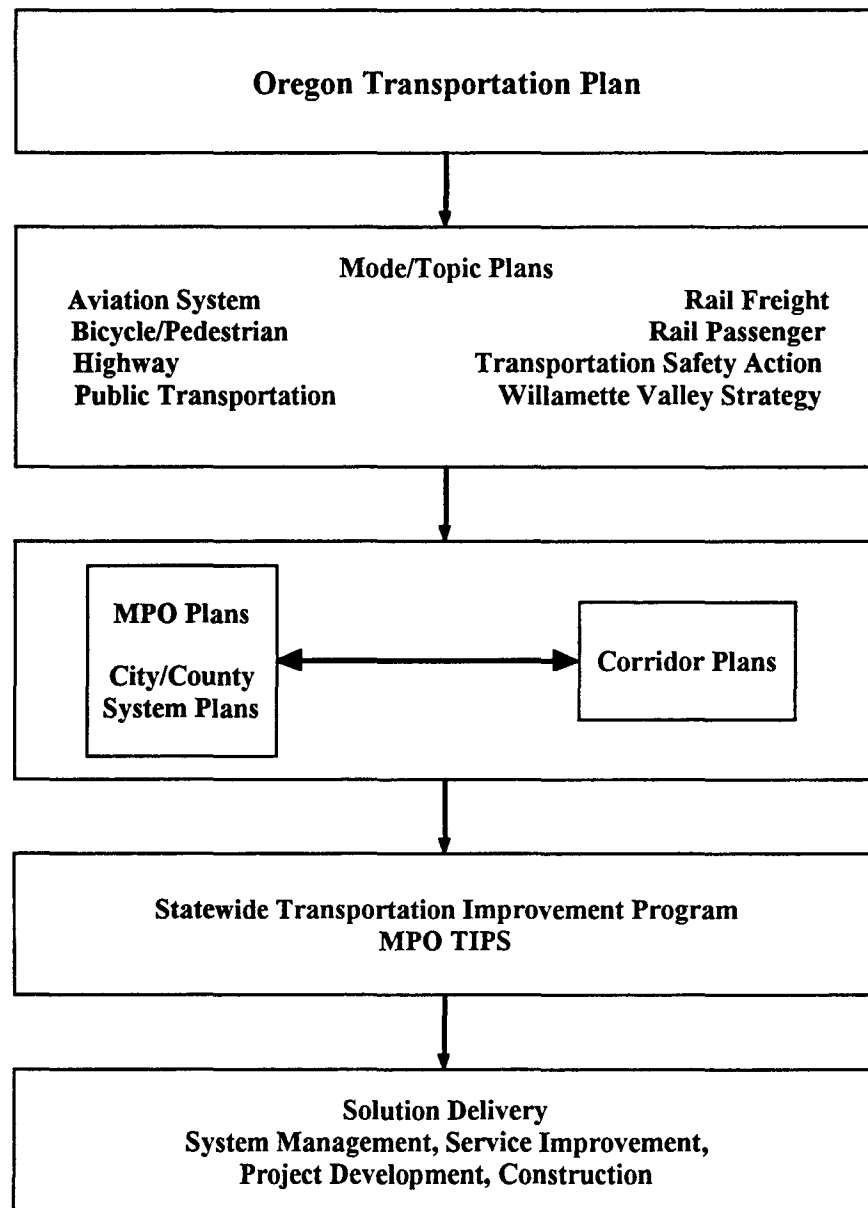
Oregon's most innovative multimodal and intermodal transportation efforts have occurred in the policy and planning arena. The state's greatest challenges have been in developing a more flexible funding system in order to allow the state to fully implement its policies and plans. The following section will examine planning processes, citizen-involvement strategies, a funding proposal, and projects that promise a more diverse transportation future for Oregon. Such processes and projects may contain strategies of interest to other states.

### **Corridor Planning**

Corridor planning in Oregon represents a shift from traditional modal planning efforts to a more comprehensive effort, as called for in the *Oregon Transportation Plan*. Corridor planning also represents a more significant commitment to linking land-use planning and transportation planning at both the local and state levels.

Oregon's corridor plans are defined as 20-year, long-range programs for managing the transportation systems that move people, goods, and services within a specific corridor.<sup>44</sup> The transportation corridors are defined as broad geographic areas, which are served by various transportation systems that provide important connections between regions of the state. Thirty-one corridors of statewide or interstate importance have been identified and are in various stages of the development of their corridor plans.<sup>45</sup>

**Figure 5.3**  
**Oregon Transportation Planning Process**



Source: Adapted from ODOT, Transportation Development Branch, Salem, Ore., May 30, 1996.

Corridor planning, placed within the context of ODOT's transportation planning integration, is where the broader state transportation goals and policies obtain more focus.

Corridor planning also provides a bridge between the broad policies articulated in the *Oregon Transportation Plan* and the modal plans and the implementation of projects based on those policies. Corridor planning also represents a shift in the state's decisionmaking authority. As the state develops its broad transportation policies, it retains the primary decisionmaking authority. However, as the planning process moves into the corridor planning phase, local government increasingly has a voice in the decisionmaking process and ultimately is an equal partner in the implementation of plans.

The corridor planning process requires extensive citizen and public agency involvement. A corridor planning project team is assigned to each corridor and is composed of ODOT staff and consultants. Each corridor plan is overseen by a management team consisting of ODOT staff and agency representatives from the local, state, and federal levels. Some corridors need technical or policy committee teams, as well. Finally, a statewide stakeholder group comprising representatives of transportation, land-use, and environmental and social service areas, facilitates public involvement in the corridor planning process at the statewide level.<sup>46</sup>

The corridor planning process itself is conducted in three phases. The first phase is the development of a corridor strategy. The corridor strategy is based on the identification and analysis of present facilities and systems within the corridor and an analysis of the future performance of these facilities and systems. Particular attention is paid to the modal balance, intermodal and regional connectivity, congestion, and safety. In addition, the corridor is studied to determine the role it plays in the region in terms of land-use, social, environmental, and economic impacts. The conclusions drawn from this analysis in terms of its present state and future performance provide the basis for a corridor strategy. The first phase is completed with the development and endorsement of an interim corridor strategy by cities, counties, local metropolitan planning organizations (MPOs), and, finally, the Oregon Transportation Commission.<sup>47</sup>

Phase two of the corridor planning process consists of developing corridor improvement and management elements and integrating them with city and county transportation planning. During this phase of the process, the corridor interim strategies are tested, alternatives are analyzed, cost estimates are developed, and implementation plans are prioritized. At the close of this phase, the implementation decisions are reflected in the Transportation Improvement and Management Element (TIME). Any changes necessary are then made to the interim corridor strategy. The TIME and the corridor strategy are then adopted as the completed corridor plan by the Oregon Transportation Commission.<sup>48</sup>

Phase three of the process is the refinement of planning documents as the final implementation details are put in place. This phase is then followed by the implementation of projects and programs.

Corridor planning brings many improvements to Oregon's planning process and is more consistent with and conducive to multimodal efforts. By identifying corridors, individual projects being developed at the state and local levels must meet the needs of an overall corridor and must consider a larger strategy. For example, if the strategy identified for a corridor is to invest in rail in order to support freight movement, road improvements that otherwise would have been implemented in various places will be forgone in favor of rail investments. In addition, the long-range strategy component also allows an increased ability for coordinating local land-use planning and transportation planning.

Corridor planning also considers tradeoffs and multimodal efforts at a more local level, asking local communities to seriously consider what their transportation needs and resulting system are and should be. For example, the Portland to Lincoln City corridor plan calls for the pursuit of transportation demand and system management strategies and for the development of facilities for transit and carpooling. Although statewide plans may have articulated these priorities in the past, specific efforts for transportation balance and multimodal and intermodal efforts were not occurring at such a local level.

Finally, one benefit of corridor planning, the localization of planning efforts, could also be one of its greater challenges. The large number of stakeholders involved in the corridor planning process provides an important forum for the resolution of local transportation planning, land-use, environmental, economic, and social issues. However, the process may become cumbersome and slow with so many involved. In addition, shifting from traditional highway improvement programs on the local level to increased coordination of land-use tradeoffs and transportation planning requires perseverance and patience.<sup>49</sup> These realities are manifested in the fact that, to date, only eleven corridor interim strategy documents are in place and, while seven completed plans are in progress or draft form, none has yet been endorsed by the Oregon Transportation Commission.

Corridor planning shows promise, however, and has made significant changes to the way in which Oregon plans its transportation efforts.

### **Oregon Transportation Initiative**

The Oregon Transportation Initiative is an intensive citizen-involvement effort called for by Governor John A. Kitzhaber in January 1996. The governor was concerned about the state's rapid growth and lagging investment in transportation infrastructure. The result of the initiative was the identification of five key transportation goals and a promising, but unsuccessful, 1997 legislative attempt to make dramatic changes to the way in which the state funds transportation.

Five regional advisory committees held 35 meetings throughout different regions of the state to gather information from expert testimony, public testimony, and facilitated discussion.<sup>50</sup> A statewide advisory committee focused on input from a statewide perspective. The following key findings were identified through this process:

- The transportation infrastructure is deteriorating, which is affecting livability and economic development in Oregon communities.
- Improving use and management of facilities can solve some problems but not the majority. The transportation system needs an unprecedented level of cooperation at the local, regional, and state levels.
- The solutions to transportation problems must not be Salem-driven (i.e., driven by state interests more so than local interests); the approach must promote local and regional solutions.
- New investments will be required to preserve existing infrastructure assets, as well as to build a system to maintain livability and economic development.<sup>51</sup>

As a result of the findings by the regional and statewide advisory committees, the governor unveiled five key transportation goals to apply to the development of Oregon's transportation infrastructure and management:

1. make the system more efficient and take advantage of existing resources;
2. maintain a basic level of mobility for all Oregonians;
3. ensure transportation projects work to preserve a community's quality of life and increase its potential for economic growth;
4. develop a regional system for transportation decisionmaking that encourages cooperation among the state, cities, and counties; and
5. address the transportation funding gap that exists at all levels of government.<sup>52</sup>

Although the governor's goals are broad in nature and not unlike the goals articulated in many of ODOT's planning and policy documents, the fifth goal was developed into a funding proposal presented to the 1997 Oregon Legislature. The governor's transportation funding proposals were prioritized. The first priority identified was preserving the existing investments in the state's transportation system, then attacking growth and congestion problems, and, finally, developing expansion projects designed to protect community livability and to enhance economic opportunities.<sup>53</sup> The funding proposals included the following elements:

- creation of an operation, preservation, and maintenance fund for highways not developed through new gas taxes. (The current gas tax and truck weight-mile tax would be indexed to inflation.)
- a vehicle mileage fee to pay for highway modernization and expansion requiring drivers to pay for the road improvement needs they create. (A basic annual mileage allowance would be established to ensure that those who drive less pay less.)

- a transportation access fee paid by residences and businesses to pay for all types of transportation improvements and transportation for the elderly and persons with disabilities.<sup>54</sup>

Even though the governor's transportation funding proposals were not adopted by the 1997 Oregon Legislature, they represent a dramatic shift in the thinking about transportation funding in the state. The proposal for a mileage fee is a demand-management strategy, and the transportation access fee would provide the first flexible funding source for the state.

### **Intermodal Management System**

In response to the Intermodal Surface Transportation Efficiency Act (ISTEA) mandate for the development of a statewide intermodal management system, Oregon began planning and developing an Intermodal Management System (IMS). Although the federal mandate was dropped, Oregon has continued its work on an IMS.

ODOT began by developing a project partnership with the Port of Portland and Metro, Portland's metropolitan planning organization (MPO). This partnership was viewed as important, because many of the intermodal facilities and the greatest intermodal development needs are concentrated in the Portland metropolitan area. The partners then developed several advisory groups representing statewide private- and public-sector stakeholders from both the passenger and freight perspectives. The advisory groups provided input into the need for development and implementation of Oregon's IMS.

The first two phases of the project have been completed at this point, and currently the system is undergoing database development. Phase one was completed with the assistance of a consulting group and consisted of creating a scope for the IMS. During this phase, a preliminary inventory and policy implication was developed, general performance measures were established, data requirements were identified, and a project timeline and cost analysis were determined. Criteria for intermodal facility designations were then identified to include all intercity scheduled-service bus stations, all Amtrak stations, all airports with scheduled commercial service, all major lumber truck/train reload facilities, all grain elevators exceeding 500,000 bushels and served by two or more modes, all truck/rail centers involving trailers-on-flatcars (TOFC) and containers-on-flatcars (COFC), intermodal terminals at all marine ports shipping freight, and all oil pipeline terminals.<sup>55</sup>

Phase two of IMS development further identified intermodal problems and needs, established performance measures and a database application, estimated organizational requirements, and developed a ranking procedure. Currently, the IMS is in database development.<sup>56</sup>

Although the implementation of the IMS has been "cumbersome," particularly in the database development phase, and may not provide all the information that was once hoped for, creating the IMS has not been without its benefits. One of the greatest benefits is the degree to which the IMS implementation effort has given freight planning more visibility.

A second significant benefit is the continuity of people involved at the agency and advisory-group level throughout the four years of the project to date. This continuity has provided staff at ODOT, the Port of Portland, and Metro with a greater understanding of Oregon's intermodal facilities, systems, and challenges on both the freight and passenger side.<sup>57</sup>

### **Transportation and Growth Management Team**

A unique partnership between ODOT and the Oregon Department of Land Conservation and Development began in 1993 to address the link between urban growth and transportation. Using federal grants authorized through ISTEA, the Transportation and Growth Management (TGM) Team developed as a \$6.9 million joint project of the two agencies and provides three services to local Oregon communities.

The first component of the TGM program is a grant program for local communities for the development of local transportation system plans, the implementation of land-use plan changes to meet transportation needs, and the development of urban growth management strategies. The second component of the program is the advocacy of "smart" development, or land development that supports travel by foot, bike, or transit, rather than by car. The third component of TGM is the Quick Response Program, which offers expert design assistance in new developments to make them more accessible to walking, cycling, and transit.<sup>58</sup>

Although TGM is a smaller program in relation to some of the state's transportation efforts, it is responsible for developing, changing, and encouraging the use of nonhighway modes of transportation at the local level, where people live and work. Programs of this nature can go a long way in developing significant change that, over time, can be translated to a statewide level. In addition, this program provides an interesting blueprint for transportation's involvement in growth management issues.

## **Metropolitan Planning Organizations and Local Involvement in the Transportation Planning Process**

### **Metro: MPO for the Portland Region**

#### ***Municipality Overview***

The Portland metropolitan area is the most densely populated region in Oregon. Composed of 24 cities in Clackamas, Multnomah, and Washington counties, the metropolitan region is home to more than 1.3 million residents.<sup>59</sup> Four of the 24 cities within the Portland metropolitan area are listed among the state's ten most populous cities: Portland (503,000), Gresham (79,350), Beaverton (63,145), and Hillsboro (52,105).<sup>60</sup> The metropolitan area covers approximately 460 square miles.<sup>61</sup>



The Portland metropolitan area is located in northwestern Oregon at the confluence of the Columbia and Willamette Rivers. The Pacific Ocean lies 100 miles to the west, and the Cascade Mountains and Columbia River Gorge lie to the east. Ten thousand acres of parkland lie within the city limits of Portland, including Washington Park, the largest forested park within a U.S. city.<sup>62</sup>

The Portland metropolitan area serves as a hub of employment, commerce, and service for Oregon and southern Washington.<sup>63</sup> The principal industries in the region are manufacturing, tourism, transportation, and wholesale and resale trade. Currently, biotechnology, high-technology, and metal industries are being targeted to diversify the local economy. Intel Corporation, with 4,300 employees, is the largest local employer within both the public and private sectors. Chief agricultural products of the area are specialty produce, cattle, and vegetable crops.<sup>64</sup>

### ***Transportation Infrastructure***

The Portland metropolitan region has a multimodal transportation network, consisting of the following:

- Highways: The Portland metropolitan region highway system includes sections of three interstate highways and several state and local highways.
- Air service: Portland International Airport has passenger service with 12 carriers and 300 flights a day and freight service with 18 carriers and 32 flights/day. Three local airports also serve the region: Troutdale, Hillsboro, and Mulino.<sup>65</sup>
- Rail service: Burlington Northern Santa Fe Railway, Union Pacific Railroad, and Amtrak.<sup>66</sup>
- Public transportation: Bus service provides 84 buses a day, and east-west light rail extends from Gresham to Hillsboro.
- Trucking service: Scheduled freight carrier service, overnight express parcel service, and overnight express mail service.<sup>67</sup>
- Port facilities: Five marine terminals are owned and operated by the Port of Portland. The Port of Portland exports more wheat than any other port in the United States, is ninth in terms of total tonnage, is the fifteenth largest container port, and the fifth highest-volume auto port in the country. The Port of Portland also owns the Portland Ship Yard.<sup>68</sup>

### ***Organizational Structure***

Metro is the MPO for the Portland area and is one of five MPOs in the state of Oregon. It is a directly elected regional government serving 1.3 million citizens in 24 cities and three counties. Metro's primary mission is to manage growth in Oregon's largest urban region, and it has primary responsibility for both land-use and transportation planning.<sup>69</sup> It is

designated as the metropolitan planning organization authorized to apply for and manage federal transportation funds in the Portland metropolitan region.<sup>70</sup>

Metro was formed in 1979 as a merger of two agencies, a council of government and the Metropolitan Service District. The two merging entities had transportation, land-use planning, and solid-waste management and facilities responsibilities. Through the years, Metro's responsibilities grew to include management of capital facilities, such as the Oregon Convention Center and Portland Civic Stadium. In 1992, Metro was granted a home-rule charter by the region's voters after having operated under the authority of the Oregon Legislature for 13 years.<sup>71</sup>

Metro is governed by a regionally elected executive office, auditor, and seven-member council (council members are elected by regional districts).<sup>72</sup> Its organizational structure includes six departments: Transportation, Growth Management Services, Regional Environmental Management, Regional Parks and Greenspaces, Administrative Services, and the Zoo.<sup>73</sup>

### ***Budget***

The overall 1997-98 budget of Metro is \$411.3 million and is funded from enterprise revenues, bond/loan proceeds, interfund transfers, property taxes, grants, intergovernmental revenues, interest, excise taxes, and other resources.<sup>74</sup>

### ***Staffing for Transportation***

Metro's Transportation Department develops transportation plans that "support land-use policies and move people and goods throughout the region in an efficient manner."<sup>75</sup> The department is responsible for the regional transportation plan and conducts all regional transit and light-rail planning under contract with Tri-Met, the local transit agency serving the tri-county area.<sup>76</sup> The Transportation Department works closely with Metro's Growth Management Services Department to ensure that transportation policies are developed to support land-use policies.<sup>77</sup>

The Transportation Department has five divisions: Regional Transportation Planning, High-Capacity Transit Planning, Travel Forecasting, Transit Oriented Development, and Administration. The Regional Transportation Planning Division is responsible for developing long-range transportation plans, evaluating funding programs, and studying transportation plans in specific areas.<sup>78</sup> The High-Capacity Transit Planning Division manages the region's South/North Transit Corridor Study, which focuses on evaluating and developing implementation plans for light rail from Vancouver, Washington, to Milwaukie, Oregon, in the southeastern area of the metropolitan region. The Travel Forecasting Division performs data analyses and research for Metro departments and other agencies throughout the region.<sup>79</sup>

In addition to Transportation Department staff, two committees are involved in transportation planning and decisionmaking for Metro. The Joint Policy Advisory

Committee on Transportation (JPACT) and the Transportation Policy Alternatives Committee (TPAC) are composed of state, regional, and local government staff, elected representatives, and citizens.<sup>80</sup>

### *Other Agencies/Organizations Involved in Transportation*

#### *Tri-County Metropolitan Transportation District*

The Tri-County Metropolitan Transportation District (Tri-Met) is a municipal corporation and serves as the Portland metropolitan area's transit operator, providing bus and light-rail service to most of Multnomah, Washington, and Clackamas Counties.<sup>81</sup> Tri-Met is governed by a seven-member board of directors, appointed by the governor and representing geographical areas of the Portland metropolitan area. Board members serve four-year terms and set the general policies and enact legislation for Metro. The general operations of the municipal agency are directed by the general manager, who is board-appointed for an unspecified period.

Tri-Met contracts with Metro to provide regional transportation planning. The document, titled "Cooperative Agreement on Duties and Responsibilities of Metro, Oregon Department of Transportation, and Tri-County Metropolitan Transportation District of Oregon in Participating in the Metro Transportation Planning Program," was signed and adopted in 1981 and reinforces Metro's role as the planning body for the region.<sup>82</sup>

Tri-Met provides both bus and light-rail service to the Portland metropolitan region. It currently operates an east-west light-rail line that is being expanded from 15 to 58 miles.<sup>83</sup> Currently, Tri-Met has launched an outreach and planning effort, "Transit Choices for Livability," for citizen involvement in developing a plan for transit expansion in the next ten years. This planning effort will present specific transit service recommendations to Tri-Met's board in May 1998 that are consistent with Metro's 2040 growth management strategies.<sup>84</sup>

#### *The Port of Portland*

The Port of Portland was established in 1891 by the Oregon Legislature to dredge a shipping channel from Portland to the Pacific Ocean. It is now Oregon's largest and most diversified port. As a regional government of Clackamas, Multnomah, and Washington Counties, it is directed by a nine-member commission, appointed by the governor and ratified by the Oregon Senate.<sup>85</sup> Commissioners serve as many as two terms of four-years. The port's executive director is appointed by the commission and supervises a staff of approximately 600 employees.<sup>86</sup>

The Port of Portland is the largest exporter of wheat in the United States, handles the third-largest export tonnage on the West Coast, is the third largest importer of automobiles on the West Coast, and is the 15<sup>th</sup> largest volume container port in the United States.<sup>87</sup> The five marine terminals of the port are connected to three major rail lines and two interstate highway systems.<sup>88</sup> The Port of Portland also owns Portland International

Airport, which served 12,593,013 passengers and handled 242,407 short tons of cargo in 1996. In addition to Portland International Airport, the port owns three general-aviation airports in the metropolitan region. Finally, the port owns the Portland Ship Yard, home to the largest floating dry dock in the Western Hemisphere. The Port of Portland lists deepening the Columbia River Channel and building a light-rail line to the airport as two of its top priorities.<sup>89</sup>

### *Issues, Policies, and Goals*

The overarching goal of Metro is to direct efforts to maintain and enhance the livability and economic vitality of the region. Metro's policies revolve around its role in providing a coordinated approach to land-use and livability issues. Its specific policy and issue areas are land-use planning, regional transportation planning, and environmental management.

Since its establishment in 1979, Metro has served as the coordinator of regional planning for the Portland metropolitan area. Initially, Metro combined the responsibilities of the two agencies from which it was formed, taking on responsibility for land-use and transportation planning, solid-waste management planning, and operation of the zoo. During its early years, the legislature assigned additional responsibilities to Metro, such as management of the metropolitan area's urban-growth boundary. In addition, Metro has played a proactive role in constructing and managing trade and spectator facilities, such as the Oregon Convention Center, Portland Civic Stadium, and the Portland Center for the Performing Arts. Metro also established itself as a protector of green spaces within the region, taking over management of the Multnomah County park system, and leading efforts to purchase and protect open spaces.

In 1991, the Metro Council and its partner local governments, adopted broad land-use planning goals and objectives entitled the "Regional Urban Growth Goals and Objectives" (RUGGOs). Over time, municipalities within Metro's jurisdiction indicated that the RUGGOs were not specific enough to clearly direct planning and implementation activities.<sup>90</sup> When Metro was granted its home-rule charter by voters in 1992, its responsibilities were further broadened beyond regional land-use and transportation planning to include responsibility for other issues of "metropolitan concern."<sup>91</sup> Included in the charter was a requirement that Metro adopt a "Future Vision" statement by 1995. This statement articulates the standard by which the region can gauge its progress toward the maintenance of a livable region.<sup>92</sup>

The adoption of the "Future Vision" statement led to the development of the Region 2040 Growth Concept, a forum for further delineation of land-use and transportation planning policies. The development of the Region 2040 Growth Concept defines the region's desired growth patterns for the next 50 years. The growth concept provides the outline and direction for the "Regional Framework Plan," adopted in December 1997. Ultimately, the growth concept is an integrated set of objectives that establishes a general approach for the expansion of the urban-growth boundary and indicates density ranges and the protection of open spaces. Included in the growth concept is the further development of a

regional multimodal transportation system designed to be consistent with land-use patterns.<sup>93</sup>

### *Transportation Plans and Reports*

Metro develops transportation plans to meet state and federal guidelines, as well as those defined by its charter. The plan development process is very inclusive, engaging citizens and local officials in all phases through citizen advisory committees, as well as public meetings and workshops.

### *Regional Transportation Plan (RTP)*

The RTP is Metro's 20-year blueprint linking transportation and land-use policies. Although Metro adopted its first RTP in 1983, the 1995 RTP is the first to lay out transportation choices for a "financially constrained system."<sup>94</sup> The RTP serves as a guiding document for local governments, as they develop their own local transportation plans.

In 1996, the RTP was updated to integrate requirements of the state Transportation Planning Rule and the Region 2040 Growth Concept. Metro is in the process of updating the entire plan for adoption in 1998. Issues currently under discussion for the RTP update are prioritization of limited funds for the next 20 years, the development of a new funding strategy to provide additional transportation resources, and the identification of specific projects for regional investment.<sup>95</sup>

The 1995 RTP establishes transportation policies for motor vehicle, transit, pedestrian, bicycle, and freight and includes specific objectives, strategies, and projects to guide both regional and local implementation of each policy. The RTP establishes regional transportation policy drawn from regional transportation goals and objectives, as well as urban form and land-use goals. The policy component of the plan then establishes an overall system design. The RTP then identifies growth, land-use, and travel-demand overviews through the year 2015; analyzes the effect on the current transportation system; and recommends improvements. The RTP also establishes performance and evaluation measures and includes an analysis of costs and financial resources.

The policies in the RTP focus on passenger transportation alternatives to driving and on the importance of the movement of goods through the region.<sup>96</sup> The link between transportation and land-use patterns is an important strategy for the plan as well.

### *Transportation Improvement Program*

The "Metropolitan Transportation Improvement Program" (TIP) is the region's three-year funding document and the tool for implementing the RTP. It schedules and identifies funding sources for projects of regional significance. It is updated annually, with each TIP prioritizing transportation funding for the next five years. The TIP is used to schedule and implement improvements. After being reviewed at the local level and being reviewed by Metro's JPACT, the TIP is approved by the Metro Council. Following adoption by the

council, the TIP is submitted to the Oregon Transportation Commission for approval as part of the state TIP.<sup>97</sup>

### *Regional Framework Plan*

The “Regional Framework Plan” is required by Metro’s 1992 charter. The “Regional Framework Plan” was adopted in December 1997, and “incorporates goals, objectives and policies established in existing Metro legislation, including the Regional Urban Growth Goals and Objectives (RUGGOs), the 2040 Growth Concept, the Urban Growth Management Functional Plan, the Metropolitan Greenspaces Master Plan, and the Regional Transportation Plan.”<sup>98</sup> While the document provides broad planning goals and objectives, it includes specific requirements for both Metro and the local cities and counties within the Metro region. Requirements of local governments are adopted as functional plans. The “Regional Transportation Plan” is considered a functional plan of the “Regional Framework Plan.”<sup>99</sup>

### *Transportation Funding and Programs*

The overall 1997-98 budget for Metro’s Transportation Department is \$17 million, or 24 percent of the total Metro budget of \$411.3 million. The Transportation Department’s budget is allocated by divisions, with the Administration Division receiving \$790,000, the Regional Transportation Planning Division receiving \$2.1 million, the High-Capacity Transit Planning Division receiving \$2.3 million, the Travel Forecasting Division receiving \$8.9 million, and the Transit Oriented Development Division receiving nearly \$3 million.

The full-time equivalent (FTE) staff for the Transportation Department is 56.68 for 1997-98, representing 7 percent of the overall Metro FTE staff.

Federal and state grants fund many of the efforts in the Transportation Department, including Transit Station Area Planning Program, Transportation Growth Management Program, Transportation Planning Program, Regional Transportation Plan, and the Transportation Improvement Program. Of particular note are the first two programs listed as they are locally, rather than federally, funded programs. The Transit Station Area Planning Program was a joint project between Metro, Tri-Met, the City of Portland, the City of Gresham, the City of Beaverton, the City of Hillsboro, and Multnomah and Washington Counties. The program’s goals were to create transit station area environments that promote mixed-use, higher-density, and transit-supportive development and to maximize ridership potential of light rail.<sup>100</sup>

The Transportation Growth Management Program is funded by the Oregon Legislature and is a joint effort of ODOT and the DLCD. Elements of the program were managed and approved by Metro, including main street design, cities’ technical assistance and multijurisdiction tools development, and pedestrian facilities planning.<sup>101</sup>

## *Exemplary Practices in Multimodal/Intermodal Transportation*

### *Organizational Structure*

Metro has a unique structure that makes it highly accountable to the citizens of the Portland metropolitan region. It is the nation's only regionally elected government, with its executive director and Metro Council members both accountable at the polling booth. The Office of the Executive includes an Office of Citizen Involvement. When Metro was granted its home-rule charter in 1992, it formed the Metro Committee for Citizen Involvement, which assists in the development, implementation, and evaluation of Metro's citizen-involvement activities and advises the organization on the best ways to involve citizens in the regional planning activities.<sup>102</sup> Four of the eleven standing citizen advisory committees (additional citizen advisory committees are formed as necessary) are related to transportation. JPACT is a forum for elected officials and agency representatives involved in transportation in the region to make recommendations related to policy issues to the Metro Council. The Metro Transportation Policy Alternatives Committee provides input on transportation planning, priorities, and financing alternatives. The Regional Transportation Plan Citizen Advisory Committee provides a broad-based perspective on regional transportation issues. The South/North Transit Corridor Citizen Advisory Committee provides recommendations related to the light-rail initiative to the South/North Light-Rail Steering Committee.<sup>103</sup>

Metro's Transportation Department is structured intermodally, in that staff members are not focused on specific modes but consider the larger picture of an integrated transportation system composed of different modes and linkages as envisioned by the federal ISTEA legislation. The Regional Transportation Planning Division considers travel options and develops the 20-year Regional Transportation Plan that is multimodal and addresses land-use goals. The High-Capacity Transit Planning Division focuses its efforts on the South/North Transit Corridor. The Travel Forecasting Division provides comprehensive data analyses to guide the planning process and provide more information about tradeoffs and considerations among different travel options.<sup>104</sup>

### *Efforts to Involve Other Organizations in Planning Efforts*

Metro consistently works with the Port of Portland, Tri-Met, ODOT, and the Vancouver, Washington, metropolitan planning organization, C-Tran. For example, on the South/North Light-Rail system project, Metro is coordinating the involvement of 14 local governments and citizens from five cities.

The Metro Council is responsible for policymaking; it relies heavily on its advisory committees to maintain a strong relationship with its partners in local and state government. Metro generally does not enter into written agreements with other agencies but, rather, incorporates them into the structure of Metro through advisory committees and boards.

### *Innovative Intermodal Projects*

Light rail is at the cornerstone of the region's efforts to reduce congestion, maintain livability, and decrease urban sprawl. An east-west line already exists, running from Gresham through downtown Portland to Hillsboro. Park-and-ride facilities, as well as bus terminals, are located along the line.

Currently, two efforts are focused on the expansion of light rail in the region. The first is the South/North Transit Corridor Study. The proposed bistate line would provide services between Milwaukie, Oregon, to Vancouver, Washington. Beginning in 1992, Metro worked with local cities, agencies, and ODOT to examine potential routes for the corridor. In 1996, a state-funding measure, which included the light-rail project, as well as other transportation projects, failed to pass. Since 1996, Metro has refined its efforts, considering and implementing several cost-cutting strategies, and federal funding is being sought to assist in building the project.<sup>105</sup>

The Port of Portland, Tri-Met, the City of Portland, and Metro have recently announced the guiding principles for a public private venture to bring light rail to the Portland International Airport by the year 2001. As a result of a proposal designed by Bechtel Enterprises, Inc., construction of a mixed-use, transit-oriented commercial development on port-owned property would be used to help finance the extension of light rail to the airport. While the details of the financing project are still being defined, the partners in the project have agreed not to seek federal funds, state general funds, or local property tax funds to finance the project.<sup>106</sup>

### *Creative Ways to Involve the Public and Private Sector in the Planning/Programming Process*

When the state-funding measure for light rail and other transportation projects on the November 1996 ballot failed, Metro and Tri-Met launched an extensive public information and outreach effort that included a survey sent to 100,000 residents and businesses to determine the public's interest in continuing the light-rail project. This effort is just one example of Metro's commitment to public involvement in its problem solving.

Metro also has numerous standing committees that involve citizens in the ongoing activities of the organization. Several of those committees are mentioned throughout this chapter.

### *Intermodal/Multimodal Passenger Planning/Programming Processes*

Metro is currently conducting a Traffic Relief Options Study in partnership with ODOT. One component of the study is peak-period pricing, which is being used to determine at which peak-period-pricing concepts can be tested and potentially applied in the Portland metropolitan region to increase access to and through congested areas, reduce negative effects of congestion, and lessen the need to build more roads.<sup>107</sup> The peak-period-pricing concepts being studied include spot pricing, facility pricing, corridor pricing, area pricing,



and region pricing. Collection methods under consideration are toll booths, automatic vehicle identification, area licensing, and parking fees.<sup>108</sup>

As a component of the Traffic Relief Options Study, Metro conducted a series of workshops during November 1997 to provide information on the study and solicit comments. Those comments will be integrated into the study.

### *Freight Transportation Planning Programs*

The Portland Commodity Flow Study, coordinated by Metro and the Port of Portland, is an effort to collect and evaluate information to better understand the freight system.<sup>109</sup> In November 1994, a consultant group prepared a "Portland Metro 2040 Commodity Flow and Requirements Study," which attempted to provide an initial analysis of trends in the freight movement industry in the Portland metropolitan region. The next phase of the Portland Commodity Flow Study has been to quantify and determine more precisely the modal shares and geographic distribution of commodity flow data for commodity scoping.<sup>110</sup>

## Notes

<sup>1</sup> U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States: 1995* (Washington, D.C., 1995), pp. 28-29.

<sup>2</sup> *Information Please Almanac, Atlas, and Yearbook* (New York: Houghton Mifflin Company, 1996), p. 773.

<sup>3</sup> *The World Almanac and Book of Facts* (New York: Newspaper Enterprise Association, 1993), p. 640.

<sup>4</sup> *Ibid.*

<sup>5</sup> *Information Please Almanac Atlas and Yearbook*, p. 773.

<sup>6</sup> Oregon Department of Transportation (ODOT), "Roads," ODOT web site (Salem, Ore. [cited February 1, 1998]), available from: <http://www.odot.state.or.us/roads.html>; INTERNET.

<sup>7</sup> ODOT, *1994 Oregon Rail Freight Plan* (Salem, Ore., 1994), p. 1-3.

<sup>8</sup> Oregon Ports Association, *Oregon Ports* (Lake Oswego, Ore., 1996), p. 1.

<sup>9</sup> ODOT, "Aeronautics," ODOT web site (Salem, Ore. [cited January 29, 1998]), available from: <http://www.odot.state.or.us/tdb/aero/index.html>; INTERNET.

<sup>10</sup> ODOT, "Intercity Passenger & High Speed Train Projects," ODOT web site (Salem, Ore. [cited February 1, 1998]), available from: <http://www.odot.state.or.us/tdb/rail/railpass.html>; INTERNET.

<sup>11</sup> ODOT, "Oregon Transportation Facts," ODOT web site (Salem, Ore. [cited October 10, 1997]), available from: <http://www.odot.state.or.us/oti/facts.html>; INTERNET.

<sup>12</sup> Oregon Department of Land Conservation and Development (ODLCD), *Biennial Report to the State Legislature, 1995-97* (Salem, Ore., February 1997), p. 1.

<sup>13</sup> *Ibid.*, appendix.

<sup>14</sup> ODOT, *State Agency Coordination Program, December 1990* (Salem, Ore., December 1990), p. ii.

<sup>15</sup> ODLCD, *Biennial Report*, p. 34.

<sup>16</sup> Oregon Administrative Rule, 1997 Compilation, Land Conservation and Development Department, Division 12, Transportation Planning.

<sup>17</sup> ODLCD, *Biennial Report*, p. 32.

<sup>18</sup> 1997-98 Oregon Blue Book Online, "Oregon Department of Transportation," Oregon Secretary of State web site [cited November 30, 1997], available from: [http://www.sos.state.or.us/BlueBook/1997\\_98/executive/Transportation.html](http://www.sos.state.or.us/BlueBook/1997_98/executive/Transportation.html); INTERNET.

<sup>19</sup> Speech by Director, Oregon Department of Transportation, Grace Crunican, to the City Club of Portland, Ore., November 21, 1997.

<sup>20</sup> 1997-98 Oregon Blue Book Online, "Oregon Department of Transportation."

<sup>21</sup> ODLCD, "Oregon's Land Use Planning Agency," ODLCD web site [cited February 1, 1998], available from: <http://www.lcd.state.or.us/backinfo/dept.html>; INTERNET.

<sup>22</sup> ODLCD, *Biennial Report*, p. 38.

<sup>23</sup> *Ibid.*, p. 8.

<sup>24</sup> 1997-98 Oregon Blue Book Online, "Oregon Economic Development Department," Oregon Secretary of State web site (Salem, Ore. [cited February 2, 1998]), available from: [http://www.sos.state.or.us/BlueBook/1997\\_98/executive/Economic.html](http://www.sos.state.or.us/BlueBook/1997_98/executive/Economic.html); INTERNET.

<sup>25</sup> *Ibid.*

<sup>26</sup> Oregon Economic Development Department (OEDD), "Ports Division," OEDD web site (Salem, Ore. [cited February 2, 1998]), available from: <http://www.econ.state.or.us/PORTS.html>; INTERNET.

<sup>27</sup> *Ibid.*

<sup>28</sup> ODOT, *Oregon Transportation Plan: The New Oregon Trail Leading into the 21<sup>st</sup> Century* (Salem, Ore., 1992), p. 21.

<sup>29</sup> *Ibid.*, preface.

<sup>30</sup> *Ibid.*

<sup>31</sup> Ibid., p. 18.

<sup>32</sup> ODOT, *1994 Oregon Rail Freight Plan* (Salem, Ore., 1994), pp. 4-11

<sup>33</sup> ODOT, *Oregon Passenger Policy and Plan* (Salem, Ore., 1992), p. ii.

<sup>34</sup> Ibid., pp. iv-v.

<sup>35</sup> ODOT, "Oregon Highway Plan: Public Review Draft, January 1998," Salem, Ore., 1998, p. 14.

<sup>36</sup> Ibid., pp. 25-72.

<sup>37</sup> ODOT, *Oregon Bicycle and Pedestrian Plan*, (Salem, Ore., 1995), Executive Summary.

<sup>38</sup> Ibid.

<sup>39</sup> ODOT, "Willamette Valley Transportation Strategy: Phase One Report, Final Draft," Salem, Ore., 1995, p. i.

<sup>40</sup> Ibid.

<sup>41</sup> Oregon Transportation Commission, "Long-Range Transportation Finance Issues and Opportunities: Draft Discussion Paper," Salem, Ore., 1995, p. 1.

<sup>42</sup> ODOT, *Weathering the Storms: 1996 Comprehensive Annual Financial Reports and Summary of Operations* (Salem, Ore., 1996), p. 12.

<sup>43</sup> ODOT, *Statewide Transportation Improvement Program 1998-2001 Draft* (Salem, Ore., 1996), pp. vii-xvi.

<sup>44</sup> ODOT, "ODOT Corridor Planning," Salem, Ore., n.d., p. 2.

<sup>45</sup> Ibid.

<sup>46</sup> Ibid., pp. 10-11.

<sup>47</sup> Ibid., p. 6.

<sup>48</sup> Ibid., pp. 8-9.

<sup>49</sup> Interview by Kimberlee Harper Hanken with Dick Reynolds, Senior Transportation Planner/Corridor & General Planning Unit, ODOT, Salem, Oregon, January 8, 1998.

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<sup>51</sup> ODOT, *Weathering the Storms*, p. 12.

<sup>52</sup> Ibid.

<sup>53</sup> OTI, "Transportation Funding Proposals" [cited October 10, 1997], available from: [http://www.odot.state.or.us/oti/t\\_fund.html](http://www.odot.state.or.us/oti/t_fund.html); INTERNET.

<sup>54</sup> Ibid.

<sup>55</sup> ODOT Planning Section, Statewide Mobility Unit, "Intermodal Facilities and Systems Management," Salem, Ore., April 1997.

<sup>56</sup> Interview by Kimberlee Harper Hanken with Steven Kale, Senior Planner/Economist, Statewide Mobility Unit, ODOT, Salem, Oregon, January 8, 1998.

<sup>57</sup> Ibid.

<sup>58</sup> ODLCD, *Biennial Report*, pp. 8-10.

<sup>59</sup> Metro, "Welcome to Metro" [cited February 26, 1998], available from: <http://www.multnomah.lib.or.us/metro/>; INTERNET.

<sup>60</sup> 1997-98 Oregon Blue Book Online, "City Populations: 1960-1996," Oregon Secretary of State web site [cited February 2, 1998], available from: [http://www.sos.state.or.us/BlueBook/1997\\_98/local\\_gov/citypop.html](http://www.sos.state.or.us/BlueBook/1997_98/local_gov/citypop.html); INTERNET.

<sup>61</sup> Metro, "Frequently Asked Questions" [cited December 1, 1997], available from: <http://www.multnomah.lib.or.us/metro/glance/glfaqs.html>; INTERNET.

<sup>62</sup> City of Portland, "General Information," City of Portland web site [cited November 30, 1997], available from: [www.ci.portland.or.us/cityinfo.html](http://www.ci.portland.or.us/cityinfo.html); INTERNET.

<sup>63</sup> Portland Metro and Port of Portland, "Portland Metro 2040 Commodity Flow and Requirements Study:

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<sup>64</sup> OEDD, "Portland Community Profile," OEDD web site (Salem, Ore. [cited December 1, 1997]), available from: <http://www.econ.state.or.us/PORLAN.html>; INTERNET.

<sup>65</sup> Port of Portland, "About the Port," Port of Portland web site (Portland, Ore. [cited December 1, 1997]), available from: <http://www.portofportlandor.com/ABOUTPOR.html>; INTERNET.

<sup>66</sup> Port of Portland, "Rail Service," Port of Portland web site (Portland, Ore. [cited February 17, 1998]), available from: <http://www.portofportlandor.com/RAILLINE.html>; INTERNET.

<sup>67</sup> Ibid.

<sup>68</sup> Port of Portland, "About the Port."

<sup>69</sup> Metro, "Frequently Asked Questions."

<sup>70</sup> Metro, "Metro History" [cited February 4, 1998], available from: <http://www.multnomah.lib.or.us/metro/glance/history1.html>; INTERNET.

<sup>71</sup> Ibid.

<sup>72</sup> Metro, "Frequently Asked Questions."

<sup>73</sup> Metro, "Department Structure."

<sup>74</sup> Metro, "Adopted Budget, Fiscal Year 1997-98," Portland, Ore., 1997.

<sup>75</sup> Metro, "Department Structure."

<sup>76</sup> Ibid.

<sup>77</sup> Ibid.

<sup>78</sup> Metro, "Transportation Planning" [cited November 25, 1997], available from: <http://www.multnomah.lib.or.us/metro/transpo/transpo.html>; INTERNET.

<sup>79</sup> Ibid.

- <sup>80</sup> Metro, "Adopted Budget, Fiscal Year 1997-98."
- <sup>81</sup> Metro, "1996 Regional Transportation Plan Update: Regional Transportation Policy," Portland, Ore., July 25, 1996, p. G-8.
- <sup>82</sup> Metro, "1995 Interim Federal Regional Transportation Plan," Portland, Ore., July 1995, p. I-9.
- <sup>83</sup> Tri-Met, "MAX—10 and counting," Tri-Met web site [cited November 30, 1997], available from: <http://www.tri-met.org/maxat10.html>; INTERNET.
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- <sup>85</sup> Port of Portland, "Port Fast Facts, Port Profile," Port of Portland web site (Portland, Ore., [cited February 17, 1998], available from: <http://www.portofportlandor.com/FASTFACT.HTM#projects>; INTERNET.
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- <sup>87</sup> Port of Portland, "Port Fast Facts."
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- <sup>90</sup> Metro, "Regional Framework Plan," Portland, Ore., December 11, 1997, p. 2.
- <sup>91</sup> Metro, "Metro History."
- <sup>92</sup> Metro, "Future Vision," Portland, Ore., adopted June 15, 1995.
- <sup>93</sup> Metro, "Regional Framework Plan."
- <sup>94</sup> Metro, "1995 Interim Federal Regional Transportation Plan," Portland, Ore., May 1995.
- <sup>95</sup> Metro, "Frequently Asked Questions."
- <sup>96</sup> Ibid.

<sup>97</sup> Metro, “1995 Interim Federal Regional Transportation Plan,” Portland, Ore., pp. 8-1—8-4.

<sup>98</sup> Metro, “Regional Framework Plan,” p. 3.

<sup>99</sup> *Ibid.*, p. 4.

<sup>100</sup> Metro, *Metro Grants and Funding Resources*, Portland, Ore., n.d. (brochure).

<sup>101</sup> *Ibid.*

<sup>102</sup> Metro, “Metro Citizen Advisory Committees” [cited February 26, 1998], available from: <http://www.multnomah.lib.or.us/metro/glance/mcci/advisor.html>; INTERNET.

<sup>103</sup> *Ibid.*

<sup>104</sup> Metro, “Transportation Planning.”

<sup>105</sup> Metro, “The South North Transit Corridor Study” [cited November 25, 1997], available from: <http://www.multnomah.lib.or.us/metro/glance/faqs/transpofaq.html>; INTERNET.

<sup>106</sup> Port of Portland, “Public Agencies, Private Developer Announce Concept to Bring Light Rail to PDX,” Port of Portland web site (Portland, Ore. [cited February 17, 1998]), available from: <http://www.portofportlandor.com/p971211092101.html>; INTERNET.

<sup>107</sup> Metro, “Traffic Relief Options Study, Peak Period Pricing Concept” [cited November 25, 1997], available from: <http://www.multnomah.lib.or.us/metro/transpo/tros/concept.html>; INTERNET.

<sup>108</sup> *Ibid.*

<sup>109</sup> Metro, “Portland Commodity Flow Study, Revised Draft Scope of Work” [cited November 25, 1997], available from: <http://www.multnomah.lib.or.us/metro/transpo/comflo/comscope.html>; INTERNET.

<sup>110</sup> *Ibid.*



## Chapter 6. Pennsylvania

### Overview

Pennsylvania is the fifth most populous state in the nation, with an estimated population of 12,052,000 (1994). The state has the ninth highest population density of 268.9 people per square mile.<sup>1</sup> The major metropolitan areas are Philadelphia, Pittsburgh, Erie, and Allentown.<sup>2</sup>

The Keystone State ranks 33rd in the nation in total area with 45,308 square miles. Its topography consists of the Allegheny Mountains, which run from the state's southwest to its northeast, and the piedmont and coastal plain in the southeast triangle. The Allegheny Front lies diagonally across the state's center. Furthermore, a rugged plateau lies in the northwest Lake Erie Lowlands.<sup>3</sup>

The principal industries of the Pennsylvania economy are steel, travel, health, apparel, machinery, foodstuffs, and agriculture. Chief agricultural crops of the state are corn, hay, mushrooms, apples, potatoes, winter wheat, oats, vegetables, tobacco, and grapes. Its primary manufactured goods consist of primary metals, foods, fabricated metal products, nonelectrical machinery, and electrical machinery. Pennsylvania produces 10 percent of the nation's cement. Other major commodities are glass, limestone, slate, brick, and tiles.<sup>4</sup>

### Transportation Infrastructure

Pennsylvania has an intermodal transportation system, which includes

- 117,000 miles of interstate, state, and local roads (1995);
- Amtrak-operated rail passenger service along four lines, providing service to many large cities in the Northeast and Mid-Atlantic regions (1995);
- 42 transit systems statewide, including the nation's 5th largest in Philadelphia and 14th largest in Pittsburgh (1995);
- four major intercity bus carriers operating 14 bus routes serving rural and suburban areas (1995);
- three major ports—Philadelphia, Pittsburgh, and Erie—that handled more than 90.7 million tons of freight in 1994;
- two major hubs for domestic airlines at Pittsburgh International Airport and Philadelphia International Airport (1995); and<sup>5</sup>

- 5,607 miles of rail and more than 70 railroads (1995).<sup>6</sup>

## State Issues, Policies, and Goals

Transportation planning in Pennsylvania is primarily motivated by economic development concerns and population demands. The state views transportation as a tool that can be used to both motivate and ensure continued economic growth and prosperity. The Pennsylvania Department of Transportation (PennDOT) envisions in its Transportation Policy Plan “a seamless system of transportation services and facilities, which enables the free flow of people and goods throughout Pennsylvania.”<sup>7</sup> The state and PennDOT engage in vigorous public-participation efforts in order to determine transportation needs and create viable development strategies. From these, PennDOT has developed an action agenda that includes a list of actions to accomplish over the short, mid, and long term.

Two types of issues drive Pennsylvania’s transportation planning process: economic and demographic issues. Over the past 15 to 20 years, Pennsylvania’s economy has undergone a prolonged and difficult transformation. This transformation has included a shift from an “industrial, manufacturing and resources-based economy to a more robust, balanced, service-based economy.”<sup>8</sup> Pennsylvania’s advantageous location near the center of the huge, eastern seaboard market, however, makes it an attractive location for new service industries, light manufacturing, and agricultural shipping. Accordingly, the state has had to shift its focus from heavy freight and resource shipping to a more balanced system that allows for movements of light manufactured goods and people.

Demographic changes are also driving Pennsylvania’s transportation planning process. Similar to the rest of the United States, Pennsylvania’s city centers are shrinking and its population has become increasingly suburban. This change has resulted in a greater dependence on automobiles for passenger transportation, as well as increased travel times and distances. Pennsylvania also has the largest rural population in the United States, which further increases people’s reliance on automobiles. The state population is projected to increase at approximately 0.5 percent annually and is expected to reach 13.5 million by the year 2020.<sup>9</sup> Furthermore, women are increasing their roles in the workplace and, subsequently, per-capita income is increasing in the state. All these changes imply that Pennsylvania will continue to see increased demand for highway and other passenger transportation services. However, 15 percent of Pennsylvania’s population is over 65 and the population will continue to “gray.”<sup>10</sup> As Pennsylvania’s population ages, passenger transportation planning is also being adjusted to accommodate changing mobility requirements.

## **State Agencies Involved in Transportation**

### **Pennsylvania Department of Transportation (PennDOT)**

PennDOT is organized in a traditional hierarchical structure under a secretary of transportation (see figure 6.1). The department employs 12,014 people and has an annual budget of about \$3.8 billion in state and federal funds.<sup>11</sup> There are six deputates directly related to daily transportation issues: Administration, Planning, Local and Area Transportation, Safety Administration, Highway Administration, and Aviation. There is no deputate devoted solely to intermodal planning.<sup>12</sup> Apart from its six main deputates, PennDOT also has offices dealing with minority affairs, legislative affairs, and other administrative and public relations operations.<sup>13</sup>

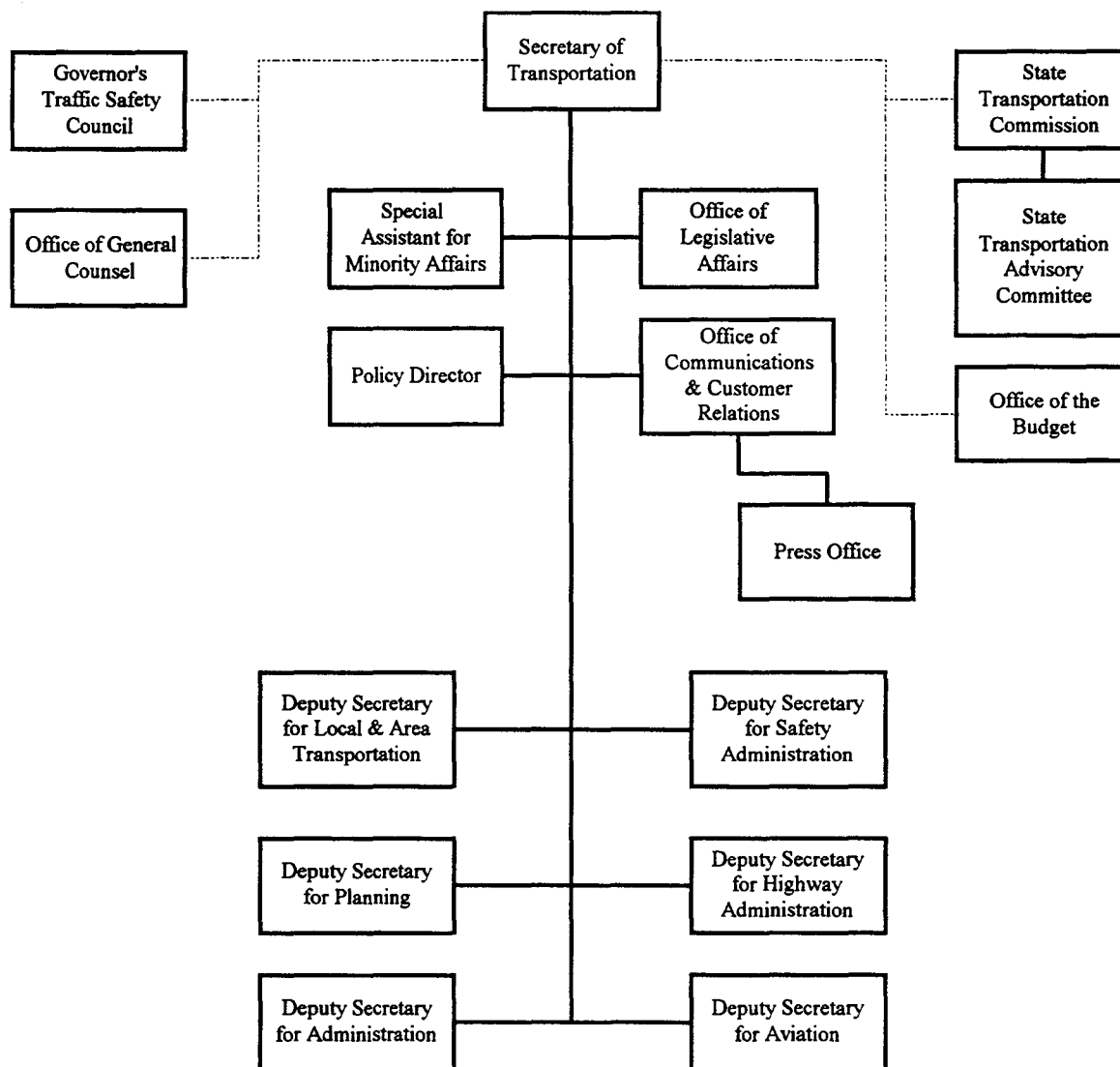
PennDOT conducts its intermodal planning processes from within its planning deputate. The deputate has created an intermodal coordinator position whose task it is to coordinate the intermodal efforts of the state's metropolitan planning organizations (MPOs) and local development districts (LDDs) so that they will fit into the larger framework of the state's Intermodal Management System. There are eight staff members working under the intermodal coordinator. Furthermore, each MPO, LDD, and engineering district has a designated coordinator who works with those organizations in ensuring that the state's goals and interests are presented in their regional planning processes.<sup>14</sup> Because intermodal planning occurs at the local and county levels, interested parties must go to each MPO, LDD, and engineering district to determine the number of staff they devote to intermodal issues.

### **Other Agencies Involved in Transportation**

Besides PennDOT, there is one other state agency heavily involved in transportation issues. The Pennsylvania Department of Commerce administers the Office of PennPORTS, which is responsible for port promotion and development activities. The Office of PennPORTS is not involved in intermodal planning, however, but works to ensure that Pennsylvania's ports are included in state intermodal plans. Thus, it must function as a liaison between the ports and state and local planning agencies.

Other state agencies that play minor roles in the transportation planning process are the Pennsylvania Turnpike Commission, the Department of Aging, and the Department of Social Services. These agencies are not directly involved in intermodal planning. Rather, they provide PennDOT with demographic information, demand projections, and needs analyses, which are integrated into the fiscally constrained Twelve Year Program (described later).

**Figure 6.1**  
**Organizational Structure**  
**Pennsylvania Department of Transportation**



Source: Adapted from Pennsylvania Department of Transportation (PennDOT), Office of Communications and Customer Relations, *PennDOT Annual Report '96* (Harrisburg, Pa., 1997), pp. 48-49.

PennDOT is also involved in a unique bistate planning effort, the Delaware Valley Regional Planning Commission (DVRPC). The DVRPC is a 32-year-old organization created by agreement between New Jersey and Pennsylvania.<sup>15</sup> In addition to its bistate planning agency status, PennDOT has also designated the DVRPC as one of the state's 14

MPOs. The DVRPC functions as an advisory and planning council. It undertakes data collection, research, coordination, planning, and capital programming. Implementation, however, is left to local, county, and state authorities. The DVRPC does not limit its attention to intermodal issues but is involved in all aspects of transportation, as well as developmental and environmental issues.<sup>16</sup>

## **Transportation Plans and Reports**

### **Statewide Transportation Plan**

In 1995, Pennsylvania published its overarching transportation policy document, the *Pennsylvania Transportation Policy Plan*. This plan defines Pennsylvania's transportation planning process, outlines seven goals for PennDOT, provides details of management and monitoring systems, and serves as an action agenda. PennDOT intended for the transportation policy plan to accomplish a number of different goals. The plan will "provide a policy framework for consistent statewide and regional planning, stimulate the development of new procedures, help define new roles and responsibilities for transportation stakeholders, produce new performance-based information for monitoring and management purposes, and foster open, participatory, and continuing public involvement."<sup>17</sup> The plan, however, also focuses on intermodal issues and methods by which intermodalism may be developed in Pennsylvania. It clearly defines the state's transportation planning process and provides effective means by which stakeholders and citizens can be included in the planning process. The plan is limited by its vague goals and ambiguity in defining the state's transportation programming process.

### **Modal Plans**

#### ***Rail Plan***

Pennsylvania's state rail freight program, the *Comprehensive Rail Freight Study Project 94-19*, is a detailed investigation into the state's rail freight network. Completed by a private consulting firm, Mainline Management Inc., for PennDOT, the study provides a catalog of six task areas for the department to pursue. The study gives PennDOT a comprehensive approach, including analyses and action steps, to improving rail freight movement across the state.<sup>18</sup>

#### ***Other Modal Plans***

PennDOT has already developed or is in the process of developing a number of other modal plans: an aviation plan, a transit plan, and a statewide pedestrian and bicycle plan. The aviation plan is not currently available but was revised in 1997. A task force was created to prioritize the issues facing Pennsylvania's airports and air-freight industry. In the course of its work, the task force was able to identify four system planning products that may be used to support airport development.<sup>19</sup> The state also undertook a new public transportation research project in 1996. No plan or report has yet been published, but

“the program is intended to encourage innovative approaches and . . . increase transit system productivity, ridership, customer satisfaction, safety, and access.”<sup>20</sup> The pedestrian and bicycle plan is a four-part effort. It consists of a master plan, bicycle planning and design guidelines, pedestrian planning and design guidelines, and a community design system. The goals of this master plan are simple: to double the percentage of foot and bicycle trips and to reduce pedestrian and bicyclist injuries and fatalities.<sup>21</sup>

### **Intermodal Plans**

The Intermodal Management System (IMS) is PennDOT’s means of managing intermodalism, but it is not organized at the state level. Intermodal development initiatives appear to occur solely at the local and county level. However, to maintain the momentum and effectiveness of these projects, the state collects and publishes an annual list of highlights in its *Highlights of Pennsylvania’s Congestion and Intermodal Management Systems*. PennDOT is particularly interested in publicizing effective strategies, useful technology, partnerships, integration, and performance measures.<sup>22</sup>

The Intermodal Surface Transportation Efficiency Act (ISTEA) required each state to develop six management systems (Congestion, Intermodal, Bridge, Safety, Public Transportation, and Pavement) as well as a Traffic Monitoring System. PennDOT has integrated these seven systems into a single project and published a report, *Management and Monitoring Systems*. This report provides a project timeline and a description of each system’s methods and accomplishments.<sup>23</sup> Furthermore, there is a catalog of documents that interested policymakers can access in order to further investigate the planning and implementation processes of these systems.

### **Annual Reports**

Pennsylvania has published a comprehensive annual report in each of the last two years, *PennDOT Annual Report ‘95* and *PennDOT Annual Report ‘96*, and is currently working on a report for 1997. The annual report provides a list of the year’s major accomplishments, as well as highlights from each deputate. There are also sections highlighting programs, events, and people within each of the state’s engineering districts. Each annual report ends with statistics and budget information for that fiscal year. This report is an effective means for PennDOT to inform the public of its successes and failures, as well as an excellent way to highlight the important programs within the department.

### **Local Transportation Plans**

The DVRPC has published a long-term development plan, which includes intermodal issues and a report detailing intermodal facilities within its planning district. The *DVRPC Year 2020 Land Use and Transportation Plan* is a long-range plan for the Philadelphia, Trenton, and Camden metropolitan areas. It is concerned with land use and the nonautomobile transportation options that may be employed to aid in controlling land use in those areas. Within that context, the plan discusses how intermodal passenger facilities

may be used to achieve those ends.<sup>24</sup> The *Intermodal Facilities Landside Access* is a proposal for new intermodal shipping facilities for the Port of Philadelphia. The new intermodal facilities will serve FastShip Atlantic boats (a high-value, niche market) and CSX International.<sup>25</sup> Both documents provide an example of the efforts of local planning agencies in promoting intermodal development in their districts.

## Transportation Funding and Programs

Transportation funding in Pennsylvania is managed through the state's Twelve Year Program (TYP). The TYP "incorporates highway, bridge, aviation, transit, rail freight, and intermodal projects proposed for funding over a twelve year period," and those projects are organized by county into three four-year groups.<sup>26</sup> MPOs, LDDs, and other planning organizations provide their plans to the state to integrate into the TYP. The state uses the TYP to estimate long-term planning costs and to direct funds appropriately. PennDOT reviews and revises the TYP every two years.<sup>27</sup>

The various planning organizations in Pennsylvania do not merely present their projects to the Office of Planning within PennDOT for approval. Rather, there is a process of negotiation by which projects are introduced into the TYP. The Office of Planning, in fact, has no power to introduce projects into the TYP; MPOs and LDDs are the only bodies with legislative power to do so. Instead, the Office of Planning has representatives on the technical and coordinating committees of each planning organization. These representatives present each planning organization with a slate of projects that PennDOT believes to be important for the district. Likewise, the planning organizations have their own lists of projects. From this starting point, PennDOT representatives and the planning organizations begin a "give and take" process by which individual projects are agreed on for introduction into the TYP. These negotiations are guided in part by fiscal constraints placed on each district. Through this process, PennDOT is able to guide the planning process, while still allowing each planning organization to retain much of its sovereignty. The success of intermodal planning is determined at this juncture. Many rural and smaller districts concentrate on highway projects, whereas larger districts, such as those in Philadelphia and Pittsburgh, introduce more intermodal-type projects.<sup>28</sup>

The Statewide Transportation Improvement Program (STIP) is PennDOT's method for transition from programming to implementation.<sup>29</sup> The STIP evaluates and selects programs from the first four years of the TYP to receive federal funds, choosing only those that may reasonably be expected to qualify for funds. This accounting process places financial constraints on planning organizations and allows the state to control transportation costs. The STIP process is coordinated with the TYP two-year cycle to allow for concurrent review and evaluation.

Transportation funding in Pennsylvania is allocated through different dedicated funding structures. The funds themselves come from a mix of federal, state, local, and private resources. A number of different factors influence what sources are used, when projects are undertaken for individual modes. These determining factors include ownership of

facilities, ability of different modes to leverage federal funds, federal spending requirements, stakeholder interests, and state constitutional spending requirements.

### **Aviation Funding**

State aviation funding comes from taxes on aviation fuels, yielding about \$9.2 million annually.<sup>30</sup> A small portion of state funding comes from revenues earned in the operation of state-owned airports. Individual airports may apply for federal capital grants that make up 75 to 90 percent of those airports' program moneys. These grants are the only federal funds that PennDOT's aviation program receives. PennDOT expects to see reduced federal aviation funds in coming years and expects the state government will address the consequent funding gap.<sup>31</sup>

### **Transit Funding**

Public transportation is provided through a dedicated fund under Act 26, which was passed by the state legislature in 1991. This act created the Public Transportation Assistance Fund (PTAF), which generates funds from five sources. These sources include

1. a tire fee of \$1 per tire,
2. 0.53 percent of Pennsylvania sales tax proceeds,
3. a motor vehicle lease additional tax of 3 percent,
4. a motor vehicle rental fee of \$2 per day, and
5. a utility realty additional tax of 12 mills per dollar.

During FY 1995-96, PennDOT distributed \$158 million for urban transit systems and \$4.7 million for rural transit providers from the PTAF.<sup>32</sup> Apart from the PTAF, the public transportation program also receives funds from state bond funds, general funds and lottery proceeds, and federal moneys.<sup>33</sup> PennDOT notes that transit systems are heavily dependent on state operating assistance and that the state will most likely continue to increase its operating support funds in the future.<sup>34</sup>

### **Highway Funding**

Highways receive the largest portion of state and federal funds disbursed by PennDOT. Highway programs are funded through two main sources: the state Motor License Fund (MLF) and the Federal Highway Transit Fund, which flows through the MLF. Federal rules require PennDOT to use Federal Highway Transit Fund moneys solely on highway projects. Likewise, the state's constitution requires that all MLF monies also remain dedicated to highway projects. The majority of the state funds in the MLF come from state and federal motor fuel taxes; however, some funds come from licensing and registration fees.<sup>35</sup> In FY 1995-96, PennDOT's Highway Administration awarded \$638 million in construction contracts and budgeted \$809 million for highway maintenance.<sup>36</sup>



## **Rail Funding**

Rail freight is the only transportation mode in Pennsylvania that has no dedicated funding. Currently, rail freight is funded through the capital budget, the general fund's Rail Freight Assistance Program (RFAP), and some Federal Railroad Administration funds. In previous years, the RFAP typically disbursed about \$2.6 million per year.<sup>37</sup> In FY 1995-96, the amount was increased to \$3.6 million. A 1994 report, however, suggests that PennDOT needs to drastically increase its rail freight assistance an additional \$15 to \$21 million per year to ensure the maintenance of a viable rail freight system in Pennsylvania.<sup>38</sup> As it currently stands, most spending on rail freight comes from private sources.

## **Intermodal Funding**

There is no formal funding structure for intermodal programming. Because of the TYP/STIP process. Intermodal projects may be programmed into the TYP, but they are funded through particular modal sources and the general fund. The recent Doublestack Rail Freight Project is an example of this funding process. Over the three-year course of the project, the state spent \$97 million on making a number of different rail lines accessible to double-stacked container trains. Of this \$97 million, the state provided \$34 million and Consolidated Rail Corporation (Conrail)—the company that owned the rights-of-way that received the improvements—provided \$60 million. The rest of the funding was provided by local sources.<sup>39</sup> Other intermodal projects, such as the intermodal passenger transportation facility in Allentown, Pennsylvania, have also employed a wide variety of funding sources, including federal, state, and private moneys.<sup>40</sup>

## **State Infrastructure Bank**

Pennsylvania is involved in researching different funding options for transportation planning. In December 1996, PennDOT submitted a preliminary application to the USDOT to create a State Infrastructure Bank (SIB). In December 1997, the Pennsylvania State Legislature passed enabling legislation for SIB seed funds. The state proposes to capitalize the bank through a mixture of federal grant moneys, user fees, and various state transportation funds. The SIBs are intended to provide greater flexibility for state transportation financing efforts. The SIB will provide loans, subsidized interest rates, and other debt-financing tools that will allow Pennsylvania to tailor its financing to meet the requirements of different types of construction projects.<sup>41</sup> Flexibility will remain limited by federal requirements that highway and transit funds remain separated. Furthermore, there are no plans to dedicate any SIB funds to intermodal projects. With these limitations in mind, PennDOT is currently trying to develop a slate of acceptable projects for SIB funding.<sup>42</sup>

## **Exemplary Practices in Multimodal/Intermodal Transportation**

### **Comprehensive Planning**

Pennsylvania's success in transportation planning results from the comprehensive approach it takes to the process. Rather than approaching transportation planning in a piecemeal manner, PennDOT deals with issues on an integrated systemwide basis. Furthermore, the approach to transportation is highly inclusive and does not involve top-down management decisions. With its numerous efforts to include transportation stakeholders in the planning process, PennDOT ensures that all needs are met and, accordingly, that intermodal concerns are included in planning.

### **Intermodal Planning Coordination**

PennDOT has researched and published a number of reports on intermodal management systems (IMS) and included intermodal planning in all state and regional planning organizations. As stated previously, the department has created a statewide intermodal coordinator position and provided intermodal coordinating representatives to each local planning organization.

PennDOT has structured its planning process in a way that MPOs and LDDs assume responsibility for the majority of all intermodal planning. Funding comes from the state, and PennDOT representatives sit on the planning organization boards, but the needs assessment and actual planning are conducted in each locality. This mixture of local planning and state oversight and funding allows the local agencies to tailor planning to their needs. By this method, the state is able to ensure that intermodal planning is being incorporated into the state system without having to directly coordinate each district's plan.

### **Doublestack Rail Freight Project**

Pennsylvania's most notable intermodal project has been its Doublestack Rail Freight Project. This project, which originated at the state level, enabled the entire rail corridor, extending from Philadelphia to Pittsburgh, to handle double-stacked container trains. The state, in partnership with Conrail, identified the need for doublestack capabilities in Pennsylvania and acted on it. PennDOT coordinated the entire project and completed all work necessary on highways and bridge structures. During the process, it worked with local and state historical agencies and the Pennsylvania Department of Environmental Protection to meet all building requirements. The state contributed \$34 million to the project. Conrail joined PennDOT on this project, adjusting all tunnel clearances on the corridor. The rail carrier contributed \$60 million to the cost of the project. Local planning organizations and private firms improved older or constructed new intermodal facilities in Harrisburg, Morrisville, Pitcairn, and Allentown. These entities contributed a further \$4 million to the project. The public/private partnership was aided by the state's willingness to accelerate the planning and programming process for Conrail's benefit.

Without sacrificing safety and other reviews, PennDOT was able to greatly reduce the time required to implement and finish the project.<sup>43</sup>

The success of the Doublestack Rail Freight Project has created positive change within PennDOT. It has helped many in the department see the possibility of working on economic development issues. When the project began in 1993, it broke new ground in public/private partnerships and has since opened new doors for coordinating opportunities. The communication and cooperation between PennDOT and other agencies and private firms provided a model for future efforts. Indeed, PennDOT is considering working with European partners and has begun to concentrate on improving transportation access to the state's ports. Some of its employees feel that the success of the doublestack project will also make future transportation-related legislation easier. The low cost and ease with which the project was completed may appeal to the state's legislators. Finally, PennDOT has begun to consider transportation land-use planning as a result of this project.<sup>44</sup>

There are a number of other successful intermodal projects. All these projects were developed and implemented at the local level, although they have not been solely public undertakings. Localities have been flexible in their focus and requirements, pursuing private investors as well as federal and state moneys. Of the projects the state has chosen to include in its *Highlights of Pennsylvania's Congestion and Intermodal Management Systems*, those that are clearly intermodal in nature are all public/private partnerships.

### **Performance Measures**

Pennsylvania currently lacks well-developed performance measures for its intermodal transportation programs. PennDOT, however, is working on a set of measures that will include customer concerns as well as administrative concerns. Presently, the agency is looking for "highlights" and obvious key indicators. Comprehensive measures will arise naturally as state and local agencies begin to embrace intermodal planning and accept it as a natural consideration in transportation issues. Thus, the state is relying on the IMS and other management monitoring systems to maintain high standards in intermodal planning. Furthermore, the Center for Program Development and Management within PennDOT is building a clearinghouse for information on progress in intermodal development. It is also developing a series of transportation evaluation techniques for PennDOT objectives, such as cost-effective maintenance methods, new and useful technologies, and balance in the transportation system.<sup>45</sup>

### **Metropolitan Planning Organizations and Local Involvement in the Transportation Planning Process**

There are two types of organizations undertaking most of Pennsylvania's transportation planning. These are the MPOs and LDDs mentioned earlier. There are 14 MPOs in Pennsylvania involved in transportation planning and programming at the municipal level. There are seven LDDs in Pennsylvania working at the county level in transportation, regional planning, and economic development.<sup>46</sup> LDDs serve most of Pennsylvania's rural

counties. Five counties in Pennsylvania are served by neither an MPO nor LDD. These counties coordinate their planning directly with PennDOT.

## **Delaware Valley Regional Planning Council**

### ***Municipality Overview***

The Philadelphia metropolitan statistical area is the fifth largest metropolitan area in the United States.<sup>47</sup> The region is comprised of five Pennsylvania counties, four New Jersey counties, and 362 municipalities. The region is served by the Delaware Valley Regional Planning Council (DVRPC), which also serves as the MPO for the Philadelphia metropolitan area. The DVRPC encompasses 3,833 square miles of the Delaware River Valley.<sup>48</sup> The nine-county DVRPC region has a population of 5,215,615 (1995).<sup>49</sup> The region has the fourth highest population density in the United States with 1,103.6 people per square mile.<sup>50</sup> Major cities in the region besides Philadelphia include Chester, Pennsylvania, and Camden and Trenton, New Jersey.<sup>51</sup>

The Port of Philadelphia and Camden is the largest freshwater port in the world, making international goods movement an important aspect of the region's economy.<sup>52</sup> Primary imports for the region are crude oil, fruit, cocoa beans, paper products, meat, and steel. Important exports are scrap metal, petroleum products, chemicals, vehicles, and pulp.<sup>53</sup> The metropolitan area also has the second most diverse economy of the nation's 12 largest metropolitan areas, with few major concentrations of industry. The health services industry, however, has boomed in Philadelphia, creating more job growth than any other business sector.<sup>54</sup> Forecasts indicate that employment growth will continue among most sectors, with wholesale trade experiencing a 27 percent gain.<sup>55</sup>

### ***Transportation Infrastructure***

The Pennsylvania portion of the Philadelphia metropolitan area has an intermodal transportation system, which comprises

- 3,895 miles of highways, state roads, and city roads (1995);<sup>56</sup>
- two heavy-rail transit lines, five subway-surface light-rail lines, five trackless trolley lines, and 73 bus routes providing 590,000 trips daily (1995);<sup>57</sup>
- Amtrak intercity rail service to Princeton and Trenton, New Jersey, Washington, D.C., and New York City (1995);<sup>58</sup>
- air service from 25 commercial and general-aviation airports including Philadelphia International Airport (1995);<sup>59</sup>
- three Class I rail freight operators using doublestack access to the ports of South Philadelphia (1995); and<sup>60</sup>

- the world's largest freshwater port, which handled approximately 63 million tons of waterborne cargo in 1993.<sup>61</sup>

### ***Organizational Structure***

The DVRPC was established in 1965 as a regional planning agency under contract with Pennsylvania and New Jersey. Its role was formalized in 1967 under the Delaware Valley Urban Area Compact.<sup>62</sup> As defined in its charter, "DVRPC's purpose is to undertake continuing, comprehensive, coordinated planning for the orderly growth and development of the Delaware Valley region and to provide a variety of services for governmental bodies and public and business organizations."<sup>63</sup> The DVRPC is actually an advisory body with no authority to implement projects. However, it can influence both federal and state funding by setting regional priorities, plans, and programs. To qualify its member governments for federal moneys, the DVRPC is required to undergo an annual certification. This process ensures that all programmed projects are integrated with regional planning goals.

Two bodies, the 18-member Board of Commissioners and the 10-member Executive Committee guide the DVRPC.<sup>64</sup> The board guides commission plans and policies and adopts the annual work program. The Executive Committee deals with administrative and fiscal matters and adopts the annual budget.<sup>65</sup> Membership and duties for these bodies is set forth in the original compact and includes representatives from various state offices. The voting Pennsylvania members of the Board of Commissioners comprise representatives from Pennsylvania Governor's Policy Office, PennDOT, Bucks County, Chester County, Delaware County, Montgomery County, City of Philadelphia, City of Chester, and an appointee by the Pennsylvania governor.<sup>66</sup> These two bodies are counseled by the Regional Citizens Committee, which reviews all plans and programs and works to enhance public awareness of planning and transportation issues.<sup>67</sup>

The DVRPC has ten committees dealing with various administrative, transportation, and development issues:

1. Board of Commissioners' Ethics Committee,
2. Board of Commissioners' Legislation and By-Laws Committee,
3. Board of Commissioners' Executive Director's Compensation Committee,
4. Board of Commissioners' Year 2020 Plan Committee,
5. Board of Commissioners' Work Program Committee,
6. Tri-County 208 Advisory Committee,
7. Regional Air Quality Committee,
8. Regional Aviation Committee,

9. Planning Coordinating Committee, and

10. Regional Transportation Committee.

Apart from the ten committees, other entities that work with the DVRPC are the Water Quality Management Board, Information Resource Exchange Group, and the Delaware Valley Goods Movement Task Force.<sup>68</sup>

### ***Staffing for Transportation***

The DVRPC has a Transportation Planning Division. Within the planning division is an Intermodal Planning Unit that employs 15 people. These individuals work on various intermodal issues from corridor-level planning to site-specific projects. Of the 15 people, 3 are employed in advancing IMS for Pennsylvania, one as the IMS coordinator for the MPO. Furthermore, there is a Goods Movement Program that employs one person in intermodal freight issues. The Goods Movement Program has a budget of \$60,000 a year and is primarily concerned with the involvement of port, rail, and trucking entities in the intermodal planning process.<sup>69</sup>

Because of its bistate, multimodal nature, the DVRPC has many organizations involved in its planning process. They include various transportation and growth planning bodies and housing and urban development interests. The following organizations are all included in the Board of Commissioners as nonvoting members from Pennsylvania:

- Port Authority Transit Corporation (PATCO);
- Southeastern Pennsylvania Transportation Authority (SEPTA);
- Delaware River Port Authority (DRPA);
- Federal Highway Administration, Pennsylvania; and
- Pennsylvania Department of Environmental Resources.

The wide variety of organizations involved in DVRPC emphasizes the various roles, transportation related and otherwise, that the MPO plays in regional policymaking.

### ***Issues, Policies, and Goals***

Three issues primarily drive transportation planning in the Delaware Valley region: growth (and the related topics of congestion and mobility), air quality, and freight movement. The DVRPC has taken each of these issues into account and attempted to address them in its planning documents and processes.

The Philadelphia metro area has grown faster in recent decades than many other East Coast cities, including New York and Baltimore.<sup>70</sup> Growth, however, has not been uniform throughout the region. The city of Philadelphia experienced population decreases

of 6 percent in the 1980s, while suburban Chester County witnessed a 19 percent population increase. This population growth is projected to continue, with an 11-percent increase predicted for the region as a whole between 1990 and 2020 and a 30-percent increase predicted for Chester County.<sup>71</sup> Such varied growth patterns have resulted in an overall urban decline and increasing suburban populations. Furthermore, Philadelphia lost many jobs to the surrounding suburbs between 1970 and 1990.<sup>72</sup> Increasing suburbanization and loss of urban jobs has had three impacts on transportation considerations. It has increased reliance on the highway network for goods movement, “expand[ed] the area subject to suburban sprawl development” by reducing home-work travel times around the periphery, and reduced home-work travel toward the urban center.<sup>73</sup> The increased mobility of the regional population has led to a higher dependency on automobiles, less reliance on transit, and increased suburban congestion.

As levels of automobile commuters have increased in recent years, air quality in the Philadelphia area has decreased. As measured by the standards of the Clean Air Act Amendments of 1990, the Philadelphia metro area has become a nonattainment area. In 1989, the city of Philadelphia exceeded federally mandated carbon monoxide levels on two different days and federal ozone levels on four days. Since then, air quality has continued to decrease and the city has been declared a severe 15-ozone polluter, meaning that it has 15 years to meet federal standards before sanctions are instituted.<sup>74</sup>

Freight mobility is the final factor driving DVRPC’s planning. It is an issue related, in part, to the issues of congestion and mobility. Between 1992 and 1993, port freight activity increased 9 percent, and between 1984 and 1994, airport tonnage increased 12 percent.<sup>75</sup> These increased freight activities require similar increases in rail freight and truck movements. The regional rail freight was able to increase its capacity by participating in the doublestack project. Truck freight, however, is faced with congestion and mobility problems because of the central location of the Port of Philadelphia within the city. DVRPC has identified several issues that it will have to address to improve truck freight:

- promotion of turnpike use,
- allowances for heavier international loads,
- improved access to intermodal shipping facilities,
- implementation of a congestion management system, and
- upgrading of restricted bridges.<sup>76</sup>

The DVRPC instituted *Direction 2020* to identify and address the problems facing the region. The initial policy document established eight goals and 56 objectives for the MPO. Five of those goals pertain directly to transportation issues. For each goal, the MPO has established complementary policies that help it achieve the wider regional goals.<sup>77</sup>

DVRPC's first goal is to link land use to transportation planning in order to "constrain decentralized development . . . by concentrating transportation improvements within centers and along corridors."<sup>78</sup> The MPO's basic policy is to restrict certain types of transportation investments in peripheral areas and, thus, guide future growth in a managed direction. DVRPC has created a "transportation improvement matrix" to give detailed guidance in this effort.<sup>79</sup>

DVRPC's second goal is to ease congestion "through the reduction of single occupant vehicles . . . encouraging changes in commuters' travel habits, and improving the efficiency of existing transportation services." The MPO has developed three policies to achieve this goal:

1. to provide more nonautomobile options for commuters,<sup>80</sup>
2. to use transportation demand-management techniques for corridor and system planning, and<sup>81</sup>
3. to optimize efficiency of existing transportation systems.<sup>82</sup>

DVRPC's third goal is to improve the region's air quality. It has developed three policies to help it achieve this goal also: (1) the MPO will facilitate regional compliance with the Clean Air Act Amendments of 1990, (2) the MPO will encourage the use of alternative transportation modes, and (3) the region will encourage the use of transportation control measures throughout the region.<sup>83</sup>

DVRPC's fourth goal is to support freight movement in the region "by promoting cooperation among freight movement interests and developing an intermodal regional freight movement plan with improvements to air, highway, port, and rail systems."<sup>84</sup> Again, the MPO has three policies to aid in implementation: (1) to increase levels of public and private investment in regional freight movement projects, (2) to create opportunities for businesses that use freight services, and (3) to create an efficient network of intermodal freight facilities in the region.<sup>85</sup>

Finally, DVRPC's fifth goal for transportation planning is that "personal mobility shall be enhanced through improving the access to and efficiency of the region's transportation network and ensuring the safety and security of the systems' users."<sup>86</sup> The MPO's three goals are to promote coordination and integration, provide system accessibility to all passengers, and ensure the safety and security of highway and transit customers.<sup>87</sup>

### ***Transportation Plans and Reports***

*Moving People and Goods: Transportation Elements of the DVRPC Year 2020 Plan* is the MPO's long-range transportation plan for the nine-county region as required by ISTEA. The plan was developed with the idea that the region must "look at the problems of land use and transportation as a single, interrelated condition."<sup>88</sup> It contains a set of regionally significant projects and policies as well as a listing of future studies and regional goals. The report also contains an analysis of innovative funding sources and their



applicability and examples of their use. It makes recommendations for transportation, bicycle and pedestrian activities, aviation, and intermodal freight movement. The cost of the facilities and programs detailed in the report are expected to be about \$21 billion in 1995 dollars.<sup>89</sup>

*Transportation Issues and Goals for the Long-Range Plan: A Document for Public Discussion* is the document the DVRPC used to initiate its long-term planning process. It inspects each aspect of the region's transportation system and describes the issues facing them. The report concludes with ten goals for the *Year 2020 Intermodal Transportation Plan*.<sup>90</sup> The importance of the report lies in the fact that it accepts the need for improving physical conditions but emphasizes the necessity for strategy and planning. This document helps ensure that long-range goals are not neglected in the rush to build new projects.

*Transportation Improvement Program: FY 1997-2000* (TIP) is the DVRPC's federally mandated, financially constrained, prioritized list of transportation projects for the region. TIP covers a three-year span and is updated every two years in conjunction with the state's STIP/TYP process. Projects must be recommended by a member agency for approval and then assessed using a list of specific planning factors. The FY 1997-2000 TIP lists a total of \$21.5 billion for highway and transit projects. Of this amount, 55 percent is slated for maintenance and construction, while 3 percent and 1 percent of the funds are slated for goods movement and passenger intermodal projects, respectively.<sup>91</sup>

*Intermodal Facilities Landside Access* is a report detailing the barriers to an efficient intermodal system at the Philadelphia Naval Business Center, formerly Philadelphia Naval Base. The report takes a comprehensive approach to defining and addressing the issues and requirements of the proposed FastShip and CSX International intermodal facilities at the port. It recommends appropriate highway routes, provides areawide traffic strategies, identifies transportation impacts, and recommends access and signing improvements. The landside access plan also provides cost estimates in a candidate transportation capital improvement program.<sup>92</sup> This document is an excellent example of a well-organized planning document, which clearly identifies potential barriers and provides methods to circumvent those barriers.

*Direction 2020: The Public Participation Initiative and Policy Statement* outlines DVRPC's approach to public involvement. "The DVRPC believes that planning must be done with the public, not for the public."<sup>93</sup> The report, which "outlines DVRPC's public participation efforts to date, the outreach program that is currently being promoted, the official public policy of the agency, and the mandates and programs that have precipitated these actions, was published as a guide to the creation of the *Direction 2020 Policy Plan*."<sup>94</sup> To that extent, it appears to have given the MPO a successful method for involving the public at almost every level of planning, as evidenced in continuing efforts to involve the public in DVRPC activities. The report should continue to act as a model for future public-participation efforts in the region.

### ***Transportation Funding and Programs***

A major source of capital improvement funds for transportation projects in the DVRPC is the federal government. These federal funds come from various grants and sources and are funneled through PennDOT. One important federal source is the National Highway System (NHS).<sup>95</sup> NHS funds are used in the Delaware Valley region to finance strategic highway connections to intermodal facilities.<sup>96</sup> Pennsylvania state funds, which have been described previously, are also used to finance DVRPC projects. Accordingly, there are various New Jersey state funds available to the DVRPC. Within Pennsylvania, funds also come from the Pennsylvania Turnpike Commission, the RPA, the Burlington County Bridge Commission, and the Delaware River Joint Toll Bridge Commission.<sup>97</sup>

### ***Exemplary Practices in Multimodal/Intermodal Transportation***

The DVRPC excels at two aspects of transportation planning. First, the MPO has a well-developed program of public/private partnerships as well as public involvement. Second, the MPO undertakes a full range of comprehensive planning activities, including everything from livability concerns, corridor planning, and intermodal port access.

#### ***Public Participation***

When the DVRPC first began its Direction 2020 effort, the MPO undertook a wide range of public-involvement initiatives. It began with the organization of a Public Participation Committee that was intended to develop a strategy for gaining public involvement in the planning process. This committee represented a number of interests, including the business community, the news media, chambers of commerce, port and rail interests, citizens, the disabled, and environmental concerns. Suggestions from the committee led the DVRPC to undertake many kinds of public outreach, including

- press conferences, periodic newsletters, and meetings held in conjunction with the review of TIP;
- a resident opinion survey regarding various transportation and land-use policy questions;
- a general opinion survey distributed through newspapers and at shopping malls to solicit input from as large an audience as possible;
- a series of five charrettes;
- policy and facilities plans posted on the Liberty Net computer bulletin board; and
- a speakers' bureau to present Direction 2020 information to various groups throughout the region.<sup>98</sup>

Furthermore, the DVRPC's Regional Citizens Committee, which consults with the DVRPC's Executive Committee, participates in the ongoing work of the Direction 2020

plan. This concentrated effort to involve all transportation users speaks of a planning body that intends to serve the region's citizens in as responsive a manner as possible.

### *Public/Private Partnerships*

The Goods Movement Task Force in Philadelphia is an example of the range of agencies and interests that may be involved in intermodal planning in Pennsylvania. The Goods Movement Task Force is administered by the DVRPC and is driven by the private entities that make up its main body.<sup>99</sup> The task force comprises

- area trucking firms and associations,
- Class I and shortline rail operators,
- freight shippers and receivers,
- port operators and oversight agencies,
- air-freight shippers and airport operators,
- commerce organizations,
- Pennsylvania's and New Jersey's Departments of Transportation; and
- federal and county agencies.

The Goods Movement Task Force evaluates all transportation modes in the Philadelphia area and attempts to develop ways to improve their intermodal connections. The task force intends to improve the overall quality of transportation in Philadelphia and improve the efficiency of freight movements. Its long-term goals involve the eventual integration of all modes of freight movement with the industries and facilities to create a unified intermodal, industrial complex.<sup>100</sup>

### *Modal and Intermodal Planning*

The DVRPC also excels at modal and intermodal planning. Two documents, in particular, emphasize the long-term vision and detail that the DVRPC applies to projects. Both documents focus on an approximately six-square-block area next to the Philadelphia Naval Business Center. They provide an example of the DVRPC's comprehensive and detailed approach to intermodal planning.

In 1990, before ISTEA planning requirements were implemented, the DVRPC published a document titled *Regional Intermodal Transfer Facility Access Memorandum*. At that time, Philadelphia had no intermodal transfer facility, and the memorandum was prepared as part of a proposal to establish a new intermodal site near the Philadelphia Naval Base. The report was intended to identify what sort of access problems would have to be dealt with in creating an intermodal facility. The memorandum consists of turning movement

summaries at main intersections and the results of a survey of truck drivers concerning interstate usage and tractor-trailer access. The report concludes with suggested improvements in signage, road improvements, bridge improvements, and facility improvements.<sup>101</sup> On a final note, the report is yet another example of the cooperative nature of many DVRPC projects, having resulted from the coordination of DVRPC and the Delaware River Port Authority.

Six years after publishing the first memorandum, the DVRPC published a document titled *Intermodal Facilities Landside Access*. This report documents potential access problems for two proposed intermodal facilities at the Philadelphia Naval Base. The intermodal facilities, that the initial report was prepared for, have been built, and this new report assesses the impact that two extra facilities will have on current traffic patterns and the neighborhood as a whole. The report is divided into seven sections. Interestingly, the report does not discuss primary transportation issues first but, instead, assesses land uses and activity impacts in the neighborhoods surrounding the base, which is indicative of the DVRPC's approach to planning. Transportation is no longer an end itself but part of a process of creating a livable city. The fourth section begins to discuss purely transportation issues, focusing on demand predictions. The fifth and sixth sections identify primary and alternative access routes, potential points of congestion, and actions to ameliorate those problems. Finally, the seventh section provides a candidate transportation capital improvement plan. In this final section, the DVRPC does more than provide estimated costs and potential funding sources; it also discusses timing of construction and coordination of the project with other capital improvements in the immediate vicinity.<sup>102</sup> With the landside access document, the DVRPC shows that transportation planning in an urban environment entails far more than finding money for road construction. By highlighting livability issues, identifying potential access problems, and even considering scheduling difficulties, the MPO ensures that intermodal and modal projects are successfully completed in a timely fashion with a minimum of neighborhood and citizen impact.

## Notes

<sup>1</sup> U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States: 1995* (Washington, D.C., 1995), pp. 28-29.

<sup>2</sup> *Information Please Almanac, Atlas, and Yearbook* (New York: Houghton Mifflin Company, 1996), p. 773.

<sup>3</sup> *The World Almanac and Book of Facts* (New York: Newspaper Enterprise Association, 1993), p. 639.

<sup>4</sup> *Ibid.*

<sup>5</sup> Pennsylvania Department of Transportation (PennDOT), *Pennsylvania Transportation Policy Plan* (Harrisburg, Pa., 1995), pp. 12-16.

<sup>6</sup> PennDOT, *Comprehensive Rail Freight Study—Project No. 94-19-Task 1—Assess the Pennsylvania Rail Freight System*, prepared by Mainline Management Services Inc. (Harrisburg, Pa., August 1996), p. i.

<sup>7</sup> PennDOT, *Pennsylvania Transportation Policy Plan*, p. 1.

<sup>8</sup> *Ibid.*, p. 9.

<sup>9</sup> *Ibid.*, p. 10.

<sup>10</sup> U.S. Department of Commerce, Bureau of the Census, "Statistical Abstract for the United States: USA Counties 1996 CD-ROM," Bureau of the Census web site [cited November 25, 1997], available from: <http://www.census.gov/statab/USA96/42/000.txt>; INTERNET.

<sup>11</sup> PennDOT, Office of Communications and Customer Relations, *PennDOT Annual Report '96* (Harrisburg, Pa., 1997), p. 2.

<sup>12</sup> Telephone interview by Everett Volk with Bob Raves, Transportation Planning Manager, 12-Year Program Section, Program Center, PennDOT, Harrisburg, Pennsylvania, January 16, 1998.

<sup>13</sup> PennDOT, *Annual Report '96*, pp. 48-49.

<sup>14</sup> Telephone interview by Everett Volk with Tom Kotay, Planning Division Manager, Program Center, PennDOT, Harrisburg, PA., January 7, 1998.

<sup>15</sup> Philadelphia Regional Ports, "International Goods Movement Task Force: Port Profiles, Delaware Valley Regional Planning Commission" [cited November 25, 1997], available from [http://ppc.org/pahouse/pro\\_dvrpc.html#profile](http://ppc.org/pahouse/pro_dvrpc.html#profile), p. 1; INTERNET.

<sup>16</sup> *Ibid.*, p. 2.

- <sup>17</sup> PennDOT, *Pennsylvania Transportation Policy Plan*, p. 2.
- <sup>18</sup> PennDOT, *PennDOT Annual Report '96*, p. 35.
- <sup>19</sup> *Ibid.*, p. 7.
- <sup>20</sup> *Ibid.*, p. 32.
- <sup>21</sup> PennDOT, *Statewide Pedestrian & Bicycle Master Plan* (Harrisburg, Pa., May 1996), p. iv.
- <sup>22</sup> PennDOT, *Highlights of Pennsylvania's Congestion and Intermodal Management Systems* (Harrisburg, Pa., August 1996), p. i.
- <sup>23</sup> PennDOT, *Management and Monitoring Systems* (Harrisburg, Pa., September 1996), pp. 2-3.
- <sup>24</sup> Delaware Valley Regional Planning Commission (DVRPC), *DVRPC Year 2020 Land Use and Transportation Plan*, [cited November 25, 1997], available from: <http://ppc.org/pahouse/synopses/lutp2020.html>, pp. 1-3; INTERNET.
- <sup>25</sup> DVRPC, *Intermodal Facilities Landside Access* (Philadelphia, PA., September 1996), pp. 1-5.
- <sup>26</sup> PennDOT, *Pennsylvania Transportation Policy Plan*, p. 22.
- <sup>27</sup> *Ibid.*, p. 22.
- <sup>28</sup> Raves interview.
- <sup>29</sup> PennDOT, *Pennsylvania Transportation Policy Plan*, p. 22.
- <sup>30</sup> State Transportation Advisory Committee, *Investing in Pennsylvania's Transportation Infrastructure* (Harrisburg, Pa., December 1994), p. 20.
- <sup>31</sup> *Ibid.*, p. 37.
- <sup>32</sup> PennDOT, *Annual Report '96*, p. 31.
- <sup>33</sup> State Transportation Advisory Committee, *Investing in Pennsylvania's Transportation Infrastructure*, p. 25.
- <sup>34</sup> *Ibid.*, p. 28.
- <sup>35</sup> *Ibid.*, pp. 21-23.
- <sup>36</sup> PennDOT, *Annual Report '96*, pp. 5, 16.
- <sup>37</sup> State Transportation Advisory Committee, *Investing in Pennsylvania's Transportation Infrastructure*,

p. 29.

<sup>38</sup> Ibid., p. 58.

<sup>39</sup> Telephone interview by Everett Volk with Harold Nanovic, Transportation Planning Specialist, Center for Program Development and Management, PennDOT, Harrisburg, Pennsylvania, January 15, 1998.

<sup>40</sup> PennDOT, *Highlights of Pennsylvania's Congestion and Intermodal Management Systems*, p. 56.

<sup>41</sup> Pennsylvania House of Representatives, Philadelphia Regional Ports International Goods Movement Task Force (final report) (Harrisburg, Pa., May 1997), pp. 62-65.

<sup>42</sup> Telephone interview by Everett Volk with Dennis Lebo, Assistant to Deputy Secretary for Planning, PennDOT, Harrisburg, Pennsylvania, January 13, 1998.

<sup>43</sup> Nanovic interview.

<sup>44</sup> Ibid.

<sup>45</sup> PennDOT, *Pennsylvania's Transportation Policy Plan*, p. 24.

<sup>46</sup> Ibid., p. 70.

<sup>47</sup> DVRPC, *Rating the Region: The State of the Delaware Valley* (Philadelphia, Pa., May 1993), p. 3.

<sup>48</sup> Federal Transit Administration (FTA), U.S. Department of Transportation, "Enhanced Planning Review of the Transportation Planning Process in the Philadelphia Metropolitan Area (June 1996)," FTA web site [cited February 3, 1998], available from: <http://www.fta.dot.gov/fta/library/planning/plnrpt/phihtm.html>, p. 2; INTERNET.

<sup>49</sup> DVRPC, "1996 Population Estimates, by Municipality (1997) 28-County DVRPC Data Service Area," [cited February 4, 1998], available from: [http://www.dvrpc.org/db\\_56b.htm](http://www.dvrpc.org/db_56b.htm), p. 1; INTERNET.

<sup>50</sup> DVRPC, *Rating the Region*, p. 4.

<sup>51</sup> DVRPC, *Moving People and Goods: Transportation Elements of the DVRPC Year 2020 Plan* (Philadelphia, Pa., July 1995), p. 7.

<sup>52</sup> Ibid., p. 42.

<sup>53</sup> Ibid.

<sup>54</sup> DVRPC, *Rating the Region*, pp. 12-13.

<sup>55</sup> Ibid., p. 13.

<sup>56</sup> DVRPC, *Moving People and Goods*, p. 26.

<sup>57</sup> *Ibid.*, p. 33.

<sup>58</sup> *Ibid.*, pp. 39-40.

<sup>59</sup> *Ibid.*, p. 41.

<sup>60</sup> *Ibid.*, p. 42.

<sup>61</sup> *Ibid.*, p. 58.

<sup>62</sup> FTA, "Enhanced Planning Review," p. 1.

<sup>63</sup> *Ibid.*, p. 2.

<sup>64</sup> *Ibid.*

<sup>65</sup> DVRPC, *Direction 2020: The Public Participation Initiative and Policy Statement* (Philadelphia, Pa., April 28, 1994), p. 11.

<sup>66</sup> FTA, "Enhanced Planning Review," p. 31.

<sup>67</sup> DVRPC, *Direction 2020*, p. 11.

<sup>68</sup> *Ibid.*

<sup>69</sup> Telephone interview by Everett Volk with Ted Dahlburg, Manager, Urban Goods Program, Goods Movement Program, DVRPC, Philadelphia, Pennsylvania, February 16, 1998.

<sup>70</sup> DVRPC, *Rating the Region*, p. 3.

<sup>71</sup> *Ibid.*

<sup>72</sup> DVRPC, *Moving People and Goods*, p. 49.

<sup>73</sup> *Ibid.*, pp. 50-51.

<sup>74</sup> DVRPC, *Rating the Region*, p. 20.

<sup>75</sup> DVRPC, *Moving People and Goods*, p. 58.

<sup>76</sup> *Ibid.*, p. 58.

<sup>77</sup> *Ibid.*, p. 77.



<sup>78</sup> Ibid.

<sup>79</sup> Ibid., p. 78.

<sup>80</sup> Ibid., p. 79.

<sup>81</sup> Ibid., p. 83.

<sup>82</sup> Ibid., p. 84.

<sup>83</sup> Ibid., pp. 86-87.

<sup>84</sup> Ibid., p. 88.

<sup>85</sup> Ibid., pp. 89-90.

<sup>86</sup> Ibid., p. 91.

<sup>87</sup> Ibid., pp. 91-94.

<sup>88</sup> Ibid., p. 15.

<sup>89</sup> Ibid., p. xii.

<sup>90</sup> DVRPC, *Transportation Issues and Goals for the Long-Range Plan: A Document for Public Discussion* (Philadelphia, Pa., August 1993), pp. 27-28.

<sup>91</sup> DVRPC, "Pennsylvania Summary," DVRPC web site [cited January 17, 1998], available from: <http://www.dvrpc.org/tip/pasumm.html>, pp. 1-2; INTERNET.

<sup>92</sup> DVRPC, *Intermodal Facilities Landside Access*, pp. 1-2.

<sup>93</sup> DVRPC, *Direction 2020*, p. 1.

<sup>94</sup> Ibid.

<sup>95</sup> DVRPC, *Moving People and Goods*, p. 111.

<sup>96</sup> Dahlburg interview.

<sup>97</sup> DVRPC, *Moving People and Goods*, pp. 116-17.

<sup>98</sup> Ibid., pp. 19-23.

<sup>99</sup> Dahlburg interview.

<sup>100</sup> PennDOT, *Highlights of Pennsylvania's Congestion and Intermodal Management Systems*, pp. 9-10.

<sup>101</sup> DVRPC, *Regional Intermodal Transfer Facility Access Memorandum* (Philadelphia, Pa., March 1990), pp. 31-32.

<sup>102</sup> DVRPC, *Intermodal Facilities Landside Access*, p. 69.

## Chapter 7. Virginia

### Overview

Virginia is the 12<sup>th</sup> most populous state in the nation, with an estimated population of 6,552,000 (1994). The state has the 15<sup>th</sup> largest population density of 165.5 people per square mile.<sup>1</sup> The major metropolitan areas are Arlington and Alexandria in the north, Richmond (the state capital) in the central eastern region, and the southeastern coastal cities of Virginia Beach, Norfolk, and Newport News.

Virginia ranks 36<sup>th</sup> in the nation in total area with 40,767 square miles. The topography of Virginia includes the Appalachian chain (Blue Ridge Mountains and valleys) in the western part of the state. The eastern portion of the state is defined by the rolling Piedmont Plateau and the Atlantic Coastal (or Tidewater) Plain.<sup>2</sup>

The principal industries of the Virginia economy are services, trade, government, manufacturing, tourism, and agriculture. The chief agricultural products of the state are tobacco, soybeans, peanuts, winter wheat, corn, tomatoes, apples, and summer and sweet potatoes. Its primary manufactured goods consist of textiles, transportation equipment, electric and electronic equipment, food processing, chemicals, and printing.<sup>3</sup> Coal mining accounts for roughly 75 percent of Virginia's mineral output. However, lime, kyanite, and stone are also mined.<sup>4</sup>

### Transportation Infrastructure

Virginia has a multimodal network comprising

- the third largest state-maintained highway system in the country, containing 55,600 miles of state-maintained interstate, primary, and secondary roads, of which 1,100 miles are classified as part of the interstate system (1997);<sup>5</sup>
- 3,188 miles of rail and 13 rail carriers (1995), including two of the nation's largest commercial railroads, CSX Transportation, Inc., and Norfolk Southern Corporation;<sup>6</sup>
- 13 commercial service airports, including Dulles International, and 64 other airports licensed for public use (1994);
- intercity passenger rail service provided by ten scheduled trains to more than 15 communities (1997);
- a commuter rail system connecting Fredericksburg and Manassas to Washington, D.C. (1996);

- the Metro Rail public transportation system serving northern Virginia near Washington, D.C. (1996); and
- four deepwater ports, three inland ports, and one inland container terminal (1996).<sup>7</sup>

## **State Issues, Policies, and Goals**

Congestion is a major transportation issue in Virginia. Air quality, safety, economic impact, and convenience are some of the concerns transportation planners and engineers face when addressing congestion mitigation. Without space to construct new highways, Virginia, like many other states, must now look to alternatives, connections, and tradeoffs between modes to alleviate the growing pressures on its transportation infrastructure. Commuter rail, buses, ferries, walk- and bikeways, and air travel are considered in such intermodal planning.<sup>8</sup> Transportation officials estimate that Virginia's future growth will make the congestion mitigation challenge even greater in the years to come.<sup>9</sup>

Freight transportation is another important part of Virginia's transportation system. In the rural areas of Virginia, connectivity to the state's major transportation networks is a major concern for agricultural and mining interests.<sup>10</sup> In the metropolitan centers along Virginia's eastern coast, particularly in the southeastern region, freight is a large part of the economy. In fact, because of Virginia's location and its port, rail, and trucking infrastructure, the state boasts the ability to quickly reach markets across the United States and throughout the world.<sup>11</sup>

Although Virginia has extensive highway, rail, air, and port systems, modal infrastructure has generally developed separately. In the case of Virginia, a probusiness state competing to be an East Coast hub for domestic and international trade, such interaction between modes can also be viewed as an economic necessity.<sup>12</sup> The challenge in many areas is to connect individual systems in order to maximize their total utility for the citizens of Virginia. Such coordination can often provide an economic advantage in local economies.

## **State Agencies Involved in Transportation**

At the state level, the 16-member Commonwealth Transportation Board oversees all transportation agencies. The secretary of transportation serves as the board's chairman, and the commonwealth transportation commissioner serves as vice-chairman. Members are appointed by the governor and approved by the Virginia General Assembly.<sup>13</sup>

Virginia does not have a single transportation agency but, rather, numerous agencies with different responsibilities. The primary transportation agency, however, is the Virginia Department of Transportation (VDOT). Other agencies involved in transportation include the Virginia Department of Rail and Public Transportation (VDRPT), the Virginia Department of Aviation (DOAV), and the Virginia Port Authority (VPA). The Virginia Department of Motor Vehicles is also involved with safety information management and

customer service.<sup>14</sup> Virginia's FY 1997-98 transportation appropriations totaled approximately \$2.4 billion, a 15-percent increase from the previous year.<sup>15</sup>

### **Virginia Department of Transportation**

A commissioner, who reports to the secretary of transportation and the Commonwealth Transportation Board, heads the Virginia Department of Transportation (see figure 7.1). VDOT is responsible for building, maintaining, and operating the state's roads, bridges, and tunnels. Its 1997-98 budget of \$2.1 billion is roughly 13 percent of the state's total budget.<sup>16</sup> VDOT has about 10,000 employees, making it one of the three largest state agencies in Virginia.

VDOT is the main transportation planning agency in Virginia. Although VDOT does not have jurisdiction over airports or rail facilities, it works closely with the DOAV, the VDRPT, and other state and local agencies on statewide planning projects. For corridor studies, major investment studies, and regional or local transportation plans, VDOT provides technical and organizational support.<sup>17</sup> VDOT staff also serves on technical advisory committees for regional planning district commissions and metropolitan organizations.<sup>18</sup>

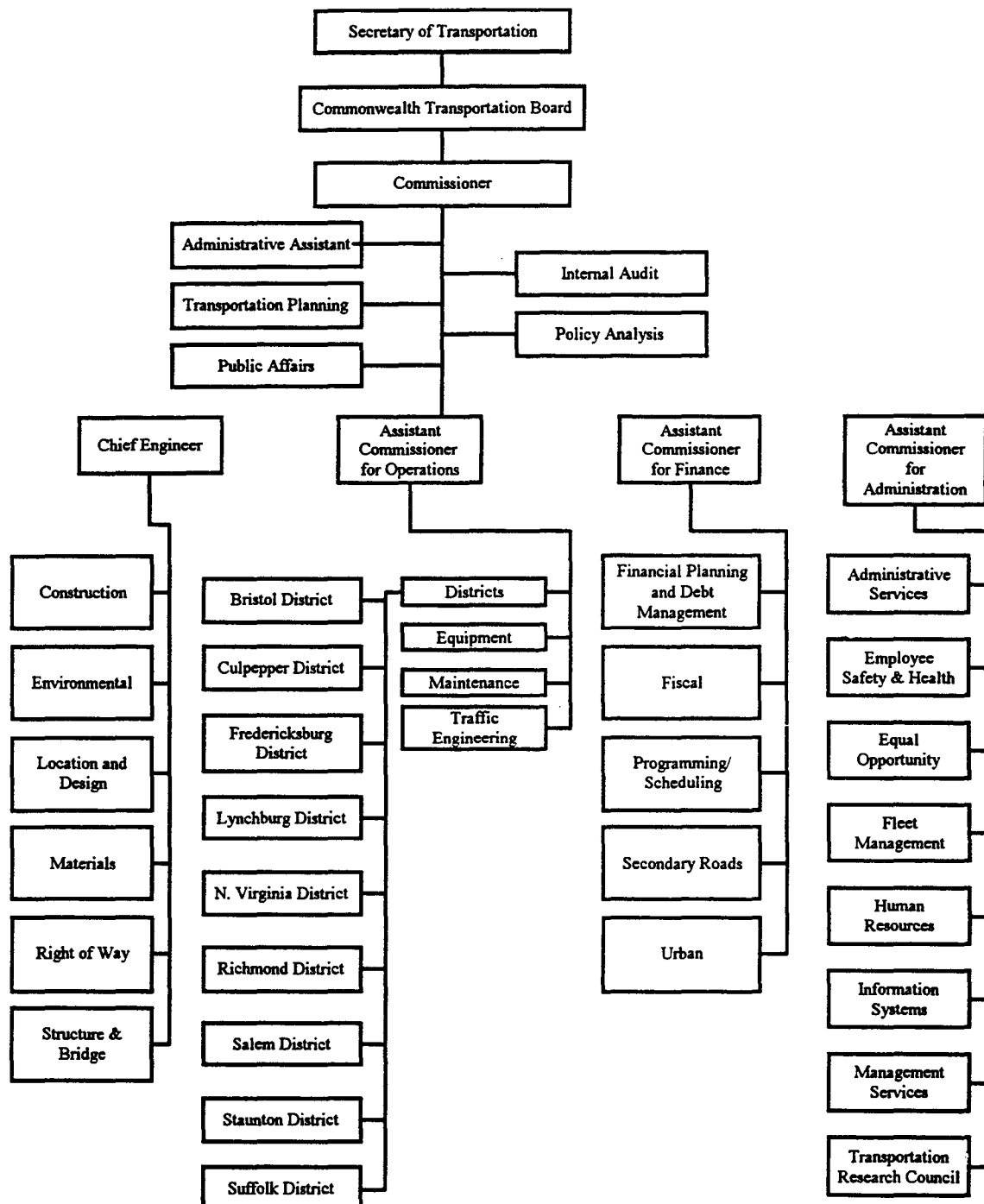
A state transportation engineer leads the Planning Division of VDOT (see figure 7.2). An assistant state transportation engineer, five principal transportation engineers (which head planning sections), and an Engineering Section report to the state transportation engineer. Administrative and technical staff supports each section.<sup>19</sup>

For highway planning, construction, and maintenance, VDOT divides the state into nine districts. The districts are divided into 45 residencies responsible for one to four counties each. Each county in Virginia has at least one area-maintenance headquarters located within the county. The central VDOT office in Richmond is headquarters for 26 operational and administrative units.<sup>20</sup>

For regional planning purposes, Virginia is divided into 23 planning districts. These districts each have planning commissions that are "voluntary associations of local governments . . . formed to work out regional solutions to problems brought on by population growth and economic/demographic changes."<sup>21</sup> VDOT planning staff is represented on the planning district commissions, and VDOT often provides technical and organizational support on transportation projects.<sup>22</sup>

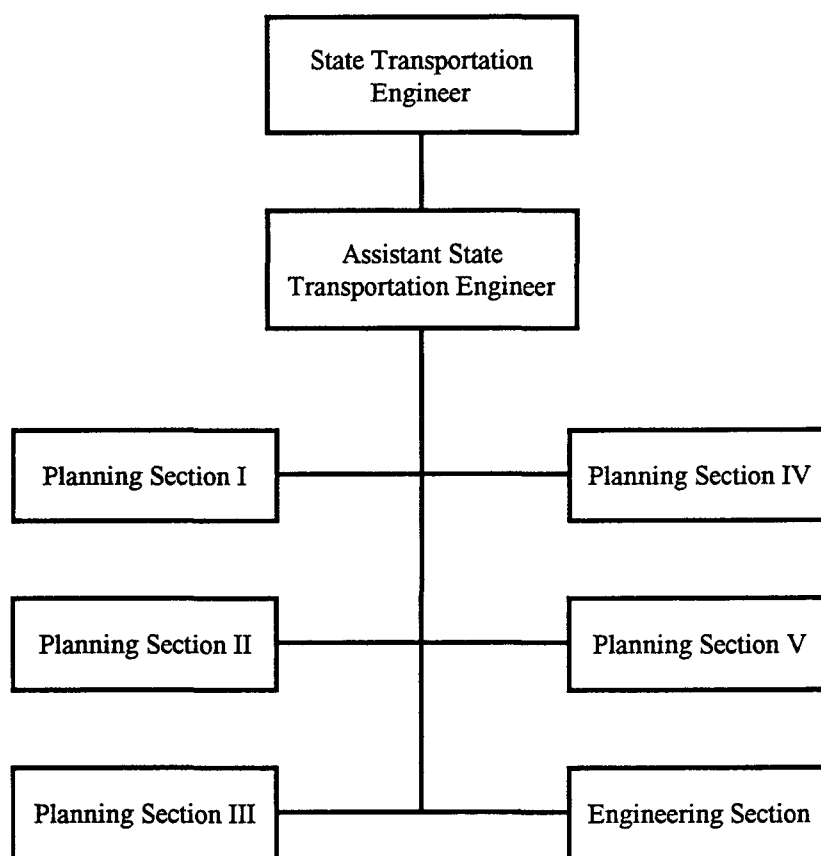
VDOT has no intermodal divisions, but the Planning Division staff that covers the 23 planning districts help to coordinate regional and local planning efforts. These often include multimodal or intermodal considerations and projects. Because of the unusual number of individual state agencies representing modes of transportation, VDOT's Planning Division has an important role as the lead coordinator of state transportation planning.

**Figure 7.1**  
**Organizational Structure**  
**Virginia Department of Transportation**



Source: Adapted from Virginia Department of Transportation (VDOT), "VDOT Organization Guide," Richmond, Va., 1996.

**Figure 7.2**  
**Organizational Structure**  
**VDOT Planning Division**



Source: Adapted from VDOT, "VDOT Organization Guide," Richmond, Va., 1996.

## Other Agencies Involved in Transportation

### *Virginia Department of Rail and Public Transportation*

The Virginia Department of Rail and Public Transportation (VDRPT) is Virginia's second largest transportation agency. The director reports directly to the secretary of transportation and the Commonwealth Transportation Board. The VDRPT consists of a Public Transportation Unit, a Rail Transportation Unit, and an Administrative Unit. The administrator of each unit oversees four sections in each unit: Passenger Rail/Operations, Rail Projects/Agreements, Rail Planning/Operations, and Special Projects. In FY 1997-98, more than \$47 million in state funding was allocated to the VDRPT, which also receives private, federal, and local funding.<sup>23</sup>

### ***Virginia Port Authority***

The Virginia Port Authority (VPA), a division of VDOT, owns and operates the three cargo terminals at Hampton Roads and the Virginia Inland Port. Additionally, the VPA aids in the development of other ports in Virginia. Other ports in Virginia, like Richmond Port, are divisions of the local government and are operated by private firms.<sup>24</sup>

### ***Virginia Department of Aviation***

The Virginia Department of Aviation (DOAV) plans all aspects of the state aviation system, promotes aviation, and licenses aircraft, airports, and landing areas. It also provides financial and technical assistance for the development, construction, and operation of aviation facilities throughout the Commonwealth. The director reports to the secretary of transportation and the Virginia Aviation Board. The DOAV consists of the Director's Office and five divisions: Plans, Programs, and Services; Air Service; Policy and Intergovernmental Relations; Promotion, Education, and Public Relations; Flight Operations and Licensing; and Management Services.

## **Transportation Plans and Reports**

The Commonwealth of Virginia produces mode-specific plans, corridor studies, major investment studies, statewide mode-specific reports, and a statewide intermodal transportation plan. VDOT staff primarily produces these documents, although, in many cases, the process incorporates public participation, regional and local government representation, and/or other state transportation agency participation. The VDRPT also produces transportation reports for the commonwealth. Local governments often contribute to state plans, but they also perform their own local studies and, in some cases, larger regional studies.

### **Statewide Multimodal and Intermodal Plans**

VDOT and the other transportation agencies produce mode-specific and intermodal state plans. The plans either take inventory of current projects and their funding sources or identify transportation needs and possible funding sources.

*Virginia Connections* is the interim report of working groups initiated by Virginia Secretary of Transportation Robert E. Martinez in May 1994. The working groups consisted of members from the private sector, VDOT, the VDRPT, the DOAV, and the VPA. A series of public forums were held to get public input on transportation issues in Virginia. The report discussed the importance of intermodalism, highlighting successful examples and outlining an action plan for better intermodal planning at the local and state levels. In keeping with the "customer service" and "competition in government" themes of then Governor George Allen, *Virginia Connections* also highlighted deregulation, economic development, and market economics as important guiding principles behind any future transportation efforts in Virginia.<sup>25</sup>



*Virginia Statewide Intermodal Long-Range Transportation Policy Plan* satisfies the requirements of the Intermodal Surface Transportation Efficiency Act (ISTEA). It presents Virginia's transportation visions regarding policy goals in an effort to guide and develop an efficient intermodal transportation system.<sup>26</sup> The plan was published by VDOT in 1995 and incorporates most of the *Virginia Connections* report from the previous year.

*Multimodal Transportation Planning in Virginia: Past Practices and New Opportunities* is a technical assistance report from the Virginia Transportation Research Council that summarizes ISTEA and past Virginia transportation studies. The report suggests that Virginia begin to consider intermodal connectivity and user choice in transportation planning. It also suggests some key shifts in perspective required to undertake intermodal planning at the local and state levels.<sup>27</sup>

*Final Report of the Commission on the Future of Transportation in Virginia* was released in January 1998. The commission was created by legislation passed by the Virginia General Assembly. It is made up of legislators and citizens appointed by the speaker of the house and the Senate Committee on Privileges and Elections. The secretary of transportation and the directors of the VPA, the VDRPT, the DOAV, and VDOT also serve as nonvoting ex-officio members. The commission was charged with reviewing the findings and recommendations of recent studies, identifying major transportation needs, determining additional revenue that will be needed to finance transportation needs, and proposing the means for raising and allocating such revenue. The report cites a major revenue shortfall by the year 2017, when federal and state revenues will be more than \$64 billion (adjusted for inflation) short of the amount needed to meet Virginia's transportation needs. The recommendations call for a stable, long-term source of revenue to finance maintenance, increased public transportation, enhanced state planning and growth management policies, a shift in the percentage of transportation funding for ports and airports, and an analysis of funding needs for rail projects.<sup>28</sup>

## **Modal Plans**

*Fiscal Year 1997-1998 Six Year Improvement Program*, Virginia's version of the State Transportation Improvement Program (STIP), is a detailed list of the Virginia Commonwealth Transportation Board's plan for the use of available funds anticipated for ports, airports, public transit, and highway construction during FY 1997-98. The board also uses this six-year program to distribute funds anticipated for the next five fiscal years through 2002-03.<sup>29</sup> The information is broken down into each of the nine VDOT construction districts. Public hearings are held statewide to gather input from citizens, and elected officials are also consulted in the process. The principal goals of the board are "to complete the financing of projects that are under way or completed, address the most pressing needs of primary and interstate systems, to respond to the needs of cities and towns, support public transit, and provide funds from the Commonwealth Transportation Trust Fund to upgrade ports and airports."<sup>30</sup> The report considers different modes but does not focus on intermodalism.

*Virginia State Rail Plan 1992-1995 Update: Technical Data* provides summarized information and tables related to Virginia's railroads and rail programs. The technical data detail Virginia's Rail Industrial Access Program achievements.<sup>31</sup>

## **Corridor Studies**

Corridor studies are products of VDOT and, in some cases, the VDRPT or other transportation agencies. They involve looking at the overall transportation needs of a corridor from a much broader perspective. Multiple modes are considered, and cost factors are part of the decisionmaking process. Some of the corridor studies described in this section are not yet completed. However, VDOT has done an excellent job of keeping the public informed throughout the process through public meetings/hearings, newsletters, and the Internet.

"Washington-Richmond Rail Corridor Study" (1995), developed by the VDRPT and VDOT, recommends improvements to the freight/rail facilities in the corridor between Washington, D.C., and Richmond to increase track speed and capacity in order to alleviate congestion on Highway I-95.<sup>32</sup>

*Bristol Passenger Rail Study Final Report* (1996) indicates that it would be feasible to provide rail service in the corridor between Bristol, Washington, D.C., and Richmond. A capital investment would be required to build a connection in Richmond, construct train maintenance and layover facilities, and upgrade stations. However, it is projected that sufficient revenue will be generated over the 20 years studied to cover the operating costs of providing this service.<sup>33</sup>

"Dulles Corridor Major Investment Study" (1996) was part of the long-range planning for transportation improvements in the Washington metropolitan area. The study "examined growth projections, projected travel patterns, considered a variety of transportation improvements to address these travel needs, and estimated the costs, benefits, and other impacts of these alternatives."<sup>34</sup> The alternative chosen was a "metro-like seamless (rail) system," and enhanced bus service was also recommended to complement the system. The report also recommended establishing a funding strategy quickly so that the project may be added to the region's Constrained Long Range Plan as soon as possible. In August 1997, the Commonwealth Transportation Board approved the recommendations.

"Interstate 64 Major Investment Study" is currently underway. It examines the 75-mile stretch of I-64 that runs from Richmond to Newport News and Hampton, including the CSX railroad corridor. The study will "develop a reasonable range of multimodal investment options such as rail, general-purpose lanes, high-occupancy-vehicle (HOV) lanes, and the need for new interchanges/interchange improvements to address the growing transportation demands in the corridor."<sup>35</sup>

"Hampton Roads Crossing Study" is currently underway. The study was initiated in late 1993 to address congestion-relief alternatives for the Interstate 64 Hampton Roads Bridge Tunnel. On September 18, 1997, the Commonwealth Transportation Board approved a

three-tunnel tube crossing, with one tunnel dedicated to multimodal purposes and two dedicated solely to car traffic. This recommendation was also selected by the Hampton Roads Metropolitan Planning Organization (MPO). VDOT will now begin work on preliminary engineering and design for the project, along with an environmental impact statement.<sup>36</sup>

“Interstate 66 Corridor Major Investment Study” is a comprehensive study that addresses the long-term needs of the corridor running along I-66 between the Capital Beltway (I-495) in Fairfax County, on the east, and U.S. Route 15 in Prince William County, on the west. The VDPRT and VDOT are sponsoring the study. Multimodal alternatives will be considered in terms of demand, cost, future growth, and land use to determine the best way to meet the region’s transportation needs.<sup>37</sup> The study, scheduled for completion in the summer of 1998, illustrates recent improvements in Virginia’s transportation planning process in the areas of multimodal alternatives, intermodal thinking, and public involvement.

## **Transportation Funding and Programs**

Virginia's two main funds for transportation are the Highway Maintenance and Operating Fund and the Transportation Trust Fund. State sources of revenue for these funds come primarily from gasoline taxes (17.5 cents per gallon state tax and 18.4 cents per gallon federal), vehicle title fees (3 percent of sales prices), license tag fees (\$26.50), and one-half cent of the general-sales tax.<sup>38</sup>

### **Highway Maintenance and Operating Fund**

Virginia's Highway Maintenance and Operating Fund represents a large portion of the state's highway funding. The fund's revenues totaled more than \$1.7 billion in FY 1997-98. Roughly 38 percent of these revenues came from the federal streamlined Surface Transportation Program, the National Highway System, and other federal sources.<sup>39</sup> State revenue sources, which totaled more than 60 percent of the Highway Maintenance and Operating Fund revenues, consisted of gasoline taxes, vehicle title and user fees, and motor vehicle licenses (in order of magnitude).<sup>40</sup> More than 41 percent of revenues were earmarked for transfer to the Transportation Trust Fund (described below). The vast majority of the remaining revenues were allocated to highway maintenance.<sup>41</sup>

### **Transportation Trust Fund**

The other major source of transportation funds in Virginia is the Transportation Trust Fund, which allocates funding for VDOT and all other transportation agencies. Half of the fund's revenues come from a transfer from the Highway Maintenance and Operating Fund. In order of magnitude, the state sales tax, motor vehicle title and user fees, and gasoline taxes constitute more than 39 percent of the Transportation Trust Fund's revenues.<sup>42</sup>

## **Highway Funding**

Highways receive the majority of Transportation Trust Fund dollars. In fact, 85 percent of the funds allocated by the Transportation Trust Fund each year go to highways. The remaining 15 percent of funds go to all other state transportation agencies.<sup>43</sup> VDOT, which oversees highways, bridges, and tunnels, had a budget of approximately \$2.1 billion for FY 1997-98.

## **Airports and Ports**

The 1997-98 budget allocation for the Airport Trust Fund was about \$14.7 million (2.4 percent of Transportation Trust Fund allocations). The Port Trust Fund received \$25.4 million (4.2 percent of Transportation Trust Fund).<sup>44</sup> Airports and ports in Virginia are funded primarily through local and private entities and not through the Transportation Trust Fund.

## **Rail Funding**

The VDRPT administers the Mass Transit Trust Fund, which received \$84.2 million in state revenue in 1997-98.<sup>45</sup> The VDRPT also derived 1997 funding in excess of \$45 million from the Highway Maintenance and Operating Fund. Highway money has been used by the VDRPT, for example, to support bus service to commuter rail stations. Such activity has been part of the statewide transportation plan to address future congestion. Similarly, federal Congestion Mitigation and Air Quality (CMAQ) money has been used by the VDRPT to deal with air quality through mass transit.<sup>46</sup>

Private companies in Virginia handle rail freight. However, Virginia contributed \$4.5 million to rail freight projects in 1997, while federal funding contributed \$400,000.<sup>47</sup> The 1997 DRPT budget provided \$2 million for the Rail Industrial Access Program.

## **Funding for Planning**

VDOT is also the primary transportation planning agency in Virginia. According to the FY 1997-98 VDOT budget, planning received roughly \$21 million.<sup>48</sup>

## **Exemplary Practices in Multimodal/Intermodal Transportation**

### **State Support for Regional Planning**

In recent years, Virginia has benefited from transportation improvements that have had positive economic effects. *Virginia Connections*, the state's 1994 strategic plan for transportation, recommended corridor planning (including double-stacked container railroad lines) and development of strategic intermodal centers. In the four years since the report, VDOT and the VDRPT have employed both of these strategies in an effort to help localities and regions reap the economic rewards of more-seamless systems.

## **Double-Stacked Container Rail Development**

The VDPRT has worked closely in recent years with CSX Transportation, Inc., and Norfolk Southern Corporation on the development of double-stacked container and intermodal routes through Virginia. Through funding from federal, state, and local governments, as well as from CSX and Norfolk Southern, highway bridges have been rebuilt, railroad beds have been lowered, and horizontal clearances have been widened to create major double-stacked container routes in the state.<sup>49</sup> Two double-stacked container routes are currently operational in Virginia.<sup>50</sup> Norfolk Southern has a north-south line running from Bristol through Walton, Roanoke, Lynchburg, Manassas, and Strassburg to Hagerstown, Maryland. Norfolk Southern also operates an east-west line from Bluefield through Roanoke and Norfolk to the Norfolk International Terminal.<sup>51</sup>

## **Corridor Planning**

### ***Interstate 66 Corridor Major Investment Study***

The "Interstate 66 Corridor Major Investment Study" (MIS), described in an earlier section, is a comprehensive study that seeks to support the ongoing regional and local transportation planning process, while it addresses transportation problems in the region over the next 20 to 25 years.<sup>52</sup> It is slated for completion in the summer of 1998. The I-66 Corridor MIS exemplifies the broad-based, regional approach to transportation indicative of corridor planning. The state agencies that conduct such studies in Virginia do an excellent job of including all interested parties in an effort to reach consensus at all levels (see figure 7.3).

The strength of Virginia's corridor planning and major investment studies is its inclusiveness. Participants in the I-66 study are its sponsors (VDOT and the VDRPT), interested citizens, the study-team consultants (hired to produce various analyses, forecasting models, and reports), a Policy Advisory Committee, and a Technical Advisory Committee to advise the Policy Advisory Committee. The Technical Advisory Committee for the I-66 study consists of more than 17 federal, state, and local agencies and helps to ensure that all relevant governmental interests are considered in the process.

VDOT and the VDRPT work hard to give the public every opportunity to participate in corridor planning. The public outreach efforts include newsletters, a telephone hotline, a Internet web site, more than 40 briefings for key officials from the local to the state levels, 11 informational meetings with community and business groups, meeting notices, public workshops, and a mailing list.<sup>53</sup>

The evaluation process involves a multistep screening process to evaluate potential solutions in the corridor. The following screens are assessed in the I-66 Corridor MIS, based on measures of effectiveness.<sup>54</sup>

- Screen 1A: Initial Analysis of Universe of Alternative Elements

- Screen 1B: Analysis of Single-Mode Alternatives and Formulation of Multimodal Alternatives
- Screen 2: Reconfiguration and Analysis of Multimodal Investment Strategies
- Screen 3: Identification of the Locally Preferred Investment Strategy

Screen 2 represents the menu of strategies created by the participants in the MIS. These strategies are compared to a baseline scenario, using the existing transportation system and future projections in the current long-range transportation plan. In the case of the I-66 Corridor MIS, consideration is being given to 15 different combinations, using two or three of the following four major elements:<sup>55</sup>

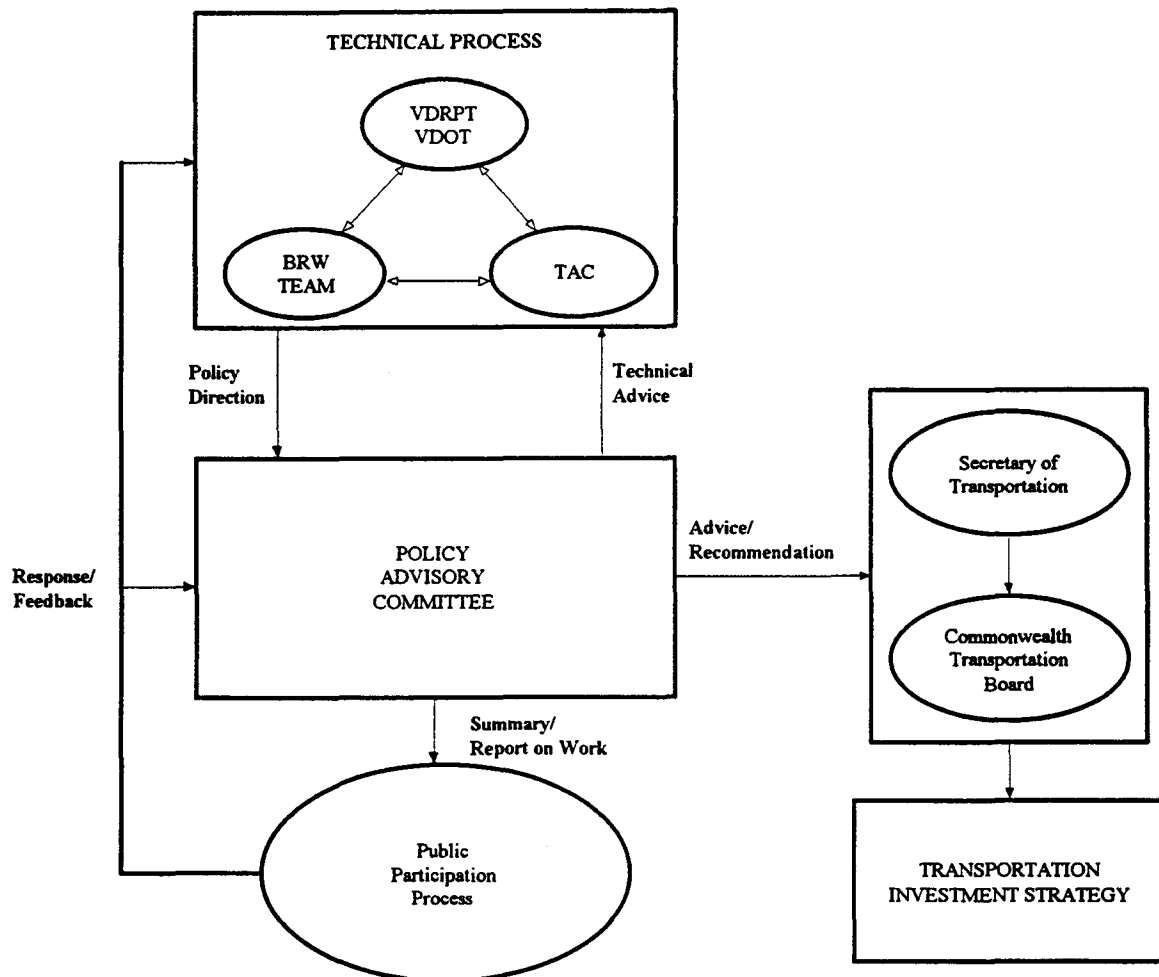
- general-purpose lanes added to I-66;
- high-occupancy-vehicle (HOV) lanes added to I-66;
- light-rail transit (LRT) serving the Dulles Airport, the Manassas area, and the terminal Metrorail Station; and
- Metrorail (Metro) extension in the corridor beyond the existing terminus at Vienna.

The Policy Advisory Committee has met four times since August 1997 to review the MIS strategies. With the help of the Technical Advisory Committee, it has refined the strategies and reduced the number being considered from 15 to 7. By the summer of 1998, the Policy Advisory Committee will recommend an alternative to the Commonwealth Transportation Board.

Like most corridor studies, the I-66 study considers multiple modes to achieve better transportation systems in the corridor. What makes the I-66 Corridor MIS unusual, however, is the fact that it incorporates intermodal connections between modes. Instead of listing individual modes to choose from, this study includes consideration of various combinations of modes that, together, would address the transportation problem. It also details the financing/maintenance cost tradeoffs between the various combinations. Thus, by considering the ways in which different modes can interact in both the operational and financing stages, the I-66 study takes on an intermodal as well as a multimodal perspective.

Corridor planning like the I-66 Corridor MIS allows for multimodal and intermodal consideration in the context of long-term regional transportation planning. State agency sponsors bring all parties together and help to ensure that the solutions agreed upon coincide with the state and local planning processes. Broad public participation provides a forum for many perspectives. Finally, a cross section of elected and public officials on the Policy Advisory Committee lend weight to the alternative that emerges from the process, giving it a much better chance at passage and funding.

**Figure 7.3**  
**MIS Planning Process**



Source: Adapted from VDOT, "I-66 Corridor Major Investment Study," (Richmond, Va. [cited January 7, 1998]), available from: <http://www.vdot.state.va.us/proj/66x.html>; INTERNET.

### ***Public-Private Transportation Act of 1995***

The Commission on the Future of Transportation in Virginia reports that major revenue shortfalls will be a dramatic obstacle for transportation systems in Virginia in the next two decades. In fact, the report predicts that maintenance costs will exceed revenues dedicated to maintenance within four years, at which time construction funds will have to be diverted to maintenance.<sup>56</sup>

As funding sources for new transportation projects become a major concern for local and state transportation officials, privatization becomes an increasingly attractive alternative.

Although it has not yet been exercised, the Public-Private Transportation Act of 1995, passed by the Virginia General Assembly, may provide needed tools for private funding of regional transportation projects. The law establishes a structure for the bidding, consideration, approval, and oversight of publicly funded and sometimes publicly operated transportation projects. Representation from local and state officials is a key part of the decisionmaking process in order to safeguard public interests. After an agreed on period, the projects become property of the state. This law does not specifically target intermodal projects, but they can be considered under the act.<sup>57</sup>

### ***I-895 Proposal***

VDOT has allocated \$12 million to design a nine-mile, limited-access highway between I-95 south of Richmond and I-295 south of the Richmond International Airport in eastern Henrico County.<sup>58</sup> In August 1997, the Commonwealth Transportation Board approved the major design features of the highway. However, no state funds have been allocated to purchase the right-of-way or to construct this project. A private partnership called FD/MK submitted a \$300 million proposal to build I-895 under the provisions of the Public-Private Transportation Act of 1995. Approximately \$285 million of the construction money for the proposed I-895 (Pocahontas Parkway) would come from investors buying tax-free bonds. The partnership is also seeking \$15 million from the state to help pay for the project. Tolls paid by drivers (maximum of \$2 per car) would repay the bonds and the loan from the state.<sup>59</sup>

The proposed I-895 has been discussed in the area for almost twenty years. In fact, it is part of the long-term plans of the Richmond International Airport (highlighted later under "Exemplary Practices in Multimodal/Intermodal Transportation Activities"). The project is widely viewed as a great economic development tool for the entire region. However, there is some question about the toll-revenue assumptions in the FD/MK proposal. Some observers say that the proposal relies on toll revenue from an airport access road that the private firm did not plan to build.<sup>60</sup> If the state and the private firm agree on the partnership to build I-895, it will be closely observed as a precedent in major public/private transportation endeavors.

## **Metropolitan Planning Organizations and Local Involvement in the Transportation Planning Process**

### **Virginia's Local Governing Structure**

#### ***Planning District Commissions***

In 1968, Virginia's General Assembly passed the Virginia Area Development Act, establishing a network of planning district commissions (PDCs) throughout the state. The PDCs are voluntary associations of local governments, which were designed "to foster intergovernmental cooperation by bringing local governments together to discuss and provide solutions to regional problems brought on by population growth, and economic



and demographic changes."<sup>61</sup> Each PDC is directed by a board composed of both citizen members and elected officials. PDC activities include local planning and technical assistance; transportation, solid-waste, and environmental resource planning; economic and physical infrastructure development; grants administration; data dissemination; and intergovernmental coordination. In 1993, there were 21 PDCs, which received approximately \$14.5 million in funding (16 percent state, 39 percent federal, 36 percent local, and 9 percent other funds).<sup>62</sup> Today, there are 23 PDCs that cover the entire state. VDOT has voting membership on the PDCs and provides technical and organizational assistance to them.<sup>63</sup>

### ***Metropolitan Planning Organizations***

There are 11 MPOs serving Virginia's urban areas with more than 50,000 population. All MPOs are staffed primarily by the PDCs, with the exception of the Washington, D.C., MPO, which is staffed by the Washington Council of Government.<sup>64</sup>

### **Richmond Area Metropolitan Planning Organization**

#### ***Municipality Overview***

The Richmond metropolitan area is located in central eastern Virginia. Greater Richmond consists of Richmond and the counties of Chesterfield, Hanover, and Henrico. Greater Richmond's population is more than 758,000 (1996).<sup>65</sup>

As the state capitol, Richmond is a center of government and a growing hub for business and trade. The major industries are services, government, wholesale and retail trade, manufacturing, finance, insurance, and real estate.

#### ***Transportation Infrastructure***

The Richmond metropolitan area provides the following transportation services:

- highways: I-64 (east-west), I-95 (north-south), I-295 (loop), U.S. Highways 1, 33, 60, 260, 301, and 360 (1996);<sup>66</sup>
- rail service: CSX Transportation, Inc., Norfolk Southern Corporation, and Amtrak, with freight, passenger, and piggyback service available (1998);
- air service: Richmond International Airport, 11 commercial airlines, 150 commercial flights daily, worldwide cargo service, U.S. Customs Service on-site (1998);
- Port of Richmond terminal: direct access to Atlantic Ocean, services ships and barges with drafts up to 25 feet, westernmost inland port with container-liner service to northern Europe and United Kingdom, as well as cargo service from Mediterranean, South America, West Africa, and Caribbean markets (1998); and

- motor freight service: more than 70 trucking companies in the area, offering national, regional, and international carrier service (1998).<sup>67</sup>

### ***Organizational Structure***

The Richmond Area Metropolitan Planning Organization (MPO) is organized under a Memorandum of Understanding and Bylaws. It comprises locally elected officials and technical staff from the city of Richmond; counties of Charles City, Chesterfield, Goochland, Hanover, Henrico, New Kent, and Powhatan, and the town of Ashland. It also includes technical staff from the Capital Region Airport Commission, Greater Richmond Transit Company, Richmond Metropolitan Authority, Richmond Regional Planning District Commission (RRPDC), and other local organizations. State and federal agencies with MPO membership include the DOAV, VDOT, Federal Highway Administration, and Federal Transit Administration.<sup>68</sup> Technical and administrative staff are primarily provided by the RRPDC, although consultants, local governments, and VDOT also provide assistance.<sup>69</sup> The MPO covers the area projected to be urbanized within the next twenty years, which includes roughly two-thirds of the RRPDC.

### ***Budget***

The Richmond Area MPO's FY 1997-98 budget was \$924,246 (\$699,022 for staffing, \$225,224 passed through to local programs).<sup>70</sup>

### ***Staffing for Transportation***

The director of transportation for the RRPDC also serves as the director of the MPO. Transportation engineers and support staff of the RRPDC serve the MPO as well.

### ***Other Agencies/Organizations Involved in Transportation***

At the state level, VDOT, the DOAV, the VDRPT, and the VPA are involved with transportation. VDOT takes the lead in coordinating local planning efforts with state agencies.

### ***Issues, Policies, Goals***

The RRPDC and other local agencies developed *Focus Forward*, a plan addressing strategic plans for the region in nine major categories, including transportation. The transportation goals identified include the following ISTEA-mandated plans: initiation and approval of the 20-year plan (with air-quality analysis), the TIP, the congestion management system, and proposals for traffic-flow improvements. *Focus Forward* recommends creating a senior-level business advisory group, coordinating with the private sector for transportation economic development efforts, and supporting sustained and enhanced transit service in the Greater Richmond area. The report also touts two local intermodal projects: Richmond International Airport's expansion plans (which includes both cargo and passenger service, along with enhanced connectivity to local highways and

rail) and the development of the Main Street Station (an old train station in downtown Richmond) as a regional (intermodal) transportation hub.<sup>71</sup>

### ***Transportation Plans and Reports***

The MPO is primarily responsible for a regional 20-year transportation plan and a three-year transportation improvement program. The TIP reviews and submits all federally funded highway projects within the MPO study area to the state.<sup>72</sup> Each year the MPO establishes a unified work program to define work tasks for the coming fiscal year and identify the staff assigned and funds allocated to the tasks.<sup>73</sup>

### ***Transportation Funding and Programs***

Funding for the MPO and its projects comes primarily from federal transportation grants. Some projects, like a market study of regional freight transportation, use federal CMAQ funds.<sup>74</sup>

### ***Exemplary Practices in Multimodal/Intermodal Transportation***

#### ***Capital Region Airport Commission***

The Capital Region Airport Commission (CRAC) is a political subdivision of the Commonwealth of Virginia, with representation from the city of Richmond and the counties of Chesterfield, Hanover, and Henrico. As the owner and operator of the Richmond International Airport, CRAC provides the facilities and services necessary to serve the region with respect to air transportation.<sup>75</sup> CRAC does not receive general-fund tax support and is run like a business in the sense that it generates its own revenues, which fund operations as well as a major portion of the capital improvement program. The principal source of funds is user fees derived mainly from the major passenger airlines serving Richmond. The commission also generates revenue through the negotiation contracts and concession agreements.<sup>76</sup>

The Richmond International Airport (RIC) is a growing hub for passenger and cargo air service. In 1995, RIC served more than one million passengers, and its passenger service is expected to increase steadily in the next decade. In 1995, RIC handled over 69 tons of air cargo. In fact, RIC's cargo volume grew an average of 17 percent per year in the decade preceding 1997, making it one of the fastest growing cargo centers on the East Coast.<sup>77</sup>

In his letter presenting CRAC's 1995-96 biennial report, Executive Director David Blackshear describes the major priorities of the airport. Airport infrastructure is the first concern, and it encompasses parking, roadway access, drainage, and environmental concerns. Another top priority for RIC is ground transportation access, which also includes rail access for freight transportation. CRAC recently managed to have some of the roads leading into the airport added to the National Highway System, thus qualifying the airport for federal road improvement funds.<sup>78</sup> Although many airport administrators

have traditionally viewed roads as outside their responsibility or interest, CRAC recognizes that intermodal connectivity is crucial for its success.

### *Involvement with the MPO*

Although CRAC has a vote in the local MPO, until about five years ago, it was not highly involved with MPO planning and projects. In recent years, however, CRAC has taken an active role in the local intermodal planning process. Some of the intermodal rail freight and road access improvements in the Richmond Airport Master Plan are now on the MPO's list of priority projects.<sup>79</sup> CRAC has even taken a lead role in a long-term study geared at establishing the entire Richmond area as a major competitor for East Coast freight and transit. The underlying selling point that has solidified local support for many of these intermodal projects is economic development. In an era of fierce competition between states and regions to attract industries, intermodal transportation planning is possible when the localities that will use such systems recognize the economic benefits they will bring to the community.

### *I-895 Proposal and the Richmond International Airport*

The proposed I-895 highway is viewed by CRAC as a major opportunity to develop its connectivity for air freight and passenger service. I-895 will run parallel to I-64. The airport, located between I-64 and the proposed highway, will be well served by a connector road between the highways. Enhanced rail access through the corridor, along with chassis cranes to load and unload trailers from air to rail, is part of the plan for the airport. Furthermore, with increased economic development opportunities associated with the proposed connector road, the debt-coverage ratio for the I-895 project can be enhanced. A higher-grade investment rating, lower interest rates, and lower risks to bondholders will improve the debt service of the project's funding.<sup>80</sup> The I-895 project is the top priority of the Richmond Regional MPO.<sup>81</sup>

A feasibility study for the project was slated for 1998. Out of concern for any delay or problem with the congressional recertification of ISTEA, VDOT Planning Division staff was instrumental in getting the feasibility study done in 1997.<sup>82</sup> A private company has initiated the first bid under Virginia's Public-Private Transportation Act of 1995 for the I-895 project. If the company wins state approval, I-895 can be a model of intermodal planning and innovative funding for other localities.

### *East Coast Regional Intermodal Study*

CRAC took the lead and convinced the local MPO to support a market-based study of mid-Atlantic regional freight systems, with the goal of positioning the Richmond region to compete with major East Coast hubs for international and national transport. The \$1.2 million project, funded with CMAQ funds, is currently underway.<sup>83</sup> Consultants will consider all modes of transportation, and a GIS system using public and private information is being compiled to show the congestion in other areas and study the possible benefits of an enhanced freight system in Richmond.<sup>84</sup>

## **Hampton Roads Metropolitan Planning Organization**

### ***Municipality Overview***

The Hampton Roads region along the southeast coast of Virginia is the nation's 28th largest metropolitan area.<sup>85</sup> The area's population is greater than 1.5 million. Hampton Roads boasts the world's largest natural harbor, making it a center for trade and commerce.<sup>86</sup> The Hampton Roads metropolitan area consists of the cities of Chesapeake, Franklin, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach, and Williamsburg and the counties of Isle of Wight, James City, Southampton, York, and Gloucester. The main employment sectors in the local economy are government, services, retail, and the military.<sup>87</sup>

Maritime industries are a vital part of Hampton Roads' economy. Newport News is home to Newport News Shipbuilding, the state's largest private employer.<sup>88</sup> The naval base at Norfolk is the largest in the world.<sup>89</sup> Superior port facilities, with connection to inland destinations by truck or rail, make Hampton Roads an East Coast hub for freight shipping.<sup>90</sup>

Tourism is another important part of the local economy. Thousands of tourists visit the region each year. Hampton Roads tourist attractions include oceanfront areas such as Virginia Beach and historic sites such as Colonial Williamsburg.<sup>91</sup>

### ***Transportation Overview***

Transportation facilities in the Hampton Roads region consist of the following:

- highways: I-64 (north-south), I-264 (east-west), I-464 (north-south), I-564 (north-south), I-664 (north-south), and U.S. Highways 13, 17, 58, 60, 258, and 450 (1996);<sup>92</sup>
- four tunnels and three major bridges, including the seventh longest tunnel in the world and the second largest double-swing-span bridge in the world (1994);<sup>93</sup>
- rail service: CSX Transportation, Inc., Norfolk Southern Corporation, and Amtrak (1996), with Norfolk Southern operating a double-stacked container line from Norfolk west through Roanoke to Bluefield (1998);<sup>94</sup>
- air service: Williamsburg Newport News International Airport, Norfolk International Airport (1996);<sup>95</sup>
- ice-free port served by a 50-foot-deep water channel, capable of handling large volumes of cargo (1994);<sup>96</sup> and
- port and warehouse facilities at Newport News, Norfolk, Portsmouth, and Chesapeake, served by rail and truck (1996).<sup>97</sup>

### ***Organizational Structure***

The Hampton Roads Metropolitan Planning Organization (MPO) is designated by the governor as the Transportation Policy Committee. It is composed of the Hampton Roads Planning District Commission (HRPDC) executive committee members from local urban governments within the Hampton Roads study area, VDOT, the executive directors of HRPDC, the Tidewater Transportation District Commission, the Peninsula Transportation District Commission, and a representative from James City County.<sup>98</sup> The MPO oversees the area projected to be urbanized within the next twenty years.

### ***Staffing for Transportation***

MPO technical and administrative staff are primarily provided by the HRPDC.<sup>99</sup> The HRPDC transportation staff includes a principal transportation engineer, two principal transportation managers, two senior transportation engineers, and three transportation engineers.<sup>100</sup>

### ***Budget***

The Hampton Roads MPO FY 1998 budget is \$2,335,057. The HRPDC covers an area that includes that of the MPO and some surrounding localities. The HRPDC's FY 1998 budget is \$3,058,144.<sup>101</sup>

### ***Other Agencies Involved in Transportation***

At the state level, VDOT, the DOAV, the VDRPT, and the VPA are involved with transportation. VDOT takes the lead in coordinating local planning efforts with state agencies.

### ***Issues, Policies, and Goals***

As the population of Hampton Roads continues to grow and space for infrastructure becomes more scarce, local governments and industry officials recognize the importance of intermodal connectivity to the region. In 1995, the HRPDC conducted a survey of citizens involved in freight, industry, and transit to obtain input on the transportation needs of the region. The top six concerns of those surveyed were access to seaports, airports, rail terminals, or bus terminals; safety; cost; problems with the roadways, such as bridge clearance, limits, weight limits, or road conditions; travel time; and transfers and connections between modes.<sup>102</sup> Traffic-flow improvement and intermodal planning continue to be priorities for transportation officials in Hampton Roads. Public understanding of the value of intermodal connectivity, as both a way to combat congestion and an economic development tool, makes such planning much easier for local officials.

### ***Transportation Plans and Reports***

MPO reports include a regional 20-year transportation plan, a three-year transportation improvement program, an annual unified planning work program, an intermodal

management system, a congestion management system, and a congestion mitigation and air quality program. The HRPDC also works with VDOT on corridor studies, traffic-management programs, such as computer-aided “smart travel” management systems, and other transportation planning projects.<sup>103</sup>

### *Transportation Funding and Programs*

The HRPDC receives approximately 65 percent of its funding from federal and state sources, and 35 percent from local funds. The MPO funding distribution is 90-percent federal/state and 10-percent local funding.<sup>104</sup>

### *Exemplary Practices in Multimodal/Intermodal Transportation Activities*

#### *The HRPDC and Regional Cooperation*

The HRPDC, like all planning district commissions in Virginia, is a voluntary association of local governments established to “promote orderly and efficient physical, social, and economic development.”<sup>105</sup> The effectiveness of PDCs in Virginia often depends on the cooperation of member governments and the leadership of the individual PDCs. The HRPDC is exemplary in both areas.

The HRPDC consists of locally elected officials and technical staff from the cities of Chesapeake, Franklin, Hampton, Newport News, Norfolk, Poquoson, Portsmouth, Suffolk, Virginia Beach, and Williamsburg, as well as the counties of Isle of Wight, James City, Southampton, York, and Gloucester.<sup>106</sup> HRPDC staff gathers and interprets extensive data about the area for planning purposes; this information is made available to the public through various publications and maps for purchase.<sup>107</sup>

HRPDC’s greatest strength is its ability to organize its many member communities and plan as a region. HRPDC has been involved in numerous major investment and corridor studies, such as the “Hampton Roads Crossing Study,” the “Norfolk-Virginia Beach Corridor Major Investment Study,” and the “I-64 Major Investment Study.”<sup>108</sup> Such studies emphasize multimodal and intermodal considerations in the context of long-term local planning for regional development. Even if communities in Hampton Roads are not directly involved with such projects, they often see the long-range benefits of the transportation improvements occurring in neighboring communities.<sup>109</sup> HRPDC’s coordination also helps the Hampton Roads region maximize the federal and state resources available to its communities.<sup>110</sup>

#### *Connectivity*

Intermodal connectivity is a key factor in the economic livelihood of the Hampton Roads region. The ports of Hampton Roads have used intermodal transportation systems to compete with the largest ports on the eastern seaboard. *Virginia Connections*, the 1994 report on the future transportation goals of the Commonwealth of Virginia, listed these ports as examples of strategic intermodal centers to be further developed and emulated.<sup>111</sup>

Virginia's emphasis on developing its ports has resulted in record growth. The VPA handled more than ten million tons of cargo in a single year for the first time in 1997.<sup>112</sup> Of the 10.7 million tons of cargo handled by the VPA in 1997, 10.1 million tons of cargo were containerized.<sup>113</sup>

Rail and maritime connectivity for the shipment of coal illustrates another advantage of intermodalism. Coal, Virginia's most important mining resource, is the primary commodity shipped by rail in Virginia.<sup>114</sup> Privately owned coal facilities in the Hampton Roads ports specialize in the transfer of coal to ships. As a result of seamless transportation service, nearly half of all coal exported from the United States moves through the Hampton Roads ports.<sup>115</sup> The ease with which coal is transported from mine to rail to ships (or domestic destinations) is an important factor in both the economy of the coal mining regions in western Virginia and the economy of the Hampton Roads region.

### *Vision for the Future*

HRPDC officials plan to be active in the economic development of the region. In preparation for the next phase of the Intermodal Management System for Hampton Roads, Virginia, the HRPDC purchased private freight data to identify the major freight corridors for the region. The data show "freight traffic flows by tonnage, two-digit commodity type, mode of transport, point of origin, and point of destination for both inbound and outbound Hampton Roads freight traffic."<sup>116</sup> The freight data will help the HRPDC to analyze water, rail, air, and truck carrier patterns in an effort to identify new opportunities for the freight carriers in southeast Virginia.

Other projects currently being considered by the HRPDC include the development of a privatized intermodal system between the Hampton Roads ports and the navy base at Norfolk, a new traffic count for Hampton Roads, a review of the traffic levels on HOV lanes in the region, and the feasibility of a fourth port in the area.<sup>117</sup>



## Notes

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<sup>2</sup> Commonwealth of Virginia, "Virginia Facts and Figures," Commonwealth of Virginia web site (Richmond, Va. [cited December 1, 1997]), available from: <http://www.state.va.us/home/facts.html>; INTERNET.

<sup>3</sup> *The World Book Almanac and Book of Facts* (New York: Newspaper Enterprise Association, 1997), p. 678.

<sup>4</sup> *Information Please Almanac, Atlas, and Yearbook* (New York: Houghton Mifflin Company, 1997), p. 780.

<sup>5</sup> Virginia Department of Transportation (VDOT), "Welcome to VDOT (General Information)," VDOT web site (Richmond, Va. [cited January 7, 1998]), available from: <http://www.vdot.state.va.us/>; INTERNET.

<sup>6</sup> Virginia Department of Rail and Public Transportation (VDRPT), *Virginia State Rail Plan 1992-1995 Update: Technical Data* (Richmond, Va., 1996), p. 1.

<sup>7</sup> Stephen C. Brich and Lester A. Hoel, *Multimodal Transportation Planning in Virginia: Past Practices and New Opportunities*, Virginia Transportation Research Council, Charlottesville, Va., 1994, p. 16.

<sup>8</sup> VDOT, VDRPT, Virginia Port Authority, and Virginia Department of Aviation, *Virginia Statewide Intermodal Long-Range Transportation Policy Plan* (Richmond, Va., June, 1995), pp. 4-6.

<sup>9</sup> Interview by Cuatro Groos with Ken Lantz, State Transportation Planning Engineer, Ron Mustain, Principal Transportation Engineer, Jerry Sears, Principal Transportation Engineer, and Ernie Miller, Manager of Forecasting Sector, Transportation Planning Division, Richmond, Virginia, December 5, 1997.

<sup>10</sup> Ibid.

<sup>11</sup> Lyndon B. Johnson School of Public Affairs, *Texas Seaport and Waterborne Commerce and Its Role in International Trade*, Policy Research Project Report Series, no. 117 (Austin, Tex., 1996), pp. 246-47.

<sup>12</sup> Interview by Cuatro Groos with Todd Sheller, Executive Administrator, Capital Region Airport Commission, Richmond, Virginia, December 5, 1997.

<sup>13</sup> VDOT, "Welcome to VDOT (General Information)."

<sup>14</sup> VDOT et al., *Virginia Statewide Intermodal Long-Range Transportation Policy Plan*, p. 1.

<sup>15</sup> VDOT, *Annual Budget Fiscal Year 1997-98* (Richmond, Va., June 1997), p. 1.

<sup>16</sup> VDOT, "Welcome to VDOT (General Information)."

<sup>17</sup> Lantz et al. interview.

<sup>18</sup> Richmond Regional Planning District Commission (RRPDC), "RRPDC Home Page," RRPDC web site (Richmond, Va. [cited February 2, 1998]), available from: <http://mh004.infi.net/~rrpdc>; INTERNET.

<sup>19</sup> Lantz et al. interview.

<sup>20</sup> VDOT, "Welcome to VDOT (General Information)."

<sup>21</sup> Joint Legislative Audit and Review Commission, General Assembly of Virginia, "Review of Regional Planning District Commissions in Virginia," General Assembly of Virginia web site (Richmond, Va. [cited February 2, 1998]), available from: <http://jlarc.state.va.us/summary/rpt163/pdc94.html>; INTERNET.

<sup>22</sup> Lantz et al. interview.

<sup>23</sup> VDOT, *Annual Budget Fiscal Year 1997-98*, p. 21.

<sup>24</sup> Hampton Roads Maritime Association, *The Port of Greater Hampton Roads Annual: 1996* (Norfolk, Va., 1996), pp. 5, 16-17.

<sup>25</sup> Commonwealth Transportation Board, *Virginia Connections* (Richmond, Va., 1994).

<sup>26</sup> VDOT et al., *Virginia Statewide Intermodal Long-Range Transportation Policy Plan*, p. 1.

<sup>27</sup> Brich and Hoel, *Multimodal Transportation Planning in Virginia*, pp. 19-26.

<sup>28</sup> Commission on the Future of Transportation in Virginia, *Final Report to the Governor and the General Assembly of Virginia*, House Document No. 30 (Richmond, Va., 1998), pp. ii-iii.

<sup>29</sup> Commonwealth Transportation Board, *Fiscal Year 1997-1998 Six Year Improvement Program* (Richmond, Va., 1997), p. 1.

<sup>30</sup> Ibid.

<sup>31</sup> VDRPT, *Virginia State Rail Plan 1992-1995 Update*, pp. 10-11.

<sup>32</sup> VDRPT, "Washington-Richmond Rail Corridor Study," VDRPT web site (Richmond, Va. [cited January 7, 1998]), available from: <http://www.state.va.us/drpt/>; INTERNET.

<sup>33</sup> VDPRT, *Bristol Passenger Rail Study Final Report* (Richmond, Va., February, 1996).

<sup>34</sup> VDOT, "Dulles Corridor Major Investment Study," VDOT web site (Richmond, Va. [cited June 17, 1998]), available from: <http://www.vdot.state.va.us/proj/dullesx.html>; INTERNET.

<sup>35</sup> VDOT, "Interstate 64 Major Investment Study (MIS)," VDOT web site (Richmond, Va. [cited June 17, 1998]), available from: <http://www.vdot.state.va.us/proj/64x.html>; INTERNET.

<sup>36</sup> VDOT, "Hampton Roads Crossing Study," VDOT web site (Richmond, Va. [cited June 17, 1998]), available from: <http://www.vdot.state.va.us/proj/crossx.html>; INTERNET.

<sup>37</sup> VDOT, "I-66 Corridor Major Investment Study," VDOT web site (Richmond, Va. [cited June 17, 1998]), available from: <http://www.vdot.state.va.us/proj/66x.html>; INTERNET.

<sup>38</sup> VDOT, *Keeping Virginia Moving*, Richmond, Va., January 1996, (Pamphlet).

<sup>39</sup> VDOT, *Annual Budget Fiscal Year 1997-98*, p. 8.

<sup>40</sup> Ibid.

<sup>41</sup> Ibid., p. 9.

<sup>42</sup> Ibid., p. 10.

<sup>43</sup> Ibid., p. 52.

<sup>44</sup> Ibid., p. 22.

<sup>45</sup> Ibid., pp. 22, 52.

<sup>46</sup> Interview by Cuatro Groos with George Conner, Rail Administrator, and Kevin Page, Senior Rail Transportation Engineer, DRPT, Richmond, Virginia, December 5, 1997.

<sup>47</sup> LBJ School of Public Affairs, *State Rail Policies, Plans, and Programs*, Policy Research Project Report Series, no. 123 (Austin, Tex., 1997), p. 383.

<sup>48</sup> VDOT, *Annual Budget Supplement Fiscal Year 1997-98*, (Richmond, Va., September 1997), p. iii.

<sup>49</sup> LBJ School of Public Affairs, *State Rail Policies, Plans, and Programs*, pp. 380-381.

<sup>50</sup> Electronic mail addendum to interview by Cuatro Groos with George Conner, Rail Administrator, and Kevin Page, Senior Rail Transportation Engineer, VDRPT, February 23, 1998.

<sup>51</sup> Ibid.

<sup>52</sup> VDOT, "I-66 Corridor Major Investment Study."

<sup>53</sup> Ibid.

<sup>54</sup> Ibid.

<sup>55</sup> Ibid.

<sup>56</sup> Commission on the Future of Transportation in Virginia, *Final Report to the Governor and the General Assembly of Virginia*, p. ii.

<sup>57</sup> Commonwealth of Virginia, "Public-Private Transportation Act of 1995: Implementation Guidelines," Richmond, Va., July 1, 1995.

<sup>58</sup> VDOT, "Rt. 895 Connector Facts," VDOT web site (Richmond, Va. [cited June 17, 1998]), available from: [http://www.vdot.state.va.us/proj/895\\_facts.html](http://www.vdot.state.va.us/proj/895_facts.html); INTERNET.

<sup>59</sup> Ibid.

<sup>60</sup> Sheller interview.

<sup>61</sup> Joint Legislative Audit and Review Commission, General Assembly of Virginia, "Review of Regional Planning District Commissions in Virginia."

<sup>62</sup> Ibid.

<sup>63</sup> Lantz et al. interview.

<sup>64</sup> Telephone interview by Cuatro Groos with Dan Lysy, Director of Transportation, Richmond Regional Planning District Commission, Richmond, Virginia, February 2, 1998.

<sup>65</sup> Greater Richmond Chamber of Commerce, "Area Demographics (1996)," Greater Richmond Chamber of Commerce web site (Richmond, Va. [cited February 2, 1998]), available from: <http://www.grcc.com/grcc/profile.html>; INTERNET.

<sup>66</sup> VDOT, *Official State Map* (Richmond, Va., 1996).

<sup>67</sup> Greater Richmond Partnership, "Welcome to Henrico County," Greater Richmond Partnership web site (Richmond, Va. [cited February 3, 1998]), available from: <http://www.grpva.com:80/henrico.html#Transportation>; INTERNET.

<sup>68</sup> RRPDC, "RRPDC Home Page."

<sup>69</sup> Lysy interview, February 2, 1998.

<sup>70</sup> Telephone interview by Cuatro Groos with Dan Lysy, Director of Transportation, Richmond Regional Planning District Commission, Richmond, Virginia, April 17, 1998.

<sup>71</sup> RRPDC, "RRPDC Home Page."

<sup>72</sup> Ibid.

<sup>73</sup> Ibid.

<sup>74</sup> Lysy interview, February 2, 1998.

<sup>75</sup> Capital Region Airport Commission (CRAC), "Richmond International Airport: Central Virginia's Economic Gateway," Richmond, Va., October 1994, p. 1.

<sup>76</sup> CRAC, "Richmond International Airport Biennial Report 1995-1996," Richmond, Va., January 1997,

p. 11.

<sup>77</sup> Ibid., p. 7.

<sup>78</sup> Sheller interview.

<sup>79</sup> Ibid.

<sup>80</sup> Richmond International Airport, "Access," Richmond, Va., 1997, p. 7.

<sup>81</sup> Sheller interview.

<sup>82</sup> Ibid.

<sup>83</sup> Lysy interview, February 2, 1998.

<sup>84</sup> Sheller interview.

<sup>85</sup> Abel Information Services, "Guide to Hampton Roads," Abel Information Services web site [cited February 18, 1998], available from: <http://www.abel-info.com/regguide/>; INTERNET.

<sup>86</sup> Ibid.

<sup>87</sup> Hampton Roads Planning District Commission (HRPDC), "Population in Hampton Roads," HRPDC web site [cited April 16, 1998], available from: <http://www.hrpdc.org>; INTERNET.

<sup>88</sup> Abel Information Services, "Guide to Hampton Roads."

<sup>89</sup> Ibid.

<sup>90</sup> Brich and Hoel, *Multimodal Transportation Planning in Virginia*, p. 16.

<sup>91</sup> Abel Information Services, "Guide to Hampton Roads."

<sup>92</sup> VDOT, *Official State Map*.

<sup>93</sup> VDOT, *Connecting Hampton Roads*, Suffolk, Va., June, 1994, (Pamphlet).

<sup>94</sup> Interview by Cuatro Groos with Dwight Farmer, Director of Transportation, and Camelia Ravanbakht,

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<sup>95</sup> VDOT *Official State Map*.

<sup>96</sup> Brich and Hoel, *Multimodal Transportation Planning in Virginia*, p. 16.

<sup>97</sup> HRPDC, "Intermodal Management System for Hampton Roads, Virginia," Chesapeake, Va., July 1996, pp. 8-9.

<sup>98</sup> Electronic mail addendum to interview with Camelia Ravanbakht, Principal Transportation Planning Engineer, HRPDC, January 23, 1998.

<sup>99</sup> Ibid.

<sup>100</sup> Electronic mail addendum to interview with Ravanbakht, February 3, 1998.

<sup>101</sup> Electronic mail addendum to interview with Ravanbakht, April 21, 1998.

<sup>102</sup> HRPDC, "Intermodal Management System for Hampton Roads, Virginia," p. 19.

<sup>103</sup> Lantz et al. interview.

<sup>104</sup> Electronic mail addendum to interview with Ravanbahkt, January 23, 1998.

<sup>105</sup> HRPDC, "About HRPDC," HRPDC web site [cited February 2, 1998], available from: <http://www.seva.net/~hrpdc/>; INTERNET.

<sup>106</sup> Ibid.

<sup>107</sup> Ibid.

<sup>108</sup> HRPDC, *Hampton Roads Review*, HRPDC web site [cited April 16, 1998], available from: <http://www.hrpdc.org>; INTERNET.

<sup>109</sup> Lantz et al. interview.

<sup>110</sup> Ibid.

<sup>111</sup> Commonwealth Transportation Board, *Virginia Connections*, p. 7.

<sup>112</sup> Tim Sansbury, "Virginia Port Authority is on a Roll; Breaks 10 Million-Ton Mark for First Time," *Maritime (Journal of Commerce Supplement)*, Monday, February 2, 1998, p. 5B.

<sup>113</sup> *Ibid.*

<sup>114</sup> Brich and Hoel, *Multimodal Transportation Planning in Virginia*, p. 16.

<sup>115</sup> *Ibid.*

<sup>116</sup> HRPDC, *Hampton Roads Review*.

<sup>117</sup> Farmer et al. interview.



## Chapter 8. Washington

### Overview

Washington is the 15<sup>th</sup> largest state in the nation, with an estimated population of 5,340,000 in 1994. The state has the 26<sup>th</sup> largest population density of 80.2 people per square mile.<sup>1</sup> The major metropolitan areas are Seattle, Spokane, Tacoma, and Everett.<sup>2</sup>

The Evergreen State ranks 20<sup>th</sup> in the nation in total area with 68,139 square miles. Its topography consists of both mountains and lowlands. The Olympic Mountains and the Cascade Mountains lie in the western and central part of the state, respectively. Mountains also lie in the southeast. The Puget Sound lowland has flat terrain.<sup>3</sup>

The principal industries for the Washington economy are aerospace, forest products, food products, primary metals, and agriculture. Chief agricultural crops for the state are hops, raspberries, apples, wheat, milk, hay, asparagus, pears, cherries, peppermint oil, and potatoes. Its primary manufactured goods consist of aircraft, pulp and paper, lumber and plywood, aluminum, and processed fruits and vegetables.<sup>4</sup> Washington is recognized as a leading lumber producer with its many stands of Douglas fir, hemlock, ponderosa and white pine, spruce, larch, and cedar trees.<sup>5</sup> With Washington's strategic West Coast location, international trade and commerce have a significant impact on the state's economy.

### Transportation Infrastructure

Washington has a multimodal transportation network that includes

- 79,700 miles of streets, roads, and highways (1996);<sup>6</sup>
- 3,090 miles of rail and 16 rail carriers (1996);<sup>7</sup>
- ten deepwater ports (1996);<sup>8</sup>
- 13 primary and commercial airports, the largest being the Seattle-Tacoma International Airport (1996);<sup>9</sup>
- transit services available to more than 4.6 million people in 25 transit districts in 1995;<sup>10</sup>
- the nation's largest ferry system, with 20 terminals on 11 routes and 28 vessels that carry more than 23 million passengers and nine million vehicles per year (1996); and<sup>11</sup>
- Amtrak passenger rail service to 14 stations throughout the state (1996).<sup>12</sup>

## State Issues, Policies, and Goals

Three key issues drive Washington State's transportation planning and policymaking: growth, quality of life, and freight mobility.<sup>13</sup> Washington has experienced monumental growth over the course of the 1980s and 1990s. From 1980 to 1990, Washington grew from 4,132,156 to 4,866,692 residents.<sup>14</sup> The U.S. Census Bureau estimates that the state had a population of 5,610,362 in 1997.<sup>15</sup> This growth has resulted in substantial congestion, particularly in the Greater Puget Sound region, and has forced Washingtonians to consider the impact of congestion on their quality of life, the environment, as well as on trade and the movement of goods. Planners in the Washington State Department of Transportation (WSDOT) recognize the connections between growth, land-use policies, and transportation. They address these issues, as well as the mandates of federal legislation including the Intermodal Surface Transportation Efficiency Act (ISTEA), the Clean Air Act, and the Clean Water Act, when preparing transportation policy and plans. Additionally, WSDOT must take into account legislation, such as the Clean Air Washington Act and the Growth Management Act (GMA), passed by the Washington State Legislature. The GMA in particular presents unique challenges and responsibilities to transportation planners and policymakers in Washington.

The GMA became law in 1990 in response to the phenomenal growth that Washington experienced during the 1980s. The Washington State Legislature passed the law in an attempt to stem the damage created by unplanned and uncoordinated growth. The act attempts to promote and coordinate the land-use planning done by state, regional, and local officials. Counties that experience 10 percent growth over the course of a decade must engage in land-use planning. In counties that grow by more than 20 percent in a decade, all cities within the county, as well as the county itself, are required to engage in land-use planning. The comprehensive plans that these governments produce must contain a "Transportation Element," including a 20-year projection of local transportation infrastructure needs. Each city or county must indicate how it plans to pay for any transportation facilities, as well as how it intends to finance any current transportation service provision.<sup>16</sup>

Washington's transportation needs and concerns are driven in large part by the population settlement patterns in the state. The needs of the densely populated, highly metropolitan, trade-oriented western part of the state differ considerably from those of the rural, agricultural eastern part of the state. In western Washington, transportation planners spend significant time and resources attempting to mitigate congestion and to ensure that the region meets federal and state standards for air and water quality. In eastern Washington, WSDOT is in the midst of an attempt to foster mobility and economic development in the region. To that end, the department has sponsored an extensive series of studies to identify transportation priorities, services, and needs in the region.

As in many states, economic development has become a key goal for Washington. In the Puget Sound and the Columbia and Snake River systems, Washington has developed an extensive deepwater and river port system that has created a flourishing freight industry. Washington is uniquely positioned to take direct and lucrative advantage of the growing

trade between the United States and the Pacific Rim. The state's ports have a one-day travel advantage over the rest of the West Coast in shipping goods to the Pacific Rim.<sup>17</sup> This advantage translates into economic growth and jobs for Washington. WSDOT transportation planners face the challenge of effectively interconnecting the state's rail freight system, ports, and roads in both eastern and western Washington.

## **State Agencies Involved in Transportation**

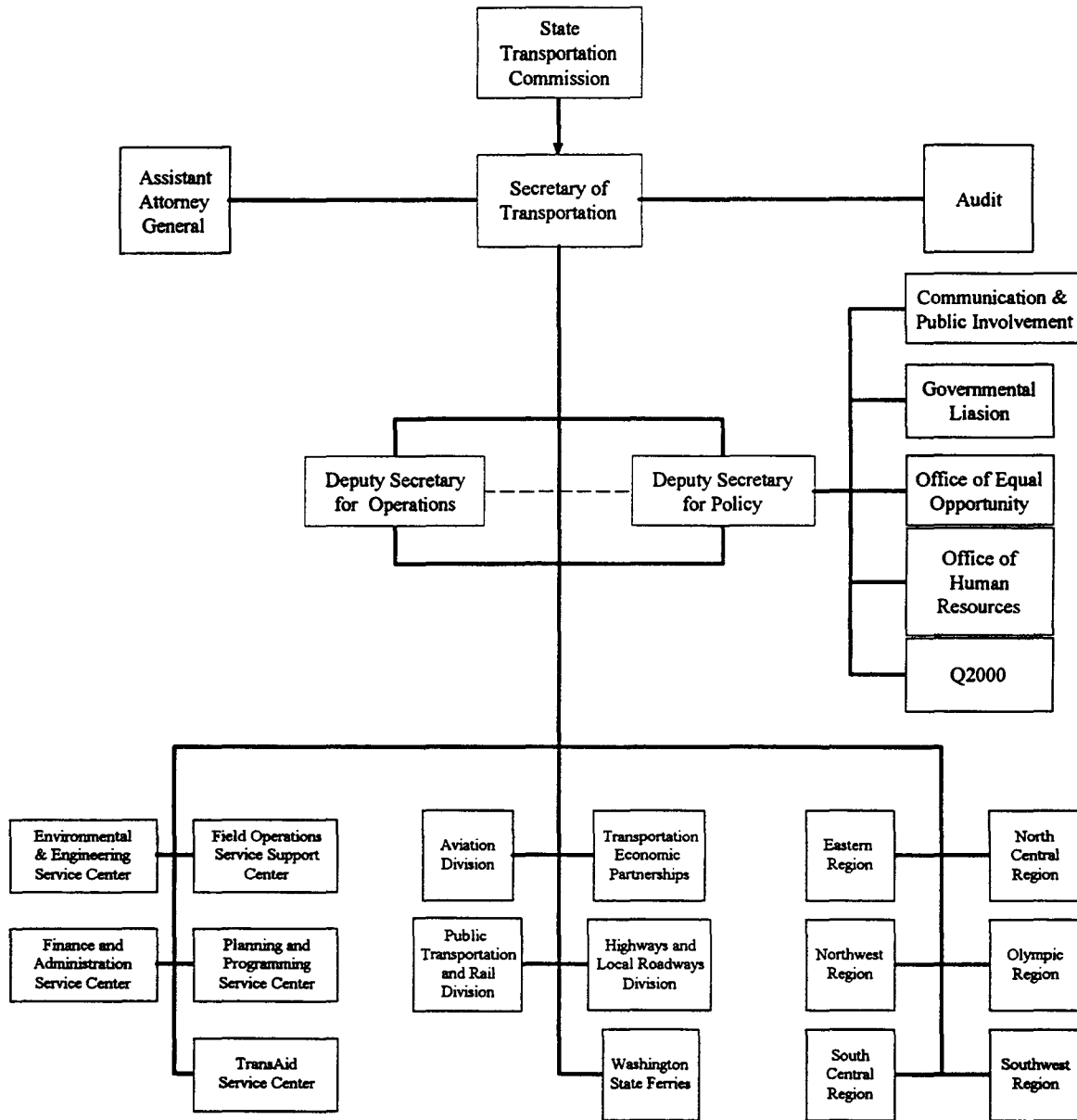
### **Washington State Department of Transportation**

WSDOT is governed by a seven-member, voluntary citizen's board that constitutes the Transportation Commission. The governor appoints commission members. WSDOT is headed by the secretary of transportation, who is appointed by the Transportation Commission. The department is organized into an executive staff; five service centers that deal with the environment and engineering, field operations, finance and administration, planning and programming, and transit; six regional organizations; and five modal divisions, consisting of Aviation, Highways and Local Roadways, Public Transportation and Rail, Transportation and Economic Partnerships, and Washington State Ferries (see figure 8.1).<sup>18</sup> WSDOT has approximately 6,580 employees and a budget of \$2.4 billion for the 1997-99 fiscal period.<sup>19</sup>

WSDOT has the responsibility for planning, funding, and operating much of the state's transportation system. The department also ensures that its regional and planning divisions incorporate environmental considerations and regulatory requirements into their planning and operations.<sup>20</sup> The department's five modal divisions oversee most of the state's primary transportation resources. WSDOT analyzes, plans, engineers, constructs, and maintains the state highway system. In 1996, Washington had approximately 18,930 centerline miles of state-maintained highways, bridges, and roads.<sup>21</sup> The department also oversees both freight and passenger rail programs, including initiatives such as a program to counteract rail abandonment. In addition, WSDOT oversees the Washington portion of the Pacific Northwest Rail Corridor. The Aviation Division of WSDOT operates 17 airports throughout the state for emergency operations. The division coordinates air search and rescue and air disaster relief activities in Washington and also administers pilot and aircraft registration.<sup>22</sup> WSDOT also runs the Washington State Ferries program. Washington State Ferries provide extensive passenger and freight ferry service in the Puget Sound region and for Victoria Island.

The WSDOT Planning and Programming Division employs 20 staff members. These people conduct multimodal planning in conjunction with WSDOT's seven regional offices. One staff member is designated as WSDOT's multimodal planner.<sup>23</sup>

**Figure 8.1**  
**Organizational Structure**  
**Washington State Department of Transportation**



Source: Adapted from Washington State Department of Transportation (WSDOT), WSDOT Organizational Chart, in *Key Facts: A Summary of Useful Transportation Information* (Olympia, Wash., July 1996).

## **Other Agencies Involved in Transportation**

WSDOT works with many other agencies in its role as chief transportation planner and coordinator in the state of Washington. At a regional level, WSDOT works with the state's 12 Regional Transportation Planning Organizations (RTPOs) in creating the RTPO transportation strategies and six-year regional transportation programs.<sup>24</sup> The RTPOs have jurisdiction over county transportation planning, and range in size from one to five counties. WSDOT also assists the 24 public transit authorities in Washington, with issues such as agency coordination, links between land use and public transportation, development of multimodal and intermodal connections and meeting economic development, and environmental and congestion alleviation goals.<sup>25</sup>

At a state level, WSDOT collaborates periodically with the Washington Public Ports Association in an assessment of the state's ports, waterways, rail, highway, pipeline, and air-cargo systems.<sup>26</sup> WSDOT also works with the Oregon Department of Transportation and the British Columbia Ministry of Employment and Investment on the planning and financing of the Pacific Northwest Rail Corridor.

## **Transportation Plans and Reports**

Washington State produces multiple documents as a part of its planning process. Planning documents range from mode-specific plans, to corridor plans, to a statewide intermodal transportation plan. These documents serve different uses within Washington's transportation planning process. Most of the reports mentioned in this section were produced by WSDOT staff; however, a number of the reports reflect the work of ad-hoc committees of policy experts, elected officials, and citizens that the state creates as needed to study various transportation issues. The following section catalogs WSDOT plans and reports, with an eye to the role that these documents play in the state's intermodal planning processes.

### **Statewide Transportation Plans**

WSDOT produces several statewide planning documents. These plans outline the state's future transportation planning agenda for multiple modes. The plans identify state transportation needs, the usefulness of different modes in meeting those needs, and the financial resources necessary to implement the state's transportation strategy.

*Washington's Transportation Plan 1997-2016* lays out a 20-year plan for all modes of transportation that the state owns or takes an interest in. The transportation plan covers every important mode of transportation in the state, including highways, roads, aviation, shipping, ferries, rail, and public transportation. The plan establishes three targets for action: maintaining current transportation infrastructure and alternatives, meeting the needs of people and freight movement as the state grows, and increasing the state's transportation taxes to pay for targeted improvements. It identifies all agencies in Washington with responsibility for implementing the plan. Finally, the transportation plan

identifies costs and establishes realistic program objectives that fit within the state's transportation budget.<sup>27</sup>

WSDOT produces a transportation plan every year. The plan has evolved over the course of the 1990s, as the department has added modes and policy concerns. In 1991, for example, the state began to examine environmental and energy conservation issues within the transportation plan. In 1992, WSDOT began to consider bicycle use, the movement of freight and public/private partnerships within the framework of the transportation plan. The 1993 plan integrated land use, demand management, and efficiency improvements.<sup>28</sup> Washington's transportation plan has become a forum for the state to articulate modal goals within its overall vision for transportation.

WSDOT also produces the *Public Transportation and Intercity Rail Passenger Plan for Washington State*. This document addresses the public transportation needs of the state within a 20-year perspective. The plan purportedly "clarif[ies] the state's role in public transportation, describe[s] the present condition of public transportation in the state, and discuss[es] significant issues."<sup>29</sup> It identifies Washington's future public transportation needs and proposes strategies for meeting those needs. Like the state's transportation plan, the public transportation plan acknowledges the financial constraints within the state's transportation budget. The funding targets identified in the plan "represent a realistic and achievable package of transportation services for the next 20 years."<sup>30</sup> The plan develops and presents a funding scenario that sets out three possible levels of funding for the plan: funding the plan in full, funding the plan with the historical rate of tax increase, and funding the plan without the revenue from increased taxes. There are funding scenarios for each mode of public transportation that it discusses.

## **Regional Plans**

Washington State is in the midst of a remarkable regional transportation planning effort, called the Eastern Washington Transportation Study (EWITS). EWITS is a collaborative effort involving WSDOT, Washington State University, and several hired consultants. Since its inception in 1993, the study has produced multiple reports, including the *Impact of North American Free Trade Agreement on Washington Highways*; the *Importance of U.S. 395 Corridor for Local and Regional Commerce in South Central Washington*; *Linking Transportation System Improvements to New Business Developments in Eastern Washington*; and *Transportation Needs of Western Washington Fruit, Vegetable and Hay Industries*. The EWITS reports reflect the study's four objectives: the need to address regional and statewide planning priorities, the need to forecast future freight and passenger transportation needs in the region over the next 30 years, an evaluation of current transportation infrastructure in eastern Washington, and the need to identify improvements to the region's transportation system necessary for future economic development and mobility in eastern Washington.<sup>31</sup>

## Policy Plans

The *Transportation Policy Plan for Washington State: 1995 Report to the Legislature* sets out overall WSDOT policy recommendations for the state's transportation system. The plan addresses six critical areas of transportation policy in Washington: (1) protecting investment in the current transportation system; (2) increasing personal mobility; (3) creating a transportation system that enhances economic growth; (4) ensuring environmental protection and energy conservation; (5) coordinating transportation planning and policy among all relevant agencies, governments, and private enterprise; and (6) ensuring adequate funding of the state's transportation needs.<sup>32</sup>

The transportation policy plan also discusses, in fairly broad terms, the importance of facilitating intermodal connections for passengers and freight. The report touches on the need to "co-locate" modal terminals in order to create transfer points from one mode of transportation to another.<sup>33</sup> It also stresses the need for coordination and cooperation between public and private transportation organizations in order to create a truly intermodal system.<sup>34</sup>

## Corridor Plans

Washington State's transportation corridor plans deal primarily with highways, with one prominent exception: the proposed Pacific Northwest Passenger Rail Corridor. On the whole, WSDOT corridor plans are concerned with alleviating traffic congestion, but the state does consider economic, environmental, and intermodal considerations in some of its corridor planning.

WSDOT has collaborated with the Oregon Department of Transportation and the British Columbia Ministry of Employment and Investment on planning for passenger rail in the Pacific Northwest Rail Corridor. In 1995, the three collaborators released a joint planning report called *Options for Passenger Rail in the Pacific Northwest Rail Corridor*. This report articulates the incremental approach that the partners have taken toward implementing passenger rail in the Pacific Northwest. The report summarizes all the work done to date on the rail corridor. It establishes funding needs and sets out a timeline for the infrastructure improvements necessary for full use of the corridor. The incremental approach taken toward implementing improved passenger rail service in the corridor is unique. The partners in the plan have recognized that the most successful method for creating a viable passenger rail service in the Pacific Northwest Corridor involves the use and improvement of existing facilities, not the construction of entirely new infrastructure. The planning report reflects this financial and structural reality.

WSDOT, working in a public/private partnership with a company called United Infrastructure, recently concluded a major investment study (MIS) to explore the feasibility of reconfiguring a corridor known as the SR16/Tacoma Narrows bridge corridor. The MIS summarizes the major findings of the MIS process and lists the corridor improvement recommendations arrived at by the MIS.

The *U.S. 101 Corridor Master Plan* serves as a “guidebook for managing the U.S. 101 right-of-way.”<sup>35</sup> The state has involved local communities along U.S. Highway 101 in a planning process that looks at transportation, economic development, tourist, scenic conservation and recreation, community planning, and traveler facilities, among other topics.<sup>36</sup> The corridor master plan examines six separate subcorridors and lists the specific improvements that each community has requested within its subcorridor. The March 1997 version of the corridor master plan includes “substantial” revisions from the previous plan, reflecting community concern and including recognition that the plan applies only to right-of-way and does not constitute a regulatory document.<sup>37</sup> This plan reflects remarkable community involvement. U.S. Highway 101 runs through many communities and crosses six counties, 13 tribal nations, and state and federal jurisdictions.<sup>38</sup> WSDOT has chosen a remarkably open planning process as a means of accommodating these diverse interests along the corridor.

## **Modal Plans**

WSDOT publishes several plans for specific modes of transportation. The state concentrates on rail plans in particular but has also produced a series of port studies.

### ***Rail Plan***

WSDOT produces a state freight rail plan in order to comply with federal regulations and maintain eligibility for federal rail funds. The *Freight Rail Plan, 1991 Update* concentrates on the issue of rail abandonment. It contains an overview of Washington’s rail system and lists the rail assistance projects that the state intends to fund.<sup>39</sup> It also identifies and evaluates rail lines subject to abandonment, quantifies the cost of maintaining service on lines likely to be abandoned, and establishes criteria for determining which rail lines the state should purchase. The *Freight Rail Plan, 1993 Amendment* adds additional rail line analyses and recommendations to those included in the 1991 plan update.<sup>40</sup>

The Washington State Freight Rail Policy Development Committee published its *Final Report* in 1995. This document details the findings and recommendations from the committee’s review of the state’s freight rail program. The report also addresses the need to secure funding for the freight rail service objectives identified by the committee.<sup>41</sup>

In 1991, the Washington State Legislature created a steering committee to study the feasibility of creating a system of high-speed trains in Washington State. The committee examined a series of topics, including economic, environmental, and technological issues and potential ridership. Their report, titled the *High Speed Ground Transportation Study*, contains the committee’s findings and recommends that the state pursue some form of high-speed rail in Washington.<sup>42</sup>



## ***Ports Plan***

The Washington Public Ports Association (WPPA) and WSDOT periodically assess the state's ports, waterways, and other transportation systems. In 1991, the WPPA and WSDOT produced a report titled the *1991 Washington Ports and Transportation Systems Study*.<sup>43</sup> The study identifies the importance of international trade to Washington's economy and assesses the ability of the state's ports to meet the needs of that trade. The report recommends specific steps for the state to take in order to improve port, road, and rail infrastructure and to address environmental and financial issues facing the state's ports.

## **Intermodal Plans**

The WSDOT has recognized the salience of intermodal and multimodal planning issues for some time. In 1994, WSDOT produced a *Preliminary Statewide Multimodal Transportation Plan* and a draft copy of an *Intermodal Transportation Policy Plan for Washington State*. The multimodal plan identifies service objectives for each mode of transportation and sets out strategies for achieving those objectives. The intermodal plan briefly describes intermodalism as "choices, connections and coordination" and lays out a list of policy recommendations to facilitate Washington's efforts to make the choices and connections that characterize an intermodal transportation system.

## **Transportation Funding and Programs**

The Washington State Legislature meets on a biennial basis; thus, the WSDOT budget covers a two-year period. WSDOT engages in fairly traditional transportation funding and programming. The department has a budget of more than \$2.4 billion for the biennial period of 1997-99, the bulk of which is devoted to funding capital projects. The department's \$1.3 billion capital budget funds highway construction, highway improvements, and highway preservation; ferry improvements; and state-owned airports. The WSDOT budget also allocates funds to facilities operating programs, departmental operations, and state interest programs, such as freight rail preservation.<sup>44</sup>

The bulk of WSDOT's funding comes from three primary sources: motor fuel taxes, particularly the gasoline tax (23 cents per gallon); motor vehicle licenses, permits, and fees (\$27.75 to register a new automobile and \$23.75 to renew registration); and the motor vehicle excise tax (MVET).<sup>45</sup> The 18th Amendment to the Washington State Constitution mandates that the revenue from the state gas tax be dedicated to highway purposes.<sup>46</sup> This amendment places a fairly severe restriction on the flexibility of Washington's transportation funding. The gas tax is expected to yield approximately \$1.4 billion to Washington State in the biennial period 1997-99.<sup>47</sup> In addition to using gas tax revenue for state highway purposes, Washington distributes revenue from this fund to cities and counties. Interestingly, the 18th Amendment to the Washington Constitution considers the state ferry system to be a highway purpose; thus, this system also receives partial funding from gas-tax revenue.<sup>48</sup>

The MVET is expected to yield over \$1.6 billion to Washington State for 1997-99. WSDOT has greater discretion over this funding source and it uses it to fund programs, such as the ferry system, high-occupancy vehicle lanes, transit and rail projects, and administrative needs.<sup>49</sup> Washington expects to earn approximately \$490 million from vehicle licenses, permits, and fees in 1997-99. This money is distributed to the state Motor Vehicle Fund, ferry operations, and the Washington State Patrol.<sup>50</sup>

### **Aviation Funding**

The WSDOT budget allocates \$1.6 million to aviation-related activities in the 1997-99 budget period, including \$200,000 to state-owned airports, \$1.6 million to state aviation programs, and \$1.9 million to local airports<sup>51</sup>

### **Rail Funding**

Washington State funds both freight and passenger rail programs. WSDOT is very concerned about the rate of rail abandonment that the state has experienced since 1970 and is committed to preserving remaining rail lines. The 1997-99 WSDOT budget allocates \$1.2 million to freight rail preservation.<sup>52</sup> The department is also very involved in the development of the Pacific Northwest Rail Corridor. Over the course of the next 20 years, WSDOT expects to spend approximately \$1.2 billion to improve the rail system and service along the corridor.<sup>53</sup> The 1997-99 budget also allocates \$67.3 million to high-capacity transportation and rail.<sup>54</sup>

### **Ferry System Funding**

Washington State has owned and operated a ferry system since it purchased the Puget Sound Navigation Company in 1951. Washington State Ferries owns 25 vessels, 3 of which are passenger-only ferries. The system serves ten routes and owns 20 terminals, serving 65,000 passengers a year.<sup>55</sup> Washington funds its ferry system at high levels. The 1997-99 WSDOT budget allocates \$497.6 million to improvements, operations, and maintenance of the system.<sup>56</sup>

### **Highway Funding**

As has been the case throughout the course of WSDOT's existence, highways receive the bulk of funding in Washington's transportation budget. In the 1997-99 budget, more than \$1.3 billion is allocated for highway construction, improvements, preservation, and maintenance.<sup>57</sup>

### **Intermodal Funding**

Washington State has no funding devoted specifically to intermodal or multimodal programs. The WSDOT Systems Planning Division projects that, over the course of the next 20 years, the legislature will appropriate approximately \$5 billion for "mobility" or multimodal projects.<sup>58</sup> It is likely that Washington's multimodal needs will outstrip this level of funding. WSDOT must, therefore, decide which multimodal projects best serve

the needs of the state. The department has developed three multimodal funding scenarios for consideration by the public.<sup>59</sup>

## **Exemplary Practices in Multimodal/Intermodal Transportation**

This study of the WSDOT yielded two particularly interesting practices. The first practice involves WSDOT's approach to funding decisions, as explained by and embodied in *Washington's Transportation Plan 1997-2016*. The second practice involves WSDOT's large-scale approach to multimodal transportation.

### **WSDOT Funding Framework**

WSDOT has developed an innovative method of transportation planning that considers the full menu of the state's transportation needs within a framework of limited transportation funds. The state's transportation plan details a multistep process that identifies the state's transportation needs, specifies the steps that the department intends to take to meet those needs, and, finally, lays out a "state action strategy" in which WSDOT decides which projects to fund. When making funding decisions, WSDOT considers the total cost of funding all programs over a 20-year period and compares that cost to the expected transportation revenues available for WSDOT to allocate. The department then funds programs according to four priorities: to care for existing infrastructure and programs, to improve safety, to care for the environment, and to ensure a balanced multimodal transportation system.

WSDOT sets 20-year funding targets for each program and mode of transportation. These targets reflect the department's four priorities. In the case of "traditional transportation modes," the department sets funding targets at levels that match long-term historic funding trends. In the case of modes in which the state has not historically invested, WSDOT sets targets that are designed to achieve specific improvements. For example, WSDOT has decided to fund rail improvements to facilitate the implementation of the Pacific Northwest Rail Corridor. The department revisits these funding targets every two years and revises them according to changes in fiscal and transportation conditions.

The WSDOT funding strategy provides the department with two benefits. First, the strategy provides WSDOT with a framework for making funding decisions in a world of scarce resources. Second, the strategy provides a mechanism for revisiting funding decisions and, if necessary, modifying those decisions to respond to changed conditions in the department's budget or in Washington's transportation needs. This strategy makes WSDOT flexible. The flexibility helps the department to respond effectively to a changing world in which global trade, population growth, and protection of the environment present significant challenges.

## Multimodalism at WSDOT

WSDOT has determined that in order to alleviate present and growing transportation deficiencies, in both urban and rural areas, the state must begin to implement multimodal planning at a regional level. The force for this imperative derives from two sources. First, Washington State continues to experience significant population growth. As the state's population has increased, congestion has increased as well. Washington's current transportation system simply does not have the capacity to meet the demands of economic and demographic growth.<sup>60</sup> Congestion, particularly in the Greater Puget Sound area, has become endemic, leading to environmental degradation, significant freight mobility problems, and a general reduction in the quality of life for Washington's citizens. WSDOT understands that people in Washington want less congestion and improved mobility. Planners opine that neither sufficient revenue nor public sentiment exist to simply justify building new highway corridors. Thus, the current drive for multimodal planning in Washington springs from the congestion, quality of life, and mobility concerns that inform transportation policy and planning as a whole. The passage of the Growth Management Act in 1990 in particular acted as a catalyst for WSDOT consideration and advocacy of a multimodal transportation system.

The second impetus behind the WSDOT push for regionalization of multimodal planning came from the department's efforts to update its statewide transportation plan. During the course of this update, WSDOT solicited comments from its "customers," including RTPOs, local governments, citizens, and members of the business community, in an attempt to determine the outlines of an ideal multimodal transportation plan. One primary recommendation emerged from these discussions—that WSDOT develop and promulgate a common vision and set of priorities for a strategic statewide multimodal plan. Once this is accomplished, RTPOs can then decide how to approach multimodalism within its framework. Under the new planning scheme, regional and statewide multimodal plans will be organized into "Rolling Six Year Plans." A rolling plan contains perspectives for 6 years, 7-12-years, and greater than 13-years. The 6-year and 7-12-year components are programmatic, project specific, and, like the transportation plan, encompass "reasonable funding assumptions." The long-term component of greater than 13 years outlines multimodal transportation priorities and needs that are not currently funded. It does not include specific programs.<sup>61</sup>

WSDOT planners believe that multimodalism and the debates, planning, and tradeoffs that it involves can be accomplished most effectively at a regional level. Under Washington's new transportation plan, each RTPO will have the responsibility for determining, within the framework of the overarching statewide multimodal policy, how to increase the capacity of its transportation system. Discussions of multimodal needs, solutions, and implementation of programs will take place at a regional level.<sup>62</sup> WSDOT will act as a coordinating agent to assist regions in connecting their systems.

This proposal changes the manner in which WSDOT approaches "mobility," that is, the improvement of the system for moving people and goods throughout the state. In the past, the department has attempted to solve capacity problems by looking at a single mode

at a time. The current proposal attempts to empower regions to look at their multimodal or mobility needs on a systemwide basis. The proposal also encourages regions to analyze and make tradeoffs among modes on a systemwide basis. WSDOT wishes to encourage regional planning that takes a balanced approach to programming different modes of transportation.

The success of this regional multimodal planning approach rests on several factors. WSDOT stresses the need for educating the public about the necessity of constructing a multimodal system. In particular, the department feels that the public needs to understand the dangers that congestion poses for trade and continued economic growth in the state. Transportation funding also is a factor in the move to regionalize multimodalism. WSDOT recognizes that modal integration has been hampered by its current funding practices. The Planning and Programming Division acknowledges that some work needs to be done on current funding mechanisms; however, it does not appear that the department has plans to change its current approach to funding.

Another factor in the regionalization of multimodal planning is the difficulty of making tradeoffs between modes and the challenge of establishing universal criteria to use in deciding what modes should be included in a corridor. The Washington State Legislature is currently considering legislation designed to encourage modal tradeoff calculations in transportation planning. Tradeoffs among modes may not reduce to a simple model. Even after economic calculations have been made, tradeoffs involve a significant degree of subjectivity. Notwithstanding WSDOT's wishes to encourage the participation of multiple stakeholders in the regional planning processes, the department is concerned about the political disagreement that may emerge during such an open planning process. WSDOT fears that decisions about tradeoffs and the best system of modes in a particular corridor will be influenced more by political considerations than by objective determinations of which modes will best serve the mobility needs of a region.

The final factor that may determine the success of regional multimodal planning is the fact that WSDOT can make definitive policy regarding multimodal transportation for only those modes of transportation that the department owns—the highways, the state airports, and the state ferry system. In all other cases, such as public transportation systems, ports, and railroads, WSDOT can only advocate the creation of multimodal systems of transportation.

The city of Seattle provides an example of a current regional multimodal planning project in Washington State. Seattle has decided to construct a new stadium for its major league baseball team on the State Route-519 (SR-519) corridor in downtown Seattle. This corridor includes the Port of Seattle, a ferry terminal, and interstate highways. The corridor also crosses a highly used at-grade rail crossing in downtown Seattle. WSDOT, the city of Seattle, King County, the Port of Seattle, the Federal Transit Administration (FTA), the Federal Highway Administration (FHWA), and the Burlington Northern Santa Fe Railway have come together to plan and implement a multimodal project. This project will include street improvements, the construction of elevated pedestrian pathways, and the extension of trolley bus wires. The goal of the project is to “improve the connections

between the existing intermodal transportation facilities which serve [the] Interstate . . . the Port of Seattle and freight and passenger rail . . . [to] increase vehicle capacity in the form of efficiency and improve multimodal safety on SR-519 . . . [and to] increase pedestrian and transit patron access and improve safety between neighborhoods and major event facilities.”<sup>63</sup>

The SR-519 project serves as a good example of the process that WSDOT hopes to foster with its push for regional multimodal planning. The project is truly multimodal in nature, taking into consideration congestion issues, including pedestrian and vehicle safety and mobility, as well as freight mobility. The region assessed its needs and brought together the stakeholders necessary for designing and implementing a viable project. The region also recognized the necessity of improving multimodalism within the corridor as a means for reducing congestion and improving mobility. It is interesting to note that the decision to construct a new baseball park sparked the project, prompting the city of Seattle to assess mobility problems in the SR-519 corridor. This decision suggests that regional multimodal planning may not occur without a specific economic or business-driven impetus.

At this point in time, much of WSDOT’s multimodal activity seems to be “policy multimodalism,” as opposed to “practical multimodalism.” WSDOT’s lack of practical action on multimodalism may stem from the fact that much of the current innovative multimodal activity in Washington State takes place at the regional and local levels. In recognition of this fact, the department is attempting to assume the role of regional coordinator—overseeing the creation of a statewide vision and set of priorities for regional multimodal planning and programming. In short, it has begun to foster multimodalism at a regional level. WSDOT and the RTPOs face the monumental tasks of identifying, preparing, and implementing effective plans to alleviate congestion and inadequate mobility. It remains to be seen how effective WSDOT will be in its attempts to help the regions meet environmental demands and improve the mobility of both passengers and freight in the state’s transportation system.

## **Metropolitan Planning Organizations and Local Involvement in the Transportation Planning Process**

### **The Puget Sound Regional Council: MPO for the Puget Sound Region**

#### ***Regional Overview***

The Puget Sound region includes the counties of King, Kitsap, Pierce, and Snohomish. The region is situated in the central coastal region of the state, approximately 100 miles from the Canadian border. The Puget Sound borders the region to the east and neighboring counties surround the rest of its land area. The Puget Sound region is famous for its numerous alpine areas, wetlands, lakes, and wildlife habitat.<sup>64</sup> The region plays host to more than 6,300 square miles, 3,622,700 people, and more than 60 municipalities. The largest city, Seattle, with more than 500,000 people, is located midway between the cities

of Everett and Tacoma, the respective northern and southern limits of the region. The metropolitan area includes the cities of Bellevue and Bremerton, which lie to the east and west of Seattle.<sup>65</sup>

The region is known as an international center for trade and commerce, waterborne in particular, and is the nation's leader of Pacific Rim trade. The two major ports, Seattle and Tacoma, handle 27 percent of the West Coast's containerized cargo, which represents an increase of 4 percent over a ten-year period (1980-90).<sup>66</sup> Passenger and freight transportation, mobility, connectivity, occupancy, capacity, maintenance, growth management, and enhancement are viewed collectively regarding their impact on the future of the Puget Sound region and the issues surrounding its continued growth.<sup>67</sup>

### ***Transportation Infrastructure***

The Puget Sound region has a multimodal transportation network that consists of the following:

- **Highways:** more than 16,000 miles of roadways, of which 275 are designated by the state DOT HOV lane system (1996).<sup>68</sup>
- **Buses:** More than 2,000 public transit buses serve 90 park-and-ride lots and 27 transit centers (1996)<sup>69</sup> and are provided by five public transit operators: Metro in King County, Pierce Transit in Pierce County, Everett Transit and Community Transit in Snohomish County, and Kitsap Transit in Kitsap County.<sup>70</sup> Greyhound connects the Puget Sound region with other major U.S. cities and Mexico.<sup>71</sup>
- **Marine/ferry:** A transportation fleet of more than 15 automobile and passenger boats links with 13 ferry terminals.<sup>72</sup> Pierce County, a private operator, and the Marine Division of WSDOT provide ferry service across the Puget Sound.<sup>73</sup>
- **Air service:** County, military, and municipal airports provide air service. Seattle-Tacoma (Sea-Tac) Airport, operated by the Port of Seattle, is the largest and only international facility in the area. Sea-Tac includes the following:

**Passenger:** "Over 24 million passengers passed through Sea-Tac in 1996, setting new records for annual passengers and flights."<sup>74</sup> It is served by more than 46 common air carriers, including 12 international carriers. In the continental United States, Sea-Tac is the closest airport to Asia and has more than 30 scheduled flights to Asia each week.<sup>75</sup>

**Freight:** More than 17 cargo carriers serve the airport, which handles in excess of 415,000 kilograms of air freight annually (1996).<sup>76</sup>

- Harbor facilities: The Puget Sound region is serviced by three ports, two of which are major components of the area's cargo trade.

Port of Seattle—a public entity that is the fifth largest container port in the United States. Served by 24 regular lines, it is the top exporter in tonnage to Asia (6.2 million metric tons in 1994). The port manages 28 terminals and a free trade zone with 1,400 acres of marine and air facilities.<sup>77</sup>

The Port of Tacoma—the sixth largest container port in North America, with more than 25 shipping, container, and bulk/breakbulk terminals. It is also home to two intermodal rail yards and is served by 15 ship lines.<sup>78</sup>

The Port of Everett.

- Rail: Burlington Northern Santa Fe Railway and Union Pacific Railroad are the major freight carriers in the region and operate three intermodal rail yards in the area. Amtrak provides passenger service to major U.S. destinations.<sup>79</sup>
- Transit (proposed and planned): The Regional Transit Authority (RTA) was created to propose, plan, and design a public transit system. In November 1996, “Sound Move” a ten-year regional transit system plan was approved for local funding. “Sound Transit” includes plans for implementing a high-speed commuter rail, “Sounder Commuter Rail,” between Everett and Seattle and Tacoma and Lakewood, and includes Link Light Rail for serving urban centers. Regional Express began providing bus service from Lakewood to Tacoma to Seattle in 1997, becoming the first regional transit bus service in the region.<sup>80</sup>
- Bicycle/pedestrian facilities: Seattle Transportation's (SEATRAN's) Bicycle Program is creating a bicycle facility network that will link neighborhoods and activity centers, as well as provide connections with recreational areas within the Puget Sound region. Urban trails include multiuse trails, bike lanes, bike routes, arterials with wide shoulders, and pedestrian paths. Seattle has about 28 miles of bicycle trails and paths, 14 miles of on-street, striped bike lanes, and about 90 miles of signed bike routes.<sup>81</sup> WSDOT is responsible for coordinating the statewide bicycle plan. Each locality responds accordingly.

### ***Organizational Structure***

Selected in 1996 as the country's top metropolitan planning organization (MPO) by the Association of Metropolitan Planning Organizations, “the Puget Sound Regional Council (PSRC) is an association of cities, towns, counties, ports and state agencies.”<sup>82</sup> “The PSRC serves as a forum for developing policies and making decisions about regional growth management, economic and transportation issues in the four-county Puget Sound region.”<sup>83</sup> It is the federally designated MPO for the region and one of 12 state-designated RTPOs.<sup>84</sup> The PSRC was created in 1991, replacing the former MPO after disputes with local jurisdictions and waning membership plagued its efforts. State-



enabling legislation established the RTPO, which functions as the MPO for the Seattle-Tacoma-Everett area.<sup>85</sup> The council is a comprehensive planning agency that supports, but does not duplicate, all state and local activities with data collection, analysis, and information dissemination with the goal of complementing other planning efforts.<sup>86</sup>

The PSRC is led by a General Assembly and an Executive Board. Growth Management and Transportation Policy Boards advise the Executive Board. All member jurisdictions and agencies make up the General Assembly, including 62 cities and towns, three ports, and two state agencies (WSDOT and the State Transportation Commission).<sup>87</sup> The General Assembly meets at least once a year to vote on key Executive Board recommendations.<sup>88</sup> General Assembly members cast 1,150 votes, which are proportionally weighted by population. The 26-member Executive Board, appointed by the General Assembly and chaired by the PSRC president, meets monthly to delegate powers and duties between meetings of the General Assembly. Although it is stipulated that half of the members of the Executive Board must also be board members of local transit agencies, there is no direct transit agency representation that sits on the board.<sup>89</sup>

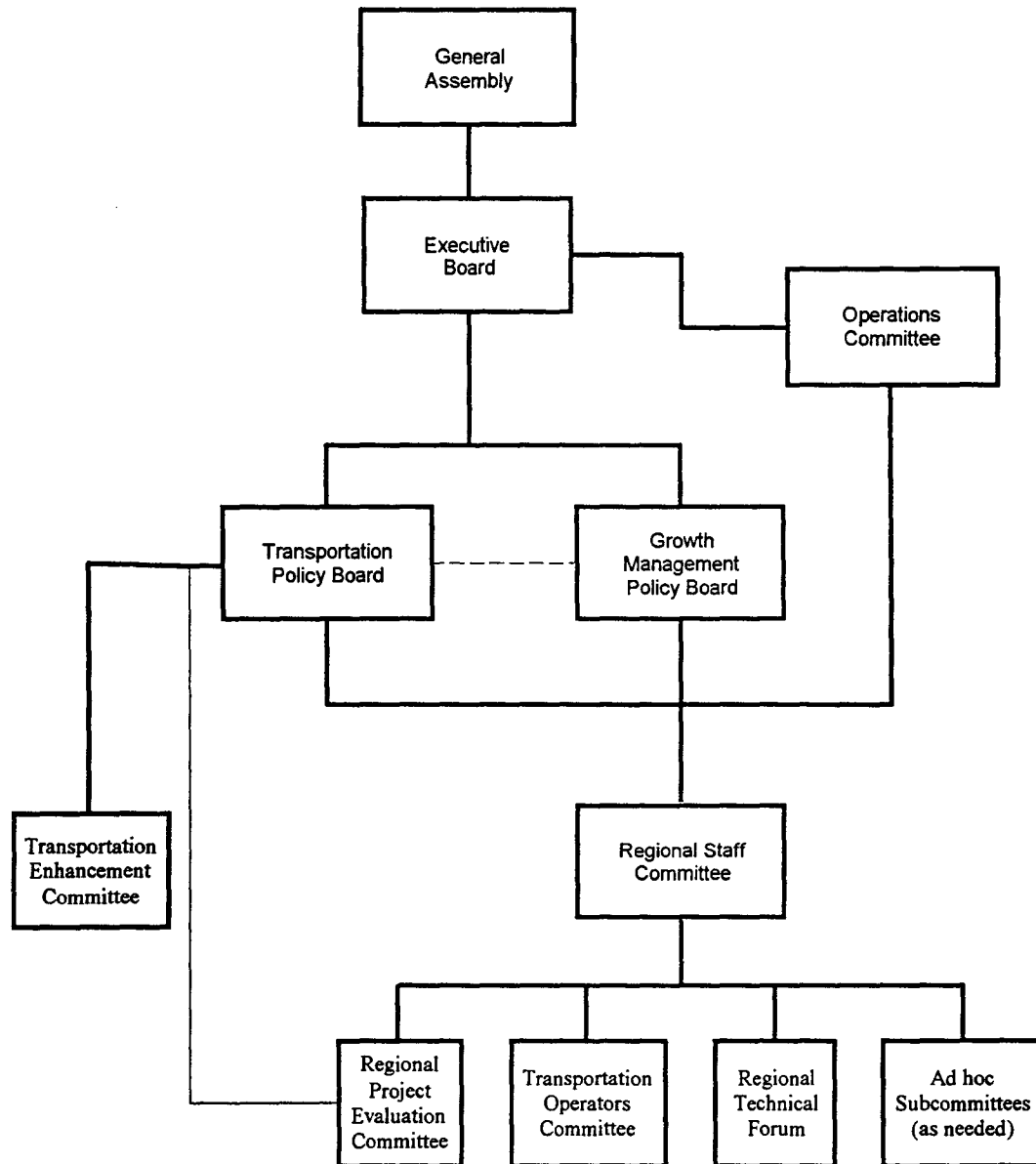
### ***Budget***

For FY 1998, PSRC's budget is approximately \$6.4 million. Eighty percent of all revenue is derived from federal and state grants with the remainder coming from dues paid by the council members and from local sources. These funds support a work program staffed by 50 full-time-equivalent staff.<sup>90</sup> Current maintenance and preservation costs, an MPO responsibility, are projected at \$1.5 billion annually, and future expansion is estimated at \$21.4 billion.<sup>91</sup>

### ***Staffing for Transportation***

"Project Team" is the name of the actual full-time staff organization for the PSRC. It includes an executive director, four department directors, and two project managers. The four focus areas of the agency are transportation planning, growth management planning, research and forecasting, and administrative services. The two project managers oversee the Growth Management Department and the Transportation Planning Department (see figure 8.2).<sup>92</sup>

**Figure 8.2**  
**Organizational Structure**  
**Puget Sound Regional Council**



Source: Adapted from Puget Sound Regional Council, "Vision 2020: 1995 Update," Seattle, Wash., May 1995.

### ***Other Agencies/Organizations Involved in Transportation***

The PSRC has included four associate members in its General Assembly. They are neighboring Island County, the Port of Bremerton, Thurston Regional Planning Council, and the Puyallup Tribe of Indians.<sup>93</sup>

“In seeking to build an inclusive institutional framework for the planning process, PSRC actively pursues partnerships with public agencies and private organizations that have an interest in transportation decision-making.”<sup>94</sup> The Transportation Policy Board and the Growth Management Policy Board include members of regional business, labor, civic, and environmental groups. WSDOT’s Office of Urban Mobility is the primary link between state and local governments; frequent interaction between the two agencies allows for coordinated state-level programming for the metropolitan regions.<sup>95</sup>

The PSRC is advised by three committees and a recently configured regional technical forum to aid in planning and the provision of technical support.<sup>96</sup>

- Regional Staff Committee—public works directors, senior planners, pollution agencies and members of the council meet to advise on the budget, work program, and major activities.
- Regional Project Evaluation Committee—33 public works directors from the region, and representatives of the local transit agencies, the Governor’s Office, and WSDOT meet monthly to make recommendations on projects for federal funding and related transportation concerns.
- Transportation Operations Committee—public-transit agencies from each county, the RTA, WSDOT’s Ferry Planning Office, Urban Mobility Office, and Transportation’s Rail Division meet to advise and plan transit specific agenda.
- Regional Technical Forum—all technical staff from all agencies are welcome to attend meetings. The forum includes four working groups of geographic information systems, performance monitoring, demographics and economic data, and travel demand modeling that meet regularly to share information.<sup>97</sup>

### ***Issues, Policies, and Goals***

The mission of the PSRC is “to preserve and enhance the quality of life in the Central Puget Sound area” by preparing, adopting, and maintaining goals, standards, and regional transportation and growth management policies in accordance with federal and state guidelines.<sup>98</sup> Some of the functions that accomplish these goals are

- fulfilling all state and federal mandates regarding transportation planning and programming;
- developing and maintaining a regional database and forecasting and evaluating demographic, economic, and travel conditions;

- providing technical support to local, state, and federal governments; business; and community organizations; and
- providing a forum to discuss regional issues.<sup>99</sup>

Several factors condition the approach that the PSRC takes when planning its present and future transportation needs. Like many metropolitan areas, the Puget Sound is facing substantial growth in population, trade, and employment. All these factors contribute greatly to congestion, transportation-system wear, and breakdown. They highlight the growing need for enhancements, improved connectivity, and greater vision. In addition to witnessing an increase in vehicle miles traveled (VMT) at a greater rate than the rest of the state, the Puget Sound's dependence on freight has been a huge catalyst in the consideration of future needs and concerns.<sup>100</sup> For example, the region's proximity to Canada brings to light a need for expedient border crossings in order for international commerce to continue to grow.<sup>101</sup> Additionally, the Ports of Seattle and Tacoma, together, constitute the nation's second largest center for containerized cargo.<sup>102</sup> PSRC's long-range plan calls for "locating development in urban growth areas so services can be provided efficiently, and farmlands, forests and other natural resources are conserved."<sup>103</sup> Within the region, it is PSRC's policy to create four distinctions regarding planning and design and eventually funding and programming. They are urban centers, urban transportation corridors, compact communities, and rural areas.<sup>104</sup> This policy is a dramatic demonstration of compliance with federal regulations and meeting the needs of the community and the state's Growth Management Act.

### ***Transportation Plans and Reports***

"Vision 2020" (federally defined Long-Range Transportation Plan or LRTP) is the "long-range growth management, economic and transportation strategy for the Central Puget Sound region."<sup>105</sup> It is the integrated plan for the entire region, addressing strategy, funding, and policy that cannot be adequately addressed by individual jurisdictions. The LRTP is updated every five years. This document's guiding principle is to concentrate growth in urban areas in order to conserve space, nature, farmlands, and forests.

"The Metropolitan Transportation Plan" (MTP) is a fully detailed, long-range plan for transportation investments in the region. The MTP builds on "Vision 2020" by addressing both legislative mandates and pressing regional matters. It is updated every three years and represents the first step in an ongoing regional planning and implementation process. It identifies action and programs in seven component areas, specific capital projects, and the criteria on which capital projects are based for inclusion. The seven component areas are

- maintenance and preservation,
- transportation system management,
- nonmotorized transportation,

- infrastructure investments and service improvements,
- ferry infrastructure and service,
- freight and goods mobility, and
- aviation program.<sup>106</sup>

The Transportation Improvement Program (TIP)—the federally required funding and programming document that provides a framework for prioritization and selection of projects funded through MPO programs. The PSRC further delineates its programming into three categories: large-scale regional projects, countywide projects, and FTA-funded projects.<sup>107</sup>

“Annual Budget and Work Program: Fiscal Year 1998,” (a federally defined unified planning work program)—this document lists all the current work programs currently taking place. Work elements are organized into three program areas: regional planning and implementation, data services, and administrative services. It includes funding mechanisms, budget summary and analysis, staffing requirements, level of progress, and policy direction. It is essentially the up-to-date union of the TIP, the MTP, and the LRTP.

The PSRC, with the assistance of several consulting teams, produces in excess of 50 documents, plans, studies, and technical reports each year. Because of its lead role in MPO innovation, it also produces conference papers and panel studies. A complete list of its publications is available on-line from its Internet web site library.

A sampling of 1997 reports include:

- The Cost of Transportation,
- Regional Six-Year Action Strategy,
- Urban Center Incremental Development Study (UCIDS),
- Regional Industrial Lands Strategy,
- Analysis of Freight Movement in the Puget Sound,
- Puget Sound Transportation Panel Survey: 1989-1996, and,
- Park and Ride Inventory.

### ***Transportation Funding and Programs***

The PSRC is responsible for programming state transportation plan funds distributed through a formula to the Seattle-Tacoma-Everett metropolitan area; Congestion Mitigation and Air Quality funds and FTA Section 3 and Section 9 funds are also included

in the funding.<sup>108</sup> The ISTEA is fully enforced by the council, and implementation and planning are enacted according to its guidelines.

Sources of funds are as follows:

- 38 percent local: 14 percent sales tax, 9 percent city general funds, 7 percent county roads levy, 2 percent vehicle license, and 6 percent other;
- 34 percent state: 17 percent fuel tax, 12 percent MVET, 3 percent vehicle fees, and 2 percent other;
- 19 percent federal: 17 percent FHWA, 2 percent transit/other; and
- 9 percent operations.

Funds are distributed as follows:

- 29 percent for public transit,
- 24 percent for highways,
- 20 percent for city streets,
- 19 percent for county roads, and
- 8 percent for ferries.<sup>109</sup>

### ***Exemplary Practices in Multimodal/Intermodal Transportation***

#### ***Organizational Structure and Integrated Planning***

The entire planning process of the PSRC is integrated and intermodal. Planning programs, as described above, both in the structure of the organization and in the policy framework that guides them, are intermodal and multimodal. There are no staff members who are focused specifically on mode design or implementation but, rather, only those who work in teams to develop fully connected regional and corridor impact plans and land-use planning.<sup>110</sup> The teams are Growth Management, Transportation Planning, and Research and Forecasting—each working together to formulate intermodal initiatives. Decisions that are made and the organization within which they are made adhere to the belief that accommodating growth and developing new transportation and the economy are inextricably linked.<sup>111</sup>

#### ***Creative Public/Private Involvement***

The PSRC makes numerous efforts to involve area agencies, businesses, and political entities in the planning process. Because of the unique regional scope of planning, the

principal forum for this coordination is PSRC's Transportation Operators Technical Committee.<sup>112</sup>

The Ports of Seattle and Tacoma are vital to the area's economy. Responding to ISTEA requirements, the PSRC has initiated a Freight Mobility Roundtable, consisting of representatives of the railroads, ports, motor carriers, air freight companies, and shippers. The roundtable works together on the development of freight-mobility strategy throughout the region.<sup>113</sup> Such specific efforts to integrate public and private concerns are now incorporated into the MTP.<sup>114</sup>

Other agencies are involved in efforts to redefine the modal elements of the MTP. They are the Regional Nonmotorized Technical Group, local transit agencies, and the Regional Project Evaluation Committee. The Regional Industrial Lands Strategy includes realtors, economic development councils, and specific jurisdictions in its efforts. Also, the PSRC is working to develop a Regional Greenspace Database with the help of cities, counties, nonprofit interest groups, and land trusts in the area. Lastly, the Air Transportation Capacity Needs includes an expert arbitration panel, Sea-Tac, other local businesses, and freight interests.<sup>115</sup>

The public-involvement process with the PSRC has been successful in most respects and has generated no broad complaints.<sup>116</sup> PSRC's Public Participation Plan provides policy guidelines for notification, outreach, and participation. The major elements are

- meetings—open to the public with notification ten days before assembly;
- publications—includes regularly released newsletters, news releases, and appropriately timed pamphlets; and
- requirements—state and federally mandated public information guidelines.<sup>117</sup>

The PSRC includes in its bylaws “a broad range of public information and participation opportunities, including dissemination of proposals and alternatives.” The PSRC is very proactive with regard to public participation.<sup>118</sup>

“Vision 2020” awards began in 1996 as an incentive program to help the region encourage intermodal planning, design, and implementation. Winners are selected from among different jurisdictions in their efforts to develop comprehensive plans, create redevelopment and development projects that fit the PSRC vision, and increase open space and transit connectivity. The awards are presented at the annual General Assembly meeting in an effort to demonstrate continued work toward all regional goals through individual local efforts.<sup>119</sup>

The PSRC also conducts public workshops throughout the year to assist both agencies and jurisdictions in the federal funding application process, to share data management information and forecasting, and to provide assistance on transportation implementation.

These help sessions are unique and add strength to the PSRC's public-involvement process.<sup>120</sup>

The PSRC maintains a web site that provides up-to-date information regarding plans, policies, membership, library resources, and an electronic newsletter.<sup>121</sup>

### *Innovative Intermodal Projects*

#### **FAST-Corridor**

To ease congestion, the PSRC coordinates with WSDOT to develop, phase, and finance improvements to port access, rail-grade separations, and designated freight roadways. This program is called the Freight Action Strategy for the Seattle-Tacoma Corridor (FAST-Corridor).<sup>122</sup> The program develops a freight and goods database and helps identify options and issues regarding freight movement in the area. It is included in the MTP. It is both innovative and intermodal, involving all levels of governmental transportation planning and has had early and constant private- and public-sector participation.<sup>123</sup>

#### **Congestion Management System (CMS)**

The PSRC was designated as one of four test cases by the U.S. Department of Transportation for examining the integration of the CMS with the Intelligent Transportation System (ITS) program. The PSRC had a two-phase approach. The first included data collection of capacity and volumes for HOV lanes, National Highway System routes, auto-ferry routes, and major transit routes over national highways. The second phase involves the evaluation of travel time as the main performance measure. The CMS includes the Transportation Demand Management (TDM) program and the Transportation Systems Management (TSM) strategies.<sup>124</sup> The CMS is essentially a process that provides information on transportation system performance and alternative methods to alleviate congestion and enhance the movement of persons and goods.<sup>125</sup> The data analyses and information management that take place through these efforts are shared throughout the region and are instrumental in the decisionmaking processes of intermodal transportation initiatives.<sup>126</sup> A related project, which also involves WSDOT, is the development of the Public Transportation Management System (PTMS) and Intermodal Management System (IMS) to fully coordinate all databases.<sup>127</sup>

Examples of the use of the CMS and TDM program are the Overlake FlexPass Demonstration Project and the EZ Rider Regional Multimodal Customer Information System.<sup>128</sup>

#### **Transportation Enhancements Program**

The Transportation Enhancements Program provides funding for ten types of work projects, including bike-transit connections, historic preservation, provision of facilities for pedestrians, acquisition of scenic easements, and other nonmotorized intermodal planning. Tribal nations throughout the region have been successfully incorporated in the process



and have received enhancement funds.<sup>129</sup> An excellent example of one of this program's projects is the Interurban Trail—a regional trail that connects residential areas to park-and-ride lots, transit stations, shopping areas, and other centers.<sup>130</sup>

Several other intermodal projects support transit and pedestrian-oriented land patterns. Sinclair Landing and the Bremerton Transportation Center is a new mixed-use project that is composed of residential facilities, community improvements, office space, and the new multimodal transportation center at the Bremerton ferry terminal. Pierce Transit is building a new facility, the Tacoma Dome Intermodal Station, that connects regional bus service and local transit with the urban centers of Seattle, Tacoma, and Olympia. Plans include a park-and-ride lot and a connection for all commuter rail, intercity rail, and regional rapid rail.<sup>131</sup>

### ***Multimodal/Intermodal Performance Measures***

The PSRC has developed a monitoring system that tracks the progress of meeting the objectives of "Vision 2020." There are both implementation and performance monitoring components, as well as a program for evaluating the performance of the entire transportation system.

The Congestion Management System is a systemic process that provides information regarding travel patterns and alternative strategies. The PSRC provides pertinent data to many interested parties regarding traffic flow, capacity, and freight mobility.<sup>132</sup>

In addition to the regionwide CMS, the Puget Sound has incorporated other interesting performance measures into a number of its plans and monitoring systems. The Freight Mobility Roundtable included a "reliability" element in its planning and evaluating process, and this component became the most important indicator when the users of the system became part of the planning process.<sup>133</sup> "The Council reviews local, countywide, transit agency, and state transportation plans and policies . . . for consistency with *Vision 2020* and the Metropolitan Transportation Plan." If entities do not meet the criteria of the review process, then they will not qualify for TIP funding.<sup>134</sup>

### ***Multimodal/Intermodal Planning Processes***

In addition to the above-mentioned coordination of planning, stipulated in the PSRC's "Adopted Policy and Plan Review Process," the PSRC has an extremely integrated approach to planning, implementation, and monitoring. All systems are studied and improved according to the concept of "centers," and numerous guidelines and interactive planning methods have been produced by the PSRC to aid in the integrated planning process.<sup>135</sup> The PSRC's strengths in the planning process include overall energy conservation monitoring, consistent land-use impact measures, and enhanced movement of freight. Everything that is done in the region is considered systemically, as a multimodal endeavor designed to include intermodal capabilities.

Both the RTA plan and the MTP are coordinated to include phased expenditure and system implementation. In addition, the PSRC coordinates a Regional Industrial Lands Strategy, a Regional Greenspace Data Base, Air Transportation Capacity Needs studies, the CMS, the statewide IMS and PTMS, and the region's TDM program all to address the region's transportation issues in a timely, coordinated, and fully informed manner.

In addition to planning coordination, the planning process itself is unique. The PSRC divides all planning areas into three centers: urban centers, town centers and manufacturing/industrial centers. Urban centers are further divided into regional centers, metropolitan centers, and urban centers. Each area is defined by its density and socioeconomic characteristics, and transportation issues are addressed according to the particular needs of the center. This planning process provides for a fully intermodal and multimodal approach to transportation policy and design at the most fundamental level.<sup>136</sup>

The PSRC also produces "A Primer for Policymakers: Integrated Transportation Planning" (ITP). It is a combination of least-cost planning and integrated resource planning methods, tailored to the specific concerns of transportation planning, policy, and implementation. The ITP is a "method of analyzing investment strategies" and was developed to provide the best approach for low-cost planning.<sup>137</sup>

### *Innovative Funding*

Like most regions, Puget Sound anticipates drastic shortfalls in future funding for transportation improvements. Potential new revenue sources include regional parking taxes and motor vehicle license charges, the increase in the percentage of motor fuel tax allocated to the area, an increase in vehicle-related user fees, and inflation adjustment of the motor fuel tax. Many of these measures involve new legislation, and the PSRC is heavily involved in lobbying for state action.<sup>138</sup> While the Puget Sound faces the universal funding dilemma that need far exceeds ability, the region has done remarkable work regarding the evaluation of transportation costs. In a study titled "The Costs of Transportation," the PSRC has compiled data on the opportunity costs, indirect and direct costs, and the public contribution to cost associated with all surface transportation in the region. This far-reaching study will better enable the region to understand its needs and shortfalls and incorporate these issues into its overall transportation plan.<sup>139</sup>

In the 1994-96 TIP, 59 percent of regionally allocated funds were dedicated to intermodal and transit projects.<sup>140</sup> Innovative transportation pricing measures are included in the TIP process, and various innovative regional pricing measures have been proposed to increase revenue for the region. Although the region generates more than 56 percent of state transportation taxes, it receives only 53 percent in allocations. This loss represents an approximately \$60 million annually.<sup>141</sup>

### *Innovative Legislation*

In addition to the aforementioned GMA passed by the state and the funding proposals currently being lobbied by the PSRC, there are several other state mandates that have led

to improved transportation concerns. The Transportation Demand Management and Commute Trip Reduction laws enacted by the state are aiding local planning and the promotion of intermodal designing, as is the High Capacity Transit Act.<sup>142</sup> The High Capacity Transit Act was finally passed in 1996, and the region approved a tax increase that would fund a high-capacity regional transit system, allowing the RTA to move from a planning organization to one that implements the region's new transit system.<sup>143</sup>

## Notes

- <sup>1</sup> U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States: 1995* (Washington, D.C., 1995), pp. 28-29.
- <sup>2</sup> *Information Please Almanac, Atlas, and Yearbook* (New York: Houghton Mifflin Company, 1996), p. 779.
- <sup>3</sup> *The World Almanac and Book of Facts* (New York: Newspaper Enterprise Association, 1993), p. 645.
- <sup>4</sup> *Ibid.*, p. 645.
- <sup>5</sup> *Information Please Almanac Atlas and Yearbook*, p. 780.
- <sup>6</sup> Washington State Department of Transportation (WSDOT), *Key Facts: A Summary of Useful Transportation Information* (Olympia, Wash., July 1996), p. 24.
- <sup>7</sup> Telephone interview by Brandi Stewart with Jim Jackson, State Rail Program Technical Expert, Public Transportation and Rail Division, Washington State Department of Transportation, Olympia, Washington, November 13, 1996.
- <sup>8</sup> WSDOT, *Washington's Transportation Plan 1997-2016* (Olympia, Wash., April 1996), p. 61.
- <sup>9</sup> *Ibid.*, p. 75.
- <sup>10</sup> Memorandum from Renee Nubgaard, Rail Planning and Policy Analyst, WSDOT, to Brandi Stewart, Lyndon B. Johnson School of Public Affairs, The University of Texas at Austin, April 10, 1997.
- <sup>11</sup> WSDOT, *Key Facts: A Summary of Useful Transportation Information* (1996), p. 31.
- <sup>12</sup> WSDOT, *Washington's Transportation Plan 1997-2016*, p. 43.
- <sup>13</sup> Telephone interview by Katharine Petrucione with Gregory Selstead, Systems Planning Branch Manager, Washington State Department of Transportation, Olympia, Washington, January 31, 1998.
- <sup>14</sup> U.S. Bureau of the Census, *1980 Census of Population and Housing, Population and Housing Unit Counts* [cited January 29, 1998], available from: <http://www.lib.virginia.edu/ssdcbin/ccdbbin/statesort.cgi>; INTERNET.

<sup>15</sup> Ibid.

<sup>16</sup> WSDOT, "Transportation Planning in Washington," WSDOT web site (Olympia, Wash. [cited November 13, 1997]), available from: <http://www.wsdot.wa.gov/ppsc/planning/whyrwe.html>; INTERNET.

<sup>17</sup> Selstead interview.

<sup>18</sup> WSDOT, *Key Facts: A Summary of Useful Transportation Information* (1996), pp. 2-3.

<sup>19</sup> WSDOT, *Key Facts: A Summary of Useful Transportation Information* (Olympia, Wash., January 1998), p. 40.

<sup>20</sup> WSDOT, "Environmental Affairs Office," WSDOT web site (Olympia, Wash. [cited January 28, 1998]), available from: <http://www.wsdot.wa.gov/eesc/environmental>; INTERNET.

<sup>21</sup> WSDOT, *Key Facts: A Summary of Useful Transportation Information* (1998), p. 9.

<sup>22</sup> WSDOT, "General Information, Aviation Division Frequently Asked Questions," WSDOT web site (Olympia, Wash. [cited January 28, 1998]), available from: <http://www.wsdot.wa.gov/aviation/general-info/faq.html>; INTERNET.

<sup>23</sup> WSDOT, "WSDOT Planning Office Staff," WSDOT web site (Olympia, Wash. [cited January 29, 1998]), available from: <http://www.wsdot.wa.gov/ppsc/planning/staff.html>; INTERNET.

<sup>24</sup> WSDOT, *Key Facts: A Summary of Useful Transportation Information* (1998), p. 8.

<sup>25</sup> WSDOT, *Washington's Transportation Plan, 1997-2016*, p. 30.

<sup>26</sup> Washington Public Ports Association (WPPA) and WSDOT, *1991 Washington Ports and Transportation Systems Study: Final Report*, prepared by BST Associates (Olympia, Wash, 1991), p. 2.

<sup>27</sup> WSDOT, *Washington's Transportation Plan, 1997-2016*, pp. 1-9.

<sup>28</sup> WSDOT, *Transportation Policy Plan for Washington State: 1995 Report to the Legislature* (Olympia, Wash., 1995), p. 1.

<sup>29</sup> WSDOT, *Public Transportation and Intercity Rail Passenger Plan for Washington State* (Olympia, Wash., 1997), p. v.

<sup>30</sup> WSDOT, *Washington's Transportation Plan 1997-2016*, p. xvi.

<sup>31</sup> William Gillis, *Eastern Washington Intermodal Transportation Study* (Ritzville, Wash.: Community OPTIONS, 1993), pp. 1-4.

<sup>32</sup> WSDOT, *Transportation Policy Plan for Washington State*, p. 1.

<sup>33</sup> *Ibid.*, p. 45.

<sup>34</sup> *Ibid.*, p. 47.

<sup>35</sup> WSDOT, *U.S. 101 Corridor Master Plan* (Olympia, Wash., 1997), p. S-1.

<sup>36</sup> *Ibid.*, p. S-2.

<sup>37</sup> *Ibid.*, p. S-11.

<sup>38</sup> *Ibid.*, p. S-2.

<sup>39</sup> WSDOT, *Freight Rail Plan, 1991 Update* (Olympia, Wash., 1991).

<sup>40</sup> WSDOT, *Freight Rail Plan, 1993 Amendment* (Olympia, Wash., 1993).

<sup>41</sup> Washington State Freight Rail Policy Development Committee, *Final Report* (Olympia, Wash., 1995), pp. iv-vi.

<sup>42</sup> Gannett Fleming, *High Speed Ground Transportation Study, Executive Report* (Olympia, Wash., October 1992), pp. 5-12.

<sup>43</sup> WPPA and WSDOT, *1991 Washington Ports and Transportation Systems Study: Final Report*.

<sup>44</sup> WSDOT, *Key Facts: A Summary of Useful Transportation Information* (1998), p. 40.

<sup>45</sup> *Ibid.*, p. 26.

<sup>46</sup> *Ibid.*

<sup>47</sup> *Ibid.*, p. 24.

<sup>48</sup> Ibid., p. 26.

<sup>49</sup> Ibid., p. 29.

<sup>50</sup> Ibid., p. 32.

<sup>51</sup> Ibid., p. 40.

<sup>52</sup> Ibid.

<sup>53</sup> Nubgaard memorandum.

<sup>54</sup> WSDOT, *Key Facts: A Summary of Useful Transportation Information* (1998), p. 40.

<sup>55</sup> WSDOT, "Interesting Facts About Washington State Ferries," WSDOT web site (Olympia, Wash. [cited November 13, 1997]), available from: <http://www.wsdot.wa.gov/ferries/about-wsf/.html>; INTERNET.

<sup>56</sup> WSDOT, *Key Facts: A Summary of Useful Transportation Information* (1998), p. 40.

<sup>57</sup> Ibid.

<sup>58</sup> Selstead interview.

<sup>59</sup> WSDOT, *Preliminary Statewide Multimodal Transportation Plan 1994* (Olympia, Wash., December 1994), pp. 71-75.

<sup>60</sup> Selstead interview.

<sup>61</sup> WSDOT, *Washington's Transportation Future: WTP Process Improvement Team Final Report* (Olympia, Wash., 1997).

<sup>62</sup> Selstead interview.

<sup>63</sup> WSDOT, "Welcome to the SR-519 Intermodal Access Project Information Page," WSDOT web site [cited January 25, 1998]), available from: <http://www.wsdot.wa.govregions/northwest/km/km.html>; INTERNET.

<sup>64</sup> Puget Sound Regional Council (PSRC), "ISTEA AT WORK: Implementing Regional Transportation

Improvements in the Central Puget Sound Region, Program Highlights 1992-1998," Seattle, Wash., November 1996, p. 5.

<sup>65</sup> Seattle Public Access Network: PAN-Seattle, "PAN-Seattle: Seattle Quick Facts-Location & Demographics," Seattle Public Access Network web site (Seattle, Wash. [cited January 28, 1998]), available from: <http://www.ci.seattle.wa.us/oir/qflocdem.html>; INTERNET; and Federal Transit Administration (FTA), U.S. Department of Transportation, "Enhanced Planning Review of the Transportation Planning Process in the Seattle-Tacoma-Everett Metropolitan Area: May 1996," FTA web site [cited December 15, 1997], available from: <http://www.fta.dot.gov/fta/library/planning/plnrpt/Sea-htm.html>, p. 8; INTERNET.

<sup>66</sup> PSRC, "1995: Metropolitan Transportation Plan," Seattle, Wash., May 1995, p. 12.

<sup>67</sup> PSRC, "ISTEA AT WORK," p. 5.

<sup>68</sup> FTA, "Enhanced Planning Review," p. 9.

<sup>69</sup> PSRC, "ISTEA AT WORK," p. 5.

<sup>70</sup> FTA, "Enhanced Planning Review," p. 9.

<sup>71</sup> Seattle Public Access Network: Pan Seattle, "PAN-Seattle: Seattle Quick Facts—Transportation & Communication," Seattle Public Access Network web site (Seattle, Wash. [cited January 28, 1998]), available from: <http://www.ci.seattle.wa.us/oir/qftran.htm>; INTERNET.

<sup>72</sup> PSRC, "ISTEA AT WORK," p. 5.

<sup>73</sup> FTA, "Enhanced Planning Review," p. 9.

<sup>74</sup> Port of Seattle, "Sea-Tac Overview: Operational Facts," Port of Seattle web site (Seattle, Wash. [cited December 14, 1997]), available from: <http://www.portseattle.org/seatac/overview/opfacts.html>; INTERNET.

<sup>75</sup> Seattle Public Access Network, "PAN-Seattle: Seattle Quick Facts—Transportation & Communication."

<sup>76</sup> Ibid.

<sup>77</sup> Ibid.



<sup>78</sup> Port of Tacoma, "Port of Tacoma: Overview, Facilities, and Services Summary," Port of Tacoma web site (Tacoma, Wash. [cited January 31, 1998]), available from: <http://www.portoftacoma.com>; INTERNET.

<sup>79</sup> Seattle Public Access Network, "PAN-Seattle: Seattle Quick Facts—Transportation & Communication."

<sup>80</sup> Sound Move, "Sound Move: A Rapid Transit System for the Puget Sound Region," WSDOT web site [cited November 11, 1997], available from: <http://www.wsdot.wa.gov/CPSRTA/sndmove1.html>; INTERNET.

<sup>81</sup> Seattle Public Access Network, "Welcome to Seattle Transportation's Bicycle Program!" Seattle Public Access Network web site (Seattle, Wash. [cited February 2, 1998]), available from: <http://www.ci.seattle.wa.us/seattle/td/bikeprog/bike.html>; INTERNET.

<sup>82</sup> PSRC, "Your Regional Council: The 1996 Annual Report of the PSRC," Seattle, Wash., 1997, p. 3.

<sup>83</sup> Ibid., p. 1.

<sup>84</sup> PSRC, "About the Puget Sound Regional Council," PSRC web site [cited December 15, 1997], available from: <http://www.psrc.org/theprsrc.html>; INTERNET.

<sup>85</sup> FTA, "Enhanced Planning Review," p. 8.

<sup>86</sup> PSRC, "About the Puget Sound Regional Council."

<sup>87</sup> PSRC, "Your Regional Council," p. 33.

<sup>88</sup> PSRC, "About the Puget Sound Regional Council," pp. 2-3.

<sup>89</sup> FTA, "Enhanced Planning Review," p. 11.

<sup>90</sup> PSRC, "About the Puget Sound Regional Council," p. 3.

<sup>91</sup> FTA, "Enhanced Planning Review," p. 16.

<sup>92</sup> PSRC, "Vision 2020: 1995 Update," Seattle, Wash., May 1995, p. 92.

<sup>93</sup> PSRC, "Your Regional Council."

<sup>94</sup> FTA, "Enhanced Planning Review," p. 10.

<sup>95</sup> Ibid., pp. 10-11.

<sup>96</sup> PSRC, "Annual Budget and Work Program: Fiscal Year 1998 (July 1997-June 1998) Revised," Seattle, Wash., September 1997, p. A-1

<sup>97</sup> PSRC, "Your Regional Council," p. 29.

<sup>98</sup> PSRC, "About the Puget Sound Regional Council."

<sup>99</sup> Ibid., p. 2.

<sup>100</sup> PSRC, "1995: Metropolitan Transportation Plan," May 1995, pp. 7-16

<sup>101</sup> FTA, "Enhanced Planning Review," p. 24.

<sup>102</sup> Ibid.

<sup>103</sup> PSRC, "Vision 2020: 1995 Update," p. 1.

<sup>104</sup> Ibid., p. 90.

<sup>105</sup> Ibid., p. 1.

<sup>106</sup> FTA, "Enhanced Planning Review," pp. 12-13.

<sup>107</sup> Ibid., p. 14.

<sup>108</sup> Ibid.

<sup>109</sup> PSRC, "1995: Metropolitan Transportation Plan," p. 17.

<sup>110</sup> PSRC, "Vision 2020: 1995 Update," inside front cover.

<sup>111</sup> Ibid., p. 1.

<sup>112</sup> FTA, "Enhanced Planning Review," p. 23.

<sup>113</sup> Ibid., p. 24.

<sup>114</sup> PSRC, "1998 Refinement of the Metropolitan Transportation Plan: Regional Freight and Goods Mobility Component," Seattle, Wash., May 1997, p. 2.

<sup>115</sup> PSRC, "Your Regional Council," p. 17.

<sup>116</sup> FTA, "Enhanced Planning Review," p. 26.

<sup>117</sup> PSRC, "Public Participation Plan for the Puget Sound Regional Council," Seattle, Wash., May 1994.

<sup>118</sup> Ibid., p. 1.

<sup>119</sup> PSRC, "Your Regional Council," pp. 22-23.

<sup>120</sup> Ibid., pp. 26-27.

<sup>121</sup> PSRC, "About the Puget Sound Regional Council."

<sup>122</sup> PSRC, "Your Regional Council," p. 11.

<sup>123</sup> National Research Council, *National Conference on Intermodalism: Making the Case, Making it Happen* (New Orleans, La., December 1994), p. 111.

<sup>124</sup> FTA, "Enhanced Planning Review," p. 18.

<sup>125</sup> PSRC, "C.M.S. Development Program: Case Study Report," Seattle, Wash., November, 1996, p. 1.

<sup>126</sup> PSRC, "Your Regional Council," p. 20.

<sup>127</sup> FTA, "Enhanced Planning Review," p. 18.

<sup>128</sup> PSRC, "ISTEA AT WORK," p. 14.

<sup>129</sup> Ibid., pp. 10-11.

<sup>130</sup> Ibid., p. 12.

<sup>131</sup> Ibid., p. 16.

<sup>132</sup> PSRC, "C.M.S. Development Program," p. 1.

<sup>133</sup> National Research Council, *National Conference on Intermodalism*, p. 97.

<sup>134</sup> PSRC, "Your Regional Council," p. 20

<sup>135</sup> Ibid., pp. 14-15.

<sup>136</sup> PSRC, "Vision 2020: 1995 Update," p. 19.

<sup>137</sup> PSRC, "A Primer for Policymakers: Integrated Transportation Planning," Seattle, Wash., June 1995, p. 1.

<sup>138</sup> FTA, "Enhanced Planning Review," p. 17.

<sup>139</sup> PSRC with The Underhill Company, "The Costs of Transportation: Expenditures of Surface Transportation in the Central Puget Sound Region for 1995," Seattle, Wash., October 10, 1996.

<sup>140</sup> PSRC, "1995: Metropolitan Transportation Plan," p. 15.

<sup>141</sup> Ibid., p. 106.

<sup>142</sup> PSRC, "About the Puget Sound Regional Council," p. 2.

<sup>143</sup> PSRC, "Annual Budget and Work Program: Fiscal Year 1998 (July 1997-June 1998) Revised," p. 6.

## **Chapter 9. Wisconsin**

### **Overview**

Wisconsin is the 18<sup>th</sup> most populous state in the nation, with an estimated population of 5,082,000 (1994). The state has a population density of 93.6 people per square mile, the 24<sup>th</sup> highest in the nation.<sup>1</sup> The major metropolitan areas are Milwaukee, Madison, Green Bay, and Racine.

Wisconsin ranks 26<sup>th</sup> in the nation in total area, with 56,153 square miles. In the southeast, its topography consists of three broad parallel limestone ridges that run north to south, separated by wide and shallow lowlands. In the state's southwest lies the Western Upland. Finally, the narrow Lake Superior lowland plain is met by the Northern Highland, which slopes gently to the sandy crescent central plain.

The principal industries of the Wisconsin economy are manufacturing, trade, services, government, transportation, communications, agriculture, and tourism. Chief agricultural crops of the state are corn, beans, beets, peas, hay, oats, cabbage, and cranberries. Its primary manufactured goods consist of machinery, foods, fabricated metals, transportation equipment, and paper and wood products.<sup>2</sup>

### **Transportation Infrastructure**

Wisconsin has a multimodal transportation network that includes

- 12,000 miles of state and interstate highways (1995);
- 4,200 miles of rail and 11 rail carriers (1995);
- 53 public bus and shared-ride taxi systems (1995);
- 17 major ports, with five designated as gateway ports (1995);
- 13 airports that provide commercial passenger service and 104 public-access airports (1995),<sup>3</sup> and,
- Amtrak passenger rail service to seven communities (1997).<sup>4</sup>

### **State Issues, Policies, and Goals**

Wisconsin has four major issues propelling its transportation planning: economic development and trade, growth, mobility, and the environment. National and international

transportation links to markets are vital to the health of the state's manufacturing and agriculture industries. A strong transportation network is seen as a driving force behind job creation and economic development.<sup>5</sup>

Transportation demand has grown steadily in Wisconsin since 1970. Both freight rail and highway networks are heavily used, with highways at or near capacity and rail traffic growing. In the period 1970-90, personal motor vehicle travel increased 61 percent and is expected to increase another 34 percent from 1995 to 2020, while the population is expected to increase 13 percent. During the same period, commodity shipments are expected to increase 58 percent, and trucking shipments are expected to increase 50 percent. This growth has begun to strain the state's highway system, overloading it in some urban corridors. More than half of the state's population growth is expected to occur in five urban counties. In Milwaukee, the highway system is particularly overloaded. Built around 1960, it is antiquated and insufficient to carry adequately the loads it handles today.<sup>6</sup>

Wisconsin is also seeking methods to increase the mobility for its people and products and providing choices among modes of transportation. This broad emphasis includes improving highway access across the state, providing passenger rail and bus service to rural areas, furnishing specialized transportation for elderly persons and persons with disabilities, and supplying manufacturers access to freight modes other than trucking.<sup>7</sup>

Environmental protection is a final issue in Wisconsin's transportation planning process. Eleven counties in eastern Wisconsin, including the Milwaukee metropolitan area, are designated by the U.S. Environmental Protection Agency as being in violation of federal air-quality standards under the Clean Air Act Amendments of 1990. In 1990, motor vehicles accounted for 40 percent of ozone-forming emissions in Wisconsin's most severely polluted counties, although cleaner fuels are predicted to reduce these emissions by 75 percent between 1990 and 2007. Planning efforts are also being directed to improve transit, rail, bikeways, and other alternatives to driving; to concentrate on transportation demand management and help curb travel growth; to improve traffic flow through freeway modernization; and to examine land-use strategies to encourage development that is more easily served by multiple modes of transportation.<sup>8</sup>

## **State Agencies Involved in Transportation**

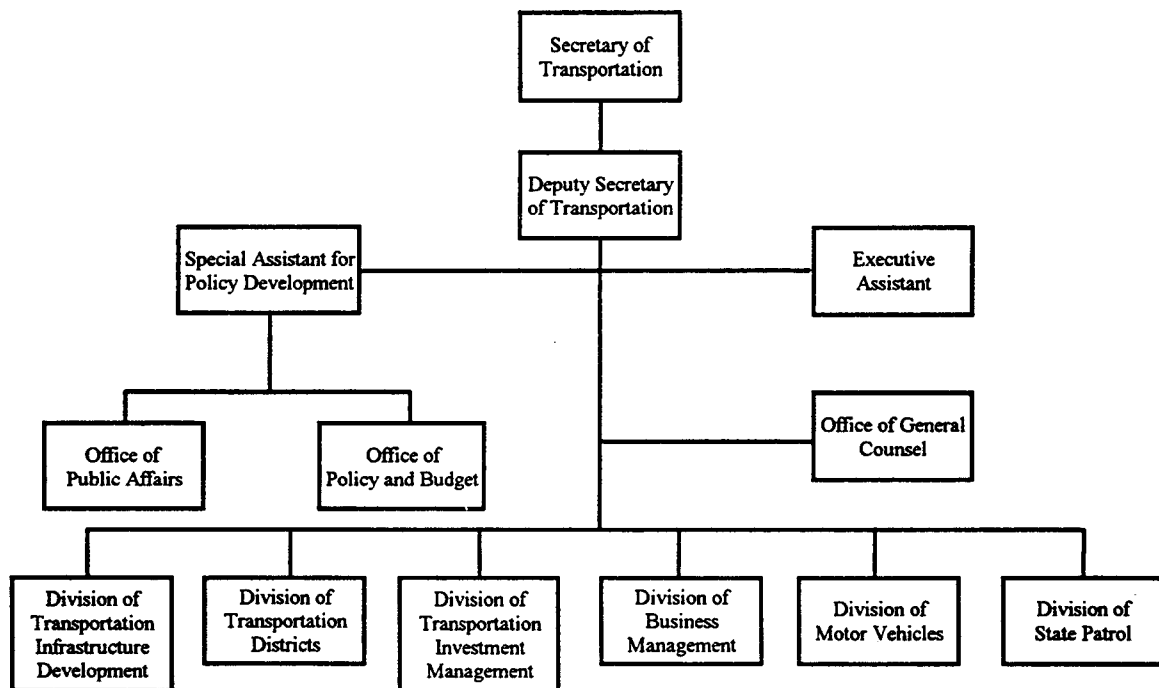
### **Wisconsin Department of Transportation**

The Wisconsin Department of Transportation (WisDOT) employs more than 3,900 employees.<sup>9</sup> The agency is led by the secretary of transportation, who is appointed by the governor. The agency has a biennial FY 1998-99 budget of over \$3.1 billion and has six major divisions and eight district offices. The agency's structure is organized along lines of function, with the Division of Transportation Investment Management responsible for most planning functions, the Division of Infrastructure Development responsible for transportation construction projects, and the Division of Transportation Districts

overseeing the operations of the eight transportation districts. The Division of Motor Vehicles manages motor vehicle and driver licensing, and the Division of State Patrol houses the state's highway patrol functions. The Division of Business Management handles financial, management, and human resources support functions (see figure 9.1).

Within the Division of Transportation Investment Management, long-range planning functions (20-year time horizon) are carried out by the Bureau of Planning, while medium-range planning (6-year time horizon) is performed by the three other bureaus in the division: the Bureau of Safety, the Bureau of State Highway Programs, and the Bureau of Transit and Local Roads. The planning of individual facilities is handled by the modal bureaus in the Division of Transportation Infrastructure Development.<sup>10</sup>

**Figure 9.1**  
**Organizational Structure**  
**Wisconsin Department of Transportation**



Source: Adapted from Wisconsin Department of Transportation (WisDOT), "The WisDOT Organizational Structure," WisDOT web site [cited November 11, 1997], available from: <http://www.dot.state.wi.us/opa/dotorg.html>; INTERNET.

The Bureau of Planning currently has 50 employees, of which only two are dedicated to working solely on intermodal transportation projects. The rest of the staff works in areas broken down into urban programs, intercity programs, economic development, and

transportation policy. These areas overlap greatly in terms of projects, so that much of the staff works on projects that have intermodal aspects, such as transportation demand forecasting and corridor plans.<sup>11</sup>

## Transportation Plans and Reports

### Statewide Transportation Plans

WisDOT produces statewide planning documents on an as-needed basis, when projects and programs are undertaken. Many are thematic, either focusing on a single mode or issue, although there are several reports that focus on transportation as a whole. An example of this type of report is *Translinks 21: A Multimodal Transportation Plan for Wisconsin's 21<sup>st</sup> Century*.

*Translinks 21*, published in 1995, lays out a 25-year plan for all modes of transportation that the state plans, builds, or funds, including highways, roads, rail, aviation, shipping, ferries, public transportation, and bicycling. This document marked the first time that a statewide multimodal transportation plan, prepared by WisDOT, analyzed all modes simultaneously and specifically accounted for interactions among modes.<sup>12</sup> The plan examines these modes with respect to future transportation demands, land-use strategies, environmental strategies, and funding strategies. In compiling the report, WisDOT created four alternative levels of transportation infrastructure to be built by the state and elicited feedback from the public on desired service levels, without providing them with projected costs of the projects. Using these data, the agency then calculated the costs of each of the alternatives.

WisDOT has published three technical reports in support of *Translinks 21*, each detailing the intercity freight forecasts used in the *Translinks 21* report: the *Multimodal Freight Forecasts for Wisconsin*, the *Intercity Modal Forecasts and Interactions*, and *Translinks 21: Multimodal Intercity Passenger Analysis*. The multimodal freight forecasts report describes the data collection and processing procedures used to develop the truck-to-rail intermodal scenario, the plan freight assignments, and the freight traffic assignments.<sup>13</sup> The intercity modal forecasts report discusses the forecasting and analysis methodology that allowed consideration of the interactions among both passenger and freight modes of transportation in the *Translinks 21* plan.<sup>14</sup> The multimodal intercity passenger analyses documents the data gathering and analyses for the intercity passenger section of the *Translinks 21* plan, providing a technical foundation and basis for the evaluation of alternative future multimodal scenarios, and for the selection of the preferred future multimodal scenario.<sup>15</sup>

WisDOT had published an earlier plan that addressed many of the transportation issues then facing Wisconsin. The 1985 *Transportation Policy Agenda* outlined proposed policies on seven issues that would shape transportation decisions for the next five years: (1) enhancing the role of transportation in the economy, (2) financing essential transportation, (3) assessing land-use impacts of transportation projects, (4) assessing



transportation and energy needs, (5) making wise transportation investments, (6) identifying transportation needs, and (7) defining government responsibility in transportation.<sup>16</sup> This report was not intended to provide any specific project planning goals but, rather, to establish the proper environment and criteria under which project planning decisions should be made.

### **Modal Plans**

WisDOT has produced several plans for specific modes of transportation. These include highway, rail, and airport plans.

#### ***Highway Plans***

WisDOT is currently working on a comprehensive state highway report. It is intended to serve as a component of the overall *Translinks 21* planning process and will include passenger analysis and transportation demand-management components. The final report is due in mid 1998. The report will be a review and update of the *Corridors 2020* plan, last updated in 1994 and before that in 1990. *Corridors 2020* is a statewide network of improved and existing highway facilities connecting all regions and major communities in the state. Through a series of multilane “backbone” and additional “connector” routes, *Corridors 2020* will provide essential highway links from Wisconsin to the national transportation network. The backbone and connector links will provide, at a minimum, high-quality, two-lane highway links to all Wisconsin communities with greater than 5,000 population.<sup>17</sup> Included in the study is an assessment of how other modes affect the *Corridors 2020* plan, particularly intercity bus service and passenger and freight rail service.<sup>18</sup>

#### ***Rail Plans***

WisDOT has produced five major reports on the state’s rail plans. They cover both freight and passenger rail systems, both on the statewide level as well as on specific corridor levels. Two of the reports focus primarily on the freight rail system. The first report, the *Freight Rail Policy Plan*, was published by WisDOT in January 1992. The report contains an overview of the state’s freight rail services, including an inventory of intermodal freight facilities. It also determines the origin and destination of freight traveling on the state’s railroads, discusses the role of freight rail service in the state’s economy, and defines what the state’s role should be in railroad freight transportation. The report contains recommendations to the state legislature and suggests policies for WisDOT to adopt to refocus the state’s role in preserving and improving freight rail service in Wisconsin.<sup>19</sup>

The second freight rail report, *The 1995 Wisconsin State Rail Plan*, was written as a component of the *Translinks 21* planning process. The plan looks at both the state’s freight and passenger rail systems, although the overwhelming emphasis is on the freight rail issues. The report contains an overview of all rail services in Wisconsin, as well as a brief overview of federal and state rail assistance programs. It then gives a highly detailed

examination of freight commodity movements, commodity-flow forecasts, and intermodal truck-rail analysis. The report's recommendations include further assessment of truck-rail intermodal potential, the development of a state rail geographic information system to inventory and analyze commodity-flow data, and the creation of an intermodal management system that would identify facility and service needs to improve the efficiency of the intermodal transportation system.<sup>20</sup>

Of the three passenger rail reports, one is a true statewide plan, while the other two are corridor plans. The statewide plan, the *Passenger Rail System Plan* (1995), is a component of the *Translinks 21* plan and is an in-depth elaboration of the passenger rail section of the *Translinks 21* report. It includes an overview of the state's passenger rail services in a historical context, a description of the planning process used to develop the passenger rail recommendations in *Translinks 21*, the recommended improvements under *Translinks 21*, and how the passenger rail plans relate to other modal plans.<sup>21</sup>

The two rail corridor plans concern passenger service in corridors in the southeastern portion of the state. The first was published by WisDOT in 1993 in cooperation with Amtrak. *Report to the Governor Concerning Restoration of Rail Passenger Service to Green Bay and Madison* addresses the need to restore intercity passenger rail service in the Milwaukee-Madison and Milwaukee-Green Bay corridors, which tie into the Milwaukee-Chicago corridor. Currently, Green Bay and Madison do not have any passenger rail service. This service is seen as important to the state's multimodal transportation system, improving the mobility of the residents of Green Bay and Madison and spurring economic development in the corridors.<sup>22</sup>

The *Chicago/Milwaukee Rail Corridor Study*, published in 1997, was a joint project of WisDOT and the Illinois Department of Transportation. The study defined and analyzed how high-speed passenger rail service could be implemented from downtown Chicago to downtown Milwaukee, using existing rights-of-way. The 86-mile-long corridor is already heavily used for commuter, corridor, and long-distance passenger service, as well as for heavy-haul freight service. The study seeks to accommodate the needs of all current users. The report examined the multimodal implications of adding high-speed rail service, including trip diversions from other modes of travel. It determined that high-speed passenger service can be implemented as a cost-effective alternative to commuting by automobile and is a key element in planning for future population and travel-demand growth. It recommends that the line be served by trains operating at speeds of up to 110 miles per hour, and that the line include service to Milwaukee's General Mitchell International Airport.<sup>23</sup>

### ***Aviation Plan***

WisDOT has published *The 1996 Wisconsin State Airport System Plan*. The plan reviews all aspects of air transportation and airport facilities in the state, including general aviation, air-cargo issues, and air-passenger concerns. The plan also forecasts air-cargo commodity flows.<sup>24</sup>

## **Regional Plans**

The state is currently involved in a regional transportation planning effort involving nine states. The plan will assess Amtrak service through the region and make recommendations on how to best accommodate passenger service demand.<sup>25</sup>

## **Transportation Funding and Programs**

Wisconsin sets its budget in two-year cycles. WisDOT has a budget of \$1.55 billion for FY 1998 and \$1.57 billion for FY 1999, roughly 8.5 percent of the total state budget. These levels are a 2.5-percent increase over the FY 1996-97 levels of \$1.52 billion. The revenue comes from gasoline taxes (24.8 cents per gallon state tax), automobile registration fees (\$45 per automobile), truck registration fees (from \$45 to \$1,832 per vehicle), rental vehicle fees (2 percent of rental or lease of any vehicle for 30 days or less), temporary license plate fees (\$10), and title transfer fees (\$12.50).

In 1977, Wisconsin established a Transportation Fund, which collects the fees charged to the users of the state's transportation system and is available to construct, maintain, and improve all modes of transportation. Wisconsin does not use any general funds to finance transportation.<sup>26</sup> The allocation of this fund to various modes goes through an extensive public review process, since the state legislature must approve the programs and funding levels financed by the Transportation Fund. Wisconsin's transportation financing system relies heavily on motor fuel taxes but collects no fees through toll roads or taxes on the total miles driven by trucks. The state has no state-authorized regional transit or transportation authorities that could provide local nonproperty tax revenues for transportation programs.<sup>27</sup>

The Transportation Fund is a segregated fund from which several specific programs are funded. Programs within the Transportation Fund are the Harbor Assistance Program (HAP), the Freight Rail Assistance Program, the Rail Passenger Assistance Program, as well as the Major Highway Program, the State Highway Rehabilitation Program, and the State Highway Maintenance Program.

### **Harbor Assistance Program**

The Harbor Assistance Program was created in 1979 to provide financial assistance to communities on both the Great Lakes and the Mississippi River for projects that improve or maintain the state's waterborne commerce. The program is administered by the Harbors and Waterways Section of the Bureau of Railroads and Harbors of WisDOT. Projects eligible for the program include dockwall construction and repair and improvements related to the physical needs of the port, provided they maintain or increase commodity movement capability. The HAP will provide up to 80 percent of the funding for projects, with the remaining 20 percent to be supplied by the local governmental entity. If the U.S. Army Corps of Engineers is funding part of the project, the maximum HAP contribution drops to 50 percent. The program's operating budget for FY 1998 is

\$30,800, and for FY 1999 it is \$153,900. Three million dollars in new general-purpose revenue bonding authorization was approved for the FY 1998-99 biennium, with an additional award of \$1 million from the Transportation Fund. These levels have been the same for several years.<sup>28</sup>

### **Rail Assistance**

WisDOT has been providing freight rail assistance since 1979. Early efforts focused on preserving freight rail service to communities that would otherwise be lost because of line abandonment. In 1992, Wisconsin voters approved an amendment to the state constitution allowing the state to become directly involved in rail acquisition, rehabilitation, and development projects. WisDOT now provides up to 100-percent loans at zero to low interest for projects that will enhance the state's rail system. Currently, two programs operate under this authority: the Freight Rail Infrastructure Improvement Program and the Freight Rail Preservation Program. Eligible projects for the Freight Rail Infrastructure Improvement Program include track rehabilitation, track consolidation, intermodal facilities, and industrial spurs. Eligible projects for the Freight Rail Preservation Program include preserving freight service on abandoned and publicly owned lines and preserving abandoned rail corridors when service is not immediately continued.<sup>29</sup> Over the course of the program, Wisconsin has spent \$70.6 million on 134 projects involving more than 900 track-miles.<sup>30</sup> The program's budget for FY 1998 is \$1,046,000, and for FY 1999 it is \$1,730,000.

In the interest of mitigating congestion and improving air quality, Wisconsin also subsidizes Amtrak passenger rail service in the Milwaukee-Chicago corridor. The state is responsible for 70 percent of the operating loss of Amtrak rail service. The FY 1998 and FY 1999 budgets each allot \$2.3 million to finance this subsidy.<sup>31</sup>

### **Highway Funding**

Highway funding in Wisconsin has traditionally received the bulk of transportation funding. Highways are seen as the premier transportation mode and the "driving force behind job creation and economic development throughout (the) state."<sup>32</sup> The three highway funding programs are the Major Highway Program, the State Highway Rehabilitation Program, and the State Highway Maintenance Program.

The Major Highway Program is the ongoing state highway construction program. It is financed through bonds issued against the Transportation Fund and through federal funding. Its FY 1998-99 budget is \$162 million.

The State Highway Rehabilitation Program rebuilds highways that are at the end of their life cycles. Its FY 1998 budget is \$11.89 million, and its FY 1999 budget is \$21.06 million.

The State Highway Maintenance Program provides preventive maintenance to existing highways. Its FY 1998 budget is \$3.5 million, and its FY 1999 budget is \$7.12 million.

## **Intermodal Funding**

As part of the *Translinks 21* plan, WisDOT recommended creating a state intermodal transportation fund that would reimburse local governments 80 percent of the costs of upgrading roads that serve intermodal facilities. Additionally, state funding would be made available to ports for the purchase or construction of track and other facilities needed to improve rail access. The combined 25-year cost of these two funding programs was estimated to be \$60 million.<sup>33</sup> So far, the governor and the legislature have yet to provide funding for these projects.

## **Other Transportation Funding Programs**

The Transportation Economic Assistance Program provides transportation improvement funds to localities to encourage new business development, create new jobs, and increase state revenues. The program provides 50-percent state grants to governing bodies, private businesses, and consortiums for road, rail, harbor, and airport projects that are necessary to help attract employers to Wisconsin or to encourage business and industry to remain and expand there. The program, started in 1987, has awarded \$24.8 million in grants, benefiting 121 businesses.<sup>34</sup>

New to the budget in FY 1998 is the Transportation Infrastructure Bank (TIB). Although the TIB received less than \$1 million in state funding, it enables the state to compete for federal capitalization grants.<sup>35</sup>

## **Exemplary Practices in Multimodal/Intermodal Transportation**

Wisconsin's most innovative efforts with regard to multimodal or intermodal transportation have occurred in the funding and planning processes. The state has made several attempts at developing innovative funding mechanisms, has gone to great lengths to successfully integrate public involvement into its planning processes, has applied advanced methods to forecast multimodal freight movement, and has demonstrated far-reaching vision in synthesizing its planning processes to incorporate the entire transportation system, not as a sum of its parts, but as an interactive whole.

## **Transportation Funding**

Wisconsin has two funding mechanisms that are unusual and noteworthy. The first is the state's Transportation Fund. All the state's transportation funding is channeled through the fund, and no state general-fund revenues are spent on transportation. The revenues that compose the Transportation Fund are not dedicated by law to any specific mode or program but can be spent on any transportation need as the legislature and governor see fit.

However, because of a tendency in its early history to spend a disproportionate amount of the Transportation Fund on highway projects, the fund has been partitioned, with permanent funds drawing from the Transportation Fund. Furthermore, while it is

theoretically possible for the bulk of the Transportation Fund to be allocated to any eligible project, political constraints have dictated that the fund's resources be distributed to modes roughly in proportion to the amount of fees each mode has contributed to the fund.<sup>36</sup> However, since motor vehicle revenues account for such a large proportion of the fund, some of those revenues are usually distributed to help fund rail, harbor, transit, and highway projects.<sup>37</sup>

While the Transportation Fund may not have accomplished in practice the degree of transportation funding flexibility that was originally intended, it does avoid the fiscal constraints imposed by the dedicated modal funding programs that are common in other states.

The second exemplary funding mechanism is the Transportation Economic Assistance (TEA) Program. The TEA Program is a recognition by the state of the importance of transportation in economic development. It is unusual in that it expands the pool of eligible fund recipients from the normal list of local and state governmental agencies to include public funding for transportation improvements made by private businesses.

Under the TEA, a maximum of \$1 million is available for transportation improvement projects that are "essential for an economic development project."<sup>38</sup> Projects must be scheduled to begin within three years, have local governmental endorsement, and benefit the public. The program is designed to accelerate improvements over normal state programming processes. Applications are ranked based on cost per job, county unemployment rate, benefits to the regional transportation system, and proximity to previously approved TEA projects. The program pays for 50 percent of the project, with the remainder coming from any combination of local, federal, or private funds or in-kind services. Applicants for funds must ensure that jobs created by the program will be realized within three years of the project agreement and must remain after another four years. From 1987 through 1994, the program created nearly 26,000 direct and indirect jobs.

The TEA Program has been an effective means of accelerating the construction of transportation infrastructure projects that contribute to the economic health of the state. It provides incentives to businesses to take responsibility for their own transportation needs, while encouraging them to remain in Wisconsin. In allowing the private sector to directly influence how the government spends its funds in support of business, the program is very much in tune with the prevailing trend of having the government act as facilitator for improved private-sector performance.

### **Multimodal Transportation Planning Processes**

Wisconsin's *Translinks 21* report was unusual in several ways. First, it went through a very extensive public-participation process that involved more than 10,000 citizens; second, it considered all transportation modes as interdependent parts of the same system, rather than as independent, isolated modes, and accounted for their interactions with land use, the environment, and the state's economy; and third, it used a sophisticated freight

forecasting model to predict future demand and tradeoffs between different modes under different plan alternatives.

### **Public Participation**

When WisDOT began the *Translinks 21* process, it wanted to ensure that public input was maximized, because plan recommendations need public support to gain funding. The public involvement included three stages: conducting public outreach to hear transportation priorities during initial phases of planning, soliciting public reaction to four plan alternatives, and testing public acceptance of the draft plan.

The public outreach stage was carried out through community regional information meetings, peer-review forums that brought experts together to discuss specific topics, and a coordinating meeting with 40 key statewide organizations. Industry, public, and special-interest viewpoints were all expressed in this process, and comments were taken into account in designing the plan alternatives.

Next, four alternative plans were composed, each with a different level of investment and slightly different modal emphasis. The plans were published, followed by ten open meetings to inform the public about the alternatives. WisDOT conducted 18 focus groups to obtain reactions from a wide range of citizens, including minority groups, elderly persons, and persons with disabilities. WisDOT officials also met individually with 50 different organizations, such as chambers of commerce, local-government associations, community organizations, transit managers, rail passengers, and highway industry leaders. Meanwhile, expert panels met to design the freight transportation system. From this stage, comments were collected and a consensus began to emerge on which alternative would best serve Wisconsin's transportation needs.

Finally, after a draft plan was completed, WisDOT contracted with the University of Wisconsin at Parkside to measure public opinion of the major components of the plan. Its telephone survey indicated that the public strongly endorsed the draft plan, with two-thirds favoring the plan and just one-sixth opposing it. A last round of meetings, public hearings, and forums were held, at which WisDOT distributed a survey to more than 1,700 attendees. The results of this survey were even stronger, with 86 percent of these transportation stakeholders approving of the plan. Additionally, some suggestions from this stage were adopted into the final plan, such as developing stronger partnerships to implement and fund regional transit and providing state financial support for local land-use transportation planning.<sup>39</sup> This extensive public outreach served not only to provide a public support base for the plan when it became final but also to provide valuable input and advice, creating a much stronger and appropriate plan.

### **Looking at the Big Picture**

*Translinks 21* was the first plan by the state, and one of the first in the country, to simultaneously address all modes of transportation within the state as part of a single integrated system. It accounts for modal interactions, identifies intermodal needs, and

assesses tradeoffs between modes under different alternatives. In addition, it examines the transportation system in the context of land-use planning, economic development, and environmental protection. This big-picture approach allows for coordinated comprehensive planning, resulting in less waste and greater efficiency in governmental expenditures. It also allows for considering the issues that often fall through the cracks, such as rural transportation needs and the needs of persons with disabilities, and adding bicycle racks to buses to improve interconnectivity.

### **Multimodal Travel Modeling**

In *Translinks 21*, WisDOT used newly developed multimodal travel models to examine how people and freight currently move in Wisconsin and how they are likely to move in the future, given changes in technology, the economy, and the new transportation investments called for under each of the plan's alternatives. The travel models analyzed and forecasted intercity movements of people and goods via all modes of transportation and how those travel modes work together as part of an intermodal system.

For passenger travel, WisDOT built upon a model first developed by the Southeast Wisconsin Regional Planning Commission (SEWPRC). The model analyzed how the plan's transportation improvements will affect mobility and investment needs, when compared to the current transportation system. Tradeoffs between personal vehicle, passenger rail, and intercity bus ridership were examined.

For freight movements, the forecasts were market driven in that they reflected private-sector industry trends and were not based on specific public-sector service improvements. In the case of truck and rail modes, forecasts were refined to specifically address rapidly emerging truck/rail intermodal partnerships. Through these partnerships, state and national rail and trucking companies have entered into agreements to shift long-distance truck movements to rail, which will result in higher rail usage rates than would be forecasted on the basis of historic trends. A special panel of freight industry experts was consulted on deriving the revised figures.<sup>40</sup>

In designing the intermodal truck-to-rail freight model, WisDOT officials first derived commodity-flow information from freight traffic databases. Commodities were considered for their potential for intermodal shipping and were ranked in four categories from "no potential" to "strong potential," with "no potential" commodities never being shipped intermodally and "strong potential" commodities being shipped intermodally at least 75 percent of the time. A survey was used to establish break points for distances at which intermodal travel was likely to be more attractive than truck-only transport. A 500-mile threshold was adopted as the minimum distance for intermodal freight movements. This threshold was compared to the commodity-flow information to produce the total intermodal traffic potential.

Next, the commodity-flow data, intermodal potential, and 500-mile threshold were combined to analyze regional demands for intermodal facilities. A minimum freight flow was necessary to justify an intermodal facility on a county-level basis. Using this



forecasting model, 24 counties in Wisconsin had enough potential intermodal traffic to support an intermodal facility.<sup>41</sup>

## **Metropolitan Planning Organizations and Local Involvement in the Transportation Planning Process**

There are 15 metropolitan planning organizations (MPOs) serving Wisconsin's urban areas with more than 50,000 population. Each of these is part of a regional planning commission, or RPC, whose task is to act as a physical planning agency for their region. RPCs address such issues as land use, water and air quality, and transportation planning. Their planning staffs tend to be small and nonspecialized. Nevertheless, they are the main agencies responsible for the urban transportation projects in the state. RPCs are funded through state and federal grants and contracts and, with the permission of the member municipalities and counties, may levy a local property tax.<sup>42</sup> Two of the RPCs, the SEWRPC and the Dane County Regional Planning Commission (DCRPC) are particularly active and exemplary in their transportation planning processes.

### **Southeast Wisconsin Regional Planning Commission Overview**

The SEWRPC is the largest and most active of Wisconsin's RPCs. It serves a region consisting of the counties of Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha. These counties have an area of about 2,689 square miles, or about 5 percent of the total area of the state. The region contains the cities of Milwaukee, Racine, Waukesha, and Kenosha and encompasses 154 general-purpose units of government. The region has a resident population of 1.89 million, or about 37 percent of the total population of the state. It is also the business hub of the state, accounting for 38 percent of the total employment in the state.

### **Transportation Infrastructure**

The Milwaukee metropolitan area's multimodal transportation network consists of

- highways: I-43 North/Southwest, I-94 South/Northwest, U.S. 45 North, U.S. 41 North, U.S. 12 South; total mileage of 295 miles (1994);<sup>43</sup>
- air service: General Mitchell International Airport with passenger service provided by 26 carriers (1998);
- rail service: Union Pacific Railroad, Canadian Pacific Railroad System, Wisconsin Central Transportation Corporation, Wisconsin & Southern Railroad Company, Municipality of East Troy Wisconsin Rail, Amtrak, and Metra (1998);
- public transportation: bus service provided by Milwaukee County Transit System, City of Kenosha Transit System, and City of Waukesha Transit System Utility; commuter rail via Metra and Amtrak to Chicago (1998); and

- ports: Port of Milwaukee with 16 berths, having direct rail pier connections with the Canadian Pacific Railroad System and Union Pacific Railroad (1998).

### **Organizational Structure**

The SEWRPC consists of 21 members, 3 from each of the member counties. One commissioner from each county is appointed by the county board and is an elected county board supervisor. The remaining two from each county are appointed by the governor.

The SEWRPC was established in 1960 as the official regional planning agency for the southeastern part of the state. Its basic planning functions are collecting, analyzing, and disseminating basic planning and engineering data; preparing long-range regional plans for the physical development of the region; and providing a center for the coordination of planning and plan implementation activities of all units and levels of government operating within the region. All the commission's plans are advisory and are implemented through actions taken by other units.<sup>44</sup>

### **Budget**

The 1996 operating budget of the SEWRPC is \$5.8 million and is funded by county tax levies supplemented by state and federal aid.<sup>45</sup>

### **Staffing for Transportation**

The commission prepares an annual work program, which is reviewed and approved by federal and state agencies. This work program is then carried out by commission staff, which is supplemented by consultants as necessary. The permanent staff in 1996 totaled 92, with 80 full-time and 12 part-time employees. Of that number, 9 work on transportation planning.<sup>46</sup>

### **Other Agencies/Organizations Involved in Transportation**

The City of Milwaukee operates the Port of Milwaukee, a large intermodal port facility capable of accommodating seagoing vessels, although most of its visitors are ships and barges that ply the Great Lakes. In 1994, the port handled more than 3 million tons of cargo. The port is managed by the seven-member Board of Harbor Commission.<sup>47</sup>

Metra is the commuter rail system of Northeastern Illinois and runs weekday commuter trains from Kenosha, on the southern border of Wisconsin, to Chicago.

### **Issues, Policies, and Goals**

The major transportation issue for the SEWRPC is improving the passenger transportation system in the region. The six counties of the Milwaukee metropolitan area have been designated as "severe" nonattainment areas under the Clean Air Act Amendments of 1990, and all transportation planning efforts must take into account their potential impact on air pollution. Meanwhile, the number of personal-use automobiles has risen steadily over the

last three decades, while public transit ridership, after a brief peak in 1980, has fallen to a fraction of its former levels. Coupled with an aging and outdated freeway system in urban Milwaukee, these factors result in increasing congestion, longer commuting times, and productivity losses.

### **Transportation Plans and Reports**

As the SEWRPC is responsible for land-use planning in addition to transportation planning, the commission works to integrate its planning efforts so that it can produce a comprehensive master plan for the physical development of the region. Since the scope and complexity of developing such a large area prevent the commission from creating a single comprehensive plan, the commission instead concentrates on plan elements individually, while relating them to the overall vision of the regional plan. From its inception to 1996, the commission has published 42 planning reports, seven planning guides, 35 technical reports, and more than 200 community assistance planning reports. While not all these reports are directly concerned with transportation, they are all part of the comprehensive plan and are, therefore, relevant to transportation planning in the region.<sup>48</sup>

### **Transportation Funding and Programs**

The Economic Development Assistance Division assists local units of government in the region in pursuing economic development activities and promotes the coordination of local economic development plans and programs. The SEWRPC provides funding assistance to localities through a number of methods, including economic development project planning services and federal and state grant procurement assistance. Moneys resulting from these programs may be used to help plan or assist in funding transportation projects.

### **Exemplary Practices in Multimodal/Intermodal Transportation**

The SEWRPC has divided its functions into three areas: inventory, plan design, and plan implementation. The commission's work in both the inventory and plan-design functions is both unusual and outstanding. In the inventory process, the commission has created a data bank that is extensive and innovative, combining land-use, environmental, and transportation factors. The data bank then provides a strong informational foundation for the plan-design functions, allowing the commission to take into account not just simple transportation usage information but also detailed demand forecasts and land-use characteristics when developing its plans.

#### *Inventory Data Bank*

In support of its inventory function, the SEWRPC has created a data bank containing basic planning and engineering information. These data include physical, geological, and hydrological data; existing and proposed land uses; travel habits and patterns; transportation-system capacity and utilization; and the demographic and economic base and structure of the region. These data are in readily usable forms and are available to all

governmental bodies in the region and to the private sector, providing a common and comprehensive set of information on which to base all planning decisions.

The data bank includes information gathered from a wide variety of sources and methods. Some data, such as highway and transit facility capacity, use and service levels, transportation terminal facility capacity, automobile and truck availability, and population and economic activity levels, are collected from other agencies. Other data, including physical surveys, aerial photography, and customer surveys of travel characteristics, are generated from SEWRPC's own efforts.<sup>49</sup> These databases are continuously updated and revised and are combined to provide powerful planning tools. One example of such a tool is the commission's transportation forecasting models.

### *Intermodal Forecast Modeling*

The SEWRPC has long been involved in creating forecasting models to use in its transportation planning process. These models are widely known for their accuracy, comprehensiveness, and complexity. They can be used to forecast not just total traffic volumes but also trip origination and destination loads and modal share displacement under various alternative plans. Furthermore, they are designed to account for existing and future land-use patterns. Working with these models has enabled the SEWRPC to plan more effectively its transportation infrastructure to be both cost effective and efficient.

In 1994, the SEWRPC published *A Regional Transportation System Plan for Southeastern Wisconsin: 2010*. In that plan, the SEWRPC used a model for forecasting urban auto and transit travel that it had been developing since 1963. The model was refined in 1972 and again in 1991, each time in conjunction with a new set of regional land-use and transportation plans. Each new survey provided a new data set against which the projections of past forecasts could be compared, allowing further refinement in modeling techniques.

The forecasting model simulates travel in four steps: trip generation by subarea, trip distribution linking generation subarea to destination subarea, modal choice, and traffic route assignment. The result of the process is a complete description of the use of an existing or proposed transportation system, including all modes of travel. Each time the SEWRPC revised the model, it conducted surveys to collect the travel data needed as input for the model, including household travel, truck, external cordon, and public-transit user surveys. The latest round of surveys was conducted in the fall of 1991 and spring of 1992 and sampled in excess of 70,000 transportation users. Using these data, the model was able to accurately project travel and traffic in southeastern Wisconsin.<sup>50</sup>

This model is extremely useful in that it can forecast what travelers will do if transportation improvements are made, including giving usage rates and diversion rates between modes. Thus, it can be used to determine transportation demands and allow accurate cost-benefit analyses of intermodal, multimodal, corridor, and single-mode transportation projects. The model and its results have been adopted by WisDOT in its

planning process, as part of the southeastern Wisconsin component of the *Translinks 21* plan. WisDOT has also adapted the model's basic principles for use in its multimodal freight forecast models.

### **Dane County Regional Planning Commission (DCRPC) Overview**

The Dane County Regional Planning Commission serves as the MPO for Dane County, which has an area of 1,202 square miles, about 2 percent of the total area of the state. The county had a 1990 population of 367,000, about 7.5 percent of the state's total population.<sup>51</sup> The RPC represents 61 local governments, including Madison, a city of 190,000 and home to the state capital and the University of Wisconsin.<sup>52</sup>

### **Transportation Infrastructure**

Dane County's multimodal transportation network consists of

- highways: I-90 North/South, I-94 East, U.S. 151 Northeast/Southwest, U.S. 14 South and West (1997);
- air service: Dane County Regional Airport providing passenger service with 8 carriers and 88 departures daily (1997);
- rail service: freight rail service provided by Canadian Pacific Railroad System, Union Pacific Railroad, and Wisconsin & Southern Railroad Company (1996); and<sup>53</sup>
- public transportation: intracity bus service provided by Madison Metro; local commuter bus system provided by the city of Monona; intercity bus service provided by Badger Bus, Van Galder, and Greyhound (1996).<sup>54</sup>

### **Organizational Structure**

The DCRPC was created in 1968 by an executive order of the governor and is an integrated part of the county government structure. The eleven-member commission is made up of five county board members (three from Madison and two non-Madison). Of the remaining six, one is appointed by smaller cities, one is appointed by villages, and two are appointed by town governments.

The basic purpose of the commission is planning. Through its plans, it provides a comprehensive, long-range, regional perspective to governmental decisionmaking. The commission's plans are advisory and are implemented by other units.

### **Budget**

The 1995 staff budget was \$1.17 million and was provided by taxes, grants, and contracts from local, county, state, and federal governments. The commission has been granted taxing authority by the legislature, based on a percentage of the county's land values. It has been unnecessary until recently to use this authority, but, because of political factors,

the commission has begun to use the taxing authority. Taxes for the DCRPC are collected through the county government taxing system, and the proceeds are counted against the county's obligation to fund the DCRPC.<sup>55</sup>

### **Staffing for Transportation**

In 1995, the commission had a full-time staff of nineteen, with five staff members dedicated to transportation issues.<sup>56</sup>

### **Other Agencies/Organizations Involved in Transportation**

Madison Metro provides transit services in the city of Madison.

### ***Issues, Policies, and Goals***

Dane County is undergoing a period of intense growth. The county's population is expected to grow by 100,000 reaching 488,000 between 1995 and 2020. Dwelling units will increase by more than 40,000 to 212,000, and employment will increase by 57,000 to 288,000. The commission is primarily interested in planning for and accommodating that growth through land-use and transportation planning, while maintaining the high quality of life Dane County residents expect. The commission has 11 goals to guide its planning process:

1. Promoting balanced communities with a mix of different types of development
2. Promoting compact urban development, redevelopment, and infill
3. Promoting visually distinct communities and neighborhoods with a mix of uses
4. Providing a range of affordable housing throughout the county
5. Providing an integrated all-mode transportation system
6. Concentrating employment and activity centers along public transit corridors
7. Maintaining downtown Madison as the region's major activity center
8. Providing employment opportunities and a diversified economic base
9. Protecting agricultural lands, in part by limiting nonfarm development in agricultural areas
10. Protecting environmental, cultural, and historic resources
11. Developing a countywide system of open-space corridors to preserve environmental and scenic values and recreational opportunities.<sup>57</sup>

## **Transportation Plans and Reports**

The adopted *Vision 2020 Dane County Land-Use and Transportation Plan* is DCRPC's master planning report. It provides a framework for development, preservation, and transportation decisions in Dane County through the year 2020. Agencies assisting in preparing the report include the DCRPC, Dane County, the City of Madison, and WisDOT.<sup>58</sup> A central recommendation of the transportation plan is to perform a major investment study (MIS) of the feasibility of constructing an expanded transit system (commuter rail, light rail, or dedicated bus lanes) within an east-west corridor. Initiation of this study is expected in late 1998 or early 1999.

The commission is also assisting on a commuter rail feasibility study that will be published in the spring of 1998. The study includes a modal-split model between bus, rail, and automobile passenger shares, building upon a regional model constructed by the commission. The model examines commuter rail station location, bus and train scheduling, and route of the rail line. This study is intended to be combined with future light rail and dedicated bus lane studies into the major investment study identified above.<sup>59</sup>

The DCRPC also publishes a Transportation Improvement Program (TIP), which lists all projected transportation projects using federal funds for the next five years and is revised annually.<sup>60</sup>

## **Transportation Funding and Programs**

While the DCRPC is primarily a planning agency, it is also the designated MPO for the Madison urban area. As the MPO, the commission provides \$3.4 million of funding each year for transportation construction projects that are listed in the TIP.

## **Exemplary Practices in Multimodal/Intermodal Transportation**

DCRPC's transportation planning process is exemplary in that it does not approach transportation needs in a traditional style but, instead, begins with a vision of what the community wants to be and develops transportation plans to help accomplish that vision. It effectively combines land use and transportation infrastructure into a whole to meet the needs and vision of the communities within the region. The resulting plan is proactive instead of reactive, directing and guiding growth into the most desirable areas. The latest planning effort to achieve this goal is the Vision 2020 project.

The *Vision 2020* process began in the fall of 1993 with the appointment of a four-person steering committee representing the sponsors of the project, the DCRPC, Dane County, the City of Madison, and the WisDOT. The intent of the process was to develop a series of alternative land-use scenarios with alternative transportation systems to guide the future growth of Dane County and give the public an opportunity for involvement in selecting the alternative that best fit its collective vision of the future. The *Vision 2020* planning process was created to design a unified land-use and transportation plan for Dane County to the year 2020. This process began in May 1994 as a follow-up to the Dane 2020

strategic planning effort undertaken in 1991 and 1992. This planning process was also different from previous efforts in Dane County in that it employed two computer models to evaluate the alternative scenarios created for both area land use and the transportation system needed to serve it. The SAVES model measured and evaluated the land-use development patterns. Then its output was used in TRANPLAN, the multimodal transportation model.

Lastly, the process had to meet the MPO planning requirements of the Intermodal Surface Transportation Efficiency Act. The DCRPC adopted the *Vision 2020 Dane County Land-use and Transportation Plan* in June 1997. This plan replaces the DCRPC's Regional Development Guide and the Regional Transportation Plan. It directs public expenditures for transportation improvements for all modes, not just roadways and transit. It also advises local communities on the larger framework for the growth and development of the county, integrating local planning initiatives into a cohesive whole. It serves as a guide for the DCRPC, the Dane County Board of Supervisors, and local units of government, as they make decisions affecting future land uses and transportation. As a land-use plan, it is advisory to county and municipal decisionmakers and acts as a guide in their review of development and infrastructure extension proposals. As a transportation plan, it provides guidance on future transportation investments to be included in the Transportation Improvement Program (TIP).<sup>61</sup>

In developing the plan, the DCRPC aggressively sought out public comment at every major junction of the process. The commission held numerous public meetings in different parts of the county and conducted focus groups that targeted specific interest groups, such as farmers, business owners, and environmentalists. It also consulted with two standing committees, the Citizens Advisory Committee and the Technical Coordinating Committee. Finally, the commission conducted a telephone survey through the University of Wisconsin Research Labs to ensure that the plan addressed the concerns of all parts of the community and did not disproportionately favor the views of any special-interest group. This survey was particularly valuable because some of the public meetings were dominated by a handful of interest groups who organized and attended multiple meetings en masse.<sup>62</sup>

Because *Vision 2020* is the official MPO plan, it will be instrumental in shaping the federal and state funding of transportation projects in the region. WisDOT must consult the plan before making any funding approvals.

The primary goal of the *Vision 2020* plan is to create a framework for the future, supported by a transportation plan, that anticipates future growth and directs it to the most appropriate locations where it can be efficiently served by public services.<sup>63</sup> It successfully ties together land-use and transportation planning, recognizing their interdependence. Finally, it does so in a cooperative manner, striving to include the concerns of the region's governments as well as the various public constituencies.



## Notes

<sup>1</sup> U.S. Department of Commerce, Bureau of the Census, *Statistical Abstract of the United States: 1995* (Washington, D.C., 1995), pp. 28-29.

<sup>2</sup> *The World Almanac and Book of Facts* (New York: Newspaper Enterprise Association, 1993), p. 46.

<sup>3</sup> Wisconsin Department of Transportation (WisDOT), *Translinks 21: A Multimodal Transportation Plan for Wisconsin's 21<sup>st</sup> Century* (Madison, Wis., 1995), pp. 52, 65, 81, 83.

<sup>4</sup> National Railroad Passenger Corporation (Amtrak), *1997 Amtrak Travel Planner* (Washington, D.C., 1996).

<sup>5</sup> Governor Tommy G. Thompson, "Transportation Budget Builds Wisconsin's Future," State of Wisconsin web site (Madison, Wis. [cited December 1, 1997]), available from: <http://www.wisgov.state.wi.us/95pr/dotbudg2.html>; INTERNET.

<sup>6</sup> WisDOT, *Translinks 21*, pp. 13, 24-25.

<sup>7</sup> *Ibid.*, p. 31.

<sup>8</sup> *Ibid.*, pp. 21-22.

<sup>9</sup> Wisconsin Department of Administration (WDOA), Division of Executive Budget and Finance, "State of Wisconsin Executive Budget," WDOA web site (Madison, Wis. [cited November 11, 1997]), available from: <http://www.doa.state.wi.us/debf/9799budg/395agcy.pdf>; INTERNET.

<sup>10</sup> Telephone interview by Daniel Strub with Randall Wade, Chief of Statewide System Planning, Division of Transport Investment Management, Wisconsin Department of Transportation, Madison, Wisconsin, December 1, 1997.

<sup>11</sup> *Ibid.*

<sup>12</sup> WisDOT, *Intercity Modal Forecasts and Interactions* (Madison, Wis., 1996), p. 1.

<sup>13</sup> WisDOT, *Multimodal Freight Forecasts for Wisconsin* (Madison, Wis., 1996), p. 1.

<sup>14</sup> WisDOT, *Intercity Modal Forecasts and Interactions*, p. 1.

- <sup>15</sup> WisDOT, *Translinks 21*, p. 1.
- <sup>16</sup> WisDOT, *Transportation Policy Agenda* (Madison, Wis., 1985), pp. i, v.
- <sup>17</sup> WisDOT, *Passenger Rail System Plan* (Madison, Wis., 1995), p. 32.
- <sup>18</sup> WisDOT, *Corridors 2020—Review and Update* (Madison, Wis., 1994), p. 6.
- <sup>19</sup> WisDOT, *Freight Rail Policy Plan* (Madison, Wis., 1992), p. 69.
- <sup>20</sup> WisDOT, *The 1995 Wisconsin State Rail Plan* (draft) (Madison, Wis., 1995), pp. i, ii, 1, 58.
- <sup>21</sup> WisDOT, *Passenger Rail System Plan*, pp. 2, 32.
- <sup>22</sup> WisDOT, *Report to the Governor Concerning Restoration of Rail Passenger Service to Green Bay and Madison* (Madison, Wis., 1993), pp. 3, 4, 59.
- <sup>23</sup> WisDOT and the Illinois Department of Transportation, *Chicago/Milwaukee Rail Corridor Study* (Madison, Wis., 1997), pp. 1, 3, 48, 49.
- <sup>24</sup> WisDOT, *Passenger Rail System Plan*, p. 34.
- <sup>25</sup> Wade interview, January 29, 1998.
- <sup>26</sup> TransManagement, Inc., *Innovative Practices for Multimodal Transportation Planning for Freight and Passengers* (Washington, D.C., 1996), pp. 7-11.
- <sup>27</sup> WisDOT, *Translinks 21*, p. 94.
- <sup>28</sup> Curtis Morgan, *State Programs for Financing Port Development* (Austin, Tex.: Lyndon B. Johnson School of Public Affairs, 1997), pp. 9-12.
- <sup>29</sup> WDOA, "State Of Wisconsin Executive Budget."
- <sup>30</sup> American Association of State Highway and Transportation Officers Standing Committee on Rail Transportation, *A Report on State Programs for Light Density Rail Lines 1976-1995* (Washington, D.C., 1997), p. 26.
- <sup>31</sup> WDOA, "State of Wisconsin Executive Budget."

<sup>32</sup> Thompson, "Transportation Budget Builds Wisconsin's Future."

<sup>33</sup> WisDOT, *Translinks 21: Multimodal Intercity Passenger Analysis, Draft Final Report* (Madison, Wis., 1995), pp. 85-86.

<sup>34</sup> WisDOT, "WisDOT: Programs and Services: Transportation Economic Assistance Program," WisDOT web site (Madison, Wis. [cited November 28, 1997]), available from: <http://www.dot.state.wi.us/dtim/bop/gati.html>; INTERNET.

<sup>35</sup> WDOA, "State of Wisconsin Executive Budget."

<sup>36</sup> Wade interview, December 1, 1997.

<sup>37</sup> Texas Transportation Policies and Economic Growth Policy Research Project, *State Multimodal and Intermodal Transportation* (Austin, Tex, 1989), p. 288.

<sup>38</sup> WisDOT, "WisDOT: Programs and Services: Transportation Economic Assistance Program."

<sup>39</sup> WisDOT, *Translinks 21: Multimodal Intercity Passenger Analysis, Draft Final Report*, pp. 25-29.

<sup>40</sup> WisDOT, *Intercity Modal Forecasts and Interactions*, pp. 1, 7.

<sup>41</sup> WisDOT, *Multimodal Freight Forecasts for Wisconsin*, pp. 28-29, 35-38.

<sup>42</sup> Telephone interview by Daniel Strub with Don Martinson, Chief Transportation Planner, Transportation Planning, Southeast Wisconsin Regional Planning Commission, Waukesha, Wisconsin, November 25, 1997.

<sup>43</sup> Southeast Wisconsin Regional Planning Commission (SEWRPC), *A Regional Transportation System Plan for Southeastern Wisconsin: 2010* (Waukesha, Wis., 1994), p. 132.

<sup>44</sup> *Ibid.*, pp. 3-4.

<sup>45</sup> SEWRPC, *1996 Annual Report* (Waukesha, Wis., 1997), p.3.

<sup>46</sup> *Ibid.*

<sup>47</sup> Port of Milwaukee, *1994 Annual Report* (Milwaukee, Wis., 1995), pp. 1-2.

<sup>48</sup> SEWRPC, *1996 Annual Report*, pp. 194-205.

<sup>49</sup> SEWRPC, *A Regional Transportation System Plan for Southeastern Wisconsin: 2010*, p. 8.

<sup>50</sup> *Ibid.*, pp. 286-89.

<sup>51</sup> University of Virginia Library Social Sciences Data Center, "County and City Data Books," University of Virginia Library Social Sciences Data Center web site [cited February 1, 1998], available from: [http://www.lib.virginia.edu/ssdcbin/ccdbbin/county sort2.cgi](http://www.lib.virginia.edu/ssdcbin/ccdbbin/county%20sort2.cgi); INTERNET.

<sup>52</sup> Dane County Regional Planning Commission (DCRPC), "A Profile in Brief," DCRPC web site [cited January 29, 1998], available from: <http://www.co.dane.wi.us/rpc/rpc.html>; INTERNET.

<sup>53</sup> DCRPC, "Regional Trends 1996, Dane County, Wisconsin," Madison, Wis., 1996, p. 19.

<sup>54</sup> Telephone interview by Daniel Strub with Robert McDonald, Director of Transportation Planning, Dane County Regional Planning Commission, Madison, Wisconsin, February 12, 1998.

<sup>55</sup> *Ibid.*

<sup>56</sup> *Ibid.*

<sup>57</sup> DCRPC, *Dane County Land-Use and Transportation Plan* (Madison, Wis., 1997), p. i.

<sup>58</sup> *Ibid.*

<sup>59</sup> McDonald interview.

<sup>60</sup> *Ibid.*

<sup>61</sup> DCRPC, *Dane County Land-Use and Transportation Plan*, pp. 1-2.

<sup>62</sup> McDonald interview.

<sup>63</sup> DCRPC, *Dane County Land-Use and Transportation Plan*, pp. 1-2.

## Chapter 10. European Union

### Overview

Fifteen Western European countries compose the European Union (EU): Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom. The member countries of the EU (or the European Economic Community as it was originally known) are uniting to standardize their policies and technologies relating to economic development and trade, of which transportation is an integral component. On average, transportation accounts for 7 percent of gross domestic product (GDP) in the EU, and the creation of a single market is meant to enhance the circulation of goods, people, and capital.<sup>1</sup>

A key factor in the formation of a single market is the development of trans-European networks (TENs) for transportation, energy, and telecommunications. The EU has described transport TENs as “a framework for an optimal integration of different modes so as to enable an efficient and cost-effective use of the transport system through seamless, customer-oriented door-to-door services whilst favoring competition between transport operators.”<sup>2</sup> TENs came to prominence when they were selected as a means for stimulating European economies at the Edinburgh summit of 1992. In 1994, the EU presented the first “action program” for transport TENs, with an emphasis on rail and inland waterway transport. The proposal provided an EU investment of 220 billion European currency units (denoted as ECU 220 billion) by 1999 to develop 70,000 km of railways, 15,000 additional km of roadways, integrated waterways and ports, and intermodal transport corridors and terminals.<sup>3</sup> Created in 1979, the ECU is used for internal accounting purposes within the EU’s institutions. According to the current exchange rate, one U.S. dollar is nearly equivalent (.926) to one ECU.<sup>4</sup> Other ECU rates are mentioned throughout this document, some of which differ from this current rate. This difference merely reflects a fluctuation in the exchange rate over time.

In 1993, combined truck/rail transport accounted for 4 percent of total goods transported within the EU.<sup>5</sup> Combined Transport (CT) is defined by the European Conference of Ministers of Transport (ECMT) as “transport where a major part of the European journey is by rail, inland waterway or sea and any initial and/or final leg by road...” The EU invested ECU 68 billion, or 1.2 percent of GDP, in transport infrastructure in 1993: 65 percent in road; 25 percent in rail; and 10 percent in other modes. The 1.2-percent share has remained nearly constant for more than a decade, and the relative allocation among road, rail, and inland waterways has remained unchanged.<sup>6</sup> By 1995, the EU had constructed 49,024 km of roadways, 155,836 km of railways, 2,406 km of high-speed rail networks, and 30,191 km of navigable canals, rivers, and lakes. Statistics for 1995 reveal that the EU predominately transports goods by road (1,103 million ton-km), followed by rail (220 million ton-km), and waterways (116 million ton-km).<sup>7</sup>

The growth of international trade and the European economy will depend on a reduction in the dependence on roadway/highway travel and on an increase in the use of other modes for the transport of passengers and goods. Fixed capital formation, which plays a crucial role in generating trade and developing a position on world markets, only rose by about 2 percent in Western Europe during 1996.<sup>8</sup> However, the liberalization of transport markets has improved competitiveness and cost-savings within the EU, and, since 1993, exports have risen.<sup>9</sup> The main source of Western European growth in 1996 was exports to regions outside Western Europe, such as the United States, Central and Eastern European countries (CEECs), and other less-developed countries. The EU provides assistance to developing countries in Africa, the Caribbean, and the Pacific, which do not pay tariffs on goods exported to the EU.<sup>10</sup>

The European Community is also pursuing technological and design standardization of transport networks within the EU and in countries applying to join the EU. The integration of Eastern European countries into broad European and global economies has progressed rapidly since 1989. In 1995, nearly two-thirds of Eastern European exports went to Western market economies.<sup>11</sup> The EU has bilateral agreements with CEECs and is providing \$9 billion over a five-year period to prepare nine CEECs for EU membership. In addition, there are strong links with Mediterranean countries, which will receive \$6 billion in EU assistance over a five-year period.<sup>12</sup> A significant portion of this financial support is allocated for repair and modernization of transportation networks, in order to have them compatible with those in the EU. A lack of interoperability between railway signaling systems, loading gauges, or bridge heights, for example, hinders the overall functioning of TENs.

## **Institutional Structure**

The EU is governed by five institutions, the European Commission, Council of Ministers, Parliament, Court of Justice, and Court of Auditors. The European Parliament, which comprises 626 directly elected members for five-year terms, acts as the EU's public forum. The Council of Ministers, called the Council of the EU since the signing of the Maastricht Treaty, enacts EU laws proposed by the European Commission. The Council of the EU consists of ministers from each member state. The Council of the EU and the European Parliament need a proposal from the European Commission before they can pass legislation. The European Commission, composed of 20 commissioners, proposes legislation and ensures that the provisions of treaties are properly implemented.<sup>13</sup>

Individual European governments retain the main responsibility for creating and implementing the trans-European networks, with the EU acting as a catalyst. The EU does so by facilitating operational contracts, creating common standards to ensure networks are compatible, and encouraging private investment. Private investors are attracted through pilot projects, loan guarantees, and interest-rate subsidies.<sup>14</sup> The EU assists governments in identifying projects with a European dimension and coordinates with each member country according to European master plans in specific areas. A master plan has been developed for combined transport, for example.

The planning and development of trans-European networks involve national, regional, and local levels of government. Member countries regularly notify the European Commission of national plans and programs they have developed for the TENs. The European Commission then makes a recommendation on project proposals, and sends them to the Council of the EU and the Parliament for approval. The European Commission is required to report every two years to the European Parliament, the Council of the EU, the Economic and Social Committee, and the Committee of the Regions on the implementation of TEN guidelines.<sup>15</sup>

The implementation of TENs is guided by a 1997 White Paper titled *Intermodality and Intermodal Freight Transport in the European Union*. This document defines the objective of intermodality to “develop a framework for an optimal integration of different modes so as to enable an efficient and cost-effective use of the transport system through seamless, customer-oriented door-to-door services whilst favoring competition between transport operators.”<sup>16</sup> Since intermodal transport is more data intensive than conventional transport, the use of communication-based logistics infrastructure is crucial to intermodal operations. Multimodal and intermodal transport will have to meet increasing requirements in terms of flexibility, speed, and reliability. Communication logistics will be vital in tracking and tracing materials and goods during the transshipment process. Depending on the type of service, logistics costs can account for up to one-third of the final market price.<sup>17</sup>

## **Transportation Policy**

Article 74 in the Treaty of Rome (March 25, 1957) called for the establishment of the European Economic Community (Community) and a common transportation policy. The EU was created in November 1993, with the implementation of the 1992 Maastricht Treaty. It was not until the signing of the Maastricht Treaty that the integration of national networks to create TENs was formally adopted as a Community priority. Title XII of the treaty defines the guidelines for the networks and, in part, states that TENs should “link island, landlocked and peripheral regions with central regions of the Community.”<sup>18</sup> Article 130r of the Maastricht Treaty obligates the EU to integrate environmental protection requirements into transportation policies.

Subsequent to the Maastricht Treaty, the European Commission drafted a White Paper titled *The Future Development of the Common Transport Policy*.<sup>19</sup> The European Commission regularly publishes consultation documents referred to as “Green and White Papers.” A Green Paper is a document presented for public discussion and debate, whereas a White Paper details a policy undergoing a political decision.<sup>20</sup> The 1993 paper on common transport policy (CTP) represented the first comprehensive policy addressing the formation of a single market for transportation services and outlined the major objectives of promoting the combined use of transportation modes. Defined as goals were the promotion of free movement of goods, efficient mobility, socioeconomic and environmental sustainability, economic development, and social cohesion. Again, a major impetus for this policy has been sustained growth in transportation demand and an

imbalance between the use of individual modes throughout the EU. The transport of goods and passengers has increased about 50 percent and 85 percent, respectively, since the early 1970s, with increases concentrated in the road sector of transport.<sup>21</sup>

In 1994, the European Commission drafted a White Paper, *Growth, Competitiveness and Employment*. This document called for acceleration in establishment of TENs and declared the networks the “lifeblood of competitiveness.”<sup>22</sup> As part of an increase in the overall research effort regarding transportation infrastructure, the document recognized that cooperative efforts between different countries should be encouraged. One outcome of this policy is that the EU has set up a multimodal working group, with representatives from member countries to propose criteria for locating areas for intermodal terminals. The work, which will take into account the results of ongoing research, will be used to revise the original TEN guidelines in 1999.<sup>23</sup>

In 1996, the European Commission developed a Green Paper titled *Towards Fair and Efficient Pricing in Transport*. The goals of the document are to establish a system relating costs of vehicle and infrastructure use to the external costs of congestion, safety, and environmental degradation and incorporating them into the service costs of transport users. If costs are not being properly allocated, users will likely disproportionately favor transport services that do not charge their full costs.<sup>24</sup> Congestion is estimated to cost the EU 2 percent of GDP each year, accidents an additional 1.5 percent, and air pollution and noise 0.6 percent. These costs amount to ECU 250 billion per year, with more than 90 percent related to road transport.<sup>25</sup> While member countries currently use different systems for allocating and recovering road infrastructure costs, they rely primarily on annual vehicle taxes and fuel excise duties. The systems used to recover infrastructure costs in rail and inland waterways also differ among countries. In some countries, track charges are used in rail, while in others flat charges are imposed or access is free. The EU is proposing telecommunication-based pricing systems, which would allow flexibility in differentiating charges across vehicles. For example, heavy-goods vehicles could be subject to a mileage-based electronic charge. In any case, charging policies will be revised to cover both capital costs and operating costs.<sup>26</sup>

The EU has issued many directives to remove regulatory and financial obstacles of TENs and has extended incentives for the development of multimodal and intermodal transport. One example is the approval allowing an increase to 44 tons of total weight for container road haulage in EU countries that normally only permit 40 tons, with a precondition that the vehicle will be used in combined transport. Other promotional measures include savings on motor vehicle taxes for operators who engage in combined transport operations and tax refunds for those who use alternatives to road infrastructure. In addition, many investments pertaining to combined transport may be subsidized with government funding.<sup>27</sup>



**Table 10.1**  
**Common Transportation Systems and Goals**

Common Transportation Systems	Goals
Integrated infrastructure and transport	<ul style="list-style-type: none"> <li>• Intensify intermodal design of TENs</li> <li>• Enhance design and functions of intermodal transfer points</li> <li>• Harmonize standards for transport</li> </ul>
Interoperable and interconnected operations	<ul style="list-style-type: none"> <li>• Integrate freight freeways in an intermodal context</li> <li>• Develop common charging and pricing principles</li> <li>• Harmonize competition rules and state aid regimes on an intermodal basis</li> </ul>
Mode-independent services and regulations	<ul style="list-style-type: none"> <li>• Harmonization and standardization of procedures and EDI</li> <li>• Intermodal liability</li> <li>• Research and demonstration</li> <li>• Benchmarking</li> <li>• Intermodal statistics</li> </ul>

Source: Data from Commission of the European Union, *Intermodality and Intermodal Freight Transport in the European Union* (Brussels: European Commission, 1997), p. ii.

Both transport deregulation and “harmonization” are necessary to achieve implementation of the TENs. Deregulation is necessary to allow all participants to have appropriate access to infrastructure. The main emphasis on harmonization, or efforts toward compatibility, will be on the development of a community framework for the charging of transportation costs to users.<sup>28</sup> Again, because of the way infrastructure and external costs are covered, taxes and charges vary among different modes of transport.<sup>29</sup>

Inevitably, system interconnection and the interoperability of mobile equipment will also depend on compatible information and tracking systems. Current obstacles include the fact that individual transport modes are financed and managed separately and technical standards are regulated separately by country. Transport networks have traditionally been designed according to particular modes, which has led to inadequate connections and bottlenecks. For a number of high-density corridors in Europe, a coherent network of modes and interconnections between the modes is still lacking. As a result, significant attention is now being paid to the interfaces, or points of transfer, between networks.

Efforts are underway to make national standards and operating procedures more uniform.<sup>30</sup>

The European Commission is developing methods for transportation companies to measure their output against the performance of competitors through benchmarking techniques. The benchmarking process is geared toward developing common standards of quality performance for transport networks and terminals. At present, users perceive road haulage as the benchmark for freight transport in Europe because operational costs are relatively low.<sup>31</sup> Future network performance standards will more uniformly account for external costs, because they will be evaluated according to citizens' expectations, impacts on the environment, employment, social and regional development, and degree of cohesion.<sup>32</sup>

## **Trans-European Transportation Network**

The trans-European transportation network is to be established by the year 2010 by integrating land, water, and air transportation infrastructure networks throughout the EU. In addition to transportation infrastructure, the network will entail traffic-management systems, positioning and navigation systems, and the creation of "interconnection centers" for effective intermodal operations.

The objectives for the transport TENs are to

- contribute to the strengthening of economic and social cohesion;
- sustain the mobility of persons and goods under the best possible social and environmental conditions;
- Integrate all networks into a trans-European combined transport network for road, rail, inland waterway, sea, and air;
- include all modes of transport, taking account of their comparative advantages;
- optimize the capacity and efficiency of existing infrastructure;
- link island, landlocked, and peripheral regions to the central regions, avoiding bottlenecks in the major regions;
- provide interconnection, interoperability, and access to the entire network; and
- develop connections to the networks of the European Free Trade Association countries, the CEECs, and the Mediterranean countries.<sup>33</sup>

In 1984, the European Round Table of Industrialists (ERT) identified "missing links" in the national infrastructure. The ERT is an unofficial panel of experts from various industries, who serve as advisers for the European Commission's Directorate-General VII

(Transport). Prompted by the ERT, the European Parliament commissioned the European railways to produce a plan for a high-speed rail network.<sup>34</sup> Subsequently, trans-European networks have been developed for highways, combined transport (truck/rail), and inland waterways.<sup>35</sup> With the development of modal and intermodal networks, the EU is becoming central to the future development of all transport infrastructure in Europe.<sup>36</sup>

The 1993 *Growth, Competitiveness and Employment* document presented a selection of transportation projects to encourage Europe's competitiveness. In the following year, an intergovernmental group chaired by the then vice-president of the European Commission, Henning Christophersen, submitted a revised list of fourteen "priority projects" during the European Council in Essen. These projects were attributed as having particular importance to the common interest of the network, because they bridge gaps between individual networks or contribute to the formation of a single network. Of the transport projects chosen, about 80 percent focused on rail links, 9 percent on truck/rail links, and 10 percent for new road building.<sup>37</sup> The implementation of selected projects is estimated to cost ECU 90.81 million.<sup>38</sup>

#### **Trans-European Network (TEN) Priority Projects<sup>39</sup>**

- 1) High-speed train/combined transport north-south: Berlin-Nuremberg/Munich-Verona
- 2) High-speed train: Paris-Brussels-Köln-Amsterdam-London (PBKAL)
- 3) High-speed train south: Spain-France
- 4) High-speed train east: Paris-eastern France-southwest Germany;
- 5) Conventional rail/combined transport Betuwe line: Rotterdam-Dutch/German border
- 6) High-speed train/combined transport France-Italy (Lyon-Turin)
- 7) Greek motorways: PATHE and Via Egnatia
- 8) Motorway Lisbon-Valladolid
- 9) Conventional rail link: Cork-Dublin-Belfast-Larne-Stranraer
- 10) Malpensa airport (Milan)
- 11) Fixed rail/road link between Denmark and Sweden (Oresund)
- 12) Nordic triangle (rail/road)
- 13) Ireland/United Kingdom/Benelux road link
- 14) West Coast main line (rail)

Through the Fourth Research and Technical Development Framework Program (1994-98), the European Commission has co-financed more than 25 projects dealing with intermodal network efficiency, terminals, and information and communication technologies. The European Commission's Directorate-General XII (Science, Research and Development) manages a broad range of development programs, including the Fourth Framework subprogram on transportation. In 1995, the European Commission developed a Task Force on Transport Intermodality to coordinate various research and development programs. In conjunction with the task force, it formed INTERACT, a group of universities and research institutes investigating intermodal transport. On January 14, 1998, it approved a proposal for the Fifth Research and Technical Development Framework Program with a separate transportation subprogram oriented toward "mobility and intermodality."<sup>40</sup>

In addition to the priority projects, the European Commission is further assisting the development of combined transport, with the more modestly funded Pilot Action for Combined Transport (PACT). Distinct from the Fourth Framework Program, PACT was established as a support program to promote integrated freight transport and shift freight traffic in an economical way specifically from road to other modes. Project proposals must be innovative, in terms of technology or opening up a new route for combined transport.<sup>41</sup> Such pilot projects are presented to the European Commission by a member country or by a public or private enterprise and must be approved by those states through whose territory the combined transport route will pass. Infrastructure construction and development are excluded from the PACT program, which are funded from a separate budget. Twice a year a committee of national experts appointed by the governments of the 15 member countries analyzes and selects projects that the European Commission administers.<sup>42</sup>

The objective of the first PACT program (1992-96) was to make intermodal transport more efficient, through promotion of research and projects relating to transshipment techniques, information technology, and telecommunications.<sup>43</sup> Under the first PACT program, 66 projects on 33 routes in all member countries were co-financed by the European Commission; the European Commission was to provide financial support for preliminary studies on aspects common to all projects (up to 100 percent), feasibility studies on a specific route (up to 50 percent), and innovative methods aimed at improving the quality of services (up to 30 percent).<sup>44</sup> In actuality, the first PACT program has provided funding for one study (on intermodal terminals) at 100 percent and 32 feasibility studies.<sup>45</sup>

The European Commission proposed to extend the PACT program until 2001, with a budget of ECU 35 million. The first PACT program generated two main findings: (1) that there is a need for public investment in intermodal transport equipment; (2) that there is a demand for financial assistance for commercial applications of transportation research.<sup>46</sup> The major goals of the new program are to increase the competitiveness of combined transport, promote the use of advance technology for combined transport, and improve access to combined transport for enterprises of all sizes. With respect to the first PACT program, the emphasis of financial assistance has shifted to innovative projects, which can

be financed for a duration of three years. Programs allowing 100 percent subsidies for preliminary studies have been discontinued. The relationship between the amount of funding and the benefits for the EU in terms of safety, the environment, and traffic flow is the criterion under which project priorities will be assessed.<sup>47</sup>

The linking of appropriate policy and research efforts has already led to the implementation of combined transport infrastructure. In 1994, a combined transport link (rail/port) was initiated from Greece via Italy to Central and Northern Europe. In addition, containers are transported by rail from the seaport at Rotterdam to several inland countries, such as Czechoslovakia, Switzerland, France, Spain, and Italy. Since the end of 1994, air-freight containers have been transferred from Frankfurt by truck to a combined transport terminal and then by rail to the Milan airport. Freight is also moved from short-sea transport to rail through the Channel Tunnel, since 1994.<sup>48</sup>

Directive 91/440/EEC separated infrastructure management and operations and guaranteed new and existing operators open access to the networks. This directive has led to more transport operators entering the combined transport market.<sup>49</sup> The issue of open access for all licensed operators is particularly relevant in rail, since the European Commission has proposed the development of trans-European rail freight freeways. Such freeways will likely become important to the overall intermodal transport system.<sup>50</sup>

## **Evolution of Logistics and Intermodal Transportation Practices**

Most governing organizations recognize the competitive value of logistics in the global economy. In the past ten years, increased global competition, shorter production and product life cycles, and the need to reduce costs have changed the requirements of the industrial process.<sup>51</sup> To achieve these results, the global business environment encourages firms to efficiently use logistics in their day-to-day operations. The term logistics encompasses a variety of processes, including warehousing, inventory management, and distribution. Logistics is defined as managing the flow and storage of raw materials, work in progress, finished goods, and other associated information from the point of origin to the point of final consumption in accordance with consumer needs.<sup>52</sup>

To what extent has the use of logistics influenced the ways companies compete in the global economy? Three major trends are occurring in Europe that point toward a convergence of local economies. These trends include a homogenization of consumer preferences, growth of communication technology, and reduction of international trade barriers. The combination of these social and economic trends strongly affect the direction of the EU's transportation policies.

A gradual homogenization of consumer preferences is an important factor that contributes to the internationalization of local economies. As domestic markets reach maximum capacity for individual producers, the gradual convergence of consumer preferences provide industries with valuable opportunities to promote their services and goods abroad.

In addition to converging consumer tastes, advances in communication technologies allow companies to transfer their information and capital around the world with increasing speed. Integrating advanced communication devices into the production and transportation system is a sound financial investment for many companies. Companies achieve economies of scale in the production and transportation process as well as other economic benefits from integrating advanced communication technology in their day-to-day logistics.

The gradual reductions in national trade barriers have opened up new commercial opportunities for businesses around the world. As nations reduce their trade barriers, the concept of a global marketplace is spreading. Concurrently, international trade is growing because of the development of multinational trade agreements. International trade agreements, such as the European Union or the North American Free Trade Agreement, often provide individual companies with economic incentives to increase their trade with other countries within their own regional trade blocs.

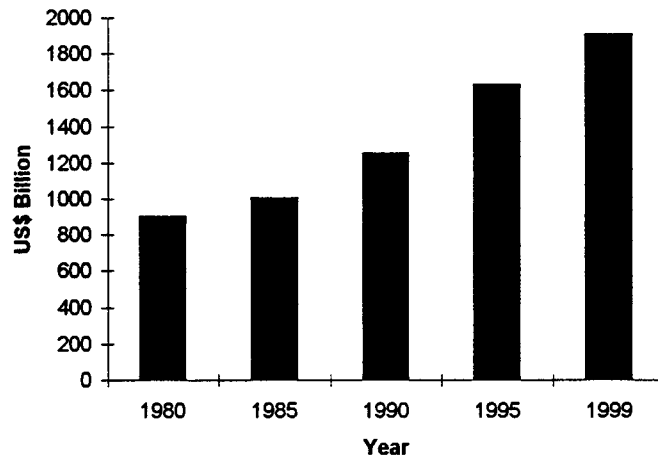
As the EU moves toward full integration in 1999, the global context of economic trade has two effects on European countries. First, as one of the world's largest regional trade blocs, the EU will have a significant role in the global market, challenging the U.S. position as the world's largest single market. Second, integration of the former Eastern European Communist countries into the EU is likely to be a strong factor in the growth of the world economy. Lower wages will decrease production costs, while accessing crucial road and maritime corridors within Eastern Europe will improve the international transportation network.

### **Logistics in the Global Market**

A worldwide logistics network is an essential element of multinational manufacturing and global marketing trends. Logistics provides the global infrastructure in which all other corporate operating systems operate. Therefore, competitive companies are likely to spend a greater percentage of their total costs toward logistics in order to meet the competitive demands of a global marketplace. In order to meet the demands for faster production and transfer of goods, worldwide logistics expenditures are expected to double from 1980 to 1999, as indicated in figure 10.1.

To meet the economic demands of a worldwide economy, globally competitive corporations need to design efficient logistics strategies. Efficient production and transportation systems represent critical competitive advantages in the global marketplace. Since transportation costs significantly affect product pricing, companies often turn to potential reductions in their delivery costs. Generally, a 20-percent reduction in the cost of logistics reduces the total production and delivery costs between 2 and 12 percent.<sup>53</sup>

**Figure 10.1**  
**Worldwide Logistics Expenditures**



Source: Adapted from Organization for Cooperation and Economic Development, *Integrated Advanced Logistics for Freight Transport* (Paris: 1996), p. 31.

To successfully compete in a time-based environment, companies need to reduce their overall costs by managing logistics as a single system or network, shortening their lead times, and producing specific components of a whole product through various locations along their transport routes. This process increases lead times and decreases the period in which shipments wait in costly storage. The benefits of a successful logistics strategy are better quality control, opportunities for rapid product innovation, economies of scale, lower total costs, and longer production runs.<sup>54</sup>

### **Status of Logistics Development in Europe**

The need for transport policy in Europe is often based on the view that the transport market and its socioeconomic effects are distinct from other sectors of the economy.<sup>55</sup> European governments have traditionally exerted control over their transportation sectors through public ownership. As a result, national operators have often been protected from competition without direct command over their ability to restructure their businesses. In return, these operators provided an essential social need for transport facilities. However, since the late 1970s, European countries applied policies of deregulation that have reduced the amount of subsidies to national operators, forcing them to look inward in order to maintain competitiveness. Although EU transport policies continue to pursue deregulation as an objective, they also continue to provide subsidies to high-speed rail and intermodal systems, as one aspect of their economic development plans.

## **Cost of Logistics**

The cost of logistics is difficult to identify, since it is typically dispersed throughout a variety of activities. However, a recent study by the Institute of Logistics and Distribution Management found that the two major costs of logistics are transport and storage. This study suggests that transport, storage, and inventory costs account for up to three-quarters of total logistics costs. As a share of total European logistics expenditures, transport, storage, and inventory account for 34, 37, and 23 percent, respectively. Relative to earlier decades, the costs of logistics fell. The researchers agree that this trend is attributable to a greater degree of efficiency in the use of vehicles.<sup>56</sup>

## **Source of Increased Productivity**

Given that the cost of logistics is concentrated in the storage and transportation costs, European commerce is benefiting from the international trends toward in-house production and greater efficiency in transportation systems. These trends allow firms to concentrate in the specialization of their services and production process. In addition to a reduction in the amount of in-house production, there has also been a reduction in the levels of in-house logistics. Logistics services typically range from product-oriented services, such as installation, to customer-oriented services, such as finance. Large companies sign contracts with logistics specialists, who create customized transportation plans for the movement of goods and services. In return, the contracting firm benefits by reducing its total costs while increasing its productivity.

Trends toward outsourcing logistics-related services are producing a high demand for third-party, or specialized, logistics companies worldwide. Third-party companies specialize in specific transportation and warehousing functions, such as freight forwarding, warehousing, transshipment, packaging, and express services. Manufacturing firms, used to overseeing their own transportation strategies, are now contracting with third-party companies to develop cost- and time-effective plans for the distribution of their goods and services. In 1992, the transport and warehousing of goods operated by third-party firms accounted for more than 65 percent of road ton-km in Europe.<sup>57</sup>

The rationalization of inventory stock is the driving force behind the implementation of just-in-time (JIT) production and distribution, according to the principle “the right amount at the right time in the right place.” Hence, JIT is predicated on the view that tradeoffs exist between transport and inventory costs, which is fundamental to the organization of distribution systems. “The reduction of inventories . . . implies that components and goods are ideally always in motion within the value chain. Transport becomes an inseparable element of a logistics chain in which a deficiency in one component can affect the other components of the chain.”<sup>58</sup>

Problems associated with congested roads due to JIT production have interesting implications for intermodal transportation. Provided that the prospects of an energy tax in Europe does not increase the cost of transportation and reverse the trend toward fewer



warehouses and longer hauls, intermodal transportation may turn out to be a better means of transporting goods as compared to slow-moving congested roads.<sup>59</sup>

## **Current Activities and Trends in Europe**

### ***Deciding Factors for the Development of EU Logistics Terminals***

EU transport policies focus on the construction of freight terminals that facilitate the transfer of goods between different modes and storage centers. There are currently four elements involved in the planning of logistics centers, including location, size, use of existing infrastructure, and compatibility with transshipment procedures. Efficiently distributing the location of terminals can optimize the benefits of local and long-distance traffic by clustering logistics functions together in terms of volume. Furthermore, the location of logistics centers in rural areas without other transport modes may produce additional road traffic.<sup>60</sup> Building large freight terminals to accommodate larger businesses is another important element of EU transport planning. In addition to location and size, the possibility of using existing infrastructure developed by different transportation modes is the third factor that determines the development of logistics centers. Finally, EU planners explore the issue of technical compatibility between transshipment procedures. Possessing standardized technical equipment is important to effectively operating a logistics terminal.

EU transport policies focus on the benefits of logistics centers to the Pan-European network. A Pan-European network will support EU economic integration and overall competitiveness in the world economy through the construction of a high-quality transportation network. This network is estimated to require between 200 and 300 logistics centers.<sup>61</sup>

### ***Development of Service Standard Agreements***

Air and road transport companies in Europe are increasingly adopting agreements for minimum service standards. The purpose of these agreements is to create a more consistent chain of services across the European continent.

Lufthansa, the recently privatized German airline, adopted such an agreement in April 1998. Lufthansa Cargo began offering guarantees on delivery times for freight. One offering within Lufthansa's program refunds a customer's entire delivery bill if goods are delivered late. Lufthansa began offering this service in response to customer complaints about the lack of certainty regarding delivery times. Similar guarantees were already offered by many of the air-courier companies with which Lufthansa competes.

Additionally, in March 1998, a group of approximately 20 French shippers, distributors, and trucking companies signed a "charter of service quality" for road transportation. This charter institutes minimum performance standards and provides incentives for those who meet them, while penalizing those who fall short. Air carriers in the United Kingdom and Sweden are planning to implement similar programs in their own markets.<sup>62</sup>

## Role of EU in the Development of Transport Centers

Various opinions exist on what should be the proper role of the EU in transport planning. Widespread belief exists that the EU's primary role should be to finance the development of logistics centers, but, at the same time, have little say regarding location decisions on the type of services provided.<sup>63</sup> In 1991, 51 percent of 52 intermodal operators believed that the EU should play a major role in the investment of logistics centers, while 15 percent expressed the opinion that they should also help determine the types of services the centers provide (see table 10.2).<sup>64</sup>

**Table 10.2**  
**Stakeholder Survey on Prospective Role of the European Union in**  
**Developing Transshipment Centers**

Area of Influence	Major Role	Minor Role	No Role
Investment	51%	42%	7%
Location	40%	30%	30%
Types of Service	15%	35%	50%

Source: Data from unpublished survey from European Commission called "Terminals and Cargo Traffic Centers," (Brussels, 1991), in Daniel Hölting, *Intermodal Logistics Centres, European Combined Transport and Regional Development* (Ph.D. Diss., University of Cambridge, 1995), p. 101.

Note: Survey of 52 intermodal operators, transport organizations and authorities.

## Transition Processes/Obstacles to Intermodal Transportation in Europe

### Environment

Other obstacles impede a seamless transfer of services and goods within a single market. For instance, increasing freight traffic is currently damaging the environment, which is partially a result of logistics systems that are increasing the use of saturated transport networks.<sup>65</sup> Furthermore, the integration of Eastern European countries into the EU will inevitably increase freight traffic and harm the environment. Public concern about road congestion and air pollution is growing as Europeans become aware of the adverse effects of transportation.

Several factors are temporarily alleviating the problem of road congestion. Nighttime transportation is one way in which shippers escape daytime congestion. Logistics centers can also centralize traffic management by allocating unused portions of containers and vehicles for the maximum transportation of goods in a single vehicle. For instance,

centralizing transport management in logistics terminals helped Germany increase its use of containers by 30 percent and reduce its travel by 25 percent.<sup>66</sup>

### **Technical and Safety Standards**

Although the Maastricht Treaty mandates technical standardization to ensure interoperability between the trans-European network projects, this process is far from complete in less-developed European countries. Therefore, a second obstacle to intermodal transportation comes from poor European countries that are not a part of the EU. Less-developed countries, which may join the EU in the future, lack safety standards and possess poor transportation infrastructure. In addition, incompatibility problems in nonstandardized railway signaling systems, containers, and bridge heights present a formidable obstacle to the EU's plans to expand its transport network.<sup>67</sup>

### **Pricing**

Many European countries also possess a wide variation in pricing systems. Transport pricing and user fees vary considerably from mode to mode. Moreover, external costs, such as pollution and the use of infrastructure, are not covered to similar degrees by the different transport modes. The EU has proposed to standardize transport pricing and charge user fees for infrastructure.

### **Information Technology**

Road transport is less expensive than combined transport over short distances for several reasons. Road transport does not require expensive transshipment systems and equipment. For instance, combined transport requires expensive information technology for tracking and billing shipments. This external cost represents an added challenge for intermodal operators.

Nevertheless, information technology is an important management tool for all transportation operators. The development of automated interfaces across modes and the coordination of timetables support a comprehensive information network for improving the management of intermodal transport. Coordination and information exchanges between countries are crucial since the development of networks is ongoing. However, EU members currently lack such coordination.

### **Financing the Trans-European Transport Network**

The European Commission has estimated that the trans-European transport network will cost ECU 400 billion by 2010. The network cannot be financed solely by member countries, who are in the process of reducing their national debts in order to comply with requirements mandated in the Maastricht Treaty. The European Commission estimates that only ECU 90 billion of the total ECU 220 billion required by 1999 will be publicly financed.<sup>68</sup> The widely held view is that it will be necessary to generate the remainder of the funds from public/private partnerships.

**Table 10.3**  
**Estimated Funding for Trans-European Networks**  
**ECU billions (billions of US\$)**

<b>Mode</b>	<b>Priority Projects by 1999</b>	<b>Priority Projects by 2020</b>	<b>Investment Necessary by 2020</b>
Roads	81 (\$92)	62 (\$70)	143 (\$162)
High-Speed Trains	72 (\$81)	62 (\$70)	134 (\$151)
Combined Transport, Conventional Railways	22 (\$25)	23 (\$26)	45 (\$51)
Inland Waterways	14 (\$16)	6 (\$7)	20 (\$23)
Ports	1.5 (\$2)	0	1.5 (\$2)
Airports	24 (\$27)	5 (\$6)	29 (\$33)
Vessel Traffic Management	9 (\$10)	5 (\$6)	14 (\$16)
Air Traffic Management	8 (\$9)	0	8 (\$9)
<b>Total</b>	<b>231.5 (\$262)</b>	<b>163 (\$184)</b>	<b>394.5 (\$446)</b>

Source: Data from George Schoener, Gerhardt Muller, Otto Sonefeld, and Richard Roberts, *FHWA Study Tour for European Intermodal Programs: Planning, Policy, and Technology* (Washington, D.C.: U.S. Department of Transportation, 1994), p. 17.

Table 10.3 shows the anticipated funding requirements for completion of the transport network, broken down by category of investment and the period for which the funds are allocated.

### **Community Funding Instruments**

The EU provides four sources of funds for the construction of the trans-European transport network: the EU budget, the Structural and Cohesion Funds, the European Investment Bank (EIB), and the European Investment Fund (EIF). In 1996, the EU's

total budget was ECU 85.6 billion, which is less than 1.2 percent of the total GDP of all member countries. The EU budget is derived from taxes charged on imported agricultural products, levies on sugar companies, customs duties on trade with countries outside the EU, a value-added tax, and a contribution from each member country proportional to its GDP.<sup>69</sup>

For the period 1995 to 1999, ECU 1.8 billion is available from the EU's budget for transportation projects.<sup>70</sup> These funds are used to finance feasibility studies for high-risk projects that are less appealing to private investors, to finance interest rebates on loans from the EIB and commercial lenders, and to pay for loan guarantees from the EIF and other entities. In a May 1995 speech to the EIB Conference given in Amsterdam, EU Transport Commissioner Neil Kinnock stated that "TEN resources should be used to generate public and private funds, and not to provide some sort of extension to the Structural Funds."<sup>71</sup>

Structural Funds are set aside specifically for less-developed regions of the EU, which account for about one-fourth of the EU. Structural Fund moneys are intended to alleviate regional disparities and encourage uniform development across the EU. The EU has set aside ECU 15 billion in the Structural Fund until 1999 to be used for transport projects.<sup>72</sup> The European Regional Development Fund (ERDF), from which investment in transportation infrastructure is derived, accounts for 56 percent of the Structural Fund.<sup>73</sup>

The Cohesion Fund is available to countries whose GDP is less than 90 percent of the EU average. The fund may be used for investment in transportation infrastructure and environmental improvements or to control member countries' budget deficits.<sup>74</sup> Spain, Portugal, Greece, and Ireland are the sole recipients of this fund, which is intended to help these nations meet the requirements for economic and monetary union by the end of the twentieth century. There are ECU 16 billion in the Cohesion Fund allocated for 1993 to 1999.<sup>75</sup>

Since the Cohesion Fund is intended to improve the economic condition of the member countries receiving aid, projects receiving this money "must be of a sufficient scale to have a significant impact in the field of environmental protection or in the improvement of TENs." Most projects receiving aid from the Cohesion Fund have a total cost of at least ECU 10 million. Additionally, member countries receiving aid must make a commitment to "bring [their] public finances under control within the time limit set by the Council of the Union." If a member country does not comply with this rule, funding may be suspended. All projects that receive money from the Cohesion Fund are assessed before work begins to ensure that the "economic and social benefits of the project are commensurate with the resources deployed."<sup>76</sup>

The EIB was established in 1958 to provide funding for projects that further the development of the European Economic Community and the integration of Europe.<sup>77</sup> It is the largest source of finance at the EU level, with total annual loans of ECU 20 billion.<sup>78</sup> The EIB gathers most of its funds from borrowing in capital markets, and its primary goal is to finance projects that "contribute to the integration, balanced development, and

economic and social cohesion of the countries of the EU."<sup>79</sup> Between 1991 and 1995, the EIB borrowed more than ECU 67 billion and contributed to the financing of capital investments valued at nearly ECU 300 billion.<sup>80</sup>

Loans from the EIB are designed to meet the needs of large infrastructure projects and are limited to 50 percent of the capital costs of a project. Since 1995, the EIB loaned money to seven of the fourteen Essen priority projects described earlier. The EIB may offer loans, with maturities of up to 20 years and interest rates that vary by project.<sup>81</sup>

The EIF was established in June 1994, with initial capital of ECU two billion, and is 30 percent owned by private financial institutions.<sup>82</sup> The EIF provides loan guarantees for TENs and "aims to encourage and facilitate various forms of project finance that will draw in institutional investors."<sup>83</sup> EIF-guaranteed bonds are convertible into shares or investment certificates. Also, bonds will be issued by the EU to promote major infrastructure projects, including TENs and cross-border projects. Project promoters, like public-sector agencies and private companies, will act as beneficiaries.<sup>84</sup>

### **The Role of Public/Private Partnerships in Building the Network**

The consensus among transportation authorities in Europe is that the private sector will become a critical source of funding for the TENs, and public/private partnerships should be encouraged. Such partnerships are considered particularly crucial to the development and delivery of telematic systems (a combination of telecommunications and informatics) on which intermodal transportation depends.<sup>85</sup> The establishment of these partnerships can be problematic, because the private sector evaluates a project's viability with different criteria from those of the public sector. The EU desires economically sound projects that "will produce positive benefits for society."<sup>86</sup> However, economic viability does not necessarily equate with financial viability required by the private sector. The private sector requires a project to generate sufficient revenue to cover investment costs and provide an adequate return. The various TEN transport projects are estimated to have rates of return between 3 and 8 percent, an insufficient amount to attract private investors.<sup>87</sup>

Another hindrance to private financing is the fact that the construction of transport projects often extends for a period of six to seven years or more. Private investors must make substantial cash outlays during this time, yet receive no revenue until the project is fully operational. Uncertainty about growth of traffic flow and associated revenues is another cause of hesitation for the private investor. Finally, private investors need assurance that changes in public policy will not ruin or diminish the financial viability of a project before the private entity is compensated for its investment.<sup>88</sup> The benefits of transport infrastructure to society as a whole, in the form of reduced congestion, pollution, and travel times, as well as higher levels of efficiency, often far exceed the financial returns to the provider. Therefore, it is important to develop arrangements that encourage investment in such infrastructure.<sup>89</sup>

To facilitate cooperation between public and private entities, it is necessary that the private entity becomes involved early in the planning stages of a project. According to Bernard Gerardin, an adviser to the EIB, the key issue in arranging such partnerships is the division of responsibility between the public and private entities involved in the project. Public and private authorities will each require that they maintain control over the resources they dedicate to the project.<sup>90</sup>

Noting that the involvement of the private sector in the construction and operation of public infrastructure helps overcome deficiencies in public funding, the public/private partnership also brings an exchange of expertise. Public/private partnerships are a method of using private-sector skills and initiative to achieve greater efficiency than would be possible through public action alone.<sup>91</sup> To be a successful participant in the provision of transport infrastructure, a private-sector organization must be able to execute the project in a more efficient manner than can the public sector, and still achieve financial gains. To maintain a sense of control, a private entity frequently takes control of the design, building, financing, and operation of the project. Thus, there is an incentive to complete the project quickly and efficiently.<sup>92</sup> Such projects are increasingly financed by equity from the project's owners, not capital markets.<sup>93</sup>

The public sector's primary responsibilities are to "reduce long term risk through some form of guarantee; provide a stable contractual environment with a clear set of rules and transparency in the decision process; lower the cost of finance through fiscal advantages, monetary policy, guarantees on loans; and improve the regulatory framework for long term finance."<sup>94</sup> The construction of transport infrastructure also requires public authorities to use their power to grant rights-of-way, allow certain modes advantages over others, and make decisions regarding acceptable levels and forms of environmental impact.<sup>95</sup>

The EU is currently examining the idea of corridor or project authorities. These entities unite public and private bodies from the start of a project. They are responsible for the construction and operation of infrastructure projects and receive tax advantages and investment protection as national limited liability corporations. One advantage of corridor authorities is that they can be quite effective in circumventing problems with international standards.<sup>96</sup>

Ultimately, the successful coordination of public and private investment in transport projects requires the recognition that each project has different financing needs. Therefore, the EU must customize each financing package to the needs of the specific partners involved. The European Commission has suggested a number of ideas for how to tailor such packages. Several of these ideas include

supplying reimbursable grants, with repayments placed into revolving funds for allocation to other projects; making multiannual commitments from [the EU's] budget to assure project promoters of financial support for a determined period; provide equity finance for the start-up period of a project to attract private capital. The EIF could be a provider of such equity, using [the EU's] borrowing and

lending powers to supply Union partnership loans with fixed interest rates and long maturities; and provide guarantees for projects which justify a reduction or a sharing of risks.<sup>97</sup>

## **Privatization and Deregulation**

The move toward the privatization and deregulation of transport markets in Europe has been fueled by the realization that the economic and social future of the EU depends on the ability of European firms to successfully compete in international markets. Paul Webb, a lecturer in the Department of Politics at Brunel University, argues that the trend toward mergers and large corporations that has been in place since the 1960s has caused industry to become more multinational in nature. It has also resulted in increased mobility of capital and investment across national borders.<sup>98</sup> In particular, this trend has resulted in a movement of capital out of Europe and into the Pacific Rim, where labor costs are lower. The governments of individual member countries do not have as much control over their domestic economies as in the past. The move toward economic unity for the European Union is in part a response to these factors. Hundreds of regulatory barriers have been removed and standardized in order to facilitate this transition.<sup>99</sup>

While the term “deregulation” is often applied to changes being made in the regulatory framework of European transport, regulatory reform is perhaps a better term. Deregulation is only one aspect of this reform. The goal of regulatory reform is not to do away with regulation in the transport market, but to institute effective regulations that will allow the transport market to contribute to the growth of national economies.<sup>100</sup> To make European businesses more competitive internationally, governmental subsidies to transport providers are being discontinued in the name of freer and fairer competition. The requirement of permits that restricts the activities of transport operators in foreign markets are also being removed. Rules regarding “vehicle exercise duty, fuel tax, motorway tolls, road haulage vehicle weights, and drivers’ hours” will have to be standardized throughout the EU before a single European market can be made a reality.<sup>101</sup> According to Webb, these actions indicate a shift in the focus of regulatory policy from the national level to the EU-wide level.<sup>102</sup>

In 1985, the *Cockfield Report*, which laid many of the foundations for the creation of a single European market, identified several regulatory issues in the transport market as important. The report argued that quotas on road transport between member countries needed to be removed and that cabotage rights (the right of road haulers from one member country to operate within the borders of another member country) needed to be established.<sup>103</sup> It also argued for the expansion of inland waterway services into areas in which they had not been previously available and for the development of conditions under which inland waterway shippers from one member country could operate in another member country. The *Cockfield Report* recommended that ocean shippers be allowed to operate between member countries without regulatory impediments.<sup>104</sup>

In response to the *Cockfield Report*, the European Council of Ministers developed four principles as the base of regulatory reform of European transport. These four principles



are “equality of treatment within and between different forms of transport; freedom of competition; free choice of uses and coordination of infrastructure; and the need to develop policies with respect to the environment based on the polluter-pays principle.”<sup>105</sup>

Progress in the implementation of regulatory reforms has been slow. Since 1962, the European Commission has issued licenses to road operators that allowed operation within all member countries and that replaced bilateral licenses between two member countries. However, these licenses were issued only gradually and by quota, and by 1986, they accounted for just 5 percent of total licenses issued within the EU.<sup>106</sup> Since 1986, the number of multilateral licenses has increased yearly, and eventually they are to replace bilateral licenses almost entirely.<sup>107</sup> While road cabotage rights are slowly being extended, they have been introduced with limitations that have been demanded by Germany and France, such as the right to limit a carrier’s operations if it is found to have significant market share within a geographical region. Likewise, there has been only limited progress in liberalizing waterborne transport markets, with a program of changes to be implemented gradually until 2004.<sup>108</sup>

Indeed, the implementation of plans for extending such rights has been a struggle for the EU. In 1995, EU transport officials proposed a plan for a road-use tax on trucks, called the Eurovignette system, intended to increase collections. Eurovignette authorizes the governments of member countries to sell tickets to operators of trucks weighing more than 12 tons. These tickets license the operators to use that country’s roads for a set period of time. The plan is intended to standardize road-use taxes across the EU, the laws of which forbid a member from charging fees that discriminate between national truck operators and truck operators from other member countries.<sup>109</sup>

Upon proposal of Eurovignette, the European Court of Justice declared the system used to collect fees illegal but allowed collection to continue until a new system could be devised. In December 1997, the European Council of Ministers of Transport reached an impasse in discussions on how to revise the collection system.<sup>110</sup>

Eurovignette has been implemented in Germany, Luxembourg, Belgium, Denmark, and the Netherlands. Sweden is preparing to implement it. The remainder of the EU has refused to implement the measure and prefers to collect taxes based on distance traveled. The British government has declined to implement the program, as it is preparing to install an electronic toll system. This inability of the individual member countries to come to a consensus on the basis for road-use taxes is considered to be the cause of the standstill on development of a new collection scheme.<sup>111</sup>

Also, a decision on the fate of Europe’s sales tax on passenger transport is pending in 1998. Rail travelers face steep taxes in roughly half the EU on trips that cross national borders; Germany’s tax accounts for approximately 15 percent of the ticket price. Conversely, international flights within the EU are exempt from the sales tax. The Community of European Railways in Brussels supports the abolition of the tax, as it would make rail more competitive with air transport. It is estimated that the tax drives between 6,000 and 40,000 passengers away from the railways yearly.<sup>112</sup>

Imposing a similar tax on airline flights would bring a heavy burden to air carriers. It is estimated that such a tax would reduce airline earnings by as much as 5.9 percent of gross revenue. Considering that profits are typically between 5 and 10 percent of gross revenue, it is clear that tax this would be a heavy burden indeed. However, it is estimated that such a system would increase revenues from the tax from their current level of \$50 million yearly to \$3 billion yearly.<sup>113</sup>

Corresponding to changes in the regulation of European transport has been a move toward privatization of transport. This move has taken two forms: (1) increased private-sector involvement in the provision of transport services in order to make up budget deficiencies and speed construction and implementation of desirable projects and (2) the sale of publicly held companies. The first aspect was discussed earlier in "The Role of Public/Private Partnerships in Building the Network." The second will now be discussed.

A desire to relieve the public sector of debt-laden, publicly held corporations has encouraged the drive toward privatization of European transport. In addition to removing burdensome budget items, by privatizing transport firms, governments hope to make them competitive, efficient, and profitable. An example of this is Lufthansa, the German national airline. Lufthansa's debt was approximately 4 billion German (Deutsche) marks (denoted as DM 4 billion) by the end of 1994.<sup>114</sup> The German government began privatizing Lufthansa in 1994 and planned to complete the process by the end of 1997, selling off its remaining shares of stock.<sup>115</sup> The government's shares of Lufthansa stock were offered for sale in September 1997. As of September 29, 1997, almost all shares had been sold.<sup>116</sup> Deutsche Bahn AG, the national rail company, with a debt totaling DM 66 billion in 1993, is set to be privatized by the end of the century.<sup>117</sup> These two privatizations are part of a larger scheme of privatization that has included thousands of enterprises that were nationalized by the government of the former East Germany, which became the property of the Federal Republic of Germany upon reunification on October 3, 1990. The purpose of this larger scheme of privatization is to "develop a 'lean' government which concentrates on those areas that cannot be managed through private initiative. The scope of the private sector should expand as a result of the privatization of government owned enterprises. The Federal Government considers this not only to be an advantage for investors, but also a gain for the entire economy because it will lead to greater efficiency, more competition and innovation."<sup>118</sup>

German Chancellor Helmut Kohl stated his position in a 1983 statement that "the more a government stays in the background and allows the individual his freedom, the more successful an economic system will be. What we want is not more, but less government."<sup>119</sup>

Conversely, the government of France has played a prominent role in directing the French economy since the end of World War II. From 1986 to 1988, Prime Minister Jacques Chirac's conservative government launched a privatization program that was contrary to this tradition. Sixty-six firms were to be privatized, primarily those nationalized by the socialist government during the first half of the 1980s and those nationalized by President Charles de Gaulle in the 1940s.<sup>120</sup> Approximately one-third of the planned sales had been

carried out before the stock market crash of 1987 ended the program. In March 1993, the conservatives returned to power with plans to resume privatization of nationalized firms, including Renault and Air France.<sup>121</sup> With the resounding defeat of the conservative government in France's 1997 elections, to be replaced by the Socialist Party, it seems unlikely that the next several years will see large-scale reform and privatization in France.<sup>122</sup>

Perhaps one of the most interesting examples of privatization is that of British Rail. The British government initiated the privatization of the national rail company with the Railways Act of 1993. The privatization extended to all aspects of the rail system: infrastructure and rolling stock, both passenger and freight transport.<sup>123</sup> The privatization scheme involves replacing British Rail with more than 60 individual rail companies. This switch from a single, nationwide rail system to a less-integrated structure has proved unpopular with rail travelers and members of both the ruling and opposition parties, despite the government's claims of success.<sup>124</sup>

## Common Carriage and Rail Freeways

An issue that is at the heart of the privatization of British Rail is common carriage on European railways, or the creation of rail freeways, as laid out in the European Community Directive 91/440. Under common carriage, national governments are responsible for the construction and maintenance of railway infrastructure, which is to be managed separately from track operations. Railway companies then pay user fees for the use of infrastructure. An integral part of this policy, as stipulated by the European Commission, is that rail tracks will be open to all railway companies in a competitive environment.<sup>125</sup> The implementation of this plan will allow individual rail operators to "run nonstop freight services across Europe with their own locomotives, railcars and engineers, paying a single track fee set by an independent agency."<sup>126</sup> The EU wishes to establish a level of accessibility to the rail network comparable to that of the road network for freight operators, thereby making rail a more attractive means of transporting freight. Indeed, on routes selected to be a part of the plan, freight will receive priority over passenger transport.<sup>127</sup>

In a 1996 White Paper, *A Strategy for Revitalising the Community's Railways*, the European Commission identifies the issues that have provided the impetus for common carriage and how it hopes common carriage will solve these problems. According to the European Commission, the major problem with Europe's railways is that they have not been required to respond to market forces. Governmental subsidies protected national rail companies from losses due to poor management and thus removed the incentive to make these companies more efficient.<sup>128</sup> Dissatisfaction with the service provided by rail transport has resulted, and rail's market share has declined accordingly, from 32 percent in 1970 to 15 percent in 1995.<sup>129</sup>

Rail's decline in market share is problematic for the EU. The reduced market share has been achieved by the shift of rail traffic to highways, exacerbating already severe problems

with congestion, environmental damage, and noise pollution. The EU's focus on common carriage is in the hopes of alleviating these problems by making rail more efficient and reliable. By making railways a more attractive means of transport for both passengers and goods, the EU hopes that railways will recapture lost market share from road transport.<sup>130</sup>

To achieve this goal, the European Commission suggests that railway companies should be run as businesses. Management of rail companies should be independent, with the authority to take advantage of available market opportunities. Railway management should also be accountable for failures. Rail infrastructure will be openly accessible to rail companies who will pay fees for its usage.<sup>131</sup> It is hoped that this arrangement will increase competitiveness in the rail sector, thus enhancing European competitiveness in the international business community.

An integral part of the plan is the establishment of one-stop-shops, neutral bodies that will act as managers of individual rail freeways. Each one-stop-shop will be responsible for marketing and promoting the freeway to carriers. Other responsibilities are analyzing capacity of infrastructure; "[undertaking] path discussions with Infrastructure Bodies and Rail Forum Europe (which is the body responsible for coordinating international train paths) on behalf of train operators and allocate paths; monitoring and controlling performance of the Freeway; and undertaking charging on behalf of the individual Infrastructure Managers."<sup>132</sup>

A group comprising Germany, Austria, the Netherlands, and Italy was formed in January 1997 and charged with the consideration of possible routes for the first rail freeway. Routes considered include links from Gioia Tauro, Italy to Genoa to Rotterdam; Brindisi, Italy, through Verona and Brenner to Hamburg; and Vienna through Nuremburg to the Ruhr region.<sup>133</sup> As of January 1998, the routes from Rotterdam to Gioia Tauro and from Hamburg to Brindisi are open.<sup>134</sup>

Common carriage will not advance without overcoming obstacles. Common carriage entails a major restructuring of the railway transport sector and considerable amounts of time. Because rail infrastructure is still financed primarily from public budgets, the mentality that transport enterprises should be run as businesses has not taken hold of infrastructure operators to the same degree as service operators. It is also widely believed that the once national rail companies of the European countries will take a long time to adopt a private-sector culture.<sup>135</sup>

The effectiveness of those routes that have been opened in accomplishing their stated goal is questionable. According to Rob de Besten, vice-president of the Community of European Railways, the timetables under which the freeways currently operate do not truly give freight transport priority over passenger transport. De Besten argues that if measures are not taken to make rail transport substantively faster and more efficient than at present, the establishment of rail freeways will fail to differentiate freight transport on the rail freeways from rail freight before the establishment of the freeways in the eyes of the consumer.<sup>136</sup> EU Transport Commissioner Neil Kinnock estimates that, if reforms intended to revitalize European railways are not successful, freight transport may

disappear from the rails within 15 years.<sup>137</sup> Even those routes that are open have been largely eschewed by rail operators because they involve inland price-fixing, which EU Competition Commissioner Karel van Miert has declared illegal.<sup>138</sup>

The process of transforming European railways into rail freeways has also been impeded by internal divisions within the EU. In June 1997, France vetoed the EU's plan for rail freeways. The veto was most likely an attempt to maintain the monopoly of the French national rail company in French territory.<sup>139</sup> France's compliance is important to the EU's plan for rail freeways. France has the EU's most extensive rail network and is centrally located, sharing borders with Germany, Belgium, Italy, Switzerland, and Spain.<sup>140</sup>

Additionally, France has complied only minimally with European Commission Directive 91/440, that is, by establishing separate accounting procedures for infrastructure and operations, within one still nationalized and subsidized rail company, Société Nationale des Chemins de Français (SNCF).<sup>141</sup> France's initial veto forced Commissioner Kinnock to cancel plans for a route between Antwerp, Belgium, and Milan, Italy.<sup>142</sup> Subsequent to the veto, France established its own rail freeway route. This route is dominated by SNCF, however, and access is limited to existing operators.<sup>143</sup>

## Notes

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- <sup>2</sup> Commission of the European Union, *Intermodality and Intermodal Freight Transport in the European Union* (Brussels, Belgium: European Commission, 1997), p. 1.
- <sup>3</sup> European Commission, "TENs for Transport," European Commission web site [cited October 1997], available from: <http://www.europa.eu.int/pol/ten/en/transp.html>; INTERNET.
- <sup>4</sup> Xenon Laboratories Incorporated, Universal Currency Converter, Xenon Laboratories Incorporated web site [cited April 7, 1998], available from: <http://www.xe.net/cgi-bin/ucc/convert>; INTERNET.
- <sup>5</sup> Commission of the European Communities, *Transport in the 1990's* (Luxembourg: Office for Official Publications of the European Communities, 1993), p. 6.
- <sup>6</sup> Steffen Bukold, Wolfgang Hager, Hugo Olsen, and Wilma van Bodegom, *The State of European Infrastructure 1996* (Rotterdam: European Centre for Infrastructure Studies, 1996), p. 7.
- <sup>7</sup> European Commission, *EU Transport in Figures* (Luxembourg: Office for Official Publications of the European Communities—Directorate-General VII, 1997), p. 39.
- <sup>8</sup> Secretariat of the Economic Commission for Europe, *Economic Survey of Europe in 1996-1997* (Geneva, Switzerland: United Nations Press, 1997), p. 11.
- <sup>9</sup> Commission of the European Communities, "Benchmarking the Competitiveness of European Industry," *Communication from the Commission*, no. 463 (October 9, 1996), p. 6.
- <sup>10</sup> Delegation of the European Commission to the United States (1997) (pamphlet).
- <sup>11</sup> Secretariat of the Economic Commission for Europe, *Economic Bulletin for Europe*, vol. 48 (Geneva, Switzerland: United Nations Press, 1996), p. 1.
- <sup>12</sup> European Commission, "Agenda 2000 Communication: The Effects on the Union's Policies of Enlargement to the Applicant Countries of Central and Eastern Europe," vol. 2, European Commission web site [cited November 1997], available from: <http://www.europa.eu.int/comm/dgla/agenda2000/en/strong>; INTERNET.

<sup>13</sup> Delegation of the European Commission in the United States, *The European Union*, Washington, D.C. (April 1996) (pamphlet).

<sup>14</sup> European Commission, *Trans-European Networks* (Luxembourg: Office for Official Publications of the European Union, 1994), pp. 2-5.

<sup>15</sup> European Commission, "Community Guidelines for the Development of the Trans-European Transport Network," *Official Journal of the European Communities*, vol. 39, no. L/228/1 (September 9, 1996), p. 6.

<sup>16</sup> Commission of the European Union, *Intermodality and Intermodal Freight Transport in the European Union*, p. 1.

<sup>17</sup> *Ibid.*, p. 3.

<sup>18</sup> European Commission, "Maastricht Treaty," [cited October 1997], available from: <http://www.pei-intl.com>; INTERNET.

<sup>19</sup> George Schoener, Gerhardt Muller, Otto Sonefeld, and Richard Roberts, *European Intermodal Programs: Planning, Policy and Technology*, (Washington, D.C.: U.S. Department of Transportation, Federal Highway Administration, September 1994), p. 15.

<sup>20</sup> European Commission, "European Union Official Documents," European Commission web site [cited October 1997], available from: <http://www.europa.eu.int/comm/off>; INTERNET.

<sup>21</sup> Commission of the European Communities, *The Future Development of the Common Transport Policy: A Global Approach to the Construction of a Community Framework for Sustainable Mobility* (Luxembourg: Office for Official Publications of the European Communities, September 1994), pp. 6-8.

<sup>22</sup> European Commission, *Growth, Competitiveness and Employment: The Challenges and Ways Forward into the 21<sup>st</sup> Century* (Luxembourg: Office for Official Publications of the European Communities, 1994), p. 71.

<sup>23</sup> Commission of the European Union, *Intermodality and Intermodal Freight Transport in the European Union*, p. 8.

<sup>24</sup> Schoener et al., *European Intermodal Programs*, p. x.

<sup>25</sup> European Commission, "Toward Fair and Efficient Pricing in Transport," *Bulletin of the European Commission*, no. 691 (1996), p. 9.

<sup>26</sup> Ibid., p. 10.

<sup>27</sup> Ibid.

<sup>28</sup> Schoener et al., *European Intermodal Programs*, p. xi.

<sup>29</sup> Commission of the European Union, *Intermodality and Intermodal Freight Transport in the European Union*, p. 10.

<sup>30</sup> Ibid., p. 4.

<sup>31</sup> Ibid., pp. 5, 15.

<sup>32</sup> Ibid., p. 7.

<sup>33</sup> European Commission, "Community Guidelines for the Development of the Trans-European Transport Network," p. 2.

<sup>34</sup> Bukold et al., *The State of European Infrastructure*, p. 20.

<sup>35</sup> Schoener et al., *European Intermodal Programs*, p. 6.

<sup>36</sup> Bukold et al., *The State of European Infrastructure*, p. 20.

<sup>37</sup> European Commission, *Infrastructure for the 21<sup>st</sup> Century* (November 1996) (pamphlet).

<sup>38</sup> European Commission, *The Trans-European Transport Network* (Luxembourg: Office for Official Publications of the European Communities, 1994), p. 52.

<sup>39</sup> Ibid.

<sup>40</sup> European Commission, "The Fifth Framework Program," European Commission web site [cited October 1997], available from: <http://www.europa.eu.int/comm/dg12/press>; INTERNET.

<sup>41</sup> European Commission, "PACT's User Guide," [cited October 1997], available from: <http://www.europa.eu.int/en/comm/dg07/pact>; INTERNET.

<sup>42</sup> Commission of the European Communities, "Concerning an Action Program to Promote the Combined Transport of Goods," *Commission Communication*, no. 335 (July 24, 1996), p. 5.



<sup>43</sup> *Focus on Combined Transport* (Brussels: International Union of Rail-Road Transport Companies, December 1995), p. 12.

<sup>44</sup> European Commission, “Concerning the Granting of Financial Support for Pilot Schemes to Promote Combined Transport,” *Official Journal of the European Commission*, no. L 16/55 (December 22, 1992), p. 2.

<sup>45</sup> Commission of the European Communities, “Concerning an Action Program to Promote the Combined Transport of Goods,” p. 5.

<sup>46</sup> *Ibid.*

<sup>47</sup> *Ibid.*

<sup>48</sup> *Focus on Combined Transport*, p. 12.

<sup>49</sup> Commission of the European Communities, “Concerning an Action Program to Promote the Combined Transport of Goods,” p. 8.

<sup>50</sup> Commission of the European Union, *Intermodality and Intermodal Freight Transport in the European Union*, p. 10.

<sup>51</sup> European Parliament, *Intermodality and Intermodal Freight Transport in the European Union* (n.d.), p. 10.

<sup>52</sup> *Ibid.*

<sup>53</sup> European Conference of Ministers of Transport and the Economic Research Centre, *New Trends in Logistics in Europe* (Paris 1996), p. 9.

<sup>54</sup> Organization for Economic Cooperation and Development, *Integrated Advanced Logistics for Freight Transport* (Paris 1996) p. 31.

<sup>55</sup> David Godfrey Höltingen, “Intermodal Logistics Centres, European Combined Transport and Regional Development,” (Ph.D. Diss., University of Cambridge, 1995), p. 46.

<sup>56</sup> *Ibid.*, p. 89.

<sup>57</sup> Institute of Logistics and Distribution Management, *European Comparative Costs and Practices*,

(Advantage Touche Roche Series, 1992).

<sup>58</sup> Höltgen, *Intermodal Logistics Centres, European Combined Transport and Regional Development*, p. 85.

<sup>59</sup> *Ibid.*, p. 91.

<sup>60</sup> Jack Short, "Logistics and Transport Policy," Institute of Superior Technology (paper presented at the International Conference for Sobre Transportation in Lisbon, Portugal, 1997), p. 4.

<sup>61</sup> European Conference of Ministers of Transport, *New Trends in Logistics in Europe*, p. 31.

<sup>62</sup> Aviva Freudmann, "Service Standards Gain Ground in Europe Transport," *Journal of Commerce* (April 8, 1998), pp. 1-A, 12-A.

<sup>63</sup> Höltgen, *Intermodal Logistics Centres, European Combined Transport and Regional Development*, p. 101.

<sup>64</sup> *Ibid.*, p. 101.

<sup>65</sup> European Conference of Ministers of Transport, *New Trends in Logistics in Europe*, p. 162.

<sup>66</sup> *Ibid.*, p. 31.

<sup>67</sup> Commission of the European Union, *Intermodality and Intermodal Freight Transport in the European Union*.

<sup>68</sup> European Commission, *The Trans-European Transport Network*, p. 49.

<sup>69</sup> European Union, "The European Union's Budget," European Union web site [cited December 9, 1997], available from: <http://www.europa.eu.int/pol/budg/en/info.htm>; INTERNET.

<sup>70</sup> European Commission, *The Trans-European Transport Network: Transforming a Patchwork into a Network* (Brussels, 1995), p. 19.

<sup>71</sup> Neil Kinnock, "The Private Sector's Role in the Development of TENs," speech to EIB Conference, Amsterdam, May 18, 1995, European Union web site [cited October 31, 1997], available from: <http://www.europa.eu.int/en/comm/dg07/speech/sp950518.htm#c>; INTERNET.

<sup>72</sup> European Commission, *The European Union's Cohesion Fund*, Office for Official Publications of the European Commission, Luxembourg (1994), pp. 4-5 (pamphlet).

<sup>73</sup> European Commission, Directorate-General for Regional Policy and Cohesion, *Structural Funds 1995: Summary of the Annual Report* (October 31, 1996), p. 2.

<sup>74</sup> *Ibid.*, p. 7.

<sup>75</sup> *Ibid.*, p. 3.

<sup>76</sup> European Commission, *The European Union's Cohesion Fund*, p. 6.

<sup>77</sup> European Union, "DGXXIII at the European Commission—The European Investment Bank," European Union web site [cited October 31, 1997], available from: [http://www.europa.eu.int/en/comm/dg23/guide\\_en/eib.htm](http://www.europa.eu.int/en/comm/dg23/guide_en/eib.htm); INTERNET.

<sup>78</sup> *Ibid.*

<sup>79</sup> European Investment Bank, *1996 Annual Report European Investment Bank: The European Union's Financing Institution*, p. 2.

<sup>80</sup> *Ibid.*

<sup>81</sup> Bernard Gerardin, "Financing Transport in Europe," in *Transport in a Unified Europe: Policies and Challenges*, eds. David Banister and Joseph Berechman (Amsterdam: Elsevier Publishers B.V., 1993), p. 341.

<sup>82</sup> European Commission, *The Trans-European Transport Network: Transforming a Patchwork into a Network*, p. 19.

<sup>83</sup> European Commission, *The Trans-European Transport Network*, p. 51.

<sup>84</sup> European Union, "Annex: Investing in the Competitiveness of Europe," European Union web site [cited November 6, 1997], available from: [http://www.europa.eu.int/en/record/white/c93700/ch0a\\_1.html](http://www.europa.eu.int/en/record/white/c93700/ch0a_1.html); INTERNET.

<sup>85</sup> European Commission, *The Trans-European Transport Network*, p. 17.

<sup>86</sup> *Ibid.*, p. 50.

<sup>87</sup> Ibid.

<sup>88</sup> Ibid.

<sup>89</sup> Bukold et al., *The State of European Infrastructure 1996*, pp. 39-40.

<sup>90</sup> Gerardin, "Financing Transport in Europe," p. 339.

<sup>91</sup> Bukold et al., *The State of European Infrastructure 1996*, p. 39.

<sup>92</sup> Ibid.

<sup>93</sup> Ibid., p. 41.

<sup>94</sup> Gerardin, "Financing Transport in Europe," p. 339.

<sup>95</sup> Bukold et al., *The State of European Infrastructure 1996*, p. 39.

<sup>96</sup> European Commission, *The Trans-European Transport Network: Transforming a Patchwork into a Network* (1995), p. 18.

<sup>97</sup> European Commission, *The Trans-European Transport Network* (1994), p. 54.

<sup>98</sup> Paul Webb, "The Context of Choice and Competition in Transport: An Overview of Privatization in Western Europe," in *Transport in Transition*, ed. James McConville and John Sheldrake (Brookfield, Vt.: Ashgate Publishing Co., 1995), p. 25.

<sup>99</sup> Ibid.

<sup>100</sup> Organization for Economic Cooperation and Development (OECD), *The OECD Report on Regulatory Reform: Synthesis* (Paris, 1997), pp. 10-12.

<sup>101</sup> Webb, "The Context of Choice and Competition in Transport," p. 37.

<sup>102</sup> Ibid.

<sup>103</sup> Kenneth Button, "Freight Transport," in *Transport in a Unified Europe: Policies and Challenges*, ed. David Banister and Joseph Berechman (Amsterdam: Elsevier Publisher B.V., 1993), p. 159.

<sup>104</sup> Ibid., pp. 159-60.

<sup>105</sup> Ibid., p. 160.

<sup>106</sup> European Conference of Ministers of Transport (ECMT), *Round Table 84: Deregulation of Freight Transport*, ECMT, 1991, p. 21.

<sup>107</sup> Ibid., p. 22.

<sup>108</sup> Button, "Freight Transport," p. 160.

<sup>109</sup> Aviva Freudmann, "EU Nations Split Over Methods of Applying Road-use Truck Tax," *Journal of Commerce* (January 7, 1998), p. 12-A.

<sup>110</sup> Ibid.

<sup>111</sup> Ibid.

<sup>112</sup> Chris Johnstone, "European Sales Tax Decision Awaited," *Journal of Commerce* (February 2, 1998), p. 12-A.

<sup>113</sup> Ibid.

<sup>114</sup> "Weber Sees Employee Ownership, Development of Alliances at Lufthansa," *Aviation Europe*, vol. 4, issue 46, (December 1, 1994), p. 3.

<sup>115</sup> "Germany to Conclude Lufthansa Privatization This Year," *Aviation Daily*, vol. 327, no. 10 (January 15, 1997), p. 83.

<sup>116</sup> "Lufthansa Shares all but Sold Out as Subscription Begins," *Deutsche Presse-Agentur* (September 29, 1997); LEXIS-NEXIS.

<sup>117</sup> Bukold et al., *The State of European Infrastructure 1996*, p. 225.

<sup>118</sup> German Federal Government, "New momentum for privatization of government-owned enterprises; more candidates for privatization lined up to follow Telekom," Special Report #4467, German Federal Government web site [cited September 29, 1997], available from:  
<http://www.bundesregierung.de/.bin/lay/ausland/news/bpaspecial/special4467.html>; INTERNET.

<sup>119</sup> Ibid.

<sup>120</sup> Webb, "The Context of Choice and Competition in Transport," p. 32.

<sup>121</sup> Ibid.

<sup>122</sup> Bruce Barnard, "France Vetoes Plan for Rail Freeways Outlined by the EU," *Journal of Commerce* (June 4, 1997), p. 3-B.

<sup>123</sup> Bukold et al., *The State of European Infrastructure 1996*, p. 225.

<sup>124</sup> Ibid.

<sup>125</sup> Peter Nijkamp, Jaap M. Vleugel, Rico Maggi, and Ian Masser, *Missing Transport Networks in Europe*, (Brookfield, Vt.: Ashgate Publishing Co., 1994), p. 102.

<sup>126</sup> Barnard, "France Vetoes Plan for Rail Freeways Outlined by the EU," p. 3-B.

<sup>127</sup> Ibid.

<sup>128</sup> Commission of the European Communities, *A Strategy for Revitalising the Community's Railways*, White Paper of the European Commission (Brussels, Belgium, 1996), p. 3.

<sup>129</sup> Commission of the European Communities, *Trans-European Rail Freight Freeways*, communication from the European Commission to the European Council, the European Parliament, the Economic and Social Committee, and the Committee of the Regions (Brussels, 1996), p. 3.

<sup>130</sup> Commission of the European Communities, *A Strategy for Revitalising the Community's Railways*, p. 5.

<sup>131</sup> Ibid., p. 3.

<sup>132</sup> Commission of the European Communities, *Trans-European Rail Freight Freeways*, pp. 10-11.

<sup>133</sup> Ibid., p. 18.

<sup>134</sup> Bruce Barnard, "Intermodalism Lags in Europe," *Journal of Commerce* (January 5, 1998), p. 77.

<sup>135</sup> Bukold et al., *The State of European Infrastructure 1996*, p. 45.

<sup>136</sup> Barnard, "Intermodalism Lags in Europe," p. 77.

<sup>137</sup> *Ibid.*

<sup>138</sup> *Ibid.*

<sup>139</sup> Barnard, "France Vetoes Plan for Rail Freeways Outlined by the EU," p. 3-B.

<sup>140</sup> *Ibid.*

<sup>141</sup> Bukold et al., *The State of European Infrastructure 1996*, p. 110.

<sup>142</sup> Barnard, "France Vetoes Plan for Rail Freeways Outlined by the EU," p. 3-B.

<sup>143</sup> Bruce Barnard and Avida Freudmann, "EU to Open Cross-border Rail Freight Corridors," *Journal of Commerce* (January 15, 1997), p. 1-A.





## Chapter 11. France

### Overview

#### Geography and Resources

Located at the geographical center of Western Europe, France occupies a land area of 545,630 square km. About four-fifths the size of Texas, France is the largest Western European country sharing common borders with Andorra, Belgium, Germany, Italy, Luxembourg, Spain, and Switzerland. Its estimated 1996 population is 58,317,450. The major French cities are Paris, Lyons, Marseilles, Lille, Bordeaux, Strasbourg, Toulouse, Nantes, and Nice. The country has a mainland coastline of 3,427 km along the Atlantic Ocean and Mediterranean Sea. The French terrain comprises flat plains, rolling hills in the north and west, and the mountain ranges of the Pyrenees to the south and the Alps to the east.<sup>1</sup>

Geography is important to the French economy. Because of its favorable geographic location and its close ties to former overseas territories, France exports a variety of manufactured and agricultural goods. French industries are highly concentrated in a few geographic areas, principally the region of Paris, the coal-producing areas of Nord and Pas de Calais, as well as the vicinity of Lorraine and Lyons in the Rhône Valley, which contain large deposits of iron ore. In recent years, coastal areas have benefited from large-scale industrial development, primarily Marseilles, Dunkirk, and the lower Seine Valley. The domestic economy is mixed with large agricultural, industrial, and service sectors.

#### Economy

With a gross domestic product (GDP) of \$1.52 trillion in 1995, France is one of the world's largest industrialized economies.<sup>2</sup> French agricultural production substantially satisfies its basic food requirements. It is the second largest agricultural producer in the world, after the United States. Accordingly, 70 percent of its production is exported to other European Union (EU) countries.<sup>3</sup> Other major exports are metals, chemicals, industrial equipment, and consumer goods. Overall, exports totaled \$285.2 billion in 1995.<sup>4</sup>

Although national inflation rates were relatively high, rates slowly decreased from 6.7 percent in 1984 to 1.7 percent in 1994. France also suffers from high unemployment rates. Unemployment increased from 11.4 percent in August 1995 to 11.8 percent in February 1996. Consequently, the French public heavily scrutinizes privatization policies that reduce employment.<sup>5</sup>

## Transportation Infrastructure

France possesses a vast transportation infrastructure (see table 11.1). France has the densest road network in the world and the longest within the EU, most of which are toll roads.<sup>6</sup> Its interlinked primary motorway network extends more than 8,000 km (4,970 miles). By the beginning of the 21st century, this figure is expected to increase to more than 12,000 km (7,450 miles).<sup>7</sup> Because of the high concentration of people in large cities, road congestion constitutes a serious problem around urban centers. The situation in Paris, where both the number and length of traffic jams are increasing 20 percent annually, is particularly alarming because it accounts for four-fifths of all road congestion in France.<sup>8</sup>

France is the seventh largest rail passenger provider in the world and eighth largest in terms of freight traffic. The French National Railways, Société Nationale des Chemins de Fer Français (SNCF), operates 32,275 km of France's 33,891 km of tracks.<sup>9</sup> France produces high-quality turbo trains that travel at speeds greater than 200 miles per hour. Its rail service is renowned for the development of TGV (Trains à Grande Vitesse or high-speed) lines. Domestically, TGV lines link Paris to western and southwest France. The southwest line holds the world speed record (515 km per hour), with the use of its high-speed train that operates on a special 1,860-km track (planned for expansion to 4,400 km by 2015). The TGV line's annual capacity is 58 billion passengers per km (second in the world) and 45.9 billion tons of freight per km (third in the world).<sup>10</sup>

French seaports are distributed along a coastline of 3,427 km. Overall, there are seven independent port authorities, 23 ports that are operated under concessions issued by local chambers of commerce, and 45 other ports equipped for commercial operation.<sup>11</sup>

France possesses two major airlines that are publicly owned and operated, Air France and Air Inter. In 1997, Air France acquired Air Inter. In 1993, France ranked as the world's fourth largest generator of air passengers and air cargo.<sup>12</sup> By 1994, France's 150 commercial airports handled almost 98 million passengers and more than 1.2 million tons of freight on a total of 1.8 million flights.<sup>13</sup>

Air-traffic congestion is a major problem for aviation policies in Europe. Over capacity is partially attributable to individual airports that suffer from a variety of problems, including inadequate road systems, environmental factors, and lack of planning. Congested airspace is also a problem to the extent that it leads to chain reactions that cause delays throughout the aviation system.<sup>14</sup>

## Transportation Policy

The Inland Transportation Act of 1982 (Loi d'Orientation des Transports Intérieurs, LOTI) created a new framework for French transport policies. LOTI specifically emphasized the "right to transport," social and economic efficiency in transportation, and the necessity to view the transport system as an integrated whole.<sup>15</sup>

**Table 11.1**  
**Transportation Infrastructure in France**

Mode	Components	Statistics
Railways	Total	34,123 km
	Standard gauge	33,524 km, 1.435-m gauge
	Narrow gauge	599 km, 1.000-m gauge
Highways	Total	1,512,700 km
	Paved	812,700 km
	Unpaved	700,000 km
Waterways	Total	14,932 km navigable rivers and coastal canals
Pipelines	Crude oil	3,059 km
	Petroleum products	4,487 km
	Natural gas	24,746 km
Major ports	Total	16
Merchant Marine	Total ships	52 (1,000 GRT or over)
	Total capacity	1,038,151 GRT/1,441,498 DWT
	Bulk ships	5
	Cargo ships	3
	Chemical tanker	4
	Combination bulk	1
	Container ship	7
	Oil tanker	13
	Specialized Tanker	1
	Passenger cargo	2
	Short-sea passenger	7
	Roll-on/roll-off cargo	5
	Multifunction large-load carrier	1
	Liquefied gas tanker	3
Airports	Total	460
	Paved runways	382
		Over 2,438 m in length: 3
		1,524 to 2,437 m in length: 122
		914 to 1,523 m in length: 295
	Unpaved runways	Under 914 m in length: 1,298
		1,524 to 2,437 m in length: 60
		914 to 1,523 m in length: 549

Source: Data from Central Intelligence Agency (CIA), "France," in *World Fact Book 1996*, CIA web site [cited January 25, 1998], available from: <http://www.odci.gov/cia/publications/nsolo/factbook/gm.htm>; INTERNET.

## National Master Plans

In order for France to consider funding large infrastructure projects, the Ministry of Public Works, Housing, Transport, and Tourism must first include a project in one of several National Master Plans (Schéma Directeur). These plans help highlight the long-term relationship between proposed projects and the nation's long-term transport objectives. Although not all infrastructure projects listed in the plans are adopted, no project can be undertaken unless listed. National plans are available for roads, motorways, railways, waterways, and multimodal transport.<sup>16</sup>

The French road budget is based on the 1992 National Master Plan for Roads, which extends until 2004. The road plan contains provisions for major road projects, as well as proposals for building 3,500 km of new tollways. Every major road project for an expressway longer than 25 km and with value of more than 545 million French francs (denoted as F545 million) must comply with this plan.

Although the road plan is largely financed by the private sector, the central government also participates. In 1995, the government expected concessionaires to spend 2.5 times more than the public sector to develop the road projects outlined in the National Master Plan for Roads.<sup>17</sup> The government's share of the national road projects increased slightly under its five-year planning contract with the concessionaires, which extends from 1994 to 1998.

The 1992 National Master Plan for High-Speed Rail highlights several new projects, extending the network to a total of 11,000 km, of which 4,700 km will be high-speed rail. Two major projects approved under the 1992 rail plan include the TGV Méditerranée and the TGV Est. By 1999, the TGV Méditerranée will connect Paris with Marseilles with 300 km of special tracks, reducing travel time. TGV Est will connect Paris to Strasbourg by the year 2001. In addition to these two projects, there are six other projects under consideration.

Although the TGV lines are strategically more important to the nation, the majority of 1995 rail expenditures financed conventional rail lines. Rather than constructing new conventional rail lines, France funded safety measures such as the introduction of an automatic speed-control system. It also funded the construction of more freight transport nodal points in order to make the freight transport sector more efficient.

The French have reduced investment in both ports and waterways. French ports are not competitive in comparison to ports in Rotterdam or Hamburg. The French Parliament enacted legislation in 1992 to reduce staffing levels at docks, consequently effecting a decline in the entire maritime industry. Although more legislation in 1994 sought to increase private investment in the maritime sector, port conditions have not improved.<sup>18</sup> In 1996, the National Council of Port Communities asked the government to help improve the competitiveness of French ports by developing a National Master Plan similar to those for rail and road. These plans would include upgrading rail links into the ports, such as the Port of Le Havre.<sup>19</sup>

The 1994 Daubresse Report, the National Plan for Multimodal Platforms, was the first significant study of intermodal transportation.<sup>20</sup> The Daubresse Report announced a need to combine each of the national transportation plans and arrive at one intermodal policy. It encouraged the leaders of various transportation operations to begin exploring plans to implement its recommendations. The report emphasized the importance of the marketplace as a means of financing large infrastructure projects and the role of the government in making sure those plans include projects that are reasonably spread throughout the country.

The Council of Joint Transportation was created in 1995 because of the Daubresse Report. Subsequently, the council released the 1997 National Plan for Multimodal Platforms. This plan highlights the government's efforts to promote intermodal transportation by encouraging the private sector's financial support of infrastructure projects, optimizing development in all administrative regions, and designing programs that complement the national transport plans. The last policy approach is part of an effort to reduce road congestion through the construction of railway networks.

Following the principles set forth by LOTI, the 1997 National Plan emphasizes the role of local associations that consist of representatives from the national, local, and private sectors. This approach is designed to support the development of infrastructure projects with local and national benefits. Such a structure would also be linked to the Council of Combined Transport in order to provide direct input into the national planning process.

## **Transportation Institutions**

### **Ministry of Public Works, Housing, Transport, and Tourism**

The Ministry of Public Works, Housing, Transport, and Tourism (Ministère de l'Équipement, du Logement, des Transports, et du Tourisme, hereinafter "Ministry") is in charge of formulating and implementing national transport policies. The General Council of Bridges and Roadways (Conseil Général des Ponts et Chaussées) advises the Ministry on all the transportation-related policy issues. The Ministry employs approximately 113,900 personnel, who are divided among the Central Administration, Decentralized Structure, and Public Companies.<sup>21</sup>

#### ***Central Administration***

The Central Administration consists of Horizontal Divisions, Specialized Divisions, and Research Centers and Technical Companies. Horizontal Divisions are responsible for a variety of administrative tasks, varying from personnel management to internal communications. The Directorate of Economic and International Affairs is the only division within the Horizontal Divisions that helps formulate and implement transport policies. The Specialized Divisions deal with specific modal issues. Four of the Specialized Divisions are engaged in transportation planning: Roads, Surface Transportation, Civil Aviation, and Maritime. Research Centers and Technical Services

are divisions that operate under one of the Specialized Divisions and have specific functions, such as air-traffic control (See table 11.2).<sup>22</sup>

### ***Decentralized Structure***

In addition to its Central Administration, the Ministry also formulates and implements transportation policies on the regional and local level through the Decentralized Structure (see table 11.3). There are three divisions within the Decentralized Structure: the Regional Directorate of Infrastructure, Departmental Directorate of Infrastructure, and Specialized Decentralized Companies. The Regional Directorate of Infrastructure is in charge of formulating comprehensive plans for the development of a national roadway system as well as other infrastructure projects. The Departmental Directorate of Infrastructure participates in regional planning and local development of issues related to Decentralized Companies. There are approximately 20 decentralized companies located throughout France, performing various transportation-related services.<sup>23</sup> These companies perform navigation services, conduct maritime businesses, and administer national schools to train professionals for transportation-related positions (see table 11.3).

### ***Public Companies***

Following World War II, France nationalized much of its transportation infrastructure. Consequently, the organization of transportation is the responsibility of public companies, which maintain close relations with national and regional authorities.<sup>24</sup> Although public companies operate independently and submit individual results, they are responsible for operating national transport services along the guidelines specified in their five-year contracts with the Ministry.<sup>25</sup>

Three types of public companies exist, depending on the governing body that is responsible for the company.<sup>26</sup> An independent company is the sole responsibility of the Ministry of Public Works, Housing, Transport, and Tourism. There are 24 independent companies, which include the French National Railways (SNCF). The Ministry is jointly responsible with a variety of other governing bodies for four other state-owned entities. One publicly operated company, the Bâle-Mulhouse Airport, is a joint Franco-Swiss operation (see table 11.4).

### ***Research and Engineering Centers***

The Ministry operates several transportation research centers. These centers provide technical expertise in a variety of transport-related areas from meteorology to safety analysis. The National Institute for Research into Transport Safety conducts studies into the socioeconomic effects of transportation.<sup>27</sup> Ten facilities are specifically dedicated to transport-related research.

**Table 11.2**  
**Central Administration of France's**  
**Ministry of Public Works, Housing, Transport, and Tourism**

<b>General Council of Bridges and Roadways</b> (advises the minister)
<b>Horizontal Divisions</b>
<ul style="list-style-type: none"> <li>• Service and Management Staff</li> <li>• Directorate of Finance and General Administration</li> <li>• Directorate of Economic and International Affairs</li> <li>• Information and Communication Service</li> <li>• Directorate of Search and Technical Businesses</li> <li>• Directorate of Maritime Businesses</li> </ul>
<b>Specialized Divisions</b>
<ul style="list-style-type: none"> <li>• Directorate of Roads</li> <li>• Directorate of Security and Road Traffic</li> <li>• Directorate of Surface Transportation</li> <li>• General Directorate of Civil Aviation</li> <li>• Directorate of Maritime Transport</li> </ul>
<b>Research Centers and Technical Services</b>
<ul style="list-style-type: none"> <li>• Technical Service for Roads and Highways</li> <li>• Center for the Study of Tunnels</li> <li>• Center for the Study of National Bridges of Help</li> <li>• Aeronautical Technical Control and Training Service</li> <li>• Technical Service for Air Bases</li> <li>• Technical Service of Air Transport</li> <li>• Center for the Study of Air Transport</li> <li>• Central Technical Service for Seaports and Inland Waterways</li> <li>• Technical Services for Sea Transport and Movement of Equipment</li> <li>• Center for the Study of Networks, Transport, Town Planning and Public Construction</li> <li>• Central Laboratory for the State's Highway Departments</li> </ul>

Source: Data from Ministry of Public Works, Transport, Housing, and Tourism, "Structure and Mission," Ministry of Public Works, Transport, Housing, and Tourism web site [cited April 25, 1998], available from: <http://www.equipement.gouv.fr/ministere/MINISTER.HTM>; INTERNET.

**Table 11.3**  
**Establishments and Public Services within the Decentralized Structure**

<b>Regional Directorate of Infrastructure</b>
Personnel are responsible for drafting the initial policy plans for the development of an infrastructure project. Regional Directorates are also partially responsible for implementing and monitoring projects.
<b>Departmental Directorate of Infrastructure</b>
Personnel are responsible for conducting studies in the areas of housing, city planning and transportation. Directorate participates in the development of infrastructure projects of other decentralized services. Personnel provide technical assistance to regions and localities on request.
<b>Special Decentralized Companies</b>
<ul style="list-style-type: none"> <li>• Navigation Services</li> <li>• Regional Centers for Air Transport</li> <li>• Regional directions of the Maritime Businesses</li> <li>• Interregional Centers for Vocational Training (CIFP)</li> <li>• Center for the Training of Electronic Engineers</li> <li>• National School for State Public Works (ENTPE)</li> <li>• National School of Meteorology (ENM)</li> <li>• National School of Geographical Sciences (ENSG)</li> </ul>

Source: Data from Ministry of Public Works, Transport, Housing, and Tourism, "Structure and Mission," Ministry of Public Works, Transport, Housing, and Tourism web site [cited April 25, 1998], available from: <http://www.equipement.gouv.fr/ministere/MINISTER.HTM>; INTERNET.

**Table 11.4**  
**Examples of Publicly Owned Corporations**

<b>Single Supervision</b> (under the direct supervision of the Ministry)
<ul style="list-style-type: none"> <li>• Airport of Paris (ADP)</li> <li>• Métro France</li> <li>• French National Railways (SNCF)</li> <li>• Trade Union for Parisian Transportation</li> <li>• Inland Waterways of France</li> </ul>
<b>Joint Supervision</b>
<ul style="list-style-type: none"> <li>• National Campaign of the Rhône</li> <li>• National Institute for Search and Transport</li> </ul>
<b>International Supervision</b>
<ul style="list-style-type: none"> <li>• Airport of Basle-Mulhouse</li> </ul>

Source: Data from Ministry of Public Works, Transport, Housing, and Tourism, "Structure and Mission," Ministry of Public Works, Transport, Housing, and Tourism web site [cited April 25, 1998], available from: <http://www.equipement.gouv.fr/ministere/MINISTER.HTM>; INTERNET.



To ensure the availability of a trained workforce, France operates several national training centers. Five training facilities are specifically dedicated to transport-related professions. For example, the National College for Bridges and Highways has operated since 1747 to train civil engineers. Many of the French training centers enjoy international acclaim. Between 25 to 30 percent of all students in the National College of Public Works Engineers are from outside France. The other three colleges are the National Civil Aviation College, National College of Public Works Technicians, and the Association for the Development of Vocational Training in Transportation.<sup>28</sup>

A handful of governmental bodies outside the Ministry also participates in the transportation-planning process. The General Planning Commission examines long-term prospects for infrastructure projects within its Transport Committee. The Regional Planning and Development Agency (Ministère de l' Aménagement du Territoire et à l' Action Régionale, DATAR) has the task of working with regional authorities and the Ministry to produce National Master Plans for the various transport modes. It also has the responsibility of negotiating the details of five-year contracts that the government requires public companies to provide.<sup>29</sup>

## **Financing of Transportation Infrastructure**

### **Delegated Management**

Delegated management is one of the guiding principles for financing transport services. This principle requires public authorities responsible for transport to delegate management over the construction and operation of transport networks to private firms, autonomous public firms, or public/private entities, once the government's involvement is no longer necessary.<sup>30</sup>

The concept of delegated management has a long history in France. The government primarily used the principle of delegated management in the 19th century to seek concessions for rail and urban transport development. There are two models of delegated management that characterize financial agreements between the central government and private concessionaires.

#### ***Model 1***

The first approach allows public authorities to cede the construction of a project to the concessionaire at cost, allowing the company to operate the project at its own risk. The concessionaire is then required to return the infrastructure to the government, free of charge, once the concession period expires. This model of public/private partnerships allows the government to construct infrastructure projects with greater efficiency than in the past. The government possesses the ability to facilitate bureaucratic channels, such as purchasing rights-of-way, while the concessionaire can mobilize financial resources faster than the government. In the case of road construction, user tolls are intended to provide enough revenue to cover investment and management costs.

The concession agreement to develop the Normandy Bridge is a good example of the first approach. The Normandy Bridge, which is located 20 km from the Tancarville Bridge and across the Seine River, links the city of Le Havre to the outskirts of Honfleur. The bridge also links the suburbs, port, and industrial sites of Le Havre with the city of Caen. It spans 856 meters, qualifying it for a world record in 1995.<sup>31</sup>

The Le Havre Chamber of Commerce and Industry is the concessionaire responsible for overseeing the development of the Normandy Bridge, including construction, financing, and operation of the structure.<sup>32</sup> The concession agreement, which was finalized between the government and Le Havre Chamber of Commerce and Industry on March 22, 1988, extends to the year 2026. At the end of the concession period, the government assumes possession of the project.<sup>33</sup>

The construction of the Normandy Bridge is most notable for its financing arrangement. The government has no financial commitment in the project beyond approving its design and granting its concession.<sup>34</sup> Sources of financing are loans from an international consortium of 20 banks, local community bonds, and toll revenue generated from the Tancarville Bridge. The law of July 17, 1987, provides for a financial relationship between the Tancarville and Normandy Bridges so that surplus from one bridge contributes to the financing of the other.<sup>35</sup> Furthermore, revenue generated from the two bridges reimburses the initial bank loans until the end of the concession period.

The government designated the Le Havre Chamber of Commerce and Industry as the concessionaire because of its past experience developing the Tancarville Bridge in the 1950s. Furthermore, the Le Havre Chamber of Commerce and Industry is the only chamber with a history as concessionaire in a major infrastructure project. In comparison to local and private sources, the government is not an ideal financier of costly, long-term infrastructure projects. Its vulnerability to fluctuations in the economy jeopardizes the financial security of long-term projects.<sup>36</sup>

## ***Model 2***

The second approach to delegated management is one in which the public authority is in charge of a particular infrastructure project and contracts its operations to private or semi-private companies in the form of a lease. The operator does not bear the initial investment cost of the project but, rather, those costs associated with its management.<sup>37</sup>

The management of the government's main provincial airports is a good example of this second approach to delegated management. This public/private partnership requires the government to oversee the technical aspects of airport operations, such as air-traffic control, as well as border checks and airport safety. Meanwhile, the concessionaire manages the planning, operation, and development of airfields by modernizing them to meet current transport requirements. The income from the airport is intended to cover the operating costs and public works investments for the concessionaire. In some cases, the government can share the operating costs by providing the concessionaire with subsidies.

Risk sharing is one of the essential elements in the French approach.<sup>38</sup> The significance of risks and uncertainty of factors involved in most transport projects discourage single investors from assuming all financial risks. On the other hand, the operational efficiency of private enterprise along with the presence of a profit motive allow concessionaires to generate greater rates of return on infrastructure projects than are otherwise possible by the government. Therefore, risk sharing between the government and concessionaire is necessary to complement their different attributes.<sup>39</sup>

The World Bank first coined the term "French Model" to describe these two forms of delegated management. The purpose of both approaches is to replace some inherent constraints within public-sector management, such as its lack of efficiency in the use of personnel, with the advantages of private enterprise. The profit motive requires more efficiency in the private sector. Concessionaires are rewarded through the sale of their services to customers who, by their use, determine the service's profit levels.

Delegated management allows the government to benefit from the use of private capital at times when finances are limited and investment costs are high. Another advantage to this approach is that it allows public authorities to entrust certain responsibilities to the private sector without completely privatizing the operation and thereby limiting its long-term control over it.

## **Transportation Infrastructure Planning**

France had barely recovered from World War I before entering into World War II. Its defeat in 1939-40 devastated national infrastructure. In the midst of this economic devastation, a new conception of governmental action was devised. The French government departed from its traditional role of arbitrator in favor of an economic interventionist role with nationalization, control over public spending, and planning.<sup>40</sup>

Traditionally, France has had a centralized government located in Paris. Each region has a council, which is empowered by the government, to levy certain taxes on persons and property within its jurisdiction. Administrative departments are grouped under the 23 regions, and each department is headed by a representative from the central government titled the Commissaire de la République (formally called a préfet).

### **Overview of the Planning Process**

The Regional Planning and Development Agency (DATAR) is specifically designated to develop National Master Plans for transportation. National Master Plans help determine the long-term objectives (15-20 years) of each transport project and its significance to the overall national transportation network. Specifically, the plans draw attention to projects that are important to national and regional modernization needs.<sup>41</sup> Although the government does not implement all the projects listed in the National Master Plans, it can only undertake projects included in the National Master Plans.

The decisionmaking process begins with preliminary studies commissioned by the Ministry. For instance, table 11.5 illustrates the Directorate of Road's decisionmaking process for large infrastructure projects. Proposed projects undergo an appraisal process that includes three compulsory phases. The first phase of the planning process begins with a discussion of the technical, financial, and social benefits to the region from specific investments. Secondly, the Ministry helps design the project through discussion with community representatives. Finally, the Ministry collects regional opinions as well as official approval from other governmental authorities. Once the project is underway, the Ministry monitors the project implementation and evaluates its results.<sup>42</sup>

## **Criteria**

The Ministry calculates the benefits of public investments based on their financial (or internal) and socioeconomic (or external) rates of return. The financial return takes into account expenditures on infrastructure, rolling stock, and commercial revenues.<sup>43</sup> The socioeconomic return is based on a project's value to a public operator, and also considers the monetary value of time savings, costs, and benefits to the community, as well as the implications of the project for competing transport operators. Among other issues, the government also considers the environmental benefits for surrounding communities.<sup>44</sup> Road and rail proposals, for example, require socioeconomic rates of return greater than 8 percent and financial rates of return greater than 9 percent in order to receive approval from the government. Table 11.6 shows the rates of return for proposed rail projects from the 1991 National Master Plan for High-Speed Rail.

After the Ministry calculates external and internal benefits from project proposals, it prepares a draft study and then introduces the proposal to public hearings. Public hearings take into consideration the specifications of projects as well as their environmental impact.

At the completion of the appraisal phase, the Ministry drafts a declaration of public utility (*déclaration d'utilité publique*, DUP) for the project and sends the document to the Council of State. The Council of State is the highest legal body in France and is autonomous from the Ministry. Once the Council of State approves a project, the Ministry can sign its DUP. Following the DUP, project managers can carry out studies that are more detailed than those commissioned under the preliminary stages. Once the final proposal for a project receives ministerial approval, the government begins acquiring rights-of-way and preparing for construction.<sup>45</sup>

## **Regional Participation**

Traditionally, the French planning process was most notable for its high degree of centralization and traditional lack of input from local bodies. Regional leaders possessed a greater role in the day-to-day management of urban services as opposed to the planning process. However, following the passage of LOTI in 1982, the central government decentralized its authority over transportation planning, whereby regional authorities have more opportunities to participate beyond the management of urban services.<sup>46</sup>

**Table 11.5**  
**Preparing Major Roadway Infrastructure Projects**

<b>Step 1: Discussion on Economic and Social Values of a Project</b> (basic functions of the infrastructure, intermodal approach)
<ul style="list-style-type: none"> <li>• Discussion with political, social, economic and community representatives and the project owner, under the responsibility of a coordinating Prefect</li> <li>• Discussion follow-up commission, external expert appraisal</li> <li>• Government-issued specifications</li> </ul>
<b>Step 2: Designing the Layout</b>
<ul style="list-style-type: none"> <li>• Comparison of layout options and choice of a layout project</li> <li>• Arrangement of the layout in light of local planning perspectives and making a general review with local authorities</li> <li>• Discussion with political, social, economic, and community representatives and the project owner, under the responsibility of a coordinating Prefect</li> <li>• Discussion follow-up commission, external expert appraisal, publication of studies</li> </ul>
<b>Step 3: Legal Recognition Procedure</b> (collecting opinions before the decision to execute the project)
<ul style="list-style-type: none"> <li>• Opinions of local residents, collected under the responsibility of field investigators</li> <li>• Opinions of field investigators and publication of results of the public inquiry</li> <li>• Opinion of the Council of State</li> <li>• Legal recognition that the project serves the public interest and publication of the government's commitments</li> </ul>
<b>Step 4: Performance of Work</b>
<ul style="list-style-type: none"> <li>• Monitoring of the implementation of the government's commitments by Prefects and a Monitoring Committee</li> <li>• Regular reports to the committee by the project owner</li> </ul>
<b>Step 5: Assessments after Opening to Traffic</b>
<ul style="list-style-type: none"> <li>• Evaluation of results against specifications and governmental commitments</li> <li>• Assessment of socioeconomic effects and environmental impact: comparison with estimations before governmental approval</li> <li>• Publication of the Monitoring Committee's report</li> </ul>

Source: Data from Ministry of Public Works, Transport, Housing, and Tourism, "Preparing Major Infrastructure Projects," Directorate of Roads web site [cited April 8, 1998], available from: <http://www.equipement.gouv.fr/routes/>; INTERNET.

**Table 11.6**  
**Rates of Return for Planned Rail Lines in the 1991 National Master Plan**  
**for High-Speed Rail**

<b>Project</b>	<b>Internal (Financial) Rates of Return for the SNCF</b>	<b>Socioeconomic (External) Rates of Return</b>
TGV Aquitaine	7.6	10.0
TGV Auvergne	3.1	6.7
TGV Bretagne	7.4	13.6
TGV Est	4.3	8.8
TGV Grand-Sud	5.0	12.0
Southern Interconnection	8.2	9.6
Trans-Alpine Connection	6.0	10.0
TGV Limousin	2.4	4.4
TGV Provence	9.8	13.0
TGV Cote d'Azur	8.4	11.0
TGV Languedoc-Roussillon	6.1	9.0
TGV Midi-Pyrénées	5.5	6.5
TGV Normandie	0.1	3.0
TGV Pay de la Loire	5.4	7.7
TGV Picardie	4.8	5.0
TGV Rhin-Rhone	5.9	10.7

Source: Data from Economic and International Affairs Department, *Private Financing of Public Infrastructure* (Paris, France: Ministry of Regional Development, Public Works and Transportation, 1995), p. 143.

The government further democratized the planning process in 1993. Local protests over the planning process and specific projects led to the publication of the 1992 Carrère Report, which recommended that more public opinion be included in the various planning stages of large projects. Consequently, the government enacted a policy in 1993 to decentralize the planning process beyond LOTI. This policy has facilitated the mobilization of local and regional actors.<sup>47</sup>

## **Deregulation and Privatization**

France is widely regarded as a first-world nation, where competitive forces are relatively weak and blurred by the intervention of the government in the economy.<sup>48</sup> In 1988, government holdings covered 2,000 enterprises employing approximately 1.4 million

people. The share of public corporations' participation in the economy was approximately 12 percent.<sup>49</sup>

Traditionally, economic development has pursued national interests through governmental support of public companies. From 1955 to 1969, the government granted concessions only to public companies. It liberalized its concession policies over the period from 1970 to 1981, but did not begin emphasizing the role of the private sector until the mid 1980s.<sup>50</sup>

Although privatization of nationalized companies started in the mid 1980s, the international stock market crisis of October 1987 slowed the process. The Socialist Party's victory in the 1988 national elections also slowed down privatization efforts until 1993, when Prime Minister Eduard Balladur and his Conservative Party won a majority in the national elections.<sup>51</sup> However, since the Socialist Party's victory in the 1997 national elections, the prospects of the previous administration's deregulatory policies have been uncertain.<sup>52</sup>

Since the mid 1980s, despite turbulent political changes, economic development plans have generally focused on national competitiveness in the global marketplace. These plans are founded on increased competition and deregulation of state-owned transport facilities. For instance, the Tenth Plan (1989-93) was designed to reduce public funding of heavy industry, thereby encouraging privatization. The Eleventh Plan (1993-97) affirmed the government's support of infrastructure projects and programs that increase the productivity and competitiveness of French private firms.<sup>53</sup>

Privatization plans, however, have predominately taken the form of public/private partnerships. Complete privatization of the largest public facilities has been slow and controversial. The most controversial privatization plans have involved the country's largest air carrier, Air France.

Air France's increasing debt, coupled with international pressure for deregulation, ignited arguments to privatize the airline in the early 1990s. Pressure increased after British Airways and Germany's Lufthansa initiated their privatization processes.<sup>54</sup> Despite this pressure, the French government provided Air France with a \$4 billion bailout in 1994. The EU approved the government-aid package in return for France's assurance that Air France would start privatizing once it achieved an adequate level of economic and financial recovery.<sup>55</sup>

Air France began to recover in the mid 1990s under the leadership of Christian Blanc, former chairman/CEO. The airline made \$160.4 million in profit and decreased its debt from \$3.8 billion in 1994 to \$2.5 billion in 1996. A 15-percent increase in passenger air traffic also helped stimulate its recovery. Finally, the airline eliminated 5,000 jobs, cutting its direct operating cost by 20 percent and increasing its overall productivity.<sup>56</sup>

In response to the airline's recovery, Blanc proposed privatization of Air France in mid 1996. Blanc's plan offered one-third of the airline to the stock market, as well as one-third to employees in exchange for salary reductions.<sup>57</sup> His plan counted on privatization to

raise the capital needed to buy new aircraft and modernize Air France.<sup>58</sup> The second problem resulted from a change in the political environment. Following the Socialist Party's victory in 1998, Blanc failed to convince the left-wing government to push his privatization plans forward.

In contrast to Air France, SNCF has already started a privatization process. Faced with an accumulated debt of \$40 billion in 1997, the rail company still lags behind other European railways in privatization efforts.<sup>59</sup> While SNCF loses money, it experiences pressure for structural expansion. Regional leaders and other members of the European Union have pressured the company, as a leader in high-speed rail services, to take a leading role in the establishment of continental service.<sup>60</sup>

As a response to pressure for debt reduction and structural expansion, SNCF's five-year planning contract with the government for 1996 requires the company to undergo comprehensive reforms. The company began to decentralize on January 1, 1997, in six administrative regions. The principal characteristic of its plan is to separate railway infrastructure from the operations of trains. SNCF's plan involves the sale or lease of infrastructure to private operators, while the government retains control over rail operations. Furthermore, the plan requires private operators to shoulder £125 billion of the £206 billion debt accumulated by SNCF. In return, SNCF pays a charge for the use of the rail network, while developing a commercial policy to reabsorb its debt. The government will continue to provide subsidies for SNCF infrastructure every year.<sup>61</sup>

## **Technological Development**

France has developed two different and independent types of public distribution hubs, road haulage centers (centres routiers), and intermodal terminals (plate-formes intermodales). Haulage centers have been planned and financed by a combination of public and private entities, such as regional and local authorities, construction companies, and local chambers of commerce. They are a common element of regional and local land-use plans.

There were 56 regional haulage centers located throughout France in 1992. Their primary function is to concentrate transportation distribution activities in suburban locations to facilitate "break-of-bulk" between long-distance transportation and local distribution. Facilities and services typically include fueling stations, customs clearance, and both bonded and distribution warehouses.<sup>62</sup>

Haulage centers have generally been developed separate from France's combined transport (CT) network. CT is defined by the European Conference of Ministers of Transport (ECMT) as "transport where the major part of European journey is by rail, inland waterway or sea and any initial and/or final leg carried out by road."<sup>63</sup> CT usually refers to truck/rail intermodal transport movements.

This lack of coordination began to change in the early 1990s, when a number of cities and regions (e.g., Lille, Nancy, Avignon, Marseilles, and Bordeaux) offered proposals to



combine the relocation or expansion of terminals with the creation of larger intermodal terminals. These actions prompted the French transport ministry in 1993 to outline nine locations for larger intermodal terminals to serve European CT traffic.<sup>64</sup> The proposed locations were Avignon, Bordeaux, Le Havre, Lille, Lyons, Marseilles, Nancy-Strasbourg, Paris, and Toulouse, as can be seen in figure 11.1.

The SNCF and the government have traditionally split the investment costs of building truck/rail intermodal terminals. However, SNCF's 1993-97 five-year contract with the government outlined a funding formula whereby regions contribute 30 percent, SNCF 30 percent, and the central government 40 percent of the costs. The addition of regions as a third source of funding is indicative of the importance of the role recently attributed to intermodal terminals in regional development.<sup>65</sup>

CT in France amounted to 10 billion ton-km in 1994. This level of traffic represented roughly 20 percent of total rail freight and 5 percent of total road freight. It is believed that the market-share potential for CT, for freight movements of more than 466 km, is four times its actual figure. As a consequence, the government announced a comprehensive CT development program in 1995, with a grant amounting to F 300 million. The government also established the Council of Combined Transport to specifically plan and coordinate CT projects. Its overall goal is to double the volume of CT traffic over the period 1995-2002.<sup>66</sup>

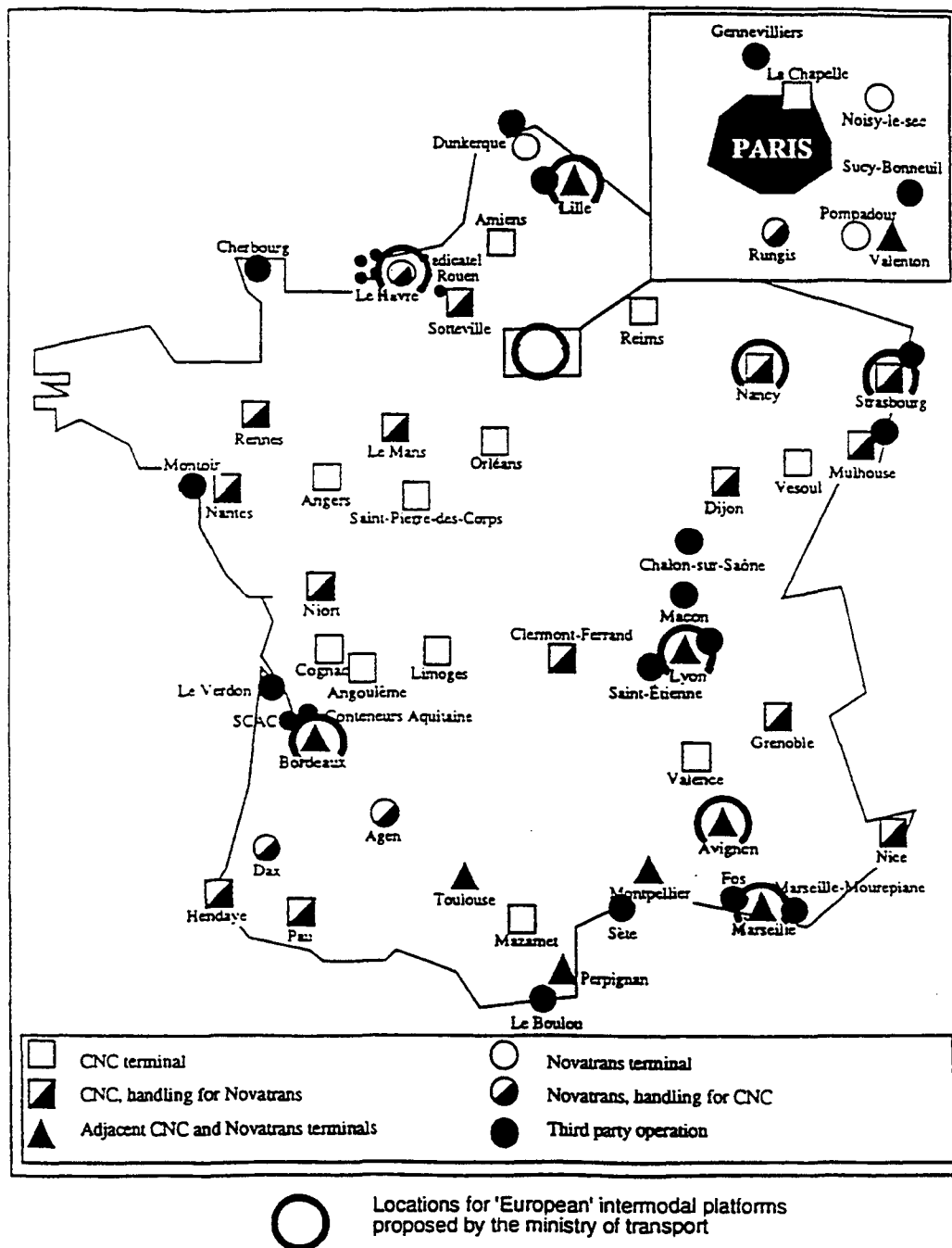
## **Obstacles to Multimodal/Intermodal Development**

Labor, economics, and the environment are all obstacles for intermodal transport planning in France. In addition to these issues, constant changes in political leadership deepen these challenges to intermodalism.

### **Politics**

The tradition during periods in which the president is of one party and the prime minister is of another is for the president to exercise the primary role in foreign affairs and national security policy. The dominant role in domestic policy falls onto the prime minister and his government. Although in his first two years of office, President Jacques Chirac benefited from having a neo-Gaullist as his prime minister and a majority in both houses, the Socialist Party unexpectedly won a solid majority in the National Assembly in 1997. President Chirac immediately named Socialist Party leader Lionel Jospin as his prime minister, who subsequently formed a government composed primarily of left-wing ministers from the Socialist, Communist, and Green Parties.

**Figure 11.1**  
**Existing and Proposed Main Intermodal Terminals in France**



Source: Reprinted, with permission from Daniel Hölting, "Terminals, Intermodal Logistics Centres and European Infrastructure Policy" (Ph.D. Diss., University of Cambridge, 1995), p. 158.

## **Rail Development**

Businesses in Europe have generally underutilized intermodal transport to move freight. European railroads have been unable to parlay business support for improved rail links into higher amounts of freight traffic. Rather, rail's share of freight traffic has declined over the years from 32 percent in 1970 to 15 percent in 1995.<sup>67</sup> Intermodal policies must overcome commercial biases to road traffic. The reasons why shippers do not fully use rail services can be attributed to Europe's short freight rail hauls, as well as the presence of numerous low bridges. The combination of these two factors rules out mile-long convoys and the doublestacking of containers.<sup>68</sup>

Other obstacles hinder the potential use of rail for freight transport. First, in order for intermodalism to develop, shippers must obtain the necessary public works (such as railheads) to switch from one mode of transport to another. Many shippers cannot use rail services because they do not possess the proper public works to switch between modes.<sup>69</sup> Second, overall budget constraints hinder the ability of France to expand its network extension program.<sup>70</sup>

## **Environment**

Since the election of the Socialist Party in June 1997, the government has suspended several intermodal projects based on environmental issues. The Rhine-Rhône Canal was one of the first projects the new government suspended. The Rhine-Rhône Canal was one of many projects under the trans-European network plan, which proposed "channeling" several European rivers to permit year-round navigation for multibarge convoys. The project's goals were to link Germany and the Netherlands to southern France through a common transportation canal. However, environmentalists argued that building the canal would cause irreparable damage to the river system. Widespread public opposition existed among riverside residents and environmentalists.<sup>71</sup>

Poissy-Sogaris Cargo Center Extension is another planned intermodal transport project that was influenced by political changes. Following the 1997 national elections, the Socialist Party suspended construction on the Poissy-Sogaris Cargo Center.<sup>72</sup> The decision was based on environmental concern regarding noise pollution. Right-wing Parliament members, Air France, and labor unions argued that an increase of one million more passengers through Parisian airports would create about 1,000 additional jobs at Poissy. Local residents and left-wing Parliament members expressed concern about noise pollution and increased air traffic.

## **Multimodal/Intermodal Projects**

### **Vatry Europort**

The Vatry Europort is a new European multimodal platform located in the Champagne region of France, 150 km east of Paris. A public/private joint venture company is planning

its development. The venture company developed its plans for a freight-only airport in the city of Vatry despite growing opposition to its extension.<sup>73</sup> Although the platform is not scheduled to open until the end of 1998, its major features will contain

- air terminals specializing in cargo hauling,
- a road terminal that connects directly to the road and motorway networks,
- a rail-freight terminal to allow immediate interoperability with other modes,
- a logistics center, and
- businesses and service zones.<sup>74</sup>

The following plans for multimodal platform development are listed in the Sixth National Plan for Infrastructure Development by the Ministry of Public Works, Housing, Transport, and Tourism.<sup>75</sup>

### **Alsace Region**

The Alsace region is primarily concerned with the development of multimodal facilities along the Rhine River. The Rhine region trades approximately 200 million tons near the German-Dutch border at Bale and transports 700,000 containers by water. The region possesses extensive infrastructure, including the following:

- Basel-Mulhouse-Freiburg Europort, which occupies a total surface area of 536 hectares. In 1995, this Europort handled 2.5 million passengers and almost 40,000 tons of freight.
- Alsace Autoports, which consist of three main roads, A35 (Strasbourg-Mulhouse-Bale), A36 (East-West), and the German highways that extend into the Alsace region.
- Two major railway lines that also converge at Mulhouse.

Regional and national authorities plan to implement expansion projects that will connect their existing infrastructure. This plan is designed to contribute to the trans-European network as outlined by the EU.

### **Bordeaux-Hourcade Intermodal Terminal**

The joint-transportation terminal project of Bordeaux-Hourcade is based on three objectives:

1. to develop the Atlantic coastline along Europe,
2. to propose alternative transport solutions other than rail to deal with the flow of goods from the Iberian Peninsula, and

3. to implement a plan for the development of intermodal transportation terminals that is consistent with the National Master Plans.

With the exception of the Port of Le Havre Platform, the French Atlantic coastline does not have major ports with intermodal facilities. However, plans to develop an intermodal transportation facility in Bordeaux-Hourcade address the region's lack of intermodal facilities. At the completion of the project, the Bordeaux-Hourcade terminal will be able to accommodate 15 trains and 500 trucks per day. Regional authorities plan to develop Bordeaux as a major site for the transfer of goods along the Atlantic coastline.

### **European Freight Center**

The European Freight Center is located near the Port of Bayonne and the Biarritz Airport. It is also located close to the national highway A63 (Bordeaux-Hendaye-Spain), as well as A64 (Bayonne-Pau-Toulouse). The city of Bayonne's economy is dependent on the activities of the Port of Bayonne and the European Freight Center. With a strong interest in the health of the local economy, local authorities formed a joint association to direct the development of the freight center. Many development projects are currently in progress, including the extension of the private rail/road terminals.

## Notes

<sup>1</sup> "ABC Country Book of France—geography," World Fact Book of the International Technology Associates web site [cited June 7, 1998], available from: [http://www.theodora.com/wfb/france\\_geography.htm](http://www.theodora.com/wfb/france_geography.htm); INTERNET.

<sup>2</sup> *Information Please Almanac*, 50th ed. (New York: Houghton Mifflin Co., 1997), p. 186.

<sup>3</sup> U.S. Department of State, "Background Notes: France," from Bureau of European and Canadian Affairs, U.S. Department of State web site [cited June 1997], available from: [http://www.state.gov/www/background\\_notes/france\\_0697\\_bgn.html](http://www.state.gov/www/background_notes/france_0697_bgn.html); INTERNET.

<sup>4</sup> "France: Review 1997," *Europe Review World of Information* (April 1997), p. 74; LEXIS-NEXIS.

<sup>5</sup> Ibid.

<sup>6</sup> Ibid.

<sup>7</sup> Economic and International Affairs Department, *Transport: French Know-How*, (Paris: Ministry of Public Works, Housing, Transport, and Tourism, December 1995), p. 17.

<sup>8</sup> Steffen Bukold, Wolfgang Hager, Hugo Olsen, and Wilma Van Bodegom, *The State of European Infrastructure 1996* (European Center for Infrastructure Studies, 1996), p. 97.

<sup>9</sup> Central Intelligence Agency (CIA), "France," from *World Fact Book 1996*, CIA web site [cited January 1998], available from: <http://travelerfinder.com/worldfacts/82.htm>; INTERNET.

<sup>10</sup> "France: Review 1997," p. 74.

<sup>11</sup> Economic and International Affairs Department, *Transport: French Know-How*, p. 16.

<sup>12</sup> Price Waterhouse, "France-A Profile," in *Doing Business in France*, International Trade Resource and Data Exchange web site [cited January 1998], available from: <http://www.i-trade.com/infosrc/pw/fra/mustpay/Ch1.htm>; INTERNET.

<sup>13</sup> Lili Eigl, "France Airport Expansion Market," *Industry Sector Analyses* (April 17, 1996); LEXIS-NEXIS.

<sup>14</sup> David Woolley, "European Airports Struggle with Too Much Business," *Air Cargo World* (April 1993) p. 18.

<sup>15</sup> Bukold et al., *The State of European Infrastructure 1996*, p. 98.

<sup>16</sup> Ibid., p. 99.

<sup>17</sup> Ibid., p. 142.

<sup>18</sup> Ibid., p. 107.

<sup>19</sup> Ibid.

<sup>20</sup> Ministry of Public Works, Housing, Transport, and Tourism, "National Master Plan for Multimodal and Combined Transport Platforms," Directorate of Land Transport web site [cited January 1998], available from: <http://www.equipement.gouv.fr/dtt/daubresse>; INTERNET.

<sup>21</sup> Ministry of Public Works, Housing, Transport, and Tourism, "Structure and Mission," Ministry of Public Works, Housing, Transport, and Tourism web site [cited April 25, 1998], available from: <http://www.equipement.gouv.fr/ministere/MINISTER.HTM>; INTERNET

<sup>22</sup> Ibid.

<sup>23</sup> Ibid.

<sup>24</sup> Economic and International Affairs Department, *Transport: French Know-How*, p. 12.

<sup>25</sup> Ibid., p. 15.

<sup>26</sup> Ministry of Public Works, Housing, Transport, and Tourism, "Structure and Mission."

<sup>27</sup> Economic and International Affairs Department, *Transport: French Know-How*, p. 21.

<sup>28</sup> Ibid.

<sup>29</sup> Bukold et al., *The State of European Infrastructure 1996*, p. 98.

<sup>30</sup> Economic and International Affairs Department, *Transport: French Know-How*, p. 16.

<sup>31</sup> Philippe Léger and Phillippe Rochefort, "The Construction of the Normandy Bridge," in *Private Financing of Public Infrastructure: The French Experience*, ed. Claude Martinand (Paris: Economic and International Affairs Department, 1995), p. 104.

<sup>32</sup> Ibid.

<sup>33</sup> Economic and International Affairs Division, *Transport: A Policy of Controlled Competition*, (Annecy:

Ministry of Public Works, Housing, Transport, and Tourism, May 1994), p. 16.

<sup>34</sup> Ibid.

<sup>35</sup> Ibid.

<sup>36</sup> Léger and Rochefort, "The Construction of the Normandy Bridge," pp. 105-106.

<sup>37</sup> Economic and International Affairs Division, *Transport: A Policy of Controlled Competition*, p. 16.

<sup>38</sup> Laurent Davezies and Remy Prud' Homme, "Economics of Public-Private Partnerships in Infrastructure," in *Private Financing of Public Infrastructure: The French Experience*, ed. Claude Martinand (Paris: Economic and International Affairs Department, 1995), p. 62.

<sup>39</sup> Ibid. p. 63.

<sup>40</sup> Dominique Lorrain, "Urban Services, the Market and Politics," in *Private Financing of Public Infrastructure: The French Experience*, ed. Claude Martinand (Paris: Economic and International Affairs Department, 1995), p. 26.

<sup>41</sup> Ministry of Public Works, Housing, Transport, and Tourism, *Transport: A Policy of Controlled Competition*, p. 10.

<sup>42</sup> Ministry of Public Works, Housing, Transport, and Tourism, "Preparing Major Infrastructure Projects," Directorate of Roads web site [cited April 8, 1998], available from: <http://www.equipement.gouv.fr/routes/>; INTERNET.

<sup>43</sup> Bukold et al., *The State of European Infrastructure 1996*, p. 99.

<sup>44</sup> Ibid.

<sup>45</sup> Ibid., p. 100.

<sup>46</sup> Ibid., p. 99.

<sup>47</sup> Ibid., p. 100.

<sup>48</sup> Organization for Economic Cooperation and Development (OECD), *Competition and Competition Policy* (Paris, May 1991), p. 71.

<sup>49</sup> Ibid.

<sup>50</sup> Ministry of Public Works, Housing, Transport, and Tourism, *Transport: A Policy of Controlled*



*Competition*, p. 12.

<sup>51</sup> "World of Information: France," *World of Information* (April 7, 1997); LEXIS-NEXIS.

<sup>52</sup> Bruce Barnard, "France Once Again Sting Transport Plan," *Journal of Commerce* (November 4, 1997), p. 13-A.

<sup>53</sup> "France-A Profile," *Doing Business in France*.

<sup>54</sup> Fred Coleman, "New Boss Wants Air France to Stay Public," from *USA Today Travel* (*USA Today*, September 23, 1997), *USA Today* web site [cited April 3, 1998], available from: <http://www.usatoday.com/life/travel/business/ltb923af.htm>; INTERNET.

<sup>55</sup> Pierre Sparaco, "Air France Seeks Early Privatization," *Aviation and Space Technology*, no. 2 (July 13, 1997), p. 382.

<sup>56</sup> *Ibid.*

<sup>57</sup> Lois Jones, "French Kiss of Life: Air France Privatization Hampered by Union Government Problems," *Airline Business*, vol. 13, no. 8 (August 1997), p. 42.

<sup>58</sup> Coleman, "New Boss Wants Air France to Stay Public."

<sup>59</sup> Axel Krawse, "Back on Track," *Time* (January 13, 1997), p. 42.

<sup>60</sup> "In the Field: SNCF Struggles to Unload Debt Burden While Expanding HSR," *High Speed Transport News* (May 1, 1995); LEXIS-NEXIS.

<sup>61</sup> "France to Reform Railways," *Transport Europe* (June 21, 1996); LEXIS-NEXIS.

<sup>62</sup> Daniel Höltingen, "Terminals, Intermodal Logistics Centres and European Infrastructure Policy," (Ph.D. Dissertation, University of Cambridge, 1995), p. 158.

<sup>63</sup> *Ibid.*, note on terminology.

<sup>64</sup> *Ibid.*, p. 156.

<sup>65</sup> *Ibid.*, p. 155.

<sup>66</sup> *Ibid.*

<sup>67</sup> Bruce Barnard., "Intermodalism Lags in Europe," *Journal of Commerce* (January 5, 1998), p. 44.

<sup>68</sup> Ibid.

<sup>69</sup> Aviva Freudmann, "French Truckers Halt Goods Moving Across the Continent," *Journal of Commerce* (November 4, 1997), p. 1-A.

<sup>70</sup> Bukold et al., *The State of European Infrastructure 1996*, p. 4.

<sup>71</sup> Marie Arnould and Robertop Epple, "France Moves to Channelize the Rhone," from *World Rivers Review* (February 1997), *World Rivers Review* web site [cited April 1998], available from: <http://www.irn.org/pubs/wrr/9701/rhone.html>; INTERNET.

<sup>72</sup> "France Suspends Scheduled Work on Expansion of Poissy Charles de Gaulle," *Airports* (July 8, 1997), p. 273.

<sup>73</sup> Eigl, "France Airport Expansion Market."

<sup>74</sup> Organization for Economic Cooperation and Development, Nuclear Energy Agency, *Geological Disposal of Radioactive Waste: An Overview of the Current Status of Understanding and Development* (Paris, February 1984), p. 9.

<sup>75</sup> Ministry of Public Works, Housing, Transport, and Tourism, "National Master Plan for Multimodal and Combined Transport Platforms."

## Chapter 12. Germany

### Overview

#### Geography and Resources

The Federal Republic of Germany is located in Central Europe. Germany shares borders with Austria, Belgium, Denmark, France, Luxembourg, and the Netherlands, as well as Switzerland, the Czech Republic, and Poland. Its climate is temperate. Its terrain is made up of lowlands in the north, uplands in the center, and the Bavarian Alps in the south. Important natural resources are iron ore, coal, potash, timber, lignite, uranium, copper, natural gas, salt, and nickel.<sup>1</sup>

The total land area of the Federal Republic of Germany is 349,520 square kilometers comprising both the former West Germany and the former East Germany. Of its land, 34 percent is arable land, 1 percent is used for permanent crops, 16 percent is used for meadows and pastures, and 30 percent is covered with forests and woodlands. As of July 1996, the total population was estimated to be 83,536,115.<sup>2</sup> The nation is divided into 16 states called Länder. Ten of these constituted the former West Germany: Baden-Württemberg, Bavaria, Bremen, Hamburg, Hessen, Lower Saxony, North Rhine-Westphalia, Rhineland-Palatinate, Saarland, and Schleswig-Holstein. Five composed the former East Germany: Mecklenburg-Vorpommern, Brandenburg, Saxony-Anhalt, Thüringen, and Saxony. Berlin entered the Federal Republic as an independent city and state after reunification.<sup>3</sup>

#### Economy

The Federal Republic of Germany is ranked as the third largest economy in the world, with a gross domestic product (GDP) of \$2.31 trillion in 1995.<sup>4</sup> In 1994, its exports totaled \$437 billion, and imports totaled \$362 billion.<sup>5</sup> The strength of its economy, combined with its central location within the European Union (EU), affords Germany an important position within the EU. Key sectors of the German economy are iron, steel, coal, chemicals, manufacture of machines and machine tools, vehicle manufacture, and electronics in the west and chemicals, brown coal, shipbuilding, machine building, textiles, and petroleum refining in the east.<sup>6</sup>

Despite its strength, Germany's economy is currently experiencing difficulties. Some industrial sectors, such as shipbuilding and steel, are on a downward path, while the automotive, machine construction, and chemical industries continue to be strong. As of June 1997, unemployment had risen to a record 12.2 percent.<sup>7</sup> The precise nature of this downturn is unclear. Some analysts argue that it is a serious recession, while others suggest it is merely a period of economic adjustment. The downturn comes after a period of unprecedented growth in the German economy in the early 1990s, when most Western

nations were in a recession. This growth was largely due to massive domestic demand created by reunification with East Germany on October 3, 1990, and the resulting need for investment in order to modernize East Germany's economy. Reunification also resulted in the movement of entrepreneurs into East Germany to take advantage of new business opportunities offered by the opening of the East German market.<sup>8</sup> The need for further investment in East Germany is an important consideration in present and future German economic policy in general and transportation policy in particular.

## **Transportation Infrastructure**

Western German transportation infrastructure is generally of high quality, whereas eastern infrastructure development suffered under Communism and requires upgrading to match western standards. Various aspects of the country's transportation infrastructure in 1996 are summarized in table 12.1.

Germany has the largest domestic levels of traffic and the largest volume of transit traffic in the EU.<sup>9</sup> Transit traffic both originates and terminates its journey outside Germany's borders. At present, air and road traffic dominate German transport, and both are projected to increase substantially if a modal shift to rail is not achieved.<sup>10</sup> It is estimated that the number of passengers carried by air transport could more than double from the 1990 volume of 81 million to between 160 and 175 million by the year 2010. At this rate of growth, airport use will reach capacity in the year 2000.<sup>11</sup>

The growth in passenger traffic is particularly important to Germany, because Germany also has the highest volume of freight transit traffic in Europe. Such traffic places the burdens of increased pollution and congestion on the German economy and infrastructure, while contributing little to economic growth.<sup>12</sup> This problem has been exacerbated since 1990 by the opening of the markets of the Central and Eastern European countries (CEECs). Trucks from these countries have increased by a factor of ten on German roads. These trucks do not meet safety or environmental requirements and operate with lower costs than German trucks, causing competitive pressure on German truckers.<sup>13</sup>

### **Freight**

In 1996, the total volume of freight transported in Germany was 3.8 billion tons, a decrease of 4 percent from 1995. The volume measured in ton-km fell to 413 billion, a 2-percent decrease from the 1995 volume. This decrease in transport volumes is attributed to bad weather in Germany during 1996.<sup>14</sup> Of the 1995 volume measured in ton-km, 61 percent was transported by truck, 18 percent by rail, and 16 percent by barge.<sup>15</sup>

**Table 12.1**  
**Transportation Infrastructure in Germany**

Mode	Components	Statistics
Railways	Total	43,996 km
	Standard gauge	43,531 km, 1.435-m gauge (17,015 km electrified)
	Narrow gauge	389 km, 1.000-m gauge
		7 km, .900-m gauge 39 km, .750-m gauge
Highways	Total	636,282 km
	Paved	531,018 km (including 10,955 km of expressways)
	Unpaved	105,264 km
Waterways	Eastern	2,319 km navigable rivers and coastal canals
	Western	5,222 km navigable rivers and coastal canals
Pipelines	Crude oil	3,644 km
	Petroleum	3,946 km
	Natural gas	97,564 km
Major ports	Total	17
Merchant marine	Total ships	452 (1,000 GRT or over)
	Total capacity	5,054,327 GRT/6,367,036 DWT
	Bulk ships	6
	Cargo ships	193
	Chemical tanker	15
	Combination bulk	4
	Combination ore/oil	5
	Container	166
	Liquefied gas tanker	12
	Multifunction large-load carrier	6
	Oil tanker	11
	Passenger	3
	Railcar carrier	3
	Refrigerated cargo	7
	Roll-on/roll-off cargo	14
	Short-sea passenger	7
Airports	Total	617
	Paved runways	Over 3,047 m in length: 13
		914 to 3,047 m in length: 183
		Under 914 m in length: 351
	Unpaved runways	Over 3,047 m in length: 2
		914 to 3,047 m in length: 68
		Under 914 m in length: 0

Source: Central Intelligence Agency (CIA), "Germany," *World Fact Book 1996*, CIA web site [cited January 25, 1998], available from: <http://www.odci.gov/cia/publications/nsolo/factbook/gm.htm>; INTERNET.

## **Passenger**

Passenger transport in Germany grew slightly from 1995 to 1996. In 1996, passenger volume was 9.7 billion persons, a 0.6-percent increase. Deutsche Bahn AG, Germany's state-owned rail company, experienced growth in its passenger business from 1.33 billion persons in 1995 to 1.37 billion in 1996. The volume of passengers using local rail systems likewise increased from 320 million to 340 million. Air-transport volumes increased by 4 percent, and the number of persons transported by road remained relatively constant at 7.88 billion.<sup>16</sup>

## **Intermodal**

The *1996 Annual Report of the Federal Government* states that Germany is a leader in intermodal transport in the EU.<sup>17</sup> This assertion seems credible, as approximately 60 percent of all intermodal traffic in the EU flows through Germany. Nevertheless, truck/rail intermodal transport in Germany holds just a 5.9-percent share of road freight as of 1993, with a volume of 16 million tons.<sup>18</sup>

## **Transportation Policy**

### **The Federal Transportation Infrastructure Plan**

German transport policy focuses on two broad goals as the end of this century approaches: to contribute to the development of economically and environmentally sound transportation systems within the EU, and to ensure that Germany remains an attractive location for business, both economically and environmentally.<sup>19</sup> The basic document through which long-term planning for these goals is accomplished at the national level is the *Federal Traffic Infrastructure Plan 1992 (Bundesverkehrswegeplan, FTIP)*, which is also frequently referred to as the *Federal Transportation Infrastructure Plan*. The *FTIP* is multimodal in nature, as it coordinates infrastructure planning across all modes of transport within the Federal Republic of Germany. There is a separate planning procedure at the local level.<sup>20</sup> The current *FTIP* came into effect in 1992 and remains in effect until 2012. It allocates a total of 538.8 billion German (Deutsche) marks (denoted as DM 538.8 billion) from 1991 to 2010, with a projected annual volume of DM 25 billion.<sup>21</sup>

In accomplishing these two primary goals, the current *FTIP* identifies three issues as central concerns for German transport policy:

1. integration of German transport and economic systems with the EU;
2. increased mobility and need for substantial updating of infrastructure as the result of reunification; and
3. increasing demand for transport, primarily in the areas of road and air.

In the context of these three concerns, “transport policy must create the prerequisites for transport to ensure the possibility of economic growth and mobility in the future.”<sup>22</sup>

The *FTIP* emphasizes the importance of a comprehensive investment and regulatory policy to achieve its transport goals. Germany’s policies in these areas were detailed in “Transport Policy for the Nineties,” presented by the Federal Ministry of Transport (MoT) in September 1990.<sup>23</sup> The *FTIP* states that the MoT relies on investments, improved cooperation, environmental protection, traffic safety, modern technology, and the market strategy to attain these goals. The *FTIP* emphasizes the organization of the transport system, the improvement of infrastructure subject to the need to protect the environment, the interconnection of the various modes of transport, and faster execution of major investment projects, particularly those necessary to upgrade infrastructure in the former East Germany.<sup>24</sup>

An outstanding aspect of the *FTIP* is the planned means for integrating the different modes of transport and constructing intermodal terminals and interfaces. The interconnection of the modes is described by the *FTIP* as “the only recognizable chance of freeing ourselves in conformity with market conditions from the one-sided growth, which has concentrated on road and air transport.”<sup>25</sup> The individual modes are to be interconnected in order to facilitate an efficient transfer of goods and passengers from one mode to another. Plans to interconnect the modes focus on airports, sea and inland ports, goods distributions centers, and combined transport (CT) terminals.<sup>26</sup>

### ***Road and Rail***

According to the *FTIP*, road and rail transport serve a “feeder function” for international air transport. The majority of this feeder traffic has been by road in the past and will likely continue to be in the future. The *FTIP* states that, in the future, a larger portion of this traffic should be handled by rail, doubtless in part because of congestion on roadways. Such a shift of traffic from road to rail will require better linkages between the rail system and airports. The *FTIP* also wishes to shift short-distance air traffic to rail, a goal that further necessitates improved linkages.<sup>27</sup>

### ***Air Transport***

Accomplishing these shifts to rail is especially important in light of the substantial growth expected in air transport. For environmental reasons, the *FTIP* does not consider the construction of new airports or expansion of existing airports a viable method of dealing with this crisis. Therefore, in addition to shifting traffic to rail, the *FTIP* suggests that air traffic should be diverted from large, congested airports to neighboring airports with available capacity and that existing air-traffic facilities should be made more efficient in order to increase capacity.<sup>28</sup>

## ***Ports and Waterways***

The *FTIP* describes an enhanced role for German ports, both inland and maritime. Maritime ports are favored because they have the potential for considerable growth in international and transit traffic. In line with this, the federal government is supportive of efforts by the Länder to make their ports more competitive, in particular by improving accessibility by land and sea. Because of the federal government's interest in maritime ports, infrastructure planning and investment are coordinated between the federal government and the Länder.<sup>29</sup>

Inland ports and waterways are favored because they are seen as cost effective, environmentally sound, and safe. In addition, because most major German cities have direct linkages with inland waterways, inland waterways are excellent candidates for usage in intermodal transport networks.<sup>30</sup> In an October 1997 press release, the MoT noted that inland shipping accounts for only a very small portion of current intermodal traffic. The rate of growth of intermodal traffic in inland shipping is well above average, at approximately 10 percent over the last several years. The MoT expresses the view that the future of the inland shipping industry in Germany is dependent on integrating inland ports and waterways into the intermodal network.<sup>31</sup>

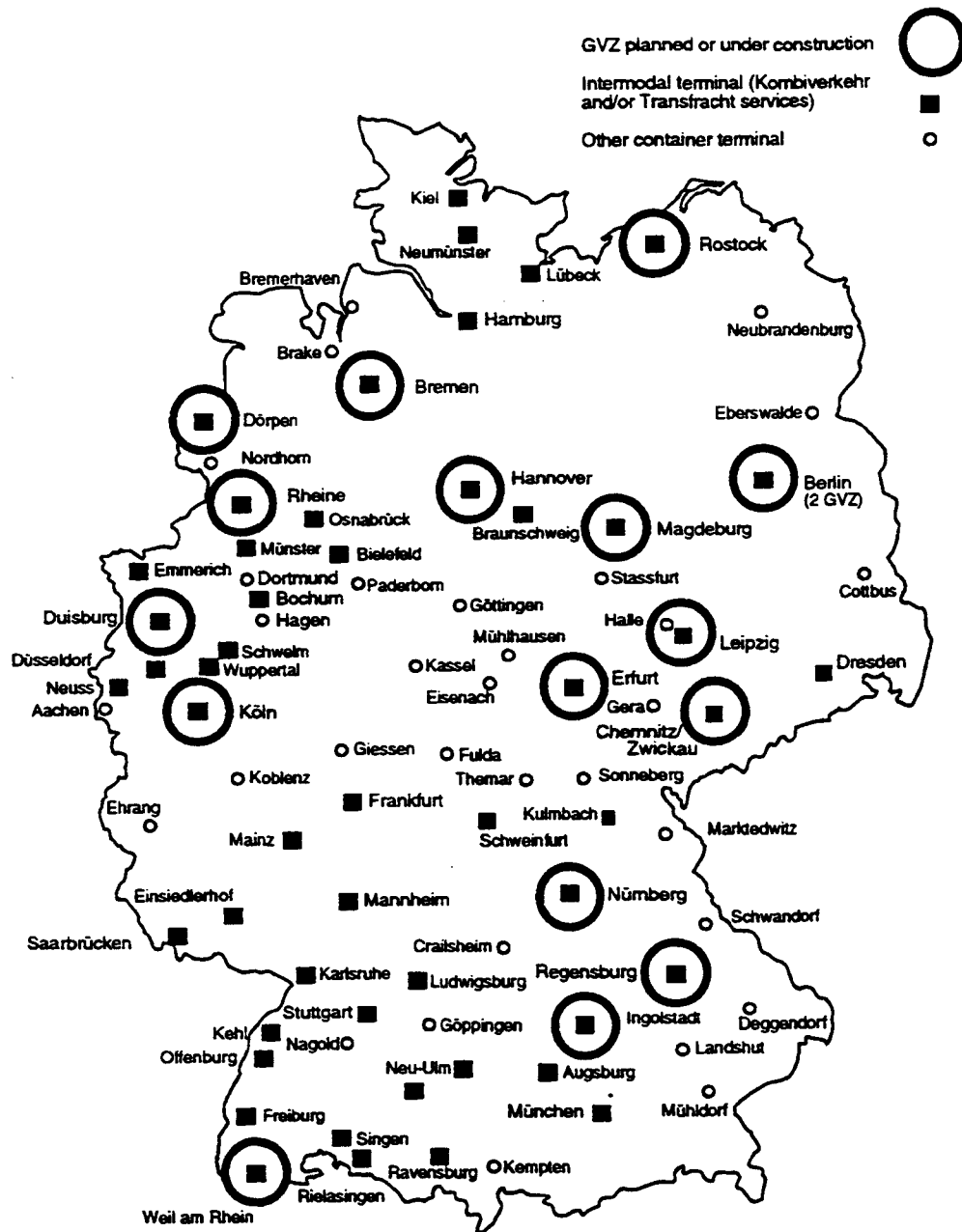
## ***Intermodal Terminals***

Intermodal transport terminals and goods distribution centers (Güterverkehrszentren, GVZs), are supported by the *FTIP* as a safe and environmentally sound means of effecting a modal shift from road to rail. On a regional level, the GVZs carry the potential to streamline traffic flows by concentrating transport service providers in centralized locations. The GVZs reduce congestion from short-distance traffic by coordinating trips to downtown areas by various carriers. In long-distance traffic, the various GVZs and intermodal transport terminals are to be interconnected through intermodal "block trains" and computerized systems.<sup>32</sup> At the time the *FTIP* was completed in 1992, 42 GVZs and 44 intermodal transport terminals were either operational or in the planning and assessment stages.<sup>33</sup> Of the 44 intermodal transport terminals, 35 are on planned or operating GVZ sites. These GVZ sites are eligible for federal funds, though the federal government does not actively participate in planning.<sup>34</sup>

The changes resulting from reunification of Germany as of October 3, 1990, have arisen as a crucial issue in German transport policy. Because of the division of Germany following World War II, transportation infrastructure was aimed at facilitating north-south traffic movements. With reunification, a need to complement this orientation with east-west traffic flows has arisen.<sup>35</sup> Infrastructure in the former East Germany has proved to be of poor quality in comparison to that of the former West Germany, as have the links crossing the former border between East and West Germany.<sup>36</sup>



**Figure 12.1**  
**German Intermodal Terminals and Güterverkehrscentren**



Source: Daniel Hölting, "Terminals, Intermodal Logistics Centres and European Infrastructure Policy," (Ph.D. Dissertation, University of Cambridge, 1995), p. 118.

As a result of reunification, 17 projects devoted to updating eastern German infrastructure and linking it with western infrastructure have been developed and given first priority. These projects are referred to as the Verkehrsprojekte Deutsche Einheit (VDE), or German Unity Transport Projects. It is hoped that all will be completed by the year 2000. Of these projects, nine are rail projects, seven are road projects, and one involves inland waterways.

## **Transportation Institutions**

### **The Federal Ministry of Transport**

The Federal Ministry of Transport (Das Bundesministerium für Verkehr), abbreviated MoT, is responsible for all transport-related duties assigned to the federal government by the Basic Law (essentially Germany's Constitution). The MoT has approximately 1,300 employees. The main office is located in Bonn, and there is a branch office in Berlin.<sup>37</sup> The Berlin office deals with issues important to the integration and upgrading of transport systems in the new Länder.<sup>38</sup>

The MoT is led by the federal minister of transport. The current federal minister of transport is Matthias Wissman. Wissman has served as federal minister of transport since May 13, 1993.<sup>39</sup> Supporting the minister in the leadership of the MoT are two Parliamentary state secretaries. There is also a state secretary with a permanent appointment. The state secretary is responsible for the administrative tasks of the MoT. A chief of staff provides general support to the minister of transport (see figure 12.2).<sup>40</sup>

The MoT is divided into eight Directorates-General. Two of these Directorates, Central Services and Principles of Transport Policy, are responsible for a broad range of tasks. The remaining six Directorates-General are responsible for individual areas of transport policy.

The duties of the Central Services Directorate-General are largely administrative. It is responsible for the organization of the MoT, as well as the agencies subordinate to the MoT. It also handles information technology within the MoT.<sup>41</sup> Central Services is responsible for budgeting and financial issues, personnel issues, administering federal holdings, and the privatization of nationally held transport enterprises. It is responsible for planning for transport-related civil emergencies and handling general legal issues that affect the MoT; it also provides general services and facilities, as well as technical equipment within the MoT.<sup>42</sup>

The Principles of Transport Policy Directorate-General is responsible for the legal and theoretical framework of transport policy. It is under this Directorate-General's jurisdiction that intermodal transport planning falls. As the name implies, the Directorate-General is responsible for the central questions pertaining to transport policy. Specific areas are

- investment and regulatory policy,
- urban public transport,
- local and regional railways
- environmental concerns, and
- transportation research and technology.

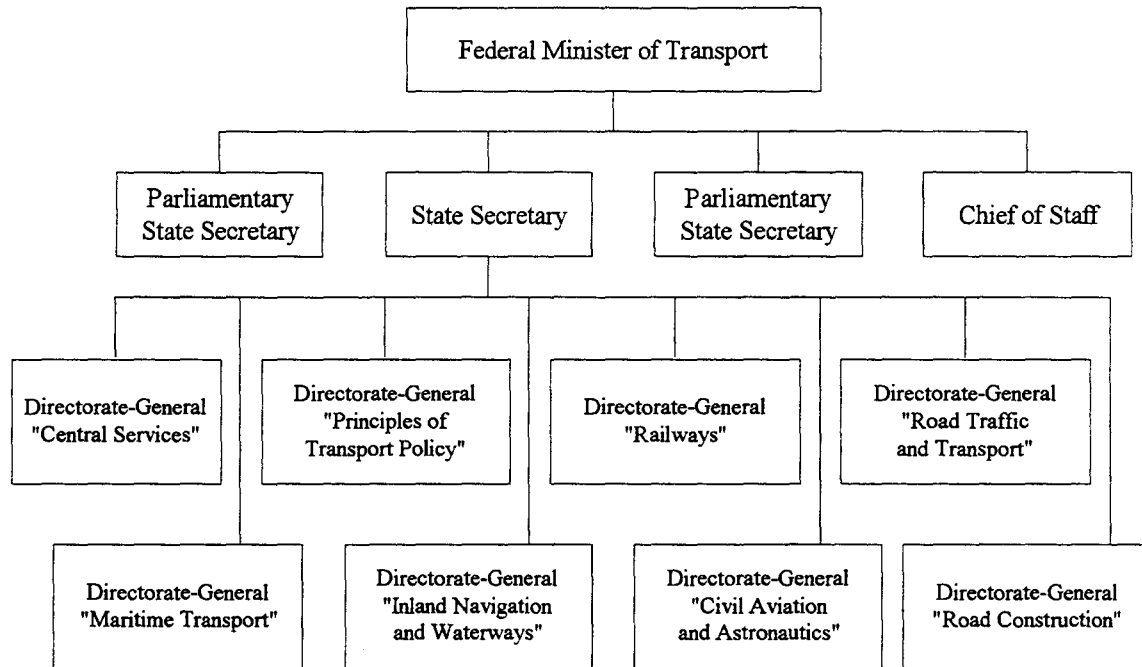
It is responsible for infrastructure planning at the national and international levels, as well as regional transport planning. It handles issues concerning economics, taxation, and the transport of dangerous goods. This Directorate-General also carries out studies of transport economics, and produces economic forecasts and statistics.<sup>43</sup>

The remaining six Directorates-General are separated by mode and responsible for transport policy in their specific area. These Directorates are Railways, Road Traffic and Transport, Civil Aviation and Aeronautics, Maritime Transport, Inland Navigation and Waterways, and Road Construction. Each Directorate-General is responsible for

- developing transport policies relevant to its area;
- licensing transport operators;
- ensuring safety and security;
- promoting infrastructure investment;
- providing environmental protection;
- sponsoring research and development, and
- promoting Germany's transport interests domestically and abroad.<sup>44</sup>

The MoT administers a number of subordinate agencies that provide transport-related services, including the Federal Railway Agency, the Federal Office for Goods Transport, the Civil Aviation Office, the Federal Highway Research Institute, and the German Meteorological Service, among others. The MoT is also responsible for monitoring funds given to the railways by the federal government, including salaries of Deutsche Bahn AG's civil servants, and for supervising the land owned by the railways but not in use. Finally, the MoT monitors the German Air Traffic Safety Company.<sup>45</sup>

**Figure 12.2**  
**Organizational Structure**  
**Germany's Federal Ministry of Transport**



Source: Adapted from Federal Ministry of Transport (MoT), *Table of Organization of the Federal Ministry of Transport* (Bonn, July 1997) (chart).

## Financing of Transportation Infrastructure

The federal government maintains primary responsibility for the financing and construction of transportation infrastructure. From 1982 and 1993, infrastructure investment in West Germany remained between DM 25 billion and DM 30 billion, equivalent to 13-15.5 billion European currency units (ECUs) in 1994 prices (denoted as ECU 13-15.5 billion). This decline of 20-30 percent is from a high of DM 35 billion in 1980. A decrease in investment is expected in the future. The anticipated investment level for 1998 is DM 22 billion.<sup>46</sup>

Because of large-scale investment programs in the former East Germany, combined eastern and western investment has run as high as DM 40 billion (ECU 21 billion) in the years since reunification. Total investment in united Germany is expected to decrease in the future, with an expected 1998 amount of DM 35 billion.<sup>47</sup>

As discussed previously, the *FTIP* is the primary document through which long-range planning for transport infrastructure investment and construction is coordinated. Table

12.2 gives the anticipated investment levels for each mode in the *FTIP '92* and compares them to levels laid out by the previous *FTIP* of 1985. It should be noted beforehand that investment levels are almost four times as high in *FTIP '92* than in *FTIP '85*. This increase is largely a reflection of the added responsibility of updating infrastructure in the former East Germany.

**Table 12.2**  
**Investment Levels in the *FTIP '92* and *FTIP '85***

Mode	<i>FTIP '92</i> Total Investments (1991-2010)		<i>FTIP '85</i> Total Investments (1986-1995)	
	Billion DM	%	Billion DM	%
Rail network	213.6	39.7	35.0	27.8
Federal trunk roads (1)	209.6	38.9	50.1	39.7
Federal waterways	30.3	5.6	8.0	6.4
Subtotal	453.5	84.2	93.1	73.9
Air transport (2)	-	-	2.3	1.8
Aid to municipalities under MTFL(3)	82.6	15.3	27.8	22.0
Miscellaneous	2.7	0.5	2.9	2.3
Total	538.8	100	126.1	100

Source: Data from Federal Minister of Transport, *Federal Traffic Infrastructure Plan 1992* (Bonn, July 1992), Annex.

Notes: 1. A collective term referring to federal autobahns and federal highways.

2. As of 1993, the federal government is no longer responsible for investment in air transport due to privatization.

3. Municipal Transport Financing Law.

Monetary amounts discussed in the remainder of this report may not agree with this table because of changes in the investment plans described in the *FTIP* and variations in methodology.

Approximately 40 percent of the subtotal of DM 453.5 billion has been set aside for the former East Germany. This amount is disproportionately large relative to the land area of East Germany.<sup>48</sup> By the end of 1996, almost 30 percent of the total of DM 538.8 billion,

or DM 155 billion, had been invested. Of this, DM 68 billion was invested in the former East Germany.<sup>49</sup>

## Rail

The current *FTIP* is the first in which planned rail investment exceeds planned road investment. For political reasons, however, actual road investment is expected to be larger than rail investment.<sup>50</sup> Rail investment remained stable at approximately DM 5 billion annually between 1980 and 1984. It increased to DM 6.2 billion by 1987 and then declined to DM 4.2 billion in 1990. With an expanded focus on rail transport resulting from reunification, investment in rail grew from DM 8 billion in 1991 to DM 9.5 billion in 1994.<sup>51</sup>

In 1996, DM 7.2 billion was available from the federal budget for investment in rail infrastructure, supplemented by an additional DM 1.8 billion from Deutsche Bahn AG. Of these funds, 60 percent was used for the former East Germany, including those funds used for upgrading existing infrastructure. Between 1994 and 2003, DM 33 billion in spending is planned for federal railways.<sup>52</sup> DB Cargo, the freight-handling business unit of Deutsche Bahn AG, intends to spend DM 1.7 billion on modernizing equipment and transfer facilities.<sup>53</sup>

In accordance with the Municipal Transport Financing Law (Gemeindeverkehrsfinanzierungsgesetz, MTFL), which laid the groundwork for regionalization of local rail transport networks, the federal government gives money to municipal authorities until the year 2000 for the sake of facilitating the transfer of authority from Deutsche Bahn AG and the federal government. The planned and actual amounts of aid are given in table 12.3. Amounts for 1998 to 2000 are expected amounts.

**Table 12.3**  
**Aid Given to Municipal Authorities under MTFL**

Year	Amount (billion DM)
1996	15.1
1997	15.4
1998	15.7
1999	16.2
2000	16.8

Source: Data from Bundesministerium für Verkehr, "Regionalisierung des Schienenpersonennahverkehrs (SPNV)," Jahresbericht der Bundesregierung 1996: Bundesministerium für Verkehr, German Federal Government's web site [cited November 8, 1997], available from:  
<http://www.bundesregierung.de/inland/bpa/bro/jahrb96/t01496.htm>; INTERNET.

The federal government plans to complete a high-speed rail network, allowing speeds over 200 km/h and covering 3,200 km of track by the year 2012. There is a risk that major projects will be canceled and that the network will not be completed. In particular, the high-speed links from Cologne (Köln) to Frankfurt and from Nürnberg to Erfurt are considered important links that are relatively safe from budget cuts.<sup>54</sup> Rail links that connect with the CEECs are also considered important, as high rates of growth in traffic are expected here.<sup>55</sup>

## **Road**

Following a sharp decline in road investment between 1980 and 1983, road investment remained constant from approximately DM 18 billion to DM 20 billion for the remainder of the 1980s. Following reunification, road investment increased sharply in 1991 to DM 25 billion.<sup>56</sup> In the 1996 federal budget, DM 10.1 billion was available for investment in federal trunk roads. Of this amount, only DM 8.1 billion was actually used. Maintenance of existing roads cost DM 2.6 billion. For long-term maintenance of the roadways, the MoT has planned expenditures of roughly DM 3 billion yearly until the year 2000.<sup>57</sup>

Of the total DM 209 billion set aside for federal trunk roads in the *FTIP*, roughly DM 109 billion is for new construction and development. Of this, DM 24 billion is intended for new links between east and west; DM 25 billion is for new western German motorways; DM 13 billion is for the upgrading of western German motorways; and DM 47 billion is for investment in federal roads, with a focus on local bypasses.<sup>58</sup>

As first-priority projects, the *FTIP* sets the expansion of the federal road network from its total length as of January 1, 1991, of 10,854 km to 13,300 km. Of this total, 2,900 km will be in the former East Germany. Of the total length of roadways, 28 percent, or 3,700 km, are to be expanded to six lanes.<sup>59</sup>

The potential for physical expansion of the roadways is seen as limited. Therefore, the use of information technology and telematic devices has gained in relevance in the road transport sector as a means of increasing capacity and efficiency.<sup>60</sup> Because of budget restrictions, private financing has also become an important factor in road construction. Both of these issues will be discussed in more detail in later sections.

## **Ports and Inland Waterways**

The most significant inland waterway project is the construction of a route from Hannover through Magdeburg to Berlin, which is one of the German Unity Transport Projects. Total costs are estimated at DM 4.5 billion (ECU 2.3 billion).<sup>61</sup> The rivers Elbe and Saale are to be deepened at a total cost of roughly DM 490 million.<sup>62</sup> All three of these projects have encountered substantial opposition. Because of this opposition and budget restrictions, it is unclear whether they will be carried out.<sup>63</sup>

Hamburg, one of Germany's most important ports, is in the process of building a new container terminal, distribution facilities, and cargo-traffic center. Public investment in this

project is estimated at DM 600 million, though the investment program is stalled because of legal difficulties.<sup>64</sup>

### **German Unity Transport Projects**

Upgrading the eastern German transport networks has been set as a priority of German transport policy. The need to upgrade has led to large-scale investment in the former East Germany's transportation infrastructure. The *FTIP* estimates that DM 256 billion will be required to replace, preserve, and upgrade infrastructure in the former East Germany, a goal that is hoped to be accomplished by the year 2010.<sup>65</sup>

The *FTIP* estimates that investment in the VDE projects will total DM 57 billion.<sup>66</sup> As of May 18, 1997, all VDE projects are under construction, three have been completed (all rail lines, from Eichenberg to Halle, from Bebra to Erfurt, and from Helmstedt through Magdeburg and Potsdam to Berlin), and nearly DM 21 billion have been invested. The estimate of total costs has also been adjusted up to DM 70 billion.<sup>67</sup>

### **Güterverkehrszentren (GVZs) and Intermodal Transport**

It is estimated that from 1998 to 2002, approximately DM 200 million will be invested annually in the construction of intermodal transport terminals. Between 1992 and 1995, approximately DM 464 million was invested.<sup>68</sup> The *FTIP* plans a total investment of DM 4.1 billion (ECU 1.8 billion) in intermodal terminals by the year 2010.<sup>69</sup>

In July 1996, Deutsche Bahn AG and the German government signed an agreement for the joint financing of intermodal terminals for seven GVZs. Estimated federal investment is DM 317.5 million of a total DM 400 million.<sup>70</sup> The terminals will be constructed in the location of the GVZs of Basel, Erfurt, Großbeeren, Cologne, Kornwestheim, Karlsruhe, and Leipzig-Wahren. It is hoped that the terminals will be finished in 1998. Another 13 terminals are being planned for other GVZs.<sup>71</sup> As of July 1, 1997, a second agreement was nearing completion for six terminals (in Bremerhaven, Frankfurt/Main, Glauchau, Magdeburg, Regensburg, and Rostock) with a total investment of DM 170 million.<sup>72</sup>

### **Private Investment**

Growing investment needs and tightening investment budgets have caused the Federal Republic of Germany to look more closely at ways to involve the private sector in the financing of transport infrastructure. Since the early 1990s, many methods have been considered, such as design-build-finance-operate programs, and project prefinancing. Two models have been used so far on a trial basis. Their use has been primarily limited to road construction.<sup>73</sup>

#### ***Concession Model***

The first of these models is called the concession model, under which a private entity is responsible for construction, financing, and operating a project. On the basis of the Private Finance for Road Construction Act (*Fernstraßenbauprivatfinanzierungsgesetz*) of



1994, use of this model is limited to bridges and tunnels. This limitation stems from EU Regulation 89/93, under which transport operators may not be charged both time-based fees (e.g., Eurovignette) and link-based fees, except for bridges and tunnels.<sup>74</sup>

The first project to be built using this model is the Warnow tunnel in Rostock, for which the contract was awarded in 1995. The tunnel runs under the river Warnow. Total investment is estimated to be roughly DM 200 million (ECU 107 million). Construction time is estimated to be two years, but as of the summer of 1996, construction had not begun.<sup>75</sup> It is estimated that 30,000 vehicles will traverse the tunnel daily, each paying a toll of DM 3 (ECU 1.6).<sup>76</sup>

### ***Private Prefinancing Model***

The second, and more commonly used model, is private prefinancing. Under this model, a private entity builds a project, paying for all construction costs. Upon completion, the federal government refunds construction and financing costs with annual installments for 15 years. Twelve projects have been selected for construction under this procedure between 1994 and 2002, with a total value of DM 4.5 billion (ECU 2.3 billion). In the case of the Engelberg motorway tunnel, with a cost of DM 640 million, it has been estimated that use of this model will cut completion time from eight to five years. On the other side of the issue, the Federal Court of Auditors has criticized the model for being more expensive than outright public expenditure, a position MoT rejects.<sup>77</sup>

Whereas the concession model has been used only on projects that form a portion of the road network, the prefinancing model has been employed for one rail project. On December 19, 1996, Deutsche Bahn AG and the federal government signed an agreement whereby this model would be used for the construction of a high-speed rail link from Nürnberg through Ingolstadt to Munich.<sup>78</sup> The project involves a 170-km link, and total costs are estimated to be DM 5 billion for construction and DM 2 billion for financing.<sup>79</sup>

### ***Public/Private Partnerships***

Germany's magnetic levitation train project, Transrapid, is another example of the use of private-sector funding in the provision of transport services. At the present, Transrapid is still in the experimental stages, with only a single link between Berlin and Hamburg being planned. This link is included in the *FTIP* '92.<sup>80</sup>

A project company called Magnetschnellbahn Planungsgesellschaft mbH, which is 50-percent owned by the federal government and 50-percent owned by private companies, was created in 1994 and charged with developing "corridor options" for Transrapid. It is hoped that construction will begin in 1998 and will be completed by the year 2005.<sup>81</sup>

The federal government will be responsible for ownership of the track and for financing its construction. The private company that will operate the link will refund half the government's costs, as long as predicted passenger volumes are met. Total cost of the

project has been estimated at DM 9 billion (ECU 4.7 billion) but could go as high as DM 15-17 billion (ECU 7.8-8.9 billion).<sup>82</sup>

Despite consistent support from the MoT and the federal government, as well as the European Commission, Transrapid has received considerable criticism. Critics charge that Transrapid will cover the same route as high-speed trains between Berlin and Hamburg but will be only half an hour faster. The high-speed trains will cost only DM 2.4 billion. As of 1996, passenger volume along this line is only two million passengers, whereas the predicted volume that must be met in order to have the government's investment refunded is DM 14.5 million. Critics charge that it is very unlikely this volume will be met, when one of the most successful magnetic trains in operation—Paris-Lyon TGV—only tripled passenger volume.<sup>83</sup>

In the area of intermodal transport, the GVZs are an example of cooperation between the public and private sectors. GVZs are typically borne out of initiatives by local governments, which set aside a tract or tracts of land typically outside an urban center. They then sell portions of this land to transport companies or other private investors.<sup>84</sup>

GVZ promoters have not always been successful in attracting tenants to their facilities. In 1990, Emmerich, with a population of 30,000, made a proposal for a GVZ. Despite extensive advertising and promotion, after five years the project had been unsuccessful in attracting both local and foreign transport operators.<sup>85</sup>

The responsibility for management and promotion of the GVZs lies with GVZ development companies, which are public/private limited companies. These companies are typically jointly held and controlled by the local government, those companies who are located on-site, and Deutsche Bahn AG. GVZs are still primarily the product of public-sector supporters, however, who have sometimes proved fallible in predicting the ability of a site to attract tenants.<sup>86</sup>

## **Transportation Infrastructure Planning**

### **Development of the Federal Transportation Infrastructure Plan**

The *Federal Transportation Infrastructure Plan* is the main document describing Germany's long-range plans for infrastructure construction. The *FTIP* is developed based on modal traffic forecasts. These forecasts incorporate sociodemographic trends, as well as trends in freight and passenger transport both domestically and in neighboring countries. The effects of reunification and the opening of Eastern European markets are of particular importance in this consideration.<sup>87</sup>

It is not necessarily true that a project included in the *FTIP* will be constructed—inclusion indicates only the intention to construct a project. Following the *FTIP*'s completion, the German Parliament must approve the plan. Every five years updated plans are produced, although these updates are frequently delayed. Following enactment of these plans, road

and rail programs that consider the goals and intentions of the *FTIP*, as well as budgetary restrictions, are produced several times a year.<sup>88</sup>

To be included in the *FTIP*, a project must be rigorously evaluated to determine its potential benefits. Assessment criteria for the federal plan are shown in table 12.4.

**Table 12.4**  
**Assessment Criteria for Federal Transport Infrastructure Plan**

Category	Criteria
Economic	<ul style="list-style-type: none"> <li>• Saving of operating cost, including energy conservation</li> <li>• Improved accessibility</li> <li>• Increased regional development, including increased employment during construction and operation</li> <li>• Contribution to increased traffic safety</li> <li>• Reduction of environmental pollution from noise and exhaust</li> </ul>
Ecological	<ul style="list-style-type: none"> <li>• Damage to environment from construction and operation of project</li> <li>• Mitigation of 'spheres of conflict,' or need to protect certain species, water, landscape, and cultural resources in area of project</li> </ul>
Town-planning (applies only to federal trunk roads)	<ul style="list-style-type: none"> <li>• Impact on buildings and monuments of individual significance</li> <li>• Impact on road space</li> <li>• Impact of layout of urban area</li> <li>• Impact of separation effect</li> <li>• Expected rates of use</li> <li>• Urban environmental impact</li> </ul>
Other Criteria	<ul style="list-style-type: none"> <li>• Interdependence between network of federal motorways and main rail routes</li> <li>• Interdependence between roadways and urban rail transport lines</li> <li>• Integration of combined/intermodal transport facilities and goods distribution centers (GVZs)</li> <li>• Pending political commitments and agreements with neighboring European nations</li> <li>• Projects of outstanding importance, e.g., only efficient link between cities or across borders, integration of ports and airports, bridges and tunnels, and advanced planning with regard to long-term network effects</li> </ul>

Source: Data from Federal Minister of Transport, *Federal Traffic Infrastructure Plan 1992* (Bonn, July 1992), pp. 20-25.

The economic criteria are used to calculate a benefit-cost ratio. Projects with a ratio greater than one are considered “efficient enough for realization from the point of view of the overall economy.”<sup>89</sup> Projects with a benefit-cost ratio greater than three may be given first-priority status. The ratio will be adjusted up or down based on the perceived effects of the remaining criteria.<sup>90</sup>

The *FTIP* has been criticized broadly on a number of points. The first is that the *FTIP* does not accurately estimate the costs of projects. Project costs are frequently underestimated, because by law, increased construction costs due to inflation cannot be considered. Also, project costs are sometimes estimated too low, because external costs, such as noise pollution, are not given appropriate consideration. The Länder frequently give low estimates of project costs when submitting proposals so that their projects will attain a higher benefit-cost ratio and thus a better chance of being included and implemented.<sup>91</sup>

The current *FTIP* also overstates the growth in rail transport in order to justify better funding for rail projects. It also appears that nonstandard assessment procedures were used in the appraisal of some rail projects. There is widespread concern that these factors will result in overinvestment in rail, unless traffic can be diverted from other modes. Finally, budgetary difficulties may make it impossible for many road, rail, and inland waterway projects to be implemented in the near future.<sup>92</sup>

Also in the area of planning, new laws have been enacted to expedite the construction of the VDE projects. The Planning Acceleration Act (Verkehrswegeplanungsbeschleunigungsgesetz) of 1991 was the first of these. The second was the Planning Simplification Act for Transport Infrastructure (Verkehrswegeplanungsvereinfachungsgesetz) of 1993. The major points of these laws are

- to reduce time devoted to large-scale land-use planning from one to four years down to six months and, in some cases, to eliminate it;
- to reduce MoT’s time to make decisions on route alignments from between 6 and 12 months to 3 months by centralizing the powers of the MoT;
- to institute short, fixed deadlines that planning authorities are required to meet;
- to reduce filing periods for public inquiries and to reduce appeals to administrative court decisions; and
- to group together or eliminate a number of other procedures.

These laws have been effective in reducing planning periods for projects in the former East Germany.<sup>93</sup>

## **Devolution of Planning Authority**

In recent years, responsibility for some transport-related activities has devolved from the federal government to the governments of the Länder and municipalities, as well as to private-sector entities. Despite this devolution, the federal government maintains primary responsibility for a number of transport-related activities, especially infrastructure planning and investment. The *FTIP* remains the major document through which infrastructure planning and investment are coordinated at the federal level.

The *FTIP* has only a limited reach, however. The federal government's role in infrastructure planning "ends with the political decision as to whether the planning of a project . . . is to be continued and further steps toward its realization are to be initiated."<sup>94</sup> Therefore, planning at the federal level consists of producing only a general outline of intended projects. Responsibility for further planning and implementation falls to the Länder and the localities.<sup>95</sup>

## **Highways**

In the area of road transport, duties relating to infrastructure construction are handled by the Directorate-General for Road Construction. The Directorate-General is responsible for construction, maintenance, extension, and improvement of federal autobahns and federal highways, as well as financing, planning, and designing projects, and developing laws and regulations.<sup>96</sup>

The Länder are responsible for building and managing the federal roadways. The federal government maintains the right to supervise the Länder in this regard, with the Directorate-General for Road Construction working to guarantee that a consistently safe and efficient network of roadways is available nationwide.<sup>97</sup>

## **Rail**

Despite the impending privatization of the German national rail company, Deutsche Bahn AG, and a major rail reform implemented since 1994, the federal government is still a crucial player in rail infrastructure construction. The federal government grants Deutsche Bahn AG loans for infrastructure investment. The federal government maintains responsibility for financing costs, effectively making the loan interest free from Deutsche Bahn AG's perspective. Deutsche Bahn AG repays the loan on the same schedule as the amortization of the investment, as well as paying for maintenance and operating costs.<sup>98</sup>

Since the rail reforms (which will be discussed in detail later), Deutsche Bahn AG has gained substantial autonomy from the federal government. Deutsche Bahn AG is no longer compelled to follow the directives of the federal and Länder governments regarding which investments are to be made. Nor is the company compelled to follow public budgetary procedures. Rather, Deutsche Bahn AG has been charged with pursuing commercial objectives.<sup>99</sup> The company's pursuit of these objectives has put it increasingly at odds with the social and economic objectives of the MoT. Deutsche Bahn AG has not

been a willing cooperator in the federal government's plans to build a network of intermodal transport terminals, for instance. Deutsche Bahn AG does not consider that there is a policy in place that would result in a modal shift from road to rail sufficient to make these projects profitable.<sup>100</sup> Hence, in March 1996, Deutsche Bahn AG refused to contribute to the financing of construction costs for seven intermodal terminals, leaving the entire construction budget to the responsibility of the government. Under normal circumstances, Deutsche Bahn AG and the government jointly finance the construction cost of infrastructure projects.<sup>101</sup>

### *Airports*

Airports in Germany operate as if they were private companies.<sup>102</sup> They are most often jointly owned by the Länder, the federal government, and cities.<sup>103</sup> Air transport is a sector in which the federal government's role is in transition. The federal government plans to sell all its holdings in Germany's airports, and is encouraging the governments of the Länder to sell off their holdings as well, in order to ease budgetary pressures.<sup>104</sup> By the end of 1995, the federal government had sold off all its stock in Hamburg's airport company and has plans to do the same with its holdings in other airports.<sup>105</sup> The government's relinquishing of direct control over the air transport industry has also extended to air safety; in 1993, the German Air Traffic Safety Company was formed and given responsibility for flight security and safety. This responsibility had previously been under the purview of the MoT.<sup>106</sup> The federal government also completed the privatization of Lufthansa in 1997.

### *Waterways*

Responsibility for investment and management in inland waterways and maritime routes rests with the MoT and those agencies falling under its authority.<sup>107</sup> The Federal Waterway and Shipping Administration is responsible for the administration, construction, and maintenance of inland waterways. The Federal Office for Maritime Transport and Hydrography carries out scientific and nautical research, with the aim of improving ocean traffic and transportation. It also produces nautical maps and monitors water quality.<sup>108</sup>

### *Transport Networks*

Since 1967, the federal government has provided funds to municipal governments to improve local and urban transport systems. These funds are used for the construction and reconstruction of bus systems, trams, and local train networks. The provision of this assistance is the result of an early realization that the growth of motorized traffic in urban centers will result in a host of problems, including pollution and congestion.<sup>109</sup>

Also, since 1967, associations of local transport companies have been established. These associations are essentially cooperative agreements among various local transport companies. The purpose of these associations is to standardize fares and tickets throughout the area and to increase customer convenience in scheduling and making connections.<sup>110</sup>

A major change in the management of local transport networks came in 1992, with the passage of the Municipal Transport Financing Law (Gemeindeverkehrsfinanzierungsgesetz, MTFL). The MTFL increased the funds granted to municipalities by the federal government and also broadened the areas of municipal transport into which federal funds could be invested. Funds distributed under MTFL could be used for connecting routes between cities and towns that were at a longer distance from each other than was possible before the law. The law was important in improving local public transportation in highly congested urban areas, as well as in less congested regions outside major cities.<sup>111</sup>

An important issue in German transportation at this time is the regionalization of urban and local public rail systems. The goal of regionalization is to unite all modes of local public transport under the consistent management of one body, at the regional level. The German government believes that transferring responsibility for financing, planning, and organization of local public transport to local government will make local rail transport more economically efficient.<sup>112</sup>

The Basic Law was modified on December 20, 1993, in that responsibility for local rail networks was transferred from the care of Deutsche Bahn AG, as an agent of the federal government, to the governments of the Länder. This change became effective January 1, 1996.<sup>113</sup> The Länder, the regions, and the cities are now able to control and set local transport policy within their boundaries.<sup>114</sup> The federal government had previously owned and operated all trains. The federal government is providing financial aid to the Länder to facilitate the transfer of authority.<sup>115</sup>

Development of the GVZs has been made possible through cooperation among the federal, Länder, and local governments. The first GVZ was established in 1985 in Bremen. As of 1995, it was the only operational GVZ in Germany.<sup>116</sup> By the end of 1996, GVZs in Emmerich, Emsland, and Ingolstadt were also functional.<sup>117</sup>

GVZs are essentially areas on the outskirts of cities where large numbers of transport companies are encouraged to locate and cooperate. There is frequently an intermodal transport terminal on the grounds. The GVZ concept has gained great popularity in Germany. In the early 1990s, concern over increased traffic resulting from reunification and the freeing of the markets of Eastern Europe, environmental awareness, and the need to maintain the competitiveness of German transport services in the face of a single European market brought the need for new transport solutions to the fore. The popularity of GVZs can also be attributed to the Dornier consulting company's promotion. Dornier carried out many feasibility studies, usually with the end recommendation that the GVZ project in question should be implemented.<sup>118</sup>

In 1991, a survey indicated that more than 50 proposals for GVZs had been made, with a substantial concentration of them in the former East Germany. Local authorities initiated more than half of these proposals. Regional governments and local chambers of commerce also frequently took the initiative in proposing these projects. GVZs had several advantages that made them attractive to local planners. GVZs promised to reduce

congestion resulting from urban freight distribution. The primary reason for pursuing GVZs was economic development for most initiators of proposals. Also important were factors such as job creation and retention, the shifting of traffic from road to rail and waterways, and a better regional distribution of traffic flows.<sup>119</sup>

No initial effort was made to coordinate any of the local initiatives in a larger context. In 1991, the MoT began raising the concern that the uncoordinated establishment of a large number of GVZs would reduce the potential benefits of individual projects. The MoT requested that the Länder make proposals for GVZs, so that these could be evaluated for inclusion in the *FTIP*. The MoT also began a series of feasibility studies for GVZ sites in the former East Germany to take advantage of the possibilities for economic growth and reconstruction.<sup>120</sup>

In 1992, a joint committee of national and regional transport authorities drafted a set of guidelines for GVZs. These guidelines are as follows:

- GVZs are not instruments of interventionist policy. The free choice of transport modes remains unaffected.
- Companies located outside GVZs must not be disadvantaged in their access to transport modes.
- The railways are to be treated on equal terms with all other participating firms. GVZ projects should be coordinated with railways' plans for CT (combined transport) terminals.
- The management of GVZs is the responsibility of the companies or cooperatives that locate there. GVZs operate according to free market principles.
- A GVZ can also be established on separate parcels of land that are linked by transport and information infrastructure, thereby allowing a coherent management of the sites, the so-called "de-central option."
- The planning of GVZs is the responsibility of local/regional authorities and is coordinated by the Länder.
- Federal funds are subject to the approval of the Länder.
- As an effective measure of the national transport policy, GVZs should form a network connected by transport infrastructure, transport services, and information technology.<sup>121</sup>

By 1995, only 15 of the originally proposed projects were in the planning or construction stages. Another four were still in the proposal stage. Approximately half of these were in eastern Germany.<sup>122</sup>



## Deregulation and Privatization

### Deregulation

Many changes took place in German transport policy in the 1990s. New rules were instituted in order to comply with EU regulations. The federal government carried out large-scale drives for privatizing state-owned transport companies and offered incentives for intermodal transport. In the *1996 Annual Report of the Federal Government*, the following are given as goals of Germany's transportation regulatory policy:

- supporting small- and medium-sized transport companies, through encouraging ease of market entry and fair competition;
- promoting fair competition within the EU, by harmonizing standards in environmental protection, quality of service, and safety;
- introducing more toll roads, as well as integrating the modes of transport and expanding possibilities for intermodal transportation; and
- opening borders and liberalizing cross-border traffic.<sup>123</sup>

An example of Germany's support of small- and medium-sized enterprises, is the DM 100 million subsidy that was offered to such companies in the inland waterway shipping industry in 1996.<sup>124</sup> This subsidy was extended with the EU's approval on a one-time basis. The subsidy is intended to bring small- and medium-sized German shipping companies up to EU standards through education and modernization.<sup>125</sup>

Also in the area of inland waterway shipping, German transport officials are concerned that there are too many operators, making it impossible for transport prices to reach a stable level. Citing the inland waterway shipping industry's inability to reach such an equilibrium on its own, Germany developed an agreement as of December 7, 1994, whereby it will provide DM 60 million to facilitate market exit, but only on the condition that other EU nations will participate in similar programs.<sup>126</sup>

Road pricing is an issue that has arisen out of the need to make up budget deficiencies, and a desire to make transport operators pay appropriate prices to cover the social costs that they incur in the use of roadways. These concerns have caused the federal government to look into new methods of financing road construction and maintenance. Taxes on fuel are very unpopular politically, and so other methods must be developed.<sup>127</sup> The Eurovignette system was introduced in 1995 in the EU largely because of German initiative. However, the maximum allowable tax of ECU 1250 per annum is below the price that market demand suggests is appropriate. In 1995, Eurovignette raised DM 800 million (ECU 420 million), which was added to the national budget. The Eurovignette is due to be renegotiated in 1998, and Germany has stated its intention to raise the tax to ECU 3500, though it is expected that the Dutch will veto such a proposal.<sup>128</sup>

Alternatives to the Eurovignette are electronic tolls for trucks. Germany is expected to have a system in place for levying tolls on trucks based on distance traveled by the year 2000. The system is intended to raise much-needed revenue for road construction and maintenance, to discourage trucks from overusing German highways, and to help track trucks that violate Germany's ban on the transport of nonessential cargoes on weekends and holidays. In particular, the toll is aimed at curbing the number of truckers from the CEECs, who use Germany's highways without paying tolls. Since these operators are able to operate at a lower cost, many German trucking firms have gone bankrupt, because they were unable to compete. In 1997, more than 700 firms went bankrupt.<sup>129</sup>

In the area of intermodal transport, Germany offers a number of incentives intended to encourage such traffic. There is legislation in the preparation phase under which trucks that are part of a transport chain, to or from ports and terminals, will be exempted from paying tolls on the autobahn. This law is only applicable to Germany, not other EU countries. As of September 1, 1997, road regulations were altered so that trucks participating in an intermodal transport chain were not bound by the prohibition against operating on Sundays and during holidays.<sup>130</sup> Finally, trucks that are part of a combined transport chain are allowed to weigh a total of 44 tons instead of the usual 40 tons. The additional allowance is to compensate for the heavier weight of the equipment sometimes required for participation in intermodal transport.<sup>131</sup>

### **Privatization**

An important part of Germany's regulatory policy has been the privatization of previously state-owned companies. Germany's efforts in this area have been substantial. More than 50,000 companies and enterprises that had been nationalized by the government of East Germany were transferred into the ownership of the Federal Republic of Germany as a result of reunification. In disposing of these companies, a government agency called the Treuhandanstalt was established and given responsibility for managing the return of these enterprises to the private sector. As of late 1994, the agency had carried out its duties with considerable success, with nearly 45,000 companies and commercial enterprises having been privatized.<sup>132</sup>

### ***Air Privatization***

While not a part of Germany's post-reunification privatization program, Germany made strong efforts in the 1990s to privatize the air-transport sector. One aspect of these efforts is the sale of the federal government's share in airports. By the end of 1995, the federal government had sold its holdings in the Hamburg Airport Company and had made plans to do the same with its holdings in Konrad Adenauer Airport, which serves Cologne and Bonn.<sup>133</sup>

Air-traffic safety services have also been privatized in Germany. In 1993, the German Flight Safety Company was formed out of the Federal Office for Flight Safety and given responsibility for air-traffic control and other matters relating to flight safety. It is hoped that this action will improve privatization efficiency in air transport.<sup>134</sup>

Most important in air transport is the privatization of Lufthansa, the former German national airline. With Lufthansa burdened by a debt of approximately DM 4 billion, in 1994, the German government began selling its stock in Lufthansa. The government's holdings fell to less than 36 percent by the end of 1994, and it intended to reduce the percentage to zero by the end of 1995.<sup>135</sup> The full privatization was delayed because of difficulty in reaching an arrangement between the European Commission and the German government under which Lufthansa would remain under majority German ownership, without violating EU policies prohibiting discrimination against other nations. Germany required that the airline remain in German hands in order to honor approximately 200 bilateral agreements with other nations.<sup>136</sup>

In November 1996, EU Transport Commissioner Neil Kinnock and German Minister of Transport Matthias Wissman agreed to a plan under which the last purchasers of Lufthansa stock would be required to sell back their stock if Lufthansa became less than 50-percent German owned. This plan was agreed to on the condition that it could only be applied after Lufthansa shares had been on the market for two or three years.<sup>137</sup> With the obstacles to privatization cleared, on September 29, 1997, 143 million shares of Lufthansa stock went on sale and were virtually sold out by close of the business day.<sup>138</sup>

### ***Rail Privatization***

Perhaps the most significant event in Germany's privatization scheme is the privatization and reform of the German railway system. Reform of the railways was necessitated by a number of factors. First, the debts of the West German Deutsche Bundesbahn had become enormous by the early 1990s. In 1993, Deutsche Bundesbahn ran a deficit of DM 14 billion (more than ECU 7 billion) and had accumulated debts totaling DM 66 billion (ECU 34 billion).<sup>139</sup> The reunification of Germany also entailed the unification of Deutsche Bundesbahn with the East German Deutsche Reichsbahn and a simultaneous need to upgrade eastern infrastructure to the level of western infrastructure. Finally, increasing road traffic led to worsening congestion and pollution. Reform was necessary to make rail a more attractive means of transport and thereby shift traffic away from the road system.<sup>140</sup>

In response to these issues, Deutsche Bundesbahn and Deutsche Reichsbahn were combined into a single state-owned company called Deutsche Bahn Aktiengesellschaft, or Deutsche Bahn AG. Deutsche Bahn AG was composed of three business units: freight transport, passenger transport, and infrastructure. The units are to become independent in 1998 in accordance with EU Directive 91/440 and will eventually be sold to the private sector.<sup>141</sup> The reform process also involved relieving the rail system of all debts.<sup>142</sup>

Perhaps most important in the reform is a fundamental change in the railway's mission. Deutsche Bahn AG is no longer responsible for fulfilling social responsibilities, but, rather, for pursuing purely commercial objectives.<sup>143</sup> The government retains responsibility for infrastructure investment, though Deutsche Bahn AG is responsible for maintenance and operating costs.<sup>144</sup>

The reform process appears to have been successful. Having been relieved of all debts by the government, Deutsche Bahn AG achieved a profit of DM 88 million (ECU 46 million) in 1994, with a total turnover of DM 24 billion (ECU 12.5 billion). Deutsche Bahn also enjoys new freedom in making investment decisions and in pursuing innovative financing options. The rail company has sold and leased back five high-speed intercity trains and is planning to raise DM 2-3 billion (ECU 1-1.6 billion) in loans from the Euromarket in order to finance future investment.<sup>145</sup> This freedom has caused conflicts with the MoT on projects that are seen as less commercially viable by Deutsche Bahn AG, such as intermodal terminals and the construction of new tracks. On such projects, Deutsche Bahn AG frequently will require the government to pay a large portion, if not all, of the construction costs in order to participate.<sup>146</sup>

## Technological Development

Two major areas of technological development play an important role in German transport policy. The first is the development of telematics, and the second is the growing importance of logistics.

According to the MoT, telematics includes the use of information, communication, and guidance technologies to control transportation systems. The word telematics is formed by combining telecommunications and informatics.<sup>147</sup> The MoT views the use of telematics as an integral part of the effort to link the various modes of transport into an integrated network. Telematics has the capability to increase efficiency of the modal network and to improve safety and environmental protection.<sup>148</sup>

To coordinate efforts on the development of transport telematics, Minister of Transport Matthias Wissman formed the Economic Forum on Transport Telematics in December 1995. This forum brought together leaders in the field of transportation from the federal government, the Länder, cities and municipalities, and the private sector. The forum established a number of guidelines for the development of telematic systems:

- The private sector should be responsible for the development and manufacture of telematic systems. The government's responsibility should be to establish a framework conducive to the development and implementation of these systems.
- Telematic systems that seek to integrate the modes of transport should be given priority. The goal of telematics is the overall improvement of efficiency in the transport system, not the unbalanced, uncoordinated improvement of individual modes.
- Industry should develop simple, reliable, and economical terminals so customers may select and use desired services with convenience.<sup>149</sup>

A number of telematic systems have already been implemented in Germany and have proved successful. These include

- computer-based logistics and fleet-management systems, which have proved successful in reducing the number of vehicles moving with empty payloads;
- computer-based parking guidance that reduces the amount of traffic seeking parking spaces during peak times in cities;
- RDS/TMC (radio data system/traffic message channel), which digitally transmits information on traffic conditions;
- more than 60 computer-based traffic control installations on German highways to decrease congestion and accidents, which have proved to be up to 50 percent effective in reducing injuries to persons in traffic accidents; and
- a global satellite navigation system, which is under development in cooperation with the EU, to be operated under civilian procedures to improve coordination and positioning of vehicles and goods.<sup>150</sup>

In rail telematics, the CIR-ELKE (Computer Integrated Railroad—Optimization of Efficiency in the Central Network) project is especially noteworthy. As of April 1997, this project was still in development. The board of directors of Deutsche Bahn AG has chosen the Offenburg-Basel line for the development of a pilot project. It is estimated that CIR-ELKE can improve efficiency by as much as 30 percent.<sup>151</sup>

CIR-ELKE increases efficiency by directing trains as to when to stop and start and when to switch tracks. It can adjust for speed and location, thereby increasing the track capacity up to 180 trains per day. CIR-ELKE requires the outfitting of both train and track with specialized equipment. If the pilot project is successful, other projects will follow.<sup>152</sup>

The GVZs are an important advance in German logistics. They are essentially industrial areas where numerous freight transport operators locate. They are transfer points, where long-distance traffic delivers its goods, which are then distributed into the city center by short-distance operators. Companies locating in a GVZ are independent of each other and of political authorities. It is hoped that GVZs will shift most of the distribution services from crowded city centers to the GVZ locations, on the outskirts of urban areas, where they are more accessible by rail, road, and waterway.<sup>153</sup>

GVZs vary widely from site to site. A number of models have been developed in an attempt to determine ideal sizes and layouts for GVZs, but ultimately GVZ design is determined by constraints of the locality, such as available land and capital. While many GVZs are large, singular plots of land, others are several smaller plots of land connected by transport links, with activities on the various plots coordinated by a centralized information system.<sup>154</sup> Frequently, there are intermodal terminals on-site at GVZs.

The attraction of GVZs is that they allow, and indeed encourage cooperation among transport operators located on-site. Through cooperation by operators, the total number of trips into cities for pickup and delivery can be reduced substantially (15 percent at the

Bremen GVZ), thereby reducing congestion. Taking the Bremen GVZ as an example, services offered at GVZs may include

- consolidation,
- distribution,
- repair of vehicles and containers,
- fueling for cars and trucks,
- vehicle rental, and
- a car/truck wash.<sup>155</sup>

GVZs are considered especially suitable for goods that can be shipped in containers.<sup>156</sup>

Even before the development of the GVZs, there was a substantial network of intermodal terminals in Germany. In the early 1970s, there was a veritable proliferation of such terminals being built around West Germany, usually to link road and rail. By 1976, 50 terminals had been constructed. The construction of these terminals was largely uncoordinated, resulting in low levels of efficiency.<sup>157</sup> From 1979 to 1990, the German government invested DM 1.54 billion in loading equipment, wagons, forklifts, and containers for intermodal terminals.<sup>158</sup>

By the mid 1980s, customer complaints had mounted regarding the services they received at intermodal terminals. Areas of dissatisfaction included operating hours that were too short, frequent delays, too much time spent waiting in terminals, and insufficient numbers of specialized containers on hand. To a lesser degree, there were complaints about high prices and late trains.<sup>159</sup>

In 1988, Deutsche Bundesbahn reorganized this conglomeration of terminals into a coordinated network in order to solve the aforementioned problems. They were organized into a central network of 14 terminals, as well as a secondary network of 19 terminals. The central network handled approximately 57 percent of all intermodal traffic, while the secondary network handled 33 percent, in 1988. The terminals that formed the central network opened at 7 a.m., with the departure terminal closing at 8 p.m. Special trains were developed to ensure that cargoes would be loaded and ready to depart by 7 a.m. In the secondary network, morning departure time was 8 a.m. Containers were kept on hand for both conventional and intermodal transport.<sup>160</sup> These changes contributed to the development of intermodal transport in Germany into a nationwide logistical system.<sup>161</sup>

The movement of large numbers of freight-forwarding firms into the logistics field is also important. Competitive pressure from Eastern European truckers, as well as from EU competitors, has caused approximately 60 German freight-forwarding companies to begin restructuring in order to switch from road traffic to offering logistics services. A growing field, logistics is likely to be more profitable than traditional trucking, despite higher

personnel costs. The move to offering logistics services has also been encouraged by the impending introduction of cabotage rights in the EU on July 1, 1998. It is feared that introduction of these rights will increase competition within the trucking industry even further.<sup>162</sup>

## **Obstacles to Multimodal/Intermodal Development**

Despite the emphasis Germany is giving to GVZs in developing an intermodal network, there are difficulties that will have to be overcome if success is to be achieved. The German government hopes that completing the network of GVZs and intermodal terminals planned in the *FTIP* will double intermodal transport's share of road traffic measured in ton-km from 6 percent in 1995 to 12 percent by 2010. It is estimated that this increase will require increasing intermodal volume by a factor of five, if the projected increase in road traffic is considered. Such an estimated increase in intermodal volume may not be realistic.<sup>163</sup>

German reunification has proved to be an issue in this matter. The above increases in intermodal transport were figured on the basis of rail transportation's large modal share of traffic in the former East Germany. The share of rail decreased dramatically following reunification. Neither of Germany's major intermodal transport companies, Kombiverkehr or Transfracht, is a strong supporter of the GVZ concept. While they agree that GVZs have potential, they stress the importance of location in producing network efficiency. Poor locations of GVZs run the risk of drawing traffic away from the established network of stand-alone intermodal terminals.<sup>164</sup> Additionally, several studies carried out in the early 1990s failed to produce persuasive evidence that GVZs would increase the level of intermodal traffic above levels achieved by the network of stand-alone terminals. In the state of North Rhine-Westphalia, one study estimated that a dense network of GVZs at a regional level will only be able to capture between 2.5 and 5 percent of the total tonnage volume. Another study estimates that the modal shift from road to rail, as a result of constructing the GVZs, will be roughly 2 percent.<sup>165</sup>

A final challenge is that intermodal transport has not historically been profitable in Germany. Deutsche Bundesbahn provided intermodal services at a loss that was financed through subsidies from the government.<sup>166</sup> It is estimated that the deficit in 1988 was DM 334 million.<sup>167</sup> As of 1996, it is estimated that intermodal transport income covers only 65 percent of its spending. This problem is exacerbated because intermodal transport must lower its prices to compete with road transport and also because intermodal terminals have two busy times—morning and evening—and, therefore, must pay employees for working two shifts.<sup>168</sup>

## Multimodal/Intermodal Projects

In order for us to gain a better understanding of German intermodalism, this section will discuss in some detail the Bremen GVZ. The Bremen GVZ was the first operational GVZ in Germany and has served as a model for many GVZs still being developed.

### Bremen GVZ

Bremen's GVZ is located 5 km west of the city center in a former agricultural area. It is next to the city's main freight yard, which is connected directly to the rail network.<sup>169</sup> The facility's total area is 1.2 million square meters, of which 200,000 square meters are covered storage space. There are an additional 2 million square meters set aside for future development. Approximately 3,000 trucks and 1,500 private cars use the GVZ daily.<sup>170</sup>

As of 1994, more than DM 500 million had been invested in the GVZ, half by the state of Bremen and half by private investors.<sup>171</sup> There were 32 transport and distribution companies located on-site, plus the intermodal terminal's operator and the GVZ development company, which manages the site.<sup>172</sup> These companies consist of 25 distribution companies, of which 4 are warehousing firms and 2 are freight-forwarders, and 7 smaller firms, which provide vehicle repair, fueling, truck washing, and container repair and maintenance.<sup>173</sup>

Under German law, the Bremen GVZ is a private limited liability company. Each company located at the site is required to be a corporate member of the GVZ with one vote at company meetings. Deutsche Bahn AG and the state of Bremen are the exceptions, with a total of six votes between them.<sup>174</sup>

Cooperative activities among the companies are common and extend to joint purchasing of raw materials, as well as exchanging labor and equipment. A computer system links and coordinates all business activities.<sup>175</sup>

All companies' plots are connected to the rail network. The strength of these connections is regarded as a major asset of the GVZ. Conversely, there is only one road link. The road link runs through residential areas and offers only indirect highway access. Thus, it is considered a potential source of bottlenecks.<sup>176</sup> Also, residents have frequently complained of the noise created by trucks traveling to the GVZ at night.<sup>177</sup>

There is an intermodal transport terminal located in the Bremen GVZ, managed by a private company called Roland Umschlagsgesellschaft. The terminal is outfitted with two gantry cranes and one stacking machine. This terminal served 11 rail arrivals and 11 rail departures daily in 1994. It handled 105,000 units of traffic in the same year. About 5 percent of the terminal's traffic originates and terminates inside the GVZ, and the other 95 percent is distributed within 50 km of the site.<sup>178</sup> Between 10 and 20 percent of the total traffic coming in and out of the GVZ is intermodal.<sup>179</sup> While Bremen is also a major port city, most intermodal traffic is handled directly by the port, and is not routed through the GVZ.<sup>180</sup>



The GVZ has been relatively successful in encouraging cooperation among companies located at the site. In a survey administered at the site, 18 out of 26 companies surveyed indicated that they cooperated with other companies. The 8 who indicated that they did not were primarily smaller companies. However, all representatives surveyed indicated that activities carried out cooperatively account for only a very small portion of their business. These activities are primarily limited to the use of warehousing and truck-washing facilities, as well as the city logistics plan, by which transport operators cooperate in delivering freight to the city center. According to the survey, the GVZ development company initiates most of these cooperative activities, not the companies located in the GVZ.<sup>181</sup> Indeed, while this GVZ has been relatively successful, most companies do not locate there in order to gain from cooperation but, rather, to find development opportunities, because of GVZ location near the city and port of Bremen, and coordinated planning on the part of regional authorities.<sup>182</sup>

## Notes

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<sup>153</sup> George Schoener, Gerhardt Muller, Otto Sonefeld, and Richard Roberts, *European Intermodal Programs: Planning, Policy and Technology* (Washington, D.C.: U.S. Department of Transportation, Federal Highway Administration, September 1994), p. 46.

<sup>154</sup> Höltgen, "Terminals, Intermodal Logistics Centres and European Infrastructure Policy," pp. 120-121.

<sup>155</sup> Schoener et al., *European Intermodal Programs: Planning, Policy and Technology*, p. 46.

<sup>156</sup> Höltgen, "Terminals, Intermodal Logistics Centres and European Infrastructure Policy," p. 126.

<sup>157</sup> Bukold, *Kombinierter Verkehr: Schiene/Straße in Europa*, pp. 264-65.

<sup>158</sup> Ibid., p. 262.

<sup>159</sup> Ibid., p. 267.

<sup>160</sup> Ibid.

<sup>161</sup> Ibid., p. 268.

<sup>162</sup> Robert Koenig, "German Forwarders Switching to Logistics," *Journal of Commerce* (February 23, 1998), p. 12-A.

<sup>163</sup> Höltgen, "Terminals, Intermodal Logistics Centres and European Infrastructure Policy," p. 115.

<sup>164</sup> Ibid., pp. 116, 126.

<sup>165</sup> Ibid., p. 126.

<sup>166</sup> Bukold., *Kombinierter Verkehr: Schiene/Straße in Europa*, p. 265.

<sup>167</sup> Ibid., p. 269.

<sup>168</sup> Ibid., pp. 268-69.

<sup>169</sup> Höltgen, "Terminals, Intermodal Logistics Centres and European Infrastructure Policy," p. 127.

<sup>170</sup> Schoener et al., *European Intermodal Programs: Planning, Policy and Technology*, p. 46.

<sup>171</sup> Ibid., p. 46.

<sup>172</sup> Höltgen, "Terminals, Intermodal Logistics Centres and European Infrastructure Policy," p. 127.

<sup>173</sup> Ibid., p. 137.

<sup>174</sup> Schoener et al., *European Intermodal Programs: Planning, Policy and Technology*, p. 49.

<sup>175</sup> Ibid.

<sup>176</sup> Höltgen, "Terminals, Intermodal Logistics Centres and European Infrastructure Policy," pp. 137-38.

<sup>177</sup> *Ibid.*, p. 132.

<sup>178</sup> *Ibid.*, pp. 132-33.

<sup>179</sup> *Ibid.*, p. 145.

<sup>180</sup> *Ibid.*, p. 132.

<sup>181</sup> *Ibid.*, pp. 135-36.

<sup>182</sup> *Ibid.*, p. 147.



## Chapter 13. United Kingdom

### Overview

#### Geography and Resources

The United Kingdom of Great Britain, Northern Ireland, Scotland, and Wales is an island nation located between the North Atlantic Ocean and the North Sea, approximately 35 kilometers (km) northwest of France. Its total land area is 244,100 square km, and its estimated 1996 population is 58,489,975. This Western European country is linked to the main continent by a 31-mile tunnel under the English Channel, which has separate passenger and freight shuttles. Terrain varies from rugged hills and low mountains to level plains in the east and southeast, and peripheral regions have transportation accessibility problems. The United Kingdom has large coal, natural gas, and oil reserves, and other resources, such as tin, limestone, iron ore, salt, clay, chalk, gypsum, lead, and silica.<sup>1</sup>

#### Economy

The United Kingdom has one of the four (including France, Germany, and Italy) largest economies in Western Europe, with banking, insurance, and business services accounting for the largest proportion of the \$1.04 trillion gross domestic product (GDP) in 1994.<sup>2</sup> Real GDP rose about 2 percent in the United Kingdom in 1996.<sup>3</sup> In that same year, exports and manufacturing output were the main contributors to the country's economic growth.

Western Europe receives 50 to 70 percent of the total exports of Eastern European countries.<sup>4</sup> Approximately half of the United Kingdom's trade is with other member countries of the EU. The export of manufactured goods, machinery, fuels, chemicals, semifinished goods, and transport equipment from the United Kingdom in 1994 totaled \$200.4 billion. Imports, consisting of manufactured goods, machinery, semifinished goods, foodstuffs, and consumer goods accounted for \$221.9 billion.<sup>5</sup> Stronger export growth has helped to boost domestic demand and intraregional trade. Yet, overall import demand in the United Kingdom weakened growth in domestic output.

Fixed investment in a number of Western European countries, including the United Kingdom, fell sharply in 1996. This decline in investments is partly due to reductions in public investment and low level of private-sector investment in machinery and equipment.<sup>6</sup> A major focus of fixed investment in the United Kingdom is the replacement of old equipment. The level of Western European fixed investment in 1996 was only approximately 2.5-percent higher than in 1990. The weak performance of fixed investment is a matter of concern, because it implies a decline in the rate of technological progress in Western Europe and ultimately a decrease in the creation of new jobs.

Unemployment in the United Kingdom was 8.2 percent at the end of 1996 but fell to 6.25 percent in early 1997.<sup>7</sup>

## **Transportation Infrastructure**

### **Sea Transport**

Ninety-five percent of the United Kingdom's international trade passes through ports.<sup>8</sup> The United Kingdom has 80 ports of commercial significance, and the most important for container traffic are London, Felixstowe, and Southampton. The major ports for roll-on/off are Dover, Harwich, Felixstowe, and Grimsby/Immingham. Other ports are Aberdeen, Belfast, Bristol, Cardiff, Grangemouth, Hull, Leith, Liverpool, London, Manchester, Medway, Sullom, Voe, Tees, and Tyne.<sup>9</sup> The United Kingdom owns a variety of ships; and larger marine vessels, with 5,000 to 6,000 container capacities, are increasingly being used.<sup>10</sup>

### **Railways**

Railtrack, a private company, which owns the national rail infrastructure, maintains 32,000 km of track and connections to more than 1,000 freight terminals.<sup>11</sup> Cargo is frequently moved through a system of express freight trains, called freightliners. Increasing the rail share of the freight market is a key part of the United Kingdom's integrated transportation policy, and more containerized freight is shifting from ships to rail, as well.<sup>12</sup>

### **Roadways**

There are 386,243 km of maintained highways within the United Kingdom, and road haulage accounts for nearly 80 percent of all inland freight movement. Motorways carry more traffic than do other trunk roads, although motorways have only one-quarter of the road length of trunk roads. Most of this freight is carried in vehicles of more than 25 tons "gross laden weight." Goods vehicle traffic grew in 1996 to 147 billion ton-km of freight. In addition, the average length of haul increased from 89 km in 1995 to 90 km in 1996.<sup>13</sup> Nearly seven million tons of freight are transported annually to and from Continental Europe and Ireland.<sup>14</sup>

### **Waterways**

The British Waterways Board manages 3,200 km of canals and rivers primarily used for recreation, and only infrequently for commercial purposes, such as freight transport.<sup>15</sup>

### **Air Transport**

The British Airport Authority owns Heathrow, Gatwick, Stanstead, Glasgow, Edinburgh, Prestwick, and Aberdeen airports. These facilities serve 72 percent of all air passengers and 83 percent of all air freight.<sup>16</sup> Cargo handled at United Kingdom airports has risen from 840 thousand tons in 1986 to 1.72 million tons in 1996. International cargo handled



**Table 13.1**  
**Transportation Infrastructure in the United Kingdom**

Mode	Components	Statistics
Railways	Total	17,561 km
	Broad gauge	434 km 1.600-m (190 km doubletrack)
	Standard gauge	16,892 km 1.435-m (4,928 km electrified; 12,591 km double or multiple track)
	Narrow gauge	235 km, 0.260-m, 0.311-m, 0.381-m, 0.600-m, 0.610-m, 0.686-m, 0.760-m, 0.762-m, 0.800-m, 0.825-m, 0.914-m, and 1.067-m
Highways	Total	Total: 386,243 (including 3,237 km of expressways)
	Paved	NA km
	Unpaved	NA km
Waterways	Total	3,200 km under British Waterways Board
Pipelines	Total	16,726
	Crude oil	(almost insignificant) 933 km
	Petroleum products	2,993 km
	Natural gas	12,800 km
Major ports	Total	15
Merchant Marine	Total ships	151 (1,000 GRT or over)
	Total capacity	3,191,969 GRT/3,861,239 DWT
	Bulk ships	10
	Cargo	21
	Chemical tanker	2
	Container ship	24
	Liquefied gas tanker	2
	Oil tanker	56
	Passenger	8
	Passenger-cargo	1
	Roll-on/roll-off cargo	12
	Short-sea passenger	14
	Specialized tanker	1
Airports	Total	388
	Paved runways	Over 3047 m in length: 9
		2,438 to 3,047 m in length: 29
		1,524 to 2,437 m in length: 103
		914 to 1,523 m in length: 59
	Unpaved runways	Under 914 m in length: 166
		914 to 1,523 m in length: 22

Source: Central Intelligence Agency, "CIA World Factbook," CIA web site [cited February 11, 1998], available from: <http://www.odci.gov/cia/publications/nsolo/factbook/uk.html>; INTERNET.

in 1996 totaled 1.66 million tons, and domestic cargo increased to 61 thousand tons.<sup>17</sup> In 1996, more than 120 million passengers used United Kingdom airports, and traffic has grown by 6 percent a year over the last two decades.<sup>18</sup>

## **Transportation Policy**

Public transport is increasingly affected by policies and legislative measures developed at international and European levels. It is estimated that approximately 80 percent of national legislation in the member countries is developed from European legislation. London's Transportation Department of International and European Affairs monitors international and European developments and prepares formal positions on EU proposals.<sup>19</sup> Through international contacts, the department then seeks to influence institutions that have a bearing on the outcome of such proposals. Consequently, the department works closely with the International Association of Public Transport, which represents public transport operators across the world.

The efficiency and capacity of transportation modes are currently receiving significant political attention in the United Kingdom, reflecting the importance of the transportation sector to the overall economy. A national policy providing for "greater integration" of Britain's transportation systems was issued in 1920. Since 1952, roads have become the dominant mode for freight transportation in the United Kingdom.<sup>20</sup> Integration of services became an issue again in the 1960s, when the Transport Act of 1968 provided funding for bus/rail terminals.<sup>21</sup>

Throughout the early 1990s, the government focused on rail privatization and the implementation of new road projects.<sup>22</sup> Major infrastructure investment was still concentrated in roads, which has been the largest component of total transport infrastructure investment since 1981.<sup>23</sup> This investment approach has encouraged United Kingdom haulers to move more freight by road than either France or Germany. In 1995, United Kingdom road transport carried 16 times the tonnage and 10 times the ton-km of rail freight.<sup>24</sup> Transport mode selection is influenced by an absence of major inland waterways and the fact that railways are limited in distance.<sup>25</sup> In Britain, average rail journeys are 75 miles, but some bulk commodities are moved only 3 miles. Full door-to-door service is viable only over about 200 miles.<sup>26</sup>

A 1994 report by the Royal Commission on Environmental Pollution, "Transport and the Environment," called for a radical change in transport policy that would be less detrimental to the environment. Subsequently, the government initiated a new national debate about transport and in April 1996 published a Green Paper titled "Transport—The Way Forward."<sup>27</sup> The central message of this report was that transport planning should more strategically account for congestion and pollution through sustainable land use. The report advocates more effective use of existing transport infrastructure, rather than the provision of new infrastructure. The government also issued Planning Policy Guidance (PPG 13) which is not a regulatory statute but advises local authorities on how to incorporate planning and transport strategies. This policy is being developed during a

period when numerous organized protests have been aimed at blocking road development projects.<sup>28</sup> Some of the key points recommended in this Green Paper are

- a new system of planning for trunk roads so that they can be considered as part of a wider transport network;
- new powers for local authorities to manage traffic demands in their areas;
- new initiatives to promote the use of the bus; and
- an independent examination of the links between traffic growth, transport investment, and economic growth.<sup>29</sup>

The election of the Labour government on May 1, 1997, and the creation of the new Department of the Environment, Transport and the Regions (DETR), marked another major shift in the approach to transport policy in the United Kingdom.<sup>30</sup> In preparation for the establishment of a national policy on integrated or combined transportation, the government released a Green Paper titled “Developing an Integrated Transport Policy—An Invitation to Contribute” on August 21, 1997. Major points outlined in this document call for

- offering more efficient options in meeting transportation needs;
- improving the economy, competitiveness, and employment;
- reducing the impact of transportation on the environment; and
- providing social and economic equity within the country.<sup>31</sup>

United Kingdom government ministers are currently reviewing both private- and public-sector responses to this consultation document, which will be the foundation for a White Paper on integrated transportation policy in May 1998. In the period before the national intermodal policy is announced, Minister of Transport Gavin Strang is promoting effective rail regulation, a new public/private partnership to improve the London Underground, review of the roads program, and development of better bus services and lanes.<sup>32</sup>

According to Deputy Prime Minister John Prescott, the government wants to “see rail increase its share of the freight market and become a key part of Britain’s new integrated transport policy.”<sup>33</sup> The United Kingdom government wants a railway, “which operates as a network and which is integrated with other forms of transport—cars, buses, coaches, air travel, etc.—so that passengers can make seamless journeys using more than one transport mode.”<sup>34</sup>

As one means of promoting the development of a variety of transportation modes other than roadways, the government offers Freight Facilities Grants (FFGs). FFGs are designed to allow rail and inland waterway developers to compete financially with road transport. Grants are administered by the DETR to assist companies with the capital costs

of new freight-handling facilities, improvement of existing facilities, or investment that would reopen inactive facilities.<sup>35</sup> Grants are available, for example, to purchase unloading equipment, rail wagons, and intermodal rail equipment.

Track Access Grants (TAGs) are designed to assist freight operators in meeting track access charges levied by Railtrack, for freight that would otherwise transfer to road or would not be attracted to rail.<sup>36</sup> Grants are awarded for the amount required to tip the balance in favor of rail, the total track charge, or the total value of environmental benefits the grant would secure.

Another boost to rail freight is a governmental concession allowing trucks engaged in piggyback road/rail movements to operate at up to 44 tons (from 38 tons). According to Minister for Railways, Roads, and Local Transport John Watts, “the ability of piggyback services to carry road semi-trailers by rail will help to encourage the transfer of long-distance freight from road to rail.”<sup>37</sup> Shipping operators also want to take advantage of the efficiency of inland rail transport.

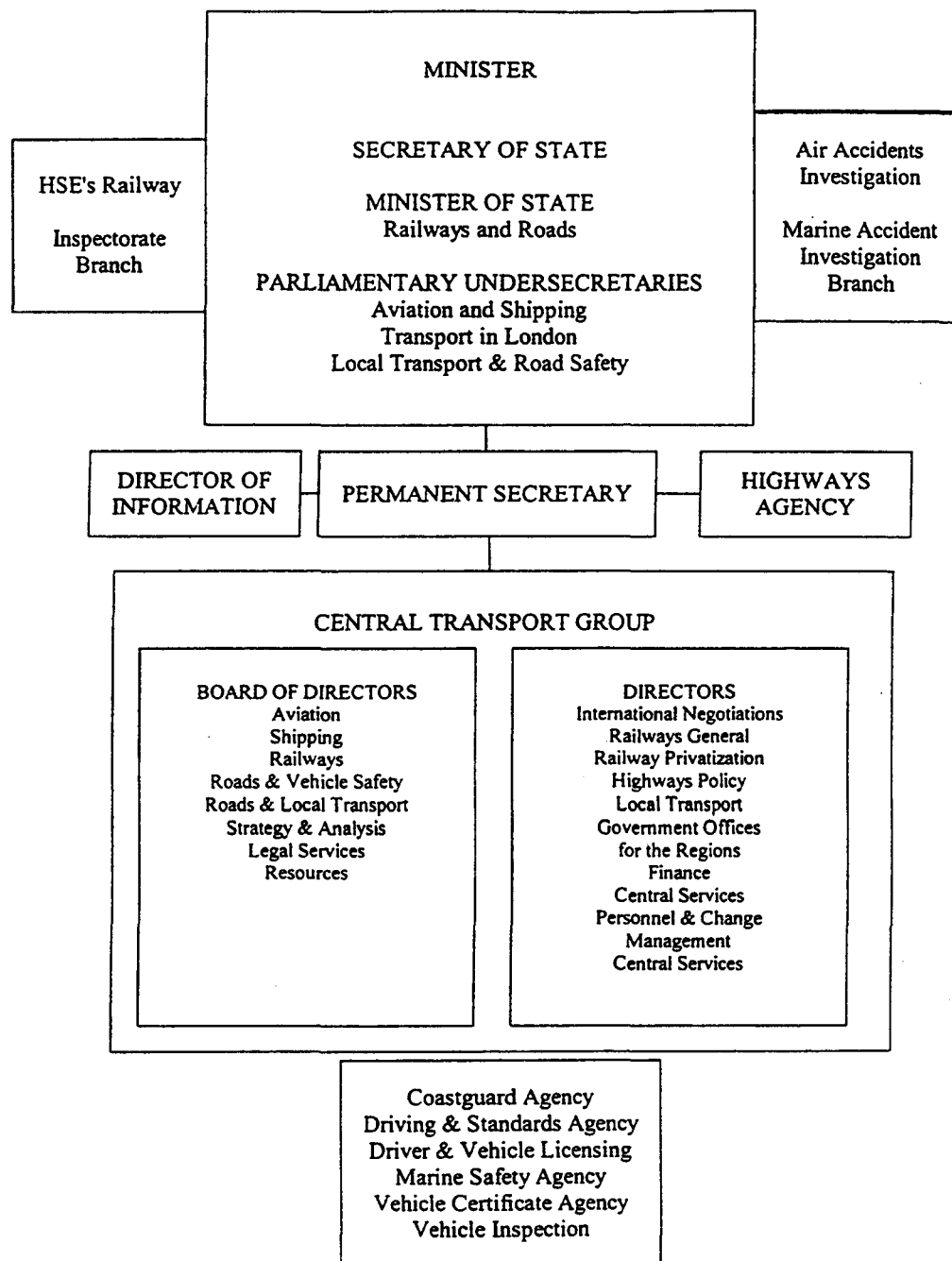
## **Transportation Institutions**

### **National**

National administration of British transport policy is controlled by the DETR (see figure 13.1). The transportation agency typically does not identify projects and instead relies on transport operators to submit bids and proposals to the department. Secretary of State John Prescott manages the department’s administration and evaluates transportation impacts on the environment. The minister of state for railways and roads manages all railway issues and road infrastructure policy, and has lead responsibility for deregulation issues. The parliamentary undersecretary of state is in charge of all London regional transport issues. A second parliamentary undersecretary is responsible for airlines, airports, and marine shipping.

The core of the DETR is known as the Central Transport Group (CTG), which advises ministers on transport policy and facilitates coordination between transport service providers and governmental officials. The number of executive agencies within the DETR were recently reduced by the privatization of the Transport Research Laboratory (TRL). Remaining agencies are the Coastguard, Driving and Standards, Driver and Vehicle Licensing, Marine Safety, Vehicle Certification, and the Vehicle Inspectorate.<sup>38</sup> Each of these agencies implement national objectives defined by the secretary of state. Some significant transportation departments are distinct from the DETR in organizational responsibilities and funding. The Railways Act of 1993 provided for the establishment of two nonministerial governmental departments as part of the restructured railway. These are the Office of Passenger Rail Franchising (OPRAF) and the Office of the Rail Regulator (ORR). OPRAF manages passenger rail service contracts and entices railway investment. The ORR was set up as the main government “watchdog” of the railways, to monitor both competition between operators and access to the network.<sup>39</sup>

**Figure 13.1**  
**Organizational Structure of Transport within the United Kingdom's**  
**Department of the Environment, Transport, and the Regions**



Source: Adapted from Department of the Environment, Transport, and the Regions, Organizational Chart (London, n.d.).

## **Regional**

There are several entities that control administration of transportation at the regional level. Ten Government Offices for the Regions (GOs) were established in 1994, uniting the regional offices for Environment, Trade and Industry, Education and Employment, and the Transport Departments. In part, the GOs function to maintain trunk and local roads, as well as implement broad transportation planning. The GOs advise United Kingdom ministers on local authority transport policies and programs and work to promote local partnerships.<sup>40</sup>

## **Municipal**

London Regional Transport (LRT), also commonly known as London Transport (LT), was established on June 29, 1984. On that date, the London Regional Transport Act transferred political and financial control from the Greater London Council (GLC) to the central government. The Board of London Transport (BLT) is appointed by the secretary of state for transport. LT's principal duty is to provide passenger transport services in the city of London.<sup>41</sup> The Operating Services Department of LT supports private bus operators, which run routes under contract to LT buses by providing the infrastructure (stops, stands, stations, etc.).<sup>42</sup> London Underground, Ltd., is a subsidiary of LT. The London Underground serves 2.5 million customers per day, with 470 trains and 245 stations. London Underground passenger service is managed through nine general managers, each in charge of a few lines.

Transportation planning on the local level is achieved by Passenger Transport Authorities (PTAs), with the support of technical and administrative staff through Passenger Transport Executives (PTEs).<sup>43</sup> There are six PTEs in the country outside London. Local authorities often own and operate public transport, such as buses, and generally fill infrastructure gaps related to social services.

The private sector has increasingly become involved in designing and financing infrastructure projects in the United Kingdom. The Major Contractors Group (MCG), which represents 22 construction companies, is the largest contractor group within the United Kingdom. The members fulfill contracts worth 20 billion British pounds (£) each year, primarily in the civil engineering sector.<sup>44</sup> The MCG is involved with all modes of transportation and, therefore, has a common interest in central governmental policy regarding intermodal transportation. The MCG has provided written comments in response to the government's consultation document. It was noted that "repeated cuts and U-turns have characterized government investment in infrastructure . . . and have hampered the planning and investment vital to the construction industry."<sup>45</sup> The MCG urges the government to reconsider investment strategies for road transportation.

## **Financing of Transportation Infrastructure**

Compared to EU member countries on the European Continent, Great Britain invests much less in its transportation infrastructure. Infrastructure investment increased from 0.7 percent of GDP in 1985 to 1 percent in 1990-93, before falling to 0.9 percent in 1994-95.<sup>46</sup> A growing public-sector debt has led the United Kingdom to privatize most state-run transportation services in an effort to increase efficiency and cost-effectiveness.<sup>47</sup> It is expected that the government will contribute £3.7 billion to private-sector transportation infrastructure projects over the period 1997-98 and 1999-2000.<sup>48</sup> Yet, fiscal constraints have led the secretary of state for transport to reduce DETR's expenses from £428 million in 1993-94 to £374 million in 1996-97.<sup>49</sup>

The central government provides the majority of local-government funding and is encouraging local authorities to develop multimodal/intermodal projects to manage transportation demand. The DETR provides grant funding to local authorities through a competitive bidding process for transport projects. In 1997, approximately £600 million were distributed to 140 local authorities. Local authorities generate a relatively small portion of their funds through taxes.<sup>50</sup> During 1996-97, LT's revenue from fares and other sources was £1.16 billion, and a government grant provided an additional £402 million.<sup>51</sup>

## **Public/Private Partnerships**

The European Commission has encouraged private companies to supplement public investment in transportation projects in all member countries. In fact, one of the criteria for selecting the 14 priority projects recommended at the Essen Conference was the "preparedness of EU [member countries] in achieving private sector participation in transportation projects."<sup>52</sup> The viability of most transportation projects will depend on such public/private partnerships, which benefit from combined resources. The private sector offers specialized skills and knowledge and encourages high-performance standards. Such partnerships have shifted the function of the public sector from providing infrastructure to purchasing services.<sup>53</sup>

The implementation of policies regarding open access and user charges are important for the development of public/private partnerships. Railtrack offers open access of rail infrastructure to freight operators on a competitive basis under contracts. Railtrack assumed ownership of the United Kingdom's railway network infrastructure on April 1, 1994. The company operates approximately 32,000 km of track and leases an estimated 2,500 stations and 90 depots to operators.<sup>54</sup> Railtrack favors the European Commission's plan to develop a network of rail corridors for open-access freight, referred to as Trans-European Rail Freight Freeways. Railtrack is involved with a freight freeway route to Hungary and expects to discuss further options with rail partners in France, Belgium, and Germany.<sup>55</sup>

Access charges to the rail network provide the majority of Railtrack's revenues. There are concerns that, even with the competition generated by open access, government-

subsidized roadways offer lower unit costs and will continue to attract more business than will rail.<sup>56</sup> Roadway user charges are becoming increasingly important as a private-sector source of revenue. Member countries are in the process of developing user-charge systems based on telecommunication technologies through the European Commission's research and development programs.<sup>57</sup>

Appropriate allocation of financial risks and some assurance of project profitability will be essential to encourage the private sector to undertake large infrastructure projects. In a speech to the European Investment Bank (EIB), EU Transport Commissioner Neil Kinnock suggested that the private sector should be responsible for financial, design, construction, and traffic risks, while the public sector should assume political, legislative, and planning risks.<sup>58</sup> The European Commission is considering the establishment of "project or corridor authorities" to assist member countries in coordinating the preparation, construction, operation, and financing of large infrastructure projects.<sup>59</sup>

## **Railway**

Unlike other major European railways, British Rail (BR) has incurred few debts, because railways were not allowed to borrow directly on financial markets under British Treasury Rules.<sup>60</sup> The railway industry is funded by grants paid by OPRAF to train operating companies, which, in turn, purchase services from Railtrack. The majority of Railtrack's revenue comes from access charges paid by passenger and freight-operating companies that run trains on the network. Other sources of funds include grants from the EU, the central and local governments, and heritage trusts.<sup>61</sup> The government provided £569 million in 1996-97 specifically for the construction of new rail lines.<sup>62</sup> Proceeds received from the sale of businesses previously owned by BR amounted to £2.54 billion.<sup>63</sup>

Freight shippers, who do not wish to function as train operators, can use licensed operators to handle goods transfers on their behalf. The English, Welsh and Scottish Railway, Ltd., Railfreight Distribution Ltd., Freightliner Ltd., and National Power and Direct Rail Services are all licensed to operate freight services in the United Kingdom.<sup>64</sup> The country's largest freight operator, the English, Welsh and Scottish Railway (EWS), is owned by a consortium led by Wisconsin Central Transportation Corporation (a U.S. rail carrier that includes U.S., New Zealand, and United Kingdom financial interests).

The railway situation in the United Kingdom illustrates the high degree upon which transport projects depend on the availability of private funding. In 1995, BR sold three railway "bulk-transport" subsidiary companies to the Wisconsin Central Transportation Corporation, which have since been fully integrated into one entity. The EWS is also expected to take control of Railfreight Distribution, the one BR rail-freight business yet to be privatized. Wisconsin Central has a 90-percent rail-freight market share and has expressed an interest in developing domestic intermodal operations. The EWS has prospered from a track access deal with Railtrack, in which the company pays a fixed annual fee, plus an incremental gross ton-mile access charge. Railtrack also pays penalties for train delays.<sup>65</sup>



## **Road**

Public transportation infrastructure has traditionally favored roads, but this mode has still suffered from low-investment levels as compared to other European countries. Almost one-quarter of the United Kingdom's motorway network is operating above its original design capacity, according to the British Road Federation. Public investment in the road program was sharply reduced in 1994 and also in 1995.<sup>66</sup> The increasing reliance on general taxation funds, which fluctuate annually, for roadway funding has resulted in suboptimal results. According to the MCG, this investment strategy has encouraged (1) a focus on the lowest initial capital cost, rather than on the lowest lifetime cost; (2) the minimization of maintenance costs to the detriment of the network; and (3) short-term planning horizons resulting in inadequate implementation and funding.<sup>67</sup>

The Highways Agency, a division of the DETR that is responsible for the trunk road system, operates from a budget separate from the DETR. The Highways Agency is responsible for awarding government-subsidized design-build-finance-operate (DBFO) funds. DBFO projects were designed as an intermediate step to the implementation of roadway tolling and as a longer-term method of financing when tolling is not considered feasible.<sup>68</sup> Of United Kingdom transportation projects involving private funds, more than £700 million has been invested in road projects involving users paying "real" tolls. An estimated £550 million has been invested in DBFO projects from which private investors obtain returns from "shadow tolls" paid by the government.<sup>69</sup>

Grants from the European Regional Development Fund are also administered by the DETR. In 1997-98, the airport authorities are expected to receive £1.6 million; port authorities, £9.5 million; and the railway industry, £4 million.<sup>70</sup> The EU funds feasibility studies or projects that contribute to trans-European networks (TENs). These totaled £14.6 million for 1996-97, and projected growth is £40 million in 1997-98.<sup>71</sup>

## **Transportation Infrastructure Planning**

There is no national infrastructure program in which comprehensive multimodal/intermodal transport projects are considered. Also, in sharp contrast to other EU countries, the United Kingdom does not have a tradition of long-term transport planning. Infrastructure projects are processed on a case-by-case basis and are typically subject to lengthy public consultation. The DETR has estimated that it takes an average of 13.5 years to plan and build trunk road schemes in the United Kingdom.<sup>72</sup>

In the past, there was no single, overarching legislative framework for infrastructure planning, and rail projects could be introduced by private individuals. Essentially, all individual rail proposals had to be approved in Parliament through the "private bill" procedure, which involved hearings by a parliamentary committee. In other cases, a "hybrid bill," involving both private interests and matters of public policy, is put under consideration by a parliamentary committee.<sup>73</sup> These parliamentary proceedings were very

time consuming and somewhat arbitrary. The Transport and Works Act of 1992 eliminated the private bill procedure for rail.

The main rationale of this act is that only projects of national significance need be submitted to a parliamentary vote, while local plans are decided by the DETR. This legislation is meant to place a stronger emphasis on local consultation of projects. The DETR receives project applications, organizes public inquiries, and evaluates them accordingly. The secretary of state decides whether the project will proceed. The methods for project appraisal vary greatly across different modes in the United Kingdom. Cost-benefit analysis has been applied to road schemes since the 1960s. Cost-effectiveness criteria are predominately used for rail. Since 1993, there has been interest for the development of a “common appraisal framework.”<sup>74</sup>

### **Regional and Local Planning**

The roles of local and regional authorities in national infrastructure planning have been somewhat limited, and they rarely influence national infrastructure plans. Currently, the United Kingdom’s Regional Planning Associations are London, Eastern, Northern, East Midlands, Southeast, Southwest, West Midlands, Yorkshire and the Humber, and the Northwest.<sup>75</sup> The majority of public roads (365,000 km) in the United Kingdom are the responsibility of local authorities. Only approximately 15,000 km are managed directly by the central government as trunk roads. Motorways and trunk roads are managed by the Highways Agency, which is responsible for specifying and managing design, construction, and maintenance contracts.<sup>76</sup>

The British government is considering proposals for institutional change at the regional level, the creation of regional development agencies (RDAs), and the development of a regional integrated transportation policy. As a decentralization measure, the RDAs will be responsible for implementing the integrated transport policy within each region.<sup>77</sup> Currently, Regional Planning Guidance (RPG) is issued by the secretary of state on advice from regional authorities and provides the framework for local authorities to implement strategic policies on land use, transportation, and economic development. Efforts are also underway to account for the implications of EU policy at the regional level. For several years, EU member countries have been working on the European Spatial Development Perspective (ESDP), which will provide a framework document on European policies for regional authorities to reference. The first ESDP document is to be completed in June 1998.<sup>78</sup> In the future, the ability to secure EU Structural Fund moneys for economic development and transportation projects may be more closely tied to RPG. The RPG will likely be modified to set broad objectives for the use and future development of major transport corridors in the region and set priorities for transport investment.

In metropolitan districts, PTEs play a crucial role in maintaining regional rail services. Railtrack consults with customers, PTEs, and local authorities to define where enhancement of networks is needed. On a national level, Railtrack manages 14 major stations and leases 2,500 miles of track to passenger train operating companies (TOCs).

Under lease agreements, train operators are responsible for daily maintenance, and Railtrack delivers all other repairs and renewals.

In the rail, air, sea, and bus industries, the government sets policies and standards to regulate industry performance and provides support in periods of financial deficits. Industry owns and operates the modes of transport, and users offset costs in varying degrees.<sup>79</sup> In contrast, central and local governments primarily operate and regulate the road industry, as well as provide funding. The MCG suggests that this government sponsorship of roads may not be appropriate in the context of a new intermodal policy. The MCG contends that a single regulator with franchise operators would perhaps be more appropriate.

The rail-freight market is split into two distinct segments. Bulk materials are hauled over relatively short distances, and intermodal freight is moved from road or sea over increasingly longer distances. In the latter instance, freight is moved to and from mainland Europe via the Channel Tunnel. Railtrack expects freight business to increase at a rate of up to 2 percent annually from 20.2 billion gross ton-miles in 1997-98 to 23.4 billion gross ton-miles in 2006-07. Railtrack anticipates that this will include further growth in the volume of freight moved internationally and on domestic intermodal services.<sup>80</sup> The expected growth in freight will predominately occur on routes that are also used by passenger trains for medium to long distances. Railtrack is assisting passenger train operators with plans to improve rail/bus interchanges. In addition, the Heathrow Express Rail Link will provide a rail/air interchange.<sup>81</sup>

There are major opportunities for intermodal business over long distances to and from ports or via the Channel Tunnel. In the last year, intermodal business has increased more than 40 percent.<sup>82</sup> Currently, most intermodal traffic through the Channel Tunnel is sent to Italy and Spain.<sup>83</sup> More widespread development of intermodal facilities in the United Kingdom will further increase the number of links to the Channel Tunnel and offer flexibility to the shipping process.

Privately operated intermodal terminals in the British Midlands, such as one in Birmingham operated by the U.S. intermodal company Parsec, have recently opened and will likely stimulate through-tunnel intermodal traffic. Another facility is being developed at the Port of Tilbury and will be the United Kingdom's base for the Spanish company Transfesa. This full-service logistics company uses the Channel Tunnel to transship containerized car components for the Ford Motor Company.<sup>84</sup>

The quantity of freight shipped by intermodal transportation will also increase as a result of technological enhancements. Railtrack is investing in a project to enable higher-gauge freight to be transported from the Channel Tunnel to London, the West Midlands, the Northwest, and Scotland. This project will entail upgrading the West Coast Main Line to accommodate higher-capacity intermodal freight and piggybacking of road trailers on specially designed rail-freight wagons. Actual implementation will depend on capacities to transfer road freight to rail and on government funding.<sup>85</sup> Existing contracts, which

account for one-third of Railtrack's freight business, for Channel Tunnel transport of coal expire in March 1998.

One of London Transport's (LT) major strategies is to ensure that a comprehensive and coordinated public transport system is maintained in London, including integrated services, ticketing, and information. The organization is working with both private bus and rail operators in order to accomplish this goal.<sup>86</sup> LT offers the Travel Card, introduced in 1983, which provides unlimited travel on buses, the London Underground, the Docklands Light Railway, and other rail services within selected zones and periods.<sup>87</sup>

LT is now working on a more sophisticated bus and subway revenue-collection system called the Procurement of Revenue Services (PRESTIGE) Project. The government is supporting the project through the Private Finance Initiative (PFI). Responding to a request from the government, suppliers indicated that smart card technology is necessary. A smart card is the same size as a credit card and contains a radio aerial and a silicon microchip, which can store and process information. A card can be activated by a card-reading device, used as a stored-value ticket, and recharged as necessary.<sup>88</sup>

## **Deregulation and Privatization**

Deregulation and privatization provide incentives for increased efficiency and decreased public-sector spending. Since coming to power in 1979, the former ruling Conservative government returned numerous state-owned industries, shaped by the Transport Act of 1947, to private ownership. By the end of 1996, most nonroad transport infrastructure was privately owned, in contrast with other EU countries.

A wide range of organizations are involved in the regulation of transport, including international organizations, the central government, independent national regulators, and local authorities.<sup>89</sup> The government initially was wary of encouraging private-sector investment. There was concern that the government would end up paying more than otherwise for privately financed schemes, since private corporations face a higher cost of borrowing than does the government.<sup>90</sup>

Despite praises that the United Kingdom's transportation system is ahead of those on the European Continent, the new Labour government is seeking to reregulate portions of the transportation industry.<sup>91</sup> The Labour government claims that rail privatization has "fragmented the network and threatened services."<sup>92</sup> Transport Minister Strang referred to widespread cancellations of rail services in February and March 1997 by the private rail operator South West Trains. "Train operators across the country are on warning: this government will not tolerate inadequate performance . . . Our clear aim is to ensure that the regulation of the privatized rail industry is strengthened in the interest of our passengers."<sup>93</sup> A new rail authority is being established to provide strategic planning to railways and combine functions currently carried out by OPRAF and the DETR.<sup>94</sup>

The deregulation of the National Bus Company (outside London) in 1986 was facilitated by the passage of the Transport Act of 1980, which sought to encourage more private-sector development of passenger services.<sup>95</sup> Subsequent to this act, any licensed operator could apply to run a new route even if another company already ran a service along the same roads.<sup>96</sup> Operators could introduce or withdraw services on a commercial basis on routes of their choice or to compete for socially necessary services subsidized by a local authority. A report issued by the United Kingdom Round Table on Sustainable Development has criticized bus deregulation, stating that it has reduced the ability for operators to coordinate bus and rail services. One of the claims in this report is that “deregulation of public transport has brought some benefits, but has made it more difficult to provide high standard intermodal services.”<sup>97</sup>

Under the London Regional Transport Act of 1984, London Transport was brought under central government control. London was specifically exempted, but it was intended that deregulation would eventually be extended within London, as well as encourage competition. A subsidiary company, called London Buses Limited (LBL), was set up to run the bus services. However, route planning and fare charges remained LT’s responsibility.

In 1985, LT also established the Tendered Bus Division. As a result, LBL was required to compete against operators in the private sector for the opportunity to run bus routes on behalf of LT. Thirteen local subsidiary companies were created by LBL to further the process of deregulation. Privatization of these LBL subsidiaries began in 1995, and private companies are now contracted by the LT Buses Procurement Department to operate bus routes in the LT network.<sup>98</sup>

Over the last decade, productivity outside London, measured by bus mileage, has increased by more than 25 percent; operating costs have fallen by more than one-third; and public subsidy has been reduced by more than half.<sup>99</sup> Yet these gains were accompanied by a loss of patronage, with passenger journeys falling 29 percent since 1986, when buses were deregulated. A substantial increase in fares subsequent to deregulation has likely influenced ridership preference.

The Labour government is considering some reregulation of the bus industry, including raising license conditions.<sup>100</sup> The government wants to be involved in determining consumer choice of bus travel against other modes. In addition, the government may expand “quality partnerships,” through which local operators agree to invest in improved services in exchange for local authority investment in the improvement of the operating environment for buses (better stops, shelters, etc.).<sup>101</sup>

### **Private Finance Initiative**

The United Kingdom finance minister initiated the Private Finance Initiative (PFI) in 1992, with the aim of attracting private-sector skills, efficiency, management, and finance into the provision of public services. The PFI covers a wide range of public-sector investments, such as health care and education, yet it is most advanced in the

transportation infrastructure sector. Two key objectives of PFI infrastructure projects are transferring risk to the private sector and achieving the best value for the money.<sup>102</sup> One of the first significant uses of the PFI for funding major public transport projects was the purchase of 106 new trains for the Northern Line to replace some of the oldest trains in the system.<sup>103</sup> Other major PFI projects include the Channel Tunnel Rail Link, Croydon Tramlink, Northern Line trains for the London Underground, and DBFO for roads.

In 1993, the government announced in a Green Paper, titled *Paying for Better Motorways*, that major new road projects under the PFI would be implemented according to DBFO.<sup>104</sup> According to the government, the aim of DBFO contracts is to “encourage the development of a private-sector road operating industry.”<sup>105</sup> Since 1995, DBFO projects have enabled private investors/contractors in road transportation projects to obtain reimbursements in the form of “shadow tolls” paid by the government. These shadow tolls are calculated according to road usage and, therefore, provide an incentive for contractors to manage roads in the most efficient manner and to maximize revenue. This arrangement is reinforced by the fact that remuneration of DBFO contracts may not begin until project construction is complete.

In return, the contractor assumes the risk and responsibility for the design, construction, financing, maintenance, and operation of new roads for 30 years.<sup>106</sup> Toll payments are capped so that the DBFO company cannot benefit from traffic levels higher than a preset amount. The Highways Agency monitors the DBFO company to ensure that expected levels of service and safety standards are met in the contract period.

Existing constraints to DBFO include the fact that developing contracts and payment mechanisms for these projects has proved time consuming. In June 1997, it was estimated that only one-eighth of the motorway and trunk road network involved DBFO schemes.<sup>107</sup> DBFO contracts have generated a 15-percent savings, on average, over previous public projects. These savings have occurred from contractors’ identifying changes in construction that result in maintenance savings, the ability of the private sector to provide maintenance and operation more cheaply than can the public sector, and the private sector’s creating innovative financing arrangements.<sup>108</sup> However, the Labour government has been encouraging the utilization of alternative modes of transport over road transportation, which appears in direct conflict with the DBFO incentive. Outside DBFO projects, private funds are used on the construction of bridges or road segments, because a private operator can easily recover costs through tolls.

The government’s new policies may actually discourage DBFO and other franchises driven by demand. Charges based on availability and performance are already being implemented in the rail industry, in the form of performance bonuses/penalties. The MCG suggests that such performance measures should be extended to road.<sup>109</sup>

### **Current Situation**

The 1987 Channel Tunnel Act prohibits state funding of Channel Tunnel infrastructure, including regional terminals. Various joint ventures between private developers or local

authorities have been relatively unsuccessful. As a result, the 12 regional terminals initially proposed by BR in 1989 were reduced to 9 in 1991, and only 5 were operational in 1994-95.<sup>110</sup>

Channel operations will be fully privatized in the near future. A consortium of five French and five British contractors was responsible for the construction of the Channel Tunnel. An additional high-speed rail link (for passenger and freight), to be constructed over the next few years, is expected to be financed by a public/private partnership.<sup>111</sup> The Channel Tunnel project, which received funding from an international consortium of 224 members, culminated in debts of about £8 billion. French, Belgium, and British railways (SNCF, SNCB, and BR) operate freight and passenger services and lease 50 percent of the Channel Tunnel's capacity.<sup>112</sup>

The current Labour government favors strengthening the regulation of railways.<sup>113</sup> Historically, the United Kingdom rail market was divided among three operating arms of British Rail. Freightliner carried containers domestically; trainload companies moved bulk commodities; and Railfreight moved international, intermodal freight between the United Kingdom and the European Continent. On November 3, 1993, the British House of Commons approved a bill allowing British Rail, the national passenger and freight railway, to be sold to private-sector investors.<sup>114</sup>

This privatization, which entailed the separation of rail infrastructure from train services, has been very unpopular with the general public.<sup>115</sup> BR was split into 80 separate privately owned companies, including 25 passenger carriers and six freight railroads.<sup>116</sup> Privatization has broken restrictions on the types of operations companies can perform and offers passenger service levels and fare guarantees. Fares will be adjusted according to the inflation rate for three years, followed by four years when increases are required to be 1 percent below inflation.<sup>117</sup>

Created in 1996, Railtrack owns the rail infrastructure and is responsible for maintenance, repair, enhancement, and renewal of the track, stations, signaling, and electrical-control equipment. The government will provide £1.5 billion in support of passenger services during the first year of its privatization (1997-98).<sup>118</sup> New passenger franchises (Great Western, Inter-City East Coast, Gatwick Express, and Network South Central) have been awarded to South West Trains. These franchises are charged with service improvements, such as the linking of bus services with trains.<sup>119</sup>

Freightliner, the only rail-freight company in Great Britain besides Railfreight Distribution, specializes in moving maritime containers to and from British ports. Privatized in May 1995, the company carried 475,000 containers in 1996, up 6 percent from 1995. Freightliner controls virtually all the maritime container traffic moved in and out of United Kingdom ports by rail. However, only about 20 percent of port traffic moves by rail, with trucking handling the balance. Freightliner expects intermodal rail transportation to become increasingly competitive for inland traffic to and from United Kingdom ports, because of rising road-haulage prices, inflation, road congestion, and environmental pressures.<sup>120</sup>

Freightliner has been praised for flexible pricing and train supply since its privatization. For example, the company has been able to provide service upgrades and increased capacity at the Port of Felixstowe.<sup>121</sup> Freightliner receives TAGs from the central government, which amounted to about £13 million in 1996-97.<sup>122</sup> During its first five years as a private company, Freightliner will also receive a total of \$117 million from the government. Freightliner has planned to decentralize its services by recruiting several managers to be accountable for intermodal routes to and from specific ports.

Privatized rail companies have begun to attract new customers, such as supermarket distributors. These distributors have begun transporting produce by rail with EWS. Other new EWS business includes contracts to run “block trains” carrying coal to cement factories and transport pipes to Scotland for North Sea oil supply lines.<sup>123</sup> EWS has purchased 250 new locomotives to be delivered in 1998 and will purchase 500 to 1,000 railcars a year to meet market growth.<sup>124</sup> The EWS has also opened a new division called Enterprise, which focuses on smaller customers. “Less-than-trainload” consignments in this division accounted for 100,000 tons in 1994.<sup>125</sup>

### **Rail to Port**

A discussion of intermodal links between railways and ports is important, particularly because of the geographical situation of the United Kingdom. Approximately 75 percent of freight is handled by ports, which are privately owned and operated.<sup>126</sup> The Ports Act of 1991 privatized government “trust ports.” Yet, public and private investment in ports has widely fluctuated. Furthermore, no investment has taken place in inland waterways since the early 1980s. In 1982, investment in inland waterways peaked at £10 million.<sup>127</sup>

### **Airports**

As with other transportation modes, airports in the United Kingdom predominately have been deregulated. The British government sold off the British Airports Authority (BAA) and British Airways in 1987. Now called BAAPLC, the authority has made steady profits for investors and now manages airports elsewhere in Europe, the United States, and Australia.<sup>128</sup> The BAAPLC operates seven of the largest airports in Great Britain; most other airports are owned by local airport authorities.<sup>129</sup>

Investment in airport infrastructure has risen steadily since 1989 but remains small compared to road and rail investment. Passenger traffic has tripled since the mid 1970s.<sup>130</sup> Many airports are separating their cargo business from the passenger side. Great Britain’s airports are pressing for more transatlantic cargo traffic and have built a new \$250 million World Cargo Center at Heathrow Airport.<sup>131</sup>



## Technological Development

Keeping logistics costs down is vital in an era when statistics show that about 10 percent of every sales dollar in the United States is spent on logistics. Worldwide, companies are taking new approaches to global distribution, since worldwide logistics expenditures are projected to rise to \$2.1 trillion by the year 1999.<sup>132</sup> There are approximately 19,000 third-party logistics providers located in the United Kingdom, which is an ideal location for distribution to the rest of Europe.

Britain's Transport Development Group (TDG) is a logistics contractor that was among the first to combine transport and warehousing services, computers, and intermodalism. Most logistics service providers are only capable of managing a portion of a customer's supply chain. Logistics providers should be able to interface production and distribution through national, regional, or European centers, as a means to control inventory levels.<sup>133</sup>

A joint venture announced in June 1997 aims to provide intermodal land transportation services for containerized cargo moving between Europe and North America. It is the first intermodal joint venture of inland operators to have operations on two continents. The five partners are

- Container Port Group, Inc. (Cleveland);
- Norfolk Southern Corporation (Virginia);
- Intercontainer-Interfrigo (Switzerland);
- Hupac (Switzerland); and
- Cemat (Italy).

Cemat and Hupac are maritime container businesses, and Container Port Group, Inc., operates long-haul and short-haul trucking services in the United States and Canada. Intercontainer-Interfrigo, Europe's largest intermodal operator, operates rail-based intermodal services throughout Europe. The Norfolk Southern Corporation operates more than 14,000 miles of track, linking 30 terminals in 20 U.S. states, as well as in Canada. Norfolk Southern Corporation and CSX Transportation, Inc., jointly acquired Conrail, which provides access to virtually every major port on the U.S. East Coast and Gulf Coast.<sup>134</sup> Therefore, combined resources include intermodal rail and trucking services and assets, as well as port and inland terminals and container depots.

This Trans Atlantic Rail Express (TARES) venture will "bundle domestic freight services, including haulage, shipment tracking, and pricing on both continents."<sup>135</sup> The partners will link electronic data interchange (EDI) systems to enable users of the TARES network to track shipments. Users of TARES will be able to obtain pricing and transmit time information on all inland elements of a transatlantic container shipment. Shipping

companies may become interested in outsourcing their intermodal (inland) operations to TARES.

Network management and performance monitoring are becoming increasingly important as means to ensure an efficient and reliable trunk road network in the United Kingdom. The government is conducting a major research program on the use of electronic tolling on the motorway network. The DETR is investigating the concept of full-speed “free-flow” tolling, in which drivers do not have to alter their driving behavior in any way for tolling to take place. Microwave technologies are being pursued as the technology for electronic tolling.<sup>136</sup>

## **Obstacles to Multimodal/Intermodal Development**

Remaining obstacles need to be overcome to achieve an efficient transfer of services and products within a single market. A DETR staff member was asked about his perception of the major obstacles to the implementation of an intermodal transportation policy. He stated that obstacles include a lack of funding (particularly in the public sector), complicated and lengthy mechanics of policy implementation, and a need to persuade the public in using alternative modes of transportation. The authorization of a new national intermodal policy requires an act of Parliament, which may take approximately one year. For intermodal passenger services to become successful, the public has to be persuaded to forgo the use of the automobile. In addition, intermodal services are hampered by the lack of development of “through services,” such as ticketing and interchange facilities.<sup>137</sup> In addition, there needs to be a national organization providing comprehensive information about all public transport sectors.

The first joint-U.S./EU forum on intermodal freight transport policies convened in Washington, D.C., in October 1997. Measures discussed were to make transatlantic transport intermodalism more efficient. The forum identified five major obstacles to the implementation of intermodal transportation: (1) a lack of standardization, (2) differences in the size of freight vehicles and containers, (3) varying weights of cargo, (4) nonuniformity of transportation regulations, and (5) incompatibility of information technology or systems that manage information across intermodal supply chains.<sup>138</sup> These obstacles are not strictly generated by a difference in standards between the EU and United States. The diversity and complexity of transportation systems within European countries and U.S. states pose their own unique problems. No agreement was reached, but both U.S. and European representatives agreed that government-imposed standards would stifle innovation. Different levels of liability across modes is another important operational issue, especially for European shipping to the United States.

## Multimodal/Intermodal Projects

The United Kingdom received ECU 38 million from the European Commission for the development of trans-European network (TEN) projects and studies in 1997. This funding package is the second largest of all the allocations to member countries, exceeded only by Germany.<sup>139</sup> Ninety percent of the funds were distributed to the following TEN priority projects:

- ECU 15.6 million to the Channel Tunnel Rail Link to London,
- ECU 5.85 million to route modernization of the West Coast Main Line, and
- ECU 1.1 million for studies along the Ireland-United Kingdom-Benelux Road Link.

Portions of the remaining funding will benefit studies at seven United Kingdom ports, an aviation traffic management project, and a strategic environmental assessment study of the Trans-Pennine corridor.<sup>140</sup>

London and Continental Railways (LCR) is a consortium that planned to construct and operate a 109-km (68 miles) high-speed line to carry international and domestic trains between London and the Channel Tunnel. While Belgium and France already have high-speed links to the tunnel, trains on the British side still rely on slower, conventional trains.<sup>141</sup> The project was scheduled for completion by the year 2003. However, on January 30, 1998, LCR announced that it had failed to raise the funds needed to build the line.<sup>142</sup> In response to the project's failure, a Railfreight spokesperson stated that "the high-speed link would have taken passenger trains off other routes to the tunnel, releasing much-needed capacity for freight."<sup>143</sup>

A proposed extension of the Woolwich Rail Crossing (a railway tunnel under the Thames River at Woolwich) would create a metro link and an interchange with international services.<sup>144</sup> Also, Excel Logistics Intermodal Services was recently formed in Manchester, United Kingdom. The company hopes to work with Unilog to develop intermodal services between the United Kingdom, the Czech Republic, and other Eastern European destinations via Belgium.<sup>145</sup>

Intermodal transport accounts for about 60 percent of all Channel Tunnel through-freight service.<sup>146</sup> Railtrack is constructing a \$370 million rail link from Glasgow, Scotland, to the Channel Tunnel. The new route, which will be operational in the year 2003, is expected to take up to 400,000 trucks a year off roadways.<sup>147</sup>

The West Coast Main Line (WCML) has become severely congested. According to Railtrack, 60 percent of Channel Tunnel rail freight is moved on the WCML, which serves busy industrial areas. Freight villages are being built along sections of this track. This TEN priority project is unique, because it is located entirely within one country and does not involve construction of new infrastructure. The project will enhance electric power

supplies, modernize signaling systems, and improve or replace tracks.<sup>148</sup> This project will span a period of eight to ten years and is expected to be completed by 2005-06.

A British Airways Authority project is currently under construction, which will provide an express service connecting Heathrow Airport with Paddington Station. Due to open in 1998, this service will enable passengers to interchange with the London Underground's Hammersmith & City, Bakerloo, District, and Circle Lines. The express service will take approximately 16 minutes.<sup>149</sup>

The DETR commissions research from contractors, including the Transportation Research Laboratory, universities, and research councils and facilitates development and management of the European Commission's Fourth Framework Program. Some of the private/European Commission's Directorate-General VII-funded projects are listed in table 13.2.<sup>150</sup>

### **Logistics**

Projects were also implemented through the European Commission's Directorate-General XIII Telematics Applications Program, which is another component of the Fourth Framework Program. The aim of the Telematics Applications Program is to validate technologies used to enhance services of transport users through improved efficiency, safety, and environmental quality. Research emphasis has been concentrated on technologies that can be applied to several different transport modes.<sup>151</sup> A total of 70 projects, selected from approximately 280 proposals, began in 1996 across the EU.

Proposals were solicited according to six main areas, including "Traveler Intermodality and Public Transport" and "Freight Intermodality."<sup>152</sup> Projects in the passenger sector involve multimodal information services, harmonization of traveler information presentation, baggage handling, and access and payment in multimodal systems. The majority of project demonstrations in the freight transport area have been conducted in attempts to make intermodal transport chains more attractive by using telematics applications for transshipment, storage, and transport.<sup>153</sup> Table 13.3 lists United Kingdom's demonstration projects.

**Table 13.2**  
**United Kingdom Intermodal Projects**

<b>Projects</b>	<b>Strategies and Goals</b>
1. Toward a New Generation of Networks and Terminals for Multimodal Freight Transport (TERMINET)	Automate the transshipment processes
2. European Strategic Intermodal Links (EUROSIL)	Develop criteria for multimodal and intermodal passenger and freight transport
3. Optimised Exchange Between All Modes of All Conforming Consignments (X-MODALL)	Offer low-cost and low-resource solutions to improve intermodal freight flows within road and rail sectors
4. Analysis and Development of Tools for Assessing Traffic Demand Management Strategies (TASTE)	Develop relevant software tools for intermodal transport
5. Human Implications of New Technologies (HINT)	Study human and organizational issues related to intermodal operations and transport services
6. Working Cultures in the Face of Intermodal Freight Transport System (WORKFRET)	Assess modal interfaces and potential problems
7. Pipeline Intermodal System to Support Control, Expedition and Scheduling (PISCES)	Improve efficiency and flexibility of multimodal transport chains within the freight industry
8. Analysis of Supply and Demand of Shipping Services (ASDSS)	Assess the container shipping industry and overcapacity issues
9. Strategic European Multi-Modal Modelling (STEMM)	Identify and quantify factors affecting "modal split" and route choice for passengers and freight
10. Strategic Transport Research for European member countries (STREAMS)	Specify an intermodal transport model Forecast mobility patterns Identify passenger and freight flows
11. Major European Testing of Actual Freight Operations (METAFORA)	Review framework and guidelines for road/rail transport Apply electronic data interchange (EDI)
12. Combined Transport Communication System Update (COMBICOM)	Develop and install road/rail transport informatics (RTI) system to trace units from origin to destination

Source: Ministry of Transport, Public Works and Water Management, *An International Comparative Study on Infrastructure* (The Hague: SDU Publishers, 1996), p. 25.

**Table 13.3**  
**United Kingdom Logistics Projects**

Project	Strategies and Goals
<b>PASSENGER</b>	
Telematics Applications in Bavaria, Scotland and Others (TABASCO)	<ul style="list-style-type: none"> <li>• Link urban and regional systems for traffic management</li> <li>• Provide park-and-ride information to the public</li> <li>• Manage accidents/congestion on roadways</li> <li>• Interconnect traffic information and control centers</li> </ul>
Vehicle ATT Demonstrations, Evaluation and Monitoring on a European Corridor Uniting Member States (VADE MECUM)	<ul style="list-style-type: none"> <li>• Integrate road network</li> <li>• Link port and ferry movements</li> <li>• Integrate network management</li> <li>• Provide corridorwide electronic intermodal information service (CELINIS)</li> </ul>
<b>FREIGHT</b>	
Tracking, Tracing and Monitoring of Goods in an Intermodal and Open Environment (MULTITRACK)	<ul style="list-style-type: none"> <li>• Improve the intermodal freight, logistics chain</li> <li>• Provide electronic information to entities along the logistics chain (on average ranging from 6 to 12 entities)</li> <li>• Allow the end-user the ability to monitor the location and status of cargo throughout the logistic chain in an intermodal system.</li> </ul>
Traffic and Cargo Supervision System (TRACAR)	<ul style="list-style-type: none"> <li>• Track, monitor, and supervise sensitive cargoes, such as produce</li> <li>• Establish a common telecommunication system for the management of cargo on road, rail, sea, and inland waterways</li> <li>• Use "nonbattery tags" and global positioning systems (GPS), which enable shippers to supervise cargo conditions, such as temperature, humidity, route, on- and off-loading, change of mode, and destination</li> </ul>

Source: European Union, *Telematics Applications for Transport: Annual Report 1996-1997* (ARTTIC: Brussels, 1997), pp. 98-142.

## Notes

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- <sup>19</sup> London Transport, "London Transport: European Affairs," London Transport web site [cited November 1997], available from: <http://www.londontransport.co.uk/general>, p. 1; INTERNET.
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## Chapter 14. MERCOSUR: The Southern Common Market

### Overview

As of January 1995, the Southern Common Market (Mercado Comun del Sur—MERCOSUR) integrated a large regional market uniting Brazil, Argentina, Paraguay, and Uruguay. The four countries signed the Treaty of Asunción on March 26, 1991, establishing an imperfect customs union to accomplish the following goals:

- elimination of tariff and nontariff barriers;
- adoption of a common external tariff (CET) and a common external tariff policy;
- coordination of macroeconomic and sectoral policies; and
- member country commitment to the free movement of services, labor, and capital.<sup>1</sup>

MERCOSUR has a 1996 population of 206 million people and a combined 1995 gross domestic product (GDP) of nearly \$1 trillion.<sup>2</sup> The customs union's Atlantic coast stretches 3,500 miles along eastern South America, and the combined geographic area of 4,583,629 square miles is considerably larger than that of the United States.

MERCOSUR is the fourth largest integrated market in the world after the North American Free Trade Agreement, the European Union, and Japan. The per capita income of \$5,000 is 30 percent higher than in the rest of Latin America and MERCOSUR income continues to increase faster than the region as whole.<sup>3</sup>

Bilateral trade between Argentina and Brazil totaled \$7.5 billion in 1994 and accounts for about 80 percent of total MERCOSUR trade.<sup>4</sup> Integrating the economies of the two countries has played a key role in the creation of a regional market in the Southern Cone. Argentina and Brazil began bilateral integration in 1986 and expanded to MERCOSUR in 1991. The liberalization of trade between the countries had dramatic effects on intraregional trade. For example, Argentina's total trade within MERCOSUR grew 611 percent between 1985 and 1994.<sup>5</sup> And there is much greater potential for expanding intraregional trade. In 1995, intramember trade was only 1.6 percent of MERCOSUR's GDP, compared with 5 percent for NAFTA countries and 14 percent for the European Union.<sup>6</sup>

MERCOSUR functions within the greater frameworks of the Latin American Integration Association and the General Agreement on Tariffs and Trade, which permit members to establish preferential treatment within customs unions, while prohibiting additional tariffs to be levied on outside countries.<sup>7</sup> In targeting the end of duty requirements and nontariff restrictions, the trade-opening program eliminated customs rights on foreign trade and prohibited the member countries from unilaterally impeding mutual trade.

## **Institutional Structure**

The institutional structure of MERCOSUR consists of six different bodies, which are discussed in the following sections.

### **Common Market Council**

The governing body of MERCOSUR is the Common Market Council, consisting of the member countries' ministers of foreign affairs and economy (or its equivalent). The Common Market Council is responsible for decisionmaking, scheduling, and setting objectives, as well as ensuring compliance.<sup>8</sup> All decisions are based on consensus with full representation from all member countries. They rotate the responsibility for presiding over the Common Market Council alphabetically on a six-month schedule. Council members meet whenever necessary but at least once a year with the president of each member country in attendance.

### **Common Market Group**

Formally the executive body of MERCOSUR, the Common Market Group comprises 16 permanent members (four from each country) and 16 alternates (four from each country). The four permanent members represent the Ministry of Foreign Affairs, the Ministry of the Economy (or from Ministries of Industry, Foreign Affairs, and Economic Coordination), and the Central Banks.<sup>9</sup> The group meets on a quarterly basis, rotating location alphabetically. It falls to the Common Market Group to take measures to bring compliance to the Treaty of Asunción and the decisions and policies rendered by the Common Market Council. The group may also initiate trade opening, coordination of macroeconomic policies, and negotiations with nonmember countries.<sup>10</sup> The Common Market Group may appoint working groups to focus on specific issues.

### **MERCOSUR Trade Commission**

The MERCOSUR Trade Commission is charged with implementing the CET and technical trade policy issues. Each country appoints a permanent member and an alternate. This body will monitor trade regulations among members and other countries, with the authority to review claims and mediate disputes. The commission monitors and proposes changes in import duties, proposing new guidelines if necessary.<sup>11</sup> The MERCOSUR Trade Commission meets at least monthly and may be convoked as needed by a member country, the Common Market Group, or the Common Market Council.

### **Joint Parliamentary Commission**

Comprising 64 permanent members (16 from each country) and 64 alternates (16 from each country) from each country's legislative branch, the Joint Parliamentary Commission (JPC) has both advisory and decisionmaking authority. From the pool of 64 active members, 4 are selected to preside over the JPC (1 from each country). The JPC must communicate the decisions of the Common Market Council to the legislative branches,

adjust resolutions to harmonize with the laws of member countries, approve the budget, and manage technical assistance accords with private- and public-sector entities.<sup>12</sup> JPC members are appointed by their Congresses to serve two-year terms. Normally, the JPC meets twice a year or whenever summoned by one of the presidents.

### **Socioeconomic Advisory Forum**

The Socioeconomic Advisory Forum is responsible for advising the customs union from the private-sector perspective and providing pertinent socioeconomic analysis for member countries.

### **Administrative Secretariat**

The Administrative Secretariat provides logistical support, documenting all pertinent decisions and relaying information in both Spanish and Portuguese to member countries.<sup>13</sup>

Additional entities govern specific aspects of the integration process. Ministerial meetings provide a forum for the Common Market Council to review specific policy research aiding policy coordination. Working groups provide the main technical advising to the Common Market Group. MERCOSUR uses specialized meetings and ad hoc groups to advise on particular issues, including the development of transportation, technical standards, tax and monetary policy, and labor matters.<sup>14</sup> Such an ad hoc group, created at the August 1997 meeting in Montevideo, serves to specifically monitor transportation services in MERCOSUR.<sup>15</sup>

### **Dispute Settlement**

Conflicts among MERCOSUR countries follow procedures set by the Brasília Protocol of 1991. First, disputes are negotiated directly among the parties involved. Absent a solution from direct negotiations, the issue is brought to the attention of the MERCOSUR Trade Commission. If that fails, the Common Market Group may be petitioned to rule on the dispute. Within 30 days of hearing a dispute, the Common Market Group must render a decision that is acceptable to the disputing parties. If the decision is deemed to be unacceptable by one of the parties, the dispute is sent to a panel of three arbitrators. The arbitrators are chosen from a list of 40 persons nominated by the member countries, and their decisions are binding.<sup>16</sup> If a member country does not comply with the decision within 30 days, the offended party can demand compensation.<sup>17</sup>

## **Key Trade and Investment Provisions**

### **Elimination of Tariffs**

MERCOSUR member countries are gradually eliminating all nontariff restrictions and other limitations on trade according to an automatic schedule. For the majority of products, national import tariffs have been completely eliminated. However, domestic

tariffs continue to protect strategic sectors, such as petrochemicals, automobiles, textiles, and steel.

### **Common External Tariff**

To compete on a level-playing field internationally, MERCOSUR agreed to set common policies addressing trade with non-MERCOSUR entities. A common external tariff (CET) rate on imports allows for importers of finished goods to sell within MERCOSUR without their imports being levied a second time. To avoid conflicts with the General Agreement on Tariffs and Trade, the CET must not exceed individual countries' most favored nation rate.

MERCOSUR countries have not been able to set a CET for all products. Brazil has sought a high CET for capital goods, telecommunications, and computers in order to protect domestic industry. The CET, instituted on January 1, 1995, establishes a levy ranging from zero to 20 percent on approximately 8,000 imports; tariffs on capital goods, telecommunications equipment, and computers are scheduled to rise to a common CET. MERCOSUR attempts to gradually reduce the CET once it has harmonized rates.

Even though the CET will impose a unified duty on imports, MERCOSUR countries are allowed to list 300 exceptions (399 in the case of Paraguay) that cannot circulate freely, unless they are composed of 60-percent local content (50 percent for Paraguay until 2001).

### **Rules of Origin**

In the absence of a CET, the rules of origin determine whether or not particular goods can qualify for preferential rates. Any goods produced wholly within MERCOSUR qualifies as originating product and may circulate at the prevailing preferential rate. Products with non-MERCOSUR components must meet a 60-percent MERCOSUR content requirement to claim originating status; that is, MERCOSUR content must be responsible for at least 60 percent of the product's value.<sup>18</sup>

### **Macroeconomic Policy Coordination**

MERCOSUR intends to harmonize fiscal, monetary, capital, and external trade policies to the extent possible, but economic disparities among MERCOSUR countries make this a contentious path. In particular, Brazil, as the behemoth of MERCOSUR, is undertaking privatizations in several key sectors of the economy (banking, transportation, energy, mining, and telecommunications), while still fighting inflation. Relative to Argentina, Paraguay, and Uruguay, Brazil has far more protectionist policies to protect fledgling industries and mediate their integration into the MERCOSUR and global economy.

One obstacle to harmonization are countries' foreign trade zones. Manaus, Brazil, and Tierra del Fuego, Argentina, host foreign trade zones that enjoy duty-free status. In the Brazilian case, the free trade zone of Manaus is intended to spur development of the Amazon region. Disallowing the duty-free status in Manaus and imposing a CET will

cripple the region, because transportation logistics and a modest consumer market do not provide the comparative advantage necessary for maintaining the existing industrial assembly base. Great dislocation may engender massive unemployment and political instability. As a result, these regions can continue to import duty free until 2013, when they fall under the CET.

Inadequate infrastructure and differentiated customs procedures create substantial bottlenecks to competition at border crossings. At Uruguaiana (Brazil) and Paso de los Libres (Argentina), 70 percent of MERCOSUR trade crosses, by truck, over two bridges. Daylong delays awaiting customs clearance for truck and train cargoes are not uncommon. Coordination of border procedures can contribute greatly to improving the comparative advantages of MERCOSUR trade.

MERCOSUR has not expanded to include other South American countries. However, to strengthen commercial ties with partners in South America, MERCOSUR signed a free trade agreement with Chile in June 1996, which eliminates tariffs in ten years. Bolivia also signed an agreement with MERCOSUR, which became effective on February 28, 1997, eliminating tariffs immediately for 400 MERCOSUR products and 500 Bolivian products. Additional goods are scheduled for elimination within the next ten years.

MERCOSUR decided to negotiate with the Andean Pact countries of Colombia, Ecuador, Peru, and Venezuela. The Andean Pact and MERCOSUR aim to establish a single free trade agreement between the two blocs or separate agreements between the individual countries. MERCOSUR is also laying the framework for an agreement with the European Union. Likely to be signed in 1999, a MERCOSUR-European Union agreement will establish a timetable for reducing the tariffs on trade between the regions to zero percent.

## **Transportation Policy**

The rapid growth of trade among MERCOSUR partners is taxing the transportation infrastructure and ability of member countries to deliver cargo. At the MERCOSUR annual meeting in August 1997, members discussed transportation goals to increase trade capacity within the customs union. The meeting established a protocol to consolidate and harmonize the laws governing transportation-systems access.<sup>19</sup> The meeting also called for common inspection procedures and regulations among countries, a commitment to create standards for multimodal transportation, and an obligation of all member countries to ensure cargo safety within their borders. A standard form for customs declarations and joint customs operations potentially facilitates land transport, especially for trucking companies. The common form will shorten border-crossing time by requiring inspections only once upon entry.<sup>20</sup>

The demographics and geography of MERCOSUR highlight the importance of relative transport costs. Much of the inland space is sparsely populated, with the coastal regions being densely populated. Most of the economy centers on three regions:

1. the north-northeast region of Brazil (population 50 million, GDP \$60 billion);
2. the south-southeast Brazilian coastal region (population 90 million, GDP \$400 billion); and
3. the River Plate region comprising Greater Buenos Aires and Uruguay (population 20 million, GDP \$70 billion).<sup>21</sup>

The geographic size of the trade bloc and the correspondingly long distances between its various industrial and urban centers generate substantial long-distance transportation flows.<sup>22</sup> Much of this cargo is transported via truck over the region's highway networks. Although privatization is producing rapid improvements in the road system, the costs are still high. In Brazil, where internal transportation costs are among the highest in the world (twice that of Canada and 60 percent higher than in the United States), 70 percent of cargo is transported by truck.<sup>23</sup>

The use of highways on such a large scale greatly increases the costs of trade and production and inhibits equilibrium in MERCOSUR's integration. Even the large economy of north-northeastern Brazil is too far from the River Plate (and the markets of Buenos Aires and Montevideo) to absorb the high costs of a transportation network that relies almost exclusively on highways.<sup>24</sup> The member countries must adopt provisions for increased infrastructure and transparency of governmental services to compete in the expanding market.

Much of the effort in improving transportation infrastructure has been devoted to upgrading existing roadways within the customs union. For the future, efforts are being focused on harmonizing rail standards within MERCOSUR, improving access to highways from more-remote regions, and continuing the development of inland waterways. The MERCOSUR Inland Waterway, which serves all four MERCOSUR member countries, holds the potential to carry large volumes of freight in the future. However, environmental and sociological concerns over the impacts of its development on the land and its inhabitants may delay its role as a major component in the transportation infrastructure.

Recently, a private nonprofit organization, the Consortium of MERCOSUR's Atlantic Corridor, comprising ports, navigation companies, and labor unions, was organized with the objective of making the coastal sea-lanes competitive for intraregional shipping.<sup>25</sup> The initiative is intended to build on the success of port, rail, and highway privatization projects sponsored by the region's governments to expedite and facilitate transportation system integration. The group's protocol of intentions includes

- prioritizing the role of ports and coastal navigation as the main element for intraregional transportation, with each port performing the role of linking other modes of transportation within its region;

- gradually reducing transportation costs by transferring substantial volumes of cargo from the intracoastal highway network to inland waterways and coastal navigation lanes; and
- optimizing economic exchange among the different regions by inland and coastal industrial port complexes, which will serve as economic development poles.<sup>26</sup>

Despite the involvement of nonprofit organizations and the private sector, most of the financing for transportation projects will have to come from the member governments of MERCOSUR. Public funding is seen as the best way to improve the physical integration process.<sup>27</sup> Several projects that will improve transportation within MERCOSUR are in the development stage.

## **Transportation Corridors**

Most of the transportation projects underway in MERCOSUR are specific to the country in which they are located. However, several key efforts involve the development of binational or multinational transportation corridors that integrate the development of inland waterways, railways, and highways. The MERCOSUR Highway consists of creating a four-lane highway along a north-south corridor from Rio de Janeiro to Buenos Aires. The MERCOSUR Inland Waterway brings freight and passenger travel to Brazil, Argentina, Paraguay, and Bolivia. Several rail projects seek to consolidate freight traffic, creating corridors that span from the Atlantic to Pacific Oceans. Some existing institutions, such as the Brazilian Development Council of the South and the Northeast Argentina Commission for Foreign Trade, have added a supranational planning and coordination component to their functions. These institutions lobby their governments for a regional approach to transportation infrastructure investment.

While the mechanisms for integrated policymaking on a regional basis are not fully developed within MERCOSUR, the member countries realize the importance of reducing barriers to trade and improving intraregional transportation infrastructure. In order to maintain its track record of effectiveness, MERCOSUR nations will have to overcome two challenges. The first is to maintain macroeconomic stability. The second is to make an integrated market plausible by improving transport links and customs procedures.

These challenges require cooperation not only among member countries but also within the countries themselves. Not every Brazilian state and Argentine province can have its own cross-border route. Decisions will have to be based on logistics, financing, and common sense that take into consideration political pressures. Nature has placed formidable obstacles, such as the Amazon and the Andes and long travel distances. Nevertheless, progress in areas such as free-market energy integration shows that improvements in the infrastructure will occur given sufficient traffic. It remains to be seen whether a customs union such as MERCOSUR will push South America toward a convergence of multimodal transportation planning.

## Notes

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<sup>2</sup> Paulo Vivacqua, "A Logistic Project for South America's Integration," paper presented to the Organization for Economic Cooperation and Development Conference on Intermodal Transport Networks and Logistics, Mexico City (June 3-5, 1997).

<sup>3</sup> "Remapping South America: A Survey of MERCOSUR," *The Economist* (October 12, 1996), p. 4.

<sup>4</sup> Maria Nofal, "The Economic Integration of Argentina and Brazil, MERCOSUR, and the Regionalization of the Southern Cone Market," The University of Texas Bureau of Business Research, p. 205.

<sup>5</sup> *Ibid.*, p. 206.

<sup>6</sup> "Remapping South America: A Survey of MERCOSUR," p. 4.

<sup>7</sup> Fundación Invertir, "MERCOSUR and Other Trade Agreements" Fundación Invertir web site (Buenos Aires, Argentina [cited October 22, 1997]), available from: <http://www.invertir.com/07trade.html#MERCOSUR>; INTERNET.

<sup>8</sup> IDB, "Summary of MERCOSUR," p. 3.

<sup>9</sup> Fundación Invertir, "MERCOSUR and Other Trade Agreements," p. 8.

<sup>10</sup> IDB, "Summary of MERCOSUR," p. 2.

<sup>11</sup> *Ibid.*

<sup>12</sup> *Ibid.*, p. 3.

<sup>13</sup> *Ibid.*, p. 4.

<sup>14</sup> *Ibid.*

<sup>15</sup> World Bank, Finance Private Sector and Infrastructure Division, Latin America and the Caribbean Office, "Brazil: Multimodal Freight Transport: Selected Regulatory Issues," (Washington, D.C., October 15, 1997), p. 10.



<sup>16</sup> Fundación Invertir, "Mercosur and Other Trade Agreements," p. 9.

<sup>17</sup> Brazilian Embassy, "Mercosul Fact Sheet," Brazilian Embassy web site (Washington, D.C. [cited November 29, 1997]), available from: <http://www.brasil.emb.nw.dc.us/ecar01me.html>; INTERNET.

<sup>18</sup> Fundación Invertir, "Mercosur and Other Trade Agreements," p. 8.

<sup>19</sup> Asociación de Transportistas Argentinos de Carga Internacional, "Protocolo Marco Sobre el Comercio de Servicios en el MERCOSUR," vol. 1, no. 64 (Buenos Aires, Argentina, November 1997), p. 27.

<sup>20</sup> World Bank, "Brazil: Multimodal Freight Transport: Selected Regulatory Issues," p. 1.

<sup>21</sup> Vivacqua, "A Logistic Project for South America's Integration," p. 2.

<sup>22</sup> Ibid., p. 5.

<sup>23</sup> Ibid.

<sup>24</sup> Ibid.

<sup>25</sup> Ibid., p. 6.

<sup>26</sup> Ibid.

<sup>27</sup> "Remapping South America: A Survey of MERCOSUR," p. 19.



## **Chapter 15. Argentina**

### **Overview**

#### **Geography and Resources**

Argentina is the second largest country in South America and is bordered by Chile, Paraguay, Bolivia, Uruguay, and Brazil. With more than a million square miles, Argentina encompasses an area approximately four times the size of Texas and has more than 3,000 miles of coastline. Its sheer size dictates that shipping distances within the country are a significant factor in the role transportation plays in the economy. Increasing the efficiency of intermodal transportation internally is a necessity if Argentina is going to be competitive in South American and international trade.

Argentina is not a developing country. Its population of 35 million has one of the highest literacy rates in the world. It is almost one-third the land size of the United States, yet only has one-eighth the population. Argentina's per capita income is the third highest in the Western Hemisphere (behind the United States and Canada). The country possesses extensive natural resources and has a fully diversified economy with robust agricultural, industrial, and service sectors. In the 1950s, it had the seventh largest economy in the world (it currently ranks 23rd).

Significant transportation infrastructure exists within Argentina, as seen in table 15.1. Such infrastructure is necessary in a country with extreme distances and diverse geography. Argentina's border with Chile, for example, stretches over 3,000 miles from subantarctic regions in the southwest to the Andes in the west and north, the second highest mountain range in the world. The country's terrain includes the fertile plains of the Pampas in the north, the Patagonian Plateau in the south, and the watershed of the Paraná River in the northeast.

#### **Economy**

Argentina benefits from a highly educated population, an export-oriented agricultural sector, and a diversified industrial base. However, the economy suffered under nationalization and governmental mismanagement of fiscal policy. During the 1980s, Argentina was hobbled by massive debt and recurrent hyperinflation.<sup>1</sup> Recent governmental restructuring has produced a resurgent economy that realized 7.4-percent growth in 1994. Since pegging its currency (the Argentine peso) to the U.S. dollar in April 1991 and making it virtually impossible for the government to finance a deficit, Argentina's inflation has fallen to its lowest level in 20 years. Confidence in the economy has spurred Argentines to invest in domestic industry and repatriate flight capital.

While the country's economy is showing signs of long-term stability, it is subject to "peso panic" whenever other Latin American countries experience monetary crises. Mexico's peso devaluation in 1995 affected economies throughout Latin America, and Argentina was no exception. By the end of 1995, its gross domestic product (GDP) was down by 4.4 percent from the previous year, and unemployment was at 16 percent (largely because of governmental layoffs due to privatization). Domestic spending contracted, lowering imports, and expanded demand in Brazil produced a surge in exports and a trade surplus. With exports accounting for just 7.5 percent of GDP, the trade surplus had little overall impact on the economy. Consequently, the administration of President Carlos Menem has made increased foreign trade a priority and has sought to improve transportation and industrial efficiency through the largest privatization effort in Latin America.

Argentina's current trade policy is centered on encouraging free markets. As the second largest economy in MERCOSUR, Argentina had a GDP of \$290 billion in 1996, and its per capita GDP of \$8,240 was the highest in Latin America. Argentina has carried out substantial structural reform in the deregulation program undertaken by the Menem administration, which has affected supervisory organizations, foreign trade, capital markets, and internal transportation.<sup>2</sup> All controls on prices, salaries, interest rates, and exchange rates have been removed, producing an economic environment favorable to investment and businesses. In addition to the simplification or elimination of nontariff barriers, the Argentine government slashed import tariffs. Extensive privatization of state-owned enterprises has led to a more efficient economy, making available billions of dollars in previous governmental subsidies for economic stimulus in the form of infrastructure improvement and debt reduction. In less than a decade, the country has transformed itself from one of the most controlled to one of most liberal economies in the world.

## **Transportation Infrastructure**

Argentina has a total of 37,919 kilometers (km) of railways. Of this system, 24,124 km are of 1.676-meter gauge (142 km electrified). There are 2,765 km of 1.435-meter gauge lines and 11,021 km of 1.00-meter gauge (26 km electrified), most of the latter being in the mining regions of western Argentina. The national railways, Ferrocarriles Argentinos, has been divided into three distinct enterprises—freight, intercity passenger, and commuter rail—which were either privatized or transferred to the provinces.

The country has 215,578 km of highways, 61,440 km of which are paved and 154,138 km unpaved. Many of the country's highways have three lanes, with one lane for traveling in each direction and a center lane used for passing. Excluding the municipal and feeder-road network, there are 200,000 km of roads in the network. Much of the system is poorly maintained and has deteriorated as a result of intensive use, gradual loss of public funds for maintenance, and inefficient institutional oversight.<sup>3</sup>

Argentina has 11 major ports and 11,000 km of navigable waterways, including the MERCOSUR Hidrovía (MERCOSUR Inland Waterway) and the Santa Fe-Atlantic Ocean Waterway. The government is working to increase the volume of cargo carried on inland

waterways, which decreased from 1970 to 1989, even though external trade was increasing during the same period. This reduction was attributable to outdated facilities, excessive regulation, high costs, and inadequate investment and maintenance.<sup>4</sup>

The geographical size of Argentina has contributed to its development of an extensive airport system. There are a total of 1,253 airports, 29 of which have paved runways more than 2,438 meters in length and 100 with medium-length paved runways (914 to 2,437 meters in length). The remaining 511 paved runways are less than 914 meters long. Only three of the unpaved runways are more than 2,438 meters long, and 60 of them are between 1,524 and 2,437 meters in length.

## **Transportation Policy**

Present-day Argentina is emerging from a half century of economic, social, and political instability. As part of an effort to free the economy from strict governmental control, political leaders have brought together academicians, private businesses, planners, and regional officials to address Argentina's need for a strategic transportation policy. Such a policy is envisioned as a means to reduce infrastructure inequalities between regions and to foster trade, especially with neighboring countries.<sup>5</sup>

The development of an efficient national transportation system is paramount to enabling economic growth for Argentina. Transportation costs vary dramatically among different areas and significantly influence regional economic growth.<sup>6</sup> According to *La Política del Sector Transporte*, a report from the Ministry of the Economy and Public Works' secretary of transportation, the transportation sector accounts for 5.1 percent of GDP and 34 percent of Argentina's energy consumption.<sup>7</sup>

## **Conflict Between National, Regional, and Local Transportation Planning**

In the past, the federal government has ignored the costs and/or benefits associated with regional multimodal transportation. For example, in northwest Argentina, all transportation networks (air, rail, bus, road, and freight) have been operating independently of each other. Vertical or horizontal integration to promote coordination has not occurred up to this point.<sup>8</sup> Part of the reason for the disparity between transportation planning for Buenos Aires and the rest of the country is that transportation policies have been formulated on the assumption that what worked for Buenos Aires would work for the rest of Argentina.

**Table 15.1**  
**Transportation Infrastructure in Argentina**

Mode	Components	Statistics
Railways	Total	37,910 km
	Broad gauge	24,124 km, 1.676 m gauge (142 km electrified)
	Standard gauge	2,765 km, 1.435 m gauge
	Narrow gauge	11,021 km, 1.000 m gauge (26 km electrified)
Highways	Total	215,578 km
	Paved	61,440 km
	Unpaved	154,138 km
Waterways	Total	11,000 km navigable rivers and coastal canals
Pipelines	Total	16,900 km total
	Crude oil	4,090 km
	Petroleum products	2,900 km
	Natural gas	9,918 km
Major ports	Total	11
Merchant Marine	Total ships	37 (1,000 GRT or over)
	Total capacity	303,448 GRT/458,864 DWT
	Bulk ships	1
	Chemical tanker	1
	Container ship	3
	Oil tanker	14
	Railcar carrier	1
	Refrigerated cargo	5
	Roll-on/roll-off cargo	1
	Cargo ships	11
Airports	Total	1,253
	Paved runways	Over 2,438 m in length: 29
		914 to 2,437 m in length: 100
		Under 914 m in length: 511
	Unpaved runways	Over 2,438 m in length: 3
		1,524 to 2,437 m in length: 60
		914 to 1,523 m in length: 549

Source: Central Intelligence Agency (CIA), "Argentina," *World Factbook 1995*, World Fact Book Home Page (Central Intelligence Agency, 1996[cited January 25, 1998]); available from <http://www.odci.gov/cia/publications/nsolo/factbook/gm.htm>; INTERNET.

More recently, officials have realized that policies must consider the individual needs of particular regions in order to facilitate trade.<sup>9</sup> The Menem administration hopes that privatization and increased funding from sources, such as the Interamerican Development Bank (IDB) and the World Bank, will promote the development of an improved transportation network. Such a network will allow industries in Argentina's interior to compete with Buenos Aires for national and international markets. Reducing the Federal District's inherent comparative advantage depends on establishing an economical, decentralized transportation system with coordination and financing from public and private sectors.

Although regional areas outside the Buenos Aires district have long been ignored in transportation planning strategies, the opposite occurs for the capital. National planners have focused on implementing large-scale projects in the Federal District, because of its industrial and political importance, often without the input of municipal and regional officials. The result has been a constant battle for priorities and funding between the Buenos Aires municipal and metropolitan (the two are separate) governments and the federal government. In 1997, the secretary of transportation issued a call for bids for the development of a comprehensive urban transport study for the city of Buenos Aires.<sup>10</sup> Meanwhile, the municipal and metropolitan governments are conducting independent studies to determine how they can better integrate commuter rail, subway, buses, and passenger automobiles in Greater Buenos Aires.

For example, privatization occurring within the metropolitan bus system has been so prevalent that, in 1996, there were 145 bus lines and 112 separate bus companies operating 11,000 vehicles. Exacerbating the congestion is the fact that Buenos Aires has only two thoroughfares dedicated solely to mass transit. The buses carry 432 million passengers 139 million km annually, a decrease from 513 million passengers in 1992.<sup>11</sup> The decrease in ridership is attributed to the deregulation of the bus system, which resulted in increased fares on most routes.

At the same time, a concession was granted for the state-owned subway. Fares on the subway system remained stable, and ridership shifted from the buses to the subway, increasing from 198 million in 1992 to 264 million in 1996.<sup>12</sup> Officials estimate that as many as 15 million passengers returned to using personal automobiles, taking advantage of low gas prices as a result of low inflation. With traffic in Buenos Aires already heavily congested, putting an average of 57,000 additional cars on the roads does not fit into the goals of the metropolitan government.<sup>13</sup> The lack of coordination between the Buenos Aires and metropolitan governments and the secretary of transportation's office illustrates how difficult it is to integrate the planning process

## **Transportation Institutions**

The Ministry of the Economy and Public Works includes all modes of transportation in its organizational structure under the secretary of transportation (see figure 15.1). The secretary of transportation directly oversees the undersecretary of ground transport, the undersecretary of air transportation and maritime activities, and the undersecretary of

ports and navigable waterways. These, in turn, have various departments dealing directly with multimodal policymaking.

The undersecretary of ground transportation oversees the National Departments for Highway and Rail Transportation Policy. The National Transportation Regulation Commission and the Belgrano General Railway also fall under the authority of the undersecretary of ground transportation.

The undersecretary for air transportation and maritime activities oversees the National Department of Air Transportation and the National Department of Maritime Activities. The latter is the agency charged with drafting policy for shipping. The Intercargo Corporation is also under the control of the air and maritime undersecretary. This consortium was formed to facilitate the transfer of cargo between ports of entry. It is composed of private companies operating under strict contractual agreement with the government.

The National Department of Navigable Waterways and the National Department of Port Infrastructure fall within the authority of the undersecretary for ports and navigable waterways. Policy and projects related to the MERCOSUR Inland Waterway, as well as both inland ports and seaports, originate in these departments. Agencies that report directly to the secretary of transportation are the National Railway Improvement Administration and the Office for the Regulation of the National Airport System.<sup>14</sup>

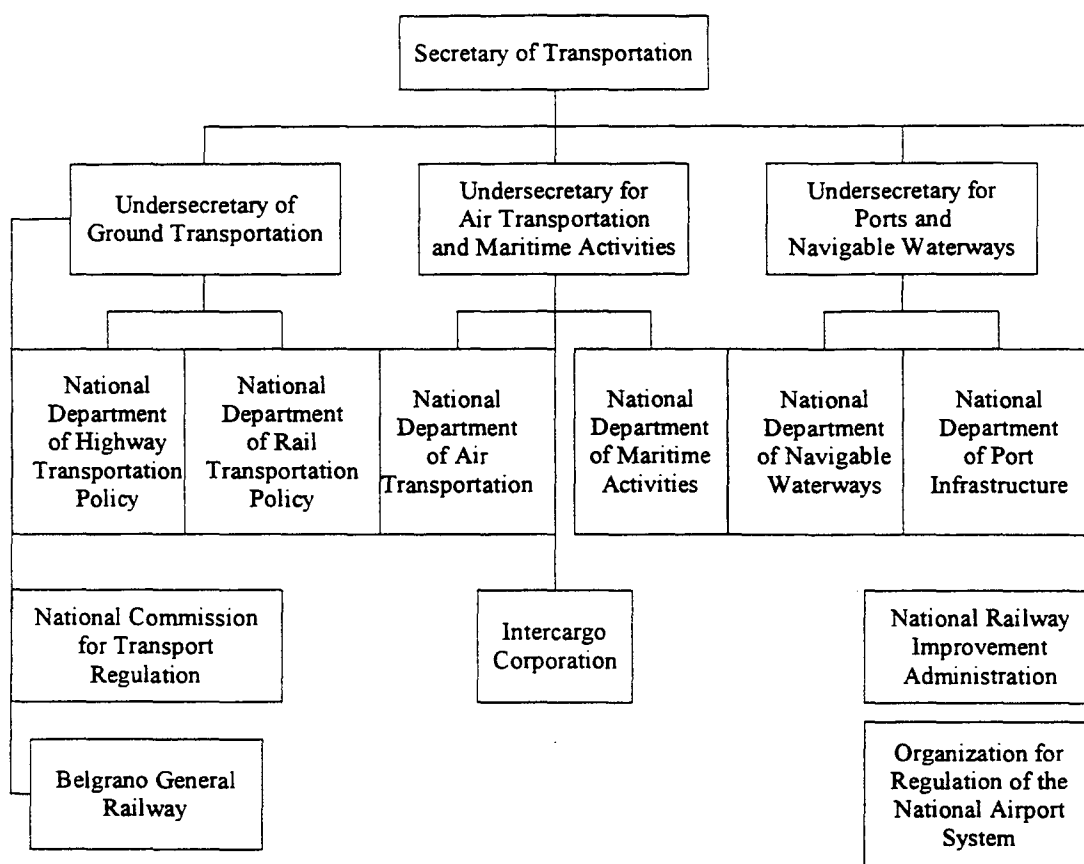
The Ministry of the Economy and Public Works also addresses passenger and freight motor transport; light rail (subways), commuter rail, and heavy rail activities; and airports and maritime shipping in its planning process. By including all modes of transportation planning under a single agency, the federal government has consolidated planning resources, so that personnel from different divisions may be asked to participate in a project that has multimodal or intermodal possibilities.<sup>15</sup>

## **Financing of Transportation Infrastructure**

The extent to which various sectors are involved in the financing of transportation infrastructure projects can be seen in the Ministry of the Economy and Public Works' five-year budget. Funding is projected to remain relatively constant from 1995-99 at roughly \$2 billion a year, for a total of \$11.5 billion. Public investment from government funds amounts to \$7.4 billion of the total over the five years, with private investment accounting for \$4.1 billion.<sup>16</sup> However, transportation spending will decline from 3.04 percent of the total budget in 1990 to 2.27 percent in 1998.<sup>17</sup>



**Figure 15.1**  
**Organizational Structure of Transportation within Argentina's**  
**Ministry of the Economy and Public Works**



Source: Adapted from Argentina Ministry of the Economy and Public Works, *Organigramas del Ministerio de Economía y Obras y Servicios Públicos* (Buenos Aires, Argentina, December 1997).

Even more significant is transportation spending as a percentage of GDP. Here, there is a decrease from 0.92 percent of GDP in 1990 to 0.57 percent in 1999.<sup>18</sup> This decrease is due, in part, to a rapidly growing economy, which reduced the percentage of national spending dedicated to transportation. The reduction also reflects the government's increased spending on education, health care, and social security.

Taking a closer look at the types of projects that fall under the current five-year budget helps illustrate Argentina's transportation infrastructure necessities. Many of the current projects center on resurfacing roads to meet all-weather standards and widening highways to include passing lanes.<sup>19</sup> While a modern highway system may seem a basic task for any country's infrastructure, a brief discussion of a project underway in the northern half of Argentina (see "Public/Private Partnerships" below) provides an idea of the hurdles facing transportation policymakers.

To some degree, the federal government is counting on private investment to develop and maintain transportation infrastructure. The vast majority of the government's \$7.4 billion in transportation spending through 1999 will be for road construction and corridor expansion (\$6.3 billion of the total). The government plans to spend \$65 million on rail projects. The entire amount is budgeted for the Belgrano line.<sup>20</sup> Conversely, while private-sector funding for highway access routes and concession maintenance will total \$2.3 billion (about one-third the government's level), the investment in rail projects for the private sector will be \$1.7 billion, or more than 20 times the government's budget.<sup>21</sup> With the sale of many state-owned enterprises already complete, private businesses will now have to fund capital improvements and maintenance costs, formerly the responsibility of the federal, state, and municipal governments.

## **Transportation Infrastructure Planning**

Historically, transportation planning has focused on moving exports to Buenos Aires so that they could be shipped to Europe. The lack of intermodal corridors dates back to Spanish and British involvement in Argentina. It was not until 1776 that the Spain established a viceroyalty in Buenos Aires (the viceroyalties of Mexico City; Antigua, Guatemala; Popayán, Colombia; and Lima, Peru, had been declared at least 200 years earlier) to take advantage of the mineral wealth of the Andes and the agricultural wealth of the Pampas. The British constructed the rail system with little regard for intermodal planning and interregional connectivity. Its primary purpose was to extract the wealth of the country, not facilitate passenger transportation.<sup>22</sup> Consequently, all major rail and road routes terminated in Buenos Aires, the country's principal port.

Even today, 70 percent of the country's population is concentrated within 600 km of the capital. Regions were not considered as development units until the 1960s.<sup>23</sup> Formal development plans did not emerge for areas outside Buenos Aires until the government began to firm up national claims to its borders. In 1965, Argentina produced a comprehensive plan that established eight regions to control and ensure the planning and development of areas outside the Federal District.

Argentina's early policymakers modeled transportation planning on railroads, citing the European and North American economic success that "seemed attributable at least in part to fast, efficient, and low-cost transportation linking raw materials, factories and consumers into a tight market network."<sup>24</sup> Current transportation planning tends to emphasize short- and long-haul trucking on limited-access highways. While master plans call for integrating new railroads with roads in multimodal corridors, in the short run, the development of roads will be faster and more important, because it will connect the sections of the countries that have the products.<sup>25</sup> In addition, road development is seen as one of the more cost-effective areas for allocation of funds.

### **Integrated Transportation Planning**

While the current focus is on providing immediate access through roads, integrated transportation planning has become increasingly important as government planners try to provide a framework for the operations of both public and private transportation companies.<sup>26</sup> The Ministry of the Economy and Public Works recently produced *Argentina in Development 1995-1999*, a five-volume report that is a macroeconomic development strategy for Argentina. Multimodal transportation planning is a prominent part of the overall economic plan. Projections for public and private investment in transportation infrastructure, as well as specific provisions for individual projects, are listed for a five-year period. Priorities include

- developing export corridors, including an increased number of highway passes connecting Argentina with Chile;
- concessions for maintenance and operating of existing toll routes;
- constructing of new bridges;
- developing new access roads to the highway system;
- increasing the cargo tonnage shipped by rail;
- improving the cargo-handling capacity at major ports;
- reducing costs to maintain navigable waterways with 22- to 32-foot channels; and
- improving air-traffic safety.<sup>27</sup>

In the president's State of the Union Report for 1994, multimodal transportation planning items were evidenced in several policy measures. For example, the Law of the Ports 24.093 was implemented in 1994 and helped to lower ports' operating costs, providing favorable conditions for private-sector investment.<sup>28</sup>

Not only is the government emphasizing the role of multimodal planning, private-sector entities are also realizing the economic necessity of multimodal transportation for all of South America, most notably the Southern Cone countries. Numerous conferences and

meetings have been held since 1994 to address the subject, especially among the MERCOSUR countries. A common theme is that all businesses require transporters, exporters, and other entities to contractually use multimodal shipping, wherever possible, to lower costs, even if it means subcontracting to other carriers.<sup>29</sup>

If there is one area of transportation planning that dominates the federal government's agenda, it is the effort to decentralize operations from Buenos Aires to the regions. Four specific planning strategies attempt to develop regional transportation systems:

1. developing economic growth along river basins;
2. targeting problem regions (e.g., income disparity);
3. colonizing and settling remote regions such as Patagonia; and,
4. designating and developing urban growth poles.<sup>30</sup>

These four strategies continue to influence decisions on where to locate corridors and whether or not concessions should be granted. For example, in some areas, concessions are not profitable for private businesses because of low freight or passenger volume. The fourth strategy, the development of urban growth poles, centers on the idea of linking certain industries with cities.<sup>31</sup> Although the growth-pole strategy has been in effect since the early 1970s, it is only now beginning to achieve some success, held back by the previous absence of rail transportation and access to markets in Bolivia and Chile. In fact, the lack of transportation planning in the 1960s, 1970s, and 1980s is attributed to the failure of governmental development strategies during the period.<sup>32</sup>

## **Deregulation and Privatization**

### **History**

Argentina has been at the forefront of privatization in Latin America and has realized substantial economic benefits from its efforts. Argentina's privatization program began in late 1989. By December 1993, the program had contributed \$11.1 billion to reduction of the commercial bank debt and \$8 billion to the Argentine Treasury.<sup>33</sup> Although the sale of a telecommunications component and the state oil company accounted for about 65 percent of the total, numerous state-owned transportation enterprises were sold as well, most notably railways and the national airline, Aerolíneas Argentinas.

### **Key Legislation**

Not only has Argentina aggressively pursued privatization as a way to improve the transportation infrastructure, but the Menem administration has shown its willingness to give official support to multimodalism through passage of two key pieces of legislation. In June 1992, Law 24.093 (the Law of the Ports) went into effect, which governed the operations of port facilities throughout Argentina.<sup>34</sup> A key provision of the law is the

requirement that administrators and operators of ports work to improve intermodal capacity through a combination of maintenance and new construction. The primary concern was that, if some aspects of the ports were going to be privatized (concessions for port operations began in August 1992), then concessionaires would be responsible for developing infrastructure that would facilitate intermodal transfers.<sup>35</sup> The law also clarifies the legal status of private ports and port terminals that were operating with incomplete authorization.

The decentralization of the national port system, where control of the jurisdiction of port operations was transferred to the provincial governments, confirmed that the national government was serious about improving the investment climate. This transfer of control has led to a dynamic change in areas where operators have begun to invest in infrastructure.<sup>36</sup> In addition, the legislation helped spur improved maintenance at government-run facilities. For example, the channel from Santa Fe to the sea is now kept at a depth of 28 feet and a width of 100 meters at all times, allowing ships to use the lanes for ocean access 24 hours a day. Another example of improvements is the installation of a radar system in 1995 to help monitor shipping traffic on the Río de la Plata.<sup>37</sup> Argentina was the first country in Latin America to install navigation radar along its waterways. These and other changes helped move the Port of Buenos Aires from obsolescence into the role of a major port in Latin America.

More recently, the federal government enacted Law 24.921, which provides for comprehensive multimodal transportation planning with regard to business operations. The law was enacted on January 7, 1998, and, at a minimum, companies are required to use two modes of transportation in delivering goods.<sup>38</sup> In addition, the law requires either consolidation or decentralization (depending on the situation) of operations to maximize transportation efficiency. Moreover, the law is prescriptive with regard to manifesting shipments and requiring operator registration and responsibilities and contractual obligations of owners to make sure other regulations are followed.<sup>39</sup>

## **Government-Led Initiatives for Privatization**

### ***Concessions and Licenses***

The types of government-led initiatives for privatization take several forms. There are concessions or licenses that are granted to private companies or consortia to operate and provide all services associated with a facility or transportation mode. In this case, the government retains ownership and is entitled to all improvements once the concession or license expires. In the second situation, the government continues to operate the enterprise, and the maintenance is privatized. In the third example, the government sells the enterprise but retains administrative oversight for either a limited or indefinite period. In the final case, the government sells all aspects of the enterprise (administration, ownership, operation, maintenance, etc.) to a private firm. Approximately 100 productive state enterprises have been sold in sectors ranging from agriculture to defense. A listing of sectors that have experienced privatization appears below:

agriculture	petroleum/petrochemical companies
electric power	gas production and distribution
hotels	financial sector
communications	tanker vessels
defense	air transport
maritime transport <sup>40</sup>	

In addition, licenses (concessions) have been granted for the operation of activities formerly run by the government, such as the following:

railroads	subways
commuter rail	access roads to major highways
highways	port terminals and elevators
racetracks	national oil company
sanitation department	television and radio channels
navigation waters/ways <sup>41</sup>	

The privatization process employs four distinct mechanisms in the transfer of public assets:

1. The government has privatized state assets by direct sale for cash or through debt-equity transfers to the highest bidder.
2. The government has created stock holdings for its assets and placed these holdings on the Buenos Aires and international stock exchanges.
3. The government has granted concessions to private firms to manage services and maintain infrastructure formerly run by the state that remain under public ownership.
4. The government has established the Property Participation Program for individual workers and trade unions to purchase privatized assets. As of 1994, some 65,000 workers in 28 enterprises had acquired shares in privatized enterprises.<sup>42</sup>

However, privatization has not been completely seamless. The program has generated controversy and conflict. Privatizations have involved layoffs (50,000 workers were laid off following the privatization of mail service and railroads) and a reduction in wages and benefits as private companies attempt to rein in costs that bloated the state-owned enterprises.<sup>43</sup> More than 40 percent of the sales and concessions have gone to Argentine companies, but foreign firms (many operating as consortia) have accounted for approximately 60 percent of the successful bids. The unusually high number of private consortia versus independent firms operating in Argentina, coupled with the streamlining and downsizing, led to unrest among labor groups, frequent demonstrations, and occasional strikes.<sup>44</sup>

In addition to the domestic disputes facing the Menem administration, it has been a struggle for the federal government to integrate the concessionaires. For example, the

northern highway corridor has automatic toll booths, but between corridors (operated under different concessions), there are different systems, so users need a different type of magnetic card between corridors.<sup>45</sup> Similarly, there have been complaints that the newly privatized airline is even more inefficient than before it was sold.<sup>46</sup> Obviously, these are areas that can be addressed in the process of writing the contracts for concessions, for example, ensuring that systems between different operators are compatible and fit within a national system of integrated fares. It is estimated that the cost of transportation can be reduced 7 percent through such a system, but the substantial investment to create an integrated system has deterred any single company from attempting its development.<sup>47</sup>

Nevertheless, a variety of transportation privatizations and concessions is moving Argentina toward an infrastructure with greater intermodal capability. Beginning with the sale of 85 percent of Aerolíneas Argentinas in November 1990 for \$260 million in cash and \$1.61 billion in debt instruments, the federal government has sold all or part of nine transportation enterprises and granted licenses for six rail lines and seven commuter rail routes (including the Buenos Aires subway system).<sup>48</sup> Additional licenses have been given to private companies operating roads and access highways to major cities, elevators and docks at ports, and radio and television broadcast rights.

Since 1990, there have been a number of different concessions granted for highway routes as road corridors, including blocks of several national routes in a determined area. The condition of the routes ranged from satisfactory to poor, with 70 percent of the system classified as poor. The bid process was carried out somewhat quickly, because the government road enterprise did not have the financial resources to improve the routes, and the country needed to reduce the deficit.<sup>49</sup>

In 1992, the contracts were renegotiated and the fare structure for toll roads was set at an average of \$1.20 for each 100 km of road in the franchise. The rate was raised in 1994 according to the structure as shown in table 15.2. The toll policy is considered to be economically viable, with a traffic-flow rate of 2,500 to 3,000 vehicles daily.<sup>50</sup> The contracts are aimed at maintaining and improving the existing routes and not building new roads. The condition of the roads is determined by the state index and ranges from 1 to 10. At the beginning of the franchise, the average state index of the routes was 4.5. As a condition of the contract, the operators have agreed to return the roads with an average state index of 7.5 at the end of the 15-year concession.<sup>51</sup>

In all, 9,300 km of roads were included in the toll-road concessions (toll roads constitute about one-third of all the national roads), and traffic has increased along the routes. Since 1993, cargo traffic has grown 25-30 percent. The road system absorbed the bulk of this increase, because after years of infrastructure neglect and despite a high level of public funding, the rail system cannot currently transport freight economically. Approximately 30 million additional tons of commercial cargo are now carried on highways yearly, with 62 percent of all freight and 85 percent of Argentine travelers being transported by road, down from 85 and 92 percent, respectively, in 1990.<sup>52</sup>

**Table 15.2**  
**Intercity Road Concessions**

Corridor	Total Length (km)	Toll Booths	Basic Toll Range (US \$/100 km)
1	665	3	2.6-3.3
2	297	2	1.8-1.9
3	508	3	2.1-2.5
4	697	3	2.5-3.1
5	421	2	2.6
6	479	3	1.2-3.4
7	242	2	2.5-2.6
8	694	3	1.9-2.5
9	298	2	1.5
10	332	2	1.9-2.1
11	714	3	2.6-3.1
12	481	3	2.1
13	946	6	1.2-3.3
14	280	2	1.8
16	404	3	1.2-2.4
17	540	3	2.3-2.3
18	618	4	1.6-4.1
20	309	4	1.0-1.6

Source: Data from World Bank, Infrastructure Division, Country Department I, Latin America and the Caribbean Regional Office, Buenos Aires, Argentina, June 6, 1996, p. 34.

Recent surveys have shown that 70 percent of the users are satisfied with the service. This high approval rating reflects the notion that the user is now no longer just a user but a client. Article 3 of the Toll Law (Law 17.520) states that the average toll-road fare shall not exceed the specific benefit the user receives (fuel savings and time savings). Since the rate of traffic flow has increased since the concessions were awarded, fares should decrease. However, these route concessions are not subject to the Toll Law.

Consequently, the government set provisions requiring the operator to reinvest 50 percent of toll fares into maintenance and improvements. Increased revenues on some routes will result in additional funds for bridge repair, paving, and user services. In the event that traffic on a route falls below the flow rate deemed viable, the government pays up to 50 percent of the operating costs, thereby maintaining the funding for improvements and keeping fares low.<sup>53</sup> On some of the more highly traveled routes, the toll roads are becoming direct competitors with the railroads for cargo and passengers.

In one of the most ambitious privatization projects in Latin America, a single operator was granted a 30-year license to operate 38 aviation facilities in Argentina. This license is not a sale of the facilities. At the end of the contractual period, all improvements and the facilities themselves revert back to the federal government. The concession is valued at \$5.6 billion in payments (surpassing the government-imposed minimum of \$1.9 billion),



plus investments in infrastructure improvement.<sup>54</sup> Drafting the contract involved more than a year of planning by federal, state, and local government officials, private consultants, and public-interest groups.

A primary concern of the government is the potential for a serious accident or security incident. There have been 16 near misses recently reported at Argentine airports, and the October 1997 crash of a regional carrier's DC-9 increased attention on the air-traffic control system. Acknowledging the problems that other concessions have produced, the airport contract calls for a substantial investment by the operator for the duration of the license. Improvements required under the contract include new or enhanced passenger- and cargo-handling facilities, airport amenities, runway expansion, improved safety standards and equipment, and advanced technology for air-traffic control.<sup>55</sup>

### ***Public/Private Partnerships***

Public/private partnerships are one tool the government has encouraged for improving transportation infrastructure. An example of this can be seen in the development of a system of trunk routes between Argentina and Brazil/Chile, which is vital to ensuring trade within the Southern Cone. Argentina's combined imports and exports increased from 49 million tons in 1991 to 75 million tons in 1995. In exports, cargo shipped by sea declined from 95 to 84 percent of the total, while trucking shipments of exports increased from 4.2 to 7.4 percent of the total.<sup>56</sup> These figures reflect an increasing emphasis on interregional trade that relies on the Argentina/Brazil/Chile trunk routes. The system is based on a corridor model, with seven transit corridors connecting areas that previously had access only to Buenos Aires. The project is not multimodal; it will focus on highway development only. However, it will result in a network of roads, passable year-round, that will link industrial and agricultural centers in the northwest and southwest and will complete overland links between Brazil and Chile.

One of the benefits of the corridor project is that trans-Argentine trade should increase, which will encourage companies seeking a location that gives them ready access to Chilean and Brazilian markets to locate within the corridors. This project can be especially beneficial to the federal government, which has been struggling to decentralize the economy from the Buenos Aires-Rosario area along the Río de la Plata. The \$718 million project represents a cooperative effort between multiple entities including the IDB, the European Bank, World Bank, the European Union, and the Argentine government. Although there are no plans to grant a private concession for toll-road operation in this case, much of Argentina's transportation policymaking involves bringing together public and private interests to expand Argentina's intermodal capacity.<sup>57</sup>

Table 15.3 lists some transportation enterprises that have had part or all of their operations privatized, as well as the financial gains associated with each.

**Table 15.3**  
**Privatized State-Owned Enterprises**

Project Name	Type of Privatization	Sale/Contract Price
Empresas Líneas Marítimas Argentinas (merchant marine)	100 percent sale	\$12.6 million cash
Transportadora de Gas del Sur S.A. (gas pipeline)	70 percent sale	\$100 million cash \$256.2 million debt securities
Aerolíneas Argentinas (airline)	85 percent sale	\$260 million cash \$1.61 billion debt securities
General Roca rail line (4,620 km)	Concession for operation	\$173 million in cash
Buenos Aires subways	Concession for up to 20 years	\$600 million in cash
Access highways to major cities	Concession for 22 years	\$2.53 billion in payments
Rosario Port Units VI and VII	Concession for up to 30 years	Rent of \$0.39/loaded ton
Buenos Aires port terminals	Concession for up to 20 years	\$193 million annually
Navigation/waterways	License for maintenance	N/A
Toll roads (39 total)	Concession for all operations	\$2.45 billion in payments

Source: Data from Argentina Ministry of the Economy and Public Works, *Argentina En Crecimiento 1995-1999*, vol. III (Buenos Aires, Argentina, 1995); and Republica Argentina Instituto Nacional De Estadísticas Y Censos, *1997 Statistical Yearbook of the Argentine Republic*, vol. 13. (Buenos Aires, Argentina, 1998).

In the case of the Buenos Aires ports, interterminal competition was encouraged by granting concessions for Terminals 1-5 to five different companies. This case is ideal because a single operator can control the entire flow of cargo through the terminal, from the ship to storage through the gate, which maximizes efficiency.<sup>58</sup> Because there was only enough dock activity to support five of the six terminals in a competitive scheme, Terminal 6 was closed. The competitive environment among the terminal operators has created a free market in terms of labor and has encouraged efficient administration. The more efficient terminals are able to pay higher wages, so there is a strong incentive to move as much cargo as possible through the facilities. The Buenos Aires terminals are now moving about 22 containers an hour, compared with 8 or 10 per hour at Brazil's major port, Santos.<sup>59</sup> In addition, competition has made space valuable and increased the need to move cargo out of the dock area. Old warehouses have been demolished on the berths to create large areas for container storage, as well as a rail link to the port.<sup>60</sup>

With the rail privatizations, the former Argentine railroad monopoly was restructured into five 30-year concessions in 1991. The classification criterion was based on the lines' gauge and the region of the country that they serve. Each of the five lines was licensed separately, allowing for companies to operate more than one line. The sixth line of the former monopoly remained under governmental control until July 1997. This line was the Belgrano line and covered 10,770 km. Since the tracks are of the same metric gauge as neighboring Chile, Bolivia, and Paraguay, the Belgrano railway is a potential solution for

low-cost interregional freight transport.<sup>61</sup> In all cases, the government stated that the objectives of the concessions were to improve transportation infrastructure, make service more efficient, and lower costs.<sup>62</sup>

## **Technological Development**

Some of the capital improvements that the private sector is funding includes expanding the logistics infrastructure, especially in the area of transportation technology. Argentina is a vast country, with long distances between the national government in Buenos Aires and regional industrial and agricultural centers. Although the number of multimodal and intermodal connections are few, new projects increasingly favor the development of more advanced communication and signaling technology.

The MERCOSUR Inland Waterway project is an example of an initiative in which signaling technology is improving the overall transportation conditions. Installation of radar facilities by private companies under contract has improved navigation in the waterways linking Argentina with Brazil and Paraguay. The recent airport privatization is another area where significant improvements in safety equipment (e.g., radar systems and ground-to-air communications) were required for award of the contract.

Much of the effort in improving logistics has centered on harmonizing technologies such as rail gauges and highway capacities. Telecommunications and intelligent transportation system projects are underway as well. In Buenos Aires, a pilot project is promoting a “smart card” for intermodal passenger transfers between commuter rail, metropolitan bus routes, and the subway. Government planners expect the system to reduce the overall transportation costs by eliminating administrative requirements during transfers between modes. Since the privatization of Argentina’s telephone network, provincial access to the system has increased and digital-switching capability has been implemented in the larger cities, facilitating data transfer. One of the goals of increasing the capacity and technology of the national communications network is to link various toll roads operated by concessions into a larger system. Such a system can reduce costs associated with monitoring tolls manually by integrating the individual concessions into a larger network. Automatic computerized toll booths using “smart card” readers will allow drivers to travel from one route to another quicker and without a monetary transaction.

Despite the push for logistics improvement, transportation issues, such as border crossings, remain an obstacle to trade. At the main border crossing between Argentina and Brazil, where 70 percent of the binational trade occurs, any rail freight must be unloaded before it can be transferred to the other country’s railway, because of incompatible track gauges. Consequently, almost all the trade is carried by truck over a two-lane bridge, creating delays as long as 72 hours (including customs clearance). These types of delays typify the difficulties facing Argentina’s planners and exacerbate the need for improved technology and logistics in future projects.

## **Obstacles to Multimodal/Intermodal Development**

### **Argentina-Brazil Relations**

Among MERCOSUR countries, Argentina is second only to Brazil in terms of economic power. While the two countries have been political rivals for most of their existence, the creation of MERCOSUR has initiated a convergence of social, political, legislative, and economic activities. Binational trade has increased dramatically from 7.3 million tons in 1990 to 22.7 million tons in 1995.<sup>63</sup> The majority of this trade constitutes exports from Argentina to Brazil (15 million tons in 1995). Argentine exports to Brazil are primarily agricultural, basic foodstuffs. In the agricultural sector, Argentina maintains a comparative advantage. Consequently, Argentina has grown reliant on Brazil as principal consumer for Argentine products.

Increased trade has accelerated supranational integration between Argentina and Brazil, most notably between northeast Argentina and southern Brazil. Two institutions that coordinate supranational integration are Brazil's Development Council of the South (Conselho de Desenvolvimento do Sul—CODESUL), comprising the state governments of Mato Grosso do Sul, Paraná, Rio Grande do Sul, and Santa Catarina, and the Northeast Argentina Regional Commission for Foreign Trade (La Comisión Regional de Comercio Exterior del Nordeste Argentino—CRECENEA), which is composed of representation from the provinces of Chaco, Corrientes, Entre Ríos, Formosa, Misiones, and Santa Fe. Individually, each institution prioritizes infrastructure projects in energy, transportation, telecommunications, and so on seeking to develop a regional infrastructure attuned to MERCOSUR opportunities. Both CODESUL and CRECENEA lobby their national governments to carry through with regional infrastructure. Collectively, these institutions also prioritize the main intermodal transportation projects of mutual benefit. Such cooperation is easily apparent in transportation projects, such as the MERCOSUR Highway from São Paulo, Brazil, to Buenos Aires and the MERCOSUR Inland Waterway.

Constraining more supranational integration, however, are the fiscal situations of the two nations. In the Brazilian case, much transportation funding has been cut to cover budget shortfalls, making the construction of transportation infrastructure haphazard and prone to delays. Complicating integration further may be the ongoing political disputes between Argentina and Brazil over possible permanent membership on the United Nation's Security Council. Both Argentina and Brazil have global aspirations to represent the region internationally. Political disputes on such thorny issues as regional leadership could have economic repercussions.

Notwithstanding political dispute and supranational integration, the economies of Argentina and Brazil are becoming increasingly interconnected. If Brazil's economy stalls or goes into recession, the effects on Argentina can be damaging. One of Argentina's national priorities is to increase trade with other trading partners to reduce dependence on Brazil. Sharing borders with Brazil, Paraguay, Uruguay, Bolivia, and Chile, Argentina is uniquely positioned to diversify its export markets throughout the Southern Cone and the

Andes. However, if the country is to increase trade with its neighbors, it must continue improving transportation infrastructure.<sup>64</sup>

### **Modernizing/Standardizing Infrastructure**

While Argentina and Brazil share seven highway border crossings (with an additional four crossings available along the Brazil-Uruguay border), the majority of the shipments go through the Paso de los Libres, Argentina/Uruguiana, Brazil, border crossing.<sup>65</sup> The twin cities handle 70 percent of the overland traffic between Brazil and Argentina because of better connections and logistical support. In addition, it is the only crossing offering a railroad connection between the two countries. The conditions are not conducive to efficient transportation, however. On an average day, 300 to 700 trucks cross the bridge over the Uruguay River but only after a delay of at least 24 hours at the customs post there. Once the trucks clear the crossing, they face long journeys on single carriageway roads before they reach major cities.<sup>66</sup> Improvements are occurring though. Automakers have been among the first transnational firms to locate in Brazil and Argentina following the opening of the markets. They have been somewhat successful in circumventing bureaucracy and getting their products to market. Volkswagen has a road shuttle of 150 trucks a day moving components between its plants in São Paulo and Buenos Aires. The trip used to take a week and now is run in three days.<sup>67</sup>

Conditions are similar on the main routes between Argentina and Chile, where truck traffic has tripled in the last ten years. More than 90 percent of these trucks (about 300 a day) use the road between Santiago, Chile, and Mendoza, Argentina, that climbs to altitudes above 10,000 feet and is often blocked by snow.<sup>68</sup> Trains stopped running on the trans-Andean railway between the two countries after a massive avalanche closed the route in 1984. Currently, a plan to construct a dozen border crossings between Chile and Argentina includes a feasibility study for a low-altitude tunnel between Santiago and Mendoza, which will reestablish the trans-Andean railroad between Buenos Aires and Santiago's main port at Valparaíso, Chile.<sup>69</sup>

### **Economic Stability**

Although private entities are investing billions of dollars in Argentina's transportation network, most of the investment will have to come from the government. For the government to make such a contribution, Argentina needs economic stability. Argentina needs to sustain annual growth at rates of 5-6 percent to offset unemployment levels of 12-14 percent. Reform and trade liberalization are helping, but the economy must overcome the structural and politically rooted constraint of needing to balance the public-sector accounts and create a more efficient state. Until full governmental reform is accomplished, investors will continue to doubt Argentina's economic stability and the ability of the country to withstand external shocks, such as a sharp rise in interest rates.<sup>70</sup>

## **Continued Privatization Problems**

To continue investing in Argentina's transportation infrastructure, the government must make the current privatizations work and provide effective oversight of the concessions and contracts. Benefits of deregulation have been better service and newer vehicles on the bus lines. However, competition between businesses has forced them to cut costs. This cost cutting has been a hard adjustment for employees, who had previously been employed by public-service entities that were not concerned with profit. Taxi drivers and bus drivers are having to take lower salaries. There are more choices for the consumer and more frequent service in some areas, but other areas have seen a reduction in services.

It has been hard for government officials to predict the effects of deregulation and privatization activities. Ironically, demand for mass transit has decreased. As governmental austerity measures brought inflation under control, car ownership and driving in general became more affordable. Companies operating bus and rail concessions experienced reduced demand and had to raise prices to maintain projected revenues. Travel time has increased in the Buenos Aires area, and traffic has gotten worse, highlighting the need for a comprehensive urban transport policy that focuses on reducing congestion and increasing mass transit ridership.<sup>71</sup>

Governmental agencies have been established to oversee the operations and make sure that contract deliverables are met. The National Commission for Transportation Regulation has 400 employees and was created to manage contracts dealing with passenger and freight transportation on highways, railways, bus lines, and the Buenos Aires subway. The commission also provides a regulatory authority for licensing of vehicle operators.

## **Geography/Environment**

Besides administrative, political, and financial challenges, Argentina faces formidable geographic and environmental obstacles. Argentina's entire border with Chile consists of the Andes Mountains, which significantly inhibit trade between the two countries. The distance between Buenos Aires and Santiago is 700 miles, but because the route is often closed in the winter, most trade between the two cities travels 3,500 miles by sea to the Port of Valparaíso. The southern half of Argentina is sparsely populated and of not much use agriculturally, although large petroleum reserves and natural gas fields exist in much of the area. The lack of population and industry discourages development of a transportation network in the region. Pipelines have been constructed from the oil and gas fields to the northern half of the country, but, in general, infrastructure is lacking.

Recently, the government has demonstrated increased concern for environmental issues. The Ministry of the Economy and Public Works determined general environmental impacts that must be taken into consideration for all transportation projects:

- alterations in air quality,

- contamination of surface or subsurface water,
- erosion and/or contamination of the soil,
- increased sedimentation in waterways,
- damage to flora and fauna,
- increased noise level,
- disrupting lifestyle, and
- variations in socioeconomic conditions caused by projects.<sup>72</sup>

These considerations are being integrated into policymaking and strategic planning. For example, all development (including expansion of existing facilities) must now have an environmental impact assessment before construction begins.<sup>73</sup> However, some projects have attracted the attention of the international environmental community for their controversial nature. The MERCOSUR Inland Waterway along the Paraná and Paraguay Rivers is an example of a project that many consider to be the physical manifestation of the MERCOSUR common market. Now the proposed waterway development is at the center of an international debate about the effects of international trade on the countries' environment and their rural inhabitants.

### ***Environmental Concerns over the MERCOSUR Inland Waterway (Hidrovía MERCOSUR)***

The MERCOSUR Inland Waterway project was formally launched in 1989 by MERCOSUR countries and Bolivia to widen the Paraguay and Paraná Rivers at a cost of more than \$1 billion. Opponents cite environmental damage, as well as adverse effects to people living along the rivers, while supporters tout the reduced cost of transporting products such as soybeans and iron ore from remote areas to urban markets and export centers. Indeed, it is estimated that, if the necessary improvements occur to facilitate shipping, the waterway could carry as much as 11 million tons of cargo by 2000.<sup>74</sup>

Proposed modifications to the waterway include dredging, straightening the course, and building locks so oceangoing vessels can navigate the river from the Atlantic Ocean to Cáceres, Brazil, a distance of 3,400 km.<sup>75</sup> Environmentalists are concerned that the project will disrupt the Paraguay River drainage system and endanger the Pantanal wetlands (the world's largest). Environmental groups also conclude that development of the river system will increase pressure on at least a dozen endangered species and seriously damage the freshwater fisheries that people in the wetlands depend on for food.<sup>76</sup> Although initially in full support of the project, despite objections from more than 300 organizations, the Argentine government has now begun to show signs that it may be willing to consider alternatives to the original project. These considerations are being integrated into policymaking and strategic planning. For example, all development

(including expansion of existing facilities) must now have an environmental impact assessment before construction begins.<sup>77</sup>

## **Multimodal/Intermodal Projects**

As Argentina continues to struggle with the many challenges it faces in improving its transportation infrastructure and establishing a multimodal system, it is important to remember that less than ten years ago, the country was plagued by state-owned transportation enterprises that were extremely inefficient. A look at current and proposed projects will help illustrate how far Argentina has come in a short time and in what directions it may be headed in the future (see table 15.4).

### **Highway, Rail, Maritime, and Airport Projects**

#### ***Highway Projects***

Argentina roads have increased their share of total freight shipments from 6.24 percent in 1991 to 8.67 percent in 1995. Tonnage has gone from 3 million tons to more than 6.5 million tons during the same period.<sup>78</sup> In light of these developments, the highway system is undergoing numerous projects to improve transportation for both freight and passenger carriers.

#### ***Santo Tome-São Borja Bridge***

The Santo Tome-São Borja Bridge project is a 1.4-km bridge that will link the Rio Grande do Sul and Uruguaiiana in Brazil with Iquique in Chile via Argentina, and will relieve some of the congestion at the Uruguaiiana-Paso de los Libres border crossing. The total cost of the project is estimated to be \$32 million, of which \$13 million will be invested during 1997 and 1998. A 25-year concession to construct and operate the bridge has been issued, and the project is expected to be completed in March 1998.<sup>79</sup>

#### ***Rosario-Victoria Bridge Complex***

The Rosario-Victoria Bridge Complex project is for 12 km of bridges and 48 km of toll roads. A 25-year concession to operate the toll roads was awarded on June 17, 1997. The project received a governmental subsidy of \$100 million, and total costs are projected to be \$225 million.

#### ***Rosario-Córdoba Limited-Access Highway***

The Rosario-Córdoba limited-access highway will connect the second and third largest cities in the country and will run parallel to National Route 9. Construction bidding will be organized by the concessionaire of Route 9. In return, the concessionaire's contract for Route 9 will be extended by 11 years to 2024. The federal government will supply \$260 million of the estimated \$480 million construction cost of the limited-access highway.



Tolls are expected to be \$4.50 per 100 km.<sup>80</sup> Construction will commence in 1998 and be completed in 2001.

#### *National Highways 40 and 60*

Route 40 runs north and south along the border with Chile. Some \$153 million will be spent on improvements, including \$43 million in 1997. Repaving and maintenance on Route 60 will take place in the provinces of Córdoba and Catamarca.

#### *Andean Border Crossings*

The governments of Argentina and Chile have agreed to prioritize the improvement of road networks leading to twelve border crossings. Three additional border crossings may be developed in the future. The total investment from 1996 to 2000 will be \$321 million, divided almost equally between Argentina and Chile. In May 1997, the U.S. Trade and Development Agency approved the use of \$695,000 from its Evergreen Fund at the IDB. This sum will be matched by \$115,000 from the Argentine government for a five-month feasibility study, conducted by a consulting firm, concerning traffic demand, preliminary engineering, preliminary environmental evaluation, and socioeconomic effects.<sup>81</sup> Three of the pass projects are underway, and six more are in the planning phases. The most expensive of the crossings, the proposed low-altitude tunnel between Mendoza and Santiago, has a price tag of \$2 billion and is only being studied at this time.

#### *Buenos Aires-Colonia Bridge*

The Buenos Aires-Colonia bridge project has captured the imagination of transportation planners and businesses alike throughout South America. This 51.5-km bridge will span the Río de la Plata, connecting Argentina to Uruguay. It will give Buenos Aires access to the deepwater port at Montevideo, which is superior in every way to the port in Buenos Aires. Not only will the bridge alleviate traffic between Uruguay and Argentina, it will also reduce the congestion between Argentina and Brazil by routing traffic away from the Paso de los Libres border crossing. The project is being financed with private investment and is predicted to cost more than \$1 billion. Construction on the toll bridge is expected to take five years.

#### *Rio de Janeiro to Buenos Aires Highway—MERCOSUR Highway*

The reality of the Colonia bridge project has reopened discussion of a four-lane highway between Rio de Janeiro and Buenos Aires. The highway will most likely be funded through a combination of public and private investment to be repaid from toll fares. Such a highway will extend for almost 2,000 miles and pass through São Paulo, Curitiba, Porto Alegre, and Montevideo. The total cost is estimated to be \$2.5 billion.

#### *Rail Projects*

Rail shipments of freight between Brazil and Argentina increased from 221,000 tons in 1990 to 556,000 tons in 1995.<sup>82</sup> Although such an increase normally indicates that rail

will be a target sector for public and private investment, this is not the case. At Paso de los Libres, where the rail lines cross the Argentine-Brazilian border, the cargo lines at the Paso de los Libres crossing present two problems for which the only solution involves great expense that no entity has been willing to undertake. The first problem is the difference in track gauges between Brazil and Argentina. The solution, to date, has been the use of containers, but the cost is very high because capacities are also different. The station on the Argentine side is inadequate, while the Brazilian facility is modern and efficient. Second, border controls are carried out on both sides and are very time consuming. Consequently, there are no current plans to improve the railways or the infrastructure. However, if investment is to occur, it will be in the modernization of the Argentine rail station. Other rail projects for Argentina and the Southern Cone are either in planning stages or underway.

#### *Buenos Aires-Pacific Cargo Rail Line*

The concessionaire of the Buenos Aires-Pacific Cargo Rail Line has established a multimodal facility in Mendoza for transport to and from Chile.<sup>83</sup> There is no direct rail route between the two countries. The operator states that this new truck/rail facility reduces the transit time between Buenos Aires and the main Chilean ports to five days versus fifteen by sea. A secondary trans-Andean line from Bahía Blanca, Argentina, to the Port of Concepción in Chile is being studied. The route will cover 1,640 km, and \$168 million has been appropriated for feasibility studies and environmental impact analysis, as well as for preliminary construction.

#### *Los Libertadores Rail Project*

In 1991, the IDB and the Spanish government's Sociedad Quinto Centenario approved \$500 million for a railway construction project that will connect four railway lines in seven Latin American countries (Argentina, Bolivia, Brazil, Chile, Paraguay, Peru, and Uruguay). This approval was the first time the IDB provided financing for a railway infrastructure project. The project will focus on developing four corridors with a total length of 16,000 km.<sup>84</sup>

#### *Antofagasta-Asunción-Paranaguá Rail Route*

Preliminary studies are being conducted on a \$600 million project to link Antofagasta, Chile, with Asunción, Paraguay, with additional lines running through the Brazilian state of Paraná to its Atlantic Port of Paranaguá. Commonly referred to as the Paraná Canal, this rail corridor will connect Atlantic and Pacific ports. The route will link Chile, Argentina, Paraguay, and Brazil, using some existing lines that will be modernized and repaired, augmented by 480 km of new construction in the area between Formosa (Argentina) and Guaira (Brazil).

### *São Paulo-Buenos Aires Railway*

Future plans call for studying the feasibility of a rail line between the largest cities in Brazil and Argentina. The project will stretch for 2,800 km, alleviate congestion at the current Paso de los Libres-Uruguai crossing, and provide a direct route between two of South America's major markets. The rail line will be standard gauge over its entire length, lowering transit times and significantly reducing transport costs. Approximately \$22.5 million has been approved for preliminary studies.

### *Santos-Arica/Antofagasta Rail Project*

Although the Santos-Arica/Antofagasta rail project will link the major Brazilian and Chilean ports, Argentina is participating in the planning stages, because the lines will run through the agricultural region of Argentina, which currently has limited access to ports. If the railway is constructed, it will use some existing lines in Argentina and will give Argentine businesses a less-expensive option for shipping goods to Pacific Rim nations and northeastern Brazil. The project is estimated to cost at least \$1 billion; subsequently, it is only in the planning stages at this time.

### *Port-Rail*

Port-rail facilities are not well established considering the importance of grain among Argentina's exports. Several potential projects are studying multimodal links that can facilitate rail and port transfers. In the Rosario-San Lorenzo-San Martín river port area, rail access has been poor in the past. This primary inland waterway port is used for grain shipments. There is very little land around the current port for expansion to accommodate rail, but rail capacity can be doubled in San Martín, where there are eight grain ports.<sup>85</sup> The Port of Buenos Aires had extensive rail links, when the docks were located in Puerto Madero. At Puerto Nuevo, however, most of the rails are not being used because of sharp turns and neglect. The federal government is planning to develop a new rail-access point at another location. Existing rails will be used as sidings for container loading.

### *Ports and Maritime*

Because of the inefficiency of the pre-privatized port system, exporters began to establish their own ports. When the federal government began transferring ownership of most ports outside Buenos Aires to the provincial governments, some of the provincial governments privatized the ports, prompting the federal government to grant concessions for the operations of the ports at Buenos Aires.

### *Port of Buenos Aires*

The Port of Buenos Aires handled 540,000 TEUs (20-foot-equivalent container units) in 1994, which is 97 percent of Argentina's total container volume and a 54-percent increase over 1992. The privatization and deregulation of the port have produced positive effects: the number of containers handled increased 150 percent from 1991 to 1996; tons handled per person was five times the previous levels; and the average port stay dropped from 6.2

days to 2.7 days.<sup>86</sup> The port is expected to reach its estimated capacity (with current equipment) of 1.2 million containers by the year 2005.<sup>87</sup> To meet the demands of containerized transportation in Argentina, planners are considering the following development plans:

- the optimum use of existing facilities in Buenos Aires, which will require further development of the current container terminals;
- the development of container terminals at other ports in Argentina, such as Bahía Blanca, Quequen, and Rosario; and
- the development of a new secondary port or artificial offshore island terminal in Buenos Aires.

The terminal operations at Buenos Aires are handicapped by physical restrictions, such as shallow draft of the access channel, a narrow-access width, and limited land area for expansion. Optimizing the existing facilities at Buenos Aires will require several measures:

- using railway facilities for inland container transportation,
- modernizing container-handling equipment and improving handling efficiency,
- integrating terminal-area development by land reclamation, and
- improving the information-flow system.<sup>88</sup>

#### *Port of Rosario Privatization*

The provincial government in Santa Fe is in the final stages of privatizing two port terminals at the Port of Rosario, the third largest city in Argentina. The Port of Rosario is the largest port on the MERCOSUR Inland Waterway that connects Buenos Aires with Brazil and Paraguay. The two terminals have been offered as 30-year concessions. The terms of the contracts include specific projects: reconstruction of loading docks, new access road, laying of railroad tracks and a rail switch, and improvement in the terminal buildings.<sup>89</sup>

#### *MERCOSUR Inland Waterway Projects*

In addition to the engineering of the MERCOSUR Inland Waterway itself, there are four sectors of the existing system undergoing development.

1. **Santa Fe-Atlantic:** A ten-year concession has been approved for a project to dredge a waterway 32 feet deep from San Martín (near Rosario) to the Atlantic Ocean and a channel 23 feet deep from San Martín and Santa Fe. The total cost of dredging and maintenance is approximately \$65 million.
2. **Santa Fe-North:** This waterway is intended to encourage use of the MERCOSUR Inland Waterway by exporters in the interior of Argentina, Brazil, Paraguay, and

Bolivia. The draft will be increased to 10 feet over a distance of 1,700 km on the Paraná and Paraguay Rivers, while the channel will be at least 100 meters wide. The concession will initially last three years and will include responsibility for dredging and maintaining of the ports.

3. Martín-García Channel Dredging: This project will dredge and maintain a 32-foot depth and 100-meter width over the entire length of the channel, which provides access to the Port of Buenos Aires. The total investment during the eight-year concession is \$179 million, 60 percent of which will be provided by the Argentine and Uruguayan governments. The balance will be financed by user tolls.
4. Uruguay River Dredging: Signaling equipment improvement and dredging is underway in this \$25 million project.<sup>90</sup>

**Table 15.4**  
**Transportation Projects**

Project Name	Project Type
Santo Tome-São Borja Bridge	Highway
Rosario-Victoria Bridge Complex	Highway
Rosario-Córdoba Limited Access Highway	Highway
National Highways 40 and 60	Highway
Andean Border Crossings	Highway
Buenos Aires-Colonia Bridge	Highway
Rio de Janeiro to Buenos Aires Highway	Highway
Buenos Aires-Pacific Cargo Rail Line	Railway
Los Libertadores Rail Project	Railway
Antofagasta-Asunción-Paranaguá Route	Railway
São Paulo-Buenos Aires Railway	Railway
Santos-Arica/Antofagasta Rail Project	Railway
Port of Buenos Aires	Ports and maritime
Port of Rosario	Ports and maritime
Santa Fe-Atlantic Route	Inland waterway
Santa Fe-North Route	Inland waterway
Martin-García Channel Dredging	Inland waterway
Uruguay River Dredging	Inland waterway

Source: Data from Argentina Ministry of the Economy and Public Works, *Argentina En Crecimiento 1995-1999*, vol. 3 (Buenos Aires, 1995) pp. 253-264.

## Notes

<sup>1</sup> Fundacion Invertir, "MERCOSUR and Other Trade Agreements," Fundación Invertir web site (Buenos Aires, Argentina, 1996 [cited October 22, 1997]), available from: <http://www.invertir.com/07trade.html#Mercosur>, p. 2; INTERNET.

<sup>2</sup> Argentina Ministry of the Economy and Public Works, *General Aspects of Mercosur*, Argentina Ministry of the Economy and Public Works web site (Buenos Aires, Argentina, April 10, 1996 [cited November 13, 1997]), available from: <http://www.mecon.ar/invest/mercosur.htm>, p. 3; INTERNET.

<sup>3</sup> World Bank, Infrastructure Division, Country Department I, Latin America and The Caribbean Regional Office, *Argentina Transport Privatization and Regulation: The Next Wave of Challenges* (Buenos Aires, Argentina, June 6, 1996), p. 30.

<sup>4</sup> *Ibid.*, p. 41.

<sup>5</sup> David Keeling, "Regional Development and Transport Policies in Argentina: An Appraisal," *The Journal of Developing Areas* (July 1994), p. 487.

<sup>6</sup> Argentina Ministry of the Economy and Public Works, *Okita Report, Vol. VII, Introduction* (Buenos Aires, Argentina, 1994), p. 1.

<sup>7</sup> *Ibid.*, p. 3.

<sup>8</sup> Keeling, "Regional Development and Transport Policies in Argentina: An Appraisal," p. 498.

<sup>9</sup> Interview with Jorge García, Coordinator of Loans for the Interamerican Development Bank/InterEuropean Bank, Buenos Aires, Argentina, January 12, 1998.

<sup>10</sup> Eugenio Pallares, "Call for Bids for Urban Transport Study" (U.S. Department of Commerce, Washington, D.C., 1997), p. 2.

<sup>11</sup> Argentina National Commission for Mass Transit, *Information Bulletin No. 1* (Buenos Aires, Argentina, June 1997), p. 33.

<sup>12</sup> República Argentina Instituto Nacional De Estadísticas Y Censos, *1997 Statistical Yearbook of the Argentine Republic*, vol. 13 (Buenos Aires, Argentina, 1998), p. 424.

<sup>13</sup> Interview with Marta Barna, Chief of Department of Evaluation and Development, National Commission for Mass Transit, Buenos Aires, Argentina, January 13, 1998.

<sup>14</sup> Argentina Ministry of the Economy and Public Works, *Organigramas del Ministerio de Economía y Obras y Servicios Públicos* (Buenos Aires, Argentina, December 1997).

<sup>15</sup> Interview with Gaston Astensiano, Advisor, Office of the Secretary of Transportation, Buenos Aires, Argentina, January 15, 1998.

<sup>16</sup> Argentina Ministry of the Economy and Public Works, *Argentina En Crecimiento 1995-1999*, vol. II (Buenos Aires, Argentina, 1995), p. 34.

<sup>17</sup> Argentina Ministry of the Economy and Public Works, *Argentina En Crecimiento 1995-1999*, vol. I, p. 64.

<sup>18</sup> *Ibid.*, p. 65

<sup>19</sup> García interview.

<sup>20</sup> Argentina Ministry of the Economy and Public Works, *Argentina En Crecimiento 1995-1999*, vol. II, p. 36.

<sup>21</sup> *Ibid.*, p. 39.

<sup>22</sup> Barna interview.

<sup>23</sup> Keeling, "Regional Development and Transport Policies in Argentina: An Appraisal," p. 488.

<sup>24</sup> E. Bradford Burns, *The Poverty of Progress* (Berkeley: University of California Press, 1980), p. 135.

<sup>25</sup> Barna interview.

<sup>26</sup> Astensiano interview.

<sup>27</sup> Argentina Ministry of the Economy and Public Works, *Argentina En Crecimiento 1995-1999*, vol. I, p. 69.

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- <sup>29</sup> Jorge Pablo Bendomir, "La Responsabilidad Para Establecir Transporte Multimodal," *Asociacion de Transportistas Argentinos de Carga Internacional*, vol. 1, no. 64, (November 1997), p. 31.
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- <sup>31</sup> *Ibid.*, p. 495.
- <sup>32</sup> Juan A. Roccatagliata, *Argentina: Hacia un Nuevo Ordenamiento Territorial* (Buenos Aires: Editorial Pleamar, 1986.)
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- <sup>38</sup> Argentina Ministry of the Economy and Public Works, *Transporte Multimodal De Mercaderias*, Argentina Ministry of the Economy and Public Works web site (Buenos Aires, 1997 [cited January 15, 1998]), available from: <http://infoleg.mecon.ar/txtnorma/48356.htm>, p. 1; INTERNET.
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- <sup>42</sup> "Sweeping Privatization Program Nears Completion," *Buenos Aires Chronicle*, October 27, 1994, p. 4.
- <sup>43</sup> *Ibid.*, p. 5.



<sup>44</sup> Ibid., p. 2.

<sup>45</sup> Barna interview.

<sup>46</sup> "Sweeping Privatization Program Nears Completion," p. 4.

<sup>47</sup> Argentina National Commission for Mass Transit, *Information Bulletin No. 1*.

<sup>48</sup> Republica Argentina Instituto Nacional De Estadisticas Y Censos, *1997 Statistical Yearbook of the Argentine Republic*, vol. 13, p. 482.

<sup>49</sup> Norberto J. Salvia, *Maintenance of Highways in Argentina: National State and Private Activity*. (Asociacion Argentina de Carreteras, Buenos Aires, Argentina, 1996), p. 127.

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<sup>51</sup> Ibid., p. 128.

<sup>52</sup> Ibid., p. 121.

<sup>53</sup> Ibid., p. 129.

<sup>54</sup> Beth Rubenstein, "Argentina to Announce Runoff Winner," *Journal of Commerce* (January 22, 1998), p. 12-A.

<sup>55</sup> República Argentina Y Union De Bancos Suizas, *Concesion del Sistema Nacional de Aeropuertos, Pliego* (Buenos Aires, Argentina, June 10, 1997), pp. 25-26.

<sup>56</sup> Argentina Ministry of the Economy and Public Works, Secretaría de Obras Públicas y Transporte, *Compendio Estadístico del Sector Transporte en la Argentina, 1996* (Buenos Aires, Argentina, 1997), p. 27.

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<sup>58</sup> Anatoly Hochstein and Paul Kent, "Port Development Trends in Latin America," *Transportation Quarterly*, vol. 51, no. 2 (Spring 1997), p. 20.

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<sup>64</sup> Interview with Susana Kralich, CONICET, Ministry of the Economy and Public Works, Buenos Aires, Argentina, January 14, 1997.

<sup>65</sup> Pallares, “MERCOSUR Transportation Infrastructure,” p. 8.

<sup>66</sup> “Remapping South America: A Survey of MERCOSUR,” *The Economist* (October 12, 1996), p. 19.

<sup>67</sup> Ibid.

<sup>68</sup> Ibid.

<sup>69</sup> Juan Jose Taccone, *Integración en el Sector Transporte en el Cono Sur*, Interamerican Development Bank (Buenos Aires, Argentina, November 26, 1997), p. 2.

<sup>70</sup> “Remapping South America: A Survey of MERCOSUR,” *The Economist*, p. 15.

<sup>71</sup> Barna interview.

<sup>72</sup> Argentina Ministry of the Economy and Public Works, Secretary of Transportation, *Transporte y Medio Ambiente* (Buenos Aires, Argentina, September 1994), p. 2.

<sup>73</sup> García interview.

<sup>74</sup> Pallares, “MERCOSUR Transportation Infrastructure,” p. 18.

<sup>75</sup> Owen Lammers et al., *Considering the Hidrovía: A Preliminary Report on the Status of the Proposed Paraguay/Parana Waterway Project*, Working Paper Series, no. 3 (International Rivers Network, March 1994), p. 7.

<sup>76</sup> “Environmentalists Oppose Regional River Project in Southern Cone,” *Notisur* (September 19, 1997), p. 2.

<sup>77</sup> García interview

<sup>78</sup> Argentina Ministry of the Economy and Public Works, *Compendio Estadístico del Sector Transporte en la Argentina, 1996*, p. 28

<sup>79</sup> Pallares, “MERCOSUR Transportation Infrastructure,” p. 26.

<sup>80</sup> *Ibid.*, p. 25.

<sup>81</sup> *Ibid.*, p. 27.

<sup>82</sup> *Ibid.*, p. 23.

<sup>83</sup> *Ibid.*, p. 28.

<sup>84</sup> “Los Libertadores Project: Linkage Among Four Railways in Seven Latin American Nations,” *Buenos Aires Chronicle* (August, 1, 1991), p. 29.

<sup>85</sup> *Ibid.*

<sup>86</sup> Pallares, “MERCOSUR Transportation Infrastructure,” p. 20.

<sup>87</sup> Argentina Ministry of the Economy and Public Works, *Okita Report, Vol. VII, Introduction*, p. 6.

<sup>88</sup> *Ibid.*, p. 7.

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## Chapter 16. Brazil

### Overview

#### Geography and Resources

The Federal Republic of Brazil has great potential for economic growth and extensive trade operations because of its size and location. Only slightly smaller than the United States, Brazil stretches across more than 8.45 million square kilometers (km) of land, encompassing diverse geographic regions.<sup>1</sup> Brazil borders nine of eleven South American countries (Argentina, Bolivia, Columbia, French Guyana, Paraguay, Peru, Suriname, Uruguay, and Venezuela). Brazil's coastline along the Atlantic Ocean spans 7,491 km. The country is divided into 26 states and the Federal District of Brasília. Transport distances are considerable in Brazil, and without an integrated and cost-effective transportation system, the country will lag behind other South American countries in competitiveness and regional development.

Brazil's population in 1996 was estimated at 162 million, most of which was distributed along the coastal regions. The central area of Brazil has a low population density, less than one inhabitant per square km.<sup>2</sup> Brazil's size and varied geographic features contribute to a significant difference in population distribution and economic productivity between the northern and the southern regions. The north-northeast of Brazil has a population of 50 million and a gross domestic product (GDP) of \$60 billion, while the south-southeast of Brazil has a population of 90 million people and a GDP of more than \$400 billion.<sup>3</sup>

The population is represented by a bicameral legislative branch. The national Congress is composed of the Senate (81 seats) and the Chamber of Deputies (517 seats). The Congress adopts a budget biennially (1997-98), guided by a multiyear policy plan, *Plurianual Plan (Plano Plurianual)* for a four-year period. The 1996-1999 *Plurianual Plan* (PPA) appropriated \$85 billion for infrastructure investments, anticipating corollary investments of \$30.1 billion from the private sector.<sup>4</sup> The 1997-98 budget appropriated approximately \$4.6 billion for transportation projects, constituting 2.24 percent of the federal budget.

#### Economy

##### *The Real Plan: Economic Stability and Opening the Brazilian Market*

Brazil currently boasts the largest GDP in South America and a strong market potential. However, before the stabilization of Brazilian currency, high inflation rates marred the economy and deterred foreign investment.<sup>5</sup> In July 1994, the government introduced a new currency in its Real Plan. The new currency, the real (plural reais, 100 reais denoted as R\$100), was set to be roughly equivalent with the U.S. dollar. For the first two years

of the Real Plan, the real was more valuable than the dollar. As of July 1998, the real is valued less than the dollar. Accompanying the new currency was a comprehensive plan for reducing inflation and government spending, while encouraging growth in the Brazilian market. The Brazilian government developed policies for the liberalization of the economy during the early 1990s, initiating reforms to stabilize the economy. The reforms intended to

- integrate Brazil into the global market through modernization,
- reduce protective trade barriers between foreign and domestic competition,
- minimize governmental intervention in the economy, and
- use the market as the method to allocate resources.<sup>6</sup>

The Real Plan allowed Brazil to enter the world market by deindexing most prices in an emergency fiscal adjustment and adopting an initial fixed-exchange rate to abruptly decelerate inflation.<sup>7</sup> The plan proved to be successful, as indicated by the change in the inflation rate from a monthly rate of 50 percent in June 1994 to 1 percent in January of 1997.<sup>8</sup> The Real Plan marked a dramatic step in shifting Brazilian governmental policy from a primarily protectionist economic policy to the promotion of Brazil as an area for viable investment and growth in the global marketplace.

### ***Influx of Imports and Stimulated Economy***

The stabilization plan is based on three premises: strong currency, tight monetary policy, and fiscal restraint. After the federal government stabilized inflation, it lowered trade barriers, which resulted in a flood of imports (up 90 percent from 1994). Consumer demand rose in response to a stabilized economy and an influx of differentiated products. However, exports only increased 6 percent.<sup>9</sup> The government responded by tightening controls over fiscal policy and imposing high reserve requirements and credit restrictions, as well as raising import tariffs on durable consumer goods in March 1995. The government adopted tariffs up to 70 percent on automobiles and antidumping measures on imports from Taiwan and China to slow the import growth rate from 50.7 percent in 1995 to 7.3 percent in 1996.<sup>10</sup> Despite the temporary efforts to slow growth in 1995, the government did not impose tariffs on capital imports; therefore, investment continues to stimulate the economy.

### ***Doubts for Continued Stability and the 1997 Austerity Plan***

Although the Real Plan succeeded in curbing inflation, economists expressed doubts over the country's ability to maintain stability when facing an overvalued exchange rate and high interest rates.<sup>11</sup> In early 1996, the federal government reacted to such doubts by loosening monetary policy and relaxing credit restrictions. The Real Plan and a relaxed monetary policy combined to increase purchasing power and consumption throughout the

population. Increases in imports and domestic production began to satisfy the growth in domestic demand.

On November 10, 1997, President Fernando Henrique Cardoso responded to the economic instability of the Asian markets by initiating an austerity plan. The economic stagnation in the Brazilian market is predicted to increase unemployment to 16 percent. The austerity plan cuts the federal budget by \$4.7 billion in 1998.<sup>12</sup> Austerity measures eliminated a tax exemption for Brazilian import/export shippers, introducing a “level playing field” for both Brazilian and international cargo operators.<sup>13</sup> The implications of these adjustments may include further decreases in federal spending on transportation and infrastructure projects. Since the World Bank reports that the government suffers from inconsistencies in making payments for current infrastructure projects, the tightening of federal funds may cause the government to revise budget allocations for transportation improvements.<sup>14</sup>

### ***The Influence of Economic Policy on the Transport Sector***

Despite fluctuations in the market and high transport costs, freight transport has continued to grow. The current value added of the transport sector is approximately 4 percent of GDP. The total freight transport bill is 10 percent of the GDP, or \$680 million, in 1996.<sup>15</sup> Economic activity throughout the country and an increase in interregional commerce contribute to the demand for transportation. Although demand may be steadily rising in the transport sector, the government may disrupt this trend by failing to adjust its policies to accommodate for increased trade. Since Brazil has only recently initiated reforms to remove economic and administrative barriers to foreign trade, many of the protective barriers and bureaucratic systems are still in place. The federal government continues to impose taxes, fees, and commissions for the clearance of imports, adding substantial costs for trade.<sup>16</sup> Government officials in the customs area wield considerable power by collecting federal tax and certifying and clearing imports. The poor regulatory framework in the customs system allows for pervasive graft and theft. The government needs to adopt policies in order to manage the practical outcomes of liberalized trade. To support the trend in transportation and trade growth, the World Bank recommends that the government provide support for

- necessary legal and regulatory framework,
- aspects of pricing rules and practices in logistics operations, and
- adequate supply of transportation infrastructure.<sup>17</sup>

### **Transportation Infrastructure**

A summary of Brazil’s transportation infrastructure may be found in table 16.1.

**Table 16.1**  
**Transportation Infrastructure in Brazil**

Mode	Components	Statistics
Railways	Total	27,418 km (1,750 electrified)
	Broad gauge	5,730 km, 1.600 m gauge
	Standard gauge	194 km, 1.440 m gauge
	Narrow gauge	20,958 km, 1.000 m gauge, 13 km 0.760 m gauge
	Dual gauge	523 km 1.000 m and 1.600 m gauge
Highways	Total	1,661,850 km
	Paved	142,919 km
	Unpaved	1,518,931 km
Waterways	Total	50,000 km navigable
Pipelines	Total	6,899 km total
	Crude oil	2,000 km
	Petroleum products	3,804 km
	Natural gas	1,095 km
Major ports	Total	13
Merchant Marine	Total ships	207 (1,000 GRT or over)
	Total capacity	5,108,543 GRT/8,477,760 DWT
	Bulk ships	48
	Chemical tanker	11
	Container ship	14
	Combination oil/ore	12
	Passenger cargo	5
	Refrigerated cargo	1
	Roll-on/roll-off cargo	11
	Multifunction large load	1
	Liquefied gas tanker	11
	Cargo ships	29
Airports	Total	2,950
	Paved runways	Over 2,438 m in length: 24 (5 over 3,3037 m)
		1,524 to 2,437 m in length: 122
		914 to 1,523 m in length: 295
		Under 914 m in length: 1,298
	Unpaved runways	1,524 to 2,437 m in length: 60
		914 to 1,523 m in length: 549

Source: Data from Central Intelligence Agency (CIA), "Brazil," *World Factbook 1995*, CIA web site [cited January 27, 1998], available from: <http://www.ocdi.gov/cia/publications/nsolo/factbook/br.htm>; INTERNET.



## Highways

Highways are the predominant mode for transportation in Brazil. Private companies typically operate highway cargo transport throughout the country. Approximately 1.3 million trucks compose the cargo fleet.<sup>18</sup> The highway system transports approximately 57 percent of all cargo, with 370 million tons per km moved in 1996.<sup>19</sup> Brazil's highway system is equal to one-fifth of the paved highway system in France and one twenty-sixth of that of the United States. The heavy traffic and poor conditions of the roads cause bottlenecks and high accident rates.<sup>20</sup> The federal government has granted concessions for the operations and construction of highway projects to private investors and local governments to ameliorate the situation.

States are responsible for highway management under these new federal decentralization policies. Several states have begun their own privatization programs: Paraná, São Paulo, and Santa Catarina are among the first states to privatize highways.<sup>21</sup> Municipal governments play a very small role in the management of roads, primarily overseeing feeder roads to highways.

## Rail

The current Brazilian railroad system covers 27,418 km of track, down from 30,223 km in 1995.<sup>22</sup> In 1995, Brazilian railroads transported 260 million tons, most of which were transported privately. Private enterprise operates the majority of railroads throughout the country, taking over the management of formerly state-owned enterprises with vast rail holdings, such as Federal Railway Network (Rede Ferroviária Federal, S.A.—RFFSA), the National Steel Company (Companhia Siderúrgica Nacional—CSN), and the Vale do Rio Doce Mining Company (Companhia Vale do Rio Doce—CVRD). Before privatization, the RFFSA managed a rail system totaling approximately 22,000 km. In 1995, the CVRD alone carried 148 million tons of cargo (more than half of all cargo transported by rail) along its 1,978 km of rail, the majority of which is iron ore. The remaining rail cargo includes steel products, petroleum derivatives, lime, mineral charcoal, and grains. However, only 10 percent of Brazil's agricultural products move by rail.<sup>23</sup>

The federal rail system is divided into 12 noncompeting regions. Historical fragmentation among regions, gauge differences in track, and Brazilian geography combine to prevent the possibility of a single, unified network. For this reason, the government privatized the federal rail system into six concessions, each serving an independent market, with limited exchanges between lines (see table 16.2). Only 12 percent of all rail flow in the country involves exchanges between two or more rail subsystems. The rail system is predominantly used for short distances.

**Table 16.2**  
**Rail Concessions and Characteristics**

Concession	States Served	Characteristics
South (Sul)	Paraná, Santa Catarina, Rio Grande do Sul	6,586 km. Carries grain, soybeans, petroleum derivatives, sugarcane alcohol, cement, fertilizers, limestone, etc.
Southeast (Sudeste)	São Paulo, Minas Gerais, Rio de Janeiro	1,674 km. Iron ore, coal, limestone, sand, cement, and product steel carrier
Tubarão (Teresa Cristina)	Santa Catarina	169 km. Small rail line, coal carrier from mines to power plants.
Northeast (Feronorte)	Maranhão, Piauí, Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoás, Sergipe	4,679 km. Light density, mixed commodity carrier, operating in the poorest region of the country. Carries petroleum derivatives, sugarcane alcohol, aluminum, sugar, corn, wheat.
West (Novoeste)	São Paulo, Mato Grosso do Sul	1,621 km. Primarily transports petroleum derivatives, soybeans and soybean products, manganese, iron, and cement. Connects the agricultural region of Southern Brazil to Bolivia, also connects to Fepasa (São Paulo state rail line) for port destination (Santos).
Mideast (Centro-Leste)	Minas Gerais, Sergipe, Bahia, Goiás, Espírito Santo, Rio de Janeiro, Distrito Federal	7,080 km. Broad traffic mix carrying petroleum derivatives, limestone, cement, soybeans, sugarcane alcohol, and iron ore.

Source: Data from Federal Railway Network (Rede Ferroviária Federal S.A.—RFFSA), RFFSA web page [cited June 12, 1998], available from: <http://www.rffsa.gov.br/>; INTERNET.

In foreign trade, 95 percent of all cargo transport passes through ports on ocean vessels.<sup>24</sup> Despite this high figure, the World Bank reports that water-based transport options are underutilized because of high costs for container and bulk handling.

Inland waterway navigation is used to transport an average of 12 million tons of cargo to ports. The majority of this activity is concentrated in Porto Alegre, Rio Grande do Sul. Other inland waterway cargo concentrates around the Amazon region, primarily for the intercoastal movement of bulk commodities like crude oil (72 percent), minerals (17 percent), and salt (3 percent).<sup>25</sup>

## Transportation Policy

### Emphasis on Intermodal Transportation in Brasil em Ação (Brazil in Action)

On August 9, 1996, President Cardoso introduced the federal government's development program Brasil em Ação (Brazil in Action). Brazil in Action encompasses 42 high-priority projects and programs to be completed by 1999. Membership in Brazil in Action

guarantees federal government funding until the project is finished. In the case of Brazil, where macroeconomics, budget shortfalls, and politics often delay infrastructure projects for years, Brazil in Action is meant to establish the federal commitment to development. As 1998 is a presidential election year, it is also meant to link President Cardoso to an image of progress. With every Brazilian of voting age obligated to vote in the October elections, Cardoso is affixing his reelection campaign to each of the programs and projects in Brazil in Action. Brazil in Action covers transportation, energy, telecommunications, agriculture, housing, sanitation, health care, education, and tourism. Fourteen of the programs involve transportation improvements, including ports, rail, and highway projects with intermodal links. Table 16.3 lists the intermodal projects of Brazil in Action.

Brazil is pursuing these infrastructure projects to strengthen its economy and expand its role in the global market by clearing bottlenecks and accessing new markets. The PPA sets the policy for Brazil in Action, implementing the federal government's position that social and economic conditions throughout the country will improve with higher quality and levels of services.<sup>26</sup> The biennial budget for 1997-98 guaranteed the resources for funding individual projects by allocating \$4.6 billion.<sup>27</sup> The budget also provided for an Internet system allowing project managers to update each other and the Ministry of Planning on progress, measures to precisely define and convey project objectives to investors for maximum efficiency, and a promise to completely divulge all information regarding the progress of the projects and major decisions undertaken.<sup>28</sup> To serve the rising demand in consumption and maintain a developing market, Brazil must overcome the high costs of transporting cargo due to poor infrastructure. Brazil in Action demonstrates the federal government's commitment to develop and improve the national transport system in Brazil.

The transportation policies in Brazil in Action represent the latest manifestation of the federal government's privatization and decentralization efforts in infrastructure development. The director of the Development Division in the Ministry of Transportation and the minister of planning emphasize intermodalism in the selection of particular projects for Brazil in Action. The government implicitly prioritizes projects that develop and coordinate a transportation system, favoring those with connectivity to existing transportation infrastructure.

### **Efforts to Coordinate Planning**

Brazil in Action provides an example of innovative management style in transportation planning. The Ministry of Planning implemented an Internet online information system, connecting the participants involved in each project, to best determine the progress of the 42 projects. The system integrates the president, the cabinet, the ministries, and the entities operating the projects (either state, municipal, or private interests).<sup>29</sup> The managerial system allows the participants to make quick and well-informed decisions as the projects develop. The executive branch, the ministries, and the participants appoint a manager for each project by consensus, rather than using the traditional method in which one official unilaterally appointed a manager who was from the agency governing the project. This innovation in public administration ensures that the manager is an expert in

the project and qualifies as a strong decisionmaker. Managers have broad discretion and responsibility in implementing each project, coordinating with the governmental agency or concessionaire directly responsible for the execution of the plan. The government's shift away from centralized planning with this new process derives from planning's devolving and decentralizing nature, evidenced by the range of entities managing and implementing each project, including federal companies, private agents, state governments, multilateral credit institutions, and foreign governments.<sup>30</sup>

### **Intermodal Policy**

Despite coordination efforts, intermodal policy appears to be a piecemeal process due to the government's aggressive efforts to decentralize and privatize infrastructure. The process of developing a federal system of intermodal transportation involves coordination among private-sector, state, and federal projects. The stipulations in concessions and privatization contracts allow the federal or state government responsible for that sector to monitor project development. The federal government manages infrastructure projects through the Ministry of Planning, as mentioned previously.

The director of the Development Division in the Ministry of Transportation articulates the goals for intermodal transport. Current goals emphasize increasing connections between the national transport system and domestic ports, as well as connections to other countries.<sup>31</sup> The Development Division is also responsible for providing institutional support and for coordinating privatization of infrastructure and transportation systems.<sup>32</sup>

The regulatory framework for multimodal transport, governed by Law 6.288/75, defines multimodalism as transport activities involving different modes under the same contract.<sup>33</sup> This definition provides an insight into the difficulties that Brazil may face in implementing intermodal transportation projects. Each mode is governed independently, rather than by a single coordinating body, unless a unique contract explicitly includes several modes of transport. This regulatory system complicates the rights and obligations of freight transport operators and customers. The law's broad provisions fail to provide clear guidelines on the rules regulating intermodal freight movement.

### **States and Municipalities**

Privatization and concession proceedings vary depending on the level of government and the particular public service deregulated. To support states during the privatization process, the National Bank for Social and Economic Development (Banco Nacional de Desenvolvimento Economico e Social—BNDES) initiated the State Privatization Program (Programa de Estimulo à Privatização Estadual), which holds a rotating fund of \$1.3 billion. The primary mission of the State Privatization Program is to support state and municipal governments, when governmental entities must evaluate and identify potential projects. The program aids local governments in analyzing the viability of projects and financing schemes of potential concessionaires. It also authorizes the release of tax anticipation notes for local governments, while coordinating with both private and public

**Table 16.3**  
**Federal Master Plan “Brazil in Action” Projects**

Projects	Amount			Agents
	Total	Private	Other	
<b>Transportation</b>	4,640.8	1,726.0	2,914.8	
<b>Highway Projects</b>	1,783.8	82.0	1,701.8	
Paving of BR-174	127.0	-	127.0	DNER/MT-States of Amazonas and Roraima
Recovery of BR-364/163	53.0	-	53.0	DNER/MT
Road decentralization and recovery	550.3	-	550.3	DNER/MT
Duplication of Fernão Dias	453.8	-	453.8	DNER/MT-States of São Paulo and Minas Gerais
MERCOSUR Highway	599.7	82.0	517.7	DNER/MT
<b>Waterway Projects</b>	235.6	-	235.6	
Madeira River Waterway	15.6	-	15.6	Ahimor/MT
São Francisco River Waterway	2.0	-	2.0	Franava/MT
Tocantins-Araguaia Waterway	158.0	-	158.0	
Waterway (phase 1)	50.0	-	50.0	Ahita/MT
Paving of BR-153	40.0	-	40.0	DNER/MT
North-South Railroad	68.0	-	68.0	Valec/MT
MERCOSUR Inland Waterway	60.0	-	60.0	MT-Cesp
<b>Port Projects</b>	Amount			Agents
	Total	Private	Other	
Ports	1,928.4	1,144.0	784.4	
Suape	113.0	-	113.0	State of Pernambuco
Pecém	199.2	-	199.2	State of Ceará
Upgrading the Port of Sepetiba	311.9	144.0	167.9	MT-Private
Upgrading the Port of Santos	1,304.3	1,000.0	304.3	Private-CDSP-Fed. Gov.
Upgrading	1,000.0	1,000.0	-	Private
Terminal expansion	304.3	-	304.3	CDSP-Fed. Gov.
<b>Railroad Projects</b>	693.0	500.0	193.0	
Unaí-Pirapora Railroad Line	250.0	250.0	-	CVRD
Ferronorte	443.0	250.0	193.0	MT-Private-State of São Paulo
Railroad	250.0	250.0	-	Private
Road-railroad bridge	193.0	-	193.0	MT-State of São Paulo

Source: Data from Mauricio Serrão Piccinini, “The Concentration of Infrastructure Services in the Different Levels of Government Levels in Brazil and the Participation of the Private Sector,” *Revista do BNDES*, vol.3, no. 6 (December 1996, updated 1997), p. 110.

sectors to provide a funding package.<sup>34</sup> By the end of 1996, six states used the State Privatization Program and the BNDES resources for technical assistance.

## **Transportation Institutions**

### **Structure/Responsibility**

As shown in figure 16.1, Brazil's Ministry of Transportation consists of the Office of the Executive Secretary, the Legal Affairs Division, and an Advisory Council. The Office of the Executive Secretary oversees five divisions: Administration, Planning, Water Transportation, Ground Transportation, and Development.

The director of the Planning Division is responsible for the planning, coordination, and supervision of activities related to the federal planning system. Entities under the director of the Planning Division are the Department of Institutional and Technological Development, the Department of Economic Evaluation and Quality, and the Department of Transport Logistics.

The director of the Development Division is charged with establishing the goals for multimodal transport, with an emphasis on improving connections with ports and neighboring countries.<sup>35</sup> The Development Division also provides institutional support for the privatization programs of infrastructure and transportation systems. Privatization programs require that the Development Division articulate the needs of federal, state, and local governments, as well as private investors in the transportation sector.<sup>36</sup> However, the directors of Ground Transportation and Water Transportation Divisions monitor and implement concession and permitting processes in their own sectors.

The Ground Transportation Division comprises the Federal Railway Network, the National Highway Department (Departamento Nacional de Estradas Rodagem—DNER), and the Railroad Engineering and Construction Company (Engenharia e Construção de Ferrovias S.A.—VALEC).

The Water Transportation Division comprises the Department of Merchant Marines, the Department of Ports, and the Department of Interior Water Transportation. Administrations governing waterways are divided geographically. The Department of Ports, in the process of privatization, coordinates with the governing bodies for the states of Pará, Maranhão, Ceará, Rio Grande do Norte, Espírito Santo, Rio de Janeiro, São Paulo, and Bahia to monitor port activity. The Department of Ports is also involved in the development of port concessions of the Port of Paranaguá, the Port of Itajaí, and the Port of Rio Grande.<sup>37</sup>

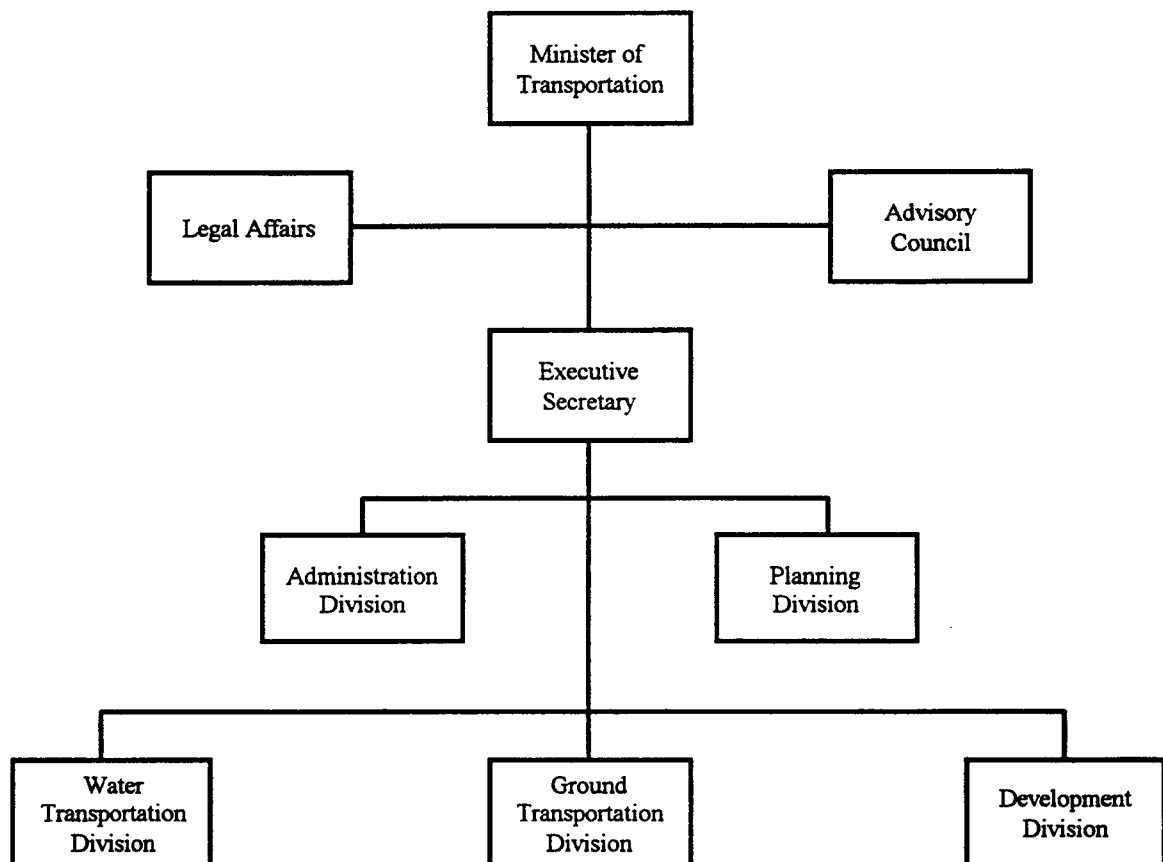
### **Indirect Organizational Support**

The Brazilian Transportation Planning Company (Empresa Brasileira de Planejamento dos Transportes—GEIPOT) is a public company that provides technical support in developing studies, surveys, and projects of particular interest to the Ministry of Transportation. The

Administrative Counsel of GEIPOT annually revises its agenda to initiate and review studies with particular relevance to governmental concerns. Current themes include privatization and concessions, operation and financing of infrastructure, urban transport systems, environmental issues, energy and transport, and transportation corridors.<sup>38</sup>

The Ministry of Planning oversees development and capital investment projects on a federal level. The Ministry of Planning coordinates with the Ministry of Transportation on infrastructure projects involving the transport sector.

**Figure 16.1**  
**Organizational Structure of Brazil's**  
**Ministry of Transportation**



Source: Adapted from Ministério do Transportes, "Estrutura," Ministry of Transportation web site (Brasilia [cited October 12, 1997]), available from: <http://www.transportes.gov.br/org.htm>: INTERNET.

## **Financing of Transportation Infrastructure**

The BNDES is attempting to establish models for funding and project finance, through which various levels of government may seek advice for infrastructure projects. The BNDES sets a policy agenda to highlight the importance of infrastructure quality within each state and to stress development of diverse services. The BNDES promotes this synergy as crucial to the development of the region.<sup>39</sup> Private investors are more attracted to large-scale federal projects; therefore, the government should encourage investment in small-scale, rural services.<sup>40</sup> In 1996, the BNDES appropriated \$9.5 billion to implement programs: 48 percent of the appropriated funds served to develop industrial needs, 7 percent went to agricultural development, and 35 percent were dedicated to infrastructure projects.<sup>41</sup> The budget and planning priorities of 1996-97 focused on increasing competition for export products in the open market.<sup>42</sup> In coordination with the federal Bank of Brazil (Banco do Brasil), the BNDES emphasized equal treatment of foreign and domestic capital in Brazilian investments by increasing the transparency of the governments' financial status and clearly establishing privatization goals. One of the projects incorporating the new treatment of foreign investment is the coordination of a project with the Eximbank of Japan, to increase the exchange between financial institutions of the two countries.

## **Deregulation and Privatization**

### **National Privatization Program (PND)**

Brazil began privatization efforts in the late 1980s, in an attempt to salvage companies suffering from financial difficulties. The Brazilian government did not intend for privatization to extend beyond the sales of minority shares until 1990, when the administration of President Fernando Collor (1990-92) initiated the National Privatization Program (Plano Nacional de Desestatização—PND).<sup>43</sup> The program's goals included eliminating redundant legislation, defining rules and regulations, stimulating the economy, and protecting consumer rights.<sup>44</sup> From its initial stages in 1990 to 1992, deregulation centered on strengthening antitrust laws and lifting barriers from the steel and fuel distribution sectors. The PND encouraged competition among ports by deregulating hiring practices for dock workers and permitting companies to use the docks for transporting third-party cargo. The PND began to include larger government-owned enterprises but still continued to limit participation by foreign investors until 1995.

In 1995, the government created the National Privatization Council (Conselho Nacional de Desestatização—CND) to coordinate the PND and accelerate the privatization efforts.<sup>45</sup> President Cardoso reformed the PND by restructuring the CND to serve on a cabinet level, chaired by the minister of planning, enabling a direct channel to the president. The BNDES was appointed to manage the funds for the PND. The BNDES also advises the CND in the selection and contractual process, supervision, and adjustments for company privatization.<sup>46</sup>



## **Key Legislation**

In 1995, the Brazilian Congress approved five amendments to the 1988 Constitution, endorsing privatization of previously strictly regulated areas. Key provisions in the amendments

- eliminated the distinction between national and foreign capital;
- opened state telecommunications;
- permitted private investment in petroleum and natural gas exploration, extraction, and refining; and
- expanded inland and coastal shipping operations to include foreign participation.

Constitutional amendments to articles 20, 21, 22, and 175 together define the policies aimed at granting concessions of public monopolies to private investors. These procedures are outlined below:

1. The president issues a decree declaring the company's inclusion in the PND.
2. Consulting services submit bids for auditing the privatized company.
3. The performance of the company is assessed after which privatization conditions are established.
4. The CND decides on the conditions of sale, for example, minimum bid and length of contract.
5. The CND submits requests for proposals.
6. The CND holds an auction (single sealed bid), offering shares to employees, and public offers follow.
7. The contract terms are settled.
8. The auditors submit a final report.
9. The CND announces the process's closure.<sup>47</sup>

## **Concessions**

The Law of Concessions (No. 8987, February 13, 1995) authorizes third parties to perform public services by investing at their own risk on behalf of the state and by receiving benefits from the collected charges from the public. This new method of financing public infrastructure projects is different from traditional means, such as financing through public user charges, capital grants from the national treasury, or debt to the public sector.<sup>48</sup> A 1996 constitutional amendment (article 192, item II) bolstered the

concession law by breaking the government's monopoly on reinsurance. The measure permits private companies to provide coverage to varying classes of liabilities potentially incurred in the development and investment of infrastructure projects. The law sets up a framework for the regulation of concessions and public utilities, with the bulk of the responsibility for concession regulation falling on state and local governments.

Legally, the concessions process requires bidding from interested investors. The bidding process serves to increase competition and raise the standards of the infrastructure project, reducing inefficiency. The goal of the concessions process includes realistic user charges, better quality in projects, and an increased transparency of services.<sup>49</sup> Historically, concessionaires received a fixed return on their total investment from the government as the public-service user charge. The new law sets price to be the determining factor for selecting a particular concessionaire. Concession contracts may take up to two years for completion; the contracts generally stipulate front-loaded infrastructure investments, scheduled over 20- to 50-year concession periods.<sup>50</sup>

The Law of Concessions does not prohibit a state from bidding for the project and allows a legal entity or a consortium of companies to demonstrate an ability to carry out the project. The criteria defining the quality and adequate service requirements are set individually for each concession, but the criteria must be quantified so that the granting authority can monitor the concessionaire's performance. The law defines adequate service as satisfying the conditions of regularity, continuity, efficiency, security, innovation (response to demand and current techniques and equipment), availability, courtesy, and moderate user charges.

The definitions of privatization and concessions in the transfer of governmental services to private holdings vary. Privatization is the transfer of assets previously owned by the government or the management of services and operations of an existing entity.<sup>51</sup> Concessions involve the government's contracting with private investors to construct or provide new services. The privatization goals of Brazil's programs incorporate both concessions and privatization, depending on the sector and the final contractual terms.<sup>52</sup> In the case of ports, the current trend in federal governmental policy is to decentralize management of the port to municipalities or to private terminal operators with concessions for up to 20 years. The Port of Santos exemplifies this relationship between the government and the private sector. The Ministry of Planning decentralized the administrative duties for the port to the state of São Paulo (Companhia das Docas do Estado do São Paulo) and granted terminal concessions to private interests for \$130 million.<sup>53</sup>

Overall, the promotion of private-sector investment in public companies resulted in yields of \$400 million from the sale of government shares and \$8.2 billion from auctions.<sup>54</sup> These figures do not account for the indirect benefits of privatization: tax receipts, new employment opportunities, improved productivity, and the private assumption of \$3.2 billion in outstanding debt.<sup>55</sup> Other studies estimate that the sales from privatization resulted in a total of \$9.7 billion since 1991.<sup>56</sup> Privatization of transportation is estimated to reduce transportation costs by 25 to 30 percent, bringing Brazil to the efficiency level

comparable to that of Argentina or the United Kingdom.<sup>57</sup> Of the \$85 billion marked for infrastructure projects from 1996 to 1999, \$30.1 billion came from private investments.<sup>58</sup>

To establish a consistent intermodal transportation system, the government now must create financial models and regulatory bodies. The entities must be in place to monitor private initiatives, to prioritize and standardize technological advances, and to protect consumer rights and the obligations of private industry.<sup>59</sup>

## **Transportation Infrastructure Planning**

### **Highways**

Fifty-eight percent of all freight transportation in Brazil is transported by highway.<sup>60</sup> During the 1950s, the Brazilian government emphasized growth in the country's interior, building Brasília as the capitol. The model used to develop the interior depended heavily on the creation of an extensive highway system, while ignoring all other modes of transport.<sup>61</sup> The planning focus of the 1950s promoted a rapid increase in highway transportation over the past four decades; however, limited government funds led to cuts in the maintenance and operational budgets for the highway system. Currently, 85 percent of Brazil's roads were constructed more than ten years ago.<sup>62</sup>

The poor conditions of the highways contribute to both human and economic losses. The National Highway Department (DNER) has estimated economic losses of \$5 to \$7 billion a year.<sup>63</sup> The federal highway system carries the most traffic; however, only 78 percent of the highway system is paved. Complicating things further, Brazil has very few four-lane divided highways equivalent to U.S. interstate highways. As a result, Brazilian road transport may cost users up to twice the value of their vehicle's worth in one year.<sup>64</sup> Accidents reported per year have reached 9,100 fatalities, due to the poor visibility on roads, a lack of signage, deteriorating infrastructure, and few pedestrian overpasses.<sup>65</sup>

In 1993, the DNER aggressively pursued infrastructure development by creating the Program for Federal Road Concessions. Under Law 9.277, any state, federal district, municipality, or consortium of these entities may gain equal access to federal highway concessions for a period not to exceed 25 years. The first stage of privatization initiated by this program included the Rio-Niterói Bridge connecting Rio de Janeiro and Niterói and the Dutra Highway running between Rio de Janeiro and São Paulo among the more lucrative sections.<sup>66</sup> This stage allowed the transfer of 854 km of highway to private initiative for the purposes of exploration, recuperation of costs, and development. Highway concessions under this program are granted for 25 years, allowing the investor to collect the initial proceeds from tolls to recuperate costs.<sup>67</sup> The first stage of concessions involved investments of \$871 million, with the BNDES funding \$354 million of the financing costs.<sup>68</sup>

The second stage of the privatization effort began in 1998 with the privatization of 7,084 km, 5,244 km of which were built with investments granted through concessions for the

maintenance, operation, and expansion of those particular roads.<sup>69</sup> The federal government transferred 2,920 km of highway in January 1998 to the states of Santa Catarina, Minas Gerais, Bahia, Goiás, and Pará, allowing the individual states to negotiate their own concessions.<sup>70</sup> The constituents of these government entities then decide whether to transfer the highway concession to a private investor or not.<sup>71</sup> The stretches of highway, less attractive to investors because of low rates of return and use, may return to the DNER for a federal bidding process for maintenance and operations concessions. The federal program set a goal to grant concessions for 17,247 km to private investors by the year 2000 (see table 16.4).<sup>72</sup>

**Table 16.4**  
**Highway Concessions**

<b>Program</b>	<b>Extension (km)</b>
Federal Roads Selected for Full Concessions	7,708.0
Federal Roads Selected for Conservation Concessions	4,755.0
Federal Roads Transferred to States for Concessions	5,406.0
<b>Total</b>	<b>17,869.0</b>

Source: Data from National Highway Department (DNER), "Informativo DNER," DNER web site (Brasília [cited October 12, 1997]), available from: <http://www.transporte.gov.br/dner/SCS/dner.htm>; INTERNET.

Concessions already receive public praise for improving efficiency in moving freight transport. For example, concession is attributed as raising the productivity of the Dutra Highway, the primary highway between São Paulo and Rio de Janeiro, by 20 percent.<sup>73</sup> The contract with Nova Dutra, the concessionaire, required the construction of five new overpasses in 1997 with an additional ten expected in 1998, providing pedestrian crossing at critical junctures.<sup>74</sup>

The Atlantic Coast corridor, which connects the southeast region of Brazil with other MERCOSUR countries, can facilitate freight movement between the ports of Rio de Janeiro, Espírito Santo, and São Paulo and the industrial manufacturing regions of Minas Gerais. The federal government initiated a program in 1994 to construct an alternative to an existing highway that connects Minas Gerais and São Paulo. The first stage of the program involves the construction of 270.7 km from Belo Horizonte to Nepomuceno.<sup>75</sup> The second stage involves an additional 292.2 km from Nepomuceno to Atibaia. The finance structure is shown in table 16.5.

**Table 16.5**  
**Funding Structure for the Minas Gerais-São Paulo Highway**

Investment Source	Stage I	Stage II
Interamerican Development Bank	50%	50%
Federal government	25%	25%
Minas Gerais	14%	20%
São Paulo	11%	5%

Source: Data from DNER, "Informativo DNER," DNER web site (Brasília [cited October 12, 1997]), available from: <http://www.transporte.gov.br/dner/SCS/dner.htm>; INTERNET.

The DNER also established the Program for Restoration and Decentralization of Federal Highways (Programa de Restauração e Decentralização das Rodovias Federais), which is expected to be completed in four years. The project will transfer the responsibilities for the federal highways to state governments to improve their maintenance and increase private-sector participation in their management.<sup>76</sup> The program costs \$1.25 billion, financed by the Interamerican Development Bank (IDB) and the World Bank contributing \$300 million each, while the federal government appropriated \$150 million for the completion of the first phase of the program. The second phase of the program entails an additional \$200 million from both international banks and \$100 million from the Brazilian government.<sup>77</sup>

Notwithstanding the willingness of international lending institutions to finance Brazilian infrastructure, the World Bank reported that inconsistent budgets and the inefficient execution of contracts between the public and private components of a concession have continually affected project implementation.<sup>78</sup> During the budgetary process, Congress may alter the individual allocations for specific road sections. The fluctuations in expected funds and the delays in transfers from the Brazilian Treasury should be streamlined for consistency in order to ensure efficient project implementation.

To improve the process of highway development programs, the Director-General of the DNER established a Project Coordination Committee (PCC) and a Project Management Unit (PMU) on January 22, 1997. Beginning in December 1997, a specialized management consultant will assist the PMU to work in conjunction with state highway departments and the federal engineering division to ensure that highways meet consistent designs, environmental standards, and safety regulations. The DNER also agreed to hire an international concessions consultant to assist the Concession Department within the DNER in order to avoid past mistakes. The Concessions Department previously suffered from a lack of detailed implementation plans, performance indicators, adequate project information, and timely contract procurement.<sup>79</sup> Outside consultants will bring in the experience necessary for establishing a network database that will include network condition surveys and enable the DNER to improve optimum expenditure strategies.

## **Rail**

Until recently, the federal government controlled the railroad system throughout Brazil. The Federal Railroad Department (RFFSA) operated under the authority of the Ministry of Transportation. The recently privatized Vale do Rio Doce Mining Company (CVRD) and National Steel Company (CSN) operated under the Ministry of Mining and Energy (Ministério de Minas e Energia). The CVRD and CSN each control segments of rail infrastructure essential to the supply and export of their products with the most notable stretch of track being CVRD's line running from the mines of Carajás in the state of Pará to the Maranhão Port of Itaqui. These lines have the best maintenance and infrastructure of any railroads in Brazil. After being privatized themselves, both the CSN and the CVRD have enhanced their transportation holdings by entering into consortia that have purchased segments of the RFFSA (see table 16.6).

The states control a minor portion of rail activities. The most influential state holding is São Paulo Railway (Ferrovia Paulista S.A.). The São Paulo Railway operates under the jurisdiction of the state of São Paulo and coordinates with the RFFSA.<sup>80</sup> Another network worth noting is the Paraná Railway (Ferrovia Paraná S.A.).

Because of current deteriorating conditions of federal rail infrastructure, rail freight transport adds 46 percent to the average cost of ground transport. Poor productivity and idle locomotives resulted in heavy financial losses for the railroad. The RFFSA has operated at a loss with an annual deficit of \$380 million over the past 15 years.<sup>81</sup> The railroad's dependence on subsidies and debts accumulated by borrowing against social security and employment retirement funds led the federal government to assume these debts in order to permit privatization.<sup>82</sup> As a result, the government now pays the RFFSA's \$1.5 billion debt to social security.

### ***Rail Privatization***

In 1996, the National Privatization Council (CND) divided the RFFSA into six regions for privatization.<sup>83</sup> The concessionaires accept a 30-year term of operations, with specific provisions and goals established in the contract. For example, the South's rail concession contract stipulated that the concessionaire invest \$1.3 billion in the next 30 years, \$276 million of which must be invested in the first 5 years, to increase productivity by 60 percent and decrease accidents by 40 percent.<sup>84</sup>

New operators hire consultants to improve efficiency and salespersons to procure new customers, along with purchasing insurance to protect their assets. These kinds of investments increase demand for the improved services. The first privatized railroad, Baurú-Corumbá, earned a profit within the first ten months with minimal investment.<sup>85</sup> The privatization of the six rail systems has already resulted in the reduction of accidents by 50 percent and a growth in train movements to ports by 4.5 percent.<sup>86</sup>

**Table 16.6**  
**Rail Concessions**

<b>Railroad</b>	<b>Minimum Bid (R\$ millions)</b>	<b>Actual Bid (R\$ millions)</b>	<b>Date of Auction</b>	<b>Concessionaire</b>
South	158	216.6	12/13/96	Ferrovias Sul-Atlântica comprising Varbra, Railtex, Ralph Partners, Judore, and Interf�rrea
Southeast	888.9	888.9	10/20/96	MRS Log�stica comprising MRS Log�stica, Cosigua, CSN, Ferteco, Interf�rrea, MBR, Ultraf�rtil, and Usiminas
Tubar�o	16.6	18.5	11/22/96	Ferrovias Teresa Cristina composed of consortium led by Banco Interfinance
Northeast	11.46	15.8	7/18/97	Companhia Ferrovi�ria do Nordeste comprising CSN, CVRD, Bradesco, and Vicunha Group
West	60.2	62.36	3/5/96	Ferrovias Novoeste comprising Noel Group (U.S.)
Mideast	316.9	316.9	6/14/96	Ferrovias Centro-Atl�ntica comprising CVRD, Banco Garantia, MPE, Judori, CSN, Interf�rrea, Railtex, and Ralph Partners

Source: Data from Federal Railway Network (Rede Ferrovi ria Federal S.A.—RFFSA), RFFSA web site [cited June 12, 1998], available from: <http://www.rffsa.gov.br/>; INTERNET.

### ***Challenges to Rail Privatization***

The Northeast rail line demonstrates the potential problems of privatization efforts. The Northeast network was leased to a consortium of Brazilian investors formed by the CSN, Grupo Vicunha (textiles), CVRD, and Bradesco (banking) for R\$15.8 million on July 18, 1997.<sup>87</sup> A private entity, Itamaraty, initially leased the Northeast network of 4,600 km of track for \$14 million.<sup>88</sup> However, the company suffered from financial crises after beginning the construction of a 3.7 km bridge over the Paran  River, interrupting the construction of a link from Mato Grosso to S o Paulo in December 1995. The project was reinstituted this year, with an expected completion date of August 1998. The new concession guarantees the resources to continue the project, as well as creates links to five

agricultural areas in the north and the central northeast regions.<sup>89</sup> The railroad projects will continue; however, the government's infrastructure plan was delayed. The high costs and risks of major investments like transportation infrastructure contribute to instability in the private market. A private entity may not absorb changes in the market as well as the federal government. When public services are subjected to this kind of change and the potential for a series of different operators, the quality of service may fall.

As rail investors survey the conditions of the lines, the procurement of quality equipment to modernize facilities may be problematic. Rail owners turn to foreign suppliers to serve the needs of the lines; however, suppliers complain that import restrictions continue to limit business and exploitation of the newly privatized lines.<sup>90</sup> Costs of importing rail equipment may be twice the normal price. In the case of Mideast rail line, Ferrovia Centro-Atlântica, the consortium that purchased a 30-year concession for \$315 million (R\$316.9 million) in 1996, received only 230 active locomotives out of 394.<sup>91</sup> The company must invest \$360 million over the next five years to upgrade the railroad's infrastructure to a level that will enable the company to carry container traffic on flatcars with intermodal options.

## **Ports**

Since Brazil's coastline stretches for 7,491 km and the majority of the population is concentrated along the coastal regions, improvements in port capacity and coastal navigation may be the best strategy for cost-effective transportation.<sup>92</sup> Coastal navigation and inland waterways are the lowest-cost option for overland transport at half the cost of rail and a fourth the cost of highway transport.<sup>93</sup>

By constitutional mandate, the federal government is responsible for managing all port services. However, the government may grant a concession of its obligations to states or private entities through a public bidding process. Enacted in May 1996, Law 9.277 allows the government to delegate port authority to municipalities and states.<sup>94</sup> The majority of the southern ports operate under concessions to the states.<sup>95</sup> Paranaguá in Paraná, Rio Grande and Porto Alegre in Rio Grande do Sul, and São Francisco do Sul in Santa Catarina exemplify large harbors operating under this system. The largest ports in the country are Santos in São Paulo, Rio de Janeiro and Sepetiba in Rio de Janeiro state, and Vitória in Espírito Santo. These four all operate as public ports, managed by harbor companies. Other ports may be large-scale, bulk-cargo ports proprietary to major industries like the steel and mining companies CSN and CVRD.

The National Privatization Program includes the objective to privatize a total of 31 ports. Seven of these ports already have been privatized. The first stage of the privatization program includes Cabelo in Paraíba, Itajaí and Laguna in the state of Santa Catarina, and Porto Velho in Rondônia. The second stage of the program will privatize the ports in Recife, Maceió, and Manaus. The program first delegates the overall authority of the ports, then privatizes the actual terminals.<sup>96</sup> To accommodate shipping and container movement, most ports require the modernization of equipment to store and transfer



containers, improve the capacity of piers, and to dredge channels and maintain sea bottom conditions.<sup>97</sup>

### ***Nongovernmental Planning Organizations***

Ports, navigation companies, and unions formed a private nonprofit organization called the Consortium of MERCOSUR's Atlantic Corridor to facilitate the integration of MERCOSUR countries.<sup>98</sup> The goal of the consortium focuses on the transfer of 10 million tons of cargo from the intercoastal highway network to a coastal navigation system. The ports initiated the organization to take advantage of the governmental privatization of port facilities in South America. The tasks assigned to the participants include

- acting as coordination centers between local inland transportation networks and coastal navigation by organizing a local, integrated, multimodal transportation system monitored by the port;
- fostering associations among ports along the coast to promote integrated operations between port facilities; and
- acting as a trade and investment promotion center.<sup>99</sup>

### ***Brazil in Action Port Projects***

#### ***Port of Sepetiba***

Located in Rio de Janeiro state, the Port of Sepetiba provides access to European and North American markets, which the government seeks to penetrate. Inaugurated in 1998, three projects for the port will provide

- 540 additional meters to the length of the pier for the movement of cargo containers,
- 150-square-meter holding area for loading and unloading of containers, and
- 18.5 additional meters in depth for the canal.<sup>100</sup>

The Ministry of Transportation has already invested R\$242 million in the port's improvements and anticipates that the project will cost R\$351 million in total.<sup>101</sup> The improvements will permit ships with greater capacity to enter the port by providing two berths, allowing 400,000 containers to pass each year.<sup>102</sup> Upon completion, the cargo volume will increase to 30 million tons within the next five years. The port's proximity and connections by rail and highways to Rio de Janeiro, Belo Horizonte, São Paulo, and Vitória provide an excellent location to increase development in the southeast region of the country.

### *Port of Santos*

In December 1999, the Brazilian government will initiate Tecon 2, an extensive container terminal with a pier of 310 meters in width to complement Tecon 1.<sup>103</sup> This particular development is within the overall program to restructure the Port of Santos by 2001. By the year 2000, the port will move 500,000 containers of general cargo per year. Tecon 1 is currently leased to a private investor. Tecon 1 and 2 terminals will increase the efficiency of the port. Currently, Santos transports 36 million tons of cargo per year; the improved terminals will enable 60 million tons to pass through annually.<sup>104</sup> The government expects to provide concessions for the terminals and allow private companies to manage the movement of cargo until the internal costs of operation decrease.<sup>105</sup>

### *Port of Suape*

Situated 45 km south of Recife, in the northeast region of Brazil, Suape is able to receive “full container” ships, with a holding capacity of 4,000 containers.<sup>106</sup> Current projects focus on completing the dredging of an internal port, to move cargo within the northeast, at a cost of R\$172 million.

Suape provides an example of a public/private partnership, in which the infrastructure of the port is public, while private entities manage the port.<sup>107</sup> President Cardoso predicted that the project will be completed by December 1998; however, in January 1998, the project was already behind schedule and expected to delay beyond the targeted completion date.<sup>108</sup> Delays are commonplace to Suape, a project originally conceived by the state of Pernambuco to be constructed between 1974 to 1979.

### *Port of Pecém*

Also projected for completion in December 1998, the Port of Pecém will be developed into an alternative to the Port of Mucuripe, in the city of Fortaleza, Ceará. The federal government and the state of Ceará joined in the planning and investment of an industrial complex in Pecém, anchored by the construction of a port complex. Since Mucuripe is located within the confines of a large urban city, the port has reached its limits for expansion. Pecém’s connections to highway and rail lines may increase efficiency for cargo movement, without the delays and problems associated with a large metropolitan area. The government’s role at Pecém involves building targeted infrastructure for private companies that seek to locate at the Pecém Industrial Park or use the port.

## **Waterways**

According to the World Bank, “the operating costs per ton of water transport is generally hard to beat.”<sup>109</sup> However, the current capacity of Brazil’s waterway system hinders its capability to transport freight for low-operational costs. A scarcity of modern technologies, such as roll-on/roll-off, lighter aboard ship, and containerization prevent Brazilian interior ports from consolidating cargo efficiently and optimizing the frequency

of sails.<sup>110</sup> The Brazil in Action program creates three projects for waterway development, intended to improve interior port capacity.

#### *Madeira Waterway (Hidrovia do Madeira)*

Operating since 1997, the completion of the Madeira Waterway ensures that the large soy crops of the Amazon region do not have to cross overland from the north to the southern Port of Santos for exportation during the dry season. The Madeira project improves the condition of 1,056 km of the Madeira River, from Porto Velho in Rondônia to Itacoatiara in Amazonas.<sup>111</sup> From Itacoatiara, the cargo may be exported to North America and Europe. The Ministry of Transportation estimates that freight costs will be reduced by 30 to 50 percent by creating the waterway.<sup>112</sup> The improvements will also improve the transportation of passengers along the river and interior cities of the region. The predicted completion date of the project is in 1998, when signaling and logistics systems are finalized.<sup>113</sup>

#### *São Francisco Waterway (Hidrovia do São Francisco)*

The primary goal of the São Francisco Waterway is to allow continuous navigation along 1,371 km between Minas Gerais and Bahia, in the central and northeast regions of Brazil. Most of Bahia, Minas Gerais, and adjoining cities in Sergipe, Alagoás, and Pernambuco will benefit from the project. The project will increase the volume of cargo transport by 8 million tons, providing a faster method to transport soy and wheat crops, manganese, and gypsum produced in the area.<sup>114</sup> The project cost is \$11 million. As mentioned previously, the São Francisco project suffered from delays and environmental problems.

#### *Tocantins-Araguaia Waterway (Hidrovia Tocantins-Araguaia)*

The Tocantins-Araguaia Waterway's completion date is in 1999, with a cost of R\$222.4 million. The project's goal is to promote the export of agricultural products originating in Mato Grosso, Goiás, Tocantins, Pará, Maranhão, and Bahia to the world market.<sup>115</sup> The waterway includes a corridor for multimodal transport, linking central Brazil to the ports in the north. A rail line of 120 km will connect to the waterway, as well as another project, a road of 156 km linking to the Port of São Luis.<sup>116</sup> The Port of Belém may also be integrated into the project, to transport cargo for export to Europe and Asia.<sup>117</sup> The central plain area of Brazil continues to lag in development; therefore, the project also carries social and economic benefits to the region through potential jobs and increased mobility.

#### *MERCOSUR Inland Waterway (Hidrovia Tietê-Paraná)*

At the end of January 1998, the completion of a lock construction in Jupia expanded navigation on the MERCOSUR Inland Waterway by 700 km south along the Paraná River.<sup>118</sup> The remainder of the project will be completed in 1998 at a cost of R\$60 million. The waterway is a tremendous infrastructure project with connections to Paraguay, expanding MERCOSUR trade in other markets by connecting cargo originating

in Buenos Aires to competing ports at Santos and Paranaguá. The projects will create 2.4-million km of navigable river to carry both cargo and passengers, reducing costs of movement between countries.<sup>119</sup>

The Tietê-Paraná navigational system will allow river barge traffic to pass from Itaipú, at the juncture of the Paraná and Paraguay Rivers, to the Itumbiara hydroelectric power plant (1,000 km north) and to Paracicaba (200 km northwest of São Paulo). The project is currently under development to construct a lock at the São Simão dam site, now the northernmost point of barge traffic, 200 km short of Itumbiara.<sup>120</sup> Barges still cannot reach the southern destination of São Paulo, without two additional locks, at Jupia and Barra Bonita dam sites and a dredging of the river bottom for rocks. To create an intermodal corridor, two rail links will connect to the São Paulo Railway at Paracicaba and run between Campinas to Jacarei.<sup>121</sup> The region contains a high proportion of agricultural and mineral products. The Brazilian government estimates that the MERCOSUR Inland Waterway will reduce freight costs considerably, from \$9 to \$20 per ton, depending on the destination.<sup>122</sup> The government projected the cost of the system to be R\$60.8 million, with the completion of the Jupia lock in January 1998 and the complementary works to be completed within the year.<sup>123</sup>

## Technological Developments

Logistics operations in Brazil lag behind other countries in technology and innovation. A basic level of raw infrastructure is necessary to support even a minimum of logistics operations. Since Brazil lacks a certain number of multimodal connections and rapid low-cost interchanges, the cost of logistics operations is extremely high.<sup>124</sup> Most countries use third-party service providers to act as brokers between carriers and the owners of cargo to

- consolidate shipments,
- schedule capacities,
- combine several modes of transport into a single “bill of lading” for one coverage liability, and
- facilitate all documentation, insurance coverage, and compliance measures of each transaction.<sup>125</sup>

## Customs and Clearance

Although MERCOSUR provided for joint customs operations and a standardized common form, the Brazilian government has not incorporated these procedures into current legislation. Brazil's policies set high restrictions on entry; therefore, only two commercial entities hold licenses to act as third-party service providers, or multimodal transportation operators. The government requires that a firm be registered and retain capital in order to be licensed.<sup>126</sup> The licensing procedure for agents to clear customs also slows the process

of bonded-cargo movement. The contract to carry freight, the bill of lading, is divided under separate modes, rather than a single international cargo bill. Other countries eliminated this problem by adopting standard international documentation, but Brazil has yet to implement this system.

Brazil recently prioritized trade-facilitation objectives of maximizing revenue collections in customs by developing a computer-based clearing system, the Foreign Trade Information System (SISCOMEX).<sup>127</sup> Implemented in January 1997, the system consolidates outdated and inadequate customs procedures. New legislation also reduced congestion at entry points by granting third-party carriers the right to sell internal clearance and bonded storage systems to cargo owners. Forty contracts have been authorized by the federal government to use this system; however, the process for becoming operational has delayed the opening of the storage systems. The terminals must file a "customs project" application for the transfer of customs employees to the new location.<sup>128</sup>

### **A Lack of Technology for Logistics Information Systems**

In 1991, the Informatics Law placed restrictions on all technology, imposing high tariffs on imports and creating tax incentives for companies that use Brazilian-manufactured products. Law 8666, passed in 1993, prohibited discrimination based on nationality or origin during the bidding process for governmental procurement, but the law excludes the informatics area. Preferences remain for digital-electronic goods produced in Brazil, along with local telecommunications and computer products. The Software Law of 1987 requires that all software programs be cataloged before introduction to the commercial market and that all software run on Brazilian hardware. This law has limited logistics programs and the development of sophisticated monitoring of cargo transport. A draft law recently proposed to Congress could eliminate cataloging and distribution requirements to allow for improved digital data-exchange networks.<sup>129</sup>

The networks of electronic data provide logistics information systems with links to all trading partners involved in specific industries, distribution channels, or commodity markets. A standardized format of information is required to create an information hub that provides new information, while distributing information along the connected network. The Brazilian Trucking Association and SISCOMEX are examples of preliminary efforts toward a system; however, there is not a system in Brazil to date that connects one mode to another.<sup>130</sup>

## **Obstacles to Multimodal/Intermodal Development**

### **Standardization and Oversight**

Although extensive federal governmental reforms to increase privatization and implement concessions may contribute to improvements in current economic growth, these reforms may impose a price on the government through the costs of developing regulatory bodies to monitor services, researching private investors' financial security, and diversifying all

funding.<sup>131</sup> The government needs a system to regulate the engineering and design features of private and publicly funded infrastructure projects for the incorporation of each project into a national (and international) multimodal system. The government will have to carefully set standards to coordinate one project with another in terms of carrying capacity, intermodal exchanges, and compatible links. Oversight and auditing procedures must be adopted to ensure that safety standards are met and that privatized operations attain certain performance measures. Without systemic standards for assessing a concessionaire's performance, privatization initiatives will fail to meet the government's goals of serving the public.

Since each bill of lading is specific to individual modes of transportation, instead of an international single bill of lading, neither the public nor the private sector may accurately monitor the movement of freight transport. This disadvantage prevents the collection of information for indicators that may help future planning investments and improvements in transportation corridors.

Rural areas and underdeveloped regions of the country in particular present challenges to concessions and privatization efforts, because they require governmental support to initiate offers that will attract private investment and creative funding options. The government may face a lack of competitive bids for concessions in areas that have a low service-utilization rate or a poor economy. Without substantial governmental oversight and involvement, projects may be dominated by investors who do not have an incentive to maintain an adequate level of services in these areas. The government may need to prepare methods to seek diversified financing structures for these areas in order to create incentives for investors to maintain high-quality services at a moderate cost.

Another problem in managing concessions is the need for effective monitoring of complicated contracts. Since concession contracts vary in terms and requirements, the governing body of a particular project must stay abreast of all contract conditions and stipulations for a project to be efficient. For this reason, the government faces the challenge of creating regulatory bodies to standardize and regulate the operation of privatization initiatives at all levels of government.

### **Labor Issues**

The federal government passed the Port Reform Law 8630 in 1993, establishing the framework for port privatization. After the Real Plan stabilized the economy and the Congress passed legislation to open trade barriers, imports flooded the Brazilian market through the country's ports. Ports have become more lucrative and attractive to private investors. President Cardoso created the Executive Group for Port Modernization (Grupo Executivo de Modernização Portuária—GEMPO) to oversee the implementation of the privatization law in 1995.<sup>132</sup> GEMPO-regulated central labor halls, operating in each port, represent labor interests and collective bargaining between port operator associations and labor units. Current law requires severance payments to port workers; in port concession programs, this expense has now shifted from the port operators' responsibility to the government.<sup>133</sup> Although the federal government tried to assuage labor concerns about

privatization through this government-insured severance pay, organized port workers still challenge privatization efforts because of fears of labor workforce reductions. The severance pay lifted the inflexible labor regulations that added to the high costs of operations in Brazil, but this measure benefited private investors more than labor. The strength of labor organizations in both the Congress and in the daily operations of a port may prove to be a substantial challenge to port concessions and to the development of multimodal operations.

Santos provided an interesting example of how labor issues have affected investors. The port was served by two railways, the privatized MRS network and the state-owned Fepasa (privatized in September 1997). The two rail lines fed into the port on a network of high-quality, dual-gauge track; however, the port employees and the rail employees belonged to different unions. The locomotives switched crews at the gate, causing an average delay of six days.<sup>134</sup>

Private terminal concessions create an atmosphere of greater competition between terminals for reductions in costs and increases in productivity. Private concessionaires shifted from paying employees a salary to per-diem rates. This change has led to discontent among workers and concerns for job security. In December 1997, port laborers in Santos went on strike to protest the continuing privatization of container terminals.<sup>135</sup> The weeklong strike reduced the number of operational ships to four during the height of the southbound shipping season. Despite the strike, Santos completed a record year, as the busiest port in South America, handling 38 million tons of cargo in 1997.<sup>136</sup>

The Ports of Rio de Janeiro, Salvador, and Recife potentially may challenge Santos's success. Two Brazilian companies, Grupo Libra and Multiterminais Alfandeganos do Brasil, also won concessions for container terminals in Rio de Janeiro. These ports may potentially face labor conflicts similar to those that occurred in Santos.

Rail lines may also suffer from labor issues spawned from privatization. The Mideast rail network consortium initially reduced operating costs by downsizing the workforce from 7,772 employees to 3,841 within one year.<sup>137</sup> The Northeast network reduced the number of its employees by half. At the same time, this railroad invested in new technology to increase worker productivity from 145 workers installing 100 ties a day to 25 workers installing 800 ties a day.<sup>138</sup> Although these changes may prove profitable for the investors, internal conflict with labor may arise, especially since foreign investment is a factor in both cases.

### **Custo Brazil (Brazil Cost): The Price of Poor Infrastructure**

Identified as one component of the "Brazil Cost" (Custo Brasil), the cost of poor infrastructure is measured in terms of high shipping rates, the loss of output due to slowed economic growth, and subsidies intended to offset transport prices.<sup>139</sup> High accident rates and frequent freight robberies also contribute to the Brazil Cost. On average, a ton of grain transported to a port costs as much as \$25-\$40, whereas the rate to transport that

same ton would cost only \$9 in the United States.<sup>140</sup> A comparison between Brazil and Argentina reveals that the movement of 300 containers in the Port of Santos is \$190,000 in contrast to \$98,000 in the Port of Buenos Aires, Argentina.<sup>141</sup> The heavy reliance on land cargo and trucking systems in Brazil may account for some of this high cost. Brazil transports 58 percent of all freight on a highway system equal to only one-fifth of the paved highway system in France and one twenty-sixth of that of the United States.<sup>142</sup> The heavy reliance on trucking and poor highway infrastructure create bottlenecks and severe delays due to accidents. As previously stated, the BNDES estimated that \$5-\$7 billion has been lost because of impassable roads.<sup>143</sup> Critics also identify the changes in customs tariffs as another area contributing to overall inefficiency and waste.<sup>144</sup>

By promoting private investments in infrastructure development, certain regions of the country may suffer from the lack of investment appeal and a low potential for investment returns. Without certain governmental incentives, private companies may not invest in the areas that need new infrastructure projects the most. The conflict between government's ability to deliver services to satisfy the people's needs and the limited availability of funds present a situation in which certain infrastructure sectors, like energy, telecommunications, and transportation, benefit from private investment, while other sectors lag behind because of a lack of investors' interest.

## **Finance**

According to IDB and World Bank estimates, Brazil will need at least \$1 billion a week to maintain and modestly expand electricity, water and sewage systems, telephones, ports, airports, railways, and roads.<sup>145</sup> Despite the size of this sum (disaggregated into yearly requirements of \$24 billion for power projects, \$14 billion for transport, \$10 billion for telecommunications, and \$19 billion for water and sewage systems), the improvements in infrastructure still will not bring Brazil up to par with the United States, which has eight times more infrastructure stock per person than does Latin America.<sup>146</sup> Up to one-quarter of the estimated sums can be financed through private investment under current law; nevertheless, investment falls short of that figure because of the complexities of negotiations and the difficulties in structuring the financing of the deals (especially in regard to the low returns for financing debt).<sup>147</sup> Because of the large amounts of capital required for infrastructure development projects, the sheer quantity of resources devoted to the projects, and the slow maturation rates for most investments, private investment may be the most effective method to finance infrastructure projects. However, there is the need for the government to create conditions to ensure that infrastructure projects attain the social and economic goals.

While it is clear that Brazil courts foreign investment in transportation infrastructure, another obstacle to multimodal development is privatization itself. Will the world buy what Brazil is selling? Is there enough interest to even bid on what Brazil offers? The federal government's expenditures on readying state-owned enterprises for privatization may end up with a negative result if no entity offers a minimum bid. For this reason, the schedule and organization of privatizations are of critical importance. Evident in the railway privatizations, two of six RFFSA rail lines sold for the minimum bid.



## **Environment**

Poor environmental regulation on infrastructure projects has led environmental organizations to file claims in Brazilian courts, delaying the completion of waterways and navigation systems in São Francisco, Madeira, and Tocantins-Araguaia. Slated for completion in 1997, a São Francisco dam project was halted because of a lack of necessary environmental precautions required for licensing.<sup>148</sup> An action brought against Tocantins-Araguaia claiming that the dam crosses through a reserve and that the project directors failed to procure the proper authorization from Congress delayed the completion of the dam indefinitely.<sup>149</sup> Madeira suffered from problems in approving permits, and, when they were approved, the rainy season prevented initial operations.

## **Multimodal/Intermodal Projects**

The four-year development plan, as adopted in the PPA provides for six multimodal corridors budgeted for \$54 billion (composed of federal funds as well as \$12.8 billion from private investors and \$3.7 billion from multinational banks).<sup>150</sup> The corridors integrate Brazil in Action projects with privately operated projects, state initiatives, and existing federal projects to create a coordinated system. The corridors are scheduled for completion by 2001, with at least two years for the government to reform transportation and logistics systems to permit full integration.<sup>151</sup>

### **North-South Corridor**

The private sector will invest \$250 million in the Ferronorte rail line, and the government will contribute \$193 million in the Rail Bridge (Ponte Ferroviaria) to link the agricultural states of Rondônia and Acre with Mato Grosso, Mato Grosso do Sul, and São Paulo. The bridge connecting the state of São Paulo with Mato Grosso do Sul will extend for 3,700 meters over the Paraná River.<sup>152</sup> The bridge will have two levels, joining the Ferronorte tracks (Northern railroad) with Fepasa (the state of São Paulo's rail system). More than half of Brazil's agricultural crops are produced in this central region; hence, the project concentrates on the development of better freight transport to nearby ports, Santos and Sepetiba. The bridge will be opened in April 1998 according to the Ministry of Transportation.

### **Central North Corridor**

Private international investors, Grupo Maggi, entered into a contract worth \$59 million to improve the Port of Itacoatiara, near Manaus along the Amazon River. The private investment will form an intermodal corridor when linked to the Brazilian government projects of the Madeira Waterway and Highway 364 (BR-364). Improving the highway between the areas, called Chapada dos Parecis in Mato Grosso to Rio Branco in Acre, will permit access to the riverine network of the Amazon and the major export ports of Manaus and Belém through the Port of Porto Velho in Rondônia.<sup>153</sup> The region of Chapada dos Parecis boasts the largest grain production per hectare in the country;

therefore, reduced transport costs will allow greater exploitation of the area. The highway improvements also will reduce distances by 1,600 km between the region and ports to the south. The project completion date is scheduled for December 1998. The cost of the project is \$60 million.<sup>154</sup>

### **Northeast Corridor**

The northeast corridor includes the construction of highway and rail connections to the Ports of Petrolina in Pernambuco state and Juazeiro in Bahia state. The corridor will allow for increased cargo transport within and between northeastern Brazilian states. This corridor includes the São Francisco Waterway. Petrolina-Juazeiro plays host to one of the most technologically advanced areas of irrigated agriculture. Any improvement in the transportation network greatly facilitates the transport of fruits and vegetables produced there. Connectivity with a regional rail network, the Transnordestina, and its eventual linkage to the Port of Suape will provide an alternative for highway access to the ports along the Atlantic Ocean.

### **West MERCOSUR Corridor**

The expansion of the MERCOSUR Highway will create a four-lane highway that doubles existing capacity from São Paulo, through the capitals of Paraná and Santa Catarina, to the border in Rio Grande do Sul. The IDB and the Eximbank of Japan financed \$2.1 billion for the completion of the roadway.

Linking Brazil's largest Ports of Rio Grande, São Francisco, Itajaí, Paranaguá, and Santos, highway improvements from São Paulo to Osório may become a portion of an international highway connecting the MERCOSUR countries.<sup>155</sup> Current projects budgeted in the PPA for \$2.2 billion include increased signaling and safety precautions along the highway, to reduce the rate of accidents and fatalities.<sup>156</sup> The portion of road from São Paulo to Florianópolis will be 80 percent completed by December 1998, with continuation to Osório, Rio Grande do Sul, complete by June 2000.<sup>157</sup>

### **Belo Horizonte-São Paulo Corridor**

The traffic along the highway between São Paulo and Belo Horizonte, from freight trucks, buses, and private cars, cause the Fernão Dias Highway (Rodovia Fernão Dias) to be considered the most dangerous road in Brazil.<sup>158</sup> The construction of another highway that runs parallel to this route will increase safety by reducing traffic volume. The additional highway is also expected to decrease transit time, gasoline consumption, and freight costs by providing an alternative highway. The first stage of the project ended in November 1997; the second and third stages will be completed by December 1998. The project is budgeted at a total of \$1.084 billion.<sup>159</sup>

### **Rio Paraná-Itaipú Corridor**

This corridor project involves the link of the MERCOSUR Inland Waterway through Paraguay to Buenos Aires and improvements of the Itaipú dam along the Paraguay border.

In January 1998, completed lock construction in Jupiá extended the MERCOSUR Inland Waterway by 700 km south along the Paraná River.<sup>160</sup> The remaining stages of the project will be completed in 1998 at a cost of \$60 million. The overall goal of the project is to connect the waterway to Paraguay in an effort to increase trade within and outside MERCOSUR. Once extended to Paraguay, the waterway will provide a route for cargo originating in Buenos Aires to the Port of Santos.<sup>161</sup> To create an intermodal corridor, two rail links will connect to the São Paulo Railway at Paracicaba and run between Campinas to Jacarei.<sup>162</sup>

### **Lessons Learned**

After implementing extensive privatization measures, the Brazilian government must shift its role in the transport sector to adopt creative policies and to promote economically beneficial infrastructure, while limiting its participation in investment projects and commercial activities. The government's first priority is to establish adequate transportation infrastructure, with intermodal links and container terminals. A "Master Plan" for infrastructure development has been adopted in Brazil in Action, but the Ministry of Transportation must refine incentives for private investors in order to develop particular regions targeted for growth. The federal government's role should focus on communication between the public and private sector to ensure that both areas share common goals and perspectives on future multimodal development. The Internet online planning system to coordinate federal, state, and private-sector activities on project development may prove to be a solution for maintaining transportation objectives.

Another method for accomplishing this goal of communication between the private and public sectors is the clarification and simplification of the government's right to intervene. Reforming regulatory laws and providing the administrative support necessary to carry out those laws will facilitate trade and investment in the transport sector. The implementation of SISCOMEX in the customs system is a step in the right direction for monitoring and consolidating trade practices for multimodal transport. But a single, international bill of lading will further improve customs operations and multimodal freight movement. If the government also allows the private sector to negotiate labor contracts and prices for private terminal operations and shipping agents, then competition in the private sector may lower the current high costs of transport.

## Notes

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<sup>4</sup> Mauricio Serrão Piccinini, "A Infra-Estrutura nas Diferentes Esferas do Setor Publico e a Participação da Iniciativa Privada," *Revista do BNDES*, vol. 3, no. 6 (December 1996), p. 79.

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<sup>17</sup> Ibid., p. 10.

<sup>18</sup> Brazilian Embassy, "Transportation—Public Service Concessions," Brazilian Embassy in Washington web site (Washington, D.C. [cited September 18, 1998]), available from: <http://www.brasil.emb.nw.dc.us/ppub4pg.htm>; INTERNET.

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<sup>23</sup> Ibid, p. 5.

<sup>24</sup> Ibid, p. 86.

<sup>25</sup> Ibid.

<sup>26</sup> Speech by Antonio Kandir, Minister of Planning and Budget, to the Meeting of the Government Council (Reunião do Conselho do Governo), Brasília, Brazil, September 8, 1996.

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<sup>64</sup> World Bank, “Wanted \$1 Billion a Week,” World Bank Group Press Release No. 97/1387/LAC, World Bank web site [cited June 13, 1997], available from: <http://www.worldbank.org/html/extdr/extme/1387.htm>; INTERNET.

<sup>65</sup> DNER, “Informativo DNER,” p. 2.

<sup>66</sup> Piccinini, “A Infra-Estrutura nas Diferentes Esferas do Setor Público e a Participação da Iniciativa Privada,” p. 92.

<sup>67</sup> Mello and Gall, “Crossroads of Transportation,” p. 4.

<sup>68</sup> Piccinini, “A Infra-Estrutura nas Diferentes Esferas do Setor Público e a Participação da Iniciativa Privada,” p. 91.

<sup>69</sup> Ibid.

<sup>70</sup> Oswaldo Baurim, Jr., “Obras São Aceleradas para FHS Inaugurar,” *Folha de São Paulo* (January 9, 1998), p. 1-8.

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<sup>72</sup> Ibid.



<sup>73</sup> Mello and Gall, "Crossroads of Transportation," p. 4.

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<sup>75</sup> Ibid.

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<sup>79</sup> Ibid., p. 25.

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<sup>81</sup> Mello and Gall, "Crossroads of Transportation," p. 6.

<sup>82</sup> Ibid.

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<sup>90</sup> Kevin Hall, "New Head of Privatized Rail Line in Brazil Banking on Experience," *Journal of Commerce* (June 18, 1997), p. 4B.

<sup>91</sup> Ibid.

<sup>92</sup> CIA, "Brazil," p. 3.

<sup>93</sup> Batista da Silva, "Infrastructure for Sustainable Development and Integration of South America," p. 41.

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<sup>97</sup> Batista da Silva, "Infrastructure for Sustainable Development and Integration of South America," p. 42.

<sup>98</sup> Vivacqua and Stehling, "A Logistic Project for South America's Integration," p. 5.

<sup>99</sup> Ibid.

<sup>100</sup> Ministry of Transportation, *Brasil em Ação*, (Brasília, D.F., August 1997), p. 5 (pamphlet).

<sup>101</sup> Baurim, "Obras São Aceleradas para FHS Inaugurar," p. 7.

<sup>102</sup> Ministry of Transportation, *Brasil em Ação*, p. 5.

<sup>103</sup> Ibid., p. 6.

<sup>104</sup> Ibid.

<sup>105</sup> Ibid.

<sup>106</sup> Ibid., p. 7.

<sup>107</sup> Ibid.

<sup>108</sup> Baurim, "Obras São Aceleradas para FHS Inaugurar," p. 6.

<sup>109</sup> World Bank, "Brazil: Multimodal Freight Transport: Selected Regulatory Issues," p. 12.

<sup>110</sup> Ibid., p. 12.

<sup>111</sup> Ministry of Transportation, *Brasil em Ação*, p. 9.

<sup>112</sup> Ibid.

<sup>113</sup> Baurim, “Obras São Aceleradas para FHS Inaugurar,” p. 3.

<sup>114</sup> Ministry of Transportation, *Brasil em Ação*, p. 10.

<sup>115</sup> Ibid., p. 11.

<sup>116</sup> Ibid.

<sup>117</sup> Ibid.

<sup>118</sup> Baurim, “Obras São Aceleradas para FHS Inaugurar,” p. 7.

<sup>119</sup> Ministry of Transportation, *Brasil em Ação*, p. 12.

<sup>120</sup> Batista da Silva, “Infrastructure for Sustainable Development and Integration of South America,” p. 42.

<sup>121</sup> Ibid.

<sup>122</sup> Ministry of Transportation, *Brasil em Ação*.

<sup>123</sup> Ibid.

<sup>124</sup> World Bank, “Brazil: Multimodal Freight Transport: Selected Regulatory Issues,” pp. 9-11.

<sup>125</sup> Ibid., pp.19-20.

<sup>126</sup> Ibid., p. 19.

<sup>127</sup> Ibid., p 20.

<sup>128</sup> Ibid., p 22.

- <sup>129</sup> U.S. Department of State, *1996 Country Report on Economic Trade and Trade Practices*, p. 6.
- <sup>130</sup> World Bank, "Brazil: Multimodal Freight Transport: Selected Regulatory Issues," p. 24.
- <sup>131</sup> Piccinini, "A Infra-Estrutura nas Diferentes Esferas do Setor Publico e a Participação da Iniciativa Privada," p. 97.
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- <sup>134</sup> *Ibid.*
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- <sup>138</sup> *Brazil Watch*, vol. 14, no. 11 (June 9-23, 1997), p. 11.
- <sup>139</sup> Mello and Gall, "Crossroads of Transportation," p. 1.
- <sup>140</sup> Ministry of Transportation, *Brasil em Ação*, p. 5.
- <sup>141</sup> Nubia Ferro, "A Sangria Desatada do Custo Brasil," *Revista CNT* (April 1996), pp. 29-33.
- <sup>142</sup> DNER, "Informativo DNER," p. 6.
- <sup>143</sup> Mello and Gall, "Crossroads of Transportation," p. 1.
- <sup>144</sup> Ferro, "A Sangria Desatada do Custo Brasil," pp. 29-33.
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- <sup>146</sup> *Ibid.*, p. 1.

<sup>147</sup> Ibid., p. 2.

<sup>148</sup> Confederação Nacional do Transporte, “Dificuldades Nos Rios,” *Revista CNT*, vol. 3, no. 28 (August 1997), p. 39.

<sup>149</sup> Ibid.

<sup>150</sup> Thurston, “Brazil Redrawing Maps of Transport Corridors,” p. 3C.

<sup>151</sup> Ibid.

<sup>152</sup> Ministry of Transportation, *Brasil em Ação*, p. 13.

<sup>153</sup> Ibid., p. 16.

<sup>154</sup> Ibid.

<sup>155</sup> Ibid., p. 18.

<sup>156</sup> Ibid.

<sup>157</sup> Ibid.

<sup>158</sup> Ibid., p. 14.

<sup>159</sup> Ibid.

<sup>160</sup> Baurim, “Obras São Aceleradas para FHS Inaugurar,” p. 7.

<sup>161</sup> Ministry of Transportation, *Brasil em Ação*, p. 12.

<sup>162</sup> Batista da Silva, “Infrastructure for Sustainable Development and Integration of South America,” p. 42.



## **Chapter 17. North American Free Trade Agreement**

### **Overview**

The North American Free Trade Agreement (NAFTA), which took effect January 1, 1994, is a detailed, broad-based pact governing trade between the United States, Mexico, and Canada. It covers a three-nation market of 390 million people (1996), a combined gross domestic product (GDP) of \$8.55 trillion in 1995, and a geographical area of 8.15 million square miles.<sup>1</sup> The objectives of the agreement are to eliminate barriers to trade, promote conditions of fair competition, increase investment opportunities, provide adequate protection for intellectual property rights, and establish effective procedures for implementation of the agreement and for resolution of disputes.

NAFTA's 22 chapters are consistent with the General Agreement on Tariffs and Trade (GATT) and incorporate most of the provisions of the 1989 U.S.-Canada Free Trade Agreement.<sup>2</sup> Each nation affirmed its rights and obligations under the GATT (now superseded by the World Trade Organization) and other international agreements. For purposes of interpretation, NAFTA establishes that it takes precedence over other agreements to the extent that conflict arises but provides for exceptions to this general rule. As an example, the provisions of certain environmental agreements take precedence, subject to a requirement to minimize inconsistencies with NAFTA.

### **Institutional Structure**

The central institution of NAFTA is a trilateral Free Trade Commission (FTC), comprising ministers or cabinet-level officers designated by each country. The FTC regularly reviews trade relations among the member countries and discusses specific problems. To assist the FTC, NAFTA created a Secretariat, as well as other subsidiary bodies, to provide administrative and technical support. In turn, the FTC is authorized to create bilateral or trilateral panels, as appropriate, of private-sector experts to resolve disputes over the interpretation of the agreement.<sup>3</sup>

The dispute-settlement procedures are designed to provide expeditious resolution of disagreements. Whenever any matter arises that affects a country's rights under NAFTA, it may request consultations involving member countries. If consultations fail to resolve the matter within 30 to 45 days, any member may call a meeting of the FTC to use its good offices to resolve disputes through mediation, conciliation, or other means of alternative dispute resolution. If a mutually satisfactory resolution cannot be reached in one of these manners, then any consulting country may initiate panel proceedings.

Unless the disputing parties decide otherwise, within 90 days of a panel's selection, the panel will present a confidential initial report, after which 14 additional days are allotted to

provide comments to the panel. Within 30 days of the initial report, the panel will present its final report to the countries concerned. Countries that win a dispute may demand trade compensation, if the losing country does not comply with the panel's recommendation.<sup>4</sup>

### **Side Agreements**

Three side agreements were negotiated in addition to NAFTA. The side agreements focus on environmental cleanup and enforcement, labor rights, and the snap-back provision (protection against national industry demise due to imports).

The side agreement on the environment established a Commission for Environmental Cooperation on which each country is represented. The commission is responsible for monitoring compliance with environmental laws in each country. The side agreement also established the North American Development Bank and the Border Environment Cooperation Commission (BECC). The former's purpose is to finance projects certified by the BECC and to provide support for community adjustment and investment. The BECC's purpose is to work with affected states, local communities, and non-governmental organizations in developing effective solutions to environmental problems in the U.S.-Mexico border region.<sup>5</sup>

The side agreement on labor established a Commission for Labor. This commission is responsible for monitoring compliance with labor laws. The commission can appoint special panels to investigate complaints and recommend sanctions or fines if a country refuses to enforce its own laws. Sanctions or fines can be imposed only if a long process of consultation fails to resolve the dispute.<sup>6</sup>

The third side agreement, the snap-back provision, pertains to import surges as a result of NAFTA. This provision permits a member country to "snap-back," reverting to pre-NAFTA tariff rates for up to three years, if increased imports seriously threaten to injure a domestic industry.<sup>7</sup>

## **Key Trade and Investment Provisions**

### **Market Access**

NAFTA provides for the progressive elimination of all tariffs on goods qualifying under its rules of origin. For some sensitive items, tariffs are to be phased out over a period of up to 15 years. For most goods, however, customs duties were either phased out immediately or in five or ten equal annual stages. Indeed, on January 1, 1994, Mexico eliminated tariffs on roughly 50 percent of all industrial goods imported from the United States. This action included some of the most competitive U.S. products, such as machine tools, medical devices, semiconductors, computer equipment, and telecommunications and electronic equipment.

The agreement also provides for the elimination of nontariff barriers and restrictions that distort trade, such as import licenses and quotas. Nevertheless, each member country



maintains the right to impose restrictions in limited circumstances, for example, to protect the life or health of humans, animals, energy, and textiles.<sup>8</sup>

### **Rules of Origin and Customs Administration**

NAFTA requires that “duty free goods be produced in North America and not assembled from imported components.”<sup>9</sup> These rules of origin benefit U.S. workers and firms. Mexico and Canada cannot be used as export platforms into the U.S. market. This provision prevents parties from benefiting through minor processing or transshipment of non-NAFTA goods.

Another provision commits the three parties to change their customs administration, so as to implement uniform customs procedures and regulations. These new procedures ensure that exporters, who market their product in more than one member country, do not have to adapt to multiple customs administrations.<sup>10</sup>

### **Investment**

The agreement eliminates investment conditions that restrict the trade of goods and services to Mexico. For the first time, U.S. investments in Mexico are accorded the same treatment as foreign investments in the United States. Before NAFTA, Mexican law subjected U.S. investors to significant performance requirements, including “geographic location restrictions, financial and foreign-currency-balancing requirements, and the requirement to generate permanent employment and use adequate technology.” In addition, Mexico is required to liberalize its former scheme of having the Mexican Foreign Investment Commission screen all foreign investments. Foreign investments of only \$25 million or more will be screened, rising to \$150 million after a decade.<sup>11</sup>

### **Intellectual Property**

The intellectual property chapter of NAFTA establishes a new international standard for protection of trademarks, copyrights, patents, trade secrets, industrial designs, and the like. Member countries are required to provide adequate and effective protection of intellectual property rights on the basis of national treatment and to implement effective enforcement of those rights against infringement.<sup>12</sup>

### **Government Procurement**

NAFTA also regulates government procurement. It gives U.S. suppliers access to the Mexican government procurement market. In addition, government procurement provisions apply to contracts for services and construction, which is particularly important because continued growth in Mexico will result in infrastructure upgrading. Therefore, many new opportunities will be created for U.S. companies to participate in modernization efforts. NAFTA also provides the commitment for fair and open procurement competition. It guarantees this commitment through transparent and predictable procurement procedures.<sup>13</sup>

## **Key Transportation Provisions**

### **Motor Carrier Access and Ownership**

NAFTA created a timetable for the removal of barriers to the provision of cross-border trucking services. On December 18, 1995, the United States and Mexico were scheduled to allow U.S. and Mexican motor carriers access to the other country's border states for the delivery and backhaul of international cargo. And, by the year 2000, U.S. and Mexican motor carriers were to be allowed cross-border access to any point in the respective countries. This liberalization process, however, does not extend to lifting prohibitions against the participation of foreign motor carriers in the domestic cargo markets of member countries.<sup>14</sup>

December 18, 1995, also marked the date on which U.S. and Canadian motor carriers were to be allowed to make investments, equivalent to 49-percent equity ownership, in Mexican motor carriers that transport international cargo. Permitted foreign equity ownership in Mexican trucking operations is scheduled to rise to 51 percent in the year 2001 and to 100 percent in the year 2004. Moreover, on December 18, 1995, the U.S. was scheduled to permit Mexican motor carriers to form Mexican-owned or -controlled subsidiaries in the U.S. to transport international (but not domestic) cargo.<sup>15</sup>

Neither government has carried out the provisions scheduled for implementation on December 18, 1995. Shortly before the implementation date, U.S. Secretary of Transportation Federico Pena announced that the U.S. government was taking unilateral action to postpone increased cross-border access until U.S. concerns are addressed over the safety and security of Mexican trucks. Hence, Mexican trucks engaged in cross-border operations will continue to have access only to U.S. commercial zones along the border. While NAFTA permits the U.S. government to restrict Mexican trucks for safety reasons after December 18, 1995, many believe that the postponement decision was made to gain support of organized labor for the Clinton administration in an election year. Moreover, making progress on implementing the investment provisions is, in all probability, dependent on resolving the delay in cross-border motor carrier access.<sup>16</sup>

### **Bus Access**

At the beginning of 1994, the United States and Mexico eliminated all cross-border restrictions on charter and tour buses. The elimination of restrictions on regularly scheduled buses was to have occurred in January 1997, but this action also awaits resolution of motor carrier access to border states. Similarly, the Mexican government has delayed implementation of the bus investment provisions, which permit U.S. and Canadian investment in Mexican bus companies that follows the same NAFTA investment timetable applicable to motor carriers.<sup>17</sup>

## **Rail Transport**

NAFTA grants U.S. and Canadian firms the right to own and operate rail terminals and some private spur lines, bring in their own locomotives, market their services, and finance infrastructure in Mexico. Mexico will continue to have full access to U.S. and Canadian rail systems. On the other hand, "Mexico retains the exclusive right to operate, administer, and control traffic within the Mexican railway system; supervise and manage railway right-of-way; and operate, construct, and maintain basic railway infrastructure."<sup>18</sup>

## **Ports**

Mexico agreed to immediately allow 100-percent U.S. and Canadian ownership in, and operation of, Mexican port facilities: cranes, piers, terminals, and stevedoring companies that handle their own cargo. As for companies handling cargo belonging to others, 100-percent U.S. and Canadian ownership is allowed after screening by the Mexican Foreign Investment Commission. In turn, Mexico continues to be allowed full participation in the U.S. and Canadian port activities.<sup>19</sup>

## **Land Transportation Standards Subcommittee**

NAFTA established a Committee on Standards-Related Measures to help the three countries monitor and implement the agreement's four subcommittees, including the Land Transportation Standards Subcommittee (LTSS). These subcommittees were formed to address specific issues. The LTSS established five working groups to standardize rules and procedures in the following areas: compliance (driver and vehicle standards); vehicle weights and dimensions; traffic control devices for highways; rail safety; and hazardous materials standards. The LTSS meets once a year to discuss overall progress. The first plenary session was held on July 12, 1994, in Cancún, Mexico.<sup>20</sup>

## Notes

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<sup>2</sup> Gary Hufbauer and Jeffrey Schott, *NAFTA Assessment* (Washington, D.C.: Institute for International Economics, 1993), p. 2.

<sup>3</sup> Trade Point USA, Paul, Hastings, Janofsky & Walker, "Nafta Administration and Dispute Settlement Procedures, 1992, 1993" [cited December 10, 1997], available from: [http://www.i-trade.com/diro7/book/ch18\\_20.html](http://www.i-trade.com/diro7/book/ch18_20.html); INTERNET.

<sup>4</sup> Ibid.

<sup>5</sup> Foreign Trade Information System, "Chapter 4: The North American Environment: Cooperation, Institutions, and Enforcement" [cited February 23, 1998], available from: [http://www.sice.oas.org/forum/p\\_sector/govt/nafta\\_repe/nafreptc.stm](http://www.sice.oas.org/forum/p_sector/govt/nafta_repe/nafreptc.stm); INTERNET.

<sup>6</sup> Hufbauer and Schott, *NAFTA Assessment*, pp. 28-29.

<sup>7</sup> Office of NAFTA and Inter-American Affairs, "NAFTA Key Provisions" [cited January 25, 1998], available from: <http://www.itaiep.doc.gov/nafta/3001.html>; INTERNET.

<sup>8</sup> Ibid.

<sup>9</sup> Ibid.

<sup>10</sup> Ibid.

<sup>11</sup> Ibid.

<sup>12</sup> Ibid.

<sup>13</sup> Ibid.

<sup>14</sup> United States-Mexico Chamber of Commerce (USMCOC), "Transportation" USMCOC web site [cited March 9, 1998], available from: <http://www.usmcoc.org/transp.html>; INTERNET.

<sup>15</sup> Ibid.

<sup>16</sup> Ibid.

<sup>17</sup> Ibid.

<sup>18</sup> U.S. International Trade Commission (USITC), *Potential Impact on the U.S. Economy and Selected Industries of the North American Free Trade Agreement*, Report to the Ways and Means Committee of the U.S. House of Representatives and the Committee on Finance of the United States Senate on Investigation No. 332-337 Under Section 332 of the Tariff Act of 1930. USICT Publication 2596 (January 1993), p. 40-3.

<sup>19</sup> Ibid.

<sup>20</sup> Texas Department of Transportation, *Land Transportation Standards Subcommittee: First Quarterly Report to the Texas Legislature* (Austin, Texas, September 1995).



## Chapter 18. Mexico

### Overview

#### Geography and Resources

Mexico is bordered to the north by the United States and to the south by Belize and Guatemala. Baja California in the west, an 800-mile (1,287-kilometer) peninsula, forms the Gulf of California. The Gulf of Mexico lies to the east and the Bay of Campeche, which is formed by Mexico's other peninsula, the Yucatán, is also to the east. Mexico's coastline extends 9,330 kilometers (km). It has a total area of 1,972,550 sq. km and is about three times the size of Texas.<sup>1</sup> Mexico's terrain consists of a high plateau, in the center, with mountain chains on the east and the west and with oceanfront lowlands lying outside the mountains. These rugged mountains reach altitudes as high as 5,400 meters (18,000 ft).

Mexico has an estimated 1996 population of 95,772,462. About 70 percent of the population live in urban areas. These urban areas are a draw for people from rural areas, who lack job opportunities. It is estimated that about 20 million people reside in the area around the capital, Mexico City.<sup>2</sup> Other major cities are Guadalajara, Monterrey, Puebla, and León. In addition, many cities bordering the United States, such as Tijuana and Ciudad Juárez, are experiencing increasing population growth. Mexico is divided into 31 states and a federal district, Mexico City. Each of the 31 states has considerable autonomy, with a popularly elected governor, a legislature, and a local judiciary.<sup>3</sup> The mayor of Mexico City is also elected. At the federal level, the 1917 Constitution, framed after a revolution, established a federal republic with executive, legislative, and judicial branches.

One-fourth of Mexico's labor force is concentrated in the agricultural sector. This sector has been slowly improving with innovations, such as major irrigation projects. The country's primary export crops are cotton, coffee, sugar, and tomatoes. Other crops include corn, wheat, sugarcane, beans, and citrus fruits. In addition, raising livestock and fishing are important to the national economy. Mineral resources include petroleum reserves, zinc, sulfur, silver, antimony, copper, and manganese. Another 25 percent of the labor force is employed in the industrial sector. Industries produce iron and steel, motor vehicles, engines, processed foods, petroleum and petrochemicals, chemical fertilizers, and other products.<sup>4</sup> Mexico also relies heavily on tourism to boost its economy. From the United States alone, Mexico receives an estimated \$5.7 billion in tourism.

#### Economy

In 1995, Mexico's gross domestic product (GDP) was \$721.4 billion.<sup>5</sup> Primarily a service economy, services accounted for a 63.1 percent share of GDP, followed by industry (28.4

percent) and agriculture (8.5 percent). In this regard, the Mexican government launched its national program PRONAFIDE to

- attain a GDP growth rate higher than 5 percent, consistent with the annual growth rates of the labor force;
- create and strengthen domestic sources of financing on a permanent and sustained basis;
- prevent future vulnerability to external capital flows;
- maintain a stable macroeconomic environment; and
- improve social welfare.<sup>6</sup>

### ***Growth of Border Zone Economy***

According to the 1983 Agreement for the Protection and Improvement of the Environment in the Border Area, the U.S.-Mexico border area is defined “as the area lying 100 kilometers (62 miles) to the north and south of the 3,141 kilometer (1,952 mile) U.S.-Mexico boundary.”<sup>7</sup> Six Mexican states border the United States: Baja California, Sonora, Chihuahua, Coahuila, Nuevo León, and Tamaulipas. In these border areas, cheap labor and proximity to the U.S. consumer markets have given rise to a dynamic maquiladora sector that originally manufactured or assembled components for electronic consumer durables, such as television sets, then shipped them to the United States for finishing or sale.

As a result of the North American Free Trade Agreement (NAFTA), there was an expansion of the maquiladora sector throughout the border areas of Mexico during 1996.<sup>8</sup> The number of maquiladoras is now calculated to be more than 2,500, of which 70 percent are located in the border area. Now, fewer than half of these border maquiladoras manufacture electronic equipment, materials, and supplies. In fact, the maquiladora sector has greatly diversified and expanded, producing a variety of petroleum, metal, transportation, medical, and other products. From January to November 1997, maquiladora exports increased 21.3 percent.

Although economic growth in the border region is welcome, infrastructure is inadequate to meet transportation needs. The most important method of transporting goods in the border area is by trucks. The growth of rail shipments also contributes to increases in border traffic.

### ***Relation to NAFTA Partners***

The United States is Mexico’s dominant trading partner, accounting for 84 percent of Mexican exports and 76 percent of Mexican imports.<sup>9</sup> The United States is the leading foreign investor, in 1996 accounting for 60 percent of all foreign direct investment in



Mexico.<sup>10</sup> The U.S. imports petroleum, cars, and coffee from Mexico. Top U.S. exports to Mexico are motor vehicle parts, office equipment, and agricultural products.

Mexico's exports to the United States increased 80 percent between 1993 and 1995. From 1995 to 1996, Mexican exports increased 20.4 percent. In 1996, three years after NAFTA, two-way trade between these two countries had risen 60 percent from 1993. In gross dollars, trade between Mexico and the United States had reached \$131.08 billion in 1996, an increase of 21.35 percent from 1995.<sup>11</sup> By November 1997, the two-way trade total had increased to \$143.94 billion.

Mexican-Canadian trade has also increased substantially since the passage of NAFTA. Motor vehicles and equipment, in addition to electronics, are the main Mexican exports to Canada. Since 1993, there has been a 61-percent increase in exports to Canada. Imports from Canada include electronics, agriculture and livestock, and chemistry and derived products. In the aggregate, Mexican-Canadian trade increased 58.8 percent in the first three years since the implementation of NAFTA, rising from Canadian \$4.5 billion to Canadian \$7.2 billion.<sup>12</sup> As a foreign direct investor, Canada principally targets activities involving the industrial sector, financial sectors, commerce, and mines and extraction. Canadian investment in Mexico accounted for 7 percent of total foreign direct investment from January 1994 to June 1996, making Canada the third largest investor in Mexico.

## **Transportation Infrastructure**

Mexico has experienced difficulties in creating an integrated transportation network because of its physical diversity and developing economy.<sup>13</sup> The federal government is committed to modernizing infrastructure and services, deregulating and developing more-efficient transport systems, and increasing privatization.<sup>14</sup> Table 18.1 highlights transportation infrastructure in Mexico as of 1995.

### **Highways**

The highway system constitutes the principal means for transporting goods and people. The highways connect to prominent centers of production, such as state capitals, municipalities, urban and rural areas, ports, and airports. All major roads lead to Mexico City. More than five million vehicles travel daily over 21 percent of the highways.<sup>15</sup> In the past years, the volume of transit has increased gradually.

### **Rail**

The railway system connects principal cities with agriculture, mineral, and industrial centers, as well as ports and airports. In 1994, the railway system transported 52.1 million tons of cargo, which is 15 percent less than the total volume of domestic land cargo. Transport of foreign cargo accounts for more than 40 percent of the total amount of rail freight.<sup>16</sup> The railway system also transports 7.2 million passengers.

**Table 18.1**  
**Transportation Infrastructure in Mexico**

Mode	Components	Statistics
Railways	Total	20,567 km
	Standard gauge	20,477 km, 1.435 m gauge (246 km electrified)
	Narrow gauge	90 km, 0.914 m gauge (1994)
Highways	Total	245,433 km
	Paved	88,601 km
	Unpaved	156,832 km (1993 est.)
Waterways	Total	2,900 km navigable rivers and coastal canals
		53,004 km total
Pipelines	Crude oil	28,200 km
	Petroleum products	10,150 km
	Natural gas	13,254 km
Major ports	Total	15
Merchant Marine	Total ships	51 (1,000 GRT or over)
	Total capacity	875,314 GRT/1,245,932 DWT
	Short-sea passenger	3
	Chemical tanker	4
	Container ship	4
	Oil tanker	29
	Liquefied gas tanker	7
	Refrigerated cargo	1
	Roll-on/roll-off cargo	2
	Cargo ships	1
Airports	Total	1,411
	Paved runways	Over 3,047 m in length: 9
		2,438 to 3,047 m in length: 25
		1,524 to 2,437 m in length: 88
		Under 1,523 m in length: 881
	Unpaved runways	1,524 to 2,437 m in length: 50
		914 to 1,523 m in length: 358

Source: Data from Central Intelligence Agency (CIA), "Mexico," *World Fact Book 1996*, CIA web site [cited October 10, 1997], available from: <http://www.odci.gov/cia/publications/factbook/country-frame.html>; INTERNET.

## **Air**

There are 56 airlines operating throughout the country. Of these, five are principal lines and 12 are regional lines, with the remainder offering specialized, irregular service. In addition, there are 34 foreign enterprises. Regular-service airlines provide flights that connect to 61 cities in the interior and 26 foreign cities. Between 1989 and 1994, there was an annual growth rate of 9.5 percent in air passengers and 8.3 percent in air freight.<sup>17</sup>

## **Ports**

Eighty-five percent of Mexican imports and exports pass through ports. The movement of cargo by sea has increased every year between 1984 and 1994, from 160.7 to 185.4 million tons. Seaport transport accounts for 31 percent of total trade by all modes of transportation in Mexico.<sup>18</sup> Major ports are Acapulco, Altamira, Coatzacoalcos, Ensenada, Guaymas, La Paz, Lázaro Cárdenas, Manzanillo, Mazatlán, Progreso, Salina Cruz, Tampico, Topolobampo, Tuxpan, and Veracruz.<sup>19</sup>

## **Transportation Policy**

At the federal level, the General Directorate of Tariffs, Rail, and Multimodal Transport, within the Secretariat of Communications and Transportation, is responsible for the encouragement of intermodal operations of all types of transport. The directorate does not have an intermodal planning policy and deals only with intermodalism as a concept. The objective of the general directorate is “to articulate the integration of the different modes of transportation with the goal to make the movement of cargo more efficient, modernized, and competitive and to accomplish more coordination and efficiency between users and providers of these services.”<sup>20</sup>

The privatization of the Mexican transport sector involves four different categories of concession projects: maintenance and conservation, expansion and/or modernization, operations, and new projects. Mexican privatization and deregulation policies and infrastructure improvement plans include not only the principal modes of transportation—highways, rail, ports, and airports—but also the creation and improvement of ports of entry, bridges, crossings and ancillary facilities, and intermodal terminals. The various elements involved in this last category are vital links to the creation of seamless transportation networks.

## **Transportation Institutions**

The Secretariat of Communications and Transportation (Secretaría de Comunicaciones y Transportes—SCT) was created in 1891. It is responsible for the formulation and implementation of policies, plans, and programs aimed at the development of telecommunications and transportation.<sup>21</sup> The SCT is a regulatory and coordination organization for all public and private bodies involved in all modes of transportation.

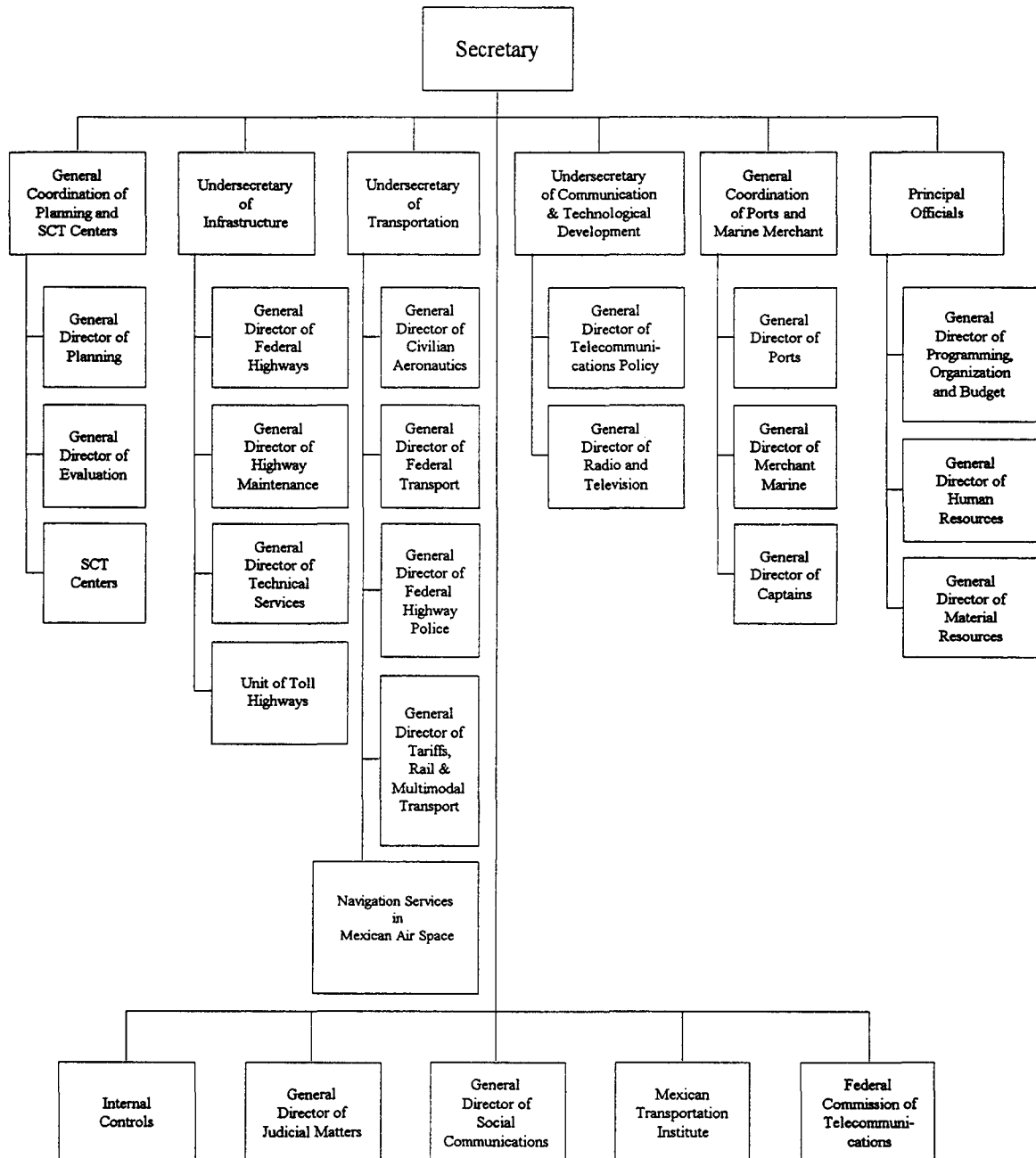
The secretary of communications and transportation heads the secretariat. The secretary's major functions are to

- coordinate, direct, and supervise the execution of the business of the secretariat;
- direct federal policies relating to transportation and telecommunications;
- coordinate and evaluate programs and operations of district offices;
- approve the preliminary work programs and the agency's budget; and
- inform the national Congress of the secretariat's state of affairs.<sup>22</sup>

The organizational structure of the SCT (see figure 18.1) is divided into three main undersecretariats and two general coordinations. The undersecretary of infrastructure works closely with three organizations: General Directorate of Federal Highways (Dirección General de Carreteras Federales—DGCF), General Directorate of Highway Maintenance (Dirección General de Conservación de Carreteras—DGCC), and General Directorate of Technical Services (Dirección General de Servicios Técnicos—DGST). DGCF's main function is the construction of new federal highways. The DGCC is in charge of federal highway maintenance, rehabilitation, and reconstruction. The DGST is responsible for highway planning, overseeing the network of toll highways, and conducting basic engineering studies.<sup>23</sup>

The undersecretary of transportation oversees five agencies. The General Directorate of Civilian Aeronautics (Dirección General de Aeronáutica Civil) has the responsibility of regulating, coordinating, and controlling the services of national and international air transportation. The General Directorate of Federal Transport (Dirección General de Autotransporte Federal) is responsible for the policies and programs relating to highway freight and passenger travel. The General Directorate of Federal Police (Dirección General de la Policía Federal) has the function of maintaining and guaranteeing public security on federal highways and responding to accidents. The General Directorate of Tariffs, Rail, and Multimodal Transport (Dirección General de Tarifas, Transporte Ferroviario, y Multimodal) has many responsibilities, including the encouragement of intermodalism, the regulation of rail transport, and the setting of transport tariffs (except for maritime transport). The General Directorate of Protection and Preventive Medicine (Dirección General de Protección y Medicina Preventiva en el Transporte) has the responsibility of reducing the number of traffic accidents and promoting improvements in the health of transportation personnel.<sup>24</sup> The final division is Navigation Services in Mexican Air Space (Servicios a la Navegación en el Espacio Aéreo Mexicano). This agency is involved with the national air transportation services and telecommunications.

**Figure 18.1**  
**Organizational Structure of Mexico's**  
**Secretariat of Communications and Transportation**



Source: Adapted from Secretariat of Communications and Transport (SCT), Organizational Chart, Mexico City, D.F., 1998.

The General Coordination of Planning and State SCT Centers (Coordinación General de Planeación y Centros—SCT), with offices in each state, aids the secretary in the planning, execution, supervision, and evaluation of the activities completed by the General Directorate of Planning (Dirección General de Planeación) and the General Directorate of Evaluation (Dirección General de Evaluación). The state SCT centers provide a liaison function with state governments. These centers determine regional needs and supervise the enforcement of transportation standards.<sup>25</sup>

The General Coordination of Ports and Merchant Marines (Coordinación General de Puertos y Marina Mercante) assists the secretary in the planning, implementation, supervision, and evaluation of the actions accomplished by the General Directorate of Ports (Dirección General de Puertos) and the General Directorate of the Merchant Marine (Dirección General de Marina Mercante). The General Directorate of Ports oversees the administration of concessions for the autonomous port authorities and the use, profit, construction, and operation of public goods in ports, terminals, and marinas.<sup>26</sup> The General Directorate of the Merchant Marine regulates the registration of Mexican naval vessels and promotes maritime transportation.<sup>27</sup>

Other decentralized transportation organizations also coordinate with SCT. The organizations are the Federal Toll Highways and Bridges (Camino y Puentes Federales de Ingreso—CAPUFE), Airports and Auxiliary Services (Aeropuertos y Servicios Auxiliares—ASA), the Mexican National Railways (Ferrocarriles Nacionales de México—FNM), and the Mexican Transportation Institute (Instituto Mexicano del Transporte—IMT). CAPUFE is responsible for the operation and maintenance of toll roads and bridges built with federal funds. ASA has the responsibility to administer, operate, and preserve the airport network that belongs to the Mexican government. The IMT was created to perform research and undertake technological development projects that will benefit the country's public and private transportation sectors.

## **Financing of Transportation Infrastructure**

### **Federal Budget**

In 1997, the total budget for the Secretariat of Communications and Transportation and its agencies was 27.9 billion pesos (about \$3.4 billion). However, the 1998 budget has been reduced to 25 billion pesos (about \$3 billion).<sup>28</sup> The SCT will use about 167.5 million pesos (about \$1.34 billion) for investment projects. The rest of the budget will be for the everyday operations of the secretariat.

Two-thirds of the \$1.34 billion will go to highways. This investment by the secretariat has been reduced from \$1.03 billion in 1997 to \$954 million in 1998. The SCT expects to make up for this decrease with the Highway Infrastructure Fund, which is expected to reach \$1 billion in the next three years.<sup>29</sup> The Highway Infrastructure Fund is a collection of all the revenue from satellite and railroad privatization. As for highway improvement and construction spending, the increases in spending will be 44 percent for highways and

50 percent for rural roads. In addition, in August 1997, about \$7.69 billion will have been borrowed as part of the toll-road rescue program.<sup>30</sup>

There was also a reduction in the 1998 budget for the state-owned railroad, FNM. For 1998, the FNM is budgeted to receive \$80 million, compared to last year's \$148 million.<sup>31</sup> The primary reason for this reduction is that a majority of the rail operations have been opened up to the private sector.

The Mexican government increased the amount of investment in ports for 1998. The SCT earmarked \$43.7 million for investment in its Integral Port Administrations (IPAs), compared to \$43.12 million in 1997.<sup>32</sup>

### **Infrastructure Fund**

To encourage investment in infrastructure projects, the Bank for Service and Public Works of Mexico (BANOBRAS), an intermediary bank for investment in public works and services projects, created the Infrastructure Fund (FINFRA) in 1993 to help finance infrastructure projects. The objectives of FINFRA are to supply venture capital, offer some kind of guaranteed protection from foreign exchange and cost of money instabilities, and supply subordinated and future capital.<sup>33</sup> FINFRA is a 100 million peso (\$12 million) revolving loan fund used to finance projects' technical and financial studies.

FINFRA can be used to finance a variety of projects, including highways, bridges, seaports, airports, public utility buildings, water supply, sewerage and sanitation projects, as well as urban transportation projects. Limits of FINFRA are outlined in table 18.2. To be eligible for funding from FINFRA, a project must meet the following selection criteria:

- the promotion of social benefits deriving from the subordinated capital;
- the attainment of financial profitability and social benefits of the venture capital;
- the encouragement of private investment;
- the recovery of investment from both kinds of capital (risk and subordinated); and
- a detailed accounting of the degree of leverage of the project, public-resource requirements (equity and debt), and mechanisms for investment recovery.<sup>34</sup>

### **Other Financing Mechanisms**

Since the early 1980s, Mexico, like other Latin American countries, has been experiencing an investment shortage. According to the World Bank, Latin America will require an average annual investment in infrastructure that is equivalent to \$60 billion in the coming decade (a figure equal to 4.5 percent of the region's total GDP) in order to compensate for low investment in the region.<sup>35</sup> To coordinate planning and scheduling of transportation projects in the future, as part of a bilateral strategy, many strategists advise that Mexico, in partnership with the United States, find other sources of financing in order

to improve its infrastructure.<sup>36</sup> Some possibilities for financing include the World Bank, the International Finance Corporation (IFC), the North American Development Bank, or the Interamerican Development Bank. At present time, Mexico receives little or no financing from these institutions.

**Table 18.2**  
**Limits to FINFRA's Participation**

Type of Contribution	Authorized Limit
Venture capital	Up to 35% of equity
Subordinated capital	Up to 40% of total investment
Venture and subordinated capital	Up to 49% of total investment
Aggregate public share of capital	Up to 49% of total investment
Total aggregate of public share	Up to 2/3 of total investment
Commitment in one single project	Up to 12.5% of the fund's equity

Source: Data from Barton-Aschman Associates, Inc., and La Empresa S. de R.L., "Task 6: Analysis of Public and Private Investment Programs in Mexico and the United States," *Binational Border Transportation Planning and Programming Study* (San Jose, California, and Mexico City, D.F., December 31, 1997), p. 15.

**Notes:**

1. Equity is the project's total investment less the debts owed.
2. A project's total investment includes all the resources necessary to execute it, excluding debt related interest and financial charges.
3. Aggregate public share encompasses the federal, state, and municipal government levels, as well as development banks and semi-state agencies.

## **Transportation Infrastructure Planning**

### **Federal Government**

Federal agencies with transportation planning authority are the SCT and the Secretariat of Social Development (SEDESOL). Federal transportation planning agencies make decisions on the basis of funding resources available and the priorities of need established by their respective state SCT and SEDESOL centers.<sup>37</sup> SEDESOL is mostly active in the urban planning processes, setting standards in urban infrastructure planning and design. It is not involved in the execution of the projects.



Only some of the general directorates within the SCT are responsible for transportation policy and planning. The General Directorate of Technical Services, under the jurisdiction of the undersecretary of infrastructure, is responsible for highway planning. The highway planning process establishes priorities on the basis of regional needs, availability of resources (or obtaining those resources through the award of concessions to private investors), and a territorial integration and arrangement policy. The planning-implementation phase is also influenced by state governors, city mayors, industrial and commercial interests, and trucking associations.<sup>38</sup> The General Directorates of Federal Highways and Highway Maintenance mainly participate in the planning process by suggesting solutions to problems and commenting on solutions proposed by other agencies and levels of government.<sup>39</sup>

As for several directorates under the purview of the undersecretary of transportation, the only one active in the planning process is the General Directorate of Federal Transport (DGAF). The DGAF has direct influence in the operation of freight and passenger transportation. Its role includes regulatory and standards functions, requiring close communication with freight transport companies. The directorate's strategic position within the SCT makes it the most feasible organization for monitoring transportation problems in the planning process.<sup>40</sup>

The General Coordination of Planning and State SCT Centers oversees two directorates that contribute to the planning process. The General Directorate of Planning formulates and reviews the national planning programs that deal with telecommunications and transportation. It also tracks and schedules investment programs and projects. The General Directorate of Evaluation evaluates the effectiveness of the telecommunications and transportation programs. It evaluates the merits of the investment programs and projects proposed by the different agencies and state SCT centers. These evaluations are taken into consideration by General Coordination of Planning and State SCT Centers in the planning process to assist the secretary. The role of state SCT centers is to determine regional needs.<sup>41</sup>

The planning for ports and merchant marine is the responsibility of the General Coordination of Ports and Merchant Marine. The agency oversees the activities of two organizations. The General Directorate of Ports implements policies and programs for the development of the national maritime port system. Its authority is exercised through the master harbor offices.<sup>42</sup> The General Directorate of Merchant Marine implements policies for the development of marine transportation and the Mexican Merchant Marine.

The decentralized transportation organizations that coordinate with the secretary in the planning process include CAPUFE, ASA, and the FNM. CAPUFE (Federal Toll Highways and Bridges) is limited to creating programming and budgeting objectives in the planning process, since planning for added infrastructure is performed by another SCT agency.<sup>43</sup> The ASA (Airports and Auxiliary Services) assumed the function of planning and construction of new airports on federal property, after the General Directorate of Airports was discontinued in 1989. Rail planning is performed by the FNM (Mexican National Railways).<sup>44</sup>

The Secretariat of Foreign Relations (Secretaría de Relaciones Exteriores—SRE) partakes in the planning, construction, and operation of international bridges and border crossings. The Interagency Group on Ports of Entry and Border Services administers the secretariat's policies. The policy mechanism includes coordination of construction projects with municipalities, which are following the urban development plans of border state governments. Other federal agencies that affect the transportation planning process are

- Secretariat of Commerce and Industrial Development (Secretaría de Comercio y Fomento Industrial),
- Secretariat of Finance and Public Credit (Secretaría de Hacienda y Crédito Público),
- Secretariat of the Interior (Secretaría de Gobernación),
- Secretariat of Agriculture, Livestock, and Rural Development (Secretaría de Agricultura, Ganadería, y Desarrollo Rural), and
- Commission on National Goods Valuation (Comisión de Avalúos de Bienes Nacionales).<sup>45</sup>

These agencies indirectly affect the transportation planning process by their decisions and actions that affect the international flow of freight and vehicles. They also participate in the transportation planning process through interagency committees. These interagency committees do not generate medium- or long-term plans, but, rather, they are oriented to the solution of short-term problems.<sup>46</sup>

### **State Government**

The state governments serve as liaisons between federal transportation planning and the needs of the municipality. They also serve as another funding source for the municipalities. There used to be a two-party cooperative program between the states and federal government to construct and maintain state highways. This program, however, was abolished in 1989, and its functions have been transferred to the state governments' highway agencies. These state agencies all share the technical capability for analyzing and establishing solutions, but their objectives and organizational structures vary from state to state.<sup>47</sup>

### **Municipal Governments**

Municipal administrators are responsible for the planning of urban development and transportation systems. Their objectives are short-term, because their terms in office last only three years. The planning process at the municipal level has been criticized for insufficient long-term objectives, a lack of comprehensive goals, and inflexibility. Planning activities suffer, because the organizational structure is focused on construction, insofar as efficiency usually is measured in terms of the number of infrastructure projects completed.

The General Directorate of Infrastructure and Equipment (Dirección General de Infraestructura y Equipamiento), a division of SEDESOL, directs studies of medium-sized municipalities. These studies analyze institutional issues, traffic and transit, public transportation, pavement management, and environmental impact issues. If municipalities participate in the studies, they are eligible for funding from the World Bank. Municipalities also receive technical support from SEDESOL to help establish consistent federal/municipal criteria.<sup>48</sup>

Federal-level planning responds to strategic criteria in some cases and, at other times, to institutional requirements with programming objectives. The problem arises with local long- and short-term planning, since there is also a lack of communication between municipalities' regional, subregional, and urban planning. "This deficiency in communication has its origin in the municipality's inability to establish a systematic planning process, . . . due to the political pressure to execute public works within the term of municipal governments (three years), the lack of established plans, and funding limitations."<sup>49</sup> The SCT's General Directorate of Planning is designing methods and instruments to assist local officials in solving their problems, to standardize evaluations of problems, and to assess the impact of proposed solutions.

## **Deregulation and Privatization**

In 1988, the then incumbent Mexican president, Carlos Salinas de Gortari, inherited a transportation sector in which efficiency was undermined by a number of damaging policies. Mexican infrastructure had been severely neglected by the former administration and was in serious need of investment. Consequently, the principal strategy of the Salinas administration was to revive the economy by reversing the traditional protectionist policies of the Mexican government and stimulating competition through deregulation and privatization.

The first transportation-sector reform initiative occurred in July 1989, with the deregulation of intercity trucking and bus services. Before deregulation, corridor licenses were required for intercity trucking operations and route licenses were required for bus operations. The government declared that the entire country was, in effect, one big corridor and proceeded to eliminate these requirements. Through deregulation, entry conditions were substantially liberalized, tariff control was abandoned, and the previous compulsory use of government-controlled freight terminals was abolished.<sup>50</sup>

July 1989 also marked the beginning of the government's program to modernize and improve the maintenance of 6,000 km of roads (the number of km was subsequently increased) through a concessions process. The highway program was designed so that engineering, land acquisition, and tariff determination were the responsibilities of the federal government, while the construction, rehabilitation, and operation procedures were the responsibilities of the concessionaire.

The next sector to be privatized was air transport. In 1988, two government-controlled airlines provided domestic service in Mexico: AeroMexico and Mexicana. After AeroMexico filed for bankruptcy in 1988, it was downsized and most of the company was sold. Mexicana was also privatized in 1989. These two privatization efforts were the catalyst behind future deregulation of the airline industry and the creation of several independent airlines, which now operate in Mexico. Airport privatization will be discussed in a later section.

The concept of privatizing the Mexican National Railways was initiated at the same time as air and highway modes were being privatized. However, railway privatization proved a particularly difficult challenge. The government initially kept as much control of train operations and infrastructure maintenance as possible.<sup>51</sup> This policy changed drastically in the 1990s, and the government has granted concessions and/or privatized numerous segments of the nation's rail network.

The final transportation mode to be privatized was the national port system (Puertos Mexicanos). Port privatization began in 1991, when SERPOVER, the public-sector cargo-handling organization, was deregulated and disbanded.<sup>52</sup> In its place, concessions were granted to three private companies to undertake operations. In 1993, a new port statute contained a provision to create autonomous port authorities, known as Integral Port Administrations (IPAs). They were entities responsible for administering and managing port assets under a long-term concession from the federal government. However, the assets themselves remained under state ownership because of constitutional requirements.<sup>53</sup> In addition, the plan included granting port operations concessions to the private sector, with the IPA effectively acting as landlord.

Since the privatization statutes of 1989, Mexico has been attempting to modernize its infrastructure to facilitate economic growth, trade, and the movement of people and cargo. Efforts to privatize various aspects of Mexico's transportation infrastructure included the construction of toll roads and the privatization of principal ports, railroads, and airports.

Private investment in the transportation sector has evolved as a result of changes to the Mexican regulatory framework. The process of privatization and private-sector participation in the transport sector began several years ago, with the enactment of the General Roads and Highway Act of February 19, 1940.<sup>54</sup> This act has been amended as a result of other legislation and regulations to promote private investments:

- Federal Roads, Bridges, and Motor Transportation (December 23, 1993);
- Federal Motor Transport and Related Services Regulations (November 23, 1994);
- Regulation on Weights, Dimensions, and Capacity of Motor Vehicles Transiting on Federal Roads and Bridges (January 26, 1994);
- Regulations on Cargo Terminals (January 5, 1993);

- Railroad Service Regulations Act (May 12, 1995 and September 30, 1996);
- Ports Act (December 22, 1995);
- Navigation Act (January 4, 1994);
- Civil Aviation Act (May 12, 1995);
- Airports Act (December 22, 1995); and
- Federal Telecommunications Act (June 7, 1995).<sup>55</sup>

These acts and regulations establish the provisions governing private investments in transportation and, in some cases, even public investment, such as those provisions under which state and/or municipal governments may apply for contracts.<sup>56</sup> Regulations were also passed governing foreign investment in transportation. These regulations include the Foreign Investment Act, the Population General Act and its regulations, as well as some complementary provisions such as circular number RE-1 describing the rules that will govern the temporary entry of business persons, in conformity with NAFTA.<sup>57</sup>

Laws similar to federal statutes generally regulate public investment in state and municipal transportation. Legislation governing private participation in the financing of state roadway infrastructure projects and related services has been passed, although it is not as extensive as federal legislation.<sup>58</sup>

Last, the following federal laws and regulations established provisions governing the organization and operation of federal public agencies in charge of collecting, administering, and expending public funds; regulating the participation of the private sector in federal transportation investments (through the SCT); and establishing provisions for expending funds related to the national debt (through the Secretariat of Finance and Public Credit).<sup>59</sup> Federal regulations governing public investment in the transportation sector are

- Organic Law of the Public Federal Administration;
- Bylaws of the Secretariat of Communications and Transportation;
- Federal Semistate Agencies Act;
- Budget, Accounting, and Public Expenditure Act;
- Federal National Debt Act; and
- Expense Budget of the Federation.<sup>60</sup>

## **Concessions**

### ***Toll Roads***

Starting in 1989, concessions were granted through the SCT in a two-stage competitive bidding process. In the first stage, bidders' technical and financial capabilities to implement the project were assessed. In the second stage, the concession was awarded to the bidder, who requested the shortest concession life.

The description of concessionaire responsibilities for a toll-road concession is explained as follows:

The concessionaire is responsible for constructing, financing, maintaining, and operating the facility to agreed standards; and, in return, retains the tolls collected during the life of the concession. The Government owns the road and operating equipment, and upon termination of the concession the right to collect revenues, reverts to the Government. Once a concession is granted, an independent trust is established to oversee construction and maintenance. Members of the trust include in some cases the Ministry of Finance (Ministerio de Hacienda).<sup>61</sup>

The SCT has placed the development of toll roads high on its list of priorities. Its Highway Investment Program has identified the ten largest sections of highway as priority listings for modernization of the national highway system. The most important tract of highway for commerce runs from Nuevo Laredo to Mexico City. The basic objectives of the National Federal Highway Program are to lower the costs of transport on the highways, augment the level of security and quality of service, and to give more longevity to the federal transport system.<sup>62</sup>

The investment program for the toll roads came to fruition in two stages. In the first stage, from 1989 to 1994, approximately 15 percent of the total funds necessary to develop the toll roads came from federal and state governments, 15 to 20 percent derived from capital markets, and 70 percent came from credit.<sup>63</sup> Because of the peso devaluation in 1994 and concomitant overestimates of the profit potential of many toll roads, the federal government increased its financial support with the onset of the second stage of toll-road development. Governmental investment increased to 30 to 40 percent of the total. The increase in investment was accomplished through financing from BANOBRAS and FINFRA. Capital investment in the (current) second stage is a mere 15 percent, and 55 percent of the projects are financed from credit.<sup>64</sup>

FINFRA, the Infrastructure Fund, will pay off the debt accrued by the first roads that were privatized, as well as administer 23 private toll roads. The SCT decreased prices on the toll roads by 15 percent for cars and 30 percent for trucks to help ameliorate the lack of traffic on toll roads. Insufficient traffic was the main cause of toll-road problems.<sup>65</sup>

To ensure that the ten major highways will be completely modernized, the present SCT administration has purchased 852 km of these roadways. By the end of 1997, these routes

composed 56 percent of the total amount of highways to be modernized. In constant prices, these actions had a price tag of 3.28 billion pesos.

For the 1998-2000 period, the SCT's Highway Modernization Program will concentrate on augmenting the capacity of major highways (see table 18.3). By the year 2000, SCT's goal is to purchase an additional 3,135 km of roadways (3.2 times more than was realized in 1995 to 1997), which will constitute 73 percent of the total amount of roads to be modernized.<sup>66</sup> The funding needed in each year of the 1995-97 period for toll-road modernization is 3.73 billion pesos, for a total of 11.2 billion pesos over the three years. This figure represents an increase in investment of 43 percent, with respect to the 1997 budget.<sup>67</sup>

Efforts to privatize transportation infrastructure had a rough start. The privatization of Mexican roads was particularly cumbersome. Starting in 1989, the Mexican government's objective was to privatize more than 6,000 km of roadways. The toll-road program was perhaps the most ambitious of all the government's privatization efforts. The efforts involved a mechanism by which private investors participated in the concessions process by bidding for concessions to construct, finance, operate, and maintain the roads in return for toll revenues. This process went on for some time, without many burdens to Mexican government coffers.

**Table 18.3**  
**Highway Program Investment for Years 1998-2000**  
**(millions of pesos)**

Concept	Other Schemes	Required Investment	Highway Fund	Federal Budget
Modernization of base routes	18,199	3,908	6,857	7,434
Major roads leading to base routes	2,554	-	154	2,400
Feeder and rural roads	2,500	-	1,300	1,200
Temporary employment program	2,300	-	-	2,300
Conservation of federal highways	11,200	-	-	-
Studies, projects, road direction and supervision	1,000	-	-	1,000

Source: Data from Secretariat of Communications and Transport, "Highway Investment Program 1998-2000" (Mexico City, D.F., December 17, 1997).

Unfortunately, many of the toll-road projects did not generate sufficient revenues, because of lack of traffic and high tolls. As a result, many projects went bankrupt. The mechanics

of the toll-road program and financing structures have been refined as the government has gained experience and taken steps to correct past shortcomings.<sup>68</sup> The government is no longer attempting to privatize roads that do not have sufficient traffic to provide an adequate return to investors. And the roads will no longer have exorbitant tolls to discourage their use.<sup>69</sup>

## **Railroads**

The railroad privatization process was officially initiated in 1995, when the federal government decided to divide the national railway system into the following regional segments: the North Pacific trunk line, the Northeast trunk line, the Southeast trunk line, and the Chihuahua-Pacific short line. Following this division, the government's intention was to begin to award concessions for each of the four regional rail segments.

To be eligible to bid on rail concessions, foreign bidders were required to take on or join with a Mexican entity. Each concession requires a potential bidder to have sufficient financial resources to ensure that investors have the financial wherewithal to implement their operational plans and upgrade rail infrastructure.

The Chihuahua-Pacific short line was the first to be put up for bid; however, the concession failed to attract the interest of any investors. The next rail segment to be put on the auction block was the Northeast line, sometimes referred to as NAFTA railway. This Northeast line is also the most important rail segment in Mexico in terms of the volume of traffic.

The Northeast line was granted to Transportación Ferroviaria Mexicana, a joint venture consisting of Transportación Marítima Mexicana (TMM) and Kansas City Southern Railway Company, in December 1996. The joint-venture consortium bid \$1.4 billion for the right to an 80-percent stake in the concession, with 20 percent to remain in the hands of the federal government.<sup>70</sup>

The North Pacific line was granted to Grupo Ferroviario Mexicano (GFM), a coalition comprising the Grupo México (the Mexican mining giant) and two minority partners, the Union Pacific Railroad and Grupo ICA, Mexico's largest construction firm. The concession was granted in June 1997. Just like the Northeast Line, the \$527 million uncontested bid earned GFM the right to an 80-percent stake in the railroad, with 20 percent to remain in the hands of the federal government. The GFM bid also included an option to acquire one of the many short-line railways.

Bids are expected to be received this year for the Southeast line, the third of the three main trunk lines of the FNM. This track includes a crossing at the Isthmus of Tehuantepec, where the government has debated the idea of creating a trans-isthmus railroad connecting the ports of Coatzacoalcos and Salina Cruz. This crossing potentially offers a rail-bridge alternative to the Panama Canal.<sup>71</sup> Political problems have surrounded the Southeast concession, especially because the state-owned oil company, Petróleos Mexicanos, operates refineries and is the largest shipper on the north end of the track.



Many Mexican nationalists are also concerned that the trans-isthmus rail segment gives the winning bidder of the Southeast concession control over the port terminals in Coatzacoalcos and Salina Cruz. In the face of legislators' opposition, however, a decision was made in late 1997 to split the rail concession in half, with the Coatzacoalcos-Salina Cruz portion reserved for Mexican national investment only.<sup>72</sup>

In April 1997, Mexican transport officials started actively seeking bidders for three other short-line railroads. These three segments are the short line that connects Tijuana to Tecate, a 44-mile stretch of track; the 199-mile Nacozari short line in Sonora; and a 605-mile stretch of track that connects the states of Coahuila, Durango, Chihuahua, and Zacatecas.<sup>73</sup> The current plan is to concession these lines for 30 years.

### **Airports**

Plans to begin the privatization of Mexico's airport system are finally becoming a reality. After a delay of several years, the SCT announced in early 1998 plans to privatize 35 of the 58 airports in the national system.<sup>74</sup> The privatization of air transport was initiated in 1988, when most of AeroMexico was sold. The ambitious airport privatization program will cap foreign investment at 49 percent. Similar to the privatization of railroads, airport privatization follows a regional approach. The airport program involves concessions for operations and infrastructure.

Thirty-five airports will be privatized from the following groups:

- the North Central Group, consisting of the cities of Monterrey, Acapulco, Mazatlán, Zihuatanejo, Culiacán, Ciudad Juárez, Chihuahua, San Luis Potosí, Durango, Torreón, Tampico, and Reynosa;
- the Pacific Group, consisting of Guadalajara, Puerto Vallarta, Tijuana, San José del Cabo, Bajío, Morelia, Hermosillo, La Paz, Aguascalientes, Los Mochis, Mexicali, and Manzanillo;
- the Southeast Group, consisting of Cancún, Mérida, Villahermosa, Cozumel, Oaxaca, Huatulco, Minatitlán, Tapachula, and Veracruz; and
- the Mexico City Group, consisting of the Benito Juárez International Airport.<sup>75</sup>

The SCT has indicated that the Southeast Group will be the first airport region to be privatized. This region is particularly attractive, because it consists of Mexico's busiest tourist hub in Cancún. However, given the rapid fluctuation of plans and privatization schemes in Mexico, it is possible that the privatization plan for the Southeast Group will change many times before coming to fruition.

### **Ports**

The currency crisis in 1982 produced substantial changes in how Mexico conducted business, including a rapid opening of its trade policies to foreign investment. When

Mexico formally entered the General Agreement on Tariffs and Trade (GATT) in 1985, the result was a liberalized flow of capital into the country and stimulation of foreign investment. GATT had a very positive effect on the country's port system in particular. When Mexico opened its doors to external markets from 1982 to 1992, the flow of trade at ports along the Pacific coast of Mexico grew 6.13 percent annually, while trade grew only 0.13 percent annually at ports along the Gulf of Mexico and Caribbean coasts.<sup>76</sup> Part of the reason behind the low-growth rates of Gulf ports was the oil crisis.

In 1994, six Pacific ports moved 93 percent of the total value of the cargo on the Pacific coast and more than 70 percent of the volume.<sup>77</sup> These six Pacific ports are Ensenada, Guaymas, Topolobampo, Manzanillo, Lázaro Cárdenas, and Salina Cruz. Of these, the Port of Manzanillo is the most important container port on the coast. The Port of Veracruz is the country's largest deepwater port and is the most important container facility on the Gulf coast.

The privatization of port operations in Mexico began with the creation of autonomous port authorities (IPAs) in 1993. The policy for the privatization of port operations includes a 51-percent share to be sold to Mexican national companies and the remainder to Mexican and foreign investors. Port operation concessions vary in duration, depending on the concession. For example, the SCT is offering only 20-year concession rights to terminals at the Port of Ensenada, while rights at Puerto Vallarta are for 50 years. Mexican law prohibits the same company from controlling two similar port operations on the same coast.<sup>78</sup> In 1997, the secretary of communications and transportation declared that the land on which ports are located will be transferred from federal to state governments.<sup>79</sup>

The first port operation concession was awarded to Transportación Marítima Mexicana (TMM) in 1996, for the Port of Acapulco. In addition, a joint venture comprising Stevedoring Services of America and TMM purchased the concession for the Port of Manzanillo.<sup>80</sup> The Mexican government also has auctioned concessions for container and multiuse facilities for the ports at Veracruz and Altamira on the Gulf, and Lázaro Cárdenas on the Pacific.<sup>81</sup> Through privatization and deregulation efforts, Mexico is trying to provide more efficient transportation services at lower costs.<sup>82</sup>

The SCT's 1998 Port Plan is designed to promote further investment in operations and port infrastructure improvements. The SCT intends to earmark \$43.7 million for investment in its IPAs.<sup>83</sup> Projects planned for investment include repairing hurricane damage and protection against future hurricanes, rebuilding walls, and improving port facilities. A number of ports have been targeted for investment: Altamira, Tampico, Tuxpan, Veracruz, and Coatzacoalcos on the Gulf coast; and Ensenada, Guaymas, Topolobampo, Manzanillo, and Lázaro Cárdenas on the Pacific coast.<sup>84</sup> The SCT is increasing investment in these ports in the hope that it will make multimodal transport connections more seamless.

## **Warehouses**

Warehouses are a vital link in the intermodal transportation infrastructure. The Mexican government has offered 20-year concessions (some less than 20 years) for many bonded warehouses formerly managed by the Customs Division of the Secretariat of Finance and Public Credit (SHCP). Warehouse concessions are part of SHCP's plan to privatize nonessential customs services.<sup>85</sup> For example, a company could bring its merchandise to a border bonded warehouse and apply labels there, taking advantage of lower labor costs, before the merchandise passes through customs.<sup>86</sup>

Concessionaires will be required to pay 3 percent of their annual revenue as a concession fee, plus another 5 percent of total revenue for using space in the warehouses.<sup>87</sup> In all, Mexico has about 47 customs facilities located throughout the country, which handle between 70 and 80 percent of trade.<sup>88</sup> Certain facilities will, therefore, appear more attractive to investors than others. An example of a warehouse concession involves a bonded warehouse at the Hermanos Serdan International Airport in Puebla, near Mexico City. The winning bidder for this warehouse is required to make a deposit of 200,000 pesos for the right to a 20-year concession, with the contract eligible for renewal in 18 years.<sup>89</sup>

## **Technological Development**

The use of logistics management is commonplace within the United States, but Mexican firms are lagging behind. Warehouse concessions described above demonstrate Mexico's acknowledgment of the need for logistics management. Many binational partnerships for logistics management have been established to facilitate the flow of cargo, and many more are on the horizon.

In the wake of NAFTA, logistics management has become of particular importance in binational trade. Traffic congestion on the U.S.-Mexico border creates the need for improved and seamless cross-border movement of cargo.

Several U.S. and Mexican firms have begun to position themselves for increased trade opportunities resulting from NAFTA and the trend toward greater north-south trade. NAFTA has caused not only a rise in trade volumes between these two countries but changes in patterns of distribution as well. As NAFTA's provisions are phased in and firms locate their operations farther into the Mexican interior, longer hauls and increases in distribution costs are expected. These circumstances should favor the use of rail/truck intermodal combinations that are popular in the United States. Many of the trends taking place in the United States in shipping practices, such as hub-and-spoke warehousing, information-exchange technology, and strategic alliances, are also taking place in Mexico.

## **Obstacles to Multimodal/Intermodal Development**

### **Financing Problems**

The establishment of the FINFRA by BANOBRAS is an important tool to help ameliorate Mexico's infrastructure financing problems. Challenges surface even with the establishment of this fund, because FINFRA has two limitations that seriously impede its effectiveness. The first is that the initial source of funding is the federal government. The second is that it mainly contributes venture and subordinated capital.<sup>90</sup>

### **Highways**

The challenge to modernize the nation's highway system was heightened by the Salinas administration, during which many problems were created through poor planning and miscalculations in the toll highway plan. The administration of President Ernesto Zedillo Ponce de León has deferred payments of 19 billion pesos for 45 years.<sup>91</sup> Mexico also needs more highways to meet medium- and long-term anticipated demand. The other challenge is the unwillingness of construction companies to build future highways.

### **Ports**

One challenge facing Mexican ports is the absence of electronic data interchange (EDI) capabilities. The U.S.-Mexico land border does use EDI or other forms of electronic documentation processing. However, there are no ports that allow computer-to-computer links and paperless processing of trade documents.<sup>92</sup> High equipment costs have prevented the federal government from attempting to implement EDI. The government is moving ahead with privatization, but it is constrained by tight budgets and much-needed regulatory reform. In addition, ports still need equipment such as cranes and rail/port interfaces.

### **Airports**

The challenge at airports concerns needed capital investment. Inadequate airport infrastructure does not allow airports to be competitors for import and export activity. The Mexican government will attempt to raise capital investment by auctioning long-term concessions for 35 of the 58 airports in the national system.

### **Security**

Another challenge is cargo theft. Cargo theft and truck hijackings accelerated after the economic crisis in early 1995 and show no signs of subsiding, despite complaints by both domestic and international motor carriers.<sup>93</sup>

### **Environment**

The U.S. and Mexican governments have long recognized the need to address the ubiquitous environmental problems along their shared land border. Written into NAFTA

are provisions to address the prevailing and long-neglected environmental problems along the border. The Border Environmental Cooperation Commission (BECC) and the North American Development Bank (NADBank) were created as a result of NAFTA. The goals of BECC and NADBank are to help communities on both sides of the border to address problems that have plagued this region for decades, including raw sewage dumped in boundary waters, unsafe drinking water, and inadequate management of waste disposal.

Under NAFTA, strict environmental standards are required on investments. NAFTA regulates projects for impact on the environment. The trade agreement also discourages lowering of environmental standards to prompt investment. Governments may now require environmental impact statements on investments.

## **Multimodal/Intermodal Projects**

### **Ensenada**

The project at the Ensenada port involves the plans to privatize a short-line railroad connecting the two Mexican border cities of Tijuana and Tecate. The Mexican government is trying to build a new rail line from Ensenada to connect the port with rail links.<sup>94</sup>

### **Isthmus of Tehuantepec**

The SCT announced that it would begin a project for multimodal transportation in the Isthmus of Tehuantepec. The plan calls for a land bridge, which will be a rail link between the ports of Salina Cruz on the Pacific and Coatzacoalcas on the Gulf of Mexico. The purpose of this project is to allow ships to transfer their containers onto trains that will transport containers 180 miles to vessels on the opposite coast. Thus, the trip can be quicker than the eight- to ten-hour passage through the Panama Canal. Other ships will save time by not having to sail to the eastern end of Central America.<sup>95</sup> The Mexican government will form partnerships with businesses to accomplish this intermodal transportation project.

### **Nafta Xpress Lines**

The ports of New Orleans and Veracruz are promoting themselves as a better option than land transport through Laredo, Texas. The ports will be helped by Nafta Xpress Lines. This company will offer roll-on/roll-off service linking the two waterfronts, targeting traffic and perishable goods that move on trains via piggyback from points east of the Mississippi River.<sup>96</sup>

## Notes

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<sup>2</sup> U.S. Department of State, "Background Notes: Mexico-April 1997," U.S. Department of State web site (Washington, D.C. [cited from October 13, 1997]), available from: [http://www.state.gov/www/background/notes/mexico\\_0497\\_bgn.html](http://www.state.gov/www/background/notes/mexico_0497_bgn.html); INTERNET.

<sup>3</sup> *The 1994 Information Please Almanac* (Houghton Mifflin Co. Electronic version licensed from and portions © 1994 InfoSoft Int'l, Inc.).

<sup>4</sup> Ibid.

<sup>5</sup> U.S. Department of State, "Background Notes: Mexico."

<sup>6</sup> Government of Mexico, "Programas De Gobierno," Mexican Government web site [cited November 15, 1997], available from: <http://www.presidencia.gob.mx/arpto2-3.html>; INTERNET.

<sup>7</sup> United States-Mexico Chamber of Commerce (USMCC), "Border Issues," USMCC web site [cited September 8, 1997], available from: <http://www.usmcoc.org/border1.html>; INTERNET.

<sup>8</sup> A *maquiladora*, or "twin plant," program allows duty-free importation and exportation between the United States and Mexico of raw materials or parts made within a narrow border zone.

<sup>9</sup> U.S. Department of State, "Background Notes: Mexico."

<sup>10</sup> Ibid.

<sup>11</sup> USMCC, "Trade," USMCC web site [cited February 7, 1998], available from: <http://www.usmcoc.org/eco2.html#a>; INTERNET.

<sup>12</sup> Embassy of Mexico in Canada, "Mexico-Canada Three Years after NAFTA" [cited February 4, 1998], available from: <http://www.DocuWeb.ca/Mexico/1-engl/3yrafnaf.html>; INTERNET.

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<sup>14</sup> U.S. Department of State, "Background Notes: Mexico."

<sup>15</sup> Secretariat of Communications and Transportation (SCT), *Programa de Desarrollo del Sector Comunicaciones y Transporte 1995-2000* (Mexico City, D.F., 1996), p. 1.

<sup>16</sup> *Ibid.*, p. 31.

<sup>17</sup> *Ibid.*, p. 39.

<sup>18</sup> *Ibid.*, p. 54.

<sup>19</sup> *Ibid.*, p. 39.

<sup>20</sup> *Ibid.*, p. 69.

<sup>21</sup> Barton-Aschman Associates, Inc. and La Empresa S. de R.L., "Task 4: The Transportation Planning and Programming Processes," *Binational Border Transportation Planning and Programming Study*, San Jose, California and Mexico, D.F. (May 30, 1997), p. 4.

<sup>22</sup> SCT, *Secretaria De Comunicaciones y Transportes*, SCT web site [cited November 17, 1997], available from: [http://www.sct.gob.mx.marco\\_juridico/manual\\_org/capitulo5.html](http://www.sct.gob.mx.marco_juridico/manual_org/capitulo5.html); INTERNET.

<sup>23</sup> Barton-Aschman Associates, Inc. and La Empresa S. de R.L., "Task 4: The Transportation Planning and Programming Processes," *Binational Border Transportation Planning and Programming Study*, p. 5.

<sup>24</sup> SCT, *Secretaria De Comunicaciones y Transportes*.

<sup>25</sup> Barton-Aschman Associates, Inc. and La Empresa S. de R.L., "Task 4: The Transportation Planning and Programming Processes," *Binational Border Transportation Planning and Programming Study*, p. 6.

<sup>26</sup> *Ibid.*

<sup>27</sup> *Ibid.*

<sup>28</sup> Mary Sutter, "Mexico's transport budget close to \$3 billion for '98," *Journal of Commerce* (February 2, 1997), p. 12D.

<sup>29</sup> Dan McCosh, "SCT Cuts Spending and Investment 11.9%," *El Financiero International Edition* (February 2-8, 1998), p. 13.

<sup>30</sup> Sutter, "Mexico's transport budget close to \$3 billion for '98." p. 12D.

<sup>31</sup> McCosh, "SCT Cuts Spending and Investment 11.9%," p. 13.

<sup>32</sup> Dan McCosh, "1998 Port Plans," *El Financiero International Edition* (February 2-8, 1998), p. 13.

<sup>33</sup> Barton-Aschman Associates, Inc. and La Empresa S. de R.L., "Task 6: Analysis of Public and Private Investment Programs in Mexico and the United States," *Binational Border Transportation Planning and Programming Study*, San Jose, California and Mexico City, D.F. (December 31, 1997), p. 14.

<sup>34</sup> *Ibid.*, p. 13.

<sup>35</sup> *Ibid.*, p. 31.

<sup>36</sup> *Ibid.*, p. 34.

<sup>37</sup> Barton-Aschman Associates, Inc. and La Empresa S. de R.L., "Task 4: The Transportation Planning and Programming Processes," *Binational Border Transportation Planning and Programming Study*, p. 4.

<sup>38</sup> *Ibid.*, p. 8.

<sup>39</sup> *Ibid.*, p. 5.

<sup>40</sup> *Ibid.*

<sup>41</sup> *Ibid.*

<sup>42</sup> *Ibid.*, p. 6.

<sup>43</sup> *Ibid.*

<sup>44</sup> *Ibid.*, p. 5.

<sup>45</sup> *Ibid.*, p. 10.

<sup>46</sup> *Ibid.*, p. 11.

<sup>47</sup> *Ibid.*



<sup>48</sup> Ibid., p. 10.

<sup>49</sup> Ibid., p. 7.

<sup>50</sup> Robin Carruthers, "Privatization of Transport Infrastructure and Operations in Mexico—Has it Been Worthwhile?" *Financing Transport Infrastructure*, Planning and Transport Research and Computation (University of Warwick, England, September 1995), p. 145.

<sup>51</sup> Ibid., p. 144.

<sup>52</sup> Ibid., p. 143.

<sup>53</sup> Ibid.

<sup>54</sup> Barton-Aschman Associates, Inc. and La Empresa S. de R.L., "Task 6: Analysis of Public and Private Investment Programs in Mexico and the United States," *Binational Border Transportation Planning and Programming Study*, p. 44.

<sup>55</sup> Ibid.

<sup>56</sup> Ibid.

<sup>57</sup> Ibid.

<sup>58</sup> Ibid., p. 45.

<sup>59</sup> Ibid., p. 43.

<sup>60</sup> Ibid.

<sup>61</sup> Charles M. Yates, "The Mexican Approach to Toll Roads," *Financing Transport Infrastructure*, Planning and Transport Research and Computation (University of Warwick, England, September 1995), p. 133.

<sup>62</sup> SCT, "Programa de Inversion en Carreteras 1998-2000," (December 17, 1997), p. 15.

<sup>63</sup> Interview by Maria Hernandez and Jennifer Somers with Ing. Ricardo Erazo Garcia Cano, Director of Planning and Programs for Toll Roads, the Mexican Secretariat of Communications and Transport, Mexico City, Mexico (January 16, 1998).

<sup>64</sup> Ibid.

<sup>65</sup> *El Financiero International*, "Highway Restructuring is Unveiled," *El Financiero International Edition* (August 25-31), p. 197.

<sup>66</sup> SCT, "Programa de Inversion en Carreteras 1998-2000," p. 15.

<sup>67</sup> Ibid.

<sup>68</sup> Yates, "The Mexican Approach to Toll Roads," p. 131.

<sup>69</sup> Cano interview.

<sup>70</sup> Mary Sutter, "Mexican-US Joint Venture Makes Payment for Railroad," *Journal of Commerce* (August 19, 1997), p. 18D.

<sup>71</sup> Kevin G. Hall, "Mexico Prepares for Third Rail Sale," *Journal of Commerce* (July 10, 1997), p. 13A.

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<sup>73</sup> Kevin G. Hall, "Mexico Puts Its Short Line Rails on Sales Block," *Journal of Commerce* (April 18, 1997), p. 2B.

<sup>74</sup> Kevin G. Hall, "Mexico Issues Rules of the Game for Airport Bids," *Journal of Commerce* (February 10, 1998), p. 13D.

<sup>75</sup> Ibid.

<sup>76</sup> Instituto Mexicano del Transporte and Secretaria de Comunicaciones y Transportes, *Apertura Comercial e Integracion Modal de Los Puertos del Pacifico Mexicano* (Sanfandilla, Qro., 1997), p. 5.

<sup>77</sup> Ibid., p. 16.

<sup>78</sup> Mary Sutter, "Privatized Ports Gain amid Growing Pains," *Journal of Commerce* (March 4, 1997), p. G6.

<sup>79</sup> Mary Sutter, "Mexico Looking to Privatize Port Administration," *Journal of Commerce* (June 19, 1997), p. 3B.

<sup>80</sup> Sutter, "Mexico's Transport Budget Close to \$3 Billion for '98," p. G6.

<sup>81</sup> Sutter, "Privatized Ports Gain amid Growing Pains," p. G6.

<sup>82</sup> Sutter, "Mexico Looking to Privatize Port Administration," p. 3B.

<sup>83</sup> McCosh, "1998 Port Plans," p. 12.

<sup>84</sup> Ibid.

<sup>85</sup> Mary Sutter, "Mexican Warehouse Sale Catches DHL's Interest," *Journal of Commerce* (April 9, 1997), p. 3B.

<sup>86</sup> Ibid.

<sup>87</sup> Ibid.

<sup>88</sup> Ibid.

<sup>89</sup> Kevin G. Hall, "Mexico Privatizing More Warehouses," *Journal of Commerce* (March 24, 1997), p. 2B.

<sup>90</sup> Barton-Ashman Associates, Inc. and La Empresa S. de R.L., "Task 6: Analysis of Public and Private Investment Programs in Mexico and the United States," *Binational Border Transportation Planning and Programming Study*, p. 16.

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<sup>94</sup> Mary Sutter, "Ensenada's New Owner Has Big Plans For Port," *Journal of Commerce* (March 20, 1997), p. 3B.

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