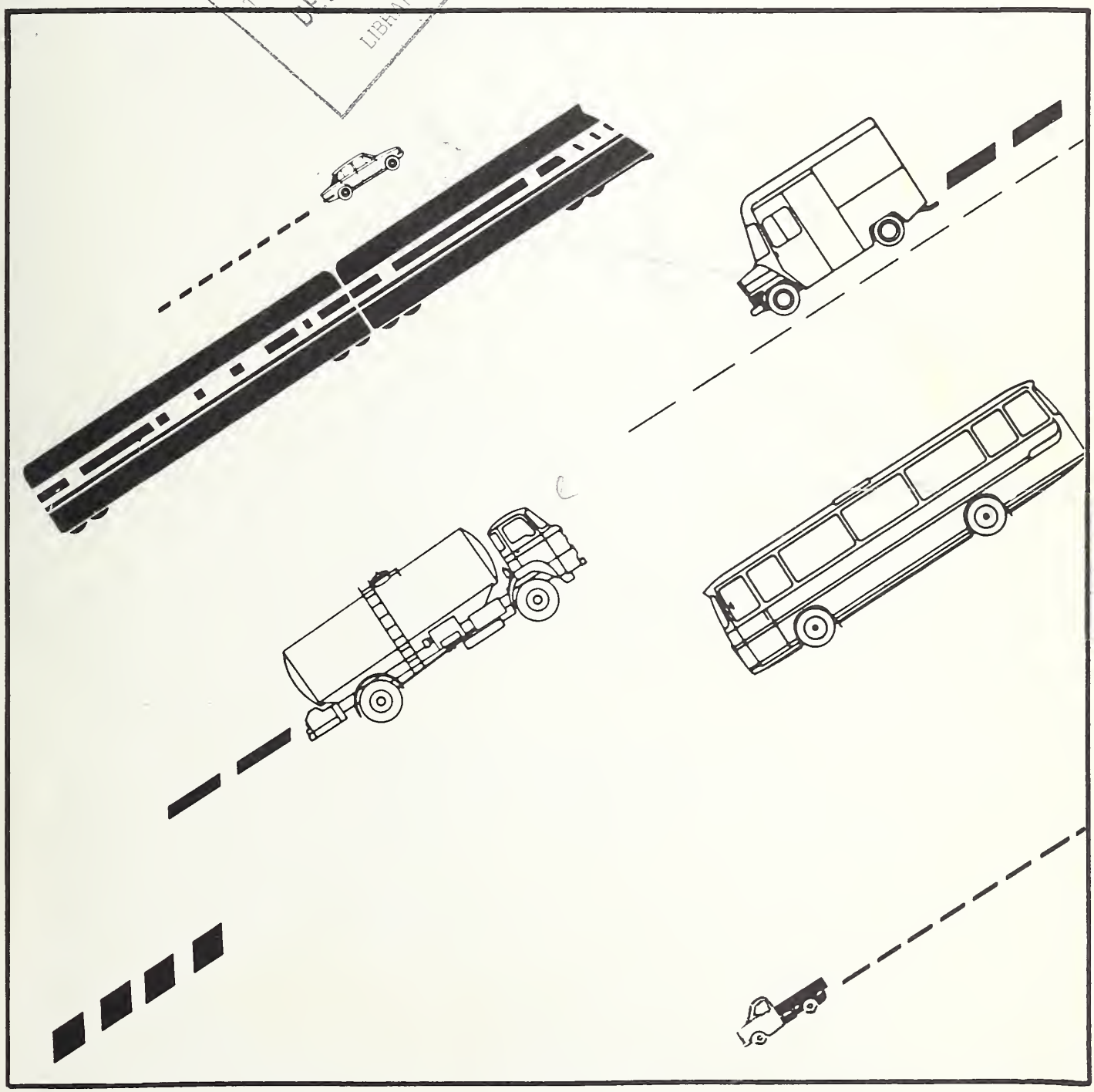
epartment of
sportation
e of the Secretary
nsportation

Linking Goods Movement and Economic Development:
A Case Study Analysis

December 1984



Linking Goods Movement and Economic Development: A Case Study Analysis

Final Report
December 1984

Prepared by
National Association of
Regional Councils
1700 K Street, N.W.
Washington, D.C. 20006

Prepared for
U.S. Department of Transportation
Washington, D.C. 20590
and
Economic Development Administration
U.S. Department of Commerce
Washington, D.C. 20230

Distributed in Cooperation with
Technology Sharing Program
Office of the Secretary of Transportation

DOT-I-85-36

NARC PROJECT STAFF

Janice Shott, Project Director
Jeri Green, Project Coordinator

CONTRIBUTING AUTHORS

Daniel Bicz, Director, Industrial Transportation Office, Erie County Industrial Development Agency, Buffalo, New York

Mart Kask, Executive Director, Puget Sound Council of Governments, Seattle, Washington

Josef Nathanson, Director, Economic Research and Information Systems Division, Baltimore, Maryland

NARC SUPPORT STAFF

Donna Weems, Administrative Assistant
Sylvia Riley, Secretary
Nancy Peacock, Receptionist

1984

This report was prepared under Technical Assistance Grant #99-06-0749-02 jointly administered by the U.S. Department of Transportation and the U.S. Economic Development Administration. Points of view expressed in this report do not necessarily reflect the opinion of the agency. The grantee assumes responsibility for the accuracy of the information contained herein.

TABLE OF CONTENTS

PREFACE

Urban goods movement has long been considered a critical factor in the metropolitan economy. Despite its importance, few regions have examined their goods movement network as an economic development asset or attempted to integrate transportation development with areawide economic development goals. Currently, however, a growing number of representatives from business and industry are informing their local officials about the economic burdens they experience as a result of inefficient--or insufficient--goods movement facilities. Local officials are more strongly aware that business and industrial locations decisions are not only directly tied to market access, but also to dependable transportation facilities for the distribution of their products to consumers.

The National Association of Regional Councils (NARC) has worked with the U.S. Department of Transportation (DOT) and the U.S. Economic Development Administration (EDA) to identify how regional officials can integrate goods movement planning with economic development objectives. Through the input of a project advisory committee, workshops, telephone interviews, and regional council reports, NARC has attempted to describe a process that can be used to: (1) formulate a coordinated goods movement/economic development strategy; and (2) implement components of the strategy through a partnership between public and private sectors. The following guidebook describes this process and presents case studies of regions that have formulated strategies to encourage port development, facilitate goods movement in the central business district, and seek alternatives to rail abandonment.

The National Association of Regional Councils would like to thank DOT and EDA for the resources that they committed to the project. We would also like to thank members of the project advisory committee for their guidance at the outset of the project and our members for the input they gave us regarding regional experiences in goods movement and economic development planning.

Transportation and economic development are priorities at both the local and regional levels. Regional councils can play a key role in bringing public and private sector leaders together to strengthen their economies through more efficient transportation systems. Goods movement is certainly a critical factor in this equation, and the following guidebook provides regional policymakers and staff with examples of successful efforts and assistance in assuring similar successes in their own regions.

PART ONE: AN APPROACH TO LINKING URBAN GOODS MOVEMENT AND ECONOMIC DEVELOPMENT

I. INTRODUCTION

Over the past decade, there has been a growing awareness of the impact of goods movement on the urban transportation system. Traditionally, urban goods movement (UGM) has meant one thing--trucks. Inefficiencies associated with trucks moving through the urban transportation network were seen primarily as a subset of larger urban transportation problems.

Within this context, common issues related to the special case of truck movements included:

- congestion and loss of on-street parking space caused by trucks loading and unloading in dense commercial districts;
- bottlenecks resulting from the mix of trucks and passenger vehicles on selected arteries; and
- opportunities seen in connection with plans for consolidating truck movements generated by multiple carriers in outlying terminals (e.g., wholesale distribution center organized under public authority or consolidated truck terminals serving multiple motor carriers).

In most cases, the prevailing motivation to correct these problems related to a need to reduce impediments to passenger travel. The reciprocal effects on the area economy was a secondary consideration, if considered at all.

For purposes of this report, an urban goods movement system is defined as a network of transport modes and includes a combination of local and intercity traffic, a variety of commodity types, and a wide spectrum of participants--consumers, industries, carriers, and representatives of local, state, and federal governments. Further, the shipment of goods, ranging from raw materials to the finished products of our plants and factories, is generally seen as a basic activity carried out in urban areas. In this view, commercial transportation is not unlike such other urban functions as public (passenger) transportation, the provision of water, electric and telephone services, or the delivery of the mails.

Although goods transport is now recognized as a critical element in the transportation planning process, few localities and/or regions have attempted to associate this issue with economic development concerns. Recent literature indicates a strong relationship between the condition and efficiency of regional goods movement facilities and the ability of businesses to compete and to provide services. A study prepared by the Harvard-MIT Joint Center for Urban Studies analyzed the domestic location decisions of large multi-plant companies in the United States. It reveals that industries manufacturing commodities with a low value-to-weight ratio (e.g., steel, automobiles, lumber and oil) require locations that provide close proximity to consumer markets as well as reliable and cost-efficient transportation alternatives for moving their goods. According to the study, high-technology industries generally manufacture commodities with a high value-to-weight ratio (e.g., microchips and other component parts), and thus are less concerned with the transportation costs

associated with the distribution of their materials or products to consumers. What is more important to the locational decisions of these industries is the ability of an area to attract and retain labor. Therefore, quality of life and labor force characteristics are given more weight than transportation costs in the location decision. Access, however, to transportation services, especially air transportation, is an important consideration for high-technology firms. Fast and reliable distribution of "high-tech" products is guaranteed by air travel making this mode of goods transport the preferred choice for some "high-tech" companies.

The specific types of problems associated with goods movement varies by mode, but generally involve delays in shipments due to infrastructure disrepair or traffic congestion, inadequate access to distribution centers and insufficient space for loading and unloading goods. In areas where congestion is great and parking and access facilities are inadequate, the cost of goods transportation increases rapidly.

The end result of these problems is usually the same--adverse economic impacts on industry and the local community. These impacts translate into profit losses, firm closures and the loss of jobs and revenues to the local and regional economy. Consequently, local governments are gradually realizing that business and industrial location decisions are not only based on access to raw materials but also on dependable transportation networks that ease goods distribution. Despite the importance attached to goods movement and its impact on metropolitan areas, there is limited data available on commodity flows or their economic impacts. The scarcity of goods movement literature and research can be attributed to the following reasons:

(1) More attention and resources are placed on inter- and intra-urban passenger movements.
(2) Government has been more preoccupied with the regulatory aspect of freight movement and less concerned with the efficiency of goods movement systems.
(3) Generally, urban goods movement activities have been fragmented and uncoordinated on the part of federal, state and local governments.
(4) A lack of financial resources has inhibited the formulation of goods movement forecasts at the local and regional level.

In addition to these reasons, local governments generally believe that urban goods movement is a private sector problem with a need for private solutions. As indicated earlier, this is quite the opposite. Goods movement flows within and between localities are linked both to the stability of regional economies and to the national economy. The collective result of separate goods movement inefficiencies and bottlenecks which occur from region to region have negative impacts on national productivity and growth. It follows, therefore, that improvements to regional goods movement networks will not only yield benefits to regions and their businesses and industries, but will ultimately bring forth benefits (either directly or indirectly) to the national economy.

Recognizing both the economic implications related to improved goods movement systems and the limited availability of information and data on goods movement

systems, this guidebook is intended to provide a framework for local and regional officials to use in developing a goods movement and economic development planning process. Special attention will be paid to strategies which combine the efforts of the public and private sectors in joint UGM and economic development activities. In light of this, the objectives of this guidebook are:

(1) to discuss the impact of goods movement problems on the regional economy; and
(2) to provide local and regional officials with a framework for integrating goods movement and economic development into a planning process.

Data needs will be analyzed as well as public and private strategies for UGM and economic development projects.

COMMON GOODS MOVEMENT PROBLEMS

As previously mentioned, goods transport can encompass a variety of modal choices. Whereas in previous years urban goods movement was largely thought of in terms of intra-city truck movement, it now can be considered to include several principal modes--truck, rail, water and air. Many of the difficulties experienced in transporting goods cut across transportation modes. For example, just as trucks within a central business district are subjected to time-consuming traffic delays and congestion, similar congestion is seen within rail yards and port facilities. In addition, just as deteriorated roads cause frequent truck breakdowns and mechanical problems for motor vehicles, poor rail infrastructure inhibits travel for rail cars along various routes.

Both problems reduce the profits of industry and cause good transportation to be an expensive necessity. The following discussion will focus on major goods movement problems associated with specific transportation modes and the impact they have on local business.

Trucking Activities. Most of the goods and services distributed in urban areas are delivered by motor trucks. In most instances, a driver and a truck is dispatched once a day to make a series of deliveries or pickups at a number of stops. The driver leaves the terminal in the morning and returns to it in the evening. During this time period, the driver (or carrier) is exposed to a variety of urban trucking problems.

One problem arises when municipalities limit the amount of hours carriers can operate in the central business district. Often, receivers further restrict carriers' hours by posing additional limitations on pickups and deliveries. Carriers must also locate legal parking space for large vehicles, gain entrance to the buildings (via freight entrances), locate freight elevators and obtain the appropriate signature from the consignee.

Interstate highway conditions can negatively impact goods movement as well. A 1980 U.S. Department of Transportation (DOT) report to Congress on the status of the nation's highways indicated that conditions have significantly

declined in highway systems from 1972-1978, with most of the deterioration occurring on the interstate network. Poor highway conditions not only increase truck maintenance problems for shippers but also affect fuel efficiency.

According to a 1977 U.S. DOT study on energy conservation in ground transport, fuel consumption increases by 34 percent for vehicles traveling at 40 miles per hour on an impaired road as compared to those traveling on roads that are in good condition. Highway repairs and maintenance, therefore, are necessary for efficient goods transportation and energy efficiency.

Rail Freight. Generally, the growth of many of America's large urban cities can be attributed to the strategic location of waterways and railroads. Freight rail service has been plagued with a number of problems that have resulted in either widespread job losses, service discontinuation and/or business relocation. According to a recent study prepared on New York City's rail system entitled, "A Freight Rail Action Plan for New York," antiquated and deteriorated rail infrastructure contributed heavily to the loss of over 500,000 manufacturing jobs since 1950.

Historically, bottlenecks in rail systems located in communities such as Laredo, Texas, and St. Louis have either impeded attainment of urban development goals or have inhibited new development opportunities. The rail circulation system is so poor in Laredo, for example, that Mexico-bound movements are regularly halted, literally in the middle of the city.

According to a U.S. Conference of Mayors report entitled "The Railroad Land Revitalization Program's Guide for Cities," this situation causes a major backup of southbound rail traffic all over the U.S. Similarly, St. Louis rail freight traffic is exchanged between railroads through a maze of 63 freight yards. According to studies, consolidation of these terminals could yield $15 million annually in rail profits and free 800 acres of land for reuse, including valuable waterfront property.

Physical constraints also affect rail freight shipments throughout the country. Clearances and low bridges prevent the use of intermodal freight equipment and other modern machinery built to improve goods transport.

Obviously, problems involving rail freight transportation can have a significant impact on investment decisions and can negate economic gains made in other sectors of the economy. Cities are quickly realizing that poor rail service exacerbates decay of the industrial base upon which they are dependent.

Port Operations. Ports and riverfronts of urban areas generally have shaped patterns of local and regional expansion and have provided an economic base for local development. As such, major obstacles affecting the transportation of foreign or domestic goods through ports clearly impact these economies as well. Obsolete, decaying piers are a widespread problem among many of the nation's older ports. Modern freight handling machinery and containerized ships have resulted in the use of advanced port facilities. As a result, larger terminals require better direct rail and highway connections. Consequently, existing docking and freight handling equipment at many port locations are either under utilized or abandoned.

Inland transportation networks are also critical to port operations--especially rail connections. The condition and reliability of a region's rail system is a crucial element in efficient port operations. Deteriorated road and track beds seriously impair export and import operations at port facilities. Improved inland ground transportation increases the competitiveness of ports enabling them to capture a greater share of the nation's (and the world's) cargo shipments.

Air Cargo. Air freight transportation is a multi-modal industry which incorporates door-to-door delivery by motor trucks with a time-saving air transportation system. Air freight is not generally cost competitive; rather, it is a time-alternative transportation system. In fact, users that rely on this type of service by the nature of their business are generally more concerned with time than cost. Instead, they seek reliable service and frequent flights. Air transportation fulfills this requirement. With access to major air terminals, company specialists and executives can move quickly from one facility to another and goods can be transported quickly to domestic and international markets.

Many of the problems that are common to regional airports also affect the air freight network. Congestion around airports, especially during peak commuting hours when road systems are congested, affect the efficiency of such air cargo operations. Perhaps another challenge to the industry centers around the order processing system for air shipments. The paperwork generated between the user, the carrier, its agent, bankers, customs, and insurance companies represent a significant cost factor. The magnitude of this problem is such that it has been estimated that as little as 20 percent of transit time for air cargo shipments is actually spent in the air flying goods. The remaining time is spent on the ground tied up in paperwork and procedural bottlenecks.

Finally, airline deregulation has caused many commercial airlines to reduce or eliminate service to many small cities where uneconomical flights have been operating. Since commercial airlines also provide a significant share of air cargo needs of businesses, it is safe to assume that the air freight needs of small cities are being affected by airline deregulation. Although there is a growing recognition of the impact of deregulation on smaller communities, there is little data documenting the economic impacts of this issue on cities or on the business community.

Intermodal Coordination. One of the recurrent issues in the goods movement field is the efficient transfer of shipments between modes. These include:

- the motor carrier to rail link--providing for the aggregation of many intra-urban shipments to the long haul shipper (and the reverse movement);
- the motor carrier to air freight link--providing for efficient truck movements in or near the airport terminal; and
- rail and road links to the seaport--providing for the transfer of waterborne cargo to the inland distribution system.

The key point here is that intermodal connections, including container shipments, if well-located and well-designed, can have a beneficial affect on the

business establishments served by the facilities. The problem is that the beneficiaries of these efficient connections are individual shippers or the business community as a whole, while the responsibility for locating and designing the terminals will ordinarily lie with motor carriers, railroads, airlines and port operators. There is no guarantee that the marketplace will produce an efficient solution. Hence, some process that can link the private needs of carriers to the public interest in supporting infrastructure to serve economic development is needed.

Levels of Service. One of the conditions which can significantly affect the performance of area businesses is low or unreliable levels of transportation service. The problem may be as simple as infrequent freight connections. More pressing may be situations of uncertainty. The box car shunted aside for several days in a railroad switching yard, awaiting its turn for processing, is not an unheard of problem. But the situation certainly does not enhance the competitive position of the firm awaiting the delayed shipment.

The responsibility lies directly with a private carrier (so long as there are no references to CONRAIL), but the consequences are felt by the entire local business community. Once again, it is necessary to place the goods movement issue on the public agenda.

Unavailability of Service. An extreme case of unreliable or uncertain service is the complete termination of a service. With deregulation in the transportation field proceeding, this is certainly not an academic issue, but rather one which will arise with increasing frequency, particularly in rural areas. Even within a regulatory environment, rail line abandonment can be a major economic blow to shippers and their affected communities. Even more devastating to future economic development may be cases of withdrawal of scheduled airline service to selected communities. (While this type of problem is more likely to be associated with small centers and non-metropolitan communities, there are recent instances in which major metropolitan areas would, without intervening efforts, suffer a drastic loss of rail freight service.)

In the case of service abandonment, urban goods movement and economic development interests clearly come into play. Here it is an adversary relationship which can carry over into other areas when there should be more of a commonality of interests.

Infrastructure Reliability. With increasing frequency, the press is reporting examples of transportation bottlenecks, time delays connected with significant detours, and tangible economic losses resulting directly from unsafe or undermaintained roadways and bridges, rail lines and tunnels. Decaying infrastructure, of course, has economic and transportation implications that go well beyond the concerns of those involved in shipping raw materials or finished products. However, the best opportunity for highlighting the problems associated with crumbling roadways and unsafe bridges--and bringing about a resolution of the problems--can occur when a major employer or a group of firms can identify their economic losses and the potential for lost production and employment. Here economic development officials and those with responsibility for goods shipments can work in common.

At times, the sheer magnitude of required capital improvements may reduce the chances of a desirable outcome. One of the characteristics of the physical improvements comprising the goods movement system is that meaningful investments--those providing major gains in terms of savings, operational efficiencies, or safety--are likely to be costly. In addition, to the extent that private capital is involved (railroad trackage and terminals, private port terminals and airport facilities), the return on investment, compared to other investment opportunities, has tended to be low. Consequently, major capital improvements, in recent decades, have depended on public grants, loans, or interest subsidies. When the costs are very large, the improvements may be deferred indefinitely--or until a crisis is at hand.

Long-Range Planning. Most of the issues which have been highlighted point to immediate problems (though they may often lack immediate solutions). Another issue encompasses a traditional planning role--anticipating the future and recommending public policy to respond to change. The failure to anticipate significant technological or market changes can have major economic consequences. A seaport which did not correctly access the increased share of shipments accounted for by containerized cargo (e.g., San Francisco) may permanently lose out to a competitor (e.g., Port of Oakland) which makes the right investment at the right time.

Similar choices must be made today in connection with such matters as the expansion of coal export marine terminals (with connecting road and rail improvements), land-bridge, diversion of traffic to Canadian ports, among others.

The stakes are high for both the private business community responsible for the commodity movements and for the communities through which their shipments pass.

FEDERAL INITIATIVES

Although recent studies are beginning to indicate a link between goods movement flows and economic trends, few joint planning efforts have been initiated at the federal level which address this concern. Federal programs to stimulate regional development began in the 1960s, while urban highway systems planning by regional transportation planning agencies was also initiated during the same period. This section will provide a brief overview of federal efforts to address economic development issues and goods movement concerns.

Regional Economic Development. As stated before, federal programs to stimulate regional development were initiated during the 1960s. The Appalachian Regional Commission (ARC) and the Economic Development Administration (EDA) were the two major agencies responsible for regional economic planning activities. A good part of the federal support for development programs now comes from the following programs:

(1) The Department of Housing and Urban Development's (HUD) Community Development Block Grants (CDBG);
(2) HUD's Urban Development Action Grants (UDAG);
(3) The Economic Development Administration's program of public works and business development grants, loans and loan guarantees; and

(4) The Small Business Administration's (SBA) loans and loan guarantees to businesses.

Each of the above programs was designed to mitigate the problems of either unemployment, underemployment and/or urban decay. Specifically, HUD's block grant program has been directed mainly toward housing and the physical problems of low-income neighborhoods. Block grants have also been used for industrial and commercial development and to capitalize local revolving loan funds.

Urban Development Action Grants (UDAG), another HUD program, are aimed at helping severely distressed cities and urban counties to revitalize central business districts and to develop industrial areas. The UDAG program stresses leveraging private sector investments and creating jobs for a community.

The Economic Development Administration, since its organization in the mid-1960s, has provided funding for state, regional and local economic development planning. Its business loan programs have encouraged business development, while its grants programs have financed public works projects, industrial parks and other development facilities. Further, the agency's Title IX program has been used to capitalize revolving loan funds and to assist regions and communities to cope with the problems of both sudden and long-term economic deterioration.

SBA, created in 1953, offers several programs which provide financial assistance to small businesses. Those which can be utilized in local economic development efforts include the following:

- Business loans;
- Loans to State and Local Development Companies;
- Small Business Investment Company Program;
- Economic Opportunity Loans; and the
- Neighborhood Business Revitalization Program.

The thrust of SBA programs are to foster competition, facilitate the small businessman's access to financial markets and to provide benefits to socially and economically disadvantaged persons.

Federal Goods Movement Initiatives. The U.S. Department of Transportation exerted its first major effort on the subject of goods movement in 1971. At this time, the Urban Mass Transit Authority (UMTA) awarded a contract to Battelle Columbus Laboratory in Columbus, Ohio, to explore the nature and magnitude of transportation and environmental problems related to the movement of goods in urban areas.

In 1972, former Secretary of Transportation John Volpe created the UGM task force in an effort to direct more attention to goods movement problems. The task force was under the leadership of the Federal Highway Administration (FHwA), and was charged with identifying significant goods movement problems as well as a federal role in goods movement planning. The following conclusions were drawn by the task force:

- UGM is not a single problem with a single solution. Instead, it is a number of problems (institutional, intermodal, intergovernmental, etc.), each of which are important to the efficiency of the nation's

transportation system and its economic viability.

- Excessive freight transportation costs in urban areas arise as a direct result of UGM inefficiencies.
- Institutional constraints due to competition among businesses, shippers and carriers exacerbate goods movement problems.

In 1974, the Department of Transportation, in defining its natural goals and priorities, identified the following goal in respect to goods movement:

> "Develop policies and programs to assist business and labor, states and metropolitan planning agencies to achieve improved goods flow into, out of and within urban areas."

This goal was divided into the following specific areas:

(1) Provide financial assistance for UGM projects.
(2) Increase the amount of information on UGM.
(3) Focus on UGM planning strategies and methodologies.
(4) Incorporate UGM into existing DOT methodologies.
(5) Encourage research, development and demonstrations in UGM.
(6) Improve government coordination.

To date, the Department has had an uneven success rate in achieving the goals it set forth in 1974. Some of the goals have been met with a high degree of success while others have taken longer to accomplish.

Financial assistance has been made available through FHwA and UMTA. Both agencies now recognize UGM as a legitimate use of funds for planning studies and make them available to localities directly through their Metropolitan Planning Organizations (MPOs).

The goal of providing more UGM information is slowly being realized as a result of studies supported partially or entirely by DOT. Efforts have been slow in this area as localities are not sure what information they want or need. Development of a UGM planning methodology has been slow. This has been largely because a framework for collecting and analyzing UGM data has been slow to develop. According to the Department, local planners need both a methodology and data to develop a planning framework.

In respect to the integration of UGM into existing DOT programs, the agency has had a great deal of success particularly with reference to its environmental legislation. Currently, noise and emission standards are required for commercial vehicles. In addition, states are required to submit Environmental Impact Statements to DOT before federal funds are provided for capital improvement projects.

Joint Strategies. Over the past few years there has been an increased emphasis on linking economic development and transportation. These efforts have been most notable locally along transit corridors in connection with port development, and where rail lines are threatened with abandonment.

On the national level, the Department of Transporation and the Economic Development Administration have sought to stimulate joint strategies by funding research and technical assistance projects conducted by the U.S. Conference of Mayors and the National Council for Urban Economic Development. More recently, the Transportation Research Board has made urban goods movement and public/private partnerships priority areas of interest with encouragement from DOT.

Most of these efforts, however, have examined the link between economic development and goods movement in terms of a single project. Little has been accomplished, either at the local or national level, to integrate goods movement and economic development in a comprehensive strategy. This handbook attempts to provide an overall framework for the formulation of a joint strategy at the regional level and illustrates how public and private sectors have worked together to solve specific goods movement problems that have created both opportunities and obstacles to regional economic development. Since these problems transcend jurisdictional boundaries, it is only sensible to examine and then solve them within a regional context.

ORGANIZATION

The following chapters relate a process that can be followed to develop strategic plans that link goods movement and economic development concerns. Chapter II, The Analysis, describes various techniques that can be used to describe the goods movement system and the region's economic base. It also discusses methods for forecasting change and assessing the impact of a region's goods movement network on its economic performance.

Chapter III, Organizing for Action, discusses the various actors who should become involved in strategy development, what the private sector can contribute to the process, and how to maintain the commitment of those individuals who are brought into the process.

The fourth chapter, Formulating the Strategy, defines the components of an action plan and its link to goals and objectives. It also suggests actions which might be included in a strategic plan. The final chapter is an overview of some of the trends that will be shaping economic development over the long term.

Part One of this guidebook suggests an approach which might be taken by regional agencies that see a need to treat their area's goods movement network as an economic resource. The case studies in Part Two offer an in-depth view of how four regional councils have used variations on this process to formulate strategic plans that integrate goods movement planning with economic development. Hopefully, this guidebook as a whole will be useful to other regions that wish to move in this direction.

II. THE ANALYSIS

The purpose of the goods movement/economic development planning process is to identify a region's comparative advantage, select realistic development goals, then formulate strategies to implement these goals. Analysis is required in order to understand the strengths and weaknesses of a region's economy, design alternative strategies for improving the economy, and to develop a framework for evaluating feasible alternatives for accomplishing this.

Although there are accepted methodologies associated with both transportation planning and economic development, few regional councils, to date, have coordinated these analytical tools to measure the relationship between a region's goods movement network and its economic activities. As mentioned in the introduction, only a handful of localities have seen a direct correlation between efficient goods movement and a comparative advantage in regional economic development. Consequently, few communities have assessed their goods movement network as an economic resource. Further, transporation planning has traditionally been oriented to engineering issues. As a result, transportation analysts have emphasized traffic volumes, capacities and improvements This narrow approach is changing, however; more recently DOT has encouraged MPOs to develop transportation management system components in their planning process.

Data has been another problem. Public data sources that identify commodity flows are outdated and broad in scope. Frequently, private companies are reluctant to disclose data that pertains to their operations, fearing loss of the competitive edge. Without federal funds, localities have lacked either the incentive or the financial resources to collect data or to develop the analytical techniques needed to analyze goods movement networks in the context of regional economic activities and goals.

Developing an analytical framework requires techniques to answer the following questions:

- How is the goods movement network structured?
- Is the transportation system adequate to meet business' short- and long-term needs?
- How does the region's economy work?
- How might it change over time?
- What "megatrends" or issues are likely to impact the economic environment?

This section discusses some of the techniques that can be used to answer these questions. Transportation and economic development planners working together can develop the basic information that is needed to integrate goods movement and regional economic development. Following are some alternatives:

Surveys. A visual survey is a "quick check" of the region's goods movement system.[1] It is a first step to identifying some of the land-use and transportation problems that businesses might face in their operations. It can

also be used to obtain a broad overview of the region's economic activities. Some general problems that might be spotted include:

- Freight and person movement are intermixed in the retail sectors of the community;
- Roadways are narrow and/or highly utilized;
- The CBD possesses a high concentration of activity;
- The community's economic activity is widely dispersed and the economic base is diversified;
- The network of arterial streets is insufficient and/or natural barriers exist (e.g. rivers, ridges);
- Physical obstacles which hinder or prohibit truck movement exist (e.g. low overpasses, weight limitations on bridges, street furniture too close to the roadway); and
- Minimal enforcement of parking restrictions in loading zones.[2]

In addition, planners might also detect physically declining neighborhoods and industrial areas, antiquated rail facilities, or bottlenecks at loading docks. With this type of information, an agency is in a position to more closely assess the goods movement/economic environment.

An inventory of the goods movement network and the business facilities it serves might follow the quick survey. An inventory of this type can be used to identify major components of the transportation/economic development system and how they are interrelated. This data base can support strategy development and project planning.

The Regional Planning Commission for Jefferson, Orleans, St. Bernard and St. Tammany Parishes took this approach in its two-year study of the New Orleans metropolitan region. At the outset of the project, the agency located air, rail, and harbor facilities, then plotted their location on maps. Staff also compiled an inventory of major warehouses, industrial parks, shopping centers and office buildings in the region. Together these inventories gave a cursory view of how well major economic activity centers were served by goods movement facilities. The inventory reinforces the visual survey by graphically illustrating the physical relationships between areas that have relatively good access and places where congestion slows the flow of goods to and from area businesses.

An even more detailed analysis of the transportation/economic development environment can be obtained through interviews, questionnaires and field surveys. Personal interviews with individuals knowledgeable about the region can provide two forms of information. Interviews can offer further information about the goods movement problems and the impact these problems are likely to have on the future plans of specific local firms. Interviews can also be used to obtain more detailed information about the characteristics of the freight system and the flow of commodities into, out of, and within the region. Personal interviews with shipping and receiving clerks can yield information about the operational problems that firms must cope with on a daily basis.

Mail questionnaires are a second method to further pinpoint the characteristics of and problems in a region's goods movement system. Mail surveys are

a relatively low-cost vehicle and can be used to identify commodity flows, truck routes, loading space demands and shipping modes. In Wisconsin, the North Central Regional Planning Commission in Wausau used a survey to identify how goods were shipped within the region and to assess the potential impact of rail abandonment on the region's shippers.

Field surveys constitute a third method of data gathering. Field surveys provide a more in-depth view of problems spotted during the initial visual assessment. The following areas might be included in this study:

- Truck routes (both designated and undesignated).
- Entrance points to major commercials areas along the truck routes.
- Older warehousing and/or manufacturing centers in or near the CBD.
- The entire central business district.
- Industrial parks or districts.
- Intermodal freight movement points such as port facilities, piggyback or trailer-on-flatcar operations, oil and gasoline bulk terminals, etc.
- Strip shopping development.
- Major shopping centers and any other major commercial development.
- New or proposed high-rise office complexes.[3]

The second phase of the study conducted by the Regional Planning Commission for Jefferson, Orleans, St. Bernard and St. Tammany Parishes built upon its initial inventory through field surveys of the central business district. The agency studied truck movements and assessed how the design and physical layout of existing establishments affect truck movements within the CBD. The inventory, visual survey, field interviews, and projections of future development enabled the agency to pinpoint and assess the magnitude of problems within the CBD, and to make recommendations for improving truck movements in the area.

DESCRIPTIVE ANALYSIS

Field surveys and interviews can provide basic information about the industries located in an area, their satisfaction with the region as a site location, and their future operational and location plans. Several low-cost, easy-to-use techniques can next be used to obtain an overview of the economy and to compare its performance with other regions. These include:

- Regional profiles to provide basic statistical information about a region and an overview of regional economic trends and characteristics. Absolute and relative information on personal income, population, business activity and value added show the importance of some industries as compared to others. Regional profiles provide a starting place for the decision maker, setting forth the area's population, economic and social characteristics and, in some cases, geographical characteristics.
- Economic base analysis to identify "export industries" which bring "dollars" into the community and to assess impacts of proposed policies through the use of the multiplier technique.
- Shift-share analysis to show how industries within a region are grow-

ing in relation to each other and how the performance of a region's industries compare to the performance of these same industries nationally.

Using these relatively simple and low-cost techniques, council staff can determine a region's dominant economic activities, identify industries that appear to be growing and those that seem to be declining. Planners can also assess the region's comparative advantage in relation to other regions. Data to undertake these studies are easily available from federal, state and local sources.

FORECASTING CHANGE

The input-output model provides a more detailed picture of the regional economy by describing inter-industry linkages and the direct and indirect responses of the economy to changes in external demand. Despite its potential value, an input-output model can be difficult to construct. Strong assumptions about the region's economy must be made. In addition, data requirements are enormous. If extensive data is gathered through a survey of the region's firms, collecting and refining data can be very expensive.

Costs can be reduced, however. A model can be condensed into a more aggregated form. Data can also be synthesized from other models. Cutting corners will sacrifice some detail in the model, but the results will nevertheless provide a useful framework for analyzing production input and commodity flows on a disaggregated basis.

An econometric model is a second option. These models are, in fact, often considered to be moderate cost alternatives to input-output models. Depending on the model size and complexity, an econometric model requires less data and can be built using data from readily accessible sources. Alternatively, a region may be able to adapt to an econometric model that was constructed for a larger region. The Puget Sound Council of Governments in Seattle, Washington, for example, constructed an econometric model that is adapted from an input-output based econometric model of the state of Washington.

In the forecasting model used by the Capital District Regional Planning Commission in Troy, New York, economic expansion or decline is predicted by tracking employment in seven factors. Average weekly earnings in manufacturing are forecasted as well. Taken together, these eight components provide a dynamic picture of the total economy. Forecasts are made for each employment sector and reassembled to predict for the whole. Information such as this was then used by the agency to develop a strategy for the Port of Albany area and to assess future demand for the proposed container barge feeder service to New York City.

Despite their use of forecasting techniques, neither regional council nor local governments normally use quantitative analysis to assess the linkages and impacts of a goods movement network on a region's economic activities. One approach might be to extend the conventional input-output matrix which contains total purchases and sales among the disaggregated industries and

between the industries and the final consumers. The goods movement matrix would extend the input-output model by disaggregating the transactions into commodity and non-commodity flows among industries (and final consumers). The commodity flows, which for each industry would be some proportion of total purchases/sales, could then also be expressed as direct commodity purchases per dollar of industry output, and (inverted) as direct and indirect requirements per dollar of final demand--again as for the usual input-output model. This type of goods movement model would thus relate goods moving to and from an industry to its total output, its final consumers, and the industries indirectly dependent on it.

SUMMARY

Sound analysis of a region's economic activities can provide policymakers with important information about an area's economy. A description of existing conditions allows planners to do a quick assessment of problems within the economy and its goods movement network. Surveys then allow transportation planners to identify the specific needs of local firms. An analysis of historical data will indicate the structure of the region's economy, how it has evolved over time, and how it has changed with respect to natural conditions. It will also point to industries in the region that seem to possess competitive advantages and disadvantages, vis-a-vis other regions and the country.

Input models and econometric models are useful methodologies for long-range planning. Through these techniques, it will be possible to forecast changes in the region's economic activities and to test the impact of proposed policies.

As an example, descriptive analysis may show that a region is making the transition from a heavy industrial area to a center of high technology firms. Heavy industry might be dependent upon rail and/or freight access. High technology firms might be more interested in a region's truck or air freight facilities. Forecasts may indicate that the shift toward a high tech economic base will continue into the future. Decision-makers can then decide whether or not to support the older, industrial base through investments in rail and freight facilities, or to gradually shift public investments in support of the newer high-tech industries. Planners can further assist policy-makers by testing the short- and long-term impacts of their decisions on the performance of the regional economy.

Whatever methods are used, it is important for the analysis to be fast-paced and efficient.[4] Data and available studies should first be inventoried. More specialized studies should be undertaken to fill in gaps. Care should next be taken to assemble the information in a form that will be understandable to local officials. Regional profiles mentioned earlier synthesize information and give the broad picture. They are thus excellent vehicles for the dissemination of information to public and private sector leaders who do not have the time to wade through lengthy research reports.

Data can be obtained through a variety of sources, and planners may want to involve outside experts during this phase. Technical advisory committees composed of experts such as economists, academics, transportation consultants

and market researchers may be appropriate in some regions to lend credibility to a public study.[5]

Although public and private sector leaders may be asked at the outset of the planning process to give their perceptions of problems in the economy, this is not the time to request their deep involvement.[6] Instead, they should be brought in after the analysis is complete, acquainted and asked to assist in the development of goals and a strategy to attain these goals.[7]

III. ORGANIZING FOR ACTION

A recognition that goods movement problems have a negative impact on the stability of a region's economy is a first step to integrating economic development and goods movement concerns. A second step in this process requires the formation of an active group of community leaders with the interest, power and resources devoted to improving the flow of goods within the region.

Organizing such a group is not always easy. First, there are strong differences in the way economic development practitioners and transportation planners operate. In most cases, economic developers are concerned with quick deals and business expansions, while transportation planners take a long-range view. These groups rarely have an opportunity to work together, and when they do, it often concerns a joint development project with a mass transit focus.

Second, there is a polarization between competing rail, truck, air, and water carriers. The polarization between private carriers has been reinforced by the segmentation of state and federal agencies along modal lines. For example, the U.S. Department of Transportation has separate agencies for highways, rails, waterways, airports, and other transportation modes. Divisions in transportation services in both public and private sectors has impeded efforts to move more quickly toward intermodal cooperation. While deregulation has created new efficiencies and opportunities for intermodal developments, there are a number of problems hindering action in this area.

Third, the private sector has had to adjust to environmental, operational and market changes. Many traffic managers are accustomed to a regulatory environment and are finding it difficult to adjust to deregulation. Employment cutbacks due to the recession are reducing the time business has to participate in community affairs since managers frequently perform the functions of two or more people. Further, many companies have not developed long-range business plans because they are uncertain of the full impacts of deregulation, or of changes in their markets. Even if a company has altered its distribution system, this information may be confidential and not privy to outsiders. The following sections discuss who should be involved and the type of assistance each group can offer.

KEY GROUPS TO INVOLVE

Although economic development practitioners, transportation planners and business people have not traditionally worked together to resolve goods movement problems, there are signs that joint action is becoming increasingly desirable. Today top managers are more interested in transportation and in finding opportunities to reduce their operating costs. They are also realizing that government's ability to initiate legislation, make infrastructure improvements, and cut red tape can be put to work to help business. At the

same time, local governments, looking for ways to increase tax revenues and create jobs within the community, see a need for a coordinated approach to business development and transportation programming.

Regional councils can serve as a catalyst by bringing together community leaders with a stake in the developmental process. It is important to note that these actors will vary from region to region, depending upon the nature of the problem, proposed project objectives, and the informal power structure within a given community. Despite this caveat, the groups identified below are likely candidates for involvement in the identification and resolution of goods movement/economic development problems:

- Carriers - private operators of transportation services, including motor carriers, railroads, air cargo carriers, and steamship lines. This group can be extended to include providers of ancillary services, such as freight forwarders and freight consolidation, stevedoring, air cargo handling, and similar functions.
- Shippers - major establishments of industry groups which rely on frequent or high volume shipments of raw materials, finished parts for assembly, or finished goods. Obviously, in a large metropolitan area many establishments could fall into this category. Establishments with major fiscal and/or employment impact on the local community, as well as those with pressing goods movement problems, would be likeliest candidates for any organized efforts to resolve the problems.
- Terminal operators - These might include private firms, quasi-public authorities, or public agencies, depending on local conditions and the specific issues being dealt with. Examples would include port and airport terminal authorities, operators of wholesale distribution terminals, railroad terminal companies, and similar entities.
- Professional and civic organizations - prime examples include area-wide chambers of commerce, downtown business organizations, private economic development associations, and trade associations of directly interested parties (e.g. steamship trade association).
- Public transportation and economic development organizations - state and local departments of transportation, economic development agencies, departments of planning, metropolitan planning organizations and regional councils (the latter two types of organizations are often, though not necessarily, synonymous).

Finally, depending on the issues, other organizations which transcend the metropolitan community may be a part of the picture. Examples are U.S. Corps of Army Engineers (harbor dredging), U.S. Postal Service, Federal Railroad Administration, national trade associations, among others.

It is particularly important for regional officials to include appropriate representatives of the business community in the planning process. The private sector can be a source of project financing. This group also utilizes and is affected by projects once they are implemented. Although members of the private sector have been brought into the economic development process, they are less often involved in transportation planning as it relates to economic development/goods movement concerns. They can, however, provide valuable input in the form of technical expertise and the data that local communities need in order to undertake goods movement analysis. This can be

done by the direct involvement of company officials, or by representatives of appropriate trade organizations.

In addition to private sector transportation representatives, Central Business District Associations (CBDAs) and areawide business organizations such as a regional chamber of commerce should be included in the planning process. These organizations will usually rally behind and endorse a well-defined, results-oriented project that spells out specific development opportunities. Business groups are an invaluable resource to have in a joint planning process since their "good housekeeping seal of approval" lends credibility to publicly initiated projects and provides linkages to other private groups that would otherwise be inaccessible to the public sector.

State transportation agencies should also be kept abreast of local issues and proposed projects, and tapped for technical expertise and data. Local governments should work with state agencies to develop methodologies which analyze linkages between their economies and specific transportation modes. State and local participation will be increasingly important since the federal government has shifted responsibility for economic development to the state and local levels.

Finally, it is important for local and regional agencies to promote staff level coordination within their own organizations before asking other groups to become involved in economic development/goods movement planning. This can be achieved through variations of an intra-agency, transportation/economic development team which might bring agency planners, engineers, economists and transportation planners together around issues related to the economy and urban goods movement. This team can be used to develop methodologies, prepare analyses, formulate preliminary policy recommendations, and prepare project proposals. Team members can provide local officials, regional board members and private sector representatives with facts, statistics, and well researched reports that identify problems and support within a region for a particular policy or projects.

TAPPING PRIVATE SECTOR EXPERTISE

Representatives of the economic development and transportation communities can assist local officials in improving goods movement systems throughout the planning process. As was discussed in the last section, information is a fundamental requirement in any planning study. The private sector can provide data on their use of the goods movement system and describe any changes in use that they anticipate in the future. Identifying barriers to development requires direct communication with firms already located within a region, and representatives of the private sector can assess the region's goods movement system as a factor in their location decision. Policy development is another area of potential involvement by private sector leaders as is the provision of technical assistance and management expertise.

Information. Developing regional strategies or specific projects that integrate economic development and goods movement concerns requires a basic knowledge about the composition of the regional economy, the structure of

the transportation network, and future plans of area firms. Some of this information is available through secondary information; other data such as commodity flows, truck routes, origin and destination of material, and company plans are not usually obtainable through published sources. The transportation and business communities can provide valuable information through their participation in surveys, face-to-face interviews, panel discussions, and open meetings.

Problem Identification. Many communities suspect that business operations may be hampered by inefficiencies in the region's goods movement system. Although complaints may surface on an ad hoc basis, it is necessary to pinpoint these problems and to learn from local firms how traffic bottlenecks, unrealized intermodal opportunities, rail line abandonments and inefficiencies in terminal operations are affecting the cost of doing business within the community.

Business groups and trade organizations have a knowledge of the firms that they represent and can be a first source of information about perceived problems in the transportation system. More formal survey and data collection efforts can follow.

This approach was taken in St. Louis, where local officials and trucking industry representatives raised repeated concerns over the impact of urban goods movement problems on their transportation systems and on their local economies. An immediate issue was the impact of trucks on city streets and the lack of adequate loading facilities for delivery and service vehicles. This latter problem reportedly slowed down goods movement within the city, contributed to unprofitable pickup and delivery activities, and caused some firms to withdraw from the market. Other groups which expressed similar concerns over the increasing urban goods movement problems in the St. Louis metropolitan area include industry and commercial representatives, labor, consumers, trade organizations, civic groups and those actively engaged in the delivery of goods and services.

Responding to complaints and requests for further research, EWGCC and the St. Louis Regional Commerce and Growth Association (RCGA) in 1979 teamed together to initiate a preliminary "problem identification study" to identify the nature, extent and degree of impact these goods movement problems had on the region's economy. After identifying and defining the problems, it was determined by EWGCC and RCGA that an accurate description of the metropolitan goods movement network and accompanying economic analysis would require the active participation of industry, commerce, consumers, governmental agencies and others with experience in the delivery of goods and services.

An Ad Hoc Study Committee was organized by RCGA and EWGCC staff to serve in an advisory capacity to assist and steer the Urban Goods Study. Committee members included city officials, a traffic consultant to the city, the Motor Carriers Council, the Local Cartage Association, trucking industry representatives and a representative of RCGA's Traffic and Transportation Committee. Through surveys and questionnaires targeted at private carriers and haulers, major system-related operational and institutional problems were found to

have adverse affects on St. Louis's goods movement and distribution network. Solutions to these problems are currently being identified by local government and industry.

Technical Assistance. The private sector can be useful in providing technical assistance to the private sector in the conduct of a study or in the implementation of a specific project. Assistance can be given on an ad hoc basis or through the formation of a technical/project advisory committee. Such a committee might be formed solely to oversee a specific project or it may be a subcommittee of a standing committee. Whatever the approach, care should be taken to involve private sector representatives with the skills needed to accomplish the task at hand.

The Capital District Regional Planning Council in Troy, New York, received technical assistance from the private sector in connection with its port development strategy formulated for the Albany Port District. The strategy sought to identify development alternatives for the port area. As part of this effort, a thirty-nine member technical advisory committee was organized to offer oversight and advice. The advisory committee was divided into four subcommittees: land-use, transportation, marketing, and financial management. Members were aligned with their areas of interest and expertise.

According to the commission, the private sector lended valuable input to the project. Much of their enthusiasm and cooperation was attributed to the short-term and "action-oriented" nature of the process. Further, each participant had a vested interest in the outcome of the strategy and a role to play through the assignment of specific tasks. Although this was a new approach for the commission, it was so successful that they plan to adapt it to future projects.

Policy Development. Public officials have increasingly been brought into the economic development planning process. The federal government's emphasis on public-private cooperation and coordinated economic development has in many communities encouraged a partnership between the business community and the public sector. Further, federal initiatives such as the Urban Development Action Grant program, the Small Business Administration's "503 Certified Development Corporation" program, and the Economic Development Administration's Economic Development District Planning program all require joint efforts by public officials and the business community.

Although many businesses are substantially influenced by freight costs and inefficiencies in the goods movement system, private sector participation in transportation has not been as widespread. This is an oversight since, as mentioned earlier, the private sector helps to finance public facilities and is impacted by the facilities that government chooses to build. The business community can offer valuable input by stating up-front what impact a proposed policy will have on their operation. With this perspective, government can effectively plan and program transportation improvements that support and encourage continued economic growth within the region.

An advisory committee comprised of leaders from the economic development and transportation communities can be used to work with government to set goals

and to establish a sequence of events to meet these goals. As such, the policy advisory committee should generally be formed after the basic data gathering stage is completed and be composed of business leaders who have the authority to speak for their firms.

The North Central Wisconsin Regional Planning Commission provides an example. The Commission is an economic development district and authorized to prepare overall economic development plans for its region. As part of this effort, the Commission formed a regional Economic Development Planning Advisory Committee. The committee is composed of seventeen public and private sector regional leaders who help to set economic development policy objectives and priorities.

Since 1979, transportation has been seen to be a high priority issue having a strong impact on the region's economy. Rail abandonments have been significant and the Commission has actively worked with local industries to guage the impact of abandonment and to seek alternative solutions.

Project Support. The private sector can provide a source of funding and in-kind support. However, a firm will be more likely to become involved in a project if they are headquartered in an area or if their market boundaries coincide with the regional council's service area. One key to obtaining private sector support is to demonstrate to the firm that it will benefit significantly through improved operations or an improved public image.

These factors contributed to the success that the North Central Wisconsin Regional Planning Commission had in obtaining funding from the shipping community for its rail freight study. This analysis was important to the shipping community. Their transportation costs would have risen substantially if rail lines were abandoned and goods had to be shipped by motor carrier alone. Thus, a study that identified the impacts and evaluated alternatives to rail abandonment was to the direct benefit of the public and private sectors.

SUMMARY

The private sector can significantly contribute to the goods movement/economic development process. However, some basic ground rules should be followed.

Utilize experienced staff. Council staff should be knowledgeable about economic development and transportation planning. Since staff will play a key role in getting a strategy or project "off the ground," they should have access to senior officials and/or the clout to coordinate the various agencies that will need to be involved. Further staff should be familiar with:

- Private sector concerns and the way the private sector operates;
- Opportunities for transportation development that will improve the economic climate of the region;
- The relationship between goods movement and economic development; and
- The effective use of public-private partnerships.

Equally important are political skills. Senior staff should be able to

communicate with policy officials, citizen groups, and business leaders. Staff should also be able to work with these groups to develop a consensus concerning the need for a coordinated approach to goods movement and economic development planning.

Selecting private sector advisors takes careful consideration. In establishing advisory committees, a council should keep in mind the purpose of the committee. A technical committee might include staff with specialized expertise in a given area. A policy committee might include chief executive officers who can represent the viewpoint of their firms. In either instance, an advisory group should be composed of peers. While public officials and business leaders should be encouraged to work together, a committee that is composed of staff, public officials and business leaders generally run into difficulties. A parallel staff working group might be set up to encourage coordination between public and private staff and to support policy development with ongoing technical analysis.

The selection of advisors will vary from region to region. In some regions, local business and trade organizations might serve as a first point contact. In other regions, individual business leaders should be involved at the outset. Whatever the approach, local officials should work with these groups to get their perspective of specific goods movement/economic development problems. An agenda for action can then be developed which reflects issues and concerns that are important to both groups.

Structure meetings carefully. When meeting with the private sector, it is important to quickly move the committee into action and to produce tangible results. Some suggestions include:

- Hold meetings in a corporate board room or private facility;
- Keep to a tight agenda;
- Since participants come from different backgrounds, define terms, omit jargon, and refrain from using acronyms;
- Meet with one or two private sector officials before hand to encourage their input and leadership; and
- Select a chairman from the private sector in order to dispel concerns that this is predominantly a government initiative.

The public sector should also assign specific tasks to each member so that they have a definite role in the project, and treat each committee member as an important resource.

Demonstrate economic benefits. Local officials should be able to demonstrate to business leaders that they will benefit by their involvement in the goods movement/economic development planning process. For business leaders to participate in committees or to serve as formal advisors, they will need to feel that the results of their efforts will produce decisions which will have economic pay-offs for their firms. Thus, it is important to stress that government can be a resource for infrastructure development, land clearance and assembly, business financing and ombudsman services.

IV. STRATEGY DEVELOPMENT

Once the analysis stage is complete and key players are identified, the council will begin its next task--the selection of realistic goals and the design of an action strategy to meet these goals. The relationship between goals and action makes the strategy a "strategic" plan. This concept originated with the military and later was adopted by the corporate community.

There are a number of vehicles which can be used to strategically link economic development and goods movement projects. They include:

- Long-Range Element in the Regional Transportation Plan - An analysis of population, employment and regional growth forecasts can be used to set priorities for freight systems that support regional economic goals.
- Short-Range Element in the Regional Transportation Plan - With regional economic development objectives in mind, the transportation community can view such options as curb loading improvements, intersection and channelization improvements, and the elimination of bottlenecks as components of an economic development strategy.
- Transportation System Management - Operating, regulatory, and service policies can be reviewed to assess their impact on the freight industry and on the overall distribution of goods and services within a community.
- Transportation Improvement Program - Projects that improve freight movement and support short-term economic development goals can be assigned a priority rating.
- General Development Plans - A region's general development can set forth specific goals and objectives that recognize a link between economic vitality and improvement in a region's goods movement network.
- Economic Development Strategies - A strategy can link transportation projects, as included in the transportation improvement program, with other capital improvement or business financing programs. Together, they constitute a coordinated approach to directing a region's growth.

Few regions have deliberately coordinated long-range goods movement and economic development goals in both transportation planning elements and in regional economic development plans. Many more regions have integrated these functional programs through a specific strategy or project that has been developed to meet short-term objectives. However, whether a region seeks to develop comprehensive, long-range plans or to design short-term strategies, the steps in the planning process remain the same.

EDUCATION

Educating business leaders about economic development is the first step in strategy development. The results of the analysis stage will indicate the region's comparative advantage vis-a-vis other regions and the nation. Analysis should also indicate how the economy is composed, and what major problems are hindering future growth. Alternatively, analysis might show

that unrestrained growth has created traffic bottlenecks, conflicts between goods/service movements and general traffic, and inadquate on-street and off-street loading. By presenting this information to business leaders and policy officials, the regional council can solicit support for a comprehensive approach to goods movement and economic development planning.

Educating citizens and regional leaders can be accomplished through a variety of methods. As will be seen in the case studies which follow in Part Two, advisory committees and individual meetings are frequently used means of involving key actors in the planning process. Conferences and seminars are other options.

SELECTING GOALS

This is one of the most difficult stages in the planning process since it involves choices and an agreement on how the region should approach development over both the short and long-term. It is particularly difficult to reach an agreement when the public and private sectors attempt to functionally integrate their activities. Despite the barriers, the selection of concrete and realistic goals is important because they can serve as a guide to policy-makers as they formulate strategies to maximize public and private investments in the economy.

In Baltimore, for example, the region adopted a general development plan in 1977 that included an economic development component. An important issue identified by regional leaders was out-migration of older industries. Thus, one of the goals in the development plan clearly stated:

> "There should be a climate favorable to the growth of business. There should be adequate infrastructure--land, financing, transportation, power, and services to sustain and expand economic growth..."

Specific policies to support this goal were also stated. They are:

- "Achieve conservation and rational development of land with special unique features."
- "Recognizing that the port is vital to the well-being of the region's economy, effort must be made to sustain, enhance, and increase the productivity of the port."[8]

These policies and goals have directed both strategy development and the selection of economic development projects within the Baltimore metropolitan region. This includes plans to develop the Hawkins Point-Marley Neck area, identified in the General Development Plan as the last remaining piece of undeveloped land with deep water access.

Goals, once selected, should be a clear statement of what the region hopes to accomplish.[9] A region may select multiple but conflicting goals.[10] For example, high unemployment may be a problem, and the region may determine that it is necessary to increase the number of jobs available to the region's workforce. At the same time, regional leaders may have decided to attract high technology firms to bolster tax revenue and to replace a declining industrial base. Although this will produce new jobs, it does not mean that

the region's unemployed workforce will have the technical qualifications required in these new positions. Thus, although goals may appear to be compatible, they may actually conflict. One strategy for this region might include a training program to upgrade worker skills and a program of infrastructure improvements to make the region more attractive to prospective high tech employers.

Goals can further be defined by a statement of objectives. Starting with the highest priority goal, decision-makers can determine the results they want to see within a given time frame.[11] For example, if unemployment is a problem, decision-makers may decide to place 10% of the unemployed workforce in training programs by the end of the year and increase the availability of jobs by the same percentage through industrial attraction and retention programs. The strategy becomes a series of action steps designed to accomplish specific objectives.

FORMULATING THE STRATEGY

A strategy is an expression of goals which have been previously set. Although goals do serve as a guide, a region will have several options that it might select in addressing these goals. Strategy development requires decision-makers to narrow these options and to formulate a set of related programs and projects to meet regional goals and objectives.[12]

In order to design an effective strategy, regional leaders must be familiar with the causes of growth and decline and cognizant of how the region is likely to develop without public intervention.

Leaders should then assess community resources and determine what actions it can realistically afford to take to improve the region's comparative advantage. The impact of proposed actions can then be tested to determine which approach will likely be most cost-effective in reaching stated goals and objectives.

TARGETING DEVELOPMENT

In order to guard against the formulation of a plan that is merely a listing of unrelated projects, a region will have to decide who will benefit from public development efforts.[13] This decision will be based upon a knowledge of a region's strengths and weaknesses, and of course, has to reflect political reality.

Geographic Areas. One region might direct substantial efforts to a specific geographic area. The Capital District Regional Planning Council in Troy, New York, formulated a comprehensive strategy for the Port of Albany, an area considered to have rich development potential as a site for new development. Improvements to the port were also seen to be a key to encourage goods movement travel through the port to New York City and in promoting export trade among area businesses.

Targeting efforts within a specific geographic area allows local governments to take a concentrated approach to solving the specific problems of the area. It also allows regional leaders to create specialized development programs and to achieve visual results with a relatively small development budget.

Specific Industries. A region might concentrate on attracting or retaining firms within a specific sector or industry group. Rail freight shippers were the focus of efforts by the Tri-State Regional Planning Agency to improve services on a deteriorating branch line in Westchester County. Rain abandonment would have meant out-migration by several firms and the loss of $45 million in sales and over 1,350 jobs. Thus, a plan to preserve the rail line was a key component of the region's industrial retention effort.

The selection of a sector or an industry should be based on an understanding of the causes of economic growth and decline and a knowledge of those industries that give a region its comparative advantage, or could produce jobs and/or tax revenue for the region.[14]

In summary, a targeted strategy that links goods movement and economic development might focus on a specific geographic area--ports, airports, central business districts, inner city industrial parks, warehouse districts, or suburban manufacturing areas. A functionally integrated strategy might also target a specific industry, sector, specific manufacturing firms, high-tech companies, small businesses, commercial and/or service firms.[15] However, developing a strategy requires a region to:

> "...(1) identify potential target areas. This can be done using data from the region's assessment of local conditions; (2) examine the strengths, weaknesses and potential of each target area; (3) develop selection criteria; (4) development investment options; (5) select final target area; and (6) refine implementation plans."[16]

Again, it is important that members of the transportation and economic development community involve leaders from the private sector in an assessment of development options.

PROGRAMMING

Once an action plan has been accepted by public and private sector leaders, the region can offer guidance in allocating resources among the programs and projects that comprise the strategy. The allocation of time, resources and responsibilities makes the strategy "strategic." Elements in programming include:

- Timing. When will the strategy be put into action? All actions must be assigned in a time frame, usually broken down to the timing of individual tasks within larger actions. Without a schedule, it is impossible to estimate resources needed or to evaluate results at any given point in time.
- Resources. Who pays for each action in the program? Resources must be committed to actions by the metropolitan council, local governments,

the private sector, and others before a program can be undertaken.

- Responsibility. Who will do the work? Most regional strategies propose actions to be taken by many groups. Implementors must be specifically identified and committed to their share of the work program. This introduces accountability to the program within the context of the schedule and resources. Responsibility for the program will likely be shared among several groups, including local governments, private individuals, firms, quasi-public development groups, and the metropolitan council. However, the council, as the initiator and principal architect of the strategy, retains leadership for its implementation and evaluation.
- Results. What are the results? The strategy should set forth the results to be achieved by each action. These clearly stated and understood objectives will be the basis for evaluating the strategy as implementation proceeds.
- Evaluation. Do the results achieve desired objectives? A final step in the implementation of the economic development strategy is, of course, evaluation. As with all programs, the strategy should be continually evaluated, with mid-course corrections made where necessary.[17]

Implementation may require a new set of actors to oversee management of the strategy and to provide technical assistance related to specific elements within the plan.[18] However, leadership should be provided by regional agencies with functional responsibilities for regional programs in transportation planning and economic development.[19]

STRATEGY OPTIONS

The goal of an integrated goods movement/economic development planning process is to create and retain jobs by making the community more attractive to private investment. Strategies to meet this goal might entail improving the flow of goods by:

- Mitigating the impact of modal changes;
- Utilizing new transportation technology;
- Taking over rail lines and yards from major carriers;
- Modernizing regional infrastructure; and
- Improving central business district truck movements.

Actions that can be taken in these areas are discussed in the following sections.

Mitigating the Shift from Rail to Truck. Rail abandonment is a problem in many industrial areas. Significant problems frequently arise when a region loses rail service or is unable to handle larger rail cars. First, it may not be economically feasible to truck certain commodities. Second, some older facilities may be captive to rail through rail layout of a plant and/or lack of room for expansion. The public can assist by:

(1) Assembling land for the relocation of affected firms;
(2) Providing infrastructure improvements in the form of service roads, truck staging areas, piggyback terminals; and
(3) Negotiating with railroad to determine if surcharges or increased

carloads can justify continued service.

Funding for these activities might come from a variety of sources. For example, tax incentives or industrial revenue bonds entice the private sector to finance new plants and facilities. Public funds, user fees, or tax levies could finance roads, while a combination of public funds, bond issues and private investments could be used to finance piggyback terminals. Staging areas would be constructed through private investment.

Finding Alternatives to Rail Line Abandonment. Rail line abandonment is one of the first problems that unites economic developers, transportation planners, users, and carriers. Although this has traditionally been a rural problem, urban areas must cope with rail abandonment as well. From 1975 to 1982, 7,000 miles of rail line were abandoned in the Northeast alone; within a decade, 20,000 to 40,000 miles of rail line will be abandoned across the United States.

Companies sometimes overstate their need for rail service. But there are instances where firms will relocate as a result of rail abandonment. Further shortlines or users can sometimes operate a previously unprofitable line at a profit. In these cases, the private sector can play a lead role in keeping the line open. They can encourage public sector involvement, set up operation of the line, invest in the service, and use the line to the maximum extent possible. The public sector can acquire and maintain the line. It can also assist a new operator by eliminating property taxes and acquiring state and federal permits.

Despite the advantages of a local takeover, it is a complicated procedure that requires technical expertise. Below is an outline for an action plan:

(1) Make sure that the line is needed and that a more feasible alternative is not available.
(2) Undertake a feasibility study to assess revenues, condition of line, and other railroad expenses.
(3) Acquire or lease the line.
(4) Rehabilitate the line, if necessary.
(5) Establish shortline or terminal operations.

Once a decision to proceed is made, funding can come from a variety of sources. These include back tax claims against the railroad, block grants, local and state bonds, industrial development bonds, surcharges or motor vehicle taxes.

Modernizing Infrastructure. Over the past several decades, there has been a dramatic shift from rail to truck. Today, railroads are focusing on long-haul, bulk and intermodal movements, and de-emphasizing boxcar shipments. This shift from rail to truck has meant a decreased demand for rail infrastructure (rail lines, switching yards and bridges) and a greater dependence on truck staging areas. Furthermore, most rail, road, and port systems were developed decades ago and do not relate to many of today's economic activities.

Unfortunately, in most large areas, economic development strategies are not implemented on a regional scale and transporation planners may not be aware

of region-wide needs. Thus, effective efforts to review and modernize regional infrastructure will require input from four key groups: economic developers, transportation planners, users, and carriers. The private sector can identify business trends, project their future needs for transportation services, and offer technical assistance. The public sector should take a lead role in planning through the coordination of economic and transportation goals.

An action plan created jointly by public and private sectors might include:

(1) A move by railroads and communities to remove unnecessary track and bridges, thus eliminating bottlenecks, reducing maintenance expenses, and opening land for new development;
(2) An assessment of the existing system (rail, highway and port) in light of business needs, economic development goals and carrier trends; and
(3) Efforts to ensure that existing infrastructure investments relate to changing transportation requirements.

Rail, bridge, and track removal might be financed through salvage proceeds, community development block grants, or public bond issues. New rail structures could be funded through a combination of bonds, block grants, and private investment by the railroads.

Encouraging Carriers to Seek Intermodal Opportunities. Transportation costs are often reduced as a result of advances in intermodal technology, containerization or carrier cooperation. Some examples are piggyback (truck on rail), roll on-roll off (truck on ship), land bridge (water/surface carriers), and railroader (trailer capable of road and rail travel).

These are essentially private sector projects, with the private sector responsible for taking the initiative in investigating demand for various approaches and investing in marketable operations. However, the public sector can assist by improving the business climate. This could mean cutting red tape, serving as a media or if modal cooperation breaks down, and providing incentives to finance terminals, equipment, and land. The public sector could also assemble land, make access improvements and promote inter-regional intermodal opportunities as a "selling point" in areawide industrial and retention campaigns.

Utilizing Transportation Innovations. As aggregate increases in transportation costs reduce the competitive reach of many firms, there is a growing concentration of markets of 800 miles in distance. Today's deregulated environment may have encouraged transportation innovations or cooperative arrangements to improve the competitiveness of local firms (See Figure 2).

An action plan to encourage the use of transportation innovations might include:

(1) Determining major trading partners--city pairs;
(2) Assessing the quality, quantity, and price of existing services, then determining the cost-effectiveness of existing modes;
(3) Meeting with carriers and perhaps shipping associations to determine if and how technological innovations can be used; and
(4) Identifying areas of opportunity that are consistent with private

sector needs and dependent upon private sector initiatives.

The adoption of innovations is largely a private sector responsibility. Private firms should provide information about their shipping needs, while carriers should adopt transportation innovations or cooperative arrangements that both improve their competitive advantage and the competitiveness of local firms. The private sector should also be primarily responsible for financing investments in new equipment and facilities.

However, there may be a situation in which the business community sees a need for public sector involvement. If so, a regional council could collect origin and destination data and evaluate existing services. The public sector might also serve as a catalyst in promoting meetings between shippers and carriers. Finally, development incentives and permits can be offered by local government to private sector firms where appropriate.

Improving Goods Movement Within Central Business Districts. The shipment of goods into and out of the central business district (CBD) is primarily accomplished by trucks. Hourly variations in truck travel is a key factor causing such impediments to goods movement as congestion, high operating costs, air pollution and energy problems. The complexity of these and other problems associated with urban trucking is due to the number of parties involved in, or influenced by, trucking activities. Therefore, strategies to improve the flow of goods in the central business district requires input from carriers, shippers, receivers or tenants, building owners or managers.

An action plan to make truck movements more efficient might include:

- Improvements to the physical characteristics of the transportation system en route to shipping and receiving points;
- Improvements to the physical characteristics of the transportation system at the shipping and receiving points;
- An increase in the volume of freight moving vehicles; and
- Changes in government policies, regulations and enforcement actions.

The public sector can take the lead in a central business district improvements project. It can initiate a detailed appraisal of the distribution system, serve as a catalyst in bringing involved parties together, and direct efforts to select specific actions that can be taken to mitigate problems associated with urban trucking activity. The private sector can cooperate through the provision of data and through involvement in the planning process.

Easing the flow of goods in the CBD may require stepped up enforcement activity or changes in local laws and regulations, by working with the traffic division of the local police. Physical improvements to streets and better traffic control systems may also be required. Figure 3 presents an overview of solutions that could be selected by the public sector.

The private sector can cooperate with local regulatory and licensing bodies. They might also adopt more flexible pickup and delivery times or move to consolidate shipping and receiving facilities.

SUMMARY

Each region will approach strategy development in a different way. Some regions will need to spend a great deal of time at the outset of the planning process in building a consensus for a coordinated approach to goods movement/ economic development. In other areas, members of the transportation and economic development communities will have already developed a working relationship and appreciate the value of a cooperative approach to problem solving. Where this is the case, the design of an action strategy can proceed more quickly.

In essence, there are several factors that will shape a region's approach to an integrated goods movement and economic development planning process. They include:

- The council's traditional role in the region and its credibility in both the transportation and economic development communities;
- The council's relationship with the business community and its previous success in stimulating private sector investment in regional development programs;
- Market conditions which determine the feasibility of a proposed project and whether a strategy is likely to achieve stated objectives.
- The availability of resources to finance components of a strategy and the ability of staff to direct programming, budgeting and administrative tasks associated with the implementation of the strategy.

Despite the difficulties that can arise, there is a growing awareness in the need for cooperative action. Local policy-makers realize that resources must be husbanded more carefully. Private managers recognize that government can improve business through legislative initiatives, investment in infrastructure and an easing of the regulatory environment. Negotiation and the targeting of public and private investments to reach agreed upon objectives are keys to an improved business climate and healthier regional economics over the long-term.

V. THE OUTLOOK

Urban goods movement should remain a major factor affecting regional economic development. Unprecedented changes in the transportation of goods to market are having an increasing impact on business investment and disinvestment decisions. This can create opportunities for investment, or channel investments from one region to another. Some of the issues that will continue to have an impact on goods movement are described in this section.

Deregulation. Deregulation of the motor carrier and rail industries in 1980 has increased competition and creativity among competitors. It has also eliminated the protective--some say stagnant--environment that has helped to maintain the status quo for businesses in many communities. Carriers are now free to abandon routes, alter rates and initiate new services. In the trucking industry, for example, over 200 carriers have either left the industry since 1980 or are experiencing difficulties which may jeopardize their future operations. This is due, in part, to the influx of over 3,000 independent truckers since deregulation relaxed entrance provisions. The private sector is uncertain as to which carriers, and which routes, will be viable in the next two to four years.

There is also change in the rail industry where carriers are focusing on longhaul movements of bulk commodities while leaving shorthaul (less than 500 miles) movements to truckers. Piggyback shipments appear to be most feasible in the 500 mile and longer range. In support of the shift by railroads away from "merchandizing" service, approximately 3,000 to 5,000 miles of rail lines have been abandoned in the past two years. These actions are causing companies to relocate, alter facilities and/or change distribution methods. Small, marginal and highly competitive companies will be most affected.

Interest Rates. High interest rates have contributed to the shift from rail to truck. In the Northeast where rail systems are congested, overly developed, and expensive to operate, it can take five to ten days to move boxcars 500 miles. A truck will take only one day to move this distance. In this particular example, the railroad ties up money and holds up payment far longer than trucks. At the same time, the railroad would lose money through poor equipment utilization. In the end, the shift in modal use probably benefits everyone. However, shipping and receiving facilities, as well as roads, may need to be improved.

Infrastructure. The structural change in the economy toward high technology and service-oriented industries is creating new demands on infrastructure and transportation systems. This comes at a time when the nation is facing a major infrastructure crisis.

The U.S. Department of Transportation has classified 45 percent of the nation's 557,516 highway bridges as "deficient or obsolete." Replacement or repair could cost $47.6 billion. In a New York Times article, United States Steel contended it is paying at least $1 million a year to detour its trucks 26 miles around a major bridge in need of repair.

The 42,000-mile interstate highway system is deteriorating at a rate requiring reconstruction of 2,000 miles a year. This, in addition to the backlog of 8,000 miles in need of rebuilding that accumulated because of budget cuts, has contributed to slow speeds and costly traffic jams. According to a report issued by the Republican House Wednesday Group, America's non-urban highways will require $800 billion in the 1980s simply to maintain existing levels of service.

Intermodal Efficiencies. In the past couple of years, there has been an increase in piggyback (truck trailer on rail flat car) loadings. Despite a 25 percent decline in rail carloadings, piggyback loadings have increased 2 to 3 percent. Furthermore, new intermodal applications are finally being implemented to the benefit of business. The RoadRailer (truck trailer with railwheels for travel on roads and rails) is a 20-year-old concept that has just recently been implemented between two city pairs. RoadRailer is cheaper than trucks, faster than rail, and more fuel efficient than piggyback. There are a number of multimodal opportunities that can be used to improve the business climate of a community.

Altered Distribution Strategies. Shifts in markets, increasing fuel costs, general rate increases, and high interest rates are altering corporate distribution strategies toward quick turnaround, shorthaul movements, more efficient movements, and low inventory. The prohibitive expense of serving markets in excess of 500 to 800 miles away is forcing firms to relocate facilities and distribution centers closer to market. Ten years ago when transportation costs were lower in proportion to other costs, there was little problem in serving more distant markets. However, fuel costs have increased six-fold from $.20 to $1.30 per gallon, and general rate increases have increased price differentials between communities. The following chart will illustrate how a 10 percent general rate increase can adversely affect the competitive position of the more distant community:

City	Distance to Market	Rate	Rate Increase	New Rate
A	100	.20	x .10	.22
B	500	1.00	x .10	1.10
	Rate Differential	.80		.88

Here the competitive difference has increased by $.08 or 10 percent. Proposed truck user fees, and to a lesser extent water user fees, may also change competition between modes and communities.

Structural shifts in the United States economy coupled with changes in the transportation system have created a dynamic situation. However, with new transportation technology, public private cooperation, and deregulation's flexibility, there are ways to strengthen a region's economy. Improving a transportation network through infrastructure improvements, rate stabilization and/or improvements in service delivery can improve a region's attractiveness to private sector investors.

There is no question that the private sector must have the lead in freight transportation development. Government can then be an effective partner in assessing needs, organizing disparate businesses, undertaking freight flow planning, cutting red tape, targeting infrastructure investments, and initiating legislation.

The key is to create an environment where the private sector wants to work with government. To accomplish this, government needs to:

- Understand how the private sector thinks;
- Market government as a resource;
- Be sure to deliver;
- Only involve the private sector as needed, or as it wants to be involved; and
- Avoid duplication and make sure the top elected official(s) are involved.

The second part of this handbook illustrates how four regions linked goods movement planning with economic development. Through these case studies, transportation planners will see how they can serve as catalysts in bringing public and private sectors together to assure that transportation investments support regional economic development goals.

PART TWO: CASE STUDIES

CASE STUDY OVERVIEW

The first part of this guidebook discussed the impact of goods movement flows on the regional economy. A close relationship was established between regional economic stability and efficient goods movement patterns. Further, it was demonstrated that impediments to local and regional goods movement flows increases private sector production costs and places municipalities, regions and states at a competitive disadvantage vis-a-vis other areas. By contrast, a quality transportation network enhances the competitive edge of a community and serves as a magnet for new industry. The following chapters are a series of four case studies which discuss alternative strategies for strengthening the regional economy through improvements to the goods movement system. The case studies offer a selection of approaches used to identify goods flow impediments, mobilize private sector participation and develop and implement realistic strategies.

Case Study I: Port Investment Strategies. The first case study focuses on a two-year effort by the Capital District Regional Planning Commission in Troy, New York, to formulate a development strategy for the Port of Albany. By its nature, the port serves as both a transportation node, having significant intermodal relationships with truck and rail systems as well as a development anchor for the region. The degree to which surrounding jurisdictions experience industrial and economic growth is often the result of aggressive port planning and targeted investment strategies. This can include the development of feasibility studies to assess the potential role of the port and its facilities, an inventory of port facilities and surrounding land uses and estimates of current and projected commodity flows. The Capital District case study provides an example of strategic port planning aimed at bolstering port usage and improving intermodal goods flows.

Case Study II: Central Business District Goods Movement Considerations. The second case study discusses trucking activity within the central business district (CBD) of New Orleans, Louisiana and a project to reduce congestion that was undertaken by the Regional Planning Commission for Jefferson, Orleans, St. Bernard and St. Tammany Parishes.

Traffic congestion within the central business district and on arterials leading to major goods distribution points increases the costs of both the private and public sectors. Inconsistencies in the patterns of truck movements increase the cost of goods and can contribute to the decline of small grocery and retail stores. The economies of larger shipments to fewer sites often result in the shift of business to less congested, though inaccessible, locations.

This case study demonstrates how the application of simple transportation planning devices can positively impact urban truck patterns by reducing CBD traffic congestion and transportation costs. Special attention is paid to the transportation needs of retail establishments within the central core and to transportation system management improvements.

Case Study III and IV: Rail Freight Line Deterioration and Abandonment. Rail deregulation legislation, with its pricing freedom and liberalized abandonment procedures, have left many communities in fear of losing valuable passenger and freight services. In the case of rail freight abandonment, regional communities are often caught between shippers who threaten to relocate their plants because of service reductions and rail carriers on the brink of financial collapse due to unprofitable service on rail lines. The final two case studies focus on the effects of freight rail line abandonment and discusses a regional process for determining viable alternatives for continued rail freight shipping services.

Case Study III describes how the North Central Wisconsin Regional Planning Commission in Wausau, Wisconsin, assessed the economic impact of a proposed freight rail line abandonment. The economic assessment included cost-benefit comparisons of alternatives to rail freight transportation. The primary objective was to identify feasible (in terms of both cost and reliability) shipping alternatives for existing and future industries.

The fourth and final case study addresses the issue of freight rail line deterioration and abandonment. The Tri-State Regional Planning Commission (formerly located in New York City) played an active role in coordinating and mediating rail abandonment discussions between shippers, rail line representatives and local public agencies.

A major oversight in goods movement planning methodologies has been the lack of a role for the shipping community in devising goods movement strategies. Tri-State made a special effort to communicate regularly with the shipping community throughout the negotiation process to obtain an accurate assessment of transportation needs and perspectives. From this dialogue emerged a wealth of information on infrastructure disrepair, shipping costs, service levels and recommendations for retaining freight shipping services. A step-by-step process for resolving regional rail line disputes is evidenced by the Tri-State example.

FOOTNOTES

1. Dennis L. Christeansen, Urban Transportation Planning for Goods and Services. (Washington, D.C.: U.S. Department of Transportation, 1979), p. III-4.

2. Ibid., p. III-4.

3. Ibid., p. III-5

4. Janice L. Shott and Pamela Wey, Formulating Strategies for Economic Development. (Washington, D.C.: National Association of Regional Councils, 1982), p. 20.

5. Ibid., p. 20.

6. Ibid., p. 20.

7. Ibid., p. 20.

8. Ibid., p. 25.

9. Marianne Clarke and Phyllis M. Levinson, An Introduction to the Economic Development Planning Process. (Washington, D.C.: National Association of Regional Councils, 1980), p. 33.

10. Ibid., p. 33.

11. Ibid., p. 34.

12. Ibid., p. 43.

13. Ibid., p. 43.

14. Ibid., p. 45.

15. Ibid., p. 48.

16. Ibid., p. 48.

17. Op. Cit., p. 24.

18. Op. Cit., p. 24.

19. Op. Cit., p. 24.

II. FORMULATING A PORT DEVELOPMENT STRATEGY

BACKGROUND

In July of 1979, the Capital District Regional Planning Council (CDRPC) in Albany, New York, began an economic development project under the Economic Development Administration's "302(a)" Metropolitan Economic Development Demonstration Program. CDRPC's two-year work program proposed the following activities: (1) assist the Albany Port District in developing a long-term and short-term plan for the port; (2) establish a monitoring system that gauges the economic health of the region; and (3) develop a long-term areawide strategy to increase regional economic growth. The regional agency directed much of their grant resources to the port development segment of the project. In doing so, the agency worked toward identifying economic opportunities for the Port and developing strategies that would increase the growth of its industries and facilities. This case study will describe how CDRPC mobilized their region's private and public sectors to develop and implement a port improvement and economic development strategy for the Capital District Area.

Regional Setting

The Capital District region consists of a four county area which encompasses the central cities of Albany, Schenectady and Troy, New York (see Map I). The county members are Albany, Rensselaer, Saratoga and Schenectady. The regional area includes over 2,200 square miles and consists of 8 cities, 48 towns and 22 villages. Between 1970 and 1980, the regional population rose 2.7 percent--from 722,000 to 741,580. Of the region's three central cities, Albany is the largest with a population of approximately 101,000. Schnectady's and Troy's are considerably smaller with figures of 60,000 and 57,000.

The region's economic base consists of manufacturing (17%), government (28.6%), service (21%) and agriculture (1%). Generally speaking, the region's economic condition can be characterized as stable. Throughout the 1970s there were increases in both population and employment. The 1975 per capita income was $5,975 and the 1980 unemployment rate was 5.5 percent. Unfortunately, the growth that has taken place in the region over the last ten years is not indicative of what has occurred in the three central cities. Each city has experienced population losses of 10-12 percent during tne 1970s, and the per capita incomes have been significantly lower than regional figures--by 13 to 35 percent.

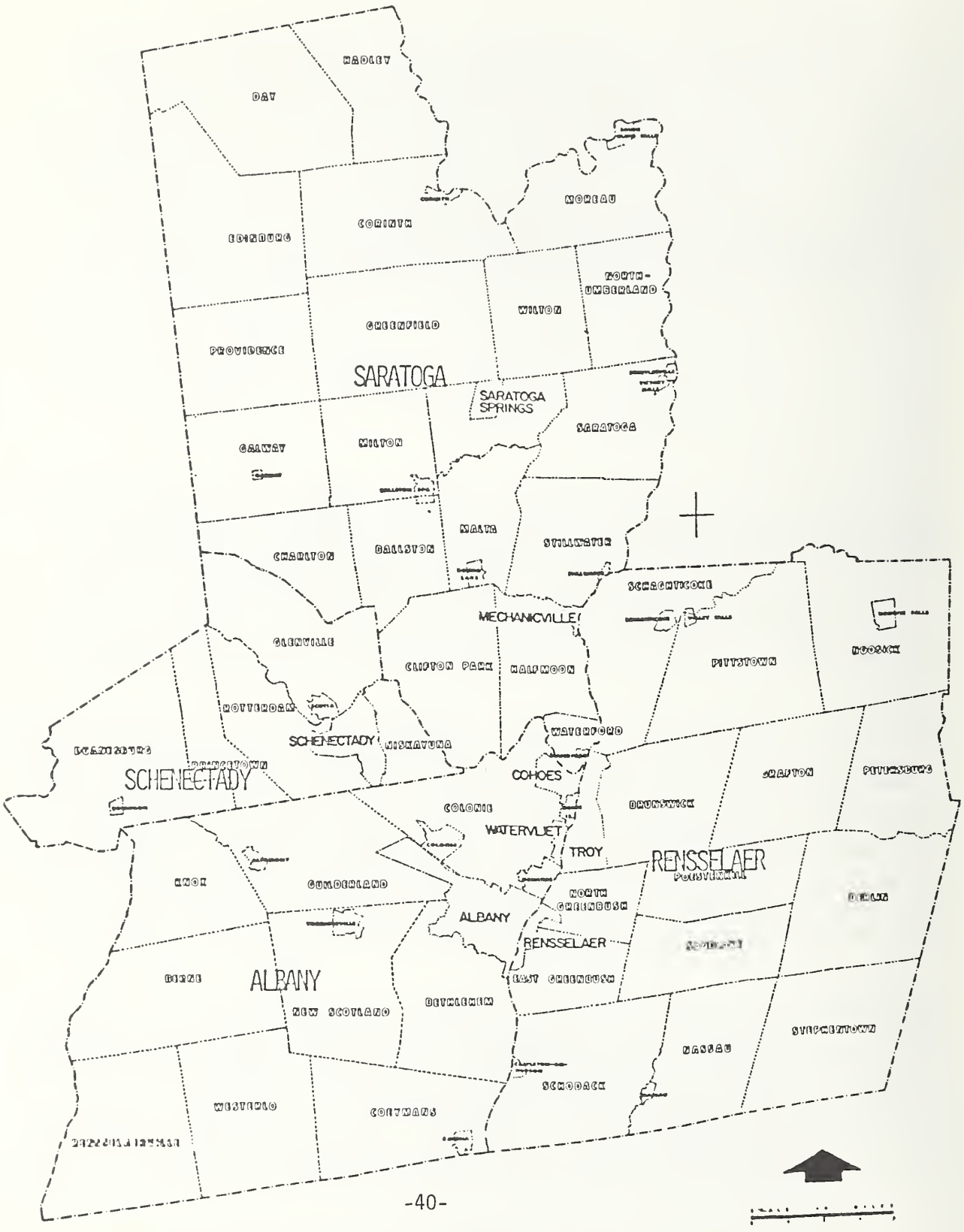
The Agency

Organized in 1967 by the legislative bodies of their current county members, CDRPC was designated as a comprehensive planning agency for the four county region in accordance with state enabling legislation. CDRPC is governed by a board of twelve commissioners--three appointed by each member county. Elected officials, representing 58 percent of the commissioners, comprise the majority of CDRPC's board. The Mayor of Albany has served as an appointed member since 1969. The private sector has a board representation of 33 percent.

REGIONAL AREA,

MAP I

CAPITAL DISTRICT REGIONAL PLANNING COMMISSION,
ALBANY/TROY/SCHENECTADY, NEW YORK



Source: "Assessment of the Metropolitan Capacity Building Demonstration Program," Peat, Marwick & Mitchell:1981.

Total staffing of the agency consists of fifteen full-time employees. Besides economic development, priority program areas include: housing, human resources, environmental resources and physical planning.

Regional Transportation Setting

The Capital District region is located in the heart of the Northeastern United States. Its central location offers excellent inter-regional transportation services for the movement of people and goods through waterways, rail, highway and air (see Map II). Inter-city transportation is supported by a network of primary and secondary highways. A brief description of the region's transportation facilities is discussed in this section.

Highway. The Capital District regional transportation system has a total of 2,050 miles of roadways, including 80 miles of super highways and 515 miles of minor arterials and 1,342 miles of local collectors. Interstate highways crossing the region are I-87, I-90 and the Thruway. Daily capacity on the highway system reached 15 million in 1975. Demand amounted to much less than the capacity level thus creating a favorable transportation system with relatively few traffic delays and congestion problems.

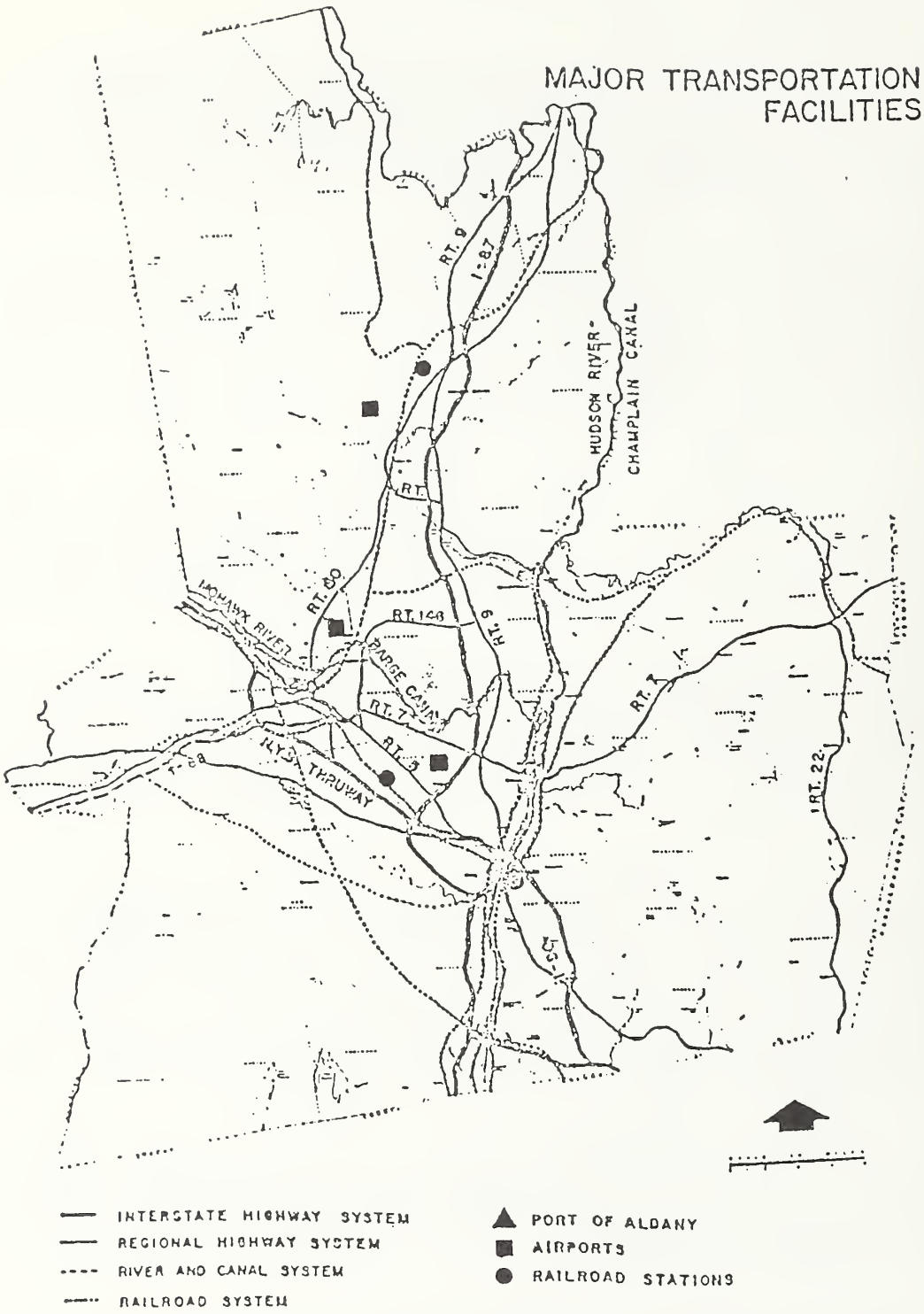
Rail. Some of the country's earliest rail facilities were developed in the Capital District region. Currently, passenger service is provided by Amtrak from five stations in the region: Albany-Rensselaer, Schenectady-Colnie, Watervliet, Mechanicville and Saratoga Springs. A new station has been under construction in downtown Schenectady and investigations are underway for an Albany station.

Goods shipments are serviced by Conrail, the Delaware and the Hudson Railroad, and the Boston and Maine Railroad. The latter two facilities are linked with a $25 million electronic freight car classification yard which serves as a major distribution post for Conrail's eastern seaboard's freight shipments. The B&M's freight classification and transfer point is located in the city of Mechanicville.

Air. Air facilities are provided by three airports: (1) the Albany County Airport, the Schenectady County Airport, and the Saratoga County Airport. The Albany County facility was established in 1927 and represents the region's major primary commercial airport. Allegheny and American are the two major passenger carriers. Freight service at the airport is provided by three freight operators as well as by the commercial airlines. The Schenectady County Airport and the Saratoga are both general aviation facilities. Combined, they accommodate executive class and military aircraft.

The Port. Located on the banks of the Hudson River, 124 nautical miles north of New York City, the Port of Albany district occupies approximately 236 acres of land, 72 percent of which lies within the City of Albany and 32 percent within the City of Rennsselaer. The Port is owned and operated by the Albany Port District Commission.

The Port generates a considerable amount of truck and rail car traffic. More than 43,000 trucks visited the Port in 1979 and at least 2,500 rail cars were switched into and out of the Port during this same period. The magnitude



Source: "Regional Overall Economic Development Framework," Capital District Regional Planning Commission: 1979.

of goods movement activities and the economic significance of the Port to the region and nation can be further demonstrated by import/export figures. Seven nations received commodities exported from the Albany Port and thirteen countries imported their goods to the U.S. using the Albany facility as a point for loading, unloading and distribution. Functioning primarily as a transhipment point for inland domestic distribution and as a collection point for export commodities, the Port of Albany offers a year round, energy efficient transportation link to upstate businesses and industries.

A 1980 "Port of Albany Economic Impact Statement" prepared by CDRPC identified twenty-seven businesses located on the Port which provide a total of 1,300 direct jobs to the region. In 1979, port businesses handled 1,250,000 tons of goods (valued at approximately $842 million) and purchased $22 million worth of goods and services in the region. The economic impact statement identified the Port's excellent rail and highway connections in combination with its easy access to major population centers as a key competitive advantage in promoting economic development in the Capital District region.

Project Design

CDRPC's major activity consisted of providing technical assistance to the Albany Port District in the development of an economic strategy for the Port. Their assistance was provided in two phases and given in the form of a series of technical studies on the Port. These studies were designed to provide the Port District with ideas and recommendations for strategies and projects that would improve the economic viability of the Port. The first phase of the study consisted of the following technical studies:

- Two studies to review the Port's facilities and recommend improvements to the Port District;
- Three studies to explore and develop a containter barge feeder service;
- A study of the economic impact of the Port; and
- A financial analysis of the Albany port.

Phase two of the port project was a cost analysis of operating systems for the container barge feeder service.

Each report was done in conjunction with public and private leaders with an interest in the Port.

Staffing. Three staff members were assigned to the Port work program. A project planner coordinated the overall grant and also assisted on various sections of the Port project. An associate economist prepared the reports and studies regarding the barge container service, and an assistant planner coordinated advisory committee activities, prepared maps and port facility analyses. This staff unit reported directly to the executive director and the twelve member CDRPC board.

Advisory Committee. CDRPC organized a thirty-nine member Albany Port Development Technical Advisory Committee (TAC) to oversee and advise them throughout their project research. The advisory committee was divided into four subcommittees which focused on priority issue areas relating to the Port's physical and economic condition. These areas include: land use, transportation, marketing and financial management.

The advisory committee was adopted to assure a practical approach in the development of port strategies and also to provide CDRPC with a ready source of technical expertise they could draw upon. The grouping of TAC members into separate subcommittees aligned participants with their areas of expertise and interest. This allowed for optimal discussion and maximum input from each TAC member.

The TAC represented a new approach for the commission whose advisory committees have normally been responsible for review and comment only, and not oversight of project activities. However, it worked so well for the port project that the commission formed advisory committees for subsequent projects as well.

Public Participation in the TAC. Several local representatives served on the TAC. They included the Mayor of Albany, the Director of Planning for the City of Rennselaer and the Director of the Albany County Planning Board. These local representatives provided expertise on local issues and helped CDRPC to participate in site planning. The City of Albany also committed funds from its community development monies to help finance Port development activities ($50,000). This was in addition to the substantial in-kind services provided by the Albany County Planning Board and the City of Rensselaer and the Director of the Albany County Planning Board. These local representatives provided expertise on local issues and helped CDRPC to participate in site planning. The City of Albany also committed funds from its community development monies to help finance Port development activities ($50,000). This was in addition to the substantial in-kind services provided by the Albany County Planning Board and the City of Rensselaer.

Another participating local agency was the Capital District Transportation Committee (CDTC), the Metropolitan Planning Organization for the region. With the absence of a transportation department and staff at CDRPC, the CDTC provided considerable technical assistance to the CDRPC agency on transportation issues, especially those relating to truck access to the Port.

The New York State government, which has had an ongoing interest in the Port, also played a key role in CDRPC's port project. Several state agencies served as members of the TAC and provided varying forms of assistance and support. The Governor's office of Development Planning, the New York State Commerce Department, the State Department of Transportation (NYSDOT) and the New York State Urban Development Corporation were all members of the TAC and gave political support and technical assistance in CDRPC's effort to devise a port development strategy.

The state's transportation department, for example, provided an engineering analysis of a new dock to be built at the Port. They also provided aerial photos of the Port and the Hudson River area which were used by CDRPC to make maps of this region. Another state agency, the New York Department of Commerce, offered promotional support for the feeder service by informing upstate businesses of the potential benefits to be gained from using the proposed service. Finally, representatives of federal agencies such as the Army Corps of Engineers, the Customs Service and the Maritime Administration served on the committee. They provided information on federal programs affecting trade waterways and port development.

Private Participation in the TAC. The private sector comprised half of the membership on the TAC. This large number of business representatives was in line with CDRPC's goal to involve representatives from commercial enterprises (particularly the maritime trade) as well as businessmen located in the port area. The private sector participated with a great deal of enthusiasm throughout CDRPC's project. Much of their cooperation was attributed to the short-term and action-oriented nature of the project. Further, each member had a role to play in the project by completing specific tasks that CDRPC assigned to members. The private sector responded to the project by providing a perspective that often goes unheard in publicly financed projects. They were particularly helpful in obtaining information on the needs of businesses as they relate to the proposed barge feeder service.

An example of the cooperation offered by the private sector can be demonstrated by the actions of the local Chamber of Commerce. Businessmen from this organization lobbied their upstate colleagues on the merits of the barge feeder service. Regional businessmen were also generous in providing resources to the project. On many occasions, TAC meetings were held in the boardrooms of participating businesses. The combination of political support, technical assistance and resources offered to CDRPC by the private sector undoubtedly played a major role in the success of the program.

PROJECT ACTIVITIES

Since the agency's inception in 1967, CDRPC has emphasized the link between their region's growth and the port's economic stability. Before CDRPC's establishment, the Port was seldom viewed as a regional asset by surrounding localities. In order to demonstrate its regional significance, the agency prepared a market analysis on the Port. The study was completed shortly after the agency's establishment, and it highlighted port business and trade activities. Results of this study showed that the port district, the location of many business activities, was a facility of regional significance. Awareness of the port's economic significance continued to grow when in 1975 the New York Department of Transportation commissioned a consultant to study all of the ports located in upstate New York. The consultant's report confirmed the strengths of the Albany Port and also recommended that it expand its operations to accommodate within its confines the storage of container vessels.

Continued development of the Port has been a central theme in many of the economic development plans written for the region. In providing technical assistance to the Port District prior to the Metro grant, CDRPC noticed underlying problems in three areas:

- financial management;
- maintenance and upkeep of port facilities; and
- planning and development coordination.

Under Metro, CDRPC addressed these concerns and developed specific development strategies for the Port District with the guidance of the TAC subcommittees. The activities of these subcommittees are described in this section.

Land Use. A major land use concern of Port officials and CDRPC was the availability of developable land on the Albany side of the Port. The Albany side has been severely restricted in space to lease to new, prospective port users. This has been equally true for those existing industries located on the Port who have wanted to expand their operations. In light of this problem, CDRPC began focusing its attention on the land uses of existing port businesses. It was CDRPC's belief that there were several businesses located on the Port which did not have marine-oriented functions and thus were not in need of the water carrier services provided by the Port. CDRPC further believed that the land occupied by these businesses could free several acres of land for new development and expansion of port-related activities. CDRPC, assisted by the subcommittee on land use, focused on identifying existing land uses on port property, preparing an inventory of the types of business operations that use port facilities and identifying opportunities that would lead to an increase in the use of the Albany Port and its facilities. These concerns were addressed in two technical reports: (1) "Port of Albany Facilities Inventory 1980", and (2) "Port of Albany: Facilities Improvement" (1980).

The facilities inventory report required CDRPC to make several field visits to the Port in order to prepare maps of each Port property and of the Port utility systems. This provided a graphic depiction of: (1) occupants; (2) parcel boundaries; (3) storm and sanitary sewer systems; (4) pipelines; and (5) the water system serving the port. CDRPC also prepared an individual parcel survey describing each boundary of land leased by business occupants of the Port. Accompanying each parcel map is an information sheet which provides data on each of the thirty-two businesses. Information such as total area of business operation, building descriptions, nature of business, utilities and service, and lease conditions provided the Port District with a framework for ascertaining the significance of specific industrial operations to the Port economy.

In outlining development opportunities, CDRPC and the land use committee identified six criteria to utilize in planning for optimal development of the remaining available port land. They are:

- Seek marine-oriented port industries to occupy future port property;
- Encourage job intensive port industries to locate on port property;
- Seek industries which require a minimal land investment;
- Increase rental fees of port businesses so as to relieve the debt burden on the Cities of Albany and Rensselaer;
- Utilize existing structures and facilities as much as possible, allowing the user to pay for any modifications needed; and
- Prohibit industries engaging in environmentally unsound activities from locating on port property.

The facilities inventory report provided easy access to information on port owned and operated facilities and provided a profile of the industrial occupants of the Port. The data serves as a management tool for the Port District and has been utilized as a marketing devise to attract potentital customers to the port.

The facilities improvement report prepared by CDRPC was divided into two sections: (1) a facilities improvement plan for the overall port; and (2) a special report on the container barge feeder service. In the first section, CDRPC examined several strategies that could improve the physical characteristics of the Port and help attract new businesses. Six projects were identified in the analysis as having the potential of doing so if the proper improvements were made. The following table represents these projects as well as the recommended improvements. They are listed below in Table I in the order CDRPC stated that they should be approached. A summary of each recommendation is also given below.

TABLE 1

Project	Items to be Improved
1. Warehouse	Roof, walls, electric service and sprinkler system
2. Transit Sheds 4 and 5	Roof, walls, electric service and sprinkler system
3. Dredging	Rensselaer Dockside, and portions of the Albany Dockside
4. Drainage	Storm water run-off
5. Agway Building Demolition	
6. Internal Highway	Apply asphalt overlays to surface and improve drainage

The warehouse designated for improvements is a 108,000 square foot concrete building consisting of ten sections. It has a loading dock that serves both rail and truck traffic. Infrastructure fixtures at the warehouse include sewer, water and electrical service as well as a sprinkler system for fire protection. CDRPC noted that the sprinkler system was in need of rehabilitation and modernization. Interviews conducted by CDRPC also indicated that the electrical system was inadequate for most industrial users. The regional agency recommended reconditioning of warehouse walls and roofs as well as improvements to electrical and sprinkler systems. According to CDRPC, these warehouse improvements would result in the following benefits:

- An additional safety factor for port occupants;
- Lower fire insurance premiums;
- An increase in maneuvering room for tractor-trailer traffic;
- An increase in storage space; and
- A lessening of the chance of damage to commodities and equipment as a result of water.

Transit sheds 4 and 5 consist of steel framed buildings with storage areas of 45,000 square and 34,000 square feet. Each shed has sewer, water and sprinkler facilities and both are also serviced by truck and rail. The improvements identified by CDRPC are quite similar to those scheduled for the warehouse and would result in the following benefits to the Port District:

- Lower fire insurance premiums;
- More flexibility in electrical operation without overloading fixtures; and
- Decrease in insurance liability costs.

Dredging of the Albany Port's shoreline was also a necessary improvement identified by CDRPC in the facilities improvement report. The agency determined that 1,200 feet of shoreline should be dredged on the Rensselaer side of the port and 800 feet on the Albany side. This activity is necessary to insure that ocean going ships utilizing the Port of Albany's facilities are able to move easily and safely to dockside to load or discharge cargo. Scheduling of dredging activities would also increase anchoring space at dockside for vessels. Further, CDRPC recommended the installation of storm drainage facilities to relieve the low lying areas of the port from frequent flooding. This would have two immediate benefits: (1) free portions of land that are otherwise unusable during heavy rains and spring melt; and (2) lessen the possibility of legal action for damage to equipment and goods.

Demolition of the old Agway building was yet another recommendation of CDRPC. Having once been a major grain and feed distribution center for the area, the Agway building is now vacant and deteriorated beyond repair. Discussions between CDRPC and local businesses indicate no alternative or viable uses for the existing structure. The proposed demolition would allow the port of Albany more flexibility in serving the needs of its customers, especially regarding better dockside access.

Finally, after assessing the high traffic volumes of heavy duty vehicles on the aging port highway system, CDRPC recommended a major rehabilitation of these facilities. CDRPC demonstrated that over 40 percent of the vehicle traffic on the port highway system are medium to heavy duty vehicles. The agency recommended, therefore, an asphalt overlay to be applied to the pavement surface of the road system and also the installation of drainage facilities on the roads. The agency estimated that 1.6 miles of roadway needed resurfacing. This action according to CDRPC would help guarantee the safe, smooth and efficient movement of goods through Albany's port.

CDRPC staff related that the cost of maintaining these deteriorated structures would undoubtedly be more expensive to undertake if improvements are deferred. Further, any unnecessary delay in improvements would increase the chances of serious legal consequences. In regard to the latter point, CDRPC warned of the possibility of legal actions that could be brought agains the Port Commission for damage to property if the improvements were not implemented.

The six projects were estimated to cost between $1.5 million to $2.0 million. CDRPC advised the Port District Commission to use existing maintenance monies to finance these proposed projects as well as a combination of grants, user charges and surcharges.

Presently, there is a $500,000 item in the New York State budget that is earmarked for the provision of these improvements. Local contributions are expected to supplement the State share.

Marketing. CDRPC has maintained an active interest in the container barge

feeder service. The proposed container barge feeder service would consist of a port operation that offers a barge relay service for goods enroute to the Port of New York as opposed to the current trucking method. As mentioned before, a consultant's report introduced the concept of a container storage facility for the Albany Port in 1975. At the time, port officials were hesitant to take on such a massive project and equally unwilling to plunge into an economically risky venture. Although there was not much local support for such a facility, CDRPC continued to investigate the consultant's proposal. From it came a more feasible alternative to the container storage idea--the container barge feeder service.

Several factors led CDRPC to explore this option. Not only is it more cost efficient than trucking as a method to transport goods from upstate manufacturers to the Port of New York, but it is also a less costly venture to establish and requires minimal capital investments to make operational. Realizing the skepticism of local officials and businessmen to the original idea of a container storage facility, CDRPC moved to demonstrate the potential economic benefits of the proposed feeder service by developing an extensive marketing strategy.

CDRPC organized the marketing committee to assist project staff in identifying economic benefits of the proposed barge service and in identifying potential users and markets in need of such a service. Two technical reports resulted from the joint efforts of CDRPC and the marketing committee: "Port of Albany: Feasibility Study for the Container Barge Feeder Service (1980)" and "Port of Albany: Market and Operations Analysis for a Container Barge Feeder Service (1981)".

In addition to these two publications, a "Port of Albany Report" newsletter was published with a circulation of more than 1,100 people, most of whom were connected with marine-oriented businesses in the region. The newsletter was edited by the marketing committee chairman (who also manages a petroleum refinery company located on the Port). Its purpose was to increase the visibility of the Port and its facilities to possible users within and outside the region. The newsletter also informed the shipping community about the proposed container barge service.

In its research, CDRPC and their technical advisory committee, found certain obstacles the feeder service would have to overcome in order to be a successful venture. Two major problems included:

- The hesitancy of shippers to utilize waterborne transport of goods due to the additional handling of merchandise and the increased risk of damage to goods; and
- The need to demonstrate that the barge feeder service was capable of providing more reliability in delivery time over trucks without the added transport costs.

After considering these and other competitive factors, CDRPC and the marketing committee identified the prospective market areas and principal exporters and importers who ship containerized cargo through New York harbors. It was determined that since 93 percent of the export cargo and 95 percent of the factory stuffed containers originated in New York are shipped through the Port of New York, and because 60-70 percent of all general cargo passing through New York harbors are shipped in containers, there was a sizeable market of potential customers that the barge service could tap.

The cost analysis of the barge service indicated that this operation would be highly competitive with other modes of shipment. Substantial time and cost savings would accrue to shippers if they utilized the service. In assessing the total ocean tariffs and surcharges tacked onto shippers' transport costs, CDRPC discovered that shippers who switched to a feeder service instead of choosing to truck goods to the New York port for exporting or distribution would experience substantial savings. Discussions between the Albany Port District Commission and prospective firms led them to conclude that a minimum of one year should be allowed for improvements necessary to install the barge service. Its operations and services would be conducted from the less congested Rensselaer side.

A major attraction of this proposed service is that it requires few additional facilities to be installed for it to become operational. One of the improvements cited as necessary for establishing the barge service was construction of the Rensselaer Dock. The original dock was destroyed by fire, and work on a new one began in 1979 at a cost of $2.5 million. The dock improvements will increase anchor space on the Rensselaer side from 500 to 1,1000 feet.

Another facility necessary for the operation of the feeder service consists of container handling equipment. According to CDRPC, mechanical cargo handling equipment capable of lifting a minimum of 60,000 pounds is required for the barge service to function. In addition, fork lift trucks or small cranes were identified as necessary to transport containers to the storage yards. CDRPC has contacted several distributors from across the nation who sell cargo handling equipment. The agency has identified "good buys" on various types of equipment and has notified the appropriate local officials on what is available. It is expected that local contributions and an industrial development bond will pay the expenses of the cargo handling equipment.

Finally, basic infrastructure improvements have been proposed to assure an operational barge service. The Capital District Transportation Committee, the New York State Department of Transportation and CDRPC have been engaged in discussions about railroad and highway projects that will improve access into and out of the Port.

The barge feeder service has not yet been installed but prospects continue to be positive. Individual business representatives remain somewhat hesitant to invest the initial expenses necessary for starting the feeder service. CDRPC, however, has identified a group of four potential investors who are interested in developing a consortium to finance the service. CDRPC has taken the lead role in working with this group, and in phase two of the project satisfied their concerns by identifying the initial start up costs necessary to get the service underway. This effort will be discussed later in this report.

Financial Management. CDRPC has long encouraged the Albany Port Commission to develop a financial strategy which establishes a sufficient revenue base to support operating expenses and long-term debts. This was viewed as beneficial not only to the Cities of Albany and Rensselaer, who are by statute responsible for any deficits the Port Commission may incur, but also helpful in providing sufficient funds for new development opportunities.

CDRPC's concern stems from a recent shift in federal policy away from public support of port activities toward a revenue base approach for financing operations and improvements. The shrinking pot of public funds for port-related projects moved CDRPC to investigate financial management strategies for the Port District Commission. The subcommittee on financial management and CDRPC prepared a technical report entitled "Port of Albany: Financial Analysis." It has three purposes:

- To serve as a planning and budgetary tool for the Port Commission;
- To provide a financial assessment of the Port for the cities; and
- To provide the Port Commission with a base on which to make future port financing decisions.

A major finding for the financial analysis report centered around terminal charges for various port services. According to CDRPC's research, terminal charges instituted by the Albany Port District for rent, dockage, storage, handling and other services were considerably lower than those at nearby port facilities. The Port District attributed this to the locational disadvantages of the Albany Port (it is located 130 miles away from the Port of New York). Recent studies indicate, however, that convenience is not the most important factor in selecting a port. The great majority of shippers look for reliable services as well as convenience when selecting a port.

After an analysis of comparative terminal rates at selected port locations and also after considering the steady increases in inflation, CDRPC advised the Port Commission to implement a schedule for increasing terminal charges over the next five years. The schedule plans for a 15 percent increase in charges for each year between 1982 and 1986. The increases would help cover annual deficits the Port incurs due to borrowing to improve facilities. It would also help increase the level of services offered to port businesses (e.g., dredging, snow removal, rail).

In evaluating operating expenses, CDRPC investigated two major areas: (1) salaries; and (2) maintenance. On an average, salaries take up $281,000 or 32 percent of the operating budget. Salaries and benefits go to twenty-two full-time employees, plus five port commissioners and an attorney. CDRPC recommended that the Port Commission critically evaluate their personnel needs. It was suggested that a realignment of staff duties take place to address the issues of planned marketing, short-term and long-term financial and land use planning and grant application. CDRPC emphasized that attention to these areas could yield dividends to the Port in the form of increased business and revenue.

Maintenance operations average a total of $330,000 or 33 percent of annual operating expenses. The value and importance of maintenance services has generally been agreed upon throughout the region. Rapid deterioration of the fifty-year-old facilities at the Port as well as scarce funding sources for improvements has made maintenance a key management issue of the Port Commission. Presently, maintenance problems are handled on a crisis basis, with scheduled maintenance often deferred. CDRPC reported that work is performed by outside contractors because staff does not have the expertise or equipment to deal with certain maintenance needs. Recommendations to the Port Commission centered around analyzing maintenance requirements to determine whether there would be any savings from having trained maintenance personnel and equipment on hand to take care of recurring maintenance work presently being contracted out. This upgrading of maintenance employees could result in added economic benefits to the Port.

CDRPC's financial analysis of the Albany Port attempted to provide the Port District with a strategy that would eliminate a "persistent annual deficit." Recommendations have been made to increase revenues by raising terminal charges by 15 percent annually and renewing rental charges by 10 percent. If implemented, these actions will increase total revenues by approximately $150,000 per year through 1985. Further CDRPC recommended that expenses be kept under control by placing a ceiling on salary and wage increases (at 7 percent or lower), and by keeping maintenance cost increases at a 10 percent maximum.

The implementation of these measures goes further than eliminating continuous annual deficits. It also removes the tremendous financial liability from the Cities of Albany and Rensselaer for Port deficits and places the port in good financial standing to pursue development and rehabilitation activities.

Transportation. The CDTC, NYSDOT and the regional planning agency were all involved in efforts to identify the transportation needs of the Port for the Port District to act upon. Two major transportation problems identified related to railroad and highway facilities. The CDTC, with the financial assistance of CDRPC, conducted a preliminary investigation into the future highway needs in and around the Port and developed a schedule of projects covering a time period spanning fifteen years.

CDTC's study area included the City of Rensselaer and sections directly adjacent to the city. Within this area, an inventory of existing conditions was undertaken and included traffic counts, accident data and physical conditions of roads. After this information was analyzed and assessed, CDTC determined that the Port area faces transportation problems due to the physical limitations of the highway and the large percentage of heavy trucks that use the highways. Table II lists the recommendations made by the CDTC to solve the various highway problems of the Port.

Rail facilities were also analyzed by CDRPC. The commission and NYSDOT observed that the trackage system of the Port's railroads needed replacement. Improvements to the rail tracks would provide adequate rail service to nine existing petroleum or chemical distribution companies, and also complement the proposed container terminal. Shippers interested in using the service felt that rail linkages would be valuable to the service and would increase traffic through the port. Further, congestion would be decreased with the improvement of rail track beds.

Finally, oil companies located south of the Port of Albany were once users of the Port's rail services until deterioration of the tracks made them nonoperable. The transportation committee proposed the rehabilitation of trackage on the Rensselaer side to make facilities functional again.

The Albany Port District Commission, in response to CDRPC's recommendations, proposed to increase the level of service it provides to its tenants and also proposed to upgrade the rail access to the Rensselaer side of the Port to complement the barge feeder service.

TABLE II

PRELIMINARY CDTC RECOMMENDATIONS

Actions for Immediate Implementation

1. Reconstruction of the Columbia Street bridges over Route 9J and the railroad (currently underway)

2. Improve the high speed rail crossing on Sun Oil Road (Teller's Crossing) (currently underway)

3. Coordinate/eliminate 3 signal lights on Riverside Avenue (at Belmore Place, at Sterling Organics)

4. Reconstruction of Columbia Street (expected to be underway later this year)

Actions to be Completed in 0 to 5 Years

5. Rehabilitate South Street, cost $2.5 million

6. Implement alternative 6 including rehabilitation of lower Broadway/ Riverside Avenue, cost $1.0 million

7. Traffic engineering improvements at the intersection of Route 9 and 20 with Route 9J, cost to be developed

8. Traffic engineering improvements on Riverside Avenue on the curves north and south of the Port District land, cost $0.5 million

Actions to be Completed in 5 to 10 Years

9. Construct Alternative 9, cost $8.0 to 10.0 million

10. Construct an internal "port connector" between Port District lands and Sun Oil Road, cost $1.5 million

11. Rehabilitate Port roadways, cost $1.0 million

The total cost for all Port improvements proposed by CDTC ranges from $14.5 to $16.5 million.

Source: "Port of Albany: Facilities Improvement Plan; Capital District Regional Planning Commission: 1980."

PHASE TWO: COST ANALYSIS OF OPERATING SYSTEMS FOR A CONTAINER BARGE FEEDER SERVICE

As was identified in phase one of the port project, major concerns of potential investors in a barge feeder service were the start-up costs and development needs of the proposed facility. Before making a final commitment, regional businessmen interested in owning the operation requested an analysis and projection of initial start-up costs and long-term development needs. In continuing their efforts to assist the Port of Albany, CDRPC prepared a technical report entitled "Cost Analysis of Alternative Terminal Operating Systems: Port of Albany Container Barge Feeder Service."

Prepared in 1981 as an extension of the EDA funded 302(a) Metropolitan Economic Development Demonstration Program, the report had three major objectives:

- To determine the most cost effective means for developing and operating the terminal and overall system;
- To produce a base operations development model which considers growth and change factors as well as cost to be compared and evaluated by potential investors; and
- To determine initial investment costs, and project long-term profitability.

The first stage of CDRPC's research entailed developing prospective scenarios representing the kinds of development and operational systems that could be applied to a container barge feeder service. Two options were identified by the agency for handling and loading containers on a barge: (1) a stacking system whereby containers are loaded three high in rows of two or three; and (2) a chassis system in which containers are stored on a chassis until loaded on a barge. It was determined in the analysis that a stacking system would be more appropriate in the confined space of the Albany site. A chassis system, although more cost-efficient, would require the acquisition of land and additional space outside the Port boundaries. The Commission also assessed equipment needs for an initial and long-term investment. Due to the initial risks involved, CDRPC recommended leasing a 150-ton mobile crane as the major piece of machinery for the first six months. Later, when service levels increase and become more stable, the agency recommended that the investor purchase a gantry crane with a capacity for handling twenty or more containers per hour.

CDRPC emphasized that all arrangements necessary for the purchase and installation of the gantry crane should be made as soon as the operation is started for the following reasons: (1) leasing would be too expensive over a long period of time; (2) a rapid increase in container traffic could not be accommodated by the mobile cranes; and (3) installation of a gantry crane ranges in time from four months to a year or more, depending on availability. According to CDRPC's analysis, the sooner the operator becomes involved in the purchasing and installation of a gantry crane, the sooner cost effective volumes can be achieved.

Tables III, IV and V show the breakdown of projected costs for a three-year development period for each of three possible growth patterns. It assumes that during the first six months, the barge feeder service will operate on a trial basis with all equipment leased for use. After this period, it is expected that a gantry crane will be installed with arrangements to purchase the equipment on a lease-purchase agreement. Estimates of equipment cost beyond six months are based on a financing of the balance at the conventional 15 percent interest rate.

TABLE III

FIRST YEAR PROJECTED OPERATIONAL COSTS

	Fast Growth		Medium Growth		Slow Growth	
	Chassis	Stacking	Chassis	Stacking	Chassis	Stacking
Labor	509,300	509,300	361,300	361,300	335,400	335,400
Equipment:						
New	285,900	461,000	285,900	461,000	285,900	461,000
Used	185,100	276,000	185,100	276,000	185,100	276,000
Tug	521,300	521,300	521,300	521,300	521,300	521,300
Barge	229,500	229,500	229,500	229,500	229,500	229,500
New York Terminal	537,600	537,600	338,900	338,900	251,400	251,400
Wharfage	57,000	57,000	36,000	36,000	26,500	26,500
Miscellaneous	75,400	75,400	75,400	75,400	75,400	75,400
TOTAL OPERATING COSTS:						
New	2,216,000	2,391,100	1,848,300	2,022,300	1,725,400	1,900,500
Used	2,115,200	2,206,100	1,747,500	1,838,400	1,624,600	1,715,500
Plus 12% Profit Margin:						
New	2,481,900	2,678,000	2,070,100	2,265,000	1,932,400	2,128,600
Used	2,369,000	2,470,800	1,957,200	2,059,000	1,819,600	1,921,400
Throughput	11,500	11,500	7,200	7,200	5,300	5,300
TOTAL COST/TEU:						
New	216	233	288	315	365	402
Used	206	215	272	286	343	363

Source: Cost Analysis of Alternative Terminal Operating Systems: Port of Albany Container Barge Feeder Service. Capital District Regional Planning Agency: 1982.

TABLE I V

SECOND YEAR PROJECTED OPERATIONAL COSTS

	Fast Growth		Medium Growth		Slow Growth	
	Chassis	Stacking	Chassis	Stacking	Chassis	Stacking
Labor	924,900	1,113,700	587,600	587,600	456,100	456,100
Equipment:						
New	347,200	564,000	347,200	564,000	347,200	564,000
Used	185,700	385,700	185,700	385,700	185,700	385,700
Tug	573,400	573,400	573,400	573,400	573,400	573,400
Barge	233,600	233,600	233,600	233,600	233,600	233,600
New York Terminal	1,151,000	1,151,000	832,900	832,900	499,000	499,000
Wharfage	112,000	112,000	81,100	81,100	53,400	53,400
Miscellaneous	37,400	37,400	37,400	37,400	37,400	37,400
TOTAL OPERATING COSTS:						
New	3,379,500	3,785,100	2,693,200	2,910,000	2,200,100	2,416,900
Used	3,218,000	3,606,800	2,531,700	2,731,700	2,038,600	2,238,600
Plus 12% Profit Margin:						
New	3,785,000	4,239,300	3,016,400	3,259,200	2,464,100	2,706,900
Used	3,604,200	4,039,600	2,835,500	3,059,500	2,283,200	2,507,200
Throughput	22,400	22,400	16,200	16,200	10,700	10,700
TOTAL COST/TEU:						
New	169	189	186	201	230	253
Used	161	180	175	189	213	234

Source: Cost Analysis of Alternative Terminal Operating Systems: Port of Albany Container Barge Feeder Service. Capital District Regional Planning Agency: 1982.

TABLE V

THIRD YEAR PROJECT OPERATIONAL COSTS

	Fast Growth		Medium Growth		Slow Growth	
	Chassis	Stacking	Chassis	Stacking	Chassis	Stacking
Labor	1,110,400	1,312,600	1,139,600	1,354,500	672,600	743,400
Equipment:						
New	353,100	573,600	353,100	573,600	353,100	573,600
Used:	188,900	392,300	188,900	392,300	188,900	392,300
Tug	630,800	630,800	630,800	630,800	630,800	630,800
Barge	238,100	238,100	238,100	238,100	238,100	238,100
New York Terminal	1,348,500	1,348,500	1,254,500	1,254,500	1,169,500	1,169,500
Wharfage	119,300	119,300	110,800	110,800	103,500	103,500
Miscellaneous	40,200	40,200	40,200	40,200	40,200	40,200
TOTAL OPERATING COSTS:						
New	3,840,400	4,263,100	3,759,100	4,202,500	3,207,800	3,499,100
Used	3,676,200	4,081,800	3,594,900	4,021,200	3,043,600	3,317,800
Plus 12% Profit Margin:						
New	4,301,200	4,774,700	4,210,200	4,706,800	3,592,700	3,919,000
Used	4,117,300	4,571,600	4,026,300	4,503,700	3,408,800	3,715,900
Throughput	23,900	23,900	22,200	22,200	20,700	20,700
TOTAL COST/TEU:						
New	180	200	190	212	174	190
Used	172	191	181	203	165	180

Source: Cost Analysis of Alternative Terminal Operating Systems: Port of Albany Container Barge Feeder Service. Capital District Regional Planning Agency: 1982.

Cost estimates were provided by various suppliers with only the most cost efficient options utilized as a base figure. Annual cost estimates collected in tables are for the following pieces of equipment:

(1) 300-ton mobile crane
(2) 150-ton mobile crane
(3) gantry crane
(4) top loader
(5) yard hustlers or container jockies
(6) chassis

Labor cost estimates for the 3-year period were based on current wage and fringe benefit packages for longshoremen.

CDRPC factored in an 8 percent cost of living increase into the total cost of labor the second and third years to cover expected increases in wages. The cost of a tugboat is based on a $10,025 per trip cost and that of a barge on a monthly financed rate. Wharfage fees at Albany are based on a tariff of $5.06 per TEU.* CDRPC increased each annual projected cost by 12 percent (regarded as a reasonable rate of return on investments) and divided by the projected throughput (i.e., labor, N.Y. terminal costs, Albany wharfage fee, etc.) for the year to determine a profitable unit cost.

In assessing the significance of the annual projected costs, CDRPC determined that a barge service charging marketable rates would not make a profit during the first year of operation except at the fastest growth rate. Slow growth during the first year could result in hugh deficits which jeopardize the future success of the service. Second and third year projections, however, indicate a potentially profitable venture, especially if additional income is produced from the crane via non-container operations. In the final analysis, CDRPC's overall research demonstrates that the barge service is potentially a sound business venture with a good probability of success.

CONCLUSION

CDRPC's efforts to produce a development strategy for the Albany Port have been highly successful and widely acclaimed. A large degree of the agency's success has come from its ability to effectively coordinate inter-governmental and private sector involvement in the project over an extended period of time. CDRPC maintained the interest of both groups throughout the project and was able to obtain a wide range of commitments from these key actors.

Although a large amount of the project's success can be attributed to the expertise and resources provided by the regional participants, a great deal can be said also for the overall design of the project. CDRPC's efforts to focus on a short-term, development-oriented strategy was the key to the broad based support it received. Without this project design, local officials and businessmen may

---

* TEU, "twenty-ton equivalent unit," is a unit of measurement for containers.

not have been as willing to provide such extensive input. The agency's emphasis on a workable strategy was crucial to obtaining the necessary commitments and participation of the private and public sectors.

The technical reports and recommendations produced by CDRPC were valuable tools for the Albany Port District. The information generated by the agency assisted the District in establishing a maintenance and improvement schedule and a financial management program. It also attracted prospective sponsors for the container barge feeder service. It is doubtful that these activities would have taken place without CDRPC's involvement. The ability of the agency to coordinate local and state participation, as well as perform technical research, made the agency uniquely equipped to produce a comprehensive development strategy for the Port of Albany.

III. CENTRAL BUSINESS DISTRICT GOODS MOVEMENT CONSIDERATIONS

BACKGROUND

In 1977, the Regional Planning Commission (RPC) in New Orleans, Louisiana, began a two-year study of goods movement in the metropolitan region. The objectives of the grant during the first year consisted of developing a data base on major goods movement facilities and structures such as industrial parks and shopping centers located within the region. The purpose of this inventory was two-fold: (1) develop a data base to assist in subsequent activities associated with the transport of goods and commodities; and (2) identify the goods movement needs of important development facilities within the region.

During the second year the following objectives were accomplished:

(1) assess the region's goods movement problems;
(2) critique Central Business District (CBD) trucking activity, identifying problem areas; and
(3) provide alternatives/solutions to CBD goods movement problems.

This case study will discuss the findings of the Commission's goods movement data inventory and also explore the agency's analysis of the regional goods movement network.

Regional Setting

The Regional Planning Commission encompasses four parishes (counties): Jefferson, Orleans, St. Bernard and St. Tammany. Together these parishes comprise a total area of 1,967 square miles. The population of the region numbers approximately 1.1 million people, with nearly half living within the central city of New Orleans. New Orleans also represents the region's only central city. Its 1980 population was 557,482, reflecting a -6.1 percent population change since 1970.

The New Orleans economy is dependent on the port and tourism. Neither the city nor the region has an established manufacturing or industrial base independent of those relating to these two activities. As a result, the region has historically been vulnerable to downturns in the national economy.

Over the last decade, the New Orleans Metropolitan area has shown increased signs of a stagnant economy. Unemployment and underemployment persist as long-term problems for the four-parish area. The unemployment role for New Orleans was 6.1 percent in 1980; 5.8 percent for the region. The 1977 per capita income for the region stood at $5,509; for New Orleans it was $5,165.

The Agency

In its initial charter of 1962, the Regional Planning Commission was organized as a body of private citizens appointed by the participating parishes of Jefferson, Orleans and St. Bernard. Later, in 1966, the Commission reorganized to include as members the chief elected officials of each parish. In 1971,

St. Tammany Parish joined the Commission as the fourth member. Presently, 21 commissioners govern the planning commission's activities--three elected officials and two appointed citizen representatives. The secretary of the Louisiana Department of Transportation is the twenty-first member (ex officio).

Regional Transportation Setting

The geographic location of New Orleans makes it a natural transportation hub for national and international trade. Its position at the mouth of the Mississippi makes it a strategic point for import/export activities. Serving as the MPO for the region, the Commission has been actively involved in transportation issues relating both to the movement of people and goods and has also taken numerous steps to expand or modernize major goods movement facilities in the region.

In the area of regional transit, the Commission has prepared several transportation plans for the four parishes. The primary objectives of these plans have been to improve transportation links between the four parishes (especially to and from the central city) and to solve the congestion problems affecting traffic on the Mississippi River Bridge Corridor. A number of transportation studies have been prepared by the RPC in response to transportation concerns such as: transportation for the elderly and handicapped, paratransit services, traffic signal systems and a centralized CBD transit terminal.

The Commission has also undertaken projects aimed at improving the transport of goods and commodities through the region. A major issue through the years has centered around the Port's ability to compete for the traditional cargo movements with other gulf ports and those located on the east and west coasts. A key strategy has been to offer meaningful cost advantages to shippers such as extraordinary storage time and facilities for assembly to export or import cargo. Other goods movement issues center around the following concerns:

- increasing the adequacy of air freight service to and from the New Orleans area; and
- improving inner-city, cross-river and riverfront vehicular arteries for efficient truck, warehouse and port linkages.

The following sections briefly explore the region's major transportation facilities. The descriptions were a major part of the Commission's goods movement data inventory.

Truck Routes. The relationship between motor trucks and the urban economy is strong. In New Orleans (just as with other cities), the motor truck is an essential link between CBD merchants and manufacturers. A major conflict in transporting goods on the urban roadway results from lane competition between the highly maneuverable private auto and the much slower, somewhat awkward motor truck. Another problem for the New Orleans Metropolitan area arises when trucks detour from congested primary streets with the regularly spaced traffic signal to the lightly traveled parallel residential streets. Construction standards for the residential facilities are primarily intended for private auto use, with much stress imposed upon them by the heavier motor truck. To alleviate some of these typical problems, a system was designed and approved that directs the flow of truck traffic for each of the parishes. The truck route attempts to do the following:

- link together as directly as possible, major actual and potential origin and destination goods distribution centers;
- identify and utilize major streets capable of accommodating large sized vehicles; and
- avoid penetration into interior residential neighborhood streets by truck traffic.

Air Facilities. The Greater New Orleans Area is served by three major airports: the New Orleans International Airport, the Lakefront Airport and the Alvin Callender Naval Air Station. Located about fifteen miles from the CBD on the east bank of Jefferson Parish, the New Orleans International Airport is serviced by 14 airlines. Arrivals and departures to most U.S. cities and to South and Central America average roughly 800 flights a day. Eleven airfreight forwarders also operate at this airport.

Access to and from the International Airport is provided by Airline Highway (U.S. 61) and Williams Boulevard (La. 49). In addition, a bypass was completed approximately five years ago from Williams Boulevard to the airport to reduce traveling time and congestion. Lakefront and Alvin Callender Field serve private and corporate aircraft and military planes respectively.

Rail. Six railroads provide service to the New Orleans Area: the Illinois Central-Gulf Railroad (ICG), the Kansas City Southern Lines (KCS), the Louisville and Nashville (L and N), the Missouri Pacific (MP), the Southern Pacific (SP), and the Southern Railroad System (SRS). Among its goods handling equipment are two cranes capable of handling 200 trailers or containers a day. The KCS and the SP provide facilities for rail-related trucking and container traffic.

The SP specializes in international traffic. The Port of New Orleans provides much of the SP's business as it offers piggyback and intermodal-international marine transport as well as computer-communication services. In 1975, SP began construction of a modern intermodal facility. Now completed, it features a 40-ton overhead and two intermodal tracks which accommodate about 34 rail flat cars and parking for some 250 trailers or containers.

Finally, the MP and the SPS both offer basic rail service, piggy back, containerization and warehousing. The air terminals for these facilities generally parallel existing streets/truck routes to major rail sidings and yards as well as to the Port.

Port of New Orleans. The Port of New Orleans stands out as one of the logical transfer points for barge or ship cargo destined for ports throughout the country and the world. Port statistics estimate that approximately 5,000 ocean-going vessels anchor at the port annually. International service is provided by 88 regularly scheduled steamship lines. These lines reach the port by the nation's two principal inland waterway systems: the Gulf Intercoastal Waterway and the Mississippi River. The Port's role in foreign commerce makes it the second largest harbor in the United States and the third largest in the world.

Besides offering a strategic location for domestic and international trade activities, the port and its representative authorities offer a variety of special services and facilities to shippers. By virtue of its location the

port provides with direct access to the nation's most important waterway distribution centers or up to 285 of the world's most significant ports. Shippers are also serviced by modern equipment capable of heavy lift handling and moving container cargo. Finally, nearly of the existing harbor facilities have direct rail and/or truck access to facilitate goods movement.

PROJECT ACTIVITIES

The high volume of trade related activity occurring within the New Orleans Metropolitan area has made it a goods movement mecca. Until 1977, however, planning efforts centered primarily around transporting people. At this time, the Regional Planning Commission recognized the growing need for goods coordination within the region and placed high priority on improving CBD goods transportation. In doing so, the agency developed a two-year study to accomplish the following objectives:

- inventory major goods related facilities, determining service levels and needs; and
- assess truck movements particularly in the CBD, recommending alternative solutions.

The first year of the agency's project entailed preparing a "Goods Movement Data Inventory." The purpose of the study was to identify the components of the metropolitan goods movement network. Additional information was compiled on the location and selected characteristics of major warehouse industrial parks, shopping centers and office buildings within the region. This was done so that goods movement problems and their impact on the economy could be assessed.

The information collected by the Commission served to provide the agency with a basic data base from which information could be retrieved for future analyses and for project development.

During the second year, the Commission concentrated on identifying truck related problems in the Central Business District. The agency also explored the views and perspectives of various parties who engage in or are affected by goods transport in the CBD. Finally, the agency recommended solutions to goods transport problems for local governments to be considered and/or implemented.

Year One: Goods Movement Inventory

As previously stated, the goods movement inventory served as an exploratory study to locate and graphically portray components of the existing goods movement system. This information was to be used in subsequent studies and to support research activities dealing with regional goods movement.

A large portion of the agency's research concerning these air, rail and harbor facilities consisted of locating each system and then plotting their locations on maps. As mentioned previously, the region is serviced by three major airports. The busiest of the three, New Orleans International, lies 15 miles from the CBD and handles in excess of 37,203,000 pounds of cargo annually.

The New Orleans Metropolitan area also is serviced by six railroads. All six

facilities offer a nice range of goods handling equipment and intermodal equipment necessary for domestic and international shipments. Finally, the harbor limits of the New Orleans port extend throughout the parishes of Jefferson, Orleans and St. Bernard. Nearly 5,000 vessels berth at the port's facilities annually. The port is continually modernized and upgraded to maintain its competitive position among international harbors and ports. Access into and out of the port for rail and truck shipments is sufficient.

Warehouse Inventory

In its inventory of major warehouses, the Commission located 47 individual facilities. Total storage space ranges from 5,000 square feet in a facility in Eastbank of Jefferson (Temple Storage and Transfer Inc.) to 155,600 square feet at a facility in Orleans Parish (New Orleans Cold Storage and Warehouse Company, Ltd.). Total warehouse storage for the metropolitan area is 10.2 million square feet.

An assessment of the distribution of warehouses shows that 60 percent (28 warehouses) are located in Orleans Parish, nearly 40 percent (418) are located in Jefferson Parish. Only one is located in St. Bernard Parish.

This pattern remains true for total warehouse storage area available in the region. One half of the total 10.2 million square feet of storage area is concentrated in Orleans Parish. Similarly, 4.8 million square feet of warehouse space was found in Jefferson Parish. In both localities warehouses are primarily concentrated along industrial corridors located along the Riverfront or Airline Highway. With statistics at hand, the Commission concluded the following:

- Warehouses in Orleans Parish are large in number but tend to be relatively smaller in square foot area than the average warehouse in the region.
- Existing major warehouses in Jefferson Parish, although few in number are generally larger in square foot area than warehouses located in the region as a whole.

Goods movement capabilities, therefore, would have to require greater capacities in Jefferson Parish due to the larger and highly concentrated distribution of warehouses.

Lesser capacities would be required in Orleans Parish since its warehouses are smaller and less concentrated. Existing truck routes reflect relatively adequate access to and from the warehouses for purposes of goods movement.

Industrial Parks Inventory

At the time of the Commission's study, 19 major industrial parks were located in the New Orleans area. Their sizes ranged from 4 acres to 81,000 acres. The largest percentage of these parks both in number and size are located in Jefferson Parish. The Commission found that 11,200 acres, 89 percent of the total 12,600 industrial parks throughout the area are located in Jefferson Parish; 9,100 alone are on the west bank of this parish. Orleans and St. Bernard parishes combined account for only 14 industrial parks, with a total area of close to 1,400 acres.

Based on their inventory the Commission concluded that the greatest need for high capacity goods movement facilities (primarily truck routes) is in Jefferson Parish, particularly on the West bank. East bank, Jefferson, Orleans and St. Bernard follow with a decreased need for goods movement capacities. Further, in their inventory of industrial parks, the Commission noted that several of the parks, particularly those located in Kenner, West bank, Jefferson and New Orleans East, may not be adequately serviced by truck facilities and roads. The Commission called for a more detailed analysis to determine the extent to which the industrial parks are adequately supported by suitable goods movement facilities.

Shopping Center Inventory

The Commission's inventory identifies the predominant number of regional shopping centers to be located in Jefferson Parish (25 of the total 45 centers). Ironically, however, the 18 centers in Orleans Parish comprise some 2,465 acres (69 percent) as opposed to 1,057 acres (30 percent) in Jefferson and 63 acres (1 percent) in St. Bernard.

As with most major shopping centers, access to truck routes is sufficient. However, the fact that these centers are located along major arteries and intersections make them vulnerable to congestion and heavy customer traffic. This, therefore, reduces the effectiveness of the truck routes as adequate goods movement facilities.

Office Buildings Inventory

According to the Commission study, approximately 107 office buildings are located in the New Orleans metropolitan area ranging in area from 2,000 to 1,140,000 square feet. Sizes range from one floor to 51 floors. According to the Commission, approximately 10.5 million square feet of the total 12.4 million square feet of office space are located in Orleans Parish--75 percent of which is concentrated in the CBD. Orleans Parish also has the largest distribution of office buildings among the parishes. Of the total of 107 office buildings in the Metropolitan area, 81 are located in Orleans Parish and 26 are located in Jefferson Parish.

Office buildings within Jefferson Parish are situated along Causeway Boulevard and Veterans Highway and also in the Elmwood Park industrial subdivision. The Commission estimated that adequate facilities are available for the delivery of office materials and supplies as several improvements have been made to Causeway Boulevard, Veterans Highway and the Westbank Expressway to accommodate high capacity volumes of traffic.

Central Business District Activity

With most of the available office buildings and office space located in the CBD of Orleans Parish, goods transportation is often slow and tedious. Most of the streets within the area are narrow and one-way and, due to the location of the CBD with regard to the River, traffic converges on the downtown area from every angle.

Findings of a 1977 consultant's study indicated several characteristics specific to the New Orleans CBD. They include:

- Only one-half of all truck trips are with cargo.
- Most vehicle types engaged in goods movement in the CBD are light to medium weight delivery trucks.
- The average truck is in motion only 21 percent of the time between 6:00 a.m. and 6:00 p.m.
- The major difficulty identified by major business establishments consists of inadequate parking for delivery or loading or illegal parking in designated truck spaces.

The Regional Planning Commission, in concluding their inventory, emphasized the need for future studies of goods movement to focus on the following issues:

1. Determination of the magnitude of current goods movement activities;
2. Investigation of attitudes of affected agencies/establishments, forecasting of future goods movement activities/needs; and
3. Development of alternative solutions.

The Commission's second year study responded to some of these issues by identifying views and attitudes of affected parties in goods movement and also by providing alternative solutions to major goods movement problems. Designed to give a thumb-nail composite of trucking activity in the metropolitan area, the Commission's project studied truck routes leading into and within the CBD and identified major problems affecting goods transport. The project was specifically geared to accomplish the following:

- Evaluate access roads and street sections to determine their ability to meet forecasted goods movement demands, particularly for major commercial generators;
- Study truck routes located in or adjacent to historic or residential areas for impacts and possible relocation; and
- Analyze weaknesses and deficiencies in the transportation system and recommend improvements. Devise transportation measures for better truck routing, scheduling and other improvements.

Trucking Activity in the CBD

The problem of goods movement in the New Orleans Metropolitan Area is generally associated with Orleans Parish. The St. Bernard and St. Tammany Parishes offer vast open spaces with wide transportation corridors, spacious goods storage areas and ample on and off-street parking. The Orleans Parish by contrast, is highly developed with a dense central business district.

The CBD is characterized by narrow streets, minimum off-street loading facilities and teeming with workers, shoppers and tourists. This situation makes goods movement a problem for downtown merchants.

A reliable yardstick for measuring CBD trucking activity is the amount and type of floor space--office, retail and/or commercial in a given area. Floor space in the New Orleans CBD has quadrupled during the last thirty years. New construction has largely taken place in the hotel and office industries. The Commission predicted that given current trends, CBD office space will more than double by 1990. Trucking services have responded to and met the increased

demands brought on by rapid growth within the CBD. However, building design and the physical layout of existing establishments make truck delivery a time consuming activity.

In assessing the magnitude of trucking activity in the CBD, the Commission indicated that retail land use generates the highest volume of truck stops per unit of floor space, while office space generates a relatively low volume of truck stops. Given this determination, the Commission estimated that thousands of truck stops occur in the core of the New Orleans CBD on the average day, with the bulk of them taking place in a six-hour period (9:30 a.m. to 3:30 p.m.). The Commission also noted that carriers and receivers attempt to complete most of their deliveries before midday therefore causing a parking characteristic to occur in the daily trucking pattern. Research confirms this occurence among several cities in the United States. The Commission identified similar characteristics within the New Orleans CBD with peaks generally occurring around 11:00 a.m.

The Commission also noted considerable seasonal variation in trucking activity, especially as associated with retail business. In general, retail trucking is highest before the Thanksgiving and Christmas period, "low" during the summer months, and "moderate" the remainder of the year.

Roles and Views of Affected Parties

The Commission also attempted to obtain the perspectives and problems responsible for either providing goods movement facilities, transporting the goods or receiving goods and services within the CBD. From interviews with building tenants, carriers and merchants, the Commission was able to identify roles for better movement of goods and merchandise within the CBD.

One of the immediate findings of the Commission regarding the perspectives of participants in urban goods movement, was that although groups have a definite view of goods related problems as it affects themselves, they have a limited view of identical problems as they relate to other groups. Building owners and managers within the downtown area are aware that problems exist within the CBD, but in several instances their actions compound the difficulties. To demonstrate this point the Commission found that many buildings restrict deliveries between 11:30 a.m. and 1:30 p.m. so that the "service" elevator can be used to transport people. In addition, few buildings are designed to provide adequate loading facilities. Finally, the Commission asserted that in some instances, building restrictions combined with city ordinances leave carriers with only four hours to load and unload at major buildings.

In order to identify the goods movement problems of local businesses RPC interviewed the receiving and shipping clerks of the following downtown establishments:

- Sears Roebuck and Company;
- Maison Blanche;
- D. H. Holmes Company, Ltd.;
- F. W. Woolworth Co.;
- Hurwitz-Mintz Furniture Company; and
- Louisiana Grocery Cooperative.

Interviews with representatives of these businesses indicated that the most time consuming and costly problems relating to CBD goods movement are inadequate loading space and traffic congestion. Ironically though, on several occasions congestion is actually caused by trucks either double parked or lined up on sidewalks waiting for adequate loading space. As stated before, these problems are further compounded by city restrictions. Sears representatives confirmed this latter point by stating that meter-maids "continuously harass" truck operators that line up to drop off or load shipments. Sears representatives also stated that they are charged for a return trip the next day if truck operators are unable to unload merchandise. Maison Blanche cited identical problems with their delivery trucks. F. W. Woolworth Company's major goods movement problem centered around commercial plate autos that park for long hours in "freight zones." The company believed that some spaces should be allocated for trucks only.

Upon visiting shipping and receiving sites of these business establishments, the Commission was able to observe several signs of congestion and inadequate facilities. At most of the locations trucks were either waiting in line for loading docks to empty, double parked on streets or parked on the sidewalks. In terms of whose role it is to alleviate these conditions, the Commission asserted that in most instances, building owners and managers think that the City should assume responsibility. However, the Commission indicated that the same individuals are usually reluctant to agree to changes in the existing procedure if it increases their legal responsibilities or costs.

The goods movement problem as perceived by carriers is a frustrating experience at best. Research by the Commission indicates that carriers are generally unsatisfied with the existing system but fear changes may create more restrictions on their operation. Carriers are essentially exposed to all aspects of the goods distribution problem. CBD parking bans limit their hours of operation while finding nearby legal parking space also affects carriers' work schedules. Another obstacle concerns building ordinances restricting entrance and freight handling. Combined, these difficulties negatively impact the ability of carriers to perform goods distribution functions within the CBD. By contrast, building tenants are seldom exposed to the problems associated with goods movement. These individuals are generally assured that the orders they place will be delivered directly to their offices within a reasonable period of time. Any difficulties experienced by the carrier en route to making a delivery has virtually no impact on building tenants as long as prices remain reasonable and orders are delivered on time. The Commission indicated that currently goods distribution is a minor element in the decision to rent office space. However, they were informed by leasing agents that if problems arise in having deliveries made to the CBD, this could become a major factor in the rental of downtown floor space.

Local government action on the issue of goods movement in the CBD is complicated by the multiplicity of uses CBD space must provide for, including vehicular and transit circulation, utility location, pedestrian circulation, and goods movement. Goods loading at the curb is competing for valuable space that is also necessary for other important functions, too. Further, as CBD development increases, the demand for limited public space will also have a corresponding increase. The Commission projected increased deficiencies in loading space supply adding that the city will have to adopt a progressive planning activity

that adequately provides for multiple usage of limited street space.

Recommendations for Governmental Action

A major objective of RPC's study was to identify and evaluate alternative solutions to the goods movement problem for implementation at the local level. The Commission prepared a list of the alternatives that fall under the following headings:

- Minor changes to existing delivery service system
- Creating more flexible time periods for delivery service activity (night delivery, etc.)
- Provision of additional delivery/service space
- Consolidation of terminals for goods pickup and delivery
- Regulations and/or fee assessments for goods distribution
- Design standards for new construction
- Modal alternatives
- New technology (truck queuing)
- Educational materials/short courses for persons associated with goods movement

Using qualitative analysis, the Regional Planning Commission narrowed the alternative solutions down to include only the most feasible and practical ones for local consideration. This section provides a summary of each recommendation provided by the Commission for local evaluation and implementation.

Off Street Loading. During the time of the Commission's UGM study, the City of New Orleans was providing loading space for downtown business at numerous curb sites in the CBD. New downtown developments were only required to provide for 25 percent of their loading space needs. This situation not only perpetuates a congested atmosphere in the CBD, but also places the city at a continuous cost disadvantage by providing more and more space. In order to eliminate some of the problems resulting from insufficient off street loading space, the Regional Planning Commission recommended that the City of New Orleans adopt a new zoning ordinance pertaining to this subject. The proposed ordinance would:

- Increase the amount of loading spaces a new development would have to provide based on the type of development rather than the location;
- Require major building expansions/additions to also provide for increased loading needs; and
- Make designs for ingress and egress to an off street facility subject to the review and approval of the City of New Orleans.

Curb Space Policy. Most of the loading space located within the CBD is provided at the curb (more than 80 percent). Although the ultimate long range solution entails the provision of adequate off street loading space the interim requires short range solutions to improve the increased demands occuring now. In light of this, the Commission recommended several actions relating to curb loading activity areas.

The concept of leasing curb space to an enterprise to use as loading space has been used by several cities across the country. Under such an arrangement, the city then paints a portion of the curb yellow, designating it as a "loading zone." The Regional Planning Commission recommended that the city not implement this option for the following reasons:

(1) Unwarranted traffic operations in the curb lane would persist.
(2) Establishments often assume a proprietary interest over the loading zone they've paid for although any service delivery vehicle is allowed to use it.

Instead of opting to lease curb space, the Commission recommended that the city enforce "No Parking" or "Loading Zone" only regulations. This would permit only those vehicles actually involved in the delivery of goods and services to utilize limited loading space and eliminate the common practice of placing notes on dashboards indicated that the vehicle is a "delivery" vehicle. The Commission estimated that 10 to 25 percent of those vehicles using curb loading space are not involved in the delivery of goods. In order to assure that only the proper vehicles are permitted, the Commission recommended that commercial signs be mandatory on all vehicles utilizing the loading space.

Another measure the city could take to increase curb loading supply is to simply redesignate curb space to serve as loading areas. This was recommended to be done by either removing metered parking or by redesignating "No Parking" zones at critical locations.

Night Delivery. This alternative was found to have several disadvantages, but nonetheless remained an idea worth considering. Its greatest advantage is that it reduces traffic congestion in the downtown area. Its drawbacks, however, consist of the following:

- The City would have to assume significant legal authority to force nighttime delivery.
- Additional employees would be needed by all parties involved in CBD goods distribution.
- Many deliveries require personal contact between the carrier and the receiver.
- Security problems would arise.

The Commission suggested that the City consider forced nighttime deliveries only as a last course of action.

Consolidated Delivery. The idea behind this concept is centralization of all goods destined for the CBD at one warehouse facility. Although reduction of traffic and noise is an attractive feature of this alternative, several carriers indicated to the Regional Planning Commission that it would not reduce the number of vehicles needed to serve the CBD. Consolidated delivery would also increase the time and cost associated with downtown delivery. Nearly $500,000 was estimated to be needed per year to provide the necessary terminal facilities at the fringe of the CBD. Further, the Commission estimated that breakage and legal difficulties could also be expected to increase the costs under a consolidated delivery scheme. The Commission, therefore, recommended that the City not include this alternative in a goods movement planning strategy.

Consolidated Receiving. The feasibility of this idea was viewed as much more practical and beneficial than the consolidation of delivery activities. Consolidated receiving would require all goods destined to a downtown building to be delivered instead to a central location where a receiving clerk is on duty to accept deliveries. Goods then are distributed to the various offices/businesses through a single truck carrier. This approach increases the amount of vehicles

a single loading space can serve and also reduces the time a carrier must spend in completing a delivery. The Commission suggested that the City and the Chamber of Commerce work with interested building owners and managers to explore further possibilities of consolidated receiving.

In summary, the Regional Planning Commission's recommendations revolved around two basic strategies. The various curb-side policy recommendations, consolidated receiving concept and the enforcement of loading space use, represent a short term, immediate strategy for increasing the availability of loading space. The remaining recommendation (city ordinance on new construction) represents a long term effort to provide adequate off street loading space within the same area.

IV. MITIGATING THE IMPACT OF RAIL FREIGHT ABANDONMENT

BACKGROUND

The North Central Wisconsin Regional Planning Commission (NCWRPC) located in Wausau, Wisconsin, conducted a one-year technical study in 1980 to assess the importance of rail freight transportation in Lincoln County, Wisconsin. Threatened by a possible discontinuation of rail freight service, Lincoln County shippers urged NCWRPC to prepare a study to meet the following objectives:

- Discuss the implications of rail abandonment on the region's economy; and
- Identify alternative methods for transporting goods and commodities through the region.

This case study will address the issues surrounding the possible abandonment of rail service on the Tomahawk to Wausau branch line (operated by the Chicago, Milwaukee, St. Paul and Pacific Railroad) and discuss the potential impact of rail abandonment on the Lincoln County economy.

Regional Setting

The North Central Wisconsin Regional Planning Commission (NCWRPC) is located in Wausau, Wisconsin. Its planning district stretches 185 miles from the northern portion of Vilas County to the southernmost portion of Juneau County (see Maps I and II). The Commission's planning jurisdiction encompasses nine counties: Forest, Juneau, Langlade, Lincoln, Marathon, Oneida, Portage, Vilas and Wood.

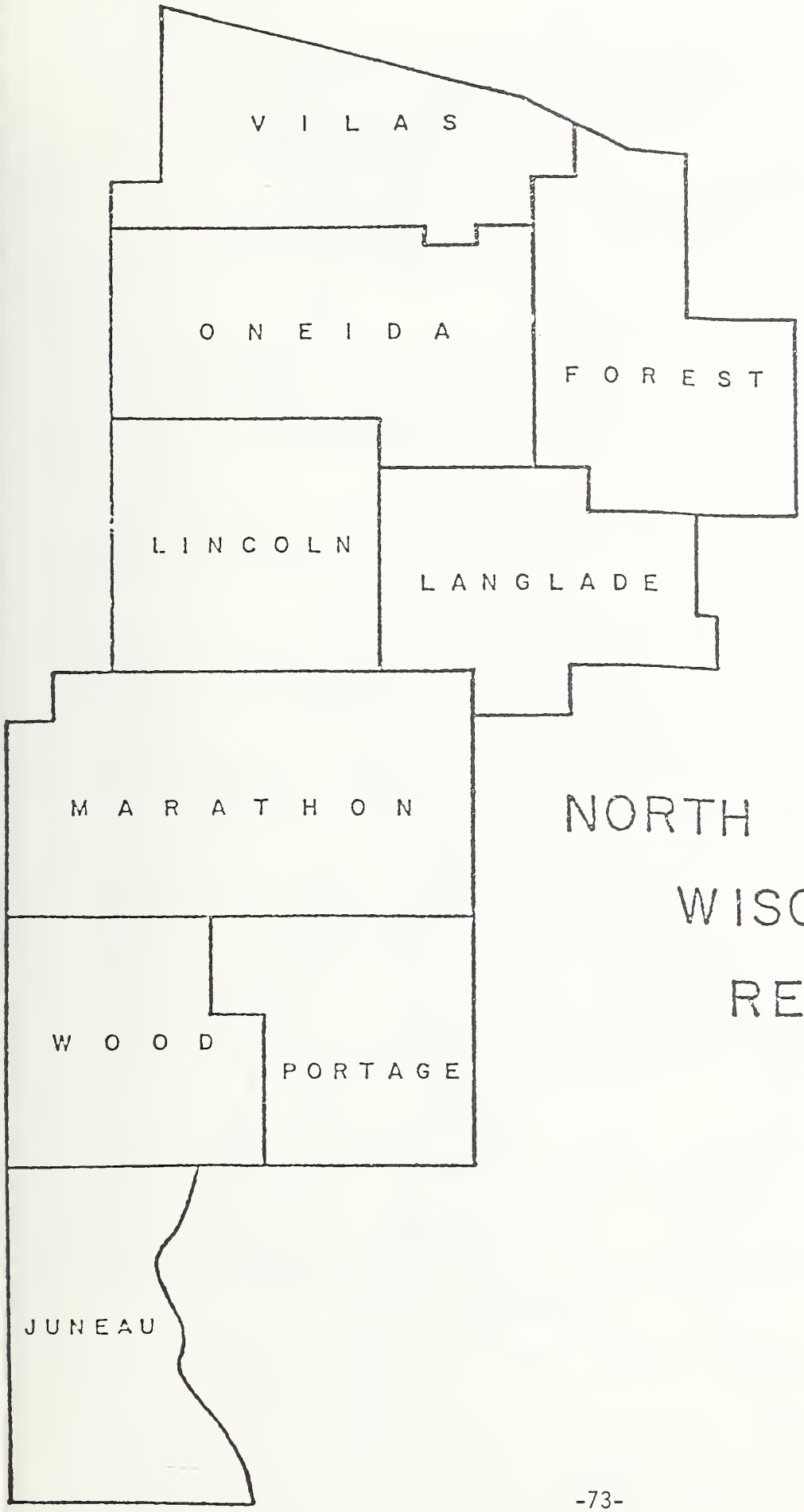
Since 1970, population in the North Central region has grown by 49,596 for a total of 364,206 residents in 1980. This represents a 15.76 percent rise since 1970, an amount double the increases that have taken place in the state during the same time period (6.14 percent). The largest increases have occurred in Vilas and Oneida counties with 40.75 and 27.31 percent respectively.

In-migration has contributed significantly to population increases throughout the region. Vilas, Oneida and Forest counties in particular have experienced the largest percentage of net population increases due to in-migration (100.92, 87.86 and 78.33 percent respectively).

Per capita income for the region increased by $2,063 between 1969-1977, ranging from a low of $3,698 in Forest County to $5,359 in Wood County. Labor statistics for 1980 show an average unemployment rate for the North Central region of 8.3 percent, a significantly higher level than the unemployment rate for the nation and for the State of Wisconsin (7.1 percent and 6.7 percent). Unemployment rates within the region ranged from 7.1 percent in Portage County to 11.3 percent for Forest County.

Contributing heavily to high unemployment within North Central Wisconsin have

MAP I



NORTH CENTRAL WISCONSIN REGION

MAP II

LOCATION OF NORTH CENTRAL WISCONSIN & URBAN CENTERS IN THE MIDWESTERN UNITED STATES

been high interest rates. High interest rates have caused depressed economies, particularly within the state's lumber and wood product industries. Nationally known prefabricated home manufacturers and mobile home manufacturers located within the region have been especially hard hit. Since last year, several of these industries have had to make reductions in their operations, close temporarily, or shut down permanently.

Employment figures for 1978 show the region's three major industries to be manufacturing (33.62 percent); services (20.9 percent); and retail trade (19.41 percent).

The Agency. NCWRPC was created by an executive order of the Governor of Wisconsin in June 1973. The Commission is guided by two Commissioner Committees--the executive committee and the referral committee. Each member county sends three commissioners to serve on the two committees--one commissioner serves on the executive committee while the remaining two serve on the referral committee.

Responsibility of the executive committee include overall management of NCWRPC's program activities. The referral committee handles all referrals, including those that come before the agency as a result of the A-95 process.

In 1975, the executive director began hiring technical staff and organized the agency into two program areas: Physical Planning and Development, and Socio-Economic Planning and Development. Later that year, the agency was designated as an economic development district and authorized to prepare overall economic development plans for the region.

The most recent economic development strategies are designed to focus on high unemployment and low family income. Emphasis is also placed on the integration of natural resources and economic development planning.

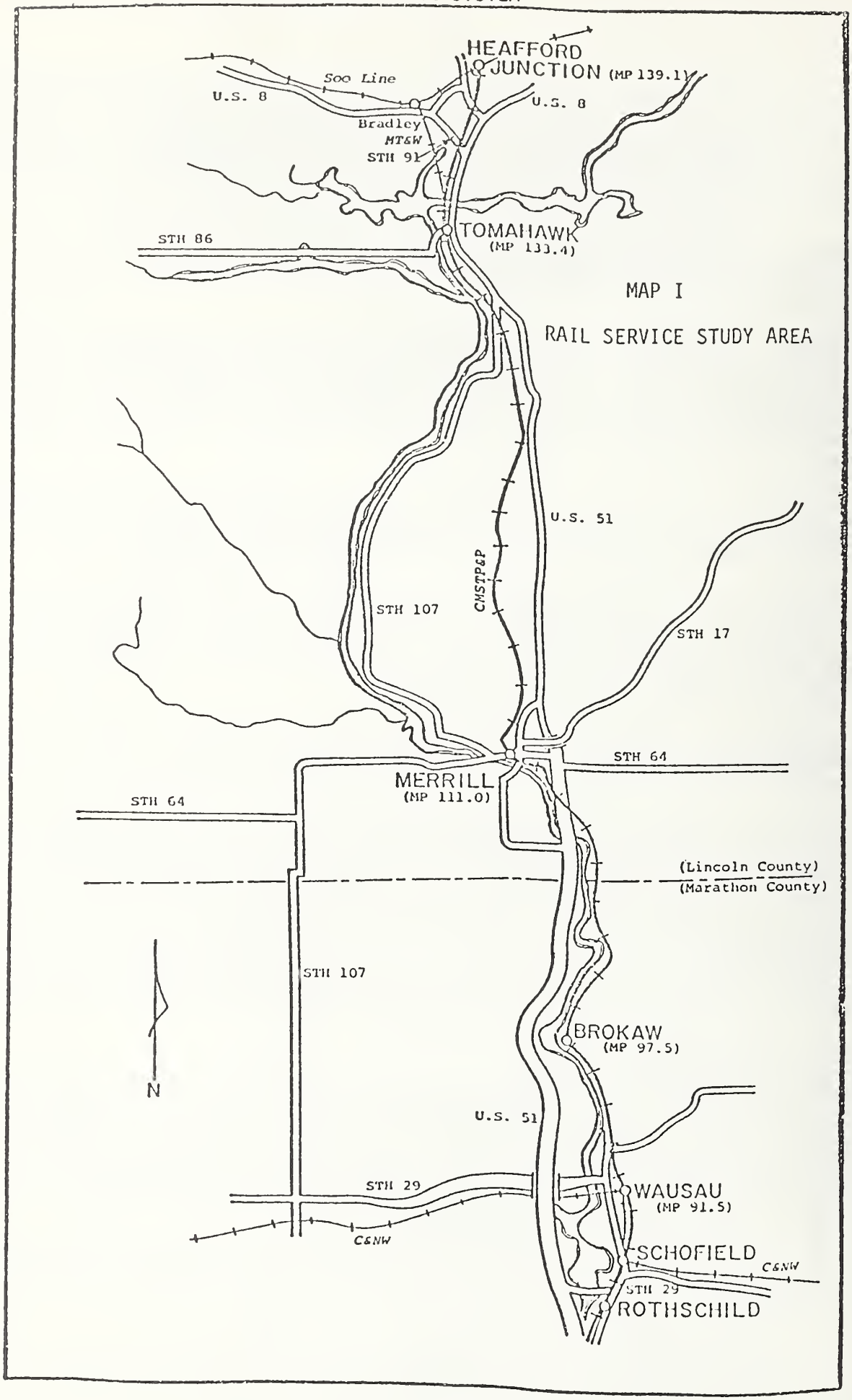
Although not a Metropolitan Planning Organization (MPO), NCWRPC has initiated several transportation projects for the region. Since 1979, rail planning has been a key issue for NCWRPC since it has both economic development and transportation significance for surrounding communities. The high incidence of rail abandonments within the region has made this activity a priority issue. The Commission has been active with local groups working to preserve service on lines threatened with abandonment and has worked with the Wisconsin State Department of Transportation (WISDOT) and local industries to assess the economic impacts abandonment would have on local communities.

Regional Transportation System

A major issue addressed by NCWRPC in their analysis of rail service abandonment was the degree to which motor carriers could be utilized as an alternative method of transporting goods. Currently, motor and rail transportation are coordinated to accommodate the movement of commodities into and out of the Lincoln County area. This section will briefly outline the regional rail and highway system and also provide a background discussion of the Milwaukee Railroad's role in the regional economy.

Rail System. The Wausau to Tomahawk branch freight line is owned and operated

MAP III REGIONAL RAIL SYSTEM



by the Milwaukee Road Railroad. Other companies operating freight branch lines in the region include: The Marinette, Tomahawk and Western Rail Company (MT&W), which operates from Tomahawk, the Chicago and Northwestern Railroad which serves the southern portion of Wausau, and the Soo Line Railroad which provides an east-west mainline across the northern portion of the study area (see Map III). Inter-railroad connections exist between the Milwaukee Road and the Chicago and Northwestern at Wausau, and the Marinette, Tomahawk and Western at Tomahawk. This type of connection is not available between the Milwaukee Road and Soo Line in the north since the Soo Line has been allowed to terminate its service from Tomahawk to Heafford Junction.

Most of the trackage between Wausau and Heafford has deteriorated considerably. Substantial rehabilitation would be necessary to restore the rail facility to its original condition. The Milwaukee Road has applied to the Federal Railroad Administration for assistance in making improvements to portions of the Wisconsin Valley line.

Highway System. Roads within Lincoln County are generally well distributed. The eastern half of the county has somewhat better developed roads. The population distribution is also greater in this section of the county. Road conditions are of similar quality throughout the county as well. Town roads, however, have a slightly lower grade of quality than county roads.

The state highway system provides seven routes throughout Northern Wisconsin. Highway 8 and 64 are the principal east-west routes through Lincoln County. The two routes connect the county with Rhinelander and Forest Counties and also connect Merrill with St. Paul and Marinette. The major north-south route through Lincoln County consists of U.S. Highway 51 and Wisconsin 17. Finally, Wisconsin highway 107 runs along the Wisconsin River between Merrill and Tomahawk.

U.S. Highway 51 is a key route for Northern Wisconsin residents and industries. This route is the fastest within the region for traveling between Tomahawk and Merrill. Further, it is the principal highway for connecting Wisconsin and Illinois with Lincoln County and a large part of Northern Wisconsin. Four truck carriers have regulatory authority to serve the cities of Merrill and Tomahawk (See Table I). The highways just discussed here are essential to the operation of these trucking companies within the north-central Wisconsin area.

The Milwaukee Railroad Company. Since its creation in 1867, the Milwaukee Railroad Company has been plagued with periods of financial crisis. As rail expansion spread through the midwest in the early 1900s, the Milwaukee Road management sought to compete for transcontinental traffic through construction of its own Pacific Coast extension in 1909. Having never fully recovered from the debt incurred from investing in this project, the railroad declared bankruptcy in 1925.

Reorganization of the company occurred in 1926, only to lead to another bankruptcy petition in 1935. The railroad continued to operate under bankruptcy laws for 10 years until the advent of World War II and a dramatic increase in freight traffic which made it possible to reorganize in 1945. Shortly thereafter, profits began to decline and remained at a neglible level for twenty-five years.

The most recent bankruptcy claim occurred in 1977. Prior to the bankruptcy in December of 1977, the railroad company operated at a loss of six or seven successive years, and accumulated an operating loss of $100 million during the

TABLE I

COMMON TRUCK CARRIERS SERVING THIS AREA

INTRA-STATE TRUCKING		
Merrill	-	Foreway Express
	-	G.M.W. (Glendening)
	-	Neuendorf
Tomahawk	-	G.M.W. (Glendening)
	-	Neuendorf
INTER-STATE TRUCKING		
Merrill	-	Foreway Express
	-	Spector Freight
Tomahawk	-	Foreway Express
	-	G.M.W. (Glendening)
	-	Spector Freight

Source: Transportation Commission of Wisconsin

final three years.

This 1977 bankruptcy claim caused a great deal of concern and alarm among Wisconsin's business community. The Milwaukee Road owns nearly one-quarter of the rail trackage in Wisconsin and carries a similar share of the traffic. Its facilities constitute nearly 50 percent of the rail mileage in Southern Wisconsin, serving each of Wisconsin's eight largest cities and sixteen of the twenty largest. For 184 Wisconsin communities, it represents the only available rail freight service. Finally, it provides direct employment for 3,000 citizens of the state. Obviously, any disruption of freight service, or threat thereof, would generate widespread concern throughout Wisconsin communities.

Current bankruptcy laws would allow services to continue during bankruptcy while reorganization studies and management changes are made. During this period a federal district court judge would assume jurisdiction over the rail company and appoint a trustee to preside over the reorganization effort. Goals of reorganization would be to continue normal operations protecting the value of the estate to the fullest extent possible until a new operating structure is developed and approved. Operations of the Milwaukee Road have continued under this process without any major disruptions in service.

PROJECT DESIGN

NCWRPC designed a rail abandonment analysis in response to local fears that the financially troubled Milwaukee Road railroad company would terminate service on the Wausau to Tomahawk branch line. The analysis was prepared to

provide information in three key areas:

(1) The potential economic impacts of a termination in rail service;
(2) Alternative strategies available for preserving a regional goods movement network; and
(3) A schedule for implementing alternative strategies.

The regional planning agency, through surveys and cost/benefit analyses, provided local rail-using industries and local communities with information on levels of rail usage, trucking alternatives and the costs associated with abandonment. This gave the region a clear picture of how abandonment, if implemented, would effect local communities. The analysis also offered a course of action that public and private sectors might follow should rail service be terminated. A discussion of the organization of the project follows in this section.

Staffing

Most of the data collection and analysis was undertaken by one full-time transportation planner. The agency's division of socio-economic development planning and the division of information systems and research provided specialized economic information when necessary. Essentially, however, technical analysis was performed by a single researcher with basic oversight and direction provided by the transportation project director.

Advisory Committee

The commission as a whole is guided in its economic development activities by a Regional Economic Development Planning Advisory Committee. This structure is comprised of a broad based group of seventeen public and private sector regional leaders who help identify regional economic development policy objectives and priorities. Rail planning is a key issue the committee has encouraged NCWRPC to become actively involved with.

Public Sector Participation

The bulk of public sector participation in NCWRPC's rail analysis study came from the Wisconsin Department of Transportation (WISDOT). WISDOT contributed a significant amount of assistance to NCWRPC, particularly in regard to a shippers' survey the regional agency administered to determine levels of rail usage. The form utilized in the survey of Lincoln County rail freight shippers was designed by WISDOT. Further, the state agency supplied NCWRPC with a formula for determining the cost/benefit ratio of various transportation alternatives. Finally, WISDOT provided financial support to NCWRPC for the preparation of the rail service analysis.

Private Sector Participation

NCWRPC's analysis of the potential impact of abandonment required the agency to engage in an extensive dialogue with the shipping community. Industries using the freight branch line were called upon to supply NCWRPC with sensitive company records. Without this information, impacts would have been difficult to assess and feasible alternatives to the existing mode of freight transport would have been equally hard to determine. Factual business statistics and the perspectives of the shipping community were essential ingredients to the final recommendations made by NCWRPC. The rail shippers in Lincoln County also con-

tributed financially to the preparation of NCWRPC's rail analysis.

PROJECT ACTIVITIES

NCWRPC's rail service analysis was undertaken largely because of concerns by the local shipping community that rail freight service would be terminated at their business locations. Local shippers and surrounding localities thus urged NCWRPC to provide information on the economic impacts of a proposed abandonment and alternatives available for transporting goods and commodities through the region. This section will highlight the following project activities taken on by NCWRPC:

- Surveying of rail-using industries;
- Assessing potential economic impacts of rail service abandonment;
- Identifying transportation alternatives; and
- Evaluating and ranking alternatives.

Surveying Rail-Using Industries

In 1980, NCWRPC surveyed each of the nineteen firms utilizing the Wausau to Tomahawk branch line in Lincoln County. Through the survey, the NCWRPC obtained information illustrating the levels of industrial usage of the freight rail facilities.

Survey results showed that during the late 1970s, total freight shipments originating and terminating in Merrill increased. This increase, however, took place within the trucking community. The firms also indicated that rail transport dependency is greatest on inbound shipments. This is largely due to the origin of shipments, usually from the pacific states, and the type of commodities that are transported. The shipments received by rail are usually raw, bulk commodities (e.g., lumber) coming in from long western hauls. Outbound shipments are largely finished products from the manufacturing industries in Merrill. Table II shows a breakdown of rail traffic in Merrill by commodity.

Shippers also disclosed a number of problems with the rail system that prevents them from maximizing its use. Lengthy transit times were one of the problems identified. Unreliable delivery schedules and rail car shortages also combined to make rail shipping a transportation alternative for several industries along the freight line. Survey results analyzed by NCWRPC indicate that motor carriers are assuming a greater portion of the outbound freight shipments even though rail offers a more economical method of shipping commodities.

The general financial condition of the Milwaukee Railroad, as well as the competition from trucks, have caused the railroad company to reduce costs to the Wausau to Tomahawk branch line and reduce service levels. Ironically, the reductions in costs for improvements and service have spurred deterioration of facilities and have thus led to less utilization of rail services. These factors contributed to local apprehension regarding rail abandonment and led to NCWRPC's participation in the project.

Assessing Potential Economic Impacts of Abandonment

According to NCWRPC's research, discontinued service between Wausau and Tomahawk would have an immediate effect on most of the rail shippers located along the line. Those users located in Merrill would be without direct access to the

TABLE II

1979 MERRILL RAIL TRAFFIC BY COMMODITY

INBOUND RAIL TRAFFIC

Lumber	932	
Other Wood Products	407	
Lime	74	
Grain	50	
Fertilizer	40	
Coal	182	
Others	185	
	1,870	Total Inbound Carloads

OUTBOUND RAIL TRAFFIC

Millwork and Other Wood Products	837	
Sawdust	324	
Printing Paper	333	
	1,494	Total Outbound Carloads

SOURCE: North Central Wisconsin Regional Planning Commission

nation's rail system since the Milwaukee Road is the city's only rail service with access to the outside rail system. Users located in Tomahawk would be able to continue shipments on the MTBW and the Soo Line. Some of the rail shippers in Tomahawk would have to find a substitute for this mode of transport.

In order to determine specific impacts to Lincoln County, NCWRPC analyzed primary and secondary impacts of abandonment. The primary impacts were determined by assessing responses from the shipper's survey and by analyzing their dependency on rail transport as brought out in the rail traffic data portion of the survey. Secondary impacts were determined by focusing on the county's economic base and analyzing the effects of rail abandonment on various economic indicators.

Lincoln County's single largest industry is agriculture. NCWRPC, through its survey, found that the larger portion of agricultural commodities transported inbound to Merrill are of bulk consistency and are indirectly dependent on rail services for their distribution.

The paper industry is another important sector in the region's economy. Rail services are utilized extensively by this industry for both the transport of raw materials to the mills and the transport of finished products to markets. Other industries in the county whose operations require rail services include lumber businesses, a manufacturer of stainless steel vessels, a shoe manufacturer, and a cannery.

In its survey, NCWRPC found that combined these industries generate approximately 8,000 rail carloads of traffic on the Wausau to Tomahawk branch Line. Estimating a two to one ratio of rail carload to truckload carrying capacity, NCWRPC indicated that total abandonment of existing rail service could potentially result in an additional 16,000 truck shipments of commodities into and out of the county.

One of the direct impacts of increased truck shipments could consist of various environmental hazards for the county. High levels of air quality pollutants would be an immediate result of the increased truck shipments. In addition, it is likely that the surface conditions of roads would be affected as heavier vehicles and increased traffic wear down road facilities.

NCWRPC determined that rail abandonment would not necessarily guarantee high increases in truck shipments. Although truck shipments could increase by an additional 16,000 shipments, many businesses indicated uncertainty in their ability to maintain existing traffic levels. According to them, discontinued rail service could possibly necessitate a reduction in their business operations and even a closure of some firms.

Of the twenty firms located along the branch line, sixteen indicated that they would suffer immediate adverse impacts. According to the survey, two would be forced to discontinue business. This would result in a combined loss of 356 jobs. Another shipper indicated that their business would have to consolidate operations at another facility. The remaining thirteen rail shippers stated that although their facilities would remain open, significant changes would take place in their business operations. In order to balance the higher costs associated with truck transport, industries mentioned that staff reductions might also be necessary.

In analyzing the secondary impacts of rail abandonment, NCWRPC focused on the effects of service discontinuance to the regional economy as a whole. Among the economic factors influenced by rail abandonment are job losses. From their survey, NCWRPC learned that approximately 2,000 employees in Merrill are employed by rail-using industries. These 2,000 employees provided a total 1978 payroll of $10,483,591. Large scale reductions in employment due to rail abandonment would greatly reduce personal income for Lincoln County and increase spending and taxes. According to NCWRPC's estimates, "the complete loss of rail service would result in the loss of 1.17 local demand jobs for the loss of every basic demand job. The total employment loss to Lincoln County from rail loss would be more than double the loss estimated by industries directly served by rail (354 direct jobs plus local demand jobs equals 708 total jobs lost to Lincoln County)."*

NCWRPC also predicted an increase in total transportation and distribution costs for Lincoln County industries as a result of rail abandonment. Presumably if existing traffic currently routed by both railroad and motor carrier methods were routed strictly by motor carrier alone, transportation costs would rise significantly from their current level of 7.7 percent of total dollar sales volume. This situation would undoubtedly place an added financial burden on industries, thereby making reductions in staff a more likely occurence. NCWRPC also noted that without the availability of rail transportation, the competitive ability of the county would be significantly hampered, especially for those industries competing beyond the regional market.

Summarily, the potential economic impacts of rail abandonment would result in the following effects:

- Increased truckloads, possibly as many as 16,000 additional shipments through the county;
- Excessive pollution to the air and deterioration of road facilities;
- Two plant closures and several possibilities of plant reductions;
- A minimum of 708 total jobs lost in Lincoln County; and
- An increase in transportation costs for industries.

This loss of rail transportation could endanger the region's competitive advantage in local, regional and national markets. Given these potential impacts, NCWRPC began focusing on preserving rail transportation in the county. The next section will highlight their efforts.

Identifying Transportation Alternatives

An important element of NCWRPC's study entailed determining the transportation alternatives available for maintaining adequate freight transportation service for Lincoln County businesses. Three general options were identified by NCWRPC, with fifteen specific combinations of possible service alternatives derived from these three options. Following is a discussion of the three basic options for service.

---

*Source: "Analysis of Rail Service Discontinuance." North Central Wisconsin Regional Planning Commission (NCWRPC): 1980.

Private Ownership and Operation. Service on the Wausau to Tomahawk branch line could continue if the Milwaukee Road maintained service on all or a portion of its branch line, or if some other Class I privately owned railroad assumed ownership. Railroads considered as "prime candidates" for ownership are those intersecting the branch line or those in the immediate vicinity. These include the Soo Line, Chicago and Northeastern (C and NW), Green Bay and Western (GB and W) and the Marinette, Tomahawk and Western (MT and W) railroads.

If this option were implemented, interested rail companies would enter into direct negotiations with the Milwaukee Road through the Bankruptcy Court, or with either the state or local government, whichever had title to the property when purchase was offered.

Public Acquisition/Private Operation. Still another arrangement would consist of public acquisition of the rail land and track property for private operation by a Class I railroad. This approach would relieve the operating railroad company of any maintenance costs associated with its upkeep while allowing the Milwaukee Road to continue its operation. In the event that abandonment takes place by the Milwaukee Road, another Class I railroad could assume operation of the line.

Implementation of this approach can be somewhat difficult, especially if the Bankruptcy Court for the Milwaukee Road determines that the railroad is financially capable of both providing service on the branch line and maintaining ownership. This would cancel out the need for public ownership. In addition, public investments already allocated to the rail line for rehabilitation could negate the Milwaukee Road's case for relinquishing ownership. Barring these exceptions, implementation would consist of the negotiation of rail property by WISDOT. ICC regulation would be required for operation of the service by carriers other than the Milwaukee Road.

Public Acquisition/Public Operation. This alternative is possible in instances when neither a railroad company nor a shortline operator can be found to provide rail service. The responsibility of assuring continued rail service falls upon the applicant. The applicant would be a local government body or a transit commission.

Evaluating and Ranking Alternatives

As mentioned earlier, NCWRPC identified fifteen transportation preservation alternatives that would provide Lincoln County shippers with continued service for freight transport. The alternatives include both rail and motor truck transport.

In order to get the users' perspectives on each of the alternatives, NCWRPC queried them about their opinions on and preferences for the transportation alternatives. The rail users were asked to consider the feasibility and practicality of implementing each alternative as it relates to their respective firms. The following table reflects the survey results with the alternatives listed in decreasing preference as determined by the industries.

TABLE III

ALTERNATIVE RANKING*

ALTERNATIVE RANKING NUMBER	ALTERNATIVE DESCRIPTION
2	Class I Railroad Ownership and Operation of the Wausau to Merrill Line Segment, and Ownership and Operation of the Merrill to Tomahawk (Heafford Junction) Line Segment by Another Class I Railroad.
1	Class I Railroad Ownership and Operation Wausau to Tomahawk (Heafford Junction) Line Segment.
3	Class I Railroad Ownership and Operation of the Wausau to Merrill Line Segment, Public Ownership and Operation of the Merrill to Heafford Junction Line Segment.
7	Public Ownership of the Wausau to Tomahawk (Heafford Junction) Line Segment, Operation of Wausau to Merrill by One Class I Railroad and Operation of Merrill to Tomahawk (Heafford Junction) Line Segment by Another Class I Railroad.
4	Class I Railroad Ownership and Operation of the Wausau to Merrill Line Segment, Public Ownership and Railroad Operation of the Merrill to Tomahawk (Heafford Junction) Line Segment.
8	Public Ownership of the Wausau to Tomahawk (Heafford Junction) Line Segment, Class I Railroad Operation of the Wausau to Merrill Line Segment, and Public Operation of the Merrill to Tomahawk (Heafford Junction) Line Segment.

Cont'd...

ALTERNATIVE RANKING NUMBER	ALTERNATIVE DESCRIPTION
5	Class I Railroad Ownership and Operation of the Wausau to Merrill Line Segment, Discontinuance of Rail Service from Merrill to Tomahawk, Possible Expansion of Motor Carrier Operation.
6	Public Ownership of the Wausau to Tomahawk (Heafford Junction) Line Segment, Operation by a Class I Railroad.
10	Public Ownership and Operation of the Wausau to Tomahawk (Heafford Junction) Line Segment.
11	Public Ownership and Class I Railroad Operation of the Wausau to Merrill Segment, Discontinuance of Rail Service from Merrill to Heafford Junction, Expanded Motor Carrier Operation.
9	Public Ownership of the Wausau to Tomahawk (Heafford Junction) Line Segment, Class I Railroad Operation Merrill to Tomahawk (Heafford Junction) and Public Operation Wausau to Merrill.
15	Public Ownership and Operation of the Wausau to Merrill Line Segment, Class I Railroad Ownership and Operation to the Merrill to Tomahawk (Heafford Junction) Line Segment.
12	Public Ownership and Class I Railroad Operation of the Merrill to Tomahawk (Heafford Junction) Line Segment, Discontinuance of Rail Service Brokaw (Wausau) to Merrill, Expanded Motor Carrier Operation.
13	Public Ownership and Operation of the Merrill to Heafford Junction Line Segment, Discontinuance of Rail Service Brokaw (Wausau) to Merrill, Expanded Motor Carrier Operation.
14	Rail Service Discontinuance Brokaw (Wausau) to Heafford Junction, Expanded Motor Carrier Operation.

*Source: "Analysis of Rail Service Discontinuance." North Central Wisconsin Regional Planning Commission (NCWRPC): 1980.

From the survey, NCWRPC found that the rail-using industries preferred continued rail service by a Class I railroad over most of the branch lines. Public ownership was also heavily supported in the survey, primarily because it offers a mechanism which prevents complete reliance on motor transport.

In regard to the latter point, NCWRPC indicated that overwhelmingly, the users prefer a system comprised of both rail and truck movements. This combination is both cost- and time-efficient and therefore allows for better service to consumers. A transportation system consisting of only one of these modes would not be an adequate facility for freight shipping industries. According to rail users, a motor carrier oriented system would increase transportation and handling costs for their business operations. Further, bulk shipments, such as lumber that is frequently transported inbound to Merrill, would necessitate huge increases in transport costs for several industries if a switch to an entirely motor carrier system is implemented.

By contrast, a total rail system would produce equally detrimental consequences for the industries. Many outbound finished products manufactured in the county rely on the door-to-door delivery offered by motor transport. In addition, users have greater control over transit times when motor transport is available. The optimal alternative, therefore, should provide for access to a balanced transportation system. Alternative One reflects this prerequisite.

Another requirement of an alternative is that it should minimize any interruptions of rail service. Discontinued rail service in Lincoln County may cause industries to invest heavily in or contract into motor carrier modes of goods transport. This would, according to NCWRPC, create an unbalanced transportation system leaving many industries bound to lengthy contracts after rail service is restored. These contracts could not be terminated quickly nor would motor carrier investments (truck fleets equipment, etc.) have been given enough time to bring investors an acceptable rate of return. This prompted NCWRPC to predict that the longer rail service is interrupted, the less traffic would be gnerated by local industries and the fewer the chances of success for any future rail services on the line. NCWRPC concluded that continuation of the existing system or rail service from another Class I railroad would minimize rail service interruption or eliminate it all together.

Using the alternative evaluation and the rail users' ranking as a basis, NCWRPC developed a list of recommendations for the local government and shippers to consider in the event that existing service levels are significantly threatened. The recommendations are listed below, in decreasing priority:

(1) Preserve existing service on the entire branch line.
(2) Find another Class I railroad to operate the branch line.
(3) Preserve Class I service by a combination of recommendations one and two.

In their final task of the rail analysis study, NCWRPC developed a schedule of steps to be undertaken at the local level to implement the alternatives presented earlier (private acquisition and operation). The schedules were developed on the assumption that existing railroad service by the Milwaukee Road would be terminated. They also denote the approximate sequence for implementing each of the three activities.

Table IV represents the steps necessary for private acquisition/private operation of the Wausau to Tomahawk branch line. If the city elects to implement this option, five major steps would be required. Foremost, this option requires the establishment of a transportation commission. This entity would be organized by the county board and utilized to manage the financial contracts and grant monies necessary for private ownership and operation of the rail facility. Other necessary steps include the formation of a rail shippers group to enter into negotiations with WISDOT to screen candidate railroads.

TABLE IV

PRIVATE ACQUISITION/PRIVATE OPERATION: Class I Railroad*

1. County Board creates a transit commission.
2. Formation of rail shippers group.
3. Transit commission and WISDOT intervene into negotiations with candidate railroads for purchase of rail property and operation.
4. Operating Class I railroad purchase of rail property from Milwaukee Road Railroad (ICC).
5. Operating Class I railroad obtains operating certificate from the Interstate Commerce Commission.
6. Start-up of Class I railroad operation.

*Source: "Analysis of Rail Service Discontinuance." North Central Wisconsin Regional Planning Commission (NCWRPC): 1980.

Table V represents the schedule for implementing a public/private arrangement for providing rail service. Key steps outlined by NCWRPC for this option include the preparation of a feasibility study to determine potential costs and benefits of this arrangement. Another step under this option requires WISDOT to acquire the land and track rights of the railroad and enter into a land-use agreement with the transit commission (representing new management) for use of the public rail property.

The final schedule (Table VI) provides the process for implementing a public ownership and operation arrangement. This procedure is nearly identical to those under the private acquisition and ownership except that the applicant screening process is omitted as well as the required operating agreement between the transit commission and the new operators.

TABLE V

PUBLIC ACQUISITION/PRIVATE OPERATION: Shoreline Railroad or Class I Railroad*

1. Conduct shortline feasibility study for rail line in question.
2. County Board creates a transit commission.
3. Transit commission plans financial arrangements.
4. Organize rail shipper group.
5. WISDOT negotiation and acquisition of rail property (track and land) on behalf of the transit commisstion from the Milwaukee Road (ICC) for initial rail banking.
6. Transit commission submits grant applications to WISDOT for processing.
7. Transit commission screens candidates and selects shortline operator or decides to subcontract with Class I railroad.
8. Transit commission if required submits application to WISDOT and/or other agencies for assistance in rehabilitating track, operating subsidy, and procurement of capital equipment.
9. Settlement of financial and switching arrangements with connecting main line carriers. (Not necessary if a main line carrier subcontracts with transit commission to operate the rail banked property).
10. Settlement of grant (and loan) agreements with WISDOT and other involved agencies.

    Procurement of local matching funds for transit commission acquisition of rail property.

*Source: "Analysis of Rail Service Discontinuance." North Central Wisconsin Regional Planning Commission (NCWRPC): 1980.

TABLE VI

PUBLIC ACQUISITION/PUBLIC OPERATION: Shortline Railroad*

1. Conduct shortline feasibility study for rail line in question.
2. County Board creates a transit commission or other authority responsible for the new shortline railroad's operation management.
3. Transit commission plan financial arrangement.
4. Organize rail shipper group.
5. WISDOT negotiation and acquisition of rail property (track and land) on behalf of the transit commission from Milwaukee Road (ICC) for initial rail banking.
6. Transit commission submits grant applications to WISDOT for processing.
7. Transit commission if required submits applications to WISDOT and/or other agencies for assistance in rehabilitating track, operating subsidy and procurement of capital equipment.
8. Settlement of financial and switching arrangements with connecting main line carriers.
9. Settlement of grant (and loan) agreements with WISDOT and other involved agencies.
   - Procurement of local matching funds.
   - Transit commission acquisition of rail property.
10. Obtain operating certificate from the Interstate Commerce Commission.
11. Start-up of shortline railroad operations.

    Under the public acquisition/private operation option, either an independent shortline railroad or a Class I railroad could operate the rail line.

CONCLUSION

Rail service on the Wausau to Tomahawk branch freight line is no longer in danger of being terminated. The Milwaukee Road has incorporated this line into its reorganization plan for a streamlined, core railroad of 3,400 miles called "Milwaukee II." Milwaukee II, according to the present plan, would have approximately 3,400 route-miles connecting Chicago with Milwaukee, Minneapolis, St. Paul and Duluth with Louisville and Kansas City, and with Green Bay, Menominee, Michigan, and the Upper Wisconsin River Valley. In addition, the reorganized railroad would have several secondary and feeder lines. WISDOT, local and regional public agencies, shippers and other railroad groups have been working with the Milwaukee Road to develop appropriate rail service continuation projects.

NCWRPC's involvement in this area has been both timely and proactive. The project provided the Lincoln County local government with a contingency plan for rail abandonment. This analysis undoubtedly would have spared a great deal of local expense and time in estimating potential impacts and identifying feasible alternatives had rail service been discontinued. NCWRPC's project also demonstrates the ability of a small regional agency to provide leadership to local governments and the businesss community in areas concerning goods movement and the regional economy. Its activities included:

- Establishing a concrete relationship with rail-using industries and obtaining a business sector perspective on transportation alternatives;
- Identifying major economic impacts of rail abandonment;
- Identifying feasible transportation alternatives;
- Evaluating transportation service alternatives; and
- Providing a schedule of actions for each transportation service alternative.

In addition to these projects, NCWRPC continues to provide technical assistance to other municipalities experiencing the problem of rail abandonment. The agency has also maintained an ongoing relationship with the private sector, keeping abreast of their concerns and needs in this important area.

V. DEVELOPING ALTERNATIVE STRATEGIES TO URBAN RAIL FREIGHT ABANDONMENT

BACKGROUND

In 1978, the Tri-State Regional Planning Commission, located in New York City, began a project under the Economic Development Administration's Metro Demonstration Program. Tri-State's project focused on the issue of infrastructure reliability and featured the preparation of a series of case studies on this subject. Tri-State's interest in infrastructure stemmed from a regional policy goal calling for the improvement of infrastructure throughout the three-state area. Further, the project represented a major effort by the agency to develop a more active economic development program as opposed to solely carrying out the traditional "comprehensive economic development planning" it had been engaged in previously.

The objectives of Tri-State's economic development project were to (1) examine the economic consequences of infrastructure deterioration; (2) develop strategies for a region-wide rehabilitation program; and (3) provide technical assistance to the localities who were experiencing problems of infrastructure obsolescense. The case studies focused on a wide range of infrastructure problems including utilities, water, sewer and rail. This report will examine one of Tri-State's case study projects. Specifically, it will examine the agency's role in assessing the potential economic impacts of a deteriorated rail freight facility and evaluating options to rail line abandonment.

Regional Setting

The Tri-State Regional Planning Commission has represented the largest regional metropolitan planning area in the nation. In 1980, inhabitants of the region numbered close to 18 million and resided on 8,000 square miles. The jurisdictional boundaries of the region included three states, twenty-one counties, six planning regions and 586 municipalities, eighteen of which were over 100,000 in population. There were 43 municipalities with populations over 50,000 within the Tri-State region. Ten localities were central cities to the region: Newark, Jersey City and Paterson in New Jersey; Bridgeport, New Haven, Waterbury, Norwalk, Stamford, Danbury and Meriden in Connecticut.

Over the last decade, the Tri-State region lost four percent of its population. As have other industrial cities, Tri-State's central cities experienced the out-migration of jobs to more developable land on the region's outskirts. Accompanying job out-migration was a loss of tax revenues. Statistics show that New York City, Newark and Bridgeport have been particularly hard hit in terms of population decline. Between 1970 and 1980, New York City's population dropped 11.3 percent; Newark lost 16.1 percent of its population and Bridgeport saw a decline of 10.6 percent.

In addition, high unemployment rates indicate the degree of economic hardship experienced by these cities. In 1980, 8.6 percent of New York City's population was without jobs; 8.1 percent of the population in Bridgeport was unemployed; and 11.4 percent of Newark's population was jobless. The distribution of jobs among the jurisdictions has been fairly even. The service, manufacturing and trade sectors provided 21 percent, 20 percent and 19 percent respectively of

the region's employment. Government has also been a major employer with 15 percent of the total in the region.

The Agency

Tri-State was chartered in 1961 by Connecticut, New York and New Jersey to serve as a transportation commission for the three-state area. Four years later, it became the region's transportation planning organization, and in 1971, the member states broadened the agency's focus to include land use, economic development, housing and community development. The agency was governed by a 22-member commission, 15 of which were appointed by the three states (five from each state). These 15 appointees are voting members while the remaining seven, representing the Transit Authority, the Port Authority and relevant federal agencies do not have voting privileges.

Tri-State has faced many difficulties in trying to function as an areawide planning agency for a three-state region. The complexities of working within the framework of several political structures have been the cause of many debates regarding Tri-State's role and purpose. Interstate rivalries as well as competition between the region's urban and suburban areas hampered the agency's ability to address many controversial issues. Given these problems, a task force was created to study the mission and future direction of the agency. It recommended that the agency be disbanded and that its local membership and regional planning functions be dissolved. As such, the agency no longer exists. However, its efforts to address the problems related to transportation infrastructure and regional development demonstrate the unique qualities characteristic of regional councils that permit them to (1) initiate innovative regional projects; (2) mediate multi-jurisdictional disputes and (3) provide liaison functions between regional public and private sector leaders.

New York State Rail System

The railroad industry in New York State plays a significant role in moving equipment, agricultural products, manufactured goods and produce to consumer markets. Five major railroads are responsible for most of the goods movement shipments within and through the state. Conrail is the dominant rail service and provider in the state transporting approximately 77 percent of all New York rail tonnage. The Delaware and Hudson services the eastern portion of the state while the Baltimore and Ohio is the dominant rail service in western counties. Other railroads serving the area include the state-owned Long Island Railroad and the Norfolk and Western. Table I indicates the total and percentage share of tonnage for each of the top five rail freight carriers in New York State. Several other smaller rail freight carriers transport approximately two percent of the state's rail tonnage. The total amount of rail trackage in New York State's rail system is 5,200 route miles. Conrail accounts for 2,939 miles of this total figure.

The state's rail system is a significant component in the Northeastern economy. All rail traffic in this country destined for New England communities, as well as most north-south bound goods flows to and from Canada, must pass through some portion of the New York rail system. New York rail yards also play an important part in the distribution of goods to the south and east as well.

Rail abandonments in New York have been increasing at a rapid rate since 1975.

In order to offset some of the impacts resulting from these branchline abandonments, the state transportation agency has been involved in an active rail preservation program. Since 1975, the state has attempted to secure financial support for threatened lines, investigated rail ownership options, and developed negotiated solutions utilizing business groups and community leaders in solving branchline problems. As a result of the State's active rail preservation program, over 600 miles of marginal branchlines were maintained in service.

PROJECT DESIGN

In developing case studies on infrastructure reliability, Tri-State sought to determine the economic consequences of capital facility deterioration and to devise a region-wide infrastructure rehabilitation strategy. The agency also sought to identify the opportunities and limitations of joint government and private sector decision making in infrastructure management and reinvestment. The case study approach to analyzing the impacts of infrastructure problems was utilized primarily because of the political complexities associated with serving an interstate metropolitan area. The case study approach offered a balanced geographic view of the three-state area and also provided a rich source of detail about the economic impacts of differing infrastructure problems.

Case study target sites were determined through a series of review meetings between Tri-State and state planning and economic development agencies. Tri-State also conferred with local engineers, planning offices and city economic development agencies to get a unanimous opinion on the most appropriate and suitable project sites for analysis.

One of the priorities identified by these agencies (and the focus of this case study) was a goods movement problem related to rail freight. Specifically, the Putnam Division Rail Freight Line, which runs from Greensburg, New York, to the Bronx in the City of New York, had been deteriorating for several years. The New York State Department of Transportation (NYSDOT) had proposed to spend $1 million to rehabilitate the line in response to the claims by the owners, Conrail, that the line was unprofitable and should be abandoned. The State of New York, Westchester County, the City of Yonkers, and the Putnam Rail Users Association of Westchester County all disputed this claim and maintained that the branch line was essential to the economic welfare of the community and the region. Faced with the mounting deterioration of their freight branch line, and threatened with its abandonment, Westchester County officials requested Tri-State's assistance in devising a strategy for the improvement and maintenance of service along the Putnam corridor.

Staffing

Tri-State devoted a total of fifteen full-time and part-time employees to the metro-wide project. Staff time during the first year of the grant was spent on problem identification. This involved identifying the economic impacts of specific infrastructure problems. During the second year of Tri-State's project, staff members inventoried resources that could be used to upgrade and rehabilitate the region's capital facilities. Issues such as capital financing and operating resources were explored. Tri-State's work with Westchester County and the Putnam Rail Users demonstrated how the regional agency played a major role in identifying

the economic impacts of transportation infrastructure inefficiencies and aided in locating resources for the improvement of these systems.

Advisory Committee

Staff efforts to analyze infrastructure reliability were guided by two advisory mechanisms: the Council of Economic Advisors and Tri-State's Standing Committee on Economic Development. Both groups were organized prior to the agency's effort. The Standing Committee on Economic Development was formed as a result of the 1976 economic development conference and, in fact, played a major role in encouraging the agency to apply for funding under EDA's Metro Program. This committee, which consisted solely of board members, was charged with recommending the adoption of development policies to the commission. During the course of the program, the committee served as a general monitor of Tri-State's infrastructure project.

The CEA had been organized with the expressed purpose of developing interstate economic development strategies. The topic of infrastructure reliability surfaced as a key element of the council's work agenda, and a specific project in this area crystallized with the availability of financial support from the Metro Demonstration project. As its top priority, council staff worked with the CEA to build the region's competitive advantage by first identifying the regionwide economic consequences of deteriorated rail facilities, then developing a course of action for system rehabilitation.

The fifteen member CEA consisted of private and public development specialists. Labor representatives, high level executives of major area businesses, and representatives of business organizations held nine of the CEA's 15 seats.

Public Participation

Local government participation in Tri-State's infrastructure project was crucial to the accomplishment of project objectives. Local development agencies, in particular, played a major role in the selection of project site locations for Tri-State to analyze as case studies. These agencies also used their established relationships with the private sector to ensure that Tri-State gain access to key members of the business community. In the Putnam branchline project, several local planning and development agencies contributed to Tri-State's efforts to improve rail infrastructure and service for area businesses. The cooperation of these agencies in areas such as industrial site analysis and marketing provided Tri-State with the support necessary to devise realistic strategies for implementation. The following local agencies were instrumental to Tri-State's infrastructure improvement strategy in the Putnam rail conflict:

- New York City Department of Transportation
- Westchester County Department of Planning
- Westchester County Office of Economic Development
- New York City Public Development Corporation
- Town of Greenburgh Community Development and Conservation Office
- City of Yonkers, Engineering Department

Specific contributions of these agencies will be discussed in the "Project Activities" section of this report.

NYSDOT also provided substantial input to the Putnam Line conflict by compiling information on rail line services in the state.[1] Throughout 1976, NYSDOT organized "shipper watchdog committees" (consisting primarily of rail users) to gather information on all rail lines operating within the state and the effectiveness of rail services.

The Putnam Rail Users Association is an example of one of these committees and has provided NYSDOT and Tri-State with invaluable information about the status of rail freight service on the Putnam Line.

The state transportation agency has shared this information with participating agencies, and a dialogue was initiated between rail users, rail owners and government representatives utilizing reports commissioned by the state.

Private Participation

Cooperation by the private sector was a valuable component of Tri-State's infrastructure project. The data and perspectives provided by local businesses were significant aids in Tri-State's data collection and its research on the economic impact of infrastructure deterioration. Tri-State acknowledged that field contacts made by project staff with local businesses were the only sources available for obtaining accurate assessments of the costs resulting from infrastructure deterioration. Through this cooperative effort by the private sector, Tri-State was able to obtain a close approximation of the number of jobs that could be lost due to continued inadequacies in rail service and poor infrastructure facilities.

The business community of Westchester County, who also relied upon the Putnam Rail branchline for service was particularly helpful in this matter. They supplied Tri-State with important information on business employment figures, annual carloads, commodity flow forecasts and other vital data. This information was utilized by Tri-State to estimate the potential impact rail abandonment would have on area businesses. Approximately 20 firms provided data and other types of information to Tri-State on the Putnam Rail line issue. The significance of this cooperation can be appreciated when one considers the competitive factors that cause most businesses to guard company statistics from outsiders and competitors. Finally, the lack of information on infrastructure reliability makes this contribution even more significant.

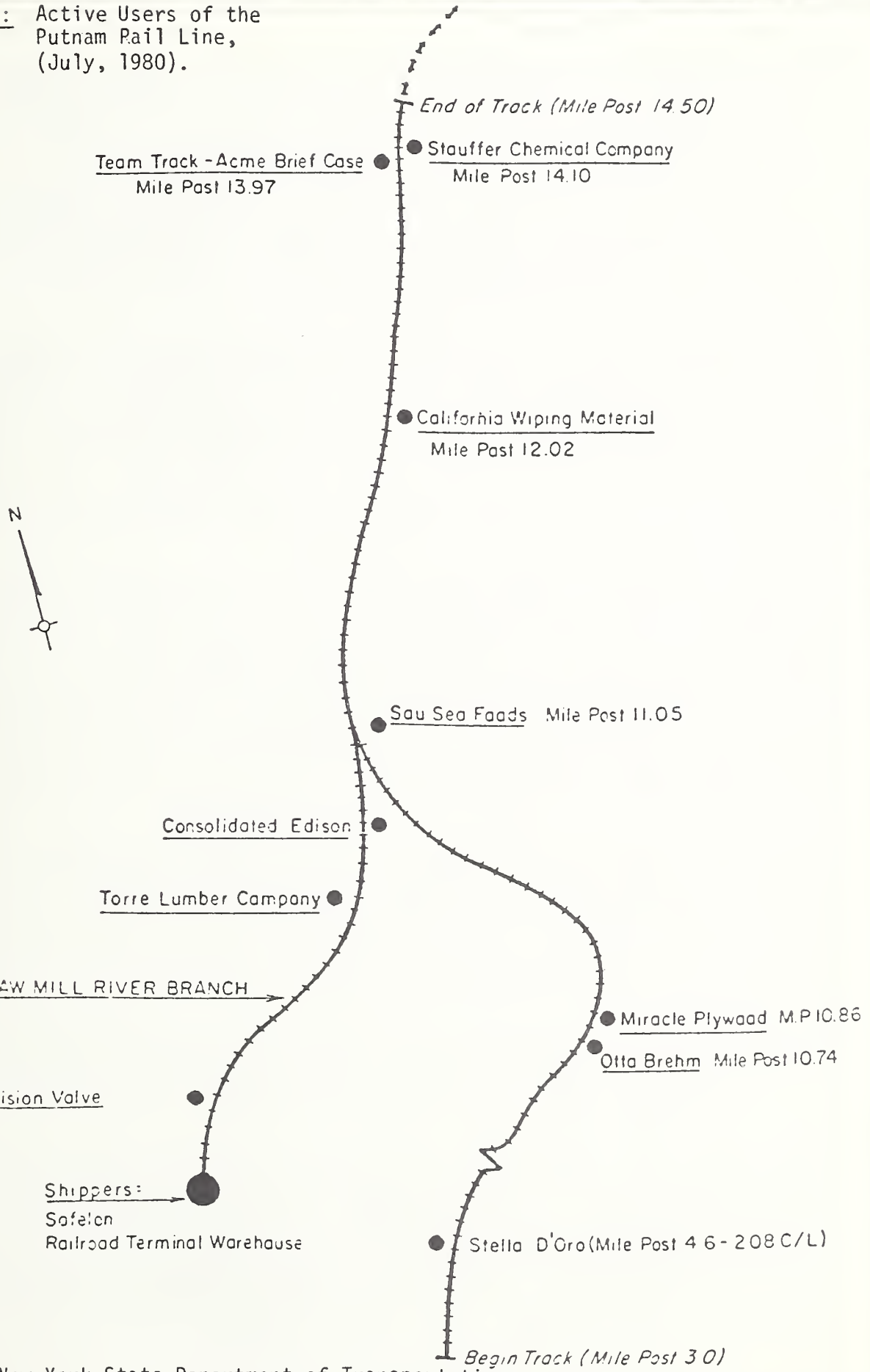
PROJECT ACTIVITIES

The Putnam Division rail freight line is a private operation that functions exclusively as a rail freight carrier. Although once a passenger carrier, the Putnam Line now services the goods movement needs of industrial establishments situated along its rail corridor located east of Conrail's Hudson division and west of Conrail's Harlem division (Figure 1). Substantial erosion of the fixed rail facilities of the line (bridges and track beds) has led to serious economic development problems. In addition, proposals by the rail owner, Conrail, to abandon the line has raised considerable alarm among the rail users as well as among the local communities in which the branch line operates. This situation prompted Westchester County's Executive Officer to request Tri-State's assistance in investigating revitalization possibilities for the branch line under their Metropolitan Demonstration project.

---

[1]New York State Department of Transportation, New York State Plan Update. August, 1978, p. II-5.

Figure 1: Active Users of the Putnam Rail Line, (July, 1980).



Source: New York State Department of Transportation

Deterioration of the Putnam line has been occurring for several years. Some of the problems of the line severely hamper transport operations. This has caused business owners who rely on the service to express increased frustration over persistent operating delays and losses in profits.

In addition to the problems of eroded fixed rail facilities, there also have been some peripheral problems on the line that have compounded the effects of structural deterioration. One of these problems consisted of the parking of cars and trucks on the tracks right-of-way. This situation requires the engineer to cease train movement and locate vehicle owners.

Another peripheral problem takes place in the winter months when flooding, then freezing, occurs. Train mobility is severely hampered and requires Conrail to send in ice chipping crews for an entire day. Trains on the Putnam line reach maximum speeds of only 3-10 miles per hour under good weather conditions; any additional delays all but stop the transport of goods along this corridor. Obviously, the structural deterioration of the Putnam's Rail line and the peripheral problems involving topography and law enforcement issues combine to produce an expensive and costly operation--for the owners as well as the users.

The Consolidated Rail Corporation (Conrail) has operated the line since its formation and suffers financially from an inability to generate sufficient revenues to cover operating, maintenance, and capital costs. Initial proposals by Conrail included a plan to discontinue service along the Putnam branch. However, intervention by the NYSDOT has quelled Conrail's plan to abolish operations. At the request of NYSDOT, the Rail Service Planning Organization of the ICC analyzed Conrail operations on the Putnam Line. They estimated that the line experiences an $80,000 loss per year. One half of this loss was attributed to insufficient compensation (low rates) for handling the bulk flour traffic of one shipper. The remainder of the loss is due to general maintenance and operating expenses, including high taxes levied by municipalities.

In order to offset Conrail's proposal to abandon branch line service, NYSDOT offered over $1 million for the line's rehabilitation. Conrail, in response to this proposal, demanded a minimum guarantee of line usage as well as the institution of a surcharge per car. A meeting chaired by State Senator Flynn of New York in May 1980, and attended by NYSDOT, Conrail and the Putnam Users brought forth the following proposal by New York State:

- NYSDOT will rehabilitate the Putnam Line at a cost exceeding $1 million.
- Conrail will provide service on the Putnam Line at a minimum of eighty trains per year. Conrail will also maintain the right-of-way.
- The Putnam shippers will guarantee a minimum of 565 cars per year and will pay a surcharge of $75 per car.

This proposal was rejected by the rail users who balked at the establishment of a surcharge and at the charge proposed. Recurrent questions arose surrounding the following issues: (1) the minimum amount necessary for Conrail's continued operation; (2) the ability of the users to afford an increase in shipping costs; and (3) the economic significance of the line's viability to surrounding communities and businesses. These conflicts led to Tri-State's participation in the project. On July 11, 1980, Tri-State staff attended a meeting of the Putnam

Rail Users. At that time the agency was requested by the users to investigate the following issues:

- Key governmental entities, both in Westchester and New York City, which could assist in promoting expanded service on the line;
- Clarification of options open to the users; and
- Action steps to follow in dealing with Conrail and local economic development and planning agencies.

Tri-State addressed these issues and offered suggestions and actions to follow in subsequent negotiations with the rail owners.

Governmental Promotion of the Freight Line

With the proposal of an additional surcharge flatly rejected by the Putnam Users, Tri-State sought to explore alternative actions that would: (1) offset Conrail's threat of abandonment and (2) provide an acceptable financial role for the Putnam Users to help alleviate Conrail's losses.

Through a series of interviews, meetings and field visits with the Putnam Users, Tri-State discovered that the shippers were willing to pay enough fees to allow Conrail to break even on its expenditures. However, they were against subsidizing "poor" service with expensive surcharges (charges above $60 per car) as insisted upon by the owners. In an effort to lessen the financial burden a surcharge might impose on the users, Tri-State and the Putnam Users began looking toward formulating a market strategy for the rail line. The Users believed that a substantial government effort to market sites along the line would greatly contribute to its viability. Conceivably, this would increase the number of businesses along the line and ultimately pull Conrail out of the "red," thereby minimizing the need for high surcharges.

The multijurisdictional nature of the Putnam Line issue (involving businesses situated along several local communities) presented a complex problem of coordination for local governments. Generally, business retention and expansion concerns relating to several localities require the participation and input of each local unit of government involved. In the case of the Putnam Line, there existed no effective coordinating mechanism to pull the technical resources together from these communities to develop a market strategy for the branch line facility. Tri-State was able to fill this void by establishing itself as a liaison between Senator Flynn's office, the Putnam Users and key development and planning agencies in Westchester and New York City.

Through frequent discussions with the local planning and development agencies, Tri-State was able to obtain their commitment to develop a market strategy. The New York City Public Development Corporation, which assists firms in constructing or rehabilitating industrial structures on city property, was contacted by Tri-State and briefed on the Putnam rail issue. The agency agreed to review any study estimating the potential for developing traffic along the Putnam Line's Bronx section. The communities of Westchester County and the Town of Greenburgh also enlisted their input on the rail promotion strategy. Finally, the Research Division of the Westchester County Planning Department offered any technical assistance their department was capable of performing in regard to the market strategy.

Each of these localities recognized the economic hardships that rail freight

abandonment would place on their localities and on the businesses situated on the line. Therefore, they agreed to actively participate in efforts to promote the line to other industries. Unfortunately, negotiations between Conrail and the Putnam Users impeded any progress on a marketing strategy. Such a strategy could not be implemented until a cost-sharing agreement was reached.

Clarification of Options

As requested by the Putnam Users, Tri-State outlined the options available to them with regard to the future of rail freight services on the Putnam Line. Tri-State also summarized the impacts that could result from each option. The four options are as follows:

1. Retain existing service and condition
2. Accept Abandonment
3. Rehabilitate Line (assuming an agreement can be reached between the users and Conrail on a surcharge)
4. Purchase as an independent short line

Option One consisted of maintaining the line at its current condition and service levels. The only maintenance performed would have amounted to merely doing what was necessary to keep the trains running. Option Two would have been to accept abandonment. This meant discontinuation of service and the potential sale of the right-of-way to other users. Option Three involved rehabilitation of the line. This was contingent upon substantial capital investment by New York State, a guarantee from Conrail to continue service for 8-12 years and a surcharge of $27 to $175 per car to be placed on users. Finally, Option Four consisted of purchasing the line as an independent short line.

From their telephone survey of Putnam rail line users, Tri-State was able to determine how each option would affect businesses along the line. The telephone interviews indicated that the rail abandonment option would have the largest impact and result in:

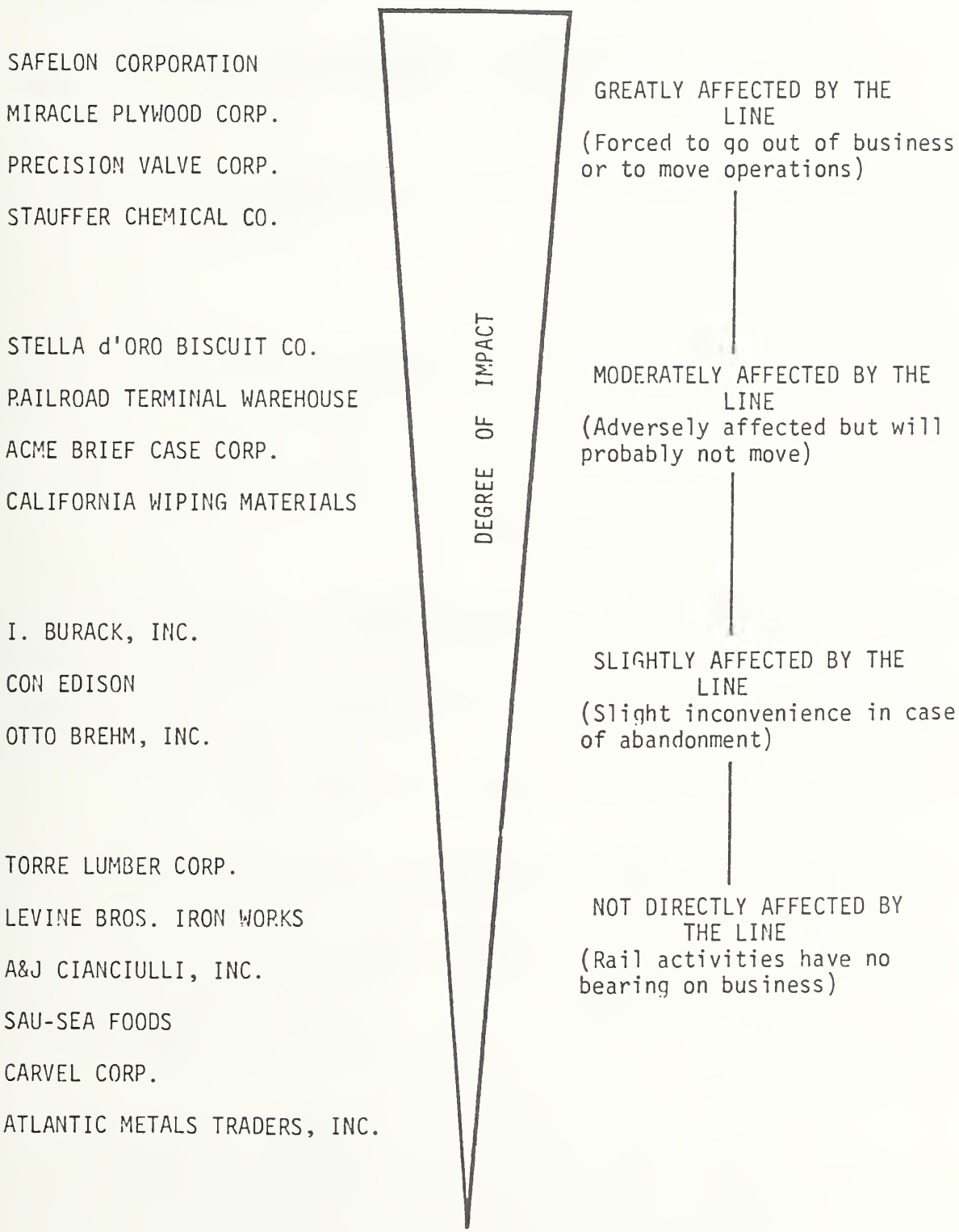
- The out-migration of four firms;
- An immediate loss of $25 million in sales and the loss of over 800 jobs from firms forced to relocate;
- A loss of $20 million in sales and 550 jobs from firms remaining; and
- A decrease in the value of many of the buildings along the line.

According to the interviews, option one appeared to be unsatisfactory for all parties involved. The severe structural deterioration of the rail's tracks would continue to provide poor service levels causing many of the firms to eventually relocate. Both rail rehabilitation (Option 3), or independent rail ownership (Option 4), would provide an opportunity for improvements in service and facilities. Nearly 50 percent of the firms interviewed indicated that they would increase their rail usage if line improvements were made. This could have resulted in an additional 200 to 250 cars used per year. Improvements had the potential of also increasing the number of rail-using industries located along the Putnam route. Figure 2 offers a schematic illustration of these impacts.

Suggested Action Steps

The final task requested of Tri-State consisted of preparing a negotiation strategy for the following round of discussions with Conrail officials.

Figure 2. Business Impacts of Putnam Line Abandonment



Recommended actions included:

- Solicit and assemble letters from local agencies and any other relevant entities as evidence to Conrail that marketing and development programs are being planned to accompany New York State's proposed rehabilitation work;
- Prepare a review of available funding sources which could be used to relieve the surcharge proposal by Conrail; and
- Hold a post Conrail debriefing with localities, shippers, and Tri-State to consider future actions.

These recommendations were utilized by the Putnam Users although there were several rounds of negotiations to go before a breakthrough in the issue would emerge.

CONCLUSION

The Putnam line dispute was not resolved before Tri-State's grant ended in 1980, and Conrail and the Putnam Users continued to discuss the future of the rail line into 1982. During this period, Senator Flynn, Tri-State and the local communities throughout the region continued to offer technical assistance and any public resources they could provide to aid in the resolution of the dispute. Tri-State played a strong, leadership role by coordinating local government participation, acting as a liaison between key actors in the rail line issue and by responding to private sector concerns and needs.

Despite the economic importance of the line to local communities and area businesses (as demonstrated by Tri-State), Conrail proposed to abandon the freight line on February 28, 1982, pending final approval by the ICC. Between 1979 and Conrail's abandonment application in 1982, no rail investments or improvements were made on the Putnam line. Deferred maintenance led to slower rail operating speeds and increased deterioration of the rail road right-of-way, causing operating costs to escalate rapidly. The operating losses experienced by Conrail allowed them to file for abandonment under the 1981 Northeast Rail Service Act which requires unprofitable rail lines to be discontinued.

As mentioned earlier, Conrail's abandonment application was subject to ICC approval. The application was not approved, however, because of an offer made by the S.M. Pinsley Company to purchase the line. This offer came about primarily because of local efforts to investigate the possibilities of an independent branch line, the Option 4 identified by Tri-State. As a result, an offer of $180,000 was made to Conrail on March 30, 1982, by the Boston-based company to purchase the 11.4 mile Putnam line. The S. M. Pinsley Company owns and operates a number of short-line railroads and is presently negotiating with Conrail on a final package. Once line ownership is established, local communities can pursue the marketing strategy initiated by Tri-State.

This case example clearly illustrates the link between goods movement flows and the regional economy. Inefficiencies in the transport of commodities often result in a decline in profit for businesses with an attendant loss of jobs for the community. This example also demonstrates the need for coordinated intergovernmental approaches to problems spanning local and state boundaries. Tri-State, as a facilitator and organizer of local government participation, fulfilled this need.

BIBLIOGRAPHY

Brooks, Jane. "Down by the Riverside; Focal Point for Revitalizing New Orleans." Environmental Comment, 1981.

Bueschel, David A. "Transportation of Goods and Regional Economic Development: A Tale of Two Cities." Unpublished paper delivered at NARC/Northeast Ohio Areawide Coordinating Agency Urban Goods Movement Conference, July 22, 1982.

Capital District Regional Planning Commission. Port of Albany Feasibility Study for Container Barge Feeder Service. Albany, New York, April 1980.

Capital District Regional Planning Commission. Overall Economic Development Framework. Albany, New York, 1979.

Capital District Regional Planning Commission. First Annual Report. Albany, New York, 1979.

Capital District Regional Planning Commission. Port of Albany Economic Impact Study. Albany, New York, 1981.

Capital District Regional Planning Commission. Final Program Report. Albany, New York, 1981.

Capital District Regional Planning Commission. Port of Albany Facilities Inventory. Albany, New York, 1980.

Capital District Regional Planning Commission. Cost Analysis of Alternative Terminal Operations Systems, Port of Albany Container Barge Feeder Service. Albany, New York, 1981.

Capital District Regional Planning Commission. Second Year Extension Report. Albany, New York, 1982.

Capital District Regional Planning Commission. Industrial Facilities Inventory. Albany, New York, 1980.

Capital District Regional Planning Commission. Facilities Improvement Plan. Albany, New York, 1980.

Capital District Regional Planning Commission. Economic Development/Public Sector Financing. Albany, New York, 1982.

EDAW, Inc. "Working Paper #1: Central Riverfront Area Study." New Orleans, Louisiana, 1982.

EDAW, Inc. "Working Paper #2: Existing Conditions." New Orleans, Louisiana, 1982.

East-West Gateway Coordinating Council. "Urban Goods Movement Study: A Technical Memorandum." St. Louis, Missouri, 1979.

North Central Wisconsin Regional Planning Commission. "Addendum to Analysis of Rail Service Discontinuance." Wausau, Wisconsin, 1980.

North Central Wisconsin Regional Planning Commission. Analysis of Rail Service Discontinuance. Wausau, Wisconsin, 1980.

North Central Wisconsin Regional Planning Commission. An Annual Overall Economic Development Program Report. Wausau, Wisconsin, 1981.

North East Illinois Planning Commission. "Transportation and Economic Development Interaction." Chicago, Illinois, 1980.

Regional Planning Commission for Jefferson, Orleans, St. Bernard, and St. Tammany Parishes. 1980 Annual Report. New Orleans, Louisiana, 1980.

Southern California Association of Governments. Commodity Flow Analysis in the SCAG Region. Los Angeles, California, 1974.

Tri-State Regional Planning Commission. Interim Technical Report: Revitalization of Westchester's Putnam Rail Freight Line: Economic Development Issues. New York, New York, 1980.

Tri-State Regional Planning Commission. Consultation Report to the Putnam Rail Users Association. New York, New York, 1980.

U.S. Department of Transportation. "Urban Transportation Planning for Goods and Services." Federal Highway Administration, Washington, D.C., 1979.

Schmernner, Roger W. "Location Decision of Large Firms: Implications for Public Policy." CUED Commentary 1981. Washington, D.C., 1981.

Peat Marwick Mitchell and Co. Assessment of the Metropolitan Capacity Building Demonstration Program. Volumes I and II. Washington, D.C., 1981.

National Council for Urban Economic Development. "Synthesis of Literature on Transportation and Economic Development." Washington, D.C. 1980.

New York Department of Transportation, "New York State Rail Plan Annual Update." Albany, New York, 1978.

Puget Sound Council of Governments. "Instruments of Economic Development and High Technology Industries." Seattle, Washington, 1982.

Regular Common Carrier Conference. "Issues in American Trucking." Washington, D.C., 1981.

Regional Planning Commission for Jefferson, Orleans, St. Bernard and St. Tammany Parishes. "Goods Movement in the New Orleans Metropolitan Area." New Orleans, 1978.

Regional Planning Commission for Jefferson, Orleans, St. Bernard and St. Tammany Parishes. CBD Transportation Center Study City of New Orleans. New Orleans, Louisiana, 1981.

Regional Planning Commission for Jefferson, Orleans, St. Bernard and St. Tammany Parishes. Application to the Economic Development Administration. New Orleans, Louisiana, 1978.

Regional Planning Commission for Jefferson, Orleans, St. Bernard and St. Tammany Parishes. Goods Movement Data Inventory in the New Orleans Metropolitan Area. New Orleans, Louisiana, 1979.

Regional Planning Commission for Jefferson, Orleans, St. Bernard and St. Tammany Parishes. Goods Movement in the New Orleans Metropolitan Area. New Orleans, Louisiana, 1979.

Regional Planning Commission for Jefferson, Orleans, St. Bernard and St. Tammany Parishes. Goods Movement in the New Orleans Metropolitan Area. New Orleans, Louisiana, 1978.

FOOTNOTES

1. Dennis L. Christeansen, Urban Transportation Planning for Goods and Services. (Washington, D.C.: U.S. Department of Transportation, 1979), p. III-4.

2. Ibid., p. III-4.

3. Ibid., p. III-5

4. Janice L. Shott and Pamela Wey, Formulating Strategies for Economic Development. (Washington, D.C.: National Association of Regional Councils, 1982), p. 20.

5. Ibid., p. 20.

6. Ibid., p. 20.

7. Ibid., p. 20.

8. Ibid., p. 25.

9. Marianne Clarke and Phyllis M. Levinson, An Introduction to the Economic Development Planning Process. (Washington, D.C.: National Association of Regional Councils, 1980), p. 33.

10. Ibid., p. 33.

11. Ibid., p. 34.

12. Ibid., p. 43.

13. Ibid., p. 43.

14. Ibid., p. 45.

15. Ibid., p. 48.

16. Ibid., p. 48.

17. Op. Cit., p. 24.

18. Op. Cit., p. 24.

19. Op. Cit., p. 24.

URBAN GOODS MOVEMENT/ECONOMIC DEVELOPMENT
ADVISORY COMMITTEE (approved 9/15/81)

Professor Bruce Allen
Regional Science and Transportation
130 McNeil-CR
3718 Locust Walk
University of Pennsylvania
Philadelphia, Pennsylvania 19104

Daniel Bicz, Director
Industrial Transportation Office
170 Franklin Street
Crosby Building, Suite 500
Buffalo, New York 14202

Ken Cook, Transportation Economist
Transportation Research Board
2101 Constitution Avenue, N.W.
Washington, D.C. 20418

Rodney Engelen, Senior Vice President
Barton-Aschman Associates
820 Davis Street
Evanstown, Illinois 60201

Ruth Keeton, Chairwoman
NARC Transportation Policy Committee
Howard County Council, Columbia, Maryland
10989 Swansfield Road
Columbia, Maryland 21094

Fran Larkin, State Highway Analyst
Intermodal Studies Policies Group
American Association of Railroads
1920 L Street, N.W.
Washington, D.C. 20006

Joe Nathanson, Director
Economic Research and Information Systems
Regional Planning Council
2225 North Charles Street
Baltimore, Maryland 21218

Peter Peyser, Legislative Representative
New York City Office
1725 I Street, N.W.
Washington, D.C. 20006

E. Larry Font, Vice President
Central Atlanta Progress
First National Bank Tower
2 Peachtree Street, N.W.
Lobby Suite
Atlanta, Georgia 30383

Gordon Shunk, Director
Transportation Planning
North Central Texas Council of Governments
P.O. Drawer COG
Arlington, Texas 76011

Linda Frankel, Executive Director
Council for Northeast Economic Action
100 Federal Street, 17th Floor
Boston, Massachusetts 02110

☆ U.S. GOVERNMENT PRINTING OFFICE: 1985—461-816/20201

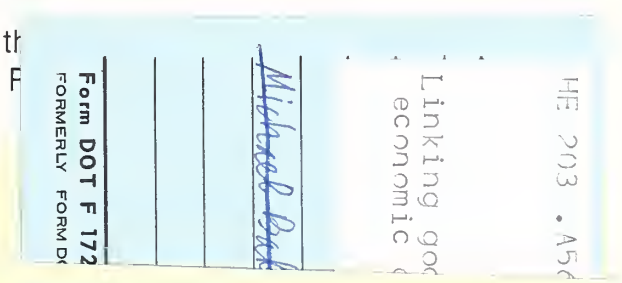
NOTICE

This document is disseminated under the sponsorship of the Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its contents or use thereof.

The United States Government does not endorse manufacturers or products. Trade names appear in the document only because they are essential to the content of the report.

This report is being distributed through th
of Transportation's Technology Sharing P

DOT-I-85-36



DOT-I-85-36

TECHNOLOGY SHARING

A Program of the U.S. Department of Transportation