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SYNTHESIS 320

NATIONAL
COOPERATIVE
HIGHWAY
RESEARCH
PROGRAM

Integrating Freight Facilities and Operations with Community Goals

A Synthesis of Highway Practice

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NCHRP SYNTHESIS 320

Integrating Freight Facilities and Operations with Community Goals

A Synthesis of Highway Practice

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Systematic, well-designed research provides the most effective approach to the solution of many problems facing highway administrators and engineers. Often, highway problems are of local interest and can best be studied by highway departments individually or in cooperation with their state universities and others. However, the accelerating growth of highway transportation develops increasingly complex problems of wide interest to highway authorities. These problems are best studied through a coordinated program of cooperative research.

In recognition of these needs, the highway administrators of the American Association of State Highway and Transportation Officials initiated in 1962 an objective national highway research program employing modern scientific techniques. This program is supported on a continuing basis by funds from participating member states of the Association and it receives the full cooperation and support of the Federal Highway Administration, United States Department of Transportation.

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The needs for highway research are many, and the National Cooperative Highway Research Program can make significant contributions to the solution of highway transportation problems of mutual concern to many responsible groups. The program, however, is intended to complement rather than to substitute for or duplicate other highway research programs.

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The members of the technical committee selected to monitor this project and to review this report were chosen for recognized scholarly competence and with due consideration for the balance of disciplines appropriate to the project. The opinions and conclusions expressed or implied are those of the research agency that performed the research, and, while they have been accepted as appropriate by the technical committee, they are not necessarily those of the Transportation Research Board, the National Research Council, the American Association of State Highway and Transportation Officials, or the Federal Highway Administration of the U.S. Department of Transportation.

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FOREWORD

*By Staff
Transportation
Research Board*

Highway administrators, engineers, and researchers often face problems for which information already exists, either in documented form or as undocumented experience and practice. This information may be fragmented, scattered, and unevaluated. As a consequence, full knowledge of what has been learned about a problem may not be brought to bear on its solution. Costly research findings may go unused, valuable experience may be overlooked, and due consideration may not be given to recommended practices for solving or alleviating the problem.

There is information on nearly every subject of concern to highway administrators and engineers. Much of it derives from research or from the work of practitioners faced with problems in their day-to-day work. To provide a systematic means for assembling and evaluating such useful information and to make it available to the entire highway community, the American Association of State Highway and Transportation Officials—through the mechanism of the National Cooperative Highway Research Program—authorized the Transportation Research Board to undertake a continuing study. This study, NCHRP Project 20-5, “Synthesis of Information Related to Highway Problems,” searches out and synthesizes useful knowledge from all available sources and prepares concise, documented reports on specific topics. Reports from this endeavor constitute an NCHRP report series, *Synthesis of Highway Practice*.

The synthesis series reports on current knowledge and practice, in a compact format, without the detailed directions usually found in handbooks or design manuals. Each report in the series provides a compendium of the best knowledge available on those measures found to be the most successful in resolving specific problems.

PREFACE

This synthesis report will be of interest to freight and transportation agencies, economic development departments, metropolitan planning and other community sector organizations, as well as elected officials. It covers water, truck, rail, and air freight facilities and operations. Although the report does not include pipelines, several of the issues and practices discussed are relevant to pipeline facilities and operations. The document identifies practices that have been or are being used by the private-sector freight companies and public transportation agencies in citing their facilities, modifying their operations, and managing their community relations. “Good neighbor initiatives” and balancing practices employed by metropolitan planning and economic development organizations, local governments, and others are also recognized.

This Transportation Research Board synthesis contains information culled from survey responses from state transportation agencies and planning organizations. This information is combined with that from interviews with selected respondents and extensive, iterative Internet-based searches and follow-up discussions.

A panel of experts in the subject area guided the work of organizing and evaluating the collected data and reviewed the final synthesis report. A consultant was engaged to collect and synthesize the information and to write this report. Both the consultant and the members of the oversight panel are acknowledged on the title page. This synthesis is an immediately useful document that records the practices that were acceptable within the limitations of the knowledge available at the time of its preparation. As progress in research and practice continues, new knowledge will be added to that now at hand.

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Crawford F. Jencks, Manager, National Cooperative Highway Research Program, assisted the NCHRP 20-5 Committee and the Synthesis staff.

Information on current practice was provided by many highway and transportation agencies. Their cooperation and assistance are appreciated.

INTEGRATING FREIGHT FACILITIES AND OPERATIONS WITH COMMUNITY GOALS

SUMMARY

Freight transportation is more important than ever. The freight transportation system is the nation's link to the global economy and the conduit for ensuring that consumer and business needs are met. At the same time, the increasing amount of freight traffic has raised several community issues. Concern with traffic flow and congestion; safety and security; air quality and the environment; achieving economic development goals; noise, excessive light, and vibrations; and land use and value are growing and need to be addressed as the freight transportation system adds capacity and expands operations.

The objectives of this synthesis were to identify the successful efforts in the location and operation of freight transportation facilities and to compile information on practices that enable freight facilities and operations to be good neighbors within their communities. The project recognizes that conflicts and concerns exist. Although the potential areas of conflict are identified, the focus of the report is on practices that provide solutions or improvement.

Integrating freight transportation facilities and operations with community goals of alleviating these issues can be complex. There is no "one size fits" all solution for making freight operations and facilities good neighbors within their communities. Instead, as demonstrated in this synthesis, a wide range of practices to balance or mitigate the presence of freight facilities and operations has been implemented.

Some of the practices have been initiated by individual freight organizations; however, more commonly, the practices have evolved through discussions and negotiations among public agencies, private freight companies, and communities. Taken together, an extensive "toolkit" of practices for better integrating freight facilities and operations with communities has been developed. Examples of these practices include

- *Traffic flow and congestion*—Replacing at-grade rail crossings with grade separations, motivating customers to switch from truck use to rail use, and scheduling truck appointments to pick up or deliver shipments.
- *Safety and security*—Undertaking public education programs such as Operation Life-saver and the NoZone, creating highway watch programs to leverage the presence of trucks into an added security net for all motorists, and strengthening cargo inspections.
- *Economic development*—Combining economic and transportation system development, retaining existing industrial areas, redeveloping brownfields, and hiring locally for freight transportation project construction and ongoing operations.
- *Air quality*—Implementing Green Ports practices, such as electrifying gantry cranes and using alternatively fueled equipment, reducing the need to idle trucks and locomotives, and promoting beneficial reuse of dredged materials.
- *Noise and vibrations*—Modifying the hours of freight operations to coincide with times when residents are not at home, installing sound walls, limiting the hours of

loading dock operations, installing hush kits on cargo aircraft, and creating whistle-free quiet zones.

- *Land use and value*—Developing buffer zones to transition between freight/industrial uses and residential uses, creating neighborhood investment funds, and requiring developers to make the necessary highway access improvements for trucks.

Communication is one of the keys to success. Having a common understanding of the issues, educating and building awareness, working together and organizing to craft the solutions, and continuously checking to see if the solutions remain effective ensure that freight transportation facilities and operations can be integrated with community needs and goals.

INTRODUCTION

Freight transportation—by truck, train, water, and air—has increasingly invoked uneasiness within communities. Issues such as “not in my back yard,” noise, air quality, traffic, safety, and land use, either real or perceived, have led to concerns about the location of freight facilities and the movement of cargo. Examples of this concern include

- From South Carolina: “Contain the Port is a non-profit group whose mission is to contain the State Ports Authority expansion. Our further goal is to ensure that the quality of life of residents of the low-country, including their environmental, economic, and social well being, is protected” (1).
- From New Jersey: “Governor Orders Truck Ban—While there is no doubt that trucks are an important part of our daily lives and economy, the increased risk that other drivers face while traveling on Route 29 with these trucks is simply too high a price” (2).
- From Washington State: “The state’s highest court yesterday began refereeing a fight that interests everyone who drives a car—how long and how often a freight train can block a street crossing” (3).

Although the uneasiness has grown, so too has the understanding that freight transportation plays a vital role in the economic well-being of residents and businesses. Accordingly, in many parts of the country and overseas, efforts are underway to balance the movement of freight with community goals—in essence making freight transportation operations and facilities “good neighbors.”

OBJECTIVES

The objectives of this synthesis were to

- Identify successful efforts in location and operations of freight transportation facilities and
- Compile information on practices that enable freight facilities and operations to be good neighbors within their communities.

The project recognizes that conflicts and concerns exist. Although potential areas of conflict are identified, the focus of the report is on the practices that can provide solutions or improvements.

RESEARCH APPROACH

Freight as a good neighbor is a unique subject, requiring a unique approach. The methodology used for this study was designed to tap a wide range of sources, both traditional and nontraditional, to ascertain issue areas, along with practices that balance freight transportation and community needs.

The synthesis project involved identifying and assembling information on practices that have not been generally discussed in academic literature and rarely appear in trade publications. Nevertheless, a substantial amount of thought, discussion, and action has taken place. Accordingly, the research approach included the use of survey instruments, as well as extensive Internet-based searches and follow-up discussions.

Fifty-nine organizations throughout the United States and Canada responded to the survey and 50 responses were complete and determined to be applicable to the synthesis. Eight additional organizations provided information during the study.

The Internet literature search process was iterative. The search process resulted in a comprehensive database of articles, news reports, local government meeting notes, press releases, downloadable publications, and project descriptions from organizations throughout the world.

USE AND STRUCTURE OF THE SYNTHESIS

The resulting synthesis was designed for use by a wide range of audiences (including freight and transportation agencies, economic development and community organizations, and elected officials) as a foundation for the discussion and implementation of balancing practices.

Balancing freight transportation and community interests can require cooperative efforts among private-sector organizations, public-sector agencies, and the communities. An individual company or organization may also initiate good neighbor practices. Accordingly, this report is designed for all three audiences. The synthesis identifies practices that have been or are being used by private-sector freight companies and public transportation agencies in siting their facilities, modifying their operations, and managing their community relations. “Good neighbor initia-

tives” and balancing practices employed by metropolitan planning organizations (MPOs), economic development departments, local government agencies, and other organizations are also identified. The synthesis focused on identifying practices that can be replicated and applied in similar situations throughout the United States.

The report covers air, water, truck, and rail freight facilities and operations. Although the report does not include pipelines, several of the issues and practices discussed are relevant to pipeline facilities and operations.

The report contains six chapters and four appendixes.

- Chapter two provides background on the growing need to balance freight transportation and community goals.
- Chapter three identifies community issues specific to freight transportation operations and facilities.
- Chapter four discusses practices used to balance freight and community goals.
- Chapter five profiles several of the best balancing practices.
- Chapter six summarizes the conclusions from the research.
- Appendix A details the study approach and questionnaires used.
- Appendix B lists the respondents, along with organizations that provided information for this synthesis.
- Appendix C defines freight transportation movements and facilities.
- Appendix D sorts the practices to balance freight facilities and operations with community issues by freight transportation type.

A GROWING NEED TO IDENTIFY AND APPLY BALANCING PRACTICES

The need to identify and apply good neighbor or balancing practices is intensifying for several reasons including

- The amount of freight traffic is increasing,
- Occupationally, the general population is increasingly less involved in goods production and therefore may not be as familiar with the steps needed to produce and deliver goods to consumer markets,
- The continued growth in U.S. population and land development increases the likelihood of conflicts between different types of uses, and
- There is continuing pressure to keep freight transportation costs low.

These trends provide a framework for understanding freight transportation industry needs and community concerns, as well as considerations in selecting and applying balancing practices.

FREIGHT TRAFFIC IS INCREASING

The domestic and international movement of goods continues to grow as the global marketplace expands. It is anticipated that domestic freight movement will grow by nearly 90% by the year 2020 (4). International freight movement is expected to increase even more rapidly, growing by nearly 110%, or more than doubling, by 2020.

There will be more trains, trucks, air cargo transport, and maritime traffic. Use of existing freight facilities will likely intensify and new capacity is likely to be needed. Freight trains are getting longer, truck trailers are larger, and the size of maritime vessels is growing. For example, the *Journal of Commerce* recently reported that Maersk Sealand, one of the world's leading shipping companies, was building six vessels, each capable of carrying between 8,000 and 10,000 twenty-foot containers (5). The increasing levels of freight traffic have the potential for aggravating existing conflicts and creating additional concerns.

LESS FAMILIARITY WITH GOODS PRODUCTION AND DELIVERY

Over the past half-century, the employment base in the United States has shifted from goods production to a service-based economy. Although the actual number of manufacturing workers has grown, the percentage of the work

force engaged in this activity has significantly decreased. In 1952, 16.6 million workers or 34% of the nonagricultural labor force were employed by manufacturing firms (6). In 2002, 16.7 million workers or 13% of the labor force were employed in manufacturing. By contrast, in 2002, service-producing employment accounted for 107 million workers or 82% of the U.S. labor force.

During the same time period, the U.S. population increased by almost 90%. In 1950, the nation had a population of 151.3 million (7). By 2000, the population had reached 281.4 million.

As a result of these trends, the United States has a greater number of people who require goods, but a smaller percentage of the work force directly engaged in goods production. Consequently, there are far fewer consumers with a direct knowledge and understanding of the processes and transportation required to supply goods to the marketplace. It is also more likely that the needs of businesses and consumers will be supplied through the global marketplace, translating into the anticipated doubling of international trade. The end result is a growing disconnect in the understanding by the general public between the goods they use and how the goods are transported. As noted in a 2002 U.S. Army Corps of Engineering hearing on dredging the Kill Van Kull waterway channel in the Port of New York and New Jersey

We expect products to be available when we want them, at the price we want, and in the form that we desire. We expect availability and often forget the intricate ballet of vessels, aircraft, trucks, railroads, and infrastructure that must work efficiently and effectively to make all this happen (A. Strauss-Wieder, testimony, U.S. Army Corps of Engineers hearing on dredging the Kill Van Kull, Bayonne, N.J., January 24, 2002).

Without an understanding of the role of goods movement, the potential for generating concerns regarding freight facilities and operations increases. As former New Jersey Commissioner of Transportation, James Weinstein, noted, "There is a need for greater public awareness of how this system works and how our personal lives are improved by the availability of efficient and effective freight services" (8).

CONTINUED GROWTH IN U.S. POPULATION AND LAND DEVELOPMENT INCREASES THE LIKELIHOOD OF CONFLICTS BETWEEN DIFFERENT TYPES OF USES

As previously discussed, the U.S. population grew by 130 million people or 86% between 1950 and 2000. The rise in

population, combined with the continuing need of land for housing, recreational, commercial, and office uses, increases the potential for conflicts.

Population Growth and Land Development Are Spreading to More Areas in the United States

The U.S. Department of Housing and Urban Development's report on *The State of the Cities 2000*, documents the spread of jobs and population (9).

- The cities' share of metropolitan jobs continued to decline. In 1997, 57% of metropolitan-area jobs were located in the suburbs, up from 55% in 1992.
- Between 1990 and 1998, the suburban population grew by 12%, compared with 5% growth for the central cities.
- In the 1990s, land use grew at approximately twice the rate of the 1950s. An average of 2.3 million acres of land is being developed annually.

The decentralization of businesses and residences increases the number of locations that need to be served by the freight system and that may not have the necessary transportation infrastructure. In addition, the intensification of development, both in metropolitan and outlying areas, can bring the population into closer contact with existing freight facilities and create new conflicts. For example, new residential development may be less tolerant of train traffic and noise. The potential for trespassing and accidents can also increase.

There Is an Increased Demand for Urban Centers to Accommodate Multiple Land Uses and Transportation Needs

Many urban centers were originally developed as port cities or freight hubs. Furthermore, freight facilities continue to exist in these urban settings. For example, many of the nation's leading container ports are located in urbanized areas (Table 1) (10). However, as population densities have increased and cities have rediscovered their waterfronts for recreational, office, and housing uses, conflicts and competition among land uses has intensified.

Increased congestion can also be an issue in the urban settings. The Maritime Administration report, *Intermodal Access to US Ports—Report on Survey Findings*, notes: "Being at the center of population concentrations does increase the attractiveness of a port—cargo wants to move as close as possible to large markets. However, their location within dense urban areas can also mean a greater likelihood of more intense congestion . . ." (10, pp. 5–6).

PRESSURE TO KEEP FREIGHT TRANSPORTATION COSTS LOW IS CONTINUING AND AFFECTING FREIGHT OPERATIONS

The freight transportation industry is highly competitive and rates tend to be customer driven. The total charge for freight transportation services to U.S. businesses has declined by 24% since 1981 (11).

TABLE 1
MANY OF THE TOP U.S. CONTAINER PORTS ARE LOCATED IN MAJOR METROPOLITAN AREAS

Port	State	AAPA Ranking	Cargo Growth (1996–2000) ¹	Population Ranking ²
Long Beach	CA	1	172%	2
Los Angeles	CA	2	136%	2
New York and New Jersey	NY, NJ	3	143%	1
San Juan	PR	4	98%	20
Oakland	CA	5	123%	5
Seattle	WA	6	102%	13
Charleston (SCSPA)	SC	7	156%	77
Virginia Port Authority (VPA) ³	VA	8	125%	31
Tacoma	WA	9	128%	13
Houston	TX	10	136%	10
Georgia Ports Authority ⁴	GA	11	158%	11
Miami–Dade Seaport	FL	12	135%	12
Jacksonville Port Authority	FL	13	60%	46
Everglades	FL	14	104%	12
Baltimore	MD	15	100%	4

Notes: AAPA = American Association of Port Authorities; SCSPA = South Carolina State Ports Authority.

¹Cargo growth is based on PIERs data (global import and export information) and is in 20-ft equivalent units (TEUs).

²Population ranking is based on Census 2000 Ranking Tables for Metropolitan Areas.

³VPA cargo growth shown is for Norfolk.

⁴Georgia Ports Authority growth is for Savannah.

The downward pressure on rates has had an adverse impact on the freight industry. For example, Consolidated Freightways, the nation's third largest less-than-truckload carrier, recently declared bankruptcy, one in a string of major trucking firm liquidations in 2002 (12). In addition, an estimated 60,000 truck owner/operator businesses have gone bankrupt since 2000 (12).

With a limited ability to raise rates, the freight transportation industry is therefore under constant pressure to keep its costs low. The intense pressure on costs can affect such

considerations as routing (e.g., selecting routes that avoid toll roads) and equipment replacement schedules. The use of older equipment can create environmental, noise, and safety issues. The selection of non-toll routes can place more trucks on local roads, increasing community concerns.

Although private-sector financial conditions do not obviate the need for corporate responsibility, the situation does suggest that balancing practices need to reflect market realities.

COMMUNITY ISSUES SPECIFIC TO FREIGHT TRANSPORTATION OPERATIONS AND FACILITIES

This chapter summarizes the issues that communities commonly raise regarding freight operations and facilities. The issues were identified through the survey responses and Internet literature searches. Articulating the issue areas creates a framework for developing solutions. The key issue areas are discussed first. Then, the key issues are discussed for each freight transportation type.

This synthesis covers all forms of freight transportation—air, truck, rail, and maritime. Although transportation organizations increasingly focus on the overall efficiency of the system across freight types, the need to optimize and improve individual segments and facilities remains.

KEY COMMUNITY ISSUES

The key issues that communities have relative to freight operations and facilities include

- Communication,
- Traffic flow and congestion,
- Safety and security,
- Economic development,
- Air quality,
- Noise and vibrations, and
- Land use and value.

Communication

Based on the survey responses and Internet literature searches, open and effective communication among public-sector agencies, private-sector transportation companies, and affected communities is a key element in reducing conflicts and maximizing benefits from freight facilities and operations. For example, as noted in a report by the Minnesota Department of Transportation (DOT), Metro Division, entitled, *Freight Isn't a Four Letter Word!*, the agency discovered that to identify and resolve impediments to freight movement in the Twin Cities area they had to get to know their customers and allow them to share in the learning process (13, p. 4). This “journey to discovery,” as they called the planning process, led the agency to identify that communities and other agencies are the hosts of the infrastructure used to move goods and, therefore, crucial stakeholders to the process. The agency observed that communities

- Are frequently the first called when there is a problem,
- Are the first to respond in the event of any emergency requiring police or medical assistance, and
- Deal with disruption to their local neighborhoods when major transportation projects are under construction as alternate routes traverse through neighborhoods (13, p. 4).

Traffic Flow and Congestion

The most often cited issues in the survey responses as related to freight facilities and operations were concerns about impacts on traffic flow and congestion. Specific concerns as identified in the survey responses and Internet searches included

- Volume—The volume of trucks affects available road capacity for other transportation users.
- Operational characteristics—Trucks accelerate and decelerate at different speeds than passenger vehicles.
- Road geometries—Trucks, especially larger trucks, require different lane widths, turning radii, and turning lane requirements.
- At-grade rail freight crossings—Freight trains, particularly longer trains, can cause significant back-ups when traveling through at-grade crossings. One example of this concern was noted in a Seattle newspaper article: “Seattle wants to enforce its ordinance banning freight trains from blocking streets during rush-hour traffic and limiting blockages to four minutes at other times of the day” (3).
- Trucks at commercial and retail establishments—Larger trucks backing into or parked at the loading docks of retail and commercial establishments can block roads (Figure 1). Trucks double parked outside of buildings also contributes to congestion.
- Truck parking on shoulders and ramps—Survey respondents noted that inadequate truck parking and rest areas have resulted in trucks parking along shoulders and ramps, a practice that can affect roadway operations. A separate TRB Synthesis project, *Synthesis of Highway Practice 317: Dealing with Truck Parking Demands*, reviews how states are responding to this issue (14).



FIGURE 1 Large trucks backing into or parked at the loading docks of retail and commercial establishments can block roads and contribute to congestion.

Safety and Security

Safety issues identified by the survey respondents and Internet searches relevant to freight facilities and operations included

- The safety of at-grade rail crossings. These concerns were the second most often cited issue in the survey responses. Only concerns regarding congestion were reported more frequently.
- The movement, handling, and storage of hazardous materials.
- Trespassing and potential injury or loss of life along rail corridors.
- Safety concerns on roadways with heavy truck volumes.

Security issues also include theft and destruction of property. In the aftermath of the events of September 11, 2001, security concerns regarding terrorist activities have also risen significantly. As noted by one survey respondent from a MPO, “Marine container security is a global issue following 9/11.”

Economic Development

Economic development goals generally include the retention of existing business activity, the attraction of new businesses, the creation of job opportunities, and property redevelopment. The issues pertinent to freight operations and facilities, based on the survey responses and Internet searches are twofold

- How to best use freight transportation assets to achieve economic development goals, and
- Determining situations where existing freight transportation operations and facilities conflict with an area’s economic development goals.

The survey responses highlight instances of using freight facilities and operations to achieve economic development goals, such as

- Leveraging the area’s freight transportation assets to attract industries. For example, the Mid-Ohio Regional Planning Commission, working in unison with the Greater Columbus Inland Port Commission, has played a strong leadership role in advancing the freight transportation and distribution industries of Columbus, Ohio, a business strength of the region.
- Maintaining or developing rail service to retain or attract businesses to areas, particularly rural locations. In 1998, the Colorado DOT acquired the Towner Line, a 121-mi-long railroad in southeastern Colorado from the Union Pacific Railroad in an attempt to retain rail service for rural communities.

Examples of potential conflicts between economic development goals and freight facilities included

- Wanting to relocate freight facilities and operations to permit redevelopment of properties for other uses. For example, one MPO respondent commented that a “rail yard located in the center of the city was seen as an impediment to redevelopment.”

- Creating new housing developments along an existing rail right-of-way. New residents may be less tolerant of the train traffic and noise. The potential for trespassing and accidents can also increase.
- Managing the additional freight traffic that can come with new development. Although the new jobs and tax revenues generated are valued, communities may be less tolerant of the new freight activity. As one state DOT noted, “Many people do not want the truck traffic, but need the economic development boost.” As a second example, the Maryland DOT reported that

Lehigh–Portland Cement in Union Bridge (Carroll County, Maryland) recently underwent a major plant expansion that doubled their manufacturing capabilities. Rail traffic and truck traffic increased dramatically to serve this new plant capacity. In-town traffic conditions and circulation were adversely affected. One of the major problems identified was intersections being blocked by rail freight cars attempting to access the plant.

As discussed in the next chapter, the Maryland DOT worked with the county to develop a solution.

Environmental Concerns

Air quality issues, as identified by survey respondents and Internet searches, generally involve diesel emissions from trucks, idling train engines and vessels, and handling equipment at maritime terminals. Diesel emissions can also increase as congestion on roadways builds. In addition to air quality concerns, other environmental issues were identified as follows:

- The release of invasive aquatic species from vessel ballast discharges and the effect on the harbors and waterways.
- The environmental implications of hazardous materials spills and accidents on waterways and in communities.
- The potential impact on low income and minority communities as a result of freight operations and facilities (environmental justice).
- The potential impacts of freight facilities and operations on endangered species and habitats.
- The impact of the light given off by freight facilities on nearby communities during nighttime operations.

Noise and Vibrations

Noise is another form of pollution that can negatively affect the quality of life. Concerns relative to freight facilities and operations, as identified by the survey respondents and Internet searches include

- Noise resulting from train whistles and train movements. “While whistles warn that a train is approach-

ing, providing a measure of safety, the loud whistles reduce the resident’s quality of life, as they interrupt sleep, conversations, and more” (15).

- Noise from aircraft engines, particularly cargo aircraft that operate at night and, sometimes, from older equipment.
- Noise associated with the loading and unloading of trucks at retail stores and freight facilities abutting residential areas.
- Noise and vibrations associated with higher levels of freight traffic.
- Vibrations from heavy truck traffic, heavier and more frequent trains, marine channel deepening and aircraft operations.

Land Use and Value

Land-use issues identified by respondents and Internet searches related to freight facilities and operations include

- Marine freight operations competing with other land uses for waterfront property.
- Potential alternative land uses for property currently occupied by freight facilities (also an economic development issue).
- The productivity of and economic value generated by the land used by freight facilities. For example

In the specific case of the Junction Yard [Detroit] freight expansion, increasing the amount of land in the area dedicated to container storage and semi-trailer parking is unlikely to add to a local economy already based mainly around industrial services. . . . Displacing these other freight terminals, truck repair services and warehouses is unlikely to add to the economic value of the area (16, p. 10).

Land value concerns center on actual or perceived decreases in property values resulting in such situations as

- Rail line reactivations or increases in rail operations on rights-of-way adjacent to residential neighborhoods;
- Nonmaintenance of rights-of-way, allowing litter and overgrowth to occur; and
- Increases in truck volumes on local roads.

ISSUES BY FREIGHT TRANSPORTATION TYPE

This section summarizes the community issues specific to each freight transportation type—truck, rail, maritime cargo, and air cargo—derived from the survey responses and Internet-based searches.

Trucking

Trucking generates the greatest number of community issues because of the extensive role that trucks play in

goods movement. The issues are summarized in the following list:

- Congestion generated on local roads, highways, and at customer facilities;
- Large tractor-trailers making deliveries to customer facilities—insufficient loading dock space, leading to double parking and street congestion;
- Movement of heavier trucks on roadways adversely affecting automobile speeds;
- Damage caused to pavement, especially from heavier trucks and more frequent truck movements on local roads;
- Hazardous materials spills and accidents caused by truck movements;
- Accidents involving trucks;
- Diesel emissions (impact on air quality) derived from truck operations;
- Truck hours of operation affecting peak period traffic flows;
- Noise and vibrations generated by trucks;
- Potentially negative impacts on property values from truck activity;
- Lack of available truck parking and rest stops resulting in trucks parking on shoulders and along roads, potentially causing safety concerns;
- Light pollution generated by nighttime operations at loading docks and truck terminals;
- Potential new development on existing truck terminal properties;
- Inadequate truck access to maritime and air cargo terminals affecting the competitiveness of these facilities; and
- Inadequate road geometries, turning radii, and turning lanes to accommodate trucks.

Volume, congestion, and pavement wear issues were raised regarding truck movements on interstate routes. Similarly, increasing volume, congestion, impact on pavement, and safety issues are of increasing concern on local roads and have driven many communities and states to restrict truck movements to certain routes.

Truck operations at retail stores, hotels, and commercial establishments are also a growing concern because the loading docks and delivery zones at many buildings were not designed for the newer, longer trucks, leading to blocking of streets and congestion.

In addition, trucks provide delivery and pick-up services at maritime and air cargo terminals. Inadequate ac-

cess routes can affect the competitiveness of these terminals. Inefficient gate operations at such terminals can create backups and congestion.

Concerns have also increased as trucks park on shoulders and ramps, as a result of inadequate rest and parking areas. However, survey respondents noted the reluctance of communities to build new truck rest or parking areas:

- “Truck facilities are many times not viewed as a welcome neighbor by the community due to traffic and safety concerns” (state DOT).
- “The challenge has been to consider private truck needs (as one freight mode) alongside the also broad context of public-sector transportation planning and investment for general traffic and for transit (personal mobility)” (MPO).

Rail Freight

Community issues with rail freight facilities and operations were second in importance only to trucking in the survey responses. The issues are summarized here.

- Facility shut or rail line abandoned, resulting in the area being deprived of service and economic development opportunity;
- Inadequate capacity to accommodate the rail freight needs of the area;
- Facility location impedes economic development goals;
- Hazardous materials spills and accidents resulting from rail freight operations;
- Other land uses encroaching onto rail rights-of-way;
- Noise and vibrations resulting from train operations;
- Diesel emissions resulting from idling locomotives;
- Lack of a buffer zone around the rail yards;
- Undesirable odors from the rail yards;
- Light pollution generated by nighttime operations;
- Impact on property values along rail rights-of-way from increased train activity and/or lack of maintenance of right-of-way;
- Inadequate truck access to rail yards;
- Delays at at-grade crossings and resolving congestion and safety issues;
- Trespassing on rights-of-way/accidents;
- Conflicts with commuter/passenger rail service on rights-of-way; and.
- Train cars stored on rights-of-way near residences.

Community issues regarding rail freight vary considerably. At one end of the spectrum, considerable concern is voiced about the implication of increased rail freight traffic—the reactivation of rail lines, an increasing number of trains, growing safety and congestion issues regarding at-grade crossings, noise and vibrations, and perceived decreases in property values. At the other end of the spectrum is the concern over the lack of rail service or inadequate rail freight capacity. The termination of rail service to certain locations can be viewed as potentially decreasing the economic development potential of the area. Conversely, reactivating or creating new rail service is seen as a way of enhancing domestic and international economic development opportunities and alleviating truck-related congestion.

Maritime Cargo

Concerns regarding maritime cargo facilities and operations centered on

- The environment—Dredging and channel deepening and proper disposal of contaminated sediment, the impacts on wetlands and environmentally sensitive areas of terminal expansions, nonnative aquatic species introduced through the release of vessel ballast water, and diesel emissions from

vessels, terminal equipment, and trucks serving the terminals.

- Safety and security—Concerns with potential terrorist activity, hazardous materials spills or accidents, and safe vessel operations on the waterways.
- Congestion—Traffic congestion generated by truck back-ups at terminal gates spilling onto local roads, as well as the increasing volume of trucks serving the terminals.
- Access to waterfront—Access to the waterfront for nonfreight uses is increasingly desirable, particularly in urban areas. This creates competition for land in these areas.

Air Cargo

Community concerns specific to air cargo facilities and operations include

- Hours of operation and noise—Air cargo operations tend to occur during nighttime hours. As a result, noise issues are more pronounced.
- Truck traffic on access roads—Similar to maritime cargo facilities, the volume of truck traffic typically increases as cargo activity grows at an airport.
- Theft and security—Criminal and terrorist activity can occur at air cargo operations.

PRACTICES TO BALANCE FREIGHT AND COMMUNITY ISSUES

This chapter focuses on those practices that make freight transportation facilities and operations better neighbors to their surrounding communities. The chapter contains two sections:

- Characteristics of being a good corporate neighbor, and
- Practices implemented to solve or mitigate community issue areas.

The practices and solutions described in this chapter have been implemented and are potentially applicable to similar situations in the United States.

CHARACTERISTICS OF BEING A GOOD CORPORATE NEIGHBOR

Balancing the need to have freight transportation facilities and operations with the needs of the community requires a common understanding of what constitutes being a good neighbor. Each participant in the discussion, which could involve public agencies, private-sector firms, and community organizations, must be able to articulate the issues that need to be addressed and the values to be gained. Equally important is the need to work together towards solutions and mutual understanding. As Wilson Group Communications, Inc., suggests in their article, *Community Relations: How Being a Good Neighbor Can Pay Big Dividends*:

For starters, place yourself in your neighbor's shoes for a moment. If you lived near one of your facilities, what would you think of yourself as a neighbor? Does the facility produce odors? Is it noisy? Would a neighbor be concerned about the odors and emissions? Do they pose a health risk? Does the community really know what you do there? (17).

This section defines good neighbor from the perspective of the public- and private-sector organizations that own and operate freight transportation facilities and the surrounding communities.

Being a Good Corporate Neighbor

Freight transportation organizations, both in the private and public sectors, are similar to other types of corporations—they seek to provide a competitive product at a reasonable price. Most also recognize their responsibility to be a good corporate neighbor.

Many freight transportation organizations have developed “Good Neighbor” policies. Examples include

- Heller Industrial Parks, Inc. (a warehouse and distribution center developer in New Jersey)—“Heller is as concerned about our contribution to the community as we are about every detail that goes into our buildings. We are proud of our national reputation as a leader in corporate-sponsored day care. At Heller, our commitment to community involvement extends from arranging for public transportation to our industrial parks to sponsoring athletic activities and funding cultural programs. Being a good neighbor is one of our most important business policies. One which we are pleased to practice on a daily basis!” (18).
- Port of Oakland (California), policy adopted in 1999—“The Port of Oakland is committed to being a good neighbor. We strive to listen, educate, and involve the community in our planning process. The Port of Oakland provides resources that create benefits and value to the community. The Port is working with communities to make our neighborhoods a better and safer place in which to live and work” (19).
- Petro Stopping Center (Truck Stops)—Petro’s good neighbor policy articulates the jobs created for local residents, the level of maintenance of each facility, the separation of auto and truck traffic flows, and the contribution made to host community tax bases (20).
- CSX Transportation—“The mission at CSXT is simple—to be a good neighbor as well as a good employer” (21).
- “FedEx Corp.’s [Federal Express] goal is to be a ‘good neighbor’ in its communities. Not only do we want to be profitable, but we want the community to be profitable, too” (22).
- “The New York and Atlantic (NY&A) has taken steps to guarantee that it will be a good neighbor as it operates in our local communities” (23).

These statements and characterizations demonstrate a widespread commitment in corporate philosophies to work with communities.

Corporate Citizenship Standards of Excellence

The Center for Corporate Citizenship at Boston College has developed seven standards of excellence, which can provide a framework for measuring the overall performance of good neighbor practices (22).

1. *Leadership*—Senior executives demonstrate support, commitment, and participation in community involvement efforts.
2. *Issues Management*—The company identifies and monitors issues important to its operations and management.
3. *Relationship Building*—Company management recognizes that building and maintaining relationships of trust with the community is a critical component of company strategy and operations.
4. *Strategy*—The company develops and implements a strategic plan for community programs and responses that is based on the mutual issues, goals, and concerns of the company and the community.
5. *Accountability*—All levels of the organization have specific roles and responsibilities for meeting community involvement objectives.
6. *Infrastructure*—The company incorporates systems and policies to support, communicate, and institutionalize community involvement objectives.
7. *Measurement*—The company establishes an ongoing process for evaluating community involvement strategies, activities, and programs and their impact on the company and community.

Potential Considerations for Freight Transportation Facilities and Operations

For freight transportation facilities and operations, the additional considerations for assessing the value of balancing practices include

- Does the organization want to serve this marketplace?
- Does the freight facility need to be in this location?
- Will the balancing practice be good for business?
- Will the balancing practice be good for the community and the environment?
- Who will pay for implementing the balancing practice?

Being a Host Community

A host community is defined as a neighborhood containing one or more freight facilities or subject to freight transportation operations. In one sense, all communities host freight transportation operations—freight vehicles deliver the mail and packages, as well as supply and pick up from businesses in the area.

The need for balancing generally arises when freight transportation operations grow from being a support system in the background into a noticeable presence. Examples include increased truck or rail freight traffic, congestion at at-grade rail crossings, noise and light spillover from loading docks, more nighttime air cargo flights, and

increased emissions. Freight transportation operations may also make themselves known by their absence—a termination of rail freight service that reduces the transportation options of an area or the need to create freight transportation facilities to attract business.

Community considerations may also extend beyond the immediate neighborhoods. Freight facilities can be integral parts of the regional, national, or international goods movement system. Environmental and other considerations may reach beyond municipal borders. Accordingly, there may be several geographical levels that need to be taken into consideration.

For communities adjacent to freight facilities and operations, the criteria for assessing the value of balancing practices often include

- What does the freight facility provide to the community (often measured in terms of jobs and tax revenues)?
- Will the balancing practices improve traffic flows, enhance safety and security, reduce noise and air emissions, and/or increase economic development opportunities?

PRACTICES IMPLEMENTED TO SOLVE OR MITIGATE COMMUNITY ISSUE AREAS

Integrating freight transportation facilities and operations with community goals can be complex. There is no “one size fits all” solution. Instead, a wide range of practices has been implemented to balance or mitigate the presence of facilities and operations. Some of the practices have been initiated by individual freight organizations; however, more commonly, the practices have evolved through discussions and negotiations among public agencies, private freight companies, and communities.

The list of practices emerging from the survey responses and Internet-based literature searches is summarized in Table 2, by community issue areas addressed, and in Appendix D, by the freight transportation types where the practice can be applied.

The discussion of practices in this section is organized by the issue areas, starting with the issues most frequently mentioned in the surveys. However, note that practices can address more than one issue. Furthermore, the ultimate resolution of integrating freight transportation facilities and operations with community goals may require the use of more than one practice. Note also that the discussion of practices does not include resolution of issues through court cases.

TABLE 2
PRACTICES TO BALANCE FREIGHT TRANSPORTATION FACILITIES AND OPERATIONS WITH COMMUNITY ISSUES SORTED BY
ISSUED ADDRESSED

Practice	Issue Areas							Freight Types			
	Traffic Flow	Safety & Security	Econ. Dev.	Air Quality/ Environ.	Noise/ Vibrations	Land Use & Value	Comm.	Rail	Trucking	Air Cargo	Water
Replace at-grade rail crossings with grade separated crossings	X	X		X	X			X	X		
Replace at-grade rail line with below grade rail line	X	X	X		X	X		X			
Modify rail hours of operation to minimize conflicts	X				X	X		X			
Develop truck-only access routes	X	X	X	X	X	X		X	X	X	X
Require developers to make necessary highway access improvements for trucks	X	X	X			X			X		
Participate in interstate corridor analyses	X		X					X	X		
Motivate mode shift—truck to rail	X			X				X	X		X
Undertake integrated freight/economic development program	X	X	X			X	X	X	X	X	X
Close at-grade rail crossing	X	X		X	X			X	X		
Designate routes for heavy weight trucks	X	X			X				X		
Ban or limit trucks on routes	X	X			X	X			X		
Build more truck rest areas and parking	X	X							X		
Undertake spot improvements to transportation infrastructure	X	X							X	X	X
Create incident management program or truck safety hotline	X	X					X	X	X		
Use intelligent transportation system technologies	X	X		X				X	X	X	X
Develop rail spur	X		X	X				X			
Relocate rail yard	X		X			X		X			X
Encourage reuse of brownfields	X		X	X		X		X	X		X
Retain existing industrial areas	X		X	X		X		X	X	X	X
Require staging areas for trucks at buildings	X			X					X		
Schedule truck appointments	X			X				X	X	X	X
Reduce number of empty truck movements	X			X					X		X
Undertake public education		X					X	X	X	X	X
Hire locally			X				X	X	X	X	X
Install upgraded rail crossing gates/barriers		X						X	X		
Create walls/pedestrian path to reduce trespassing		X						X			

TABLE 2 (Continued)

Create truck-based Highway Watch Program		X					X		X		
Strengthen cargo inspection		X						X	X	X	X
Develop driver training programs		X		X					X		
Promote beneficial reuse of dredged materials			X	X							X
Purchase abandoned rail line and/or facility			X					X			
Create neighborhood investment fund			X			X		X		X	X
Undertake public charrettes							X	X	X	X	X
Create public outreach video							X	X	X	X	X
Create “no whistle” rail zone					X			X			
Attend public meetings							X	X	X	X	X
Continuously engage the public and elected officials							X	X	X	X	X
Build sound walls/berms					X	X		X	X	X	X
Include buffer zones					X	X		X		X	X
Use specialized fixtures to reduce light spillage				X				X	X	X	X
Limit truck/loading dock hours of operation in neighborhood				X	X	X			X		
Use lower-emission locomotives/reduce locomotive idling				X				X			
Facilitate meetings between community and freight providers							X	X	X	X	X
Install hush kits on aircraft				X	X					X	
Encourage/use alternatively fueled vehicles				X					X	X	X
Install electric gantry cranes and other “Green Port” technologies				X							X
Create uniform national program for ballast water discharge from vessels				X							X
Develop cleaner fuels				X				X	X	X	X
Use equipment to reduce need to run truck engines at truck stops				X					X		
Create 800 number and website for community inquiries							X	X	X	X	X
Establish advisory committees							X	X	X	X	X
Create channels for information provision to the public							X	X	X	X	X
Undertake sound-proofing program					X					X	
Retire older cargo aircraft				X	X					X	
Install continuous welded rail					X			X			



FIGURE 2 Port of Tacoma road grade separation projects, part of the FAST corridor.

Funding Considerations

The discussion in this chapter does include the source of funds to pay for the various practices or solutions. Generally, private-sector freight businesses, public-sector agencies, or a combination of the two groups pay for implementing the balancing practices or solutions. Accordingly, federal, state, local, and private funds may be used. However, the availability of funds can be a limiting factor for implementing practices and solutions. Freight-related projects often must compete with other transportation initiatives, public priorities, and business needs for funds.

Some of the survey respondents from public agencies noted the funding issue. In addition, some of these agencies have acted to create innovative mechanisms and approaches to give priority to and fund freight-related projects. Examples include

- Creating a dedicated financing method for freight projects at the state level;
- Developing a coalition of funding mechanisms using federal, state, local, and private sector sources; and
- Pursuing the development of an “F-TIP”—a Freight Transportation Improvement Plan—at the MPO level.

Traffic Flow and Congestion

The negative impacts on traffic flow and congestion from freight operations and facilities was the issue most often cited by survey respondents. Because the issue is so widespread, numerous solutions and means for balancing freight transportation movements and community goals have evolved. The balancing practices and solutions for

mitigating the traffic flow and congestion issues related to freight transportation facilities and operations include

- Replacing at-grade rail crossings with grade separated crossings—Congestion and safety issues related to at-grade rail crossings were among the most often cited by survey respondents. The significance of the issue has been confirmed in other recent reports. For example, a survey of access conditions at U.S. ports conducted in 2000 found unacceptable conditions at at-grade rail crossings on port, local, state, and interstate roads (10). The July 2000 *NHS Intermodal Freight Connectors—A Report to Congress* also reported that delays were among the most common railroad crossing deficiencies (24, p. 22).

The solution most often cited by survey respondents is to replace the existing at-grade rail crossings with grade separated crossings. By separating the railroad and vehicular flows, traffic conditions are improved for both types of movements. Numerous examples of grade separation projects exist, including

- Phase I of the FAST Corridor (Freight Action Strategy for Seattle–Tacoma–Everett) project in Washington State (Figure 2). Nearly all of the Phase I projects involved eliminating at-grade rail crossings in the corridor. The FAST Corridor effort is described further in the next chapter.
- ExpressRail overpass at Port Newark/Elizabeth. The Port Authority of New York and New Jersey completed a rail overpass to its on-dock (adjacent to the maritime terminals) rail yard in 2002. Previously, train traffic to the ExpressRail yard crossed over the main truck road in the port terminal complex causing significant delays.

- Closing at-grade rail crossing—In some situations, the solution to traffic flow and congestion issues at an at-grade rail crossing can result from the closing of the grade crossing and the re-routing of rail freight or roadway traffic. This balancing practice only works if there are alternative routes available.
- Replacing at-grade rail line with below grade rail line—As different land uses have developed around rail lines and rail freight traffic has grown, it has sometimes become necessary to replace at-grade rail lines with rail rights-of-way running underground or in trenches. Although expensive, the solution addresses community concerns regarding train traffic dividing an area in half, noise vibration, safety, and economic development. Examples of this practice include
 - The Alameda Corridor, which included a 10-mi railway trench. The project eliminated conflicts at 200 at-grade intersections with surface streets, enhanced rail freight movement, improved traffic flow on Alameda and Cross Streets, and enhanced community opportunities for economic development. The Alameda Corridor is discussed further in the next chapter (25).
 - The Re-TRAC Project in Reno, Nevada, consists of building a 33-ft-deep train trench below the existing tracks to isolate train traffic from vehicular traffic in downtown Reno (26). The project is being developed under a design/build contract awarded in August 2002. The community and freight issues addressed by the project include public safety, improved rail and vehicular flows, and the ability to revitalize Reno’s downtown.
- Developing separate truck access—Separate truck access routes have been developed or are being pursued in many congestion situations, ranging from local roads to highway access routes. The following are three examples:
 - The Lehigh–Portland Cement plant—As noted in the previous chapter, the Maryland DOT, in cooperation with Carroll County, contributed \$3.5 million to assist in the construction of an access road and a rail spur to reduce the negative impacts of heavy truck and railcar traffic within the town of Union Bridge. As noted in the survey response, the improvement enhances the county’s efforts to revitalize the commercial and retail core of the town.
 - Tchoupitoulas Corridor in New Orleans—The purpose of this project was to provide a new four-lane boulevard and rebuild city streets to improve access to the Port of New Orleans, while removing heavy-vehicle traffic from existing city streets. More than 1,500 trucks travel on this corridor daily to reach the port’s intermodal facilities (27).
 - The Kapkowski Road Area Transportation Planning Study—This is a Transportation Equity Act for the 21st Century (TEA-21) High Priority project in Union County, New Jersey, advancing a major initiative to separate port and nonport vehicular flows. It will allow Port Newark/Elizabeth (the largest maritime complex on the East Coast), a large retail store, a major mall, and a significant amount of new hotel, retail, office, restaurant, and commercial development to co-exist and grow (28).
- Modifying rail hours of operation to minimize conflicts—Modifying the hours at which freight trains use routes with at-grade crossings is a noninfrastructure method of managing traffic flow and congestion. This practice works in situations where customer and train schedules have the flexibility to be modified, such as deliveries to rail sidings at industrial facilities. As discussed in the next chapter, the Morristown and Erie Railway (M&E) has adopted this practice on rail rights-of-way adjacent to residential communities.
- Requiring developers to make necessary highway access improvements for trucks—Local planning boards can require developers to provide access as a condition for project approval. Similarly, areas can establish transportation improvement districts (also referred to as transportation development districts and transportation enhancement districts). Property owners and developers within the district are required to contribute to the transportation improvements needed within the district boundaries. A variety of contribution formulas and mechanisms are used. The approach provides a mechanism during the planning stage to mitigate potential freight/community issues before they occur. Proactive planning can also assist in addressing potential safety and economic development issues.
- Participating in interstate corridor analyses—Freight transportation and community issues can extend beyond state boundaries. Multistate and/or corridor analyses can address these broader regional issues, as well as address local concerns. Examples include
 - The I-95 Corridor Coalition—This coalition is a regional partnership of major public and private transportation agencies, toll authorities, and industry associations serving the northeastern portion of the United States from Maine to Virginia (29). The coalition seeks to improve freight and passenger movements throughout their geographical area. The coalition recently completed the Mid-Atlantic Rail Operations Project. The objective was to “develop a short-term investment program that will reduce or eliminate key rail bottlenecks in the Mid-Atlantic transportation corridor thereby increasing rail–freight and rail–passenger service capacity and relieving congestion on the rail, highway, and air systems” (30).

- The Ports to Plains Feasibility Study—As noted in the Colorado DOT survey response, this study is a four-state effort to enhance the mobility, efficiency, and safety of freight movement from the Mexican border near Laredo, Texas, north to Denver, Colorado. The study is also assessing economic development benefits at the national, state, and corridor levels (31).
- Motivating mode shift from truck to rail—One of the practices being pursued to reduce truck traffic and improve vehicular flows is to encourage the marketplace to shift from using trucks to using alternative freight transportation methods. Most commonly, the mode shift is from truck to rail freight. Shifting truck traffic to barge has also been used. The practice may be encouraged by public agencies or initiated by private-sector businesses. Examples include
 - The IKEA Express—IKEA, the Swedish furniture and household goods manufacturer and retailer, has a policy of using trains whenever possible (32, p. 13). In Europe, IKEA has become a rail operator, running a locomotive and 10 railcars on 10 round-trips each week between Sweden and Germany (33).
 - Use of a short-line railroad—Based on the survey response from the Oregon DOT, in April 1999, Morse Brothers and the Portland & Western Railroad joined forces to eliminate approximately 30,000 truck hauls per year in the congested I-5 Corridor. The short-haul, high-volume train moves 700,000 tons of stone and sand annually. Similarly, Georgia Pacific uses the short-line railroad to ship the equivalent of 4,000 truckloads of wood fiber annually.
- Undertaking an integrated freight/economic development program—Traffic flow and congestion can also be mitigated when freight transportation improvements are coordinated with an economic development initiative or project in the planning stage. A coordinated program can ensure that appropriate freight access is provided for the industrial or distribution customer, that all methods of transporting freight are explored (such as use of direct rail service), and that the economic development potential is met. Integrated programs may also be able to access additional sources of funds for the freight-related improvements. Examples include
 - The Pennsylvania DOT reports that the state Bureau of Rail Freight, Ports, and Waterways has conducted several marketing and outreach efforts in coordination with the commonwealth’s economic/industrial development agencies to promote the use of rail freight as a cost-effective means for moving freight, and in April 2002 introduced a Rail Freight Properties Directory that contained a listing of available industrial sites served by short-line and regional railroads.
 - The United Parcel Service (UPS) Chicago Area Consolidation Hub, the largest package sort facility in the world, was developed on an existing industrial site concurrent with the rail freight and trucking infrastructure needed to serve the facility (27).
- Designating routes for heavy weight trucks—Survey respondents noted that trucks hauling heavier loads have different operating characteristics and can cause additional wear and tear to pavements and bridge structures. The different operating characteristics include slower acceleration and deceleration, which can further differentiate truck movements from other vehicular traffic on the roadway and cause an overall slowdown in traffic flow. For example, Illinois noted in their survey that it has designated routes for 80,000-pound trucks. Similarly, many other states have developed designated routes for heavier trucks.

Designation of specific routes for heavier trucks (e.g., those weighing 80,000 pounds or more) can assist in configuring roadway networks to optimize traffic flows. Designation of specific routes or lanes also facilitates constructing the appropriate infrastructure to handle the heavier trucks, thereby reducing potential wear and tear.
- Banning/limiting trucks on routes—One approach increasingly adopted by municipalities and states is to ban trucks or limit truck traffic on certain routes. Although in some cases court challenges related to the flow of interstate commerce are pending, a ban or limitation will remove truck traffic and increase available capacity on the roadways, as well as address perceived safety concerns. However, a ban or limitation is only a balancing practice if alternative routing for the freight traffic exists.

One example of a truck ban is the Truck Access Regulation enacted by New Jersey. The New Jersey Truck Access Regulation “prohibits double-trailer truck combinations and 102-inch wide standard trucks from using state highways and county roads as through routes or short-cuts between National Network highways when they are not originating their trip in New Jersey or have destinations within the state” (34). This regulation provides an alternative routing for the trucks.
- Building more truck rest areas/parking—Increasingly, companies are requiring that trucks arrive at specific appointment times. The truck appointment practice is used at loading docks and at maritime terminals to optimize loading and unloading. However, in the case of many commercial customers, there are significant penalties for missing the

appointment window or arriving early at the loading dock. Accordingly, truck drivers tend to arrive early and wait for their appointments off-site. Truck drivers, who can only legally work for a certain number of hours before taking a rest break also need access to secure parking areas.

An inadequate supply of available rest areas, truck stops, or truck parking may result in trucks parking on ramps, side streets, and highway shoulders. Such truck parking can affect the capacity and safety of the roadways. The solution is to increase the amount of available secure parking or rest areas. However, this practice can be difficult to implement. Survey respondents noted instances of community resistance to developing new parking capacity. However, several alternate approaches were offered including

- Increasing available parking spaces at existing rest stops;
- Creating truck parking at existing weigh station facilities. Use of weigh stations to provide additional truck parking capacity is also being pursued or implemented in Michigan, Maryland, Iowa, Florida, Montana, and Kentucky (35); and
- Improving signage to identify truck parking areas.

Louisiana is implementing a Rest Area Asset Management Plan, which will provide for new rest areas, upgrade existing rest areas, and close redundant facilities (35). The state is also developing an information system that will help truckers find places to park.

A U.S. DOT report, *Model Development for National Assessment of Commercial Vehicle Parking*, noted several instances where public-private groups were formed to address the truck parking issue (36):

- In 1999, the Iowa DOT, at the request of the Iowa General Assembly, formed a Task Force on Commercial Vehicle Parking. Members of the task force included stakeholders from corporate and independent trucking firms, and representatives from highway user groups, academia, the enforcement community, the Iowa DOT, and the federal government.
- In 1999, the Baltimore metropolitan region began to address the need for additional truck parking spaces as a result of trucks parking illegally on highway shoulders. The Truck Rest Area Subcommittee was formed and consisted of representatives from the Baltimore Metropolitan Council, the Maryland DOT, the Independent Truckers and Drivers Association, the National Association of Truck Stop Operators, the Maryland State Police, and the private sector. The group revised a state truckers map and

recommended that more signage be installed to notify drivers about rest areas and truck stops.

Several survey respondents noted the difficulty in getting communities to agree to have a truck stop. The Pennsylvania DOT offered one solution in its survey response. The Pennsylvania DOT has designated MPO/local development district Intermodal Coordinators (MPO/LDD). As noted in their response, “The role of District and MPO/LDD Intermodal Coordinators includes facilitating open discussion between the trucking interests or trucking facility developers and the transportation planning community in resolving community issues.”

- Undertaking spot improvements to transportation infrastructure—Road geometry issues such as inadequate turning radii, number of turning lanes, and ramp configurations can be mitigated through spot improvements to the roadway system. These improvements can increase both truck and overall traffic flow conditions. The *NHS Intermodal Freight Connectors* report also noted the deficiencies in road geometries. (Figure 3) (24, p. 20).
- Creating incident management program or truck safety hotline—The majority of truck drivers are professionals. An incident management program coordinated with local trucking associations and other groups could improve both traffic flow and safety. Such programs could be used to identify truck safety problems and track offending drivers or firms through a database. These programs focus on the small number of trucks that can cause problems. Examples of such programs, which exist throughout the United States, include
 - The Oregon Truck Safety Hotline, which records reports “from motorists who see some kind of truck safety problem while traveling Oregon’s highways” (37). Examples of truck safety problems listed on the state DOT website include truck speeding, tailgating, changing lanes unsafely, or load spilling; and
 - The Oklahoma Incident Management System, which is coordinated with trucking industry representatives.
- Using intelligent transportation system (ITS) technologies—As with all vehicular traffic, ITS technologies, such as electronic toll collection and variable message signs, can facilitate both truck and overall vehicle flows. As discussed in the next chapter, the FAST program is deploying ITS technologies as part of its Phase II program to improve freight flows in the Seattle-Tacoma area.
- Developing rail spur or connection—Similar to providing truck access for a facility, railroads and/or public-sector entities can develop rail spurs or con-

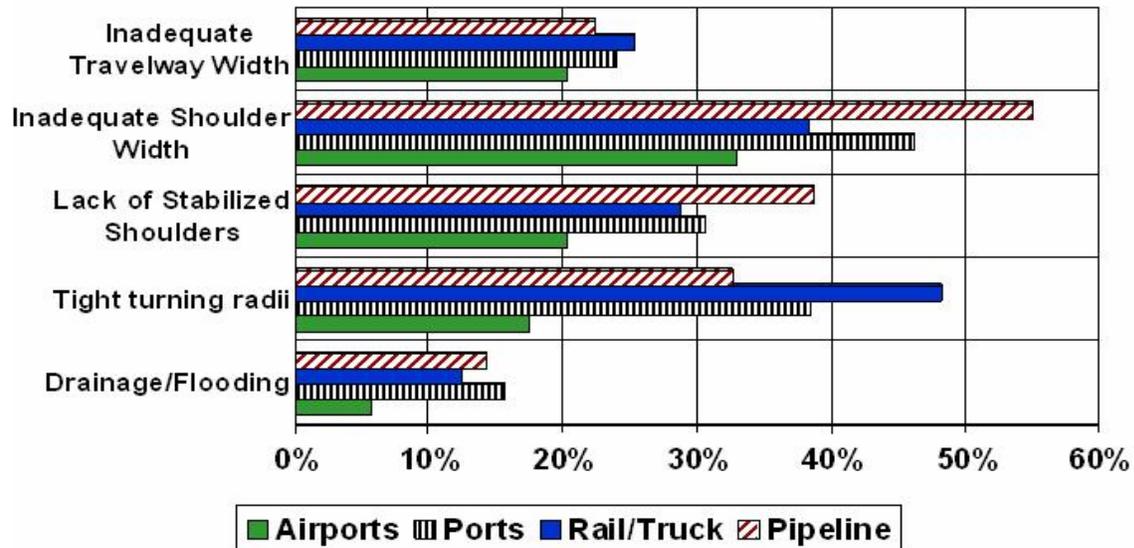


FIGURE 3 Geometric and physical deficiencies by terminal type. Percentages refer to the percent of each terminal type reporting the deficiency. [Source: *NHS Intermodal Freight Connectors* (24).]

nections to provide service directly to freight facilities, removing truck traffic from roads. Construction of a spur can also shift rail traffic from one route to another, potentially permitting the closure of one or more at-grade rail crossings and/or the shifting of rail traffic from routes through residential areas.

For example, the Port Authority of New York and New Jersey is constructing the “Chemical Coast” rail connection, which will link the Staten Island Rail Road and the Howland Hook Marine Terminal to the Chemical Coast rail line, a major route. According to the survey response, the connection will allow the anticipated growth in rail traffic from the maritime terminal to be routed directly to the Chemical Coast line rather than traveling via a route with several at-grade crossings.

Similarly, the Alameda Corridor, which is discussed in the following chapter, replaced four rail lines with one main route and eliminated conflicts at 200 at-grade rail crossings (25).

- Relocating rail yard—Relocating a rail freight yard can address both traffic flow and economic development issues. From a traffic flow perspective, building a rail yard near the areas where maritime vessels dock (i.e., an “on-dock” rail yard) can eliminate truck traffic between the maritime and more distant rail facilities.
- Encouraging the reuse of brownfields—Brownfields are properties previously used for industrial purposes. As developed properties, brownfields may require environmental mitigation to be reused. Accordingly, many developers often prefer to improve “green fields,” such

as farmland, which can be less costly, but are located further from the urban core. These farmlands may be accessible from highways, but may not have access to railroads. However, brownfields tend to be located in more urbanized areas. In addition, because of their previous use as industrial properties, brownfields may also have some existing access to railroads and highways, as well as be near to airports and ports.

Encouraging the redevelopment of brownfields can therefore help reduce the additional traffic and congestion associated with developing more distant locations. Brownfield redevelopment is considered a form of smart growth management, which can bring new economic value to underutilized properties.

The North Jersey Transportation Planning Authority’s Brownfields Planning project is one example of an effort to redevelop these properties to create both economic value and freight use (38). The project seeks to harness the economic development opportunities associated with the anticipated increase in maritime traffic through the Port of New York and New Jersey in terms of value-added distribution centers.

- Retaining existing industrial areas—Similar to redeveloping brownfields, communities can work to retain existing industrial properties and encourage their continued use for manufacturing and distribution activities. For example, as noted in a survey response, Portland, Oregon, has established the Guild’s Lake Industrial Sanctuary Project. This project is intended to preserve and enhance industrial land in an area where, “over many decades, public and private in-

vestments in infrastructure, such as marine, rail, and highway facilities, as well as industrial physical plants” have been made. The Guild’s Lake Project is discussed further in the next chapter.

- Requiring staging areas for trucks at buildings—Trucks delivering shipments to end users can cause delays in traffic flows as they maneuver into and out of loading docks or wait for a vacant loading dock. This situation can be more pronounced when there are
 - Insufficient loading docks at the building, or
 - Larger delivery trucks than were originally considered in the design of the facility’s loading docks.

Practices that can mitigate the situation include changing building requirements to mandate a greater number of loading docks, as well as staging areas for trucks. For example, the city of Las Vegas is requiring that hotels have “backing areas” for the 18-wheel trucks making deliveries. Similarly, the city is requiring the convention center, which has little staging area and inadequate weighing equipment for the trucks serving it, to provide a specific staging area.

- Scheduling truck appointments—As previously noted, many companies are now requiring that trucks arrange appointment times to pick up or deliver shipments to their facilities. The practice allows companies to more efficiently use their loading docks.

Back-ups at the gates of maritime terminals can cause the same type of congestion and delays as those experienced at private loading docks. Delays at ports can affect traffic flows outside the facility, as well as negatively affect air quality. Accordingly, port and maritime terminal operators are under increased pressure to reduce delays at their gates. California enacted legislation on October 1, 2002, that imposes a \$250 fine on a maritime terminal for each time a truck driver leaves the truck’s engine idling for more than 30 min while waiting to enter the terminal gate (39). The legislation allows the terminals to avoid fines if they extend the operating hours of the gates or establish an appointment system for truckers.

Gate appointment programs are being developed or are in place at several major ports throughout the United States. Emodal’s Scheduler system, for example, is being used in the ports of Charleston, Jacksonville, Long Beach, Los Angeles, New York–New Jersey, Oakland, the Everglades, Miami, Savannah, Seattle, Tacoma, and Norfolk (40).

- Reducing the number of empty truck movements—Companies always seek to maximize the efficient and

profitable use of their equipment. For transportation companies, this principle translates into carrying revenue-generating shipments during every movement. However, sometimes shipments in both directions are not possible. In this situation, freight containers can move empty or the tractor returns without a trailer. Industry experts estimate that between 8% and 15% of all trucks on the road are empty (41).

One practice that can reduce truck trips and improve traffic flow is to reduce the number of empty truck movements or “back hauls.” The practice also addresses revenue and equipment utilization issues. Because it has been estimated that \$30 billion is wasted annually by trucks running empty, the private sector has been moving quickly to find loads for empty trucks (41). Examples include

- General Mills, which has teamed with other manufacturers to use a new form of logistics software to find loads for empty trucks (41), and
- Independent truckers, who can use Internet-based services such as Getloaded.com (42) or Truck-Realm.com (43) to fill empty trailers.

Safety and Security

Safety and security issues include

- The interaction between freight equipment and passenger vehicles and pedestrians,
- The safe movement of hazardous materials,
- Crime, and
- Terrorist acts.

Many of the balancing practices related to interactions between freight and passenger movements were discussed under traffic flow. Additional practices are discussed here.

- Undertaking public education—The goal of these safety programs is to educate the general public about freight operations so that they become more aware of the hazards and options. Several programs have been developed, including
 - The “NoZone” campaign—The NoZone campaign is a highway safety initiative designed to educate motorists about the blind spots around large trucks and buses (44). In partnership with the private sector, the initiative has used several methods to teach the general public. For example, working with the American Trucking Associations, the NoZone campaign developed the “How to Drive” program. This program is designed to teach the public the skills needed to drive safely around trucks and large commercial vehicles (45).

- Operation Lifesaver—The mission of Operation Lifesaver is to end collisions, fatalities, and injuries at highway at-grade rail crossings through education, enforcement, and engineering (46). Operation Lifesaver was initiated in 1972 in Idaho by the state’s governor and peace officers in cooperation with the Union Pacific Railroad, at a time when more than 12,000 highway–rail at-grade crossing collisions were occurring annually nationwide. In the first year of the program, Idaho’s crossing-related fatalities dropped by 43% (46).

Operation Lifesaver was operated by the National Safety Council from 1978 through 1986, when the program was incorporated as a nonprofit educational organization. The program is now active in 49 states.

However, although these and other programs reach millions of people each year, more education appears needed. The National Highway Traffic Safety Administration, for example, found that “awareness was very low for public information and educational campaigns that were supposed to better inform motorists about how to drive safely around trucks” (47).

- Developing driver training programs—According to the Federal Motor Carrier Safety Administration (FMCSA), surveys indicate that many highway users are intimidated by the mere size of a truck or bus. “When you combine this perception with a highway crash and the resulting roadway congestion, the public image of the motor carrier industry takes a beating no matter who caused the crash” (48). The FMCSA found that “the majority of car–truck crashes are related more to the errors and misbehaviors of car drivers than to those of truck drivers. However, because of the high mileage exposure of trucks and the often-times severe consequences of their crashes, there is a premium on making trucks, and truck drivers, safer” (49). Several initiatives have been established.
 - As requested by Congress in 1992, the FHWA’s Office of Motor Carriers established the Commercial Driver License program. The Commercial Driver License program is designed to “improve highway safety by ensuring that drivers of large trucks and buses are qualified to operate those vehicles and to remove unsafe and unqualified drivers from the Nation’s highways” (49).
 - Private transportation companies have initiated their own programs. For example, UPS has developed its own comprehensive defensive driving course, teaches its drivers about the importance of visibility and space when driving, and operates a driver training school in Illinois (50). Werner Enterprises, one of the largest trucking companies in the United

States, is using a high-fidelity, motion-based truck driver simulation system in its training program (51).

- Creating truck-based Highway Watch Program—The extensive amount of time that truck drivers spend on the roadways can be harnessed to improve overall safety. Currently, 15 states have Highway Watch Programs (52). As an example, the Oregon Highway Watch is a partnership among the Oregon State Police, the Oregon DOT, and the Oregon Trucking Associations. Drivers are screened for participation. Truck drivers are trained by the state police on the types of highway safety incidents to report, whom they should be reported to, and what information to report (53). After the attacks of September 11, the program was enhanced to cover security issues.
- Installing upgraded rail crossing gates/barriers—Both the public and private sectors are developing and deploying new technologies to reduce hazards at at-grade rail crossings. These new technologies include installation of median barriers (raised islands with markers mounted on the top), four-quadrant crossing gates, and intelligent signal monitoring systems (which provide notification when the grade crossing mechanisms have failed) (54).
- Creating walls/pedestrian path to reduce trespassing—Trespassing onto rail lines is another leading source of injuries and fatalities. In response, railroads have worked with communities and public agencies to build awareness (through such programs as Operation Lifesaver) and to develop physical separations to discourage trespassing.

The Salem (Oregon) Walkway Project is one example of a cooperative effort to create a physical separation. Originating from an effort to reduce trespasser and pedestrian fatalities within the major rail corridor, the project came about through a multifaceted partnership that included the city of Salem, the Oregon DOT, other state agencies, the Salem–Keizer School District, Willamette University, Safeway, and the Union Pacific Railroad (Figure 4). Almost 150 freight and passenger trains pass through Salem weekly, and more than 20 people were killed by trains between 1993 and 2000. The completed project provides a safe and attractive pedestrian walkway and barrier linking public schools, state offices, the university, the rail station, and numerous businesses and residences (55).

- Strengthening cargo inspection—In the post-September 11 environment, numerous federal, state, and local public agencies, along with private freight transportation providers, have been working to deploy new approaches for enhancing cargo inspection.



FIGURE 4 Salem, Oregon, Walkway Project: (*Upper*) before, (*Lower*) after.

Numerous approaches, including material detection (identification and interception of drugs, toxins, explosives, and hazardous materials); imaging or shape detection; human threat detection approaches; and information and support technologies are being tested or used (56). Examples include the use of low dose x-rays for image detection; magnetometers, which are used to detect firearms, weapons, and tools at airports for passenger screening; and chemical scanners for material detection.

Economic Development

Economic development issues generally involve

- Leveraging a region's freight transportation system to create economic value for the area,
- Adjusting the freight transportation system to permit the development of other types of property uses, and
- Increasing the efficiency of the freight system to increase the competitiveness of the area to attract and retain businesses.

Many of the practices to achieve the efficiency objective have already been discussed. For example, three previously discussed practices addressed using or leveraging freight transportation for economic development—undertaking integrated freight/economic development programs; encouraging reuse of brownfields; and retaining existing industrial areas.

Additional practices and solutions that can help achieve community economic development goals include

- Relocating rail yard—As previously noted, relocating a rail freight yard can address both traffic flow and economic development issues. From an economic development perspective, rail freight yards, which may have been built more than 100 years ago, may no longer be contextually appropriate for a neighborhood. Once surrounded by industrial users, these areas may have changed to other purposes. To preserve the freight capacity and harvest the maximum value from the original site, the rail yard may be relocated. For example, as noted by one survey respondent, a rail yard in the center of Las Vegas was viewed as an impediment to redevelopment. Through a cooperative effort between the Union Pacific Railroad and the city of Las Vegas, the yard was moved to the edge of the city. In Philadelphia, the issue is highlighted by the desire of IKEA to use a former CSX intermodal facility in the city as a site for a new store. However, the Philadelphia Regional Port Authority would like to retain the property for freight-related uses.
- Hiring locally—Freight transportation companies can generate goodwill and economic opportunity when they adopt a policy of hiring locally to staff their facilities. For example, when CSX began exploring the redevelopment of the 59th Street Terminal in Chicago, a 200-acre underutilized rail yard, the company faced community concerns regarding the use of the property, tax generation, operational concerns, and job generation. One of the mechanisms used to balance community needs was the development of a “Jobs Covenant,” which specified hiring practices at the terminal and sought to employ as many local residents as possible. CSXI, a division of the transportation company, worked with the Mayor’s Office of Employment and Training and community leaders to hire qualified residents from the surrounding neighborhoods (57). Through this effort, CSXI hired 60 employees, including 33 from the surrounding communities.

The relationship of local hiring to being a good neighbor is reflected in the employment policies of Petro Stopping Centers. The truck stop company’s Good Neighbor policy specifically states, “The vast

majority of our employee base is hired from the local community” (20).

- Promoting beneficial reuse of dredged materials—Waterways and marine channels require maintenance dredging to maintain the depths necessary for safe vessel passage. Channels may also be deepened to accommodate larger vessels. Some of the dredged material is environmentally clean, although other sediment may be contaminated. New processes have been developed to treat the contaminated material and allow it to be used as fill on construction sites. This reuse provides both a way of managing the disposal of the dredged material and assistance in site preparation. For example, in the early 1990s, new sediment testing protocols required the Port Authority of New York and New Jersey to seek new disposal alternatives for approximately 75% of the material deemed unsuitable for ocean disposal (58). Approximately one million cubic yards of the contaminated dredged material was treated with cement and reagents and then spread as a cap over a landfill site in Elizabeth, New Jersey. The site was then developed into a 1.3-million-square-foot retail mall, the Jersey Gardens Mall.
- Purchasing of abandoned rail lines and/or facilities—Communities may also seek to improve freight transportation access to an area to retain or facilitate economic development. For example, as one survey respondent noted, the Union Pacific Railroad took over a rail facility and shut it down. The local area felt that this action deprived Tucson and southern Arizona of reasonable container shipping capacity. The Pima Association of Governments, in cooperation with city of Tucson and Pima County, carried out a site study for a new privately owned and operated rail facility, prepared a prospectus (including forecasts of expected truck–rail lifts), conducted two major surveys of rail users and potential users, including all the Nogales Mexico Maquiladora firms, and supported a local entrepreneur’s development of a private intermodal facility.
- Creating neighborhood investment fund(s)—Economic development is an important community objective. Where appropriate, freight transportation companies can create a Neighborhood Investment Fund to facilitate local economic development. For example, in 1997, a CSX Neighborhood Investment Fund was established in Chicago by the city council and CSXI, Inc., designed to provide at least \$6.7 million over 20 years to be disbursed as grants to projects promoting economic development in the areas of the 15th and 16th Wards (59). The Neighborhood Investment Fund was created as part of the agreement with CSX to redevelop the 59th Street Rail Terminal. In issuing a press release regarding the use

of these funds for six projects, the mayor of Chicago noted:

The City uses many economic development tools to help organizations like these build needed facilities that provide needed jobs and improve the quality of life for our residents. These new projects will provide the community with needed services and will help create and retain jobs for Chicago Lawn and West Englewood residents (59).

Air Quality and the Environment

Air quality and environmental considerations center on practices that reduce emissions or other impacts (such as light spillage). Many of the practices previously discussed assist in meeting air quality objectives by reducing congestion and delays. Other balancing practices promote the re-development of environmentally contaminated properties, facilitate the cleaning and re-use of contaminated material, and encourage continued use of industrial properties in urban areas. Research in Canada has shown that the transportation sector is one of the largest contributors to atmospheric emissions in North America (60). The Canadian analysis found that rail freight contributed 4% of the emissions and trucks 27%. Practices and solutions found to reduce emissions include

- Using lower-emission locomotives/reducing locomotive idling—Two practices can reduce emissions as—
 - FedEx has procured more than 630 EPA-certified low-emission vehicles for its fleet, and FedEx Ground another 170 EPA low-emission-certified vehicles (62).
 - FedEx and the Alliance for Environmental Innovation (an initiative of Environmental Defense) announced in February 2002 that three competing teams had agreed to produce prototype environmentally progressive vehicles for the next generation of FedEx delivery trucks (63). In May 2003, FedEx introduced a low-emission, hybrid electric-powered, medium-duty delivery vehicle, which will increase fuel efficiency by 50%, reduce particulate emissions by 90%, and reduce smog-causing emissions by 75%. Plans call for the purchase of up to 30,000 of these hybrid trucks over the next 10 years.
- Developing cleaner fuels—In addition to developing new vehicles, the development and deployment of cleaner fuels can reduce emissions. Examples of initiatives in this area include
 - From 1992 to 1994, FedEx participated in the Clean Fleet experimental program in which 111 vehicles traveled more than three million miles testing alternative fuel sources (62).
 - In Europe, The Body Shop and its logistics contractor, The Lane Group, use a very low sulfur diesel fuel (32, p. 9).
- Encouraging/using alternatively fueled vehicles—Similar to locomotives, alternatively fueled trucks can reduce emissions and fuel consumption. Examples of alternative fuel technology testing and deployment include:
- Developing driver training programs—Driver training programs, combined with technological improvements, can also be used to reduce emissions and fuel consumption. Practices include having drivers keep a record of fuel consumption, training drivers in applying the most efficient use of their vehicles, rewarding the most fuel-efficient drivers, and using new technologies to plot the most efficient routes. For example, the British company, Blagden Packaging Ltd., has reduced its fuel consumption by 18% as a result of a combination of measures, including a fuel performance-related bonus and encouraging drivers to use gears properly, to switch off the engine when the vehicle is stationary and avoid heavy acceleration (32, p. 11).
- Installing electric gantry cranes and other Green Port technologies—Maritime terminals can reduce emissions by introducing new equipment and technologies. For example, the Port Authority of New York and New Jersey has an Alternative Fuel Vehicle Program for converting its vehicles to cleaner, more energy efficient equipment. The agency is also working with its terminals to replace its existing diesel gantry cranes, used to work container vessels, with electric cranes. The Port Authority's Green Ports Initiative is discussed further in the next chapter.
- Using equipment to reduce the need to run truck engines at truck stops—When trucks are parked at truck

sociated with rail freight locomotives, using lower-emission engines and reducing the amount of time that locomotives idle. Idling is done to ensure that engine fluids do not freeze; however, a reduction in idling can reduce emissions, noise, and fuel consumption. For example, a joint partnership of the U.S. Environmental Protection Agency (EPA), the city of Chicago Department of Environment, the Kim Hotstart Manufacturing Company, the Burlington–Northern Santa Fe Railroad, and the Wisconsin & Southern Railroads is testing and deploying a new technology to reduce idling (61). A device installed on seven switch-yard engines and road locomotive engines allows the locomotives to be turned off rather than left idling. The EPA estimates that emissions from some diesel locomotives can be as high as 5 tons a year, with the new technology reducing this figure by 90%.

Railroads are also replacing diesel locomotives with direct current engines with locomotives with diesel-powered alternating current engines.

stops, the engines are often left idling to maintain the electrical systems. Although the practice is necessary for trucks transporting refrigerated shipments or when drivers are living in their cabs, idling causes significant emissions. Truck-Stop Electrification (TSE) can be used as an alternative to idling the vehicles. TSEs provide electrical hook-ups to the trucks so that the engines do not have to be kept running. The practice is moving into use in several locations.

- The New York State Thruway became the first highway in the United States to offer TSEs, providing 44 at the DeWitt Travel Plaza near Syracuse in August 2001 (64).
- In November 2001, the South Coast Air Quality Management District in California adopted Rule 1624. The rule created the Pilot Credit Generation Program for Truck Stops, which allows companies that provide electricity to trucks at truck stops to earn nitrogen oxide Mobile Source Emission Reduction Credits (65).

Emission reduction practices can also be implemented in the air cargo industry by means such as

- Installing hush kits on aircraft—Hush kits are designed to reduce engine exhaust and fan noise levels (62). Reduction in aircraft engine noise has been mandated.
- Retiring older cargo aircraft—Similarly, retiring older cargo aircraft and replacing them with newer equipment can reduce emissions and noise.

Additional practices found to address environmental concerns include the following:

- Creating programs for ballast water discharge from vessels—Ballast water has increasingly become a concern at the international level in terms of controlling the spread of nonindigenous species. Species invasion can cause significant damage and cost to waterway environments. For example, “in the Great Lakes, the zebra mussel, which is believed to have arrived on a ship whose voyage originated in the Black Sea, has been blamed for at least \$5 billion in damage to utilities’ water intake values and other infrastructure” (66).

The solutions focus on developing new regulations to restrict and monitor ballast water discharge. The Chamber of Shipping of America and the American Association of Port Authorities are pursuing the creation of national legislation to ensure a consistent set of regulations in the United States (66). In the interim, individual states are moving ahead with their own legislation. For example, Oregon is pursuing legislation that would forbid most ocean-going ves-

sels from releasing foreign-sourced ballast water into the state’s waterways (67).

- Using specialized fixtures to reduce light spillage—Specialized fixtures can also be used to reduce the amount of light that spills over from a freight facility into the surrounding community. For example, Terminal 5 at the Port of Seattle retrofitted its lighting system to mitigate the situation (68). Note also that several of the practices used to mitigate noise impacts can also reduce light spillage.

Noise and Vibrations

Noise and vibration concerns focus on reducing the effects generated by freight operations and facilities. Some of the practices and solutions have been discussed previously. Additional practices found to address these concerns include

- Modifying rail hours of operation to minimize conflicts—Some short line railroads have “sculpted” the hours during which they move trains to match the time periods when residents are most likely to be away. This practice significantly reduces the amount of noise heard in nearby communities. For example, the M&E operates its trains during the daytime when most nearby homeowners are at work.
- Using lower-emission locomotives/reducing locomotive idling—As previously discussed, new technologies are being tested that can reduce the need to idle locomotives and, thereby, reduce emissions. Elimination of engine idling also addresses the noise issue.
- Creating a “no whistle” rail zone—Train whistles can be an irritation to communities but a necessary safety practice. A new approach—the creation of a quiet zone—is being tested. For example, the Louisville Quiet Zone was the first project in the United States to reduce noise pollution and increase safety in a residential community (69). This quiet zone reduces the need for trains to blow their whistles along a specified corridor through a series of improvements, including redesigned highway rail at-grade crossings and street closures. The additional safety improvements were necessary to compensate for reducing the use of whistles. The Louisville Quiet Zone is discussed further in the next chapter.
- Modifying train whistles at grade crossings—Redirecting the whistles is another approach to reducing the impact of train whistles on local communities. In Chicago, an experimental system is being tested at nine at-grade crossings. Horns are mounted on poles at each crossing and issue 80-decibel warnings at approaching vehicles (70). Although the train whistles generate the same level of noise, the pole-mounted horns target a smaller area.

- Installing continuous welded rail—Use of continuous welded rail, while more costly, can reduce the noise of moving trains. Continuous rail comes in quarter-mile lengths that are welded together. As an example of the practice, the M&E and Union County (New Jersey) are planning to install continuous rail as part of the reactivation of the Staten Island Railroad in areas where the residential neighborhoods are proximate to the right-of-way.
- Building sound walls and berms or including buffer zones—Physical separations can also address noise and light issues. Sound walls, berms, and buffer zones can be mandated as part of zoning ordinances or constructed as part of an agreement between a freight facility and the surrounding community. One example of a zoning ordinance from Edison, New Jersey, includes

A buffer consisting of earthen berm, solid fencing, and plants, or any combination of the same, shall be installed along any lot line of a freight yard use which coincides with a residential zone boundary. The buffer shall have an effective height of no less than ten (10) feet and shall provide an effective noise and visual barrier of the freight yard use to the adjacent residential zone. Existing trees of three inches or more caliper shall be incorporated into the buffer design (71).

An example of an application of this practice involving a maritime terminal at a Gulf of Mexico port is

Port officials say they have listened to concerns about the project from local communities and incorporated numerous changes into the terminal's design in order to minimize the project's impact on surrounding communities. Those changes include special lights to reduce glare from the 24-hour terminal, three miles of 20-foot berms along the eastern boundary and a 120-acre buffer zone to act as a noise barrier and physically shield it from neighboring communities (72).

- *Limiting truck/loading dock hours of operation in neighborhood*—Freight operations in the evening hours can create concern. In response, through noise ordinances and agreements, some communities have limited the hours during which trucks can load or unload. For example, an agreement between the community and the Toys 'R' Us Distribution Center in Morris County, New Jersey, bans truck deliveries and pickups from the facility between 10 P.M. and 7 A.M. Similar agreements have been reached between facilities and municipalities throughout the United States.
- Undertaking soundproofing program—The construction of sound walls can also address noise concerns. For example, the Alameda Corridor Transportation Authority constructed a sound wall at the Ritter Elementary School that “insulates students and teachers from traffic on Alameda Street and railroad cars on tracks adjacent to the Alameda Corridor rail cargo expressway” (73). As a second example, the Seattle–Tacoma International Airport is spending \$100 million to insulate schools affected by aircraft noise, and has spent more

than \$350 million in noise insulation for single-family homes and public buildings around the airport (74).

Land Use and Value

Many of the balancing practices previously described help retain and improve land value, as well as allow various land uses to coexist. For example

- Modifying the hours of operation on a rail freight line can allow residential housing to retain and increase its value. The M&E's right-of-way in Morris County, New Jersey, has homes valued at between \$400,000 and \$900,000 adjacent to it, with the closest home being within 30 ft.
- The goal of the brownfield initiative of the North Jersey Transportation Planning Authority is to bring underutilized properties back to profitable use (38).
- The Kapkowski Road Area transportation improvements are designed to allow the Port of New York and New Jersey and the nonfreight land uses—IKEA, the Jersey Gardens Mall, hotels, restaurants, offices and commercial development—to all reach their full economic development potential (28).

Communication

Communication, discussion, outreach, and participation are all key factors to integrating freight operations and facilities with their communities. As the World Bank reports, “The purpose of public participation is to ensure that the views and concerns and values of all groups affected by transportation projects are known and influence the planning processes. This can help design better transportation projects, with the goal of improving transport service for the most people while minimizing the project's impacts on local communities and the natural environment” (75).

Practices and solutions that were found to aid in communication and discussion include

- Undertaking public education—As previously discussed, the public may not have an understanding of the role of freight in their lives and businesses. Based on the survey responses and Internet reviews, this understanding is a necessary foundation for discussing the best ways of balancing freight operations and facilities with community goals.

Efforts have been undertaken to generate a better understanding of freight. For example, the New Jersey DOT published *The Value of Freight to the State of New Jersey* in February 2001, with the goal of creating a better awareness of how New Jersey's freight

system worked (8). This nontechnical document was designed for use with the general public and elected officials.

As another example, the American Association of Port Authorities provides educational material and examples through their website (76). This material includes an Education Tool Kit, educational activities for kids, and community awareness examples.

- Creating a truck-based Highway Watch Program—As previously discussed, the goal of a highway watch program is to leverage the presence of trucks and trained drivers on the roadways to provide additional safety for all motorists. These programs also introduce another facet of the trucking industry to the general public.
- Hiring locally—Similarly, by hiring locally a freight facility or operation becomes more of a known quantity to the surrounding communities. The facility is no longer just a presence; rather, it is also a place of community employment. As examples, the practice was carried out at the CSX facility in Chicago and is part of the corporate philosophy for Petro Truck Stops.
- Undertaking public charettes—Charettes are meetings where the participants work together to develop the solutions or refine proposals. Charettes can be used as a mechanism for better balancing freight operations and facilities with community concerns. For example, the city of Weil am Rein in Germany used “a community involvement process that allowed the participants to work with residents’ interests in maintaining buffers between residential and industrial areas” (16, p. 11–12).
- Attending public meetings—As a private sector survey respondent noted:

Answer the phone calls, answer the letters, go to local meetings, tell the truth, and explain that the railroads operate the way they do because of economics, competition/congestion, waiting for additional needed infrastructure capacity and physical disruptions of the system from acts of God, equipment failure, and human error. It is important for freight transportation providers and facility operators to make themselves available to the public.

- Continuously engaging the public and elected officials—The best practices of integrating freight operations and facilities with community goals contain continuous engagement of the communities and elected officials in planning, project development, and facility operations. For example, Manchester Airport in New Hampshire, a growing airport for passenger and cargo operations, continuously involves the public and makes them part of the airport’s success. As the local chamber of commerce noted

Manchester’s success as an airport, and equally as a city, is the product of thoughtful and inclusive long-range planning and tremendous support from its local officials. The

Greater Manchester region has made a conscious effort to strike a balance between economic and industrial development and the quality of life issues that are so important to all its citizens (77).

The FAST program in Washington State has actively involved communities from the beginning of their effort to identify freight improvements. As part of the effort, the FAST CAST evolved. The membership of the FAST CAST, listed here, includes local municipalities and counties.

- | | |
|--|---|
| <ul style="list-style-type: none"> • Washington State DOT • Puget Sound Regional Council • Port of Tacoma • Port of Seattle • Port of Everett • City of Algona • City of Auburn • City of Everett • City of Kent • City of Pacific | <ul style="list-style-type: none"> • City of Puyallup • City of Seattle • City of Sumner • City of Tacoma • City of Tukwila • King County • Pierce County • Burlington–Northern Santa Fe RR (ex officio) • Union Pacific RR (ex officio) |
|--|---|

The FAST CAST has played a crucial role in selecting the projects to be undertaken; providing a cooperative, collaborative environment for input, problem identification, and problem solution; and obtaining the funding needed to undertake the projects selected (27).

The Kapkowski Road Area Transportation Planning Study included tours of the area for local elected officials and the executive board of the local metropolitan planning area— the North Jersey Transportation Planning Authority (NJTPA) (Figure 5) .



FIGURE 5 Kapkowski project tour.

- Facilitating meetings between communities and freight providers—Public transportation agencies can facilitate communication between communities and freight transportation providers in their areas. Many MPOs have active freight advisory committees. The Port of Los Angeles has a Port Community Advisory

Committee, with members from neighborhood councils, community organizations, business and industry groups, organized labor, and local colleges (78). The Advisory Committee, approved by the City of Los Angeles Board of Harbor Commissioners, has as one of its purposes to “Assess the impacts of Port developments on the harbor area communities and to recommend suitable mitigation measures to the Board for such impacts.”

- Creating an “800” telephone number and website for community inquiries—A central point of contact for identifying issues and working towards resolutions can greatly assist in balancing freight facilities and community interests. In Canada, the Federation of Canadian Municipalities and the CPR have developed a Community Connect Line telephone system (60). As described by the agencies

By calling a toll free number, Canadian residents can advise CPR of their concerns or ideas for improvement. In cases where the company is planning a significant operational change or construction of new facilities, CPR will work with municipal officials to determine appropriate community involvement and communication.

- Creating channels for information provision to the public—In the absence of information, assumptions and rumors can take precedence. Education, through reports, videos, speaker bureaus, and school kits, is one method that the public can be informed. Information provision also extends to creating methods for telling the public about projects, operations, and facilities. As demonstrated by this report, one of the most powerful new ways of conveying information is through websites. Newsletters and kiosks are additional means of providing information to communities.

PROFILES OF BALANCING PRACTICES

This chapter provides seven examples of situations where the needs of freight transportation operations or facilities were balanced with community goals. The examples vary considerably in scale; however, the practices used in each example are applicable to a wide range of situations in a variety of settings—rural and urban, as well as small, medium, and large communities. The scale of funding also varies—some solutions, such as the more than 200 grade separations undertaken for the Alameda Corridor project are expensive, although others (for example, the sculpting of operating hours undertaken by the M&E) are low-cost options. The seven examples profiled are

- The FAST Corridor in Washington State;
- The M&E Railway and Toys ‘R’ Us Distribution Center in New Jersey;
- The Louisville Quiet Zone in Kentucky;
- The Alameda Corridor (California);
- The Guild’s Lake Industrial Sanctuary (Portland, Oregon);
- The Port of New York and New Jersey Green Ports Initiative; and
- The CSX Intermodal Terminal in Syracuse, New York.

Each profile summarizes the situation, the freight transportation and community issues, and the balancing practices used. Table 3 summarizes the issue areas and freight modes involved in each example.

FREIGHT ACTION STRATEGY FOR SEATTLE–TACOMA–EVERETT CORRIDOR

The Puget Sound region is heavily dependent on international trade. The ports of Seattle and Tacoma represent one of the largest maritime cargo complexes in the United States. Two-thirds of the containerized imports to the Puget Sound region pass through the area’s ports and communities to areas elsewhere in North America (79). Ports, transportation agencies, freight transportation providers, economic development authorities, counties, and municipalities all have an interest in resolving the transportation and community issues.

Freight Transportation and Community Issues

The FAST Corridor Program freight transportation and community issues included the following:

- The importance of international trade to the economic development of the Puget Sound area,
- The need for more efficient highway and rail connectivity to inland North American locations,
- At-grade crossings bisecting communities caused congestion and safety issues, and
- The needs of both rail freight and transit had to be accommodated.

TABLE 3
ISSUE AREAS AND FREIGHT MODES IN EACH PROJECT PROFILE

Profiled Project	Issue Areas							Freight Types			
	Traffic Flow	Safety and Security	Economic Development	Air quality/Environment	Noise/Vibrations	Land Use and Value	Communications	Rail	Trucking	Air Cargo	Water
FAST Corridor	X	X	X	X			X	X	X		X
Morristown and Erie Railway and Toys ‘R’ Us Distribution Center	X	X	X		X	X	X	X			
Louisville Quiet Zone		X			X		X	X			
Alameda Corridor	X	X	X	X	X	X	X	X	X		X
Guild’s Lake Industrial Sanctuary	X		X		X	X	X	X	X		X
Port of NY/NJ Green Ports Initiative				X	X		X				X
CSX Syracuse Intermodal Terminal	X	X	X		X	X	X	X	X		

Much of the inland freight traffic moves by rail, using existing and reactivated lines with at-grade crossings. The existing at-grade crossings bisected many communities and caused congestion and safety issues on the roadway system. As the Puget Sound Regional Council (the MPO in the area) noted, “While the region has enjoyed employment growth of 70% better than the national rate during the last three years, the region has also been recognized as one of the worst places in the nation for traffic congestion” (80). Additional rail capacity was also needed to handle the anticipated increase in maritime cargo and accommodate transit needs.

Balancing Practices Applied

The balancing practices applied in the FAST Corridor project included

- Replacing at-grade rail crossings with grade separated crossings,
- Continuously engaging the public and elected officials,
- Facilitating meetings between community and freight providers,
- Creating channels for information provision to the public,
- Using intelligent transportation system technologies, and
- Undertaking spot improvements to transportation infrastructure.

FAST is a regional strategy that systematically addresses all freight modes and their connections—marine, rail, air, and roadway—and includes the development of “action packages.”

The origins of the FAST Corridor Program can be traced to early 1994 when the Puget Sound Regional Council, the Economic Development Council of Seattle, and King County convened the Regional Freight Mobility Roundtable. The Roundtable was conceived as a public–private forum for the sustained engagement and resolution of issues, rather than as an advisory group to a particular agency or project. Participants in the Roundtable included nonprofit organizations, shippers, carriers, and public agencies. It has become the communications hub for the FAST initiative.

The Roundtable worked to identify issues and priorities. In 1996, the public sector created the parallel FAST Corridor Interagency Staff Team (FAST CAST) to turn the recommendations and priorities of the Roundtable into actions. The selection criteria adopted and applied by the FAST CAST in early 1997 to select the Phase I projects from a list of 45 potential improvements were

- General mobility—potential to reduce delay, queuing, and cross-corridor arterial.

- Freight mobility—truck use and mainline railroad benefit.
- Safety—intersection safety and emergency services access.
- Community/environmental—community support, residential displacement, strategic economic impact, and emission reduction.
- Cost-effectiveness—capital cost of the project and the benefits generated.

As the Puget Sound Regional Council noted, “High on the list was impact reduction in communities bisected by reactivated rail lines” (27). Fifteen projects, primarily involving grade separations, were selected to be part of the Phase I effort.

Because the criteria were applied uniformly, the FAST CAST membership, which included public agencies and local communities, agreed to support the selected projects. In addition to the grade separation projects, the ports undertook a series of operational improvements to facilitate movements at their facilities.

Between 2000 and 2002, a set of 10 Phase II projects was identified. These projects included additional rail grade separations, improvements to the roadway system (referred to as FASTrucks), and ITS applications to improve transportation system operations.

In 2000, the National Association of Regional Councils (NARC) honored the FAST Corridor Project with an Achievement Award.

The NARC Achievement Awards honor regions whose projects promote regional cooperation and address cross-jurisdictional issues and challenges. The FAST Corridor has helped the region, state legislature, and congressional delegation to speak with one voice to identify and find funding for the investments that will improve freight mobility (80).

As the Puget Sound Regional Council noted, “The ‘good neighbor’ message might be that FAST is built in part from local projects that are locally reviewed, but also framed within an evolving regional system, and including more screening and performance criteria than simply freight mobility.”

MORRISTOWN AND ERIE RAILWAY AND TOYS ‘R’ US DISTRIBUTION CENTER

The M&E Railway has been in existence for nearly a century. Formed from two rail lines in 1903, the railroad offered freight and passenger service between Morristown and Jersey City, New Jersey (81). The historic presence of the railway and the existence of abandoned rights-of-way helped Morris County, New Jersey, craft a solution to potential traffic from new industrial development in the area.

Freight Transportation and Community Issues

M&E Railway and Distribution Center—Freight transportation and community issues included the following:

- Economic development—4,500 acres zoned for industrial development,
- Potential for significant truck traffic from the industrial development,
- Noise from the railroad and industrial development,
- Safety issues related to the railroad operation,
- Land use and value—impact of reactivated rail line on adjacent properties, and
- Noise from distribution center loading docks.

Morris County, New Jersey, had 4,500 acres of undeveloped property designated for industrial use. Located on the perimeter of the New York–New Jersey metropolitan area, with one of the largest concentrations of consumers in the world, it was likely that the properties would be developed. The county was concerned that the development could bring extensive truck traffic and congestion to the area.

County officials noted that abandoned rail lines accessed most of the industrial property. Although serving the industrial users by rail would help with the potential issues of trucks and congestion, the rail operation also needed to be sensitive to the needs of county residents.

Morris County moved to integrate the development of the industrial property with transportation access. In 1982, the county purchased two abandoned branch lines from Conrail. In 1986, the county contracted with the M&E to provide rail freight service (82).

The county worked to help market the industrial property to businesses that could use rail rather than trucks for some or all of their freight needs. This was designed for long-term effort—it would be nearly a decade before the first rail customers would emerge.

In 1995, the county used federal funds to rehabilitate the High Bridge Line, particularly when Toys ‘R’ Us, a new major rail customer, was identified. Toys ‘R’ Us would build a 750,000 ft² distribution center, bringing approximately 460 new jobs to the area. Importantly, the distribution center receives product by rail, reducing the potential number of trucks in the area.

As the industrial development and rail freight activity increased, additional issues arose. The High Bridge line has homes ranging in value from \$400,000 to \$900,000 located proximate to the rail right-of-way. In addition, residents expressed concern about the truck traffic and potential noise from the distribution center.

Balancing Practices Applied

The balancing practices applied with the M&E Railway and Toys ‘R’ Us Distribution Center included

- Undertaking an integrated freight/economic development program,
- Purchasing of abandoned rail line and/or facility,
- Motivating mode shift—truck to rail,
- Modifying rail hours of operation to minimize conflicts,
- Undertaking public education,
- Limiting truck/loading dock hours of operation in the neighborhood,
- Building sound walls and berms or including buffer zones, and
- Creating channels for information provision to the public.

Two public meetings were held before the distribution center opened. The public was told how many trucks were projected for the distribution center, and that each boxcar could transport the equivalent of three to four trucks. The M&E anticipated that they would need to run one train daily in each direction, with no more than 10 boxcars per trip. The railroad elected to operate the trains during the day when the residents were not home, minimizing the noise effect. In addition, the M&E conducted outreach with local police departments to minimize trespassing issues. Train crews were instructed to be alert to individuals on the right-of-way, and to take names and give out warnings, if possible.

Modifications were also made at the Toys ‘R’ Us Distribution Center. The municipal agreement between the distribution center and the area prohibits truck traffic between the hours of 10 P.M. and 7 A.M. The distribution center also constructed sound walls to further reduce noise.

To further increase their good neighbor presence in the community, the M&E hosts the Whippany Railway museum, with its collection of historical rail equipment. The railroad also runs seasonal excursion trains, such as a Santa Claus express.

LOUISVILLE QUIET ZONE

The Louisville Quiet Zone in Kentucky addresses two key issues involving railroad operations—noise from locomotive horns and safety concerns (Figure 6). The sounding of locomotive whistles or horns in advance of roadway/rail at-grade crossings has been a universal safety precaution used by the railroads since the late 1800s. However, because of noise concerns, whistle bans were established in many communities through local ordinances or agreements with the railroads (83).



FIGURE 6 Louisville Quiet Zone insignia. (Source: Louisville Quiet Zone website.)

Unfortunately, studies found “that highway–rail incidents are 62% more likely to occur at grade crossings where train horns are not sounded” (83). Accordingly, in 1994, Congress passed the Swift Rail Development Act, with regulations that mandate “that a locomotive horn be sounded while each train is approaching and entering upon each public highway–rail grade crossing” (84). The legislation supercedes the locally enacted whistle bans. This act also provides a mechanism for eliminating the sounding of horns, by establishing a quiet zone.

Freight Transportation and Community Issues

Freight transportation and community issues included the following:

- Noise from locomotive horns and whistles, and
- Safety at at-grade rail crossings.

The need to reduce locomotive noise is a long-standing issue, particularly in residential areas. Although this need was recognized, the requirement of grade crossing safety was equally important.

In 1992, the Kentucky General Assembly passed a law that forbids local communities from banning the sounding of train whistles at railroad crossings (69). At this time, numerous meetings were held in which residents and neighborhood groups complained about the disruptions caused by the train whistles. Therefore, in 1994, the Kentucky General Assembly passed legislation authorizing the development of quiet zones with supplemental safety

measures. Shortly thereafter, the Swift Rail Development Act was enacted.

Balancing Practices Applied

Balancing practices used in the Louisville Quiet Zone project included

- Creating a “no whistle” rail zone,
- Installing upgraded rail crossing gates/barriers,
- Closing at-grade rail crossings, and
- Continuously engaging the public and elected officials.

The Louisville Quiet Zone is the first project of its kind in the United States and a collaborative effort by the city of Louisville, Commonwealth of Kentucky, FRA, and CSX Transportation (69). In general, the Quiet Zone was designed to eliminate whistle noise, although train crews can sound their horns in dangerous situations.

To create the quiet zone, the following safety improvements were needed:

- Closing seven streets and alleys to traffic, thus eliminating the grade crossings in those locations; and
- Safety measures, such as upgrading bells and lights, placing curb and median barriers where needed, and using a dual gate system that will not allow cars to pass through a corridor (69).

Continuing the process, in 1996, elected officials met with residents and business owners to discuss the proposal

to close streets and alleys (69). In early 1998, officials from the city, CSX, and the FRA visited every household and business within a block of both sides of the proposed Quiet Zone to get signatures for the closing of streets and alleys. Later that year, the Louisville Board of Aldermen passed an ordinance closing the seven streets and alleys. In 2000, the Quiet Zone was completed.

ALAMEDA CORRIDOR

The Alameda Corridor project was one of the largest efforts of its kind in the United States. However, the balancing practices used are applicable in a wide range of situations and budgetary circumstances.

The Ports of Los Angeles and Long Beach constitute the third largest maritime complex in the world. Furthermore, cargo traffic through the port complex is anticipated to more than triple to more than 40 million 20-ft equivalent container units. The continued, efficient growth of the port complex required efficient highway and rail freight connections to the rest of the United States.

Freight Transportation and Community Issues

Freight transportation and community issues relative to the Alameda Corridor project included the following:

- Economic development—sustain the Ports of Los Angeles and Long Beach and add value to the neighborhoods along the corridor;
- Congestion and truck traffic—create efficient flow of freight to inland U.S. destinations;
- At-grade crossings—safety and congestion; and
- Air quality, noise, and environmental considerations from rail and truck traffic.

The truck and rail freight traffic associated with the port complex was already significant. The anticipated amount of new traffic threatened to significantly add to the congestion, noise, safety, and environmental issues in the area. One of the biggest freight transportation issues was the lack of a direct, efficient connection between the port complex and the transcontinental railroad system that began in downtown Los Angeles.

From a community perspective, the neighborhoods adjacent to the rail transportation improvements wanted to maximize their economic benefits and minimize the negative impacts to their communities. As one columnist noted:

The presence of the rail lines helped to create southern Los Angeles County as an industrial powerhouse, but it also has put these communities in the path of pollution, noise, and danger. Throughout the Corridor's planning, these communities

feared that they would bear the brunt of more train traffic and yet miss out on the resulting jobs—an ongoing concern that has been a matter of debate for more than six years (85).

Balancing Practices Applied

Balancing practices applied to the Alameda Corridor project included:

- Replacing at-grade rail crossings with grade separated crossings,
- Replacing at-grade rail line with below grade rail line,
- Undertaking spot improvements to transportation infrastructure,
- Using ITS technologies,
- Hiring locally,
- Creating a neighborhood investment fund,
- Building sound walls and berms or including buffer zones,
- Continuously engaging the public and elected officials, and
- Creating channels for information provision to the public.

The transportation improvements in the Alameda Corridor included

- North end projects—Replacement of a single-track rail bridge with a three-track structure, grade separation of rail and street traffic, and elevation of Amtrak and Metrolink passenger train lines over the corridor.
- Mid-corridor section—Construction of a 10-mi-long, 33-ft-deep, 50-foot-wide trench. Thirty east-west streets would bridge the trench.
- South end projects—Grade separation of street and rail traffic, replacement of a single-track rail bridge with a three-track structure over a flood control channel, and addition of two new three-track bridges over the Dominguez Channel.
- Street improvements, including the widening of Alameda Street from four to six lanes, installation of new signals, and new pavement and left-turn pockets from the port complex to downtown Los Angeles (86).

The Alameda Corridor Transportation Authority (ACTA) and the cities adjacent to the corridor each developed and signed a memorandum of understanding (MOU) and a Development Agreement, which articulated how the corridor would be built and the mitigation that was to be provided during the construction (25). The improvements and mitigations included

- Conflicts at 200 at-grade rail crossings were eliminated (25). ACTA reported significant reductions in train emissions, truck emissions, and noise pollution from trains (87).

- ACTA noted that the elimination of transportation impacts on the communities enhanced their opportunities for economic development (25). More than 20 acres of site remediation is underway and more than 2 million square feet of warehousing space is either completed or under construction.
- A new high school is under construction and several existing schools on the corridor were expanded.
- A school safety program was instituted that included pencils, rulers, and other materials “reminding students to avoid construction zones, obey safety warning signs, and stay alert. For example, pedestrians should never walk around lowered railroad crossing arms” (73).
- Sound walls were constructed at specific schools (73).
- As part of the MOUs, each city was provided with \$2 to \$4 million over a period of time to offset the loss of tax revenues during the construction period (25).

The ACTA also followed the balancing practice of hiring locally. The authority’s job training program provided training to more than 1,200 individuals (25). The team constructing the corridor committed to having local community residents perform 30% of all worker hours on the project (87).

In addition, the Alameda Corridor Conservation Corps (ACCC) program was created, to be managed by the Conservation Corps of Long Beach in partnership with the Los Angeles Conservation Corps (87). The ACCC provided jobs and GED (graduate equivalency degree) education opportunities to more than 400 youths from the adjacent communities.

The Alameda Corridor Business Outreach Program (ACBOP) was also established through an interagency agreement between the U.S. Department of Commerce Economic Development Administration and the city of Los Angeles Mayor’s Office of Economic Development (89). ACBOP’s mission is to “improve the competitive capacity of disadvantaged-owned business enterprises (DBE) to sell their services and goods to business entities participating in the design and construction of the Alameda Corridor and other major projects throughout the greater Los Angeles region” (88). Although the federal government’s goal for DBE participation is 10%, ACTA established a goal of 22% and achieved a percentage rate on all contracts.

Public outreach for the project included

- Quarterly newsletters distributed at libraries, city halls, and chambers of commerce, which featured local elected officials and progress reports on the corridor;
- Monthly construction updates;
- A speakers bureau for schools, community groups, and service clubs;
- Ceremonies for each of the 30 bridges built over the trench honoring the local elected officials in each community; and
- More than 200 tours of the corridor provided during construction.

GUILD’S LAKE INDUSTRIAL SANCTUARY

Manufacturing, distribution, and other industrial activities have occurred in the Guild’s Lake area of Portland, Oregon, since the late 19th century (89). Over the years, extensive public- and private-sector investments have been made in the industrial plants and freight transportation infrastructure in the area. The industrial sanctuary has excellent highway, rail, and waterway freight connections. The location is adjacent to the Willamette River and proximate to the Port of Portland’s maritime terminals.

The location is also adjacent to mixed-use and residential areas. Current zoning allows minimal nonindustrial uses in the area largely in support of industry. Several properties in the industrial sanctuary had already been transitioned to other land uses.

Freight Transportation and Community Issues

Freight transportation and community issues included the following:

- Economic development—retain existing industrial property and jobs;
- Leverage the existing freight transportation infrastructure;
- Noise, emissions, and truck traffic from the existing industrial development; and
- Land use and value—the impact of industrial areas on adjacent properties.

Although the area remains a vibrant industrial location, it had come under increasing pressure to be redeveloped for nonindustrial uses (89). As articulated by the city of Portland, “In many American metropolitan areas, industrial and distribution operations have increasingly relocated away from central city locations to the peripheries of cities and suburbs” (90).

The specific issues included the following:

- Although the proximity of residential communities to the industrial area allows workers to potentially live near their places of employment, each of the land uses has different, potentially conflicting needs.

- If industrial and transportation uses are forced from the area, Oregon’s competitive position as a significant import–export hub could suffer.
- The public and private sectors have a substantial investment in the freight transportation infrastructure at the current site, which would have to be replicated at potentially high cost if the industrial activity shifted to another location.
- Industrial activities are hard to site because of the potential for associated impacts, such as noise, emissions, and 24-h activity.

Balancing Practices Applied

Balancing practices applied to the Guild’s Lake Industrial Sanctuary included

- Undertaking an integrated freight/economic development program,
- Undertaking spot improvements to transportation infrastructure, and
- Building sound walls and berms or including buffer zones.

The Guild’s Lake Industrial Sanctuary Plan was developed as a policy framework to preserve the existing land use at this location and chart a course for the future that balances the need to maintain industrial activity with the existence of nearby residential communities.

The effort to develop a plan for the area came from two unsuccessful bids by Price Costco to develop a site within the sanctuary for one of their “big box” stores, which would have generated large-scale commercial development and traffic in the area (90).

In 1995, at the invitation of the Portland City Council, the Northwest Industrial Neighborhood Association (NINA) formed the Northwest Industrial Sanctuary Task Force, with the objective of creating recommendations to retain the current land uses in the area (90). According to the survey response, planning staff from the city of Portland also “worked closely with a Citizen Advisory Committee comprised of representatives from four neighbor associations, Neighbors West/Northwest, business associations, and other community stakeholders with business, residential, or property interests in Northwest Portland.”

The partnering residential neighborhoods recognized the unique amalgamation of freight transportation infrastructure present in Guild’s Lake. In addition, the neighborhoods recognized that an emissions issue specific to one industrial operation could be dealt with separately from the desire to preserve jobs in and the character of the Guild’s Lake area.

In 1996, NINA sponsored a workshop to determine how the various neighborhoods could work together on issues of common interest, which led to the formation of the Northwest Industrial Sanctuary Working Group (SWG) (90). The SWG developed a series of recommendations that provided the framework for establishing the policy, including

- Defining specific boundaries for the industrial sanctuary, and
- Creating buffer zones between the industrial and residential land uses. The two block buffer zones would exclude residential uses (90).

Through 2001, additional discussions and refinements took place among the various working groups, organizations, and neighborhoods. The Guild’s Lake Industrial Sanctuary Plan was adopted in December 2001. This plan has maintained the industrial area. In addition

- Land values and sanctuary land use has been largely protected.
- Roadway capacity for freight has been preserved and is high on the agenda when other land-use development might impact that capacity.
- The historic steel manufacturing facility that Costco had wanted to use for a retail facility has been torn down and replaced by a new *Oregonian* printing plant, preserving industrial use, but at the expense of preserving historic resources.
- Powell’s Books has purchased a large outdated warehouse and distribution facility at the south end of the sanctuary. Outdated for the needs of modern distribution facilities—low ceiling heights being the prime constraint—it is perfect for the heavy business of moving books.
- The Atofina site, just south of the rail bridge, has been subdivided to facilitate development of brown-field parcels, with the additional outcome of separating a Superfund riverfront parcel from the now developable parcels.

In addition to retaining the industrial area, the Oregon DOT is considering several improvements to enhance the freight transportation connections to the industrial area, including

- Rehabilitating the St. Johns Bridge, which provides a connection to the east side of the Willamette River and various Port of Portland terminals;
- Considering improvements to I-5 to the northeast and connected to the sanctuary area via I-405 and US-30; and
- Maintaining transit, bicycle, and pedestrian access to the area.

However, the following issues still remain:

- Encroachment from the south; the strong urban high-density residential market in Portland is impacting land use and freight capacity along Front Avenue at the southeast corner of the sanctuary. In addition, proposals for office development on the southwest edge of the sanctuary can be viewed as either a degradation of the sanctuary’s “Iron Curtain” or supporting the idea of a buffer between residential and heavy industry.
- Specific industrial practices (such as emissions) remain of concern to nearby communities.

PORT OF NEW YORK AND NEW JERSEY GREEN PORTS INITIATIVE

The Port of New York and New Jersey is the largest maritime complex on the East Coast of North America and is located within the most concentrated and affluent consumer markets in the world (91). The port is in the midst of a number of significant improvements—main channels are being deepened to accommodate the latest generation of container vessels, terminals are being reconfigured and upgraded, and new terminal capacity at the Howland Hook Marine Terminal is in development.

Freight Transportation and Community Issues

The port faces a wide range of transportation and community issues, including continued growth in the movement of cargo through the terminals, the need to improve and enhance the inland roadway and rail freight systems, continued concerns about dredging, and the proximity of other land uses to its facilities.

This profile focuses on several nondredging-related environmental issues at the maritime terminals including

- Emissions from the existing and planned port operations,
- Reducing energy consumption, and
- Creating more environmentally sustainable port operations.

The Red Hook Terminal in Brooklyn, New York, is located adjacent to residential communities. Port Elizabeth (New Jersey) is located near Newark Liberty International Airport, the Jersey Gardens Mall, and IKEA, along with new hotel, commercial, retail, office, and restaurant developments.

Balancing Practices Applied

“Green Ports” practices encourage maritime facilities to conduct business in an environmentally cleaner and friend-

lier manner. The Green Ports initiatives undertaken by the Port Authority and its maritime tenants include

- Alternative Fuel Vehicle Program—Converting the agency’s vehicle fleet to more energy efficient equipment.
- Crane Electrification Program—Eliminating diesel emissions by replacing existing gantry cranes with electrified models. The new cranes installed at the Red Hook Container Terminal in Brooklyn, New York, are electric. The new cranes being ordered and installed by the Maher, Maersk, and Port Newark Container terminals in Port Newark/Elizabeth are also electric, rather than diesel.
- Green Lights Program—The Port Newark Administration Building was converted to new high-efficiency lighting.

A Port Authority survey of their maritime tenants also identified several voluntary Green Ports initiatives underway, including

- Conversion of various types of equipment to alternative fuels;
- Use of energy conservation measures, such as high-lumen, low-energy lighting fixtures; and
- Implementation of best management practices for vehicle maintenance, washing, fueling, and waste handling and disposal.

Many ports in the United States and overseas are adopting Green Ports programs.

CSX INTERMODAL TERMINAL IN SYRACUSE, NEW YORK

Syracuse, New York, is uniquely situated in the center of upstate New York, at the junction of two Interstate highways (I-81 and I-90) and two rail lines on the CSX system (the Chicago Line main line and the Montreal secondary line.) CSX intermodal trains carry trucks to and from Syracuse that would otherwise use these public highways for long-distance travel. From Syracuse, trucks bring consumer goods throughout upstate New York to distribution centers such as Wal-Mart and SYSCO. Producers in the region also use the Syracuse Intermodal Terminal to reach nationwide markets, including Carrier and Canandaigua Wine.

Freight Transportation and Community Issues

Freight transportation and community issues for the CSX Syracuse Terminal included the following:

- Increasing terminal activity and related truck traffic, and

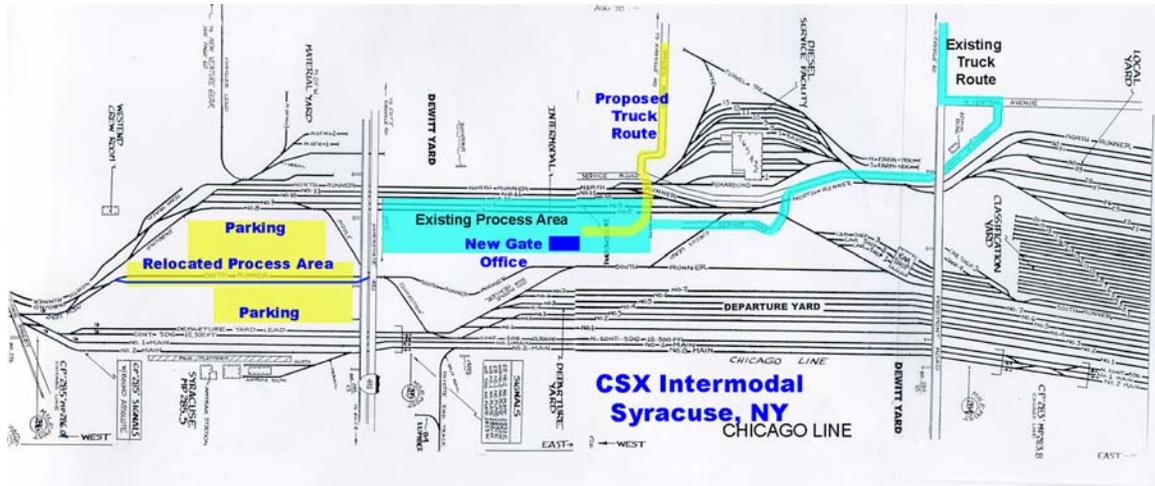


FIGURE 7 Proposed modification to CSX Syracuse Intermodal Terminal. (Source: Syracuse Metropolitan Transportation Council.)

- Proximity of schools and school bus activity to the terminal.

CSX operates a terminal in Syracuse, New York, where the trailers and containers are transferred between trucks and trains. This intermodal facility is one of only three such terminals in New York State's vast rail and highway transportation network. The Syracuse Intermodal Terminal was extensively modernized in 1992. Over the 5-year period ending in 2000, activity grew in excess of 6% compounded annually. In 2000, the Syracuse terminal performed nearly 70,000 lifts or transfers. In addition to serving local markets, Syracuse serves as a hub point for the CSX intermodal network. Large trains from Chicago and St. Louis enter the terminal and units are separated between trains destined for northern New Jersey and New England. A similar operation occurs for westbound movements. Currently, 12 different intermodal trains exchange traffic in Syracuse every day.

The community issues arose in 1993 after Conrail (the former owner of the terminal) had expanded the terminal and moved the location of the intermodal ramp (where the trucks enter the facility). The key concerns revolved around

- The proximity of three schools and a school bus facility to the terminal, and
- The growing volume of trucks on the roads related to the increase in activity at the terminal.

Balancing Practices Applied

Balancing practices applied included

- Undertaking spot improvements to transportation infrastructure, and
- Facilitating meetings between community and freight providers.

In 1993, staff from the Syracuse Metropolitan Transportation Council (SMTC) became involved and began forming working relationships with railroad personnel. In 1997, the SMTC studied access to the terminal by means of Girden Road in anticipation of the acquisition of the yard by CSX. Prior to the CSX acquisition, railroad executives flew to Syracuse to meet with SMTC staff and to tour the facility. They agreed that improvements could be made.

CSX, the SMTC, and various local constituencies including the town of Manlius and the Central New York Regional Planning Board have examined traffic considerations attached to the growing Syracuse operation. A concept plan was developed and includes the following elements:

- Upgrading Girden Road and designating it as the truck route to the intermodal terminal,
- Improving the intersection of Girden and Kirkville Roads,
- Relocating the gate building for CSX's intermodal terminal to the west of Girden Road,
- Establishing a number of grade crossings within the CSX property to create a safe traffic flow from Girden Road to the relocated gate building,
- Developing the "south runner" track (an existing track in CSX's yard) as an additional intermodal loading/unloading track, and
- Developing additional truck parking in the areas north and south of the south runner.

The last two improvements would replace and augment track and parking lost with the gate building relocation.

When completed, the Syracuse Intermodal Terminal will move completely west of Girden Road, and will be larger to accommodate future growth. The terminal expansion

will be accomplished by using vacant CSX real estate within the yard. There are no property acquisition or zoning issues associated with the terminal changes. The terminal expansion is part of the CSX 2003 Capital Program. The access improvements are currently under discussion. The proposed modifications are shown in Figure 7.

CONCLUSIONS

Freight transportation has become more important than ever—the system is the nation’s link to the global economy and the conduit for ensuring that consumer and business needs are met. At the same time, the growing amount of freight traffic has increased concerns over the quality of life in the nation’s communities. The need for freight transportation facilities and operations to be good neighbors has intensified.

Balancing freight transportation facilities and operations with community issues can be complex. This synthesis demonstrates that there is “no one size fits all” solution. However, a wide range of practices to balance or mitigate the presence of facilities and operations has been developed and deployed by an even wider range of organizations. These balancing practices are generally developed and applied locally. Accordingly, other communities facing similar situations may not be aware of the possible approaches and solutions.

The successful balancing practices and examples share the following set of characteristics:

- They have been developed through a common understanding of the issues, working together to craft the solutions, and continuously checking to see if the solutions remain effective. Ongoing, productive communications is a key to success.
- The implementing organizations have given meaningful thought as to what constitutes being a good neighbor.
- The practices are pragmatic, real-world solutions to real-world problems. Some of the solutions are commonsense—run the trains when residents are not home. Others involve more technological applications, such as new equipment that eliminates the need to idle locomotives and trucks, as well as new fixtures that reduce light spillage.

Examples of the most often applied balancing practices include

- *Traffic flow and congestion*—replacing at-grade rail crossings with grade separations, motivating customers to switch from truck use to rail use, and scheduling truck appointments to pick up or deliver shipments.
- *Safety and security*—undertaking public education programs such as Operation Lifesaver and the No-

Zone, creating highway watch programs to leverage the presence of trucks into an added security net for all motorists, and strengthening cargo inspections.

- *Economic development*—combining economic and transportation system development, retaining existing industrial areas, redeveloping brownfields, and hiring locally for freight transportation project construction and ongoing operations.
- *Air quality*—implementing Green Ports practices, such as electrifying gantry cranes and using alternatively fueled equipment; reducing the need to idle trucks and locomotives; and promoting beneficial re-use of dredged materials.
- *Noise and vibrations*—modifying the hours of freight operations to when residents are not home, installing sound walls, limiting the hours of loading dock operations, installing hush kits on cargo aircraft, and creating whistle-free quiet zones.
- *Land use and value*—creating buffer zones to transition between freight/industrial uses and residential uses, creating neighborhood investment funds, and requiring developers to make the necessary highway access improvements for trucks.

The synthesis study also highlighted areas where the state of the practice can be improved and lead to better integration of freight facilities and operations with their surrounding communities in the future.

- A multitude of practices exist for integrating freight transportation facilities and operations with community goals. However, no single source of information on available balancing practices exists. Accordingly, this synthesis report was designed as a reference document—a guide for organizations seeking solutions applicable to their situation. In the future, ongoing means are needed to document new practices and their applications. Websites, databases, and training courses could help educate public- and private-sector organizations about the available balancing practices and increase the awareness of possible solutions.
- With knowledge of the available practices comes the need to organize public/private/community collaboration. A set of standards, including leadership; relationship building; issues identification, prioritization, and management; strategy development and implementation; accountability; infrastructure; and measurement, provide a possible framework for organizing good neighbor collaborations.

- Solutions can be found for most situations; however, funding for freight improvements remains limited and can constrain integration efforts. Although some balancing practices involve minimum expenditure, others can require more significant funding. Private-sector businesses must justify expenditures as increasing profits and/or reducing costs. Being a good neighbor is a valid reason for making some expenditures, but cannot justify all outlays of funds. Similarly, public sector organizations must balance the

need to invest in freight infrastructure with other transportation priorities. New means for funding freight-related solutions, along with potential criteria for “good neighbor” projects could be explored.

The challenge of accommodating existing and new freight transportation facilities and operations will continue. However, the nation has a growing toolkit of potential solutions to integrate these facilities and operations with community goals and address issues.

REFERENCES

1. Contain the Port, Mt. Pleasant, South Carolina [Online]. Available: <http://www.containtheport.com/contain/mission.htm>.
2. "Governor Orders Truck Ban on Route 29," Office of the Governor News Release, New Jersey Department of Transportation website [Online]. Available: <http://www.state.nj.us/transportation/press/2000releases/b0011115.htm> [2000, November 15].
3. Lange, L., "Blow Your Whistle, Freight Train, But Get a Move on," *Seattle Post-Intelligencer Reporter* [Online]. Available: http://seattlepi.nwsource.com/transportation/46018_rail09.shtml [2001, November 9].
4. "Freight Forecast Growth Rates—Trends," Office of Freight Management and Operations, Federal Highway Administration, U.S. Department of Transportation, Washington, D.C. [Online]. Available: http://ops.fhwa.dot.gov/freight/pp/policy_implications/sld016.htm.
5. Dupin, C., "More Ships on the Way," *JoC Week*, Vol. 3, No. 37, September 16–22, 2002, p. 24.
6. Bureau of Labor Statistics, U.S. Department of Labor, Washington, D.C. [Online]. Available: <ftp://ftp.bls.gov/pub/suppl/empsit.ceseeb1.txt>.
7. Bureau of the Census, U.S. Department of Commerce, Washington, D.C. [Online]. Available: <http://www.census.gov/>.
8. *The Value of Freight to the State of New Jersey*, New Jersey Department of Transportation, Trenton, February, 2001.
9. *The State of US Cities 2000: Megaforges Shaping the Future of the Nation's Cities*, U.S. Department of Housing and Urban Development, Washington, D.C., June 2000, p. x.
10. *Intermodal Access to US Ports—Report on Survey Findings*, Maritime Administration, U.S. Department of Transportation, Washington, D.C., August 2002.
11. Delaney, R.V., *2002 State of Logistics Report: Understanding Inventory—Staying Curious*, Cass Information Systems, St. Louis, Mo., June 10, 2002, p. 8.
12. Schulz, J.D., "End of the Road for CF," *JoC Week*, Vol. 3, No. 36, September 9–15, 2002.
13. Melvin, N.J., *Freight Isn't a Four Letter Word!: Innovative Modal Transportation Planning at Mn/DOT Metropolitan Division*, Prepared for FHWA National Freight Transportation Workshop, September 13, 2000, p. 4.
14. Trombly, J.W., *Synthesis of Highway Practice 317: Dealing with Truck Parking Demands*, Transportation Research Board, National Research Council, Washington, D.C., 2003, 37 pp.
15. "Community Development and Quality of Life," Alderman Murphy, 18th Ward, Chicago, Presented at the *Moving Goods from Here to There: Freight Conference*, Metropolitan Planning Council, Chicago, Ill., May 2000 [Online]. Available: http://www.metroplanning.org/resources/134_section4b.asp?objectID=134.
16. Bailey, L., *Freight Industry as Part of the Economy of Southwest Detroit: Working Towards a Compatible Redevelopment Vision*, n.d.
17. *Community Relations: How Being a Good Neighbor Can Pay Big Dividends*, Wilson Group Communications, Inc., Columbus, Ohio, 2001 [Online]. Available: <http://www.wilson-group.com/articles/communit.shtml>.
18. Heller Industrial Parks, Inc., Edison, N.J. [Online]. Available: <http://www.hellerpark.com/pg8.html>.
19. "Good Neighbor Policy: Listen, Educate and Involve," Port of Oakland, Calif., 1999 [Online]. Available: <http://www.portoakland.com/communit/servingy.asp>.
20. "Good Neighbor," Petro Stopping Centers, El Paso, Tex. [Online]. Available: http://www.petrotruckstops.com/good_neighbor.asp.
21. CSX Corporation, Jacksonville, Fla. [Online]. Available: <http://www.csxt.com/abt/communities/corporate.htm>.
22. Bartholomew, E.T., "Exercising Corporate Citizenship Makes Good Business Sense," *Memphis Business Journal* [Online]. Available: <http://memphis.bizjournals.com/stories/2002/01/01/focus8.html> [2002, June 28].
23. Ente, B., "New Freight Railroad in Queens Vows to Be Good Neighbor," *Queens Ledger*, March 1997 [Online]. Available: <http://www2pb.ip-soft.net/railinfo/car-floats/new-york-and-atlantic-info.html>.
24. *NHS Intermodal Freight Connectors—A Report to Congress*, U.S. Department of Transportation, Washington, D.C., July 2000.
25. Goodwin, A., *Alameda Corridor: A Project of National Significance—Working with Affected Communities Along the Alameda Corridor*, Presented at the 81st Annual Meeting of the Transportation Research Board, Washington, D.C., January 15, 2002.
26. "ReTRAC," Granite Construction Company, Reno, Nev. [Online]. Available: <http://www.renoretac.com/about>.
27. *NCHRP Report 497: Financing and Improving Land Access to U.S. Intermodal Cargo Hubs*, Transportation Research Board, National Research Council, Washington, D.C., 2003.
28. "Kapkowski Area Transportation Planning Study," Union County, N.J., newsletter, November 2001.
29. "About the Coalition," I-95 Corridor Coalition [Online]. Available: <http://www.i95coalition.org/about.htm>.
30. "Projects and Reports," I-95 Corridor Coalition [Online]. Available: <http://www.i95coalition.org/projects/marop.html>.
31. "Ports to Plains Feasibility Study," Wilbur Smith Associates [Online]. Available: <http://www.wilbursmith.com/portstoplains/ProjectOverview.cfm>.

32. *Good Practice in Freight Transportation: A Sourcebook*, European Commission, Brussels, Belgium, 2000, p. 13.
33. Barnard, B., "The IKEA Express," *JoC Week* [Online]. Available: <http://www.joc.com/news/docview.asp?QueryText=%28%28%28IKEA+%3CIN%3E+HEADLINE%29+%3COR%3E+%28IIKE> [2002, September 16].
34. New Jersey Department of Transportation, Trenton [Online]. Available: http://www.state.nj.us/transportation/truck/truck_reg_071599.htm.
35. Lockridge, D., "States Respond to Truck Parking Problem," *RoadStar*, January 2002 [Online]. Available: <http://www.roadstaronline.com/2002/01/01a0201.asp>.
36. Pecheux, K.K., K.J. Chen, J. Farbry, and S.A. Fleger, Jr., *Model Development for National Assessment of Commercial Vehicle Parking*, Report FHWA-RD-01-159, Turner-Fairbank Highway Research Center, Federal Highway Administration, U.S. Department of Transportation, McLean, Va., March 2002, 46 pp.
37. "Oregon Truck Safety Hotline," Oregon Department of Transportation, Salem [Online]. Available: <http://www.odot.state.or.us/trucking/safety/hotline.htm>.
38. "NJTPA-NJIT Explore Reuse of Brownfields," Final Report, North Jersey Transportation Planning Authority, Newark, January 2003 [Online]. Available: <http://www.njtpa.org/planning/brownfields/index.htm>.
39. "California Enacts Harbor Truck Emission Law," *JoC ONLINE* [Online]. Available: <http://www.joc.com/news/docview.asp?QueryText=%28%28%28truck+%3CIN%3E+HEADLINE%29+%3COR%3E+%28truck>. [2002, October 1].
40. eModal, Irvine, Calif. [Online]. Available: <http://www.emodal.com>.
41. Cross, K., "Fill It to the Brim," *Business 2.0*. [Online]. Available: <http://www.business2.com/articles/mag/0,1640,14518,FF.html>. [2001, February].
42. "Backhauls.org" and "Getloaded.com," LLC, Midlothian, Va. [Online]. Available: <http://backhauls.org>.
43. "TruckRealm.com" [Online]. Available: <http://www.truckrealm.com/cfm/ontheroad.cfm?title=Load%20Locators&var1=loadlocators>.
44. "No-Zone Campaign," Federal Motor Carrier Safety Administration, Washington, D.C. [Online]. Available: <http://www.nozone.org/noZone/noZone.asp>.
45. "Inside ATA," American Trucking Associations, Alexandria, Va. [Online]. Available: http://www.truckline.com/insideata/press/htd_oklahomacity.html.
46. Operation Lifesaver, Inc., Alexandria, Va. [Online]. Available: http://www.oli.org/printer_friendly/ol_basics/mission.html.
47. National Highway Transportation Safety Administration, Washington, D.C. [Online]. Available: http://www.nhtsa.dot.gov/people/injury/aggressive/aggressive%20capital%20beltway/trucks_cars.html.
48. "No-Zone Campaign," Federal Motor Carrier Safety Administration, Washington, D.C. [Online]. Available: <http://www.nozone.org/truckAndBusDrivers/truckAndBusDrivers.asp>.
49. "Commercial Driver Training and Performance Enhancement," Federal Motor Carrier Safety Administration, Washington, D.C. [Online]. Available: <http://www.fmcsa.dot.gov/safetyprogs/research/dtperfmgmt.htm>.
50. "UPS Pressroom," Atlanta, Ga. [Online]. Available: <http://www.pressroom.ups.com/about/facts/view/1,1706,422,00.html>.
51. "Lockheed Martin Delivers Truck Driver Trainer to First Commercial Customer," Lockheed Martin, Orlando, Fla., May 1, 2001 [Online]. Available: http://www.lockheedmartin.com/lmis/driversims/html/pr_1stcomm.html.
52. "Highway Watch" American Trucking Associations, Alexandria, Va. [Online]. Available: <http://www.truckline.com/safetynet/highway.watch/>.
53. Oregon Trucking Associations, Portland, Ore. [Online]. Available: <http://www.ortrucking.org/htmlpages/hwy-watch.htm>.
54. Luczak, M., "Beating Back the 'beat-the-train' Brigade," *Railway Age*, July 1999 [Online]. Available: <http://www.railwayage.com/jul99/beat-the-train.html>.
55. "Congresswoman Darlene Hooley Announces Approval of \$1 Million for Salem Rail-Pedestrian Crossing and Safety Improvement by House Appropriations Committee, Congresswoman Darlene Hooley (Oregon, Fifth District) News, May 16, 2000 [Online]. Available: http://www.house.gov/hooley/press/press_051600.htm.
56. Mallon, L.G., *Inspection Technology Phase I Report: Deconstructing the Pre-Technology Driven Paradigm for Border Security—A Survey of Port of Entry and Exit Inspection Process and Technology*, Center for the Commercial Deployment of Transportation Technologies, California State University, Long Beach, 2002.
57. *CSXI Celebrates Opening of 59th Street Facility*, United Transportation Union, Cleveland, Ohio, 1998 [Online]. Available: <http://www.utu.org/DEPTS/PR-DEPT/NEWS/Ndigest/1998/OCT98/nd10-22.htm>.
58. Morgan, L., Vice-President of OENJ Cherokee Corporation, Presented at the *Brownfields 2000 Conference*, Atlantic City, N.J., October 12, 2000.
59. "Ordinances Would Create More Than 100 Jobs—Special CSX Grants to Fund Six Projects in 15th and 16th Wards," City of Chicago Department of Planning and Development News, July 25, 2001 [Online]. Available: <http://www.ci.chi.il.us/PlanAndDevelop/PressReleases/csx.html>.
60. "Environmental Programs," Canadian Pacific Railway, Calgary, Alberta, Canada [Online]. Available: <http://www8cpr.ca/cms/English/About+US/Social+Responsibility/Environment/Programs/Climate+Change/default.htm>.
61. "EPA, City of Chicago, and Railroads Unveil New Environmentally Friendly Diesel Train Technology," U.S. Environmental Protection Agency, Chicago, Ill.,

APPENDIX A

Study Methodology and Questionnaires

This appendix summarizes the methodology used for this synthesis project. The appendix contains three sections:

- Survey instruments,
- Survey distribution and collection, and
- Information regarding the responses.

SURVEY INSTRUMENTS

Two parallel survey instruments were developed for this synthesis project—one each for the public and private sectors. A copy of the survey form distributed to public-sector agencies is provided at the end of this appendix. The private-sector version is virtually identical with some changes in language.

The survey design followed several parameters, designed to increase the response rate and usefulness of the responses.

- The survey had to be easy to understand and complete,
- The survey form should take no more than 30 min to finish, and
- The questions needed to cover a broad range of areas.

The survey began with a short description of the project, identified who should complete the survey, and provided a due date and mechanisms for returning the completed forms. The survey questions were arrayed into these four sections:

- Background on the responding organization, which was needed to provide a context for the information provided.
- A grid to complete on issues and solutions. Each type of freight transportation operation and facility was listed in the table. Respondents were asked to describe the key issues that they encountered for each freight operation and facility, as well as list the solutions that they had used to resolve or mitigate the issue area.
- A form to summarize best balancing efforts. For each effort, the respondent was asked to provide a brief description and list the community goals or issues addressed; identify the modes involved; identify whether a freight facility or movement was involved; note the stage of the freight project when the effort took place; and provide contact information.
- The final section provided space for respondents to present additional information, including other organizations that should be contacted for the project.

Respondents were also asked to identify themselves in the event of follow-up questions and could request a copy of the final synthesis report.

SURVEY DISTRIBUTION AND COLLECTION

Generally, synthesis surveys are distributed through the TRB representative at each state department of transportation. However, this synthesis topic required input and information from a broader range of organizations, including

- Freight sector transportation providers, such as the railroads, trucking firms, air cargo carriers, and shipping lines;
- Freight facility operators in both the public and private sectors, including ports, airports, rail yards, truck terminals, and warehouses;
- Transportation planning organizations;
- Economic development organizations charged with maintaining and enhancing the vitality of their respective areas;
- Local, state, and federal governmental agencies responsible for preserving the quality of life, the environment, transportation flows and infrastructure, and safety and security; and
- Community and other organizations interested in the conditions in their neighborhoods.

Accordingly, the survey distribution was expanded to include both public- and private-sector organizations. Several industry associations were contacted and asked to assist in the survey distribution, including

- Association of American Railroads,
- American Trucking Associations,
- Association of Metropolitan Planning Organizations,
- American Short Line and Regional Railroad Association,
- American Association of Port Authorities,
- Intermodal Association of North America,
- Airports Council International–North America,
- National Association for Community Mediation,
- National Association of Counties, and
- National Association of Development Organizations.

TRB transmitted copies of either the public- or private-sector versions of the survey instrument to these organizations and requested that they distribute the survey to their membership.

Survey respondents were given three methods for returning the survey instrument—mail, fax, or email. Most of the responses were either faxed or returned by email.

RESPONSES RECEIVED

Fifty-nine organizations throughout the United States and Canada responded to the survey. Nine of the responses did not contain sufficient material to be included in the synthesis; however, 50 responses were complete and applicable. Eight additional organizations provided information via telephone discussions. The types of organizations that responded or provided information are shown in Table A1.

TABLE A1
ORGANIZATIONS PROVIDING INFORMATION

Organization	No.
State departments of transportation	23
Metropolitan planning organizations and city departments	18
Regional transportation commissions and regional councils of government	7
Port/airport/transportation authorities	5
Railroads	5
Total organizations	58

Note: Does not include incomplete survey responses.

All of the freight transportation modes were represented in the survey responses, as shown in Table A2. Both large Class I railroads and short-line rail operations were represented. Local and long-distance trucking was also represented in the survey, along with organizations responsible for intermodal facilities.

TABLE A2
RESPONDENT ORGANIZATIONS WERE RESPONSIBLE FOR THE FULL RANGE OF FREIGHT FACILITIES AND OPERATIONS

Organization	No. of Respondents
Railroads	38
Trucking	29
Air cargo operations	22
Waterborne transportation	19
Rail yards	27
Airports	21
Roadways	37
Waterways/maritime	14

Note: Many agencies were responsible for more than one freight mode.

As shown in Table A3, the majority of the respondents were involved in planning for freight facilities and operations. A large number of the respondents were also responsible for the capital investments and construction.

TABLE A3
RESPONDENT ORGANIZATIONS INTERACTED WITH FREIGHT FACILITIES AND OPERATIONS IN A VARIETY OF WAYS

Organization	No. of Respondents
Planning	35
Project construction	17
Capital investment	24
Ongoing operation/management/provider of service	17
Regulation	14
Coordination	1
Modeling	1

Note: Many agencies had more than one responsibility.

Freight Transportation as a Good Neighbor: Survey of Practices

Purpose: This study seeks to identify successful efforts that better integrate freight transportation facilities and movements with community goals (such as quality of life, traffic flow, environmental, safety, security, and economic development). This integration enables freight transportation to be perceived as “good neighbors.” The goal of this survey is to identify practices you and other organizations in your area have used to integrate freight and community objectives, which can be applied in similar situations in the United States.

Who should fill out this questionnaire? This questionnaire should be distributed to the highest-level individual(s) directly responsible for freight planning and operations. The synthesis covers all modes of transportation—air cargo, maritime, trucking, and rail freight. If your agency has separate departments for one or more of these modes or for different functions (such as planning and operations), please distribute a separate copy of the survey to each department.

Please return the completed survey by May 22, 2002 by email to ASW@AS-W.COM, fax to 908.654.5294, or by mail to:

**Anne Strauss-Wieder, A. Strauss-Wieder, Inc.,
330 South Chestnut Street,
Westfield, NJ 07090-1341**

If you have questions regarding this survey, please contact Ms. Strauss-Wieder via email or at 908.654.5144.

THANK YOU FOR YOUR ASSISTANCE WITH THIS IMPORTANT PROJECT!

I. Background

1. Which freight modes, facilities, and operations is your agency responsible for? Please check all that apply.

MODES: Rail Truck Air Ocean or Waterways

FACILITIES: Rail Yards and Lines Roadways Airports Maritime Terminals

Other. Please describe: _____

OPERATIONS Class I Railroads Shortline/Regional/Terminal Railroad operations

Aircraft operations Vessel, waterways, and port operations

Long-distance truck moves Local pick-up, delivery, and drayage

Intermodal transfer. Please describe: _____

Other. Please describe: _____

2. How is your agency involved with freight facilities and operations? Please check all that apply.

Freight Planning and Project Development Freight Project Capital Investment

Freight Project Construction Regulation and Permitting

Ongoing Freight Operations as a Facility Operator, Manager, or Provider

Ongoing Freight Operations as a Transportation Service Provider

Other. Please describe: _____

II. Issues and Solutions

1. For each freight facility and operation type listed below, please describe the issues that your agency has typically encountered and the solutions that your agency and other organizations in your region have developed or used to balance freight movement and community goals and resolve these issues. Examples of issues/community goals include traffic flow, safety, security, land uses, environmental, noise, and economic development. If you need more room to describe issues and solutions, please add additional pages to this survey.

Freight Mode	Description of the Key Issues Encountered	Descriptions of Solutions
Rail Freight Yards		
Rail Freight Movements (long distance and short haul)		

Freight Mode	Description of the Key Issues Encountered	Descriptions of Solutions
Truck Terminals and Facilities		
Long-Distance Truck Movements		
Local Truck Deliveries		
Air Cargo Facilities at Airports		

Freight Mode	Description of the Key Issues Encountered	Descriptions of Solutions
Air Cargo Operations		
Maritime Facilities (including ports, waterways, and terminals)		
Maritime Vessel Operations		

2. Please use this space to further describe efforts to integrate freight facilities and operations with community goals.

III. Best Practice Examples

We would like to showcase exemplary examples of efforts that have successfully balanced freight facility locations and operations with community goals. Please identify efforts that have either been completed within the last five years or that are currently underway. If you would like to include additional examples, please add more rows or pages to this survey.

Brief Description of the Balancing Effort	Community Goals or Issues Addressed	Modes Involved	Facility or Movement	Freight Project Stage	Contact Information
		<input type="checkbox"/> Rail <input type="checkbox"/> Truck <input type="checkbox"/> Air <input type="checkbox"/> Maritime	<input type="checkbox"/> Facility <input type="checkbox"/> Local Movement <input type="checkbox"/> Long Distance Movement	<input type="checkbox"/> Planning <input type="checkbox"/> Construction <input type="checkbox"/> Operations	Contact Name: Organization: Location: Phone Number: Fax: Email:
		<input type="checkbox"/> Rail <input type="checkbox"/> Truck <input type="checkbox"/> Air <input type="checkbox"/> Maritime	<input type="checkbox"/> Facility <input type="checkbox"/> Local Movement <input type="checkbox"/> Long Distance Movement	<input type="checkbox"/> Planning <input type="checkbox"/> Construction <input type="checkbox"/> Operations	Contact Name: Organization: Location: Phone Number: Fax: Email:
		<input type="checkbox"/> Rail <input type="checkbox"/> Truck <input type="checkbox"/> Air <input type="checkbox"/> Maritime	<input type="checkbox"/> Facility <input type="checkbox"/> Local Movement <input type="checkbox"/> Long Distance Movement	<input type="checkbox"/> Planning <input type="checkbox"/> Construction <input type="checkbox"/> Operations	Contact Name: Organization: Location: Phone Number: Fax: Email:

IV. Additional Information

1. Please provide us with any additional information or comments that you feel would be useful in the development of this best practices synthesis.

If there are reports or publications that you feel are relevant to this study, please send them to the return address provided on the first page and indicate whether they should be returned to you at the conclusion of the project.

2. Are there other individuals or organizations that we should contact? If yes, please provide the contact information in the form below:

Organization	Contact Name	Phone and Email

3. Please provide the following information so that we can contact you if we have any questions:

Name:			
Title:			
Address:			
City, State, Zip			
Phone:		Fax:	
Email:			

Please check here if you would like to receive a copy of the final report.

Thank you for your assistance.

APPENDIX B

Survey Respondents and Organizations Providing Additional Information

Alameda Corridor Transportation Authority	Morris County (New Jersey)
Amarillo Metropolitan Planning Organization	Morristown & Erie Railroad
Association of Central Oklahoma Governments	Nebraska Department of Transportation
Baltimore Metropolitan Council	Nevada Department of Transportation
Canadian Pacific Railway	New Hampshire Department of Transportation
Chittenden County Metropolitan Planning Organization	New Jersey Department of Transportation
City of Brownsville	New York Department of Transportation
City of Indianapolis and Marion County	New York Metropolitan Transportation Council
City of Lawton Planning Department	North Central Texas Council of Governments
Colorado Department of Transportation	North Dakota Department of Transportation
Connecticut Department of Transportation	Ohio Department of Transportation
CSX (Chicago)	Oregon Department of Transportation
CSX (New Jersey)	Pennsylvania Department of Transportation
CSX (Kentucky)	Pima Association of Governments
Delaware County, Indiana	Port Authority of New York and New Jersey
Delaware Valley Regional Planning Commission	Port of Jacksonville
Government of Newfoundland and Labrador	Port of Long Beach
Idaho Department of Transportation	Port of Miami
Illinois Department of Transportation	Puget Sound Regional Council
Indian River County Metropolitan Planning Organization	Regional Transportation Commission of Southern Nevada
Iowa Department of Transportation	Sarasota Manatee Metropolitan Planning Organization
Kentucky Transportation Cabinet	Saskatchewan Highways and Transportation
Maryland Department of Transportation	Southeast Michigan Council of Governments
Maryland Midland Railway, Inc.	Syracuse (New York) Metropolitan Transportation Council
Metro (Portland, Oregon)	Texas Department of Transportation
Metropolitan Planning Commission (Oakland, California)	Union County (New Jersey)
Michigan Department of Transportation	Vermont Agency of Transportation
Mid-Ohio Regional Planning Commission	West Virginia Department of Highways
Montana Department of Transportation	West Virginia Department of Transportation

APPENDIX C

Freight Transportation Definitions

To help frame the research approach and survey instruments, the freight transportation operations and freight facility types included in the synthesis are defined here.

Freight Transportation Operations

The freight transportation operations included in this synthesis are:

- *Trucking*—Trucking includes long-distance movements, local movements for pick-up and/or delivery, and “drayage” movements between freight facilities. Examples include long-distance movements by tractor-trailers; local deliveries to stores, manufacturing facilities, offices, and residences; drayage movements between port facilities and nearby rail yards; and movements between airports and off-airport cargo facilities. Each of these truck movements has unique characteristics, such as hours of operation, dimensions and weight of the vehicles, and distance traveled. In general, the synthesis included trucks delivering or picking up shipments and did not include service trucks (Figure C1).



FIGURE C1 Trucks delivering or picking up shipments.

- *Rail*—Rail freight includes long-distance movements by large-scale Class I railroads, along with local and regional movements by short-line and regional railroads. Rail freight movements include maritime and domestic containers on special rail platforms; truck trailers on flatbed cars; and the use of boxcars, tank cars, hopper cars, and other specialized types of freight car movements (Figure C2).



FIGURE C2 Rail freight movement.



FIGURE C3 Maritime freight facility.

- *Maritime*—Maritime freight movements include deepwater and shallow draft vessels and barges. Examples include the movement of vessels capable of carrying in excess of 6,000 containers, tankers, bulk carriers, break-bulk vessels (carrying such commodities as paper and steel), and auto carriers (Figure C3).
- *Air Cargo*—Air cargo movements include cargo transported in the bellies of passenger aircraft, movements by integrated carriers, and movements in all-cargo aircraft. Integrated carriers are companies that offer complete origin-to-destination movement services using a coordinated combination of freight modes. Examples of integrated carriers include Federal Express, UPS, DHL, and the U.S. Postal Service (Figure C4).



FIGURE C4 Air cargo movement by integrated carrier.



FIGURE C5 On-deck rail facility at port terminal.

Freight Facilities

The types of freight facilities included in this synthesis include terminals that handle a single freight transportation

type or “mode” or integrate the activities of two or more freight modes. Examples of facilities include port terminals, air cargo operations both on- and off-airport, truck terminals, truck routes (which can be on interstate, state, or local roadways where permitted), warehouses, and rail yards.

Examples of facilities that integrate two or more freight modes into an “intermodal operation” include

- On-dock rail facilities at a port terminal that allows transfers between vessels and trains on port property (Figure C5),
- Maritime to truck transfers at ports,
- Transfers of cargo between aircraft and trucks at airports, and
- “Transload” facilities where commodities (such as corn syrup, plastic pellets, and other bulk commodities) are shifted between rail cars and trucks (Figure C6).



FIGURE C6 Transload facility.

APPENDIX D

Practices to Balance Freight Transportation Facilities and Operations with Community Issues

SORTED BY FREIGHT TRANSPORTATION TYPE

Practice	Freight Types				Issue Areas						
	Rail	Trucking	Air Cargo	Water	Traffic Flow	Safety & Security	Economic Devel.	Air Quality/ Environ.	Noise/ Vibrations	Land Use & Value	Comm.
Undertake integrated freight/economic development program	X	X	X	X	X	X	X			X	X
Use intelligent transportation system technologies	X	X	X	X	X	X		X			
Retain existing industrial areas	X	X	X	X	X		X	X		X	
Schedule truck appointments	X	X	X	X	X			X			
Undertake public education	X	X	X	X		X					X
Hire locally	X	X	X	X			X				X
Strengthen cargo inspection	X	X	X	X		X					
Undertake public charrettes	X	X	X	X							X
Create public outreach video	X	X	X	X							X
Attend public meetings	X	X	X	X							X
Continuously engage the public and elected officials	X	X	X	X							X
Build sound walls/berms	X	X	X	X					X	X	
Use specialized fixtures to reduce light spill	X	X	X	X				X			
Facilitate meetings between community and freight providers	X	X	X	X							X
Develop cleaner fuels	X	X	X	X				X			
Create "800" number and website for community inquiries	X	X	X	X							X
Establish advisory committees	X	X	X	X							X
Create channels for information provision to the public	X	X	X	X							X

Practice	Freight Types				Issue Areas						
	Rail	Trucking	Air Cargo	Water	Traffic Flow	Safety & Security	Economic Devel.	Air Quality/ Environ.	Noise/ Vibrations	Land Use & Value	Comm.
Replace at-grade rail crossings with grade separated crossings	X	X			X	X		X	X		
Participate in interstate corridor analyses	X	X			X		X				
Motivate mode shift— truck to rail	X	X		X	X			X			
Close at-grade rail crossing	X	X			X	X		X	X		
Create incident management program or truck safety hotline	X	X			X	X					
Encourage reuse of brownfields	X	X		X	X		X	X		X	
Install upgraded rail crossing gates/barriers	X	X				X					
Create neighborhood investment fund	X		X	X			X			X	
Include buffer zones	X		X	X					X	X	
Replace at-grade rail line with below grade rail line	X				X	X	X		X	X	
Modify rail hours of operation to minimize conflicts	X				X				X	X	
Develop rail spur	X				X		X	X			
Relocate rail yard	X			X	X		X			X	
Create walls/pedestrian path to reduce trespassing	X					X					
Purchase of abandoned rail line and/or facility	X						X				
Create “no whistle” rail zone	X								X		
Use lower-emission locomotives/reduce locomotive idling	X							X			
Install continuous welded rail	X								X		
Develop separate truck-only access routes	X	X	X	X	X	X	X	X	X	X	
Undertake spot improvements to transportation infrastructure		X	X	X	X	X					

Practice	Freight Types				Issue Areas						
	Rail	Trucking	Air Cargo	Water	Traffic Flow	Safety & Security	Economic Devel.	Air Quality/ Environ.	Noise/ Vibrations	Land Use & Value	Comm.
Encourage/use alternatively fueled vehicles		X	X	X				X			
Require developers to make necessary highway access improvements for trucks		X			X	X	X			X	
Designate routes for heavy weight trucks		X			X	X			X		
Ban/limit trucks on routes		X			X	X			X	X	
Build more truck rest areas/ parking		X			X	X					
Require staging areas for trucks at buildings		X			X			X			
Reduce number of empty truck movements		X		X	X			X			
Create truck-based Highway Watch Program		X				X					X
Develop driver training programs		X				X		X			
Limit truck/loading dock hours of operation in neighborhood		X						X	X	X	
Use equipment to reduce need to run truck engines at truck stops		X						X			
Install hush kits on aircraft			X					X	X		
Undertake soundproofing program			X						X		
Retire older cargo aircraft			X					X	X		
Promote beneficial reuse of dredged materials				X			X	X			
Install electric gantry cranes and other "Green Port" technologies				X				X			
Create uniform national program for ballast water discharge from vessels				X				X			

Abbreviations used without definition in TRB Publications:

AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
IEEE	Institute of Electrical and Electronics Engineers
ITE	Institute of Transportation Engineers
NCHRP	National Cooperative Highway Research Program
NCTRP	National Cooperative Transit Research and Development Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
SAE	Society of Automotive Engineers
TCRP	Transit Cooperative Research Program
TRB	Transportation Research Board
U.S.DOT	United States Department of Transportation