

INTERCITY FREIGHT AND PASSENGER RAIL: STATE AND LOCAL PROJECT REFERENCE GUIDE

Public-Private Partnerships and TEA-21:
Planning, Evaluating and Financing Public Benefit Rail
Infrastructure Projects

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Section 1

INTRODUCTION

Purpose

On June 9, 1998, the President signed into law PL 105-178, the Transportation Equity Act for the 21st Century (TEA-21) authorizing highway, highway safety, transit and other surface transportation programs for the next six years. TEA-21 builds on the initiatives established in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), which was the last major authorizing legislation for surface transportation.

This report is an update of the U.S. DOT FRA September 1996 report entitled Intercity Freight and Passenger Rail: State and Local Reference Guide, Public - Private Partnerships and ISTEA: planning, evaluating and financing public benefit rail infrastructure projects,

This Federal Railroad Administration (FRA) reference guide is designed as a document to assist local and state planners and decision makers in considering rail projects in their transportation plans and programs and in determining cost-effective allocation of scarce transportation resources. It discusses: (1) the transportation planning process; (2) intercity rail project evaluation; (3) project priority setting; (4) project opportunities under the Transportation Equity Act for the 21st Century (TEA-21); (5) assessment of projects' environmental/societal benefits; and (6) innovative financing mechanisms that can be employed to advance public benefit rail projects. Examples are presented to illustrate how project funding might be structured. Each section identifies contacts within FRA.

New Opportunities Under TEA-21

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) increased flexibility through new planning requirements and funding opportunities so that states and Metropolitan Planning Organizations (MPOs) could create a more integrated, environmentally sensitive, intermodal transportation network. These planning requirements and opportunities are discussed in *Section 2*. TEA-21 refined ISTEA with key rail provisions, including: enhancement of the Operation Lifesaver, High Speed Rail corridors, and Highway Rail Grade Crossing Programs; and establishment of the Transportation Infrastructure Finance and Innovation (TIFIA) program, a Federal credit program for transportation projects of national significance, providing secured loans, loan guarantees, and lines of credit for eligible projects including intercity passenger rail facilities and vehicles and components of magnetic levitation rail systems.

Of particular interest to freight railroads, TEA-21 also established: the State Infrastructure Bank Program, which authorized state infrastructure banks in four states to fund transportation projects, including rail; the Light Density Rail Line project, which funds studies on the effectiveness of light density rail projects; and the Railroad Rehabilitation and Improvement Financing (RRIF) program to provide direct loans and loan guarantees to state and local governments, government-sponsored authorities and corporations, and to railroads and joint ventures for rail and intermodal capital projects.

TEA-21 also amended the Congestion Mitigation and Air Quality Improvement Program to include explicit recognition that a state, MPO or project sponsor may enter into an agreement with any public, private, or nonprofit entity to cooperatively implement an eligible project.

Additionally, the National Corridor Planning and Development Program (NCPD) and the Coordinated Border Infrastructure Program (CBI), were established to provide funding for planning, project development, construction and operation of projects that serve border regions near Canada and Mexico and for high priority corridors throughout the United States. Under the NCPD program, states and MPOs are eligible for discretionary grants for corridor feasibility; corridor planning; multi-state coordination; environmental review; and construction. Under the CBI program, border states and MPOs are eligible for discretionary grants for transportation and safety infrastructure improvements, operation and regulatory improvements, and coordination and inspection improvements in a border region. The eleven major TEA-21 program categories under which rail and rail-related projects may be considered are discussed in Section 3.

Innovative Financing

Executive Order 12893 of January 26, 1994, "Principles for Federal Infrastructure Investments," established the Department of Transportation's innovative financing initiative, the Partnership for Transportation Investment (PTI). The PTI leveraged federal resources through expanded use of innovative mechanisms and private sector investment and increased state and local use of ISTEA.

FRA, in cooperation with the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA), advanced innovative financing concepts, including public-private cost sharing for construction of intermodal terminals, relocation of rail lines, bridge clearance projects, and grade crossing separation/elimination. Over a dozen rail and rail-related intermodal projects, encompassing short lines as well as Class I railroads, received Department of Transportation (DOT) approval for use of ISTEA funding, benefitting from this flexible interpretation of requirements and procedures.

The concepts embodied in the PTI have been institutionalized in revised regulations under TEA-21. FRA continues to work with states, localities, MPOs, rail carriers, and users in the formulation and presentation of publicly sponsored project proposals with significant public benefits.

General questions concerning this guidebook should be addressed to:

**Jane H. Bachner , Deputy Associate Administrator for Industry & Intermodal Policy,
202/493-6405, Federal Railroad Administration.**

Section 2

PLANNING PROCESS OVERVIEW

This section reviews the state/local planning requirements of TEA-21, outlines general requirements for public participation and describes how ISTEA and TEA-21 have expanded the transportation planning process to include intercity passenger and freight rail projects. Many rail-related projects can be expected to emerge outside the conventional transportation planning process, which until recently focused on highway and transit projects. Therefore, this section seeks to clarify how intercity rail and rail-related projects can be incorporated into the state and MPO planning, public participation, and application/approval process.

Process Overview

ISTEA made a number of revolutionary changes in the way the U.S. supports its transportation system, with greater federal program funding flexibility to choose between highway and transit projects. While intercity passenger and freight rail were not given major attention in ISTEA, the expanded focus on transportation of people and goods, and the specific inclusion of freight in transportation planning requirements, offered new opportunities for consideration of intercity passenger and freight rail.

Federal Planning Support for Rail and Rail-Related Projects

TEA-21 provides federal funding for multimodal transportation planning at the state and MPO levels. Planning studies that address intercity freight or passenger rail projects or improved access can be initiated by MPOs and states, based on recommendations from their technical advisory committees (TACs) and staff. Private sector transportation providers, such as railroads, are encouraged to participate in planning, the foundation for project development. Broader membership on these TACs and participation in planning and project development helps to ensure that railroad concerns are addressed and that rail contributions and impacts are understood.

Planning Coordination

TEA-21 requires that each U.S. urbanized area with 50,000 in population adopt an official 20-year transportation plan, which must be consistent with the state's 20 year transportation plan. TEA-21 requires that these plans "consider a range of transportation options designed to meet the transportation needs (both of passenger and freight) of the state including all modes and their connections." This intermodal focus, including the need to consider the role of rail freight transportation, is reflected in the list of factors that must be considered by both the statewide and metropolitan planning process. States and MPOs must "explicitly consider, analyze, as appropriate, and reflect in planning process products . . . international border crossings and access to ports, airports, intermodal transportation facilities, major freight distribution routes . . .". The process used in developing these plans should include coordination with operators of airports, ports, rail terminals and other intermodal transportation facilities.

Participation

The regulations implementing TEA-21 planning, 23 CFR Part 450, state that private providers and users have a role in the development of both state and metropolitan plans. Projects identified through the planning process in metropolitan areas are prioritized and programmed in metropolitan and statewide transportation improvement programs (TIPs). These TIPs should reflect the overall transportation goals specified in the metropolitan and statewide plans and identify realistic local, state, and federal resources available to implement the programmed projects. The consideration of rail throughout the planning process can effect balanced transportation solutions.

Successful rail and rail-related projects that demonstrate significant public benefits can evolve from a cooperative effort between a rail provider and the primary planning agency for the region. It is anticipated that the application of realistic evaluation criteria to a range of transportation projects will result in many rail and rail-related projects showing significant public benefit returns. Such projects, generally public-private partnerships, can be attractive to local/state planning organizations, as total public dollars continue to decline.

Project Advancement

FHWA and FTA manage program funding under TEA-21. Therefore, similar to more traditional highway and transit proposals, applications for rail projects are made through the appropriate FHWA or FTA field office. While it has no formal role in the approval process, FRA can help advance good, innovative rail-related projects, and welcomes the opportunity to meet with project sponsors. While formal project requests must be made through FHWA or FTA regional offices, FRA would appreciate receiving copies of applications that contain rail elements.

Section 3

NEW CHALLENGES AND APPROACHES

Mergers and Other Major Railroad Service Changes

In recent years, state and local transportation planners in some areas have faced a new challenge. A number of railroad mergers, acquisitions and other transactions have posed significant environmental concerns for some communities by shifting rail traffic between routes and increasing traffic at terminals. Increased train traffic adds to risks at highway crossings, generates noise for sensitive receptors, and can delay emergency services as well as other highway traffic when crossings are blocked. Terminal expansion can add additional truck traffic to secondary streets as trucks travel between the terminal and the interstate highway system.

TEA-21 funds may be used by state and local governments to plan for any impacts which are the result of federal government actions and funds may also be used for projects designed to ameliorate such impacts. The Surface Transportation Board has issued environmental regulations covering these matters. Any community facing a major shift in rail traffic should contact the STB for a copy of the regulations, at: <http://www.stb.dot.gov/>

The STB has undertaken a review of the rules under which it evaluates merger applications. This rulemaking may address some of the environmental issues when it is issued in June, 2001. While the rulemaking may change some of the specifics, the overall process will largely remain the same. Railroads wishing to merge first notify the STB of their intention to file an application. This is the first notice communities will get of a proposed merger. The applicants, as they are termed, then provide an application and an initial environmental survey. Communities should obtain and review these documents, which will contain estimates of train volumes in specific corridors, proposed terminal expansions, track abandonment and other matters of concern. The STB Section for Environmental Analysis also conducts outreach efforts to alert communities of pending mergers.

Under current practice, the STB conducts an environmental analysis (if the scale of the transaction warrants), which will identify areas where possible environmental problems exist. Applicants and representatives of these areas then work together to reach agreement on mitigation measures. The difficulty for both parties is that at this time there is no clear standard for what level of mitigation is required. For example, the environmental analysis will measure delays to vehicles, noise impact to nearby residents and possible safety impacts. However, mitigation projects that substantially mitigate these impacts may be very expensive, and there is no clear standard for how the costs should be shared between railroads and communities. If there are different alternatives that could be used to mitigate the environmental consequences, the railroad and community need to reach agreement on which measure to select, determine financing, and obtain permission to implement the project, which might require the state or other private entities to participate. Reaching agreement on mitigating the environmental impacts of mergers and other transactions that require STB approval will remain difficult until clear standards and responsibilities are promulgated by the Board.

Among the environmental mitigation measures communities may wish to consider are whistle bans. New FRA regulations ease the establishment of such zones which offer a way to reduce noise

pollution from additional trains while preserving safety. For further information, see FRA's website on whistle bans at: <http://www.fra.dot/s/env/horns/index.htm>.

Integrated Intermodal Planning

ISTEA introduced and TEA-21 continued an emphasis on freight and intermodal planning in the regional and local planning process. Several organizations, in some cases continuing initiatives begun before ISTEA, have successfully inculcated an intermodal approach to transportation planning that includes the needs and impacts of freight transportation. Two examples of major metropolitan areas that provide useful models for others are Seattle and Chicago.

In Seattle, the Puget Sound Regional Council (PSRCOG), the MPO for the greater Seattle area, faced the challenge of a rapidly growing economy, booming intermodal container shipments through its port, and the desire to accommodate this growth in an environmentally friendly manner. Highway traffic congestion was severe, and growth in port activity and increased delays at rail crossings caused by growing train volumes were an important part of the problem and destined to grow worse.

PSRCOG and Washington State DOT approached the problem in the intermodal fashion encouraged by ISTEA. In order to assure that freight concerns were recognized, a Regional Freight Mobility Roundtable was formed, with wide participation from shippers, modal representatives, and all levels of government.

Perhaps the most significant product of these cooperative efforts is the FAST-corridor partnership, (Freight Action Strategy for the Seattle-Tacoma-Everett corridor). Addressing the overall freight and passenger needs of this critical corridor, a program of projects was developed to attack the overall problem, rather than just move the bottleneck to the next jurisdiction. Projects include rail-highway grade separations, improvements in highway connectors between the ports, and other improvements, benefitting all users. The total cost of the package is \$354 million, with funding coming from all levels of government and private interests. Commuter rail, while not directly related to the FAST partnership, has been initiated in the corridor, through the cooperation of BNSF Railway and local governments. For a detailed review of this major effort, planners are urged to review materials at <http://www.wsdot.gov/TEPD/freight/cp3.pdf> or contact: Peter Beaulieu, Freight Mobility/Corridor Strategies, Puget Sound Regional Council, 1011 Western Avenue, Suite 500, Seattle, WA 98104, (206) 587-4825 or Daniel O'Neal, Chairman, Puget Sound Freight Mobility Roundtable, c/o The Greenbrier Companies, 555 Andover Park West, Suite 109, Tukwila, WA 98188.

Chicago illustrates the importance of building freight partnerships and incorporating the partnership into intermodal planning efforts. Chicago's MPO, the Chicago Area Transportation Study (CATS) has solicited freight input from the Intermodal Advisory Task Force (IATF) since 1994, including freight sector input in its planning process through formal data collection efforts and industry outreach. Truck congestion, increases in intermodal transportation, and rail-highway-rail interchange traffic (called "the rubber-tire interchange") are the Chicago and northeastern Illinois area's primary concerns. One of eleven CATS Task Forces responsible for developing elements of the Transportation Improvement Plan, IATF identifies, assesses and responds to issues and opportunities affecting intermodal transportation facilities and resources and provides overall guidance for the development of the intermodal component of the Regional Transportation Plan.

One example of CATS' success is the agreement between Canadian National Railroad and Illinois Central Railroad to relocate CN intermodal facilities to IC's yard in Harvey, Illinois, 20 miles south of Chicago. The CN acquired added capacity and improved connections to ports in Vancouver and Halifax. The increased intermodal activity at the yard has highlighted the need for additions to the network of intermodal connectors and initiated a partnership process with the public sector, involving the CN, IDOT, county and municipal highway agencies, and operators. CATS and IATF are the point of contact among these parties.

CATS staff has pursued improvements to intermodal transportation by incorporating specific system and policy statements in the intermodal component of the 2020 Regional Transportation Plan and by maintaining an inventory of the region's major intermodal facilities and resources in GIS format. For additional information on the studies and projects of CATS, consult their website at:

<http://www.catsmpo.com> or contact Gerald Rawling, Director of Operations Analysis, Chicago Area Transportation Study, 300 West Adams, Chicago, Illinois 60606, (312) 793-3469.

Questions concerning process overview, participation and project advancement should be addressed to:

**Robert E. Martin, Director Intermodal Planning and Economics Staff, 202/493-6407 or
John N. Paoletta, Director Industry Finance Staff, 202/493-6413, Office of Policy and Program
Development, FRA.**

Section 4

RAIL PROJECT OPPORTUNITIES UNDER TEA-21

This section highlights current rail and rail-related project funding opportunities available under TEA-21 and the role of state and local officials in addressing their project needs. This update provides examples of rail and rail-related projects funded under TEA-21, that provide broad public benefits in transportation efficiency, air quality, safety, and economic development.

These programs include the following:

- National Highway System (NHS)
- Surface Transportation Program (STP) General Grants
- Congestion Mitigation and Air Quality Improvement (CMAQ)
- Transportation Infrastructure Finance and Innovation Act (TIFIA)
- Railroad Rehabilitation and Improvement Financing (RRIF)
- National Corridor Planning and Development and Coordinated Border Infrastructure Program (NCPD and CBI)
- Transportation and Community and System Preservation Pilot Program (TCSP)
- Transportation Enhancements Program (TEP)
- Light Density Rail Line Pilot Projects
- High-Speed Rail

The primary emphasis of each of these TEA-21 programs is outlined below. Examples of passenger and freight rail and rail-related projects are provided, with special attention to their public benefits and funding sources. Several of the examples use blended funds from more than one source, including more than one TEA-21 program category. For further information on a specific program, the appropriate program web-site has been included at the end of each program description.

National Highway System (NHS)

Total Funds: \$28.6 billion over 6 years.

Eligibility: A broad range of road construction and rehabilitation on designated Federal highway systems (the 163,000 miles of the NHS, including connectors to major intermodal facilities). NHS funds can be used to improve almost any highway network link to accommodate intermodal movements, including truck or rail freight. States may transfer up to 50 percent of NHS funds to

the STP program. For further information, see FHWA's web-site at:
<http://www.fhwa.dot.gov/tea21/factsheets/nhs.htm>

Example of approved rail and rail-related project under NHS:

Philadelphia Tioga Marine Terminal (Pennsylvania). The goods movement task force of the Philadelphia MPO identified impediments to highway access at the Tioga Marine Terminal, a water/rail/highway intermodal transfer facility. Improvements undertaken include signage, signaling, and rebuilding the Allegheny Avenue off-ramp from I-95. These three elements use separate funding packages: federal NHS and safety funds for the signaling; state funds for the signage; and a mix of NHS, STP, and other funds for the turning radii improvements.

Surface Transportation Program (STP)

Total Funding: \$33.3 billion over six years.

Eligibility: Applicable for almost any roadway improvements on any Federal-aid highway, including NHS. Improvements to accommodate other modes, including rail freight, are eligible uses. The STP program allows the use of federal funds to pay for adjustments to highway elements to accommodate a rail line, including lengthening or increasing vertical clearances of bridges, adjusting drainage facilities, lighting, signing or utilities, or making minor adjustments to highway alignments. Ten percent of a state's STP apportionment must be reserved for safety construction programs, including safety improvements at railroad-highway crossings. These improvements have included relocation of a portion of a rail line where this is less costly than eliminating existing crossing by grade separations or relocating the highway. For further information see FHWA's web-site at: <http://www.fhwa.dot.gov/tea21/factsheets/stp.htm>

Examples of approved rail and rail-related projects under STP:

McMinnville Highway-Railroad Crossing Corridor Safety Project (Oregon). ODOT serves as coordinator for a project to upgrade nine existing highway-railroad grade crossings, where four crossings are being closed and one new crossing is being constructed through the city of McMinnville. The nine crossing upgrades include adding train-activated automatic gates and flashing light signals, new improved roadway approaches to the crossings, new crossing track surfacing and the construction of Americans with Disabilities Act (ADA)-compliant sidewalks. Total cost of the project is approximately \$1.7 million, with \$1.1 million of STP funds.

Independence Highway-Railroad Crossing Corridor Safety Project (Oregon). Three existing highway-railroad grade crossings are being upgraded and three highway-railroad grade crossings are being closed through the city of Independence. The three crossing upgrades include adding train activated automatic gates and flashing light signals, new improved roadway approaches to the crossings, new crossing track surfacing and the construction of ADA-compliant sidewalks. The closures include curbs, drainage inlets and culdesacs. Total cost of the project is approximately \$900,000 with \$800,000 of STP funds.

Jefferson at Main Street Highway-Railroad Grade Crossing Safety Project (Oregon). An existing dangerous highway-railroad grade crossing is being re-built to improve the existing humped crossing to meet vertical profile standards, improve the truck turning radius, and interconnect the train activated automatic gates and flashing light signals with a new traffic light on an adjacent state highway. The project includes crossing track surfacing, bike lanes, and ADA-

compliant sidewalks across the tracks. The approaches to the crossing will be rebuilt to match the design of a future county road widening project. The total project cost is about \$900,000 with \$800,000 of STP funds.

Ventura County Transportation Commission (California). The Ventura MPO is purchasing two partially abandoned rail corridors, one existing rail corridor, 40 miles of rail track, and contiguous land. Freight rail service is expected to expand under the new plan, with some truck movements avoided by the improved railroad connections to the Port of Hueneme. Projected funding for acquisition of the rail branch lines consists of \$4.2 million in STP grants, \$3.5 million in STP Enhancement funds, and \$1.0 million in local matching funds

Hiawatha Line Improvements (Illinois and Wisconsin). STP and interstate maintenance funds are being used for Amtrak's Hiawatha line connecting Chicago to Milwaukee to maintain rail passenger service, which will mitigate construction impacts and traffic disruption while a nearby interstate highway is under construction.

Congestion Mitigation and Air Quality (CMAQ) Improvement

Total Funds: \$8.1 billion over six years.

Eligibility: Transportation projects that will reduce carbon monoxide, volatile organic compounds, oxides of nitrogen (NOx), and particulate matter in Clean Air Act non-attainment and maintenance areas. Intermodal freight facility improvements are eligible, and project approvals have included rail and barge freight facilities as a substitute for truck movements. Eligibility now includes MAGLEV Transportation Technology Deployment Program projects and has been expanded to promote public-private partnerships. For further information, see FHWA's web-site at:

<http://www.fhwa.dot.gov/tea21/factsheets/cmaq.htm>

Examples of approved rail and rail-related projects under CMAQ:

Columbia Slough Intermodal Expansion Bridge (Oregon). This rail bridge over the slough, directly connecting the railroad to the Port of Portland, was completed in 1997 with \$1 million in CMAQ funds. The project should yield reduced emissions as trucks no longer need to dray freight from the port to the railroad. The bridge project initially received funding as an ISTEA demonstration project with additional funding provided by the Port of Portland, the Union Pacific Railroad and Burlington Northern Santa Fe Railway.

Reorganization of Bensenville Rail Yard in North West Chicago (Illinois). Canadian Pacific Railway is reengineering its yard in Bensenville, upgrading its west end access and egress, and ultimately rerouting some of its trains. The upgrade includes new track, interlocking, and signals, allowing increased train speeds. There will be public benefits in significantly reduced traffic conflict due to fewer at-grade crossings. The CMAQ share of the cost is \$2.1 million for aspects of the reengineering that have public benefits.

Waterville, Maine. Construction of a truck-to-rail transfer facility was completed in Waterville, Maine in 1998. Guilford Transportation Industries contributed funds to build track and trailer storage. CMAQ funds were used to purchase lift equipment. There was no financial participation by Maine DOT. This project allowed diversion of trailers and containers to rail, reducing heavy truck miles and emissions, and freed up state funds for use in other transportation projects.

The Office of Freight Transportation, Maine Department of Transportation, has been concentrating on funding smaller incremental improvements to rail access facilities, such as adding rail siding and spur tracks. Through their Industrial Rail Access Program (IRAP), Maine DOT solicits projects in a competitive process, ranks the projects on several economic and air quality criteria, and funds the projects with General Fund monies, supplemented with CMAQ funds as appropriate. Through a 50 percent participation in project costs by the state, Maine leverages the balance from private and federal funds. One such project constructed and rehabilitated track in South Portland to provide previously unavailable rail access into gravel pits, enabling access to the pits from oceanbound containers carrying clay.

Morristown Branch Line (New Jersey). The Morristown and Erie Railway, Inc., a county-owned railroad that shares trackage with NJ Transit, is using CMAQ funds to rehabilitate a branch line that will allow it to provide service to a new Toys-R-Us regional distribution center.

Gorham Railroad Bridge Project (New Hampshire). A \$750,000 bridge clearance project in Gorham to allow double-stack container service from Auburn, Maine to Chicago, Illinois, approved under the innovative financing program, used a flexible match of \$150,000 in private funds from the St. Lawrence and Atlantic Railroad in lieu of state funds. The project also received \$600,000 in CMAQ funds. Although the project is in an air quality attainment area, it will reduce emissions along the nonattainment areas of the I-95 corridor by shifting motor freight to double-stack trains.

Transportation Infrastructure Finance and Innovation Act (TIFIA)

Total Funds: \$10.6 billion in credit assistance (loans, loan guarantees, and lines of credit).

Eligibility: Major transportation investments of national significance, including intermodal facilities. These include Title 23 and Title 49 projects, international bridges and tunnels, inter-city passenger bus and rail facilities and vehicles, and publicly owned intermodal freight transfer facilities (except airports and seaports) on or adjacent to the NHS. Eligible projects must total at least \$100 million or 50 percent of a state's annual highway apportionment (except \$30 million for Intelligent Transportation System (ITS) projects) and be supported by user cargo or other dedicated revenue streams. TIFIA assistance is limited to one third of eligible project costs. For further information see FHWA's web-site at:

<http://www.fhwa.dot.gov/tea21/factsheets/tifia.htm>

Examples of approved rail and rail-related projects under TIFIA:

Farley-Penn Station (New York City, New York). This project will expand and refurbish the James A. Farley Post Office Building and the existing Pennsylvania Station Complex as an intermodal transportation facility and commercial center that will meet New York's transportation needs. Together with the existing Penn Station, the Farley Building will provide a safe and efficient passenger complex for Amtrak, commuter rail, subway, airport access, bus and taxi passengers, as well as the U.S. Postal Service. The project increases station capacity by 30%, doubles passenger circulation space, and provides a grand, new Manhattan terminal to accommodate new high-speed rail service between Boston and Washington. The Farley-Pennsylvania Station Redevelopment Project is estimated to cost \$749 million and to be completed by December 2003. Two Federal TIFIA credit instruments will be provided: a \$140 million direct loan and a \$20 million line of credit. The repayment source for both credit instruments is lease payments from retail development in the Farley Building and the existing Penn Station.

Miami Intermodal Center (Miami, Florida). The Miami Intermodal Center will improve access to the Miami International Airport, relieve roadway congestion within the airport, and provide a regional transportation center for transit, commuter rail, Amtrak, and inter-city bus services. Components of the facility will include a consolidated rental car facility, an automated people mover, strategic highway improvements, and links to transit systems. The estimated cost of the Miami Intermodal Center is \$1.349 billion and the project is expected to be completed by April 2005. Two federal TIFIA direct loans will be provided: one for \$269 million, secured by state fuel tax revenues, and the other, for the rental car facility, in the amount of \$167 million, secured by rental car fees.

Railroad Rehabilitation and Improvement Financing

Total Funds: \$3.5 billion in loans and guarantees.

Eligibility: Public or private sponsors of intermodal and rail projects, limited to \$3.5 billion overall, with \$1 billion reserved for projects benefitting freight railroads other than Class I carriers. Projects can include acquisition, development, improvement, or rehabilitation of intermodal or rail equipment or facilities. The Railroad Rehabilitation and Improvement Financing program is intended to make funding available through loans and loan guarantees for railroad capital improvements. No direct federal funding is authorized in TEA-21; however, the Secretary is authorized to accept a commitment from a non-Federal source to fund the required credit risk premium.

FRA is currently reviewing proposals under the RRIF program but no projects have yet been approved. See FRA's website for further updates at:

<http://www.fra.dot.gov/o/counsel/rrif.htm>

and: http://www.fra.dot.gov/o/counsel/regs/cfr00/part49CFR260_00.htm

or FHWA's web-site at:

<http://www.fhwa.dot.gov/tea21/factsheets/r-rrehab.htm>

National Corridor Planning and Development (NCPD) and Coordinated Border Infrastructure (CBI) Programs

Total Funds: \$700 million over five years.

Eligibility: The NCPD and the CBI programs were established to provide funding for planning, project development, construction and operation of projects that serve border regions near Canada and Mexico and for high priority corridors throughout the United States. States and Metropolitan Planning Organizations are eligible for discretionary grants for corridor feasibility, corridor planning, multi-state coordination, environmental review, and construction under the NCPD program. Border states and MPOs are eligible for grants for transportation and safety infrastructure improvements, operation and regulatory improvements and coordination and inspection improvements in border regions under the CBI program. For further information see:

<http://www.fhwa.dot.gov/tea21/factsheets/border.htm>

Examples of approved rail and rail-related projects under National Corridor Planning and Development and Coordinated Border Infrastructure Program:

Blue Water Bridge (Michigan). Deployment of technology improvements on Blue Water Bridge, design of improvements to a nearby grade crossing and construction of a nearby truck cargo facility. National Corridor Planning and Development and Coordinated Border Infrastructure Program is providing \$1,200,000 in funding.

Port Elizabeth multimodal/intermodal corridor plan (New Jersey). Development of multimodal/intermodal corridor plan for rail and highway improvements in vicinity of Port Elizabeth, N.J., approximately parallel to the New Jersey Turnpike. National Corridor Planning and Development and Coordinated Border Infrastructure Program total project funding is \$1,000,000.

Intelligent Transportation Systems (New York - lead state). Technology and physical improvements to institute Intelligent Transportation Systems for expediting rail cargo at border crossings in Buffalo, N.Y.; Detroit; Port Huron, Mich.; and Ranier, Minn. National Corridor Planning and Development and Coordinated Border Infrastructure Program total project funding is \$1,000,000.

Multimodal trade corridor study of the I-5 corridor (Oregon - lead state). Multimodal trade corridor study of the I-5 corridor between Portland and Vancouver and vicinity from I-84 in Oregon to I-205 in Washington. The I-5 corridor serves the ports of Portland and Vancouver, the intermodal yards of the Union Pacific Railroad and the Burlington Northern and Santa Fe Railway, and the Portland International Airport. National Corridor Planning and Development and Coordinated Border Infrastructure Program total project funding is \$2,000,000.

Elk Vale Road Interchange (South Dakota). Construction of interchange, frontage roads and railroad underpass in Rapid City from State Route 79 south of the city to I-90 at the Elk Vale Road Interchange. National Corridor Planning and Development and Coordinated Border Infrastructure Program total project funding is \$3,000,000.

Freight Action Strategy (FAST) Corridor (Washington). Construction of a number of highway-rail grade separations and port access projects on the Freight Action Strategy (FAST) Corridor from Everett to Tacoma. National Corridor Planning and Development and Coordinated Border Infrastructure Program total project funding is \$10,000,000.

Transportation and Community and System Preservation Pilot Program

Total Funds: \$120 million authorized for fiscal years 1999 - 2003.

Eligibility: TCSP funds are used to help achieve locally determined goals such as improving transportation efficiency; reducing the negative effects of transportation on the environment; providing better access to jobs, services and trade centers; reducing the need for costly future infrastructure; and revitalizing underdeveloped and brownfield sites. Grants also can be used to examine urban development patterns and create strategies that encourage private companies to work toward these goals in designing new developments. For further information see FHWA's web site at:

<http://www.fhwa.dot.gov/tcsp> and at **<http://www.fhwa.dot.gov/tea21/factsheets/t-c-sp.htm>**.

Examples of approved rail and rail-related projects Transportation and Community and System Preservation Pilot Program:

Jonesboro - Caraway Rail realignment and Overpass Construction (Arkansas). This joint effort among partners including the City of Jonesboro, Arkansas State University, Arkansas Highway and Transportation Department and the Union Pacific Railroad and the Burlington-Northern Santa Fe Railway will relocate two main rail lines and a passing track, bringing them in

closer proximity to one another. Subsequent construction of an overpass to accommodate vehicular traffic will eliminate the current dangers associated with intermodal conflicts at the at-grade crossings, and the project will have a substantial impact on the future economic development and traffic patterns of a rapidly growing quadrant of the Jonesboro Metropolitan Statistical Area. Scale of the activity is limited to a small, but well-defined geographic area that has a substantial impact on the traffic patterns of several major thoroughfares. The entire population (more than 51,000) of the City of Jonesboro, along with commuter students and employees of the only four-year university in eastern Arkansas will be most significantly affected by the proposed alterations.

Marysville Grade Separation Impact Study (Kansas). Funds will be used to develop a comprehensive transportation project to alleviate problems in Marysville, Kansas, situated in north central Kansas on NHS Routes US-36 & US-77 and their interface with the Union Pacific Railroad. The highway traffic volume is about 6000 ADT and the crossing railroad volume consists of approximately 75 one-mile long trains per day. Both facilities transverse the center of this agricultural / small manufacturing community. Compounding the community's problems is a local river valley which persistently experiences flooding, in turn causing delays to freight on both the railroad and NHS route, preventing access to the business community by both emergency services (ambulance, fire, police), and by the local citizens.

North Jersey Planning Authority. TCSP funds will be used to facilitate the redevelopment of abandoned industrial brownfield sites by freight-related businesses at port, airport, and rail terminals in northern New Jersey. The project will conduct a market analysis, compile an inventory of promising brownfield sites, perform outreach to communities and carry out detailed case studies. The completed plan will address needed transportation access to brownfield sites and effectively market sites for freight related activities and provide new employment opportunities for urban residents, avert inefficient sprawl, reduce the volume of trucks on regional roads and safeguard the environment.

City of Martinsburg (West Virginia): Historic Baltimore & Ohio Roundhouse Renovation Project. \$300,000 in TCSP funds will be used to develop plans and specifications to renovate/restore the Historic Baltimore & Ohio Roundhouse complex. An intermodal operations center will be established to coordinate services in port commerce, commuter systems, commercial trade, travel and tourism. Highway, rail and air transportation systems in the inland intermodal port area will be related to the historic infrastructure in a manner which will enhance commerce, cultural/recreational opportunities, and transportation best practices. A Facility Use Plan will also be developed to chart the course for the complex's development and to provide direction to local officials and the community.

Transportation Enhancements Program

Total Funds: 10% set-aside of STP funds.

Eligibility: Transportation enhancements (TE) are transportation-related activities that are designed to strengthen the cultural, aesthetic, and environmental aspects of the nation's intermodal transportation system. The transportation enhancements program provides for implementation of a variety of non-traditional projects, ranging from the restoration of historic transportation facilities, to bike and pedestrian facilities, to landscaping and scenic beautification, and the mitigation of water pollution from highway runoff. Transportation enhancement activities

must relate to surface transportation. TEA-21 expands the definition of transportation enhancements eligibility to specifically include the following: provision of safety and educational activities for pedestrians and bicyclists, scenic or historic highway programs (including provision of tourist and welcome center facilities), environmental mitigation to address water pollution due to highway runoff or to reduce vehicle-caused wild-life mortality while maintaining habitat connectivity, and establishment of transportation museums. TEP encourages use of qualified youth conservation or service corps to perform appropriate TEP activities. For further information, see FHWA's web site at: <http://www.fhwa.dot.gov/tea21/factsheets/te.htm>

Examples of approved rail and rail-related projects under Transportation Enhancements Program:

Lehigh Valley Railroad Station Project (Pennsylvania). \$250,000 in Transportation Enhancement Program funds were used to rehabilitate the Lehigh Valley Railroad Station for use as a railroad museum and visitors information center.

Lemont Historic Rail Line rehabilitation (Pennsylvania). \$77,000 in Transportation Enhancement Program funds were used to replace 880 cross ties, 168 linear feet of switch ties, 640 linear feet of ditching, 100 track feet of line and surface raising, brush cutting and weed spraying of the road bed at Bellefonte Historical Railroad.

Muddy Creek Valley Railroad Restoration (Pennsylvania). \$325,000 in Transportation Enhancement Program funds were used for stream bank and erosion repair, rebuilding abutments, replacing steel stringers and other necessary improvements for upgrading the rail line that runs through the Muddy Creek Valley. Maryland and Pennsylvania Railroad Preservation Society and Authority are the lead agencies.

Lafayette Depot Plaza (Indiana). Enhancement funds are being used to supplement a project to relocate the historic Big Four Depot and restore it as the focal point of an intermodal civic plaza, with train and transit service. The project is an integral part of the relocation of the railroad line that serves the City of Lafayette. The relocated and renovated depot, surrounding plaza, elevators, platforms, and bus transfer island provide waiting, boarding, and administrative services for Amtrak, the local bus company, and Greyhound. The railroad relocation project began in the early 1970s. The current contract is the fifteenth since construction began in 1986. The sixteenth contract will restore the old corridor in 2001. In 2002, landscaping will be added in a final contract. When complete, 41 rail grade crossings will have been eliminated.

Light Density Rail Line Pilot Projects

Eligibility: The Light Density Rail Line Pilot Project was designed to allow the Secretary to fund pilot projects that demonstrate the relationship of light density railroad services to the statutory responsibilities of the Secretary related to rail and highway transportation. This program is not currently funded. For further information, see FHWA's web-site at: <http://www.fhwa.dot.gov/tea21/factsheets/r-ltdens.htm>

High-Speed Rail

Total Funds: The TEA-21 authorization covers fiscal years 1998-2001 and is a General Fund

authorization.

Eligibility: This high-speed rail program extends the life of an existing high-speed rail corridor planning and technology development program initiated under the Swift Rail Development Act of 1994. The program authorizes the Secretary to provide financial assistance: to public agencies for high speed rail corridor planning activities and certain other pre-construction activities, including right of way acquisition to any United States business, educational institution, state or local government, public authority, or Federal agency to support the development of high-speed rail technology improvements. For further information, see FRA's web-site at: <http://www.fra.dot.gov/o/hsgt/hsgt.htm> and FHWA's web-site at: <http://www.fhwa.dot.gov/tea21/factsheets/r-hghspd.htm>

Questions concerning rail opportunities under TEA-21 should be addressed to:

 **John N. Paoella, Director Industry Finance Staff, 202/493-6413,
Office of Policy and Program Development, FRA.**

omitted

Section 5

INTERCITY RAIL'S SOCIETAL AND ENVIRONMENTAL BENEFITS

This section describes rail transportation's environmental and societal benefits - public benefits that enhance the nation's economic well-being and quality of life. Attempts to value the public benefits of rail intermodal projects often become a major stumbling block for local and state officials. The public benefits of intercity freight and passenger rail systems and individual projects include unique contributions of congestion mitigation, environmental quality, energy savings, and land use. These benefits are discussed below and should be considered in project evaluation.

Public-Private Benefits of Rail - Overview

Railroads are private companies operating and maintaining their own rights-of-way and linked together to form a nationwide rail network -- a vital component of our integrated national transportation system. The freight and passenger rail systems link people and businesses in an energy efficient and environmentally sound manner.

In 1997, freight railroads in the United States carried 26.7 percent of all intercity tonmiles -- more than waterways, oil pipelines and air -- and close to the 27.8 percent of tonmiles carried by trucks. In Fiscal Year 1998, Amtrak provided service to 21.1 million intercity passengers and 54 million commuters carried under contract with local transit authorities.

When Congress passed ISTEA, it recognized the inherent values gained from an intermodal transportation system that can leverage the unique characteristics and advantages of each mode. Congress stated: "It is the policy of the United States to develop a National Intermodal Transportation System that is economically efficient and environmentally sound, provides the foundation for the Nation to compete in the global economy, and will move people and goods in an energy efficient manner."

Expansion of capacity in the transportation sector to meet economic growth needs will likely occur from better use of existing transportation assets, with greater emphasis on intermodal connections that maximize the particular advantages of each transportation mode.

Highways are effective feeders to the long-distance, high capacity rail system. A 1995 FHWA study of intermodal freight (Fact Sheet in Intermodal Freight Transportation, Volume 2), noted some benefits of rail/truck intermodal transportation: "An efficient, coordinated long-distance truck-rail-truck intermodal movement can be up to 3.4 times more fuel efficient than a non--intermodal truck movement while emitting only 20 percent as many hydrocarbons." The study also cited other benefits, such as lower transportation costs, reduced congestion, and higher returns from public and private infrastructure investments through greater use of intermodalism.

Congestion

Congestion on the nation's highways and airways costs billions of dollars each year in wasted fuel and lost time. The Department of Transportation has estimated that highway congestion in the nation's 50 largest cities costs motorists over \$40 billion annually, and airport delays impose another \$5 billion cost per year on airlines and passengers. Because provision of additional highway or air capacity is constrained by space, costs, and environmental opposition, multimodal strategies are needed to address the congestion problem.

Amtrak service in the Northeast Corridor alleviates congestion between Washington, D.C. and New York City, carrying about 45 percent of all common carrier passenger traffic each year. The recent completion of electrification from New Haven to Boston in the Northeast Corridor and addition of Amtrak's Acela express service in this market is expected to reduce congestion at airports in Boston, Providence, and New York. The improved electrified rail line also offers the opportunity to relieve overall highway congestion and specific bottlenecks, particularly in urban areas.

A 1989 General Accounting Office (GAO) Report, *Traffic Congestion: Trends, Measures, and Effects*, identified six forces that shape traffic congestion: 1) suburban development trends (movement of families, services, and jobs away from the central city and into suburban areas); 2) economic trends (changes in the employment base away from manufacturing and towards services, changes in communications technology, increases in the amount of discretionary travel, etc.); 3) labor force trends (the overall growth in the labor force and women entering the workplace); 4) automobile use trends (growing automobile availability and use); 5) truck traffic trends (greater use of trucks, increases in truck size and weight, and increasing numbers of heavy truck accidents); and 6) highway infrastructure trends (increasing traffic without a corresponding increase in infrastructure capacity).

The 1995 FHWA report cited above notes that intermodal freight transportation "offers the promise of . . . reducing the traffic on over stressed infrastructure, e.g. congested highways, to less congested modes. An intermodal truck to double-stack train to truck movement would displace approximately 200 trucks from the line-haul portion of the movement. Such a conversion would lessen congestion of the nation's highways."

Air Quality

Rail service plays a beneficial role in reducing air pollution emissions, helping urban areas meet air quality standards. Amtrak produces far less carbon monoxide (CO) than aircraft or automobiles. According to the October 1994 Final Environmental Impact Statement for the Northeast Corridor Improvement Project - Electrification- New Haven, CT to Boston, MA, electrification of rail passenger service in the Northeast Corridor from New Haven to Boston, is expected to further reduce CO emissions by five percent. Volatile organic compounds (VOC) emissions and nitrogen oxides (NOx) emissions (two ozone precursors) will be reduced by five percent and fifteen percent, respectively, as a result of diversion from other modes and the switch from diesel power to electric power. Commuters taking electrified rail passenger trains to work instead of single occupancy vehicles can reduce the NOx contribution to urban smog.

Very few comprehensive studies of freight emissions have been conducted. Emissions produced by moving freight can vary widely depending upon a variety of operational and logistical factors,

such as miles of travel, engine efficiency, and fuel use. For decision-making purposes, comparisons of rail and truck emissions should be made on a case-by-case basis, using the particular facts and circumstances of the freight movement being modeled. Calculations based on 1993 Environmental Protection Agency (EPA) emission data indicate that trucks emit more NOx, VOC, diesel particulates, and CO than rail to move the same amount of freight. Railroads are working closely with major locomotive manufacturers to develop advanced diesel technology (electronic fuel injection and enhanced turbo-charged air cooling) and alternative fuel engines to produce even fewer emissions.

Additionally, the U.S. Environmental Protection Agency's "Draft Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 - 1999" (January 2001) indicates transportation activities accounted for an almost constant 26 percent of total U.S. greenhouse gas emissions from 1990 to 1999. These emissions were primarily carbon dioxide (CO₂) from fuel combustion, which increased by 13 percent from 1990 to 1999. Rail and marine transportation combined contributed the least amount of the transportation sector's CO₂ emissions.

In order to better understand the air quality implications of intercity freight operations and potential emission control strategies, FRA, FHWA, and EPA jointly sponsored a study, Air Quality Issues in Intercity Freight, conducted by Cambridge Systematics, Inc. (See FRA's web site, at <http://www.fra.dot.gov/site/index.htm> under "Policy Studies"). The study, completed in 1997, identified tools and methods that can assist metropolitan and state planners in developing credible plans and analyses of freight emission reduction strategies in air quality non-attainment areas.

The Transportation Research Board (TRB) has completed the first phase of its study, "Development of a Multimodal Framework for Freight Transportation Investment: Consideration of Rail and Highway Trade-Offs". This research, performed by the Texas Transportation Institute, evaluates examples of transportation investment alternatives, focusing on rail-highway trade-offs in state rail program activities. While the focus is on direct costs, indirect costs, such as economic impacts, energy use, productivity, air quality, and safety impacts, are also considered. The continuation project 20-29 (02), "Development of a Computer Model for Multimodal, Multicriteria Transportation Investment Analysis", will assist state and local planners in making alternative modal investment decisions. The software will be available in late 2001. Contact Adrienne Archer at TRB, 202/334-3237 for information on these unpublished studies.

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Transportation Research Board's Special Report #246, "Paying Our Way: Estimating Marginal Social Costs of Freight Transportation", published in 1996, uses four case studies to explore the potential usefulness and feasibility of a comprehensive study of freight transportation to measure the subsidies provided to the freight modes and the external costs of freight transportation, such as air pollution, congestion, safety, and energy consumption. The study is available for \$16.00 from the TRB bookstore at <http://www.nationalacademies.org/trb/bookstore/>.

Noise

EPA has issued noise standards for the operation of locomotives and rail cars under moving conditions, as well as for four major rail yard noise sources: locomotive load cell test stands, switcher locomotives, car coupling operations, and retarders. Of interest to communities, the sounding of locomotive horns or whistles in advance of highway-rail grade crossings has been used as a universal safety precaution by railroads since the late 1800s. Since that time, in some locations across the United States, "Whistle Bans" have been established by local ordinance or through agreements with particular railroads.

However, studies have shown that highway-rail incidents are 62 percent more likely to occur at grade crossings where train horns are not sounded. In response to a law enacted by Congress in 1996, FRA has written a proposed rule requiring that train horns be sounded when a train approaches and enters a public highway-rail grade crossing unless certain exceptions are met to establish a quiet zone. Where grade crossings are eliminated or grade-separated, there will no longer be a train whistle issue. The proposed rule describes the safety measures that a community may employ to establish a quiet zone and yet deter drivers from taking risks at crossings. For additional information, see FRA's web site at: <http://www.fra.dot.gov/s/env/horns/index.htm>.

Energy

Railroads are fuel efficient, requiring less energy to move each passenger or ton of freight than virtually any other mode, because:

- Rigidity of a steel wheel on steel rail results in a low rolling resistance as compared to rubber-tired vehicles;
- Relatively flat roadbeds greatly reduce grade resistance (railroad grade changes are minimized, and energy expended to lift a train vertically can be recaptured as the train descends a grade); and
- Rail is currently the only transportation mode capable of large scale utilization of electric power for propulsion (power produced from a variety of non-petroleum sources). Electrified rail service daily transports thousands of passengers in the Northeast and Midwest.

Rail has demonstrated significantly lower energy consumption rates than other transportation modes in both passenger and freight service. According to the 1996 National Transportation Statistics report of the Department of Transportation, Bureau of Transportation Statistics, in 1993, the energy consumed in moving an Amtrak passenger averaged 1,995 British thermal units (Btu) per passenger-mile, about 58 percent of the energy required for the average automobile passenger (3,415 Btu per passenger-mile) and 45 percent of the Btu per-passenger-mile used by the average domestic airline passenger (4,446).

A 1991 study performed for the Federal Railroad Administration analyzed relative freight rail and truck fuel efficiency. The study, "Rail vs. Truck Fuel Efficiency", which was designed to compare fuel use for a variety of route/commodity combinations where rail and truck are competitive, found that rail achieved higher ton-miles per gallon than trucks, carrying similar commodities over 32 routes studied. Using computer simulations, the ratio of truck fuel use to rail fuel use ranged from 1.40 to 5.61 for these Class I railroad scenarios. For routes less than 100 miles, comparing regional/local rail and truck service, trucks used from 4.03 to 9.00 times more fuel than rail. As this study notes, it is futile to develop a single number to describe rail energy intensiveness. Specific routes, equipment, and loads must be considered, as well as fuel used in rail terminal operations and for drayage to and from the rail line. However, some rough comparisons have been made. For example, according to the U.S. Department of Energy's 1995 Transportation Energy Data Book, in 1993 rail moved 39 percent of U.S. freight ton-miles carried by truck, rail, and water yet consumed less than 12 percent of the total energy consumption required for movement of freight by these modes.

Land Use

Transportation facilities of all types require the dedication of substantial acreage, and expansion of facilities to relieve congestion or accommodate increased volumes of freight and passengers can be extremely expensive. For example, in Los Angeles, California, the Century Freeway, a 17.3 mile eight-lane project to add capacity and relieve congestion, cost \$2.2 billion (\$128 million per mile - including mitigation costs). In contrast, rail service can often expand within existing rights-of-way without additional land acquisition. Rail is also less land-intensive than highways, airports and related facilities, requiring less space to carry more passengers and freight.

Climate Change and Environmental Forecasting

The prospect of global warming caused by an increase in greenhouse gas emissions has become a major policy issue during the last decade. The transportation sector is currently responsible for approximately 26% of greenhouse gas emissions in the United States and is expected to be one of the fastest growing sources of greenhouse gas emissions in the foreseeable future, due to increased demand for motor gasoline, jet fuel, and diesel fuel. Therefore, in May 1999, DOT announced the formation of its Center for Climate Change and Environmental Forecasting. The DOT Center is dedicated to fostering awareness of the potential links between transportation and global climate change, and to formulating policy options to deal with the challenges of these links.

The Center is the focal point in the DOT of technical expertise on transportation and climate change. Through strategic research, policy analysis, partnerships and outreach, the Center creates comprehensive and multi-modal approaches to reduce transportation-related greenhouse gases and to mitigate the effects of global climate change on the transportation network. The Center's research projects include an assessment of the impacts of climate change upon transportation operations and infrastructure, a survey of available transportation greenhouse gas data and models that would aid analysis of new transportation policies or market changes on GHG emissions, and a review of activities being undertaken by states and localities to reduce greenhouse gas emissions through transportation planning.

For further information see the Center's website at: <http://www.dot.gov/climate>

TEA-21 Role in Transportation and the Environment

TEA-21 acknowledged the role of comprehensive planning in reducing the negative effects of transportation on the environment. The Transportation and Community and System Preservation Pilot program has encouraged innovative ideas and the formation of new partnerships to respond to the challenges inherent in making good decisions about the nation's transportation system, our communities, and the environment. Access to jobs, mitigation of traffic congestion, preservation of green space, and the need for a sense of community are just a few of the considerations that must be balanced as communities strive for strong, sustainable economic growth and a high quality of life.

Grants provided by TCSP support projects that strengthen linkages among transportation and community planning and system preservation practices. TCSP places a strong emphasis on evaluation and learning. The authorizing TEA-21 language explicitly recognizes that the complex set of relationships among transportation, land development, and the factors influencing community livability are not fully understood. Thus, research and individual grant evaluations to determine which transportation and community design practices are most successful are important elements of the TCSP program. The knowledge gained from TCSP will assist communities in developing and implementing their own transportation and community preservation practices.

The program recognizes the key role played by an effective planning process in successfully achieving these objectives. TCSP supports and enhances existing state and metropolitan planning processes by engaging a broad range of partners, including the general public and non-traditional partners, such as the business community, public health agencies, and private developers. TCSP projects will also add value to planning processes, by introducing greater consideration of the land development and community impacts of various transportation investment alternatives.

Summary

The major benefits of rail transportation can be summarized as follows: rail transportation, which in many areas has substantial capacity or can be expanded to handle additional passenger and freight traffic, has the potential to relieve highway and airway congestion while producing fewer harmful emissions, requiring little or no new land, and consuming less energy. Identifying the specific benefits associated with a rail or rail-related project is important for public agencies as they develop transportation plans, make infrastructure investment decisions, and negotiate public-private partnerships.

Questions concerning rail benefits should be addressed to:

**Stephen M. Grimm, Senior Program Analyst 202/493-6412,
Office of Policy and Program Development, FRA.**

Section 6

GRADEDEC 2000 - Grade Crossing Risk Assessment Tool

The Federal Railroad Administration developed the *GradeDec 2000* highway-rail grade crossing investment analysis tool as a stand-alone PC-software package to provide grade crossing investment decision support. *GradeDec 2000* provides a full set of standard benefit cost metrics for a rail corridor, a region, or an individual grade crossing. Model output allows a comparative analysis of grade crossing alternatives that are designed to mitigate highway-rail grade crossing accident risk and other components of user costs including highway delay and queuing, air quality, and vehicle operating costs.

GradeDec 2000 is intended to assist state and local transportation planners in identifying the most efficient grade crossing investment strategies. The *GradeDec 2000* modeling process can encourage public support for grade crossing strategies, including closure and separation, where project success often depends on getting the community involved in the early planning stages. *GradeDec 2000* computes model output using a range of values for many of the model inputs. This process allows individual stakeholders to influence how different investment options are weighed and evaluated.

GradeDec 2000 implements the corridor approach to reducing accident risk that was developed as part of TEA-21's Next-Generation High-Speed Rail Program. This approach can be an effective means of reducing the overall capital costs involved in constructing facilities for high-speed passenger rail service (at speeds between 111-125 miles per hour), where grade crossing hazards and mitigation measures can be a major cost factor.

The corridor approach can be used to demonstrate that acceptable levels of accident risk have been reached for all rail corridors, train types, and speeds. For example, exceptions to the proposed federal rule mandating whistle sounding at all highway rail-grade crossings can be made by showing that appropriate safety measures have been taken to mitigate the additional risk otherwise presented by trains not sounding their horns.

GradeDec 2000 uses simulation methods to analyze project risk and generate probability ranges for each model output, including benefit cost ratios and net present value. The software also analyzes the sensitivity of project risk to *GradeDec 2000* model inputs to inform users which factors have the greatest impact on project risk.

GradeDec 2000 can be downloaded from the Federal Railroad Administration's website at:

<http://www.fra.dot.gov/doc/pol/gradedec/index.htm> .

Web page users can e-mail FRA technical staff directly from the web page for assistance with operating the model. *GradeDec 2000* is also distributed by McTrans Center for Microcomputers in Transportation at the University of Florida.

Questions concerning *GradeDec 2000* should be addressed to:

**Karen McClure, Policy Analyst, 202/493-6417,
Office of Policy and Program Development, FRA.**

APPENDICES

Appendix 1

REFERENCES AND ADDITIONAL SOURCES

Listed by Section of Guide

Appendix 2

LIST OF CONTACTS

FRA, FHWA, and FTA

Appendix 3

PROGRAM CONTACTS AND INTERNET ADDRESSES

Appendix 1

REFERENCES AND ADDITIONAL SOURCES

SECTION 1:

References:

Executive Order 12873, Principles for Federal Infrastructure Investments, President William J. Clinton, January 28, 1994.

Intermodal Surface Transportation Efficiency Act of 1991, P.L. 102-240.

SECTION 2:

References:

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SECTION 4:

References:

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Further Guidance on the CMAQ Program, Memorandum from the Associate Administrator for Program Development, Federal Highway Administration, and the Associate Administrator for Planning, Federal Transit Administration, October 16, 1992.

Revised Guidance on the CMAQ Program, Memorandum from the Federal Highway Administrator and the Federal Transit Administrator, July 13, 1995.

Guidance Update on the CMAQ Program, Memorandum from the Associate Administrator for Program Development, Federal Highway Administration, and the Associate Administrator for Planning, Federal Transit Administration, March 7, 1996.

Additional Sources:

Innovative Financing Handbook, U.S. Department of Transportation, Federal Transit Administration, 1995.

Intermodal Technical Assistance for Transportation Planners and Policymakers, U.S. Department of Transportation, Office of Intermodalism, Office of the Secretary of Transportation, December 1994.

National Commission on Intermodal Transportation (NCIT) Toward a National Intermodal Transportation System, Final Report, September 1994.

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Revitalizing Intercity Passenger Rail Stations in Communities Across America, American Passenger Rail Coalition, August 1996.

SECTION 5:

References:

Intermodal Freight Transportation, Volumes 1 and 2, Cambridge Systematics, Inc. with Apogee Research, Inc., Jack Faucett Associates, and Sydec, Inc., for the U.S. Department of Transportation, Federal Highway Administration, December 1995.

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Appendix 2

LIST OF CONTACTS

Federal Railroad Administration - Office of Policy and Program Development

Jane H. Bachner, Deputy Associate Administrator for Industry and Intermodal Policy 202/493-6405

John N. Paoella, Director, Industry Finance Staff, 202/493-6413

Robert E. Martin, Director, Intermodal Planning and Economics Staff, 202/493-6407

Stephen M. Grimm, Senior Program Analyst, Environmental Policies 202/493-6412

Karen McClure, Policy Analyst, Office of Policy and Program Development 202/493-6417

Alexandra Newcomer, Program Analyst, Office of Policy and Program Development, 202/493-6394

Federal Highway Administration

Max I. Inman, Chief, Financial Management Division, Office of Fiscal Services, 202/366-2853

Jill Hochman, Director, Intermodal and Statewide Programs Division, 202/366-0233

Michael Savonis, Team Leader, Air Quality Policy, Office of Natural Environment, 202/366-2080

Federal Transit Administration

Richard Steinmann, Director, Office of Policy Development, 202/366-4060

Paul Marx, Office of Policy Development, 202/366-1675

Appendix 3

Links to U.S. Department of Transportation TEA-21 Program Fact Sheets

National Highway System (NHS). U.S. Department of Transportation, Federal Highway Administration, August 2000. <http://www.fhwa.dot.gov/tea21/factsheets/nhs.htm>

Surface Transportation Program (STP) U.S. Department of Transportation, Federal Highway Administration, August 2000. <http://www.fhwa.dot.gov/tea21/factsheets/stp.htm>

Congestion Mitigation and Air Quality (CMAQ) Improvement U.S. Department of Transportation, Federal Highway Administration, August 2000. <http://www.fhwa.dot.gov/tea21/factsheets/cmaq.htm>

Transportation Infrastructure Finance and Innovation Act (TIFIA) U.S. Department of Transportation, Federal Highway Administration, August 2000. <http://www.fhwa.dot.gov/tea21/factsheets/tifia.htm>

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Transportation, Federal Highway Administration, August 2000.*
<http://www.fhwa.dot.gov/tea21/index.htm>

The following is a list of the above TEA-21 programs and their DOT staff contact:

<i>Program Areas</i>	<i>Staff Contact</i>
<i>National Highway System</i>	<i>(FHWA) Bob Gorman, 202.366.5001</i>
<i>Surface Transportation Program (STP) General Grant</i>	<i>(FHWA)</i>
<i>Congestion Mitigation and Air Quality Improvement</i>	<i>(FHWA) Mike Savonis, 202.366.2080</i>
<i>Transportation Infrastructure Finance and Innovation Act (TIFIA)</i>	<i>(FHWA) Bryan Grote 202.366.9656</i>
<i>Railroad Rehabilitation and Improvement Financing (RRIF)</i>	<i>(FRA) Joanne McGowan 202.366.6390</i>
<i>National Corridor Planning and Development and Coordinated Border Infrastructure Program</i>	<i>(FHWA) Martin Weiss, 202.366.5010</i>
<i>Transportation and Community and System Preservation Pilot Program (TCSP)</i>	<i>(FHWA) Elizabeth Fischer 202.366.0106</i>
<i>Federal Matching and Flexibility</i>	<i>(FHWA) Max Inman, 202.366.2853</i>
<i>Transportation Enhancements Program</i>	<i>(FHWA) Harold Peaks, 202.366.1598</i>
<i>High-Speed Rail</i>	<i>(FRA) Robert McCown 202.493-6350 and John F. Cikota 202.493-6364</i>

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