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AA	Ann Arbor Railroad
AA/DEIS	Alternatives Analysis/Draft Environmental Impact Statement
ADBF	Adrian and Blissfield Railroad
Amtrak	National Passenger Railroad Corporation
ARRA	American Reinvestment and Recovery Act of 2009
BTU	British Thermal Unit
CHS	Charlotte Southern Railroad
CMAQ	Congestion Mitigation and Air Quality Management
CMR	Coopersville and Marne Railroad
CN	Canadian National Railway
CNT	Center for Neighborhood Technology
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CP/SOO	Canadian Pacific Railway/Soo Line
CRG	Continental Rail Gateway
CSAO	Conrail Shared Assets Operations
CSX	CSX Corporation
CTF	Michigan Comprehensive Transportation Fund
DCON	Detroit Connecting Railroad
DCRR	Delray Connecting Railroad
DEQ	Michigan Department of Environmental Quality
DIFT	Detroit Intermodal Freight Terminal
DRTP	Detroit River Tunnel Project
ELS	Escanaba and Lake Superior Railroad
EPA	United States Environmental Protection Agency
FAF3	Federal Highway Administration 2010 Freight Analysis Framework
FEDP	Freight Economic Development Program
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FSSD	Freight Services and Safety Division
GARVEE	Grant Anticipation Revenue Vehicle Bonds
GDLK	Grand Elk Railroad
GLC	Great Lakes Central Railroad

GR	Grand Rapids Eastern Railroad
HESR	Huron and Eastern Railway
HSIPR	FRA High-Speed and Intercity Passenger Rail program
HSR/IPA	Michigan Office of High Speed Rail & Innovative Project Advancement
IMPLAN	Impact Analysis for Planning
IN	Indiana Northeastern Railroad
IORY	Indiana and Ohio Railway
IRS	Internal Revenue Service
JAIL	Jackson and Lansing Railroad
LGCP	Local Grade Crossing Program
LIRR	Lapeer Industrial Railroad
LSI	Lake Superior and Ishpeming Railroad
LSRC	Lake State Railway
MAL	Michigan Air-Line Railway
MDNR	Michigan Department of Natural Resources
MDOT	The Michigan Department of Transportation
MiRLAP	Michigan Rail Loan Assistance Program
MMRR	Mid-Michigan Railroad
MQT	Marquette Rail
MSO	Michigan Southern Railroad
MSR	Michigan Shore Railroad
MWRRI	Midwest Regional Rail Initiative
NEPA	National Environmental Policy Act
NOFA	notices of funding availability
NOx	Oxides Of Nitrogen
NS	Norfolk Southern Corporation
O-D	Origin-Destination Pairs
P3	Public-Private Partnership
PIIF	Private Infrastructure Investment Financing
PNRP	Preliminary National Rail Plan
PRIIA	Passenger Rail Investment and Improvement Act of 2008 (PL 110-432)
RRIF	Railroad Rehabilitation and Improvement Financing
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act - A Legacy For Users (PL 109-59, 2005)
SBS	Saginaw Bay Southern Railway

SEMCOG	The Southeast Michigan Council of Governments
SLRP	State Long-Range Transportation Plan
SOx	Sulfur Oxides
STB	Surface Transportation Board
STP	Surface Transportation Program
TEP	Transportation Enhancement Program
TF2	Michigan Transportation Funding Task Force
TIFA	Tax Increment Financing Authorities
TIFIA	Transportation Infrastructure Finance and Innovation Act
TIGER	Transportation Investment Generating Economic Recovery Grant Program
TOD	Transit Oriented Development
TREDIS	Transportation Economic Development Impact System
VHT	Vehicle Hours Traveled
VMT	Vehicle Miles Traveled
VOCs	Volatile Organic Compounds
WALLY	Washtenaw Livingston Rail Line
WMI	West Michigan Railroad

1 Introduction and Vision

The Michigan Department of Transportation (MDOT) has prepared this State Rail Plan to guide the development of the rail system and rail services in Michigan. This State Rail Plan identifies current and future needs of the system and considers and defines public policies that will encourage and enable ongoing investments to the system to support future needs. This Plan meets the state rail planning requirements included in the federal Passenger Rail Investment and Improvement Act of 2008 (Public Law 110-432) (PRIIA) and will help assure that Michigan is positioned to obtain federal funding for rail projects.

The Plan is based on the understanding that the maintenance and expansion of rail service is critical to the economic well-being of the citizens and businesses of Michigan. Railroads play a major role in the movement of freight within and throughout the state and provide vital connections to the global marketplace. Because rail access is essential to many companies, improved rail service provides an important tool in Michigan's business development efforts. Passenger rail service provides an alternative for traveling between major economic centers and helps to promote commerce and economic development, particularly in the areas adjacent to stations.

In 2009, rail moved 33 percent of Michigan's overall freight tonnage, accounting for $41.4 billion in commodities (in 2010 dollars).

Detailed technical analyses can be found in separate Technical Memoranda which are posted on MDOT's Web site at www.michigan.gov/mirailplan, along with other Plan-related documentation. Information from the Technical Memoranda reflects the most current information and responds to comments received during the course of the project from stakeholders and the general public. The Technical Memoranda will be updated as needed to qualify present and future project components for funding applications to the Federal Railroad Administration (FRA).

The Plan and its supporting Technical Memoranda are intended to be living documents subject to modifications and improvements that will reflect changes to projects and federal and regional programs that enhance rail services.

The development of the Plan included extensive involvement by the private sector, public officials, key stakeholders and the general public. This State Rail Plan is also consistent with the Michigan Long-Range Transportation Plan, which was completed by MDOT in 2007. The State Rail Plan further takes into account plans for other transportation modes, including public transit, highways, marine and air services.

The rail system has long played a significant role in the movement of freight in Michigan. According to the Freight Analysis Framework (FAF3), 33 percent of Michigan's overall freight tonnage was moved by rail in 2009; this accounts for approximately $41.4 billion in commodities (in 2010 dollars)[1]. Michigan

[1] In order to provide a complete picture of Michigan's freight system, this Plan and its related Technical Memoranda refer to data reported by various sources in different years. There are tables and references in the various reports that may differ somewhat from the summary Freight Analysis Framework (FAF3) 2009 numbers in cases where FAF3 data could not provide the desired detail and an alternative source was used.

had the 12th highest number of track miles in the country in 2008, and plays a key role as an international gateway for rail services between the United States and Canada.[2] In recent years, Michigan has experienced a dramatic increase in ridership on the intercity passenger rail services operated in the state by Amtrak.

During 2008 and 2009, major new federal funding support emerged for intercity passenger rail, which has fueled a regional and national resurgence of interest in high-speed rail. Michigan has been an active participant in the Midwest Regional Rail Initiative (MWRRI), a cooperative effort by nine states to develop a network of high-speed rail service focused on a central hub in Chicago. Increased passenger rail services as proposed by MWRRI would provide a huge potential economic benefit for Michigan. Reports prepared as part of MWRRI[3] demonstrate that high-speed rail would generate $2.3 to $3.5 billion dollars worth of benefits to Michigan users in the form of time savings, congestion relief and emission reductions. In addition, the implementation of high-speed rail as proposed by MWRRI is expected to create more than 1,500 permanent jobs and provide opportunities for growth around stations.

The Chicago-Detroit/Pontiac corridor is a key component of the MWRRI network, and the success of this corridor will ultimately be dependent on having fast, frequent and reliable service to Chicago and other major cities in the Midwest. The MWRRI Plan has determined that a high-capacity, high-speed rail transportation network is not only desirable, but affordable and even preferable as fuel prices rise and larger volumes of travelers shift to available rail services.

Michigan has a long history of making investments to ensure the preservation and enhancement of its rail network.

Michigan has a long history of making investments to ensure the preservation and enhancement of its rail network. The State Transportation Preservation Act of 1976 provided a mechanism for the state to protect its rail service, and Michigan was able to maintain rail service on over 900 miles of rail lines that had been threatened with abandonment. The state still owns 530 miles of active rail lines which are operated under contract by regional and short-line railroads. The continuation of rail service on these state-owned lines has provided an economic life-line to the communities and businesses that are located adjacent to these lines.

The state has been able to maintain rail service with relatively modest federal and state grant and loan programs. Funds have been available to make improvements to at-grade crossings and to provide support for economic development projects that have a rail component. Michigan also has developed a program to support passenger rail service. The state provides operating subsidies for two Amtrak routes in the state (Pere Marquette and Blue Water) and makes infrastructure improvements to the lines on which those trains operate.

With the enactment of PRIIA in 2008, the federal government for the first time provided an authorization for a significant level of funding for passenger rail projects. In 2009, the American Reinvestment and Recovery Act (ARRA) appropriated $8 billion for passenger rail projects throughout the country. This

[2] Association of American Railroads, State Rankings, 2008.
[3] Economic Impacts of the Midwest Regional Rail System, Transportation Economics and Management Systems, Inc. and HNTB, November 2006.

was followed up with an additional appropriation of over $2 billion in 2010. These actions at the federal level have set off a lively national competition for current and potential future funding.

Michigan has received over $400 million in federal passenger rail grant funds since 2009.

Michigan has successfully applied for federal funding, securing $43.1 million for station improvement projects in Troy, Dearborn, Battle Creek and Ann Arbor, $346.5 million to acquire and upgrade the passenger rail corridor between Kalamazoo and Dearborn, $9.4 million for construction of the West Detroit Junction project, and $3.2 million for high-speed rail corridor planning. In addition, over $200 million in federal funds have been awarded to projects in Illinois and Indiana that are on the Chicago-Detroit/Pontiac high-speed rail corridor, and $32 .9 million was awarded to Amtrak for improvements to the section of corridor it owns between Porter, IN and New Buffalo. Michigan intends to continue to pursue federal funding for passenger rail improvement projects, and the adoption of this State Rail Plan is an essential ingredient for the success of that effort.

The State Rail Plan establishes the following:

- A *long-term vision* for Michigan's rail system, consisting of an integrated freight and passenger rail network, as part of a balanced statewide transportation system as defined in MDOT's State Long-Range Transportation Plan;
- A *recommended program of priority improvements* over the next 20 years, including an estimate of investments needs and benefits resulting from those investments;
- Recommended potential *approaches to financing these improvements*, including accessing federal funds, public/private partnerships, and alternative financing mechanisms; and
- Other suggested changes, including refinements to existing state rail programs, and institutional responsibilities for rail service and infrastructure development.

1.1 Historical Highlights of Rail in Michigan

The history of railroads in Michigan can be traced to 1825.[4] Twelve years prior to Michigan achieving statehood, a half-mile of private railroad line was constructed in Monroe, Mich. Initially railroads were horse-powered, with the first steam locomotive being placed into service in Michigan in 1837. By the time Michigan became a state in 1837, 23 private railroad companies had already been chartered. By 1840, 104 miles of railroad track had been laid in the state, but the pace of railroad development quickly accelerated. In 1871, 559 miles of new track were laid, the most to be laid in a single year in the state's history.

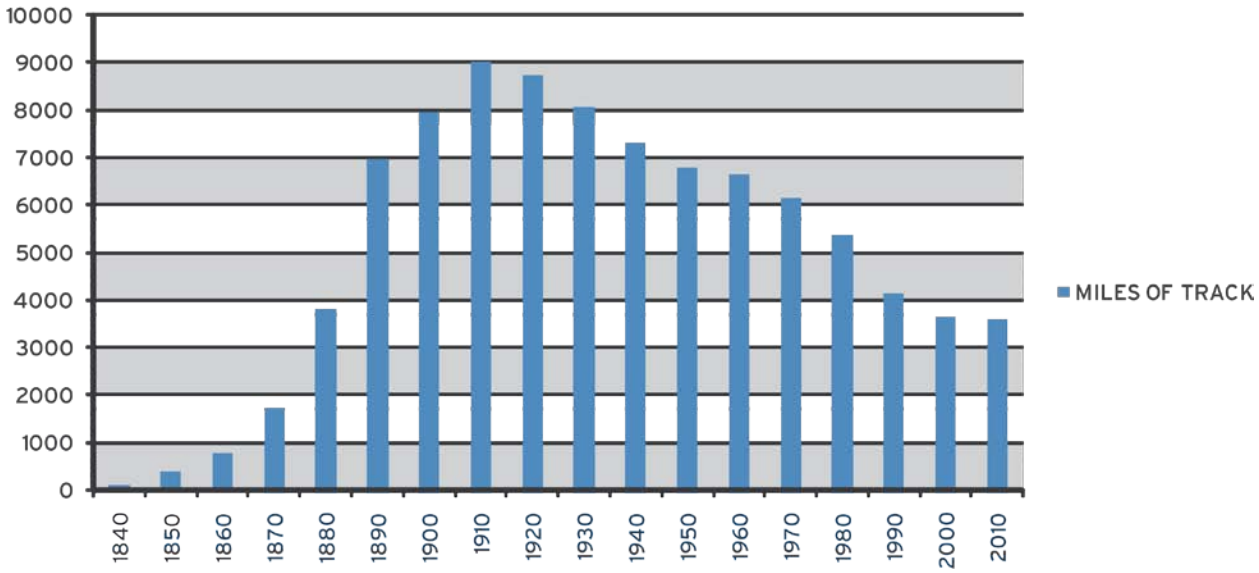
The number of active railroad depots in the state peaked at 1,776 in 1905. In 1909, total miles of active railroad track also reached their peak at 9,059 miles. In that same year, 81,695 persons were employed on "steam lines" in the state. **Figure 1.1** provides a timeline from the inception of rail service to the present day, reflecting growth of the railroad network through approximately 1910, and its gradual decline since, as the advent of the gas-powered engine enabled other forms of transport to begin competing with railroads for a share of both freight and passenger transportation demand. In 2010, Michigan's active

[4] 150 Years of Michigan's Railroad History, Michigan Department of Transportation, 1987.

railroad system was reduced to approximately 3,900 miles of track, a decline of almost 60 percent from its peak in 1909.

Despite the decline in overall system miles, rail traffic has increased in the last century and the rail system continues to serve a vital role in Michigan's transportation network.

Figure 1.1: Miles of Railroad Track in Michigan by Decade, 1840 to 2010



1.2 An Overview of Rail in Michigan Today

Michigan's freight and passenger rail system is part of a multi-modal transportation system with a diverse mix of facilities in both public and private ownership. Michigan has an extensive rail system, ranking 12th nationally in the number of miles of track in 2008.[5] Michigan also has a long history of Amtrak and state-supported intercity passenger rail service and is one of 15 states that contract with Amtrak for the operation of trains that supplement frequencies and/or extend service beyond the national system.

There are approximately 3,900 miles of freight railroad track within the State of Michigan operated by 24 freight railroads including four class one railroads, two regional railroads and 15 short-line railroads.

There are approximately 3,900 miles of freight railroad track within the State of Michigan operated by 24 freight railroads including four class one railroads, two regional railroads and 15 short-line railroads (See **Table 2-1**). There are 530 miles of active track and 10 miles of inactive track owned by the State of Michigan. According to the current Federal Highway Administration Freight Analysis Framework (FAF3), 33 percent of Michigan's overall freight tonnage was moved by rail in 2009; this accounts for approximately $41.4 billion in commodities (in 2010 dollars).

[5] Association of American Railroads, State Rankings, 2008.

Intercity passenger rail service in Michigan is provided by Amtrak in three major corridors: Chicago-Detroit/Pontiac (Wolverine Service), Chicago-Grand Rapids (Pere Marquette Service) and Chicago-Port Huron (Blue Water Service). These three corridors are served by 22 stations. The Chicago-Detroit/Pontiac corridor is a federally designated high-speed rail corridor. This corridor contains the only segment of track outside the Northeast Corridor that is owned by Amtrak (97 miles between Kalamazoo and Porter, Ind.) and designed to allow train speeds up to 110 miles per hour (mph). Amtrak trains currently operate at maximum speeds of 95 mph in this section and are expected to increase to 110 mph by August 2011. In 2010, approximately 776,000 riders boarded or alighted from trains at Amtrak stations in Michigan.[6]

1.3 The Benefits of Rail in Michigan

Passenger and freight rail service in Michigan provides significant economic and environmental benefits to the state, which are briefly summarized here and addressed in further detail in Chapter 6 of this Plan.

1.3.1 Economic Benefits

Efficient freight and passenger rail service provides important economic development benefits to Michigan communities. Industrial development can be thwarted by the lack of freight rail service. Freight rail service is a key location factor for many new companies seeking to locate or expand in Michigan.

Passenger and freight rail service in Michigan provides significant economic and environmental benefits to the state.

Enhanced passenger rail service can provide important economic development benefits to Michigan communities by providing improved accessibility, connectivity and travel efficiency. An economic impact analysis has been prepared for the MWRRI Plan which recommends 110 mph high-speed rail service in the Chicago-Detroit/Pontiac corridor and enhanced service in other Michigan corridors. This analysis estimates that improved passenger rail service in Michigan will result in 6,970 new permanent jobs, $680 million in increased property values around Michigan stations and a $138 million increase in annual household income statewide.[7]

1.3.2 Environmental Benefits

Rail service provides important environmental benefits to Michigan residents. Rail can move freight three times more efficiently than trucks on a per ton-mile basis. The U.S Environmental Protection Agency (EPA) estimates that a typical freight train emits only one-third the pollution of a truck on a ton-mile basis. Transportation by rail saves approximately $266 million annually in pavement damage and reduces truck congestion on Michigan roadways.[8]

Passenger rail travel has similar environmental benefits. Data from the Oak Ridge National Laboratory indicates that intercity passenger rail consumes 17 percent less energy per passenger mile than airlines

[6] http://mdotwas1.mdot.state.mi.us/public/railstats

[7] Economic Impacts of the Midwest Regional Rail System, Transportation Economics and Management Systems, Inc. and HNTB, November 2006.

[8] American Association of Short-Line Railroads, utilizing a Texas Transportation Institute formula, 2005.

and 21 percent less energy per passenger mile than autos.[9] Intercity passenger rail produces 60 percent fewer carbon dioxide (CO_2) greenhouse gas emissions per passenger mile than the average auto and about half (50 percent) of the greenhouse gas emissions per passenger mile of an airplane. Intercity passenger rail also generates fewer emissions per passenger mile of other pollutants such as oxides of nitrogen (NOx), volatile organic compounds (VOCs) and carbon monoxide (CO).[10]

Intercity passenger rail service provides "downtown to downtown" connectivity that encourages urban infill and downtown redevelopment. This type of "transit-friendly" development is more energy efficient, resulting in fewer harmful emissions and the ability to more efficiently provide urban services than in areas of low-density suburban "sprawl."

1.4 Federal Requirements

The Passenger Rail Investment and Improvement Act of 2008 (PRIIA) encourages states to develop statewide rail plans to set policy involving freight and passenger rail transportation within their boundaries, establish priorities and implementation strategies to enhance rail service in the public interest, and serve as the basis for federal and state rail investments within the state. PRIIA requires that a state have a current approved statewide rail plan in place to receive funding for capital investment grants to support intercity passenger rail service and high-speed rail corridor development grants.

As defined in Section 303 of PRIIA, the purposes of a State Rail Plan are:

This Michigan State Rail Plan meets all federal requirements.

- To set forth state policy involving freight and passenger rail transportation, including regional/ commuter rail operations, in the state.
- To establish the period covered by the State Rail Plan.
- To present priorities and strategies to enhance rail service in the state that benefits the public.
- To serve as the basis for federal and state rail investments within the state.

Section 303 of PRIIA provides specific requirements for elements that are to be included in a state rail plan. State rail plans are to address a broad spectrum of issues, including:

- An inventory of the existing rail transportation system and rail services and facilities within the state and an analysis of the role of rail transportation within the state's surface transportation system.
- A review of all rail lines within the state, including proposed high-speed rail corridors and significant rail line segments not currently in service.
- A statement of the state's passenger rail service objectives, including minimum service levels, for rail transportation routes in the state.
- A general analysis of rail's transportation, economic, and environmental impacts in the state, including congestion mitigation, trade and economic development, air quality, land use, energy use, and community impacts.

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[9] Oak Ridge National Laboratory, Transportation Energy Data Book, Edition 26, 2007.
[10] "Vision for the Future – U.S. Intercity Passenger Rail Network Through 2050", prepared for the National Surface Transportation Policy and Revenue Study Commission, December 2007.

- A long-range rail investment program for current and future freight and passenger infrastructure in the state that includes:
    - A list of any rail capital projects expected to be undertaken or supported in whole or in part by the state.
    - A description of the public and private benefits of each project.
    - A statement of the correlation between public funding contributions for the projects and the public benefits.
    - A detailed funding plan for those projects that identifies both public (federal, state and local) and private sources of funds.

This Michigan State Rail Plan fully meets all of these federal requirements. **Table 1.1** identifies which section of this State Rail Plan addresses each specific federal requirement.

Table 1.1: Michigan State Rail Plan Compliance with Federal Rail Plan Requirements

Federal Requirements	Michigan State Rail Plan Section
GENERAL REQUIREMENTS:	
1) Inventory of the existing rail transportation system and rail services and facilities within the State and an analysis of the role of rail transportation within the State's surface transportation system	Section 2
2) Review of all rail lines within the State, including proposed high-speed rail corridors and significant rail line segments not currently in service	Section 2
3) Statement of the State's passenger rail service objectives, including minimum service levels, for rail transportation routes in the State.	Section 1.6
4) General analysis of rail's transportation, economic, and environmental impacts in the State, including congestion mitigation, trade and economic development, air quality, land-use, energy-use, and community impacts.	Section 6
5) Long-range rail investment program for current and future freight and passenger infrastructure in the State that meets the requirements of subsection (b).	Section 5
6) Statement of public financing issues for rail projects and service in the State, including a list of current and prospective public capital and operating funding resources, public subsidies, State taxation, and other financial policies relating to rail infrastructure development	Section 5.3
7) Identification of rail infrastructure issues within the State that reflects consultation with all relevant stakeholders.	Section 5 Section 4 (Outreach) Tech Memo #5
8) Review of major passenger and freight intermodal rail connections and facilities within the State, including seaports, and prioritized options to maximize service integration and efficiency between rail and other modes of transportation within the State.	Section 2.2 (freight) Section 2.4 (Passenger)
9) Review of publicly funded projects within the State to improve rail transportation safety and security, including all major projects funded under section 130 of title 23	Section 2.5

Table 1.1: Michigan State Rail Plan Compliance with Federal Rail Plan Requirements (Continued)

Federal Requirements	Michigan State Rail Plan Section
10) Performance evaluation of passenger rail services operating in the State, including possible improvements in those services, and a description of strategies to achieve those improvements.	Section 2.4 Section 5
11) Compilation of studies and reports on high-speed rail corridor development within the State not included in a previous plan under this subchapter, and a plan for funding any recommended development of such corridors in the State.	Section 2.6
12) Statement that the State is in compliance with the requirements of section 22102	Cover Letter
LONG-RANGE SERVICE AND INVESTMENT PROGRAM:	
1) PROGRAM CONTENT:	
(A) List of any rail capital projects expected to be undertaken or supported in whole or in part by the State.	Section 5.3 Tech Memo #3
(B) Detailed funding plan for those projects.	Section 5.4
2) PROJECT LIST CONTENT:	
(A) Description of the anticipated public and private benefits of each project	Section 6
(B) Statement of the correlation between public funding contributions for the projects and the public benefits	Section 6.2
3) CONSIDERATIONS FOR PROJECT LIST:	
(A) Contributions made by non-Federal and non-State sources through user fees, matching funds, or other private capital involvement	Section 6.2
(B) Rail capacity and congestion effect	Section 6.1
(C) Effects on highway, aviation, and maritime capacity, congestion, or safety	Section 6.1
(D) Regional balance	Section 6.2
(E) Environmental impact	Section 6.1
(F) Economic and employment impacts	Section 6.3
(G) Projected ridership and other service measures for passenger rail projects	Section 6.3

The State Rail Plan must be coordinated with other state transportation planning programs and clarify long-term service and investment needs and requirements. States also are directed to review the freight and passenger rail service activities and initiatives by regional planning agencies, regional transportation authorities, and municipalities within the state, or in the region in which the state is located, while preparing the Plan, and to include in the Plan any recommendations made by such agencies, authorities, and municipalities as deemed appropriate by the state.

States are required to provide adequate and reasonable notice and opportunity for comment and other input to the public, rail carriers, commuter and transit authorities operating in, or affected by rail

operations within the state, units of local government, and other interested parties in the preparation and review of its State Rail Plan.

PRIIA also directs the Administrator of the Federal Railroad Administration (FRA) to develop a Preliminary National Rail Plan (PNRP or Preliminary Plan) to address the rail needs of the nation. The FRA also was directed to provide assistance to states in developing their State Rail Plans to ensure that the federal long-range National Rail Plan is consistent with approved State Rail Plans. The traditional role of the FRA has been to promote and oversee railroad safety, and safety remains a focus. PRIIA gave the FRA additional broad responsibilities to administer and manage grants for rail transportation projects.

1.5 A Vision for Michigan Rail Service

In light of the benefits summarized above, Michigan's vision for passenger and freight rail service is:

> *A rail system that provides **enhanced mobility** for travelers and the **efficient movement** of goods, while supporting **economic development** and **environmental sustainability**.*

1.6 Goals and Objectives

Based upon this vision, the findings and recommendations of the Michigan State Rail Plan are driven by six major goals. Several measurable objectives have also been identified, to support each goal.

Goal 1: Promote the Efficient Movement of Passengers

Objectives:

a. Provide new and enhanced passenger rail service to Michigan communities and travelers as an efficient and cost-effective mobility alternative.
b. Reduce travel times through increased speeds and reduced delays.
c. Increase service frequencies.
d. Improve reliability and performance.
e. Improve traveler efficiency and comfort by providing amenities such as food service, internet connectivity, 110-volt power for electronic devices, and video information displays onboard and at stations.
f. Increase passenger rail accessibility to low-income, elderly and special needs groups that have limited access to auto and other modes.

Goal 2: Promote the Efficient Movement of Freight

Objectives:

a. Encourage frequent, reliable and efficient freight rail service to communities, businesses and shippers that do not have rail service or are under-served.
b. Provide public investments for railroad projects where public benefits exceed public costs.
c. Pursue public/private partnerships to improve service and reduce freight rail congestion.
d. Identify corridors where 286,000-pound rail car load capacity is needed based on market demand.
e. Identify corridors where 315,000-pound rail car load capacity is needed based on market demand.

Goal 3: Encourage Intermodal Connectivity

Objectives:

a. Support the development of intermodal freight facilities which will provide seamless connectivity between rail and truck and water modes. Focus on facilities that have the greatest potential to increase the efficiency and accessibility of the rail mode and provide lower transportation costs for shippers.
b. Support the connectivity of Michigan passenger rail service to other corridors regionally, nationally, and internationally, to maximize network benefits in terms of increased ridership, revenues and passenger mobility.
c. Support intermodal connectivity between intercity passenger rail and other passenger modes including air, local transit, auto, intercity bus, and non-motorized transportation. Focus on intermodal investments that have the most potential to increase the efficiency of rail and provide greater accessibility to travelers, including those with special needs and limited access to automobile transportation.

Goal 4: Enhance State and Local Economic Development

Objectives:

a. Provide enhanced passenger rail service to Michigan communities as a part of an overall economic development strategy to increase employment, household incomes and property values based on the increased accessibility and mobility provided by the rail mode.
b. Promote state policies and programs to provide increased freight rail service to Michigan communities and businesses as a means of increasing their attractiveness for the expansion of existing businesses and the recruitment of new businesses.
c. Promote freight rail service, infrastructure improvements, and intermodal connectivity to increase the efficiency of freight rail service and to lower transportation costs for Michigan businesses.
d. Encourage the preservation of critical rail transportation corridors that are in danger of abandonment to ensure their continued availability for future ground transportation uses.

Goal 5: Promote Environmental Sustainability

Objectives:

a. Support enhanced freight and passenger rail service as a part of an overall state energy conservation policy and to protect Michigan travelers and shippers from the adverse mobility and economic impacts of expected increases in future transportation energy costs.

b. Support enhanced freight and passenger rail service as a means of enhancing environmental sustainability through reduced emissions per ton and passenger-mile.
c. Develop multi-modal transportation plans that recognize the role intercity passenger rail service can play in supporting local land use plans that encourage downtown development, redevelopment and infill. Plan for passenger rail service in a manner that encourages the benefits that these and other forms of "transit-friendly" development offer in terms of lower emissions, less energy consumption, and the efficient provision of public services.

Goal 6: Promote Safe and Secure Railroad Operations

Objectives:

a. Promote rail and highway safety by improving grade crossing surfaces and warning devices and pursuing road closures and grade separations where appropriate.
b. Promote the safe transportation of hazardous materials via railroads.
c. Promote efforts to enhance security of passenger and freight railroad operations, particularly for freight trains crossing the border between Canada and the United States.

1.7 Organization of the Plan

This Michigan State Rail Plan consists of the following chapters:

- **Existing Conditions**, which provides a profile of the existing freight and passenger rail systems, a summary of relevant federal and state funding programs, and a summary of relevant previous studies.
- **Organizational Opportunities**, which provides information on public/private partnerships, divestiture requirements and opportunities, and institutional guidance.
- **Outreach Activities**, summarizing public participation and stakeholder involvement in preparing the Plan.
- **Identification of Investment Needs**, which discusses development of potential projects and programs, packages of projects evaluated and unmet needs.
- **Analysis of Benefits**, which describes the criteria used to evaluate the project investment packages and potential environmental and economic benefits of rail system investment.
- **Recommendations**, which summarizes the recommended projects, funding sources and next steps for Plan implementation.

A series of Technical Memoranda have been prepared, which provide further background information and detail regarding these topics. They are as follows:

- Technical Memorandum #1: Vision, Goals and Objectives (January 2011)
- Technical Memorandum #2: Existing Conditions (March 2011)
- Technical Memorandum #3: List of Projects (June 2011)
- Technical Memorandum #4: Institutional Considerations (May 2011)
- Technical Memorandum #5: Public Outreach (August 2011)

As previously noted, these technical analyses can be found on the MDOT Web site at www.michigan.gov/mirailplan along with other Plan-related documentation.

2 Existing Conditions

The following are addressed in this chapter: a Freight Rail System Profile, an overview of Freight Rail Traffic, a summary of Economic Conditions and Forecasts, a Passenger Service Profile, and overview of Federal and State Funding Programs and a summary of Previous Studies. Further detail regarding all of these topics can be found in *Technical Memorandum #2: Existing Conditions*.

2.1 Freight Rail System Profile

Michigan's freight rail system is part of a multi-modal transportation system with a diverse mix of facilities in both public and private ownership. Freight railroads play a key role in the national economy, and the movement of a significant volume of commerce being conducted between Michigan and its neighbors in the Great Lakes region. The state's rail system is depicted in **Figure 2.1**.

Michigan's freight rail system is part of a multi-modal transportation system with a diverse mix of facilities in both public and private ownership.

Freight railroads play a key role in the national economy, and the movement of a significant volume of commerce being conducted between Michigan and its neighbors in the Great Lakes region.

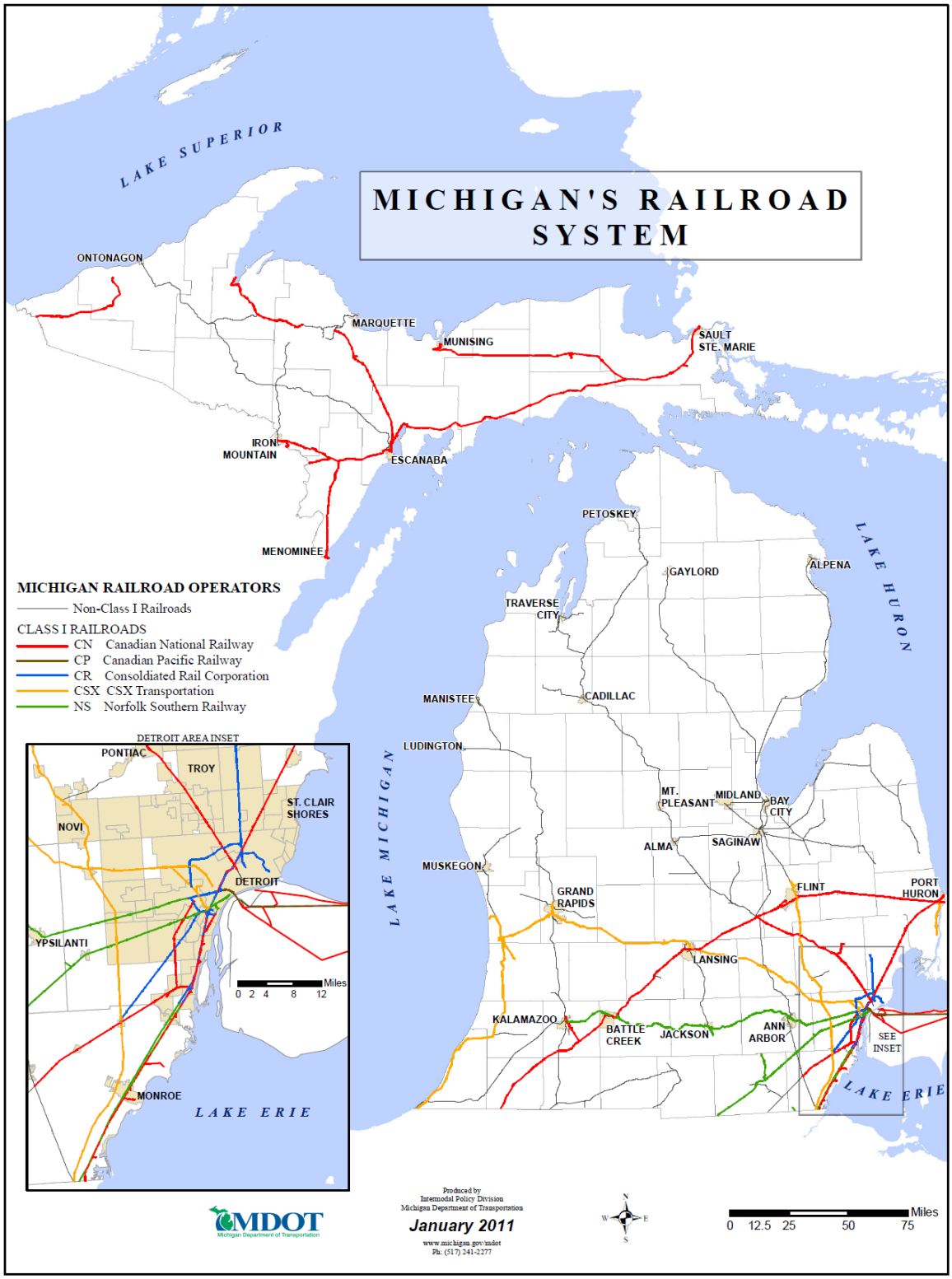
According to the Federal Highway Administration's Freight Analysis Framework (FAF3), 33 percent of Michigan's overall freight tonnage was moved by rail in 2009; this accounts for approximately $41.4 billion in commodities (in 2010 dollars). Major rail commodity shipments by tonnage include coal, metallic ores, chemical products, and transportation equipment. In terms of value, Michigan's most valuable rail movement commodity is transportation equipment, followed by mixed shipments, metal products, and chemical products.

Railroads in the United States are grouped into classifications based on the operating revenue. The classifications are defined by the Surface Transportation Board as follows:

- A Class 1 railroad is a major rail company that has annual revenues in excess of $401.4 million per year (in 2010 dollars).
- A Class II railroad is a line-haul rail company with revenues of less than $401.4 million but in excess of $40 million (in 2010 dollars).
- Class III railroads are defined as having annual operating revenues of less than $40 million (in 2010 dollars)[11]. Class III railroads include short-line railroads and switching and terminal railroads.

[11] 49 CFR Part 1201. Railroad Companies. GPO, 2010.

Figure 2.1: Michigan State Rail Map



2.1.1 Summary of Current Freight Railroad System

Just under half of the railroad tracks in Michigan are operated by four Class 1 railroads. The remainder are operated by two regional railroads, seven switching/terminal railroads, and 15 short-line railroads. Railroads in Michigan currently own 3,958 miles and operate 4,317 miles of track. The miles-operated total includes mileage which some railroads operate by trackage rights on lines owned by other railroads. The mileage-operated total also includes rail lines that support the three shared passenger/freight rail corridors. The miles of rail that are owned and operated by each railroad in Michigan are shown in **Table 2.1**.

2.1.1.1 Class I Railroads

The Class I railroads are national companies that primarily offer services for national and intermodal shippers and markets. Four of the seven Class 1 railroads in the United States own track in Michigan. The Class I railroads that operate in Michigan are: Canadian National (CN), Norfolk Southern (NS), CSX Transportation (CSX), and Canadian Pacific/Soo Line (CP/SOO). These four Class 1 railroads own 2,137 miles of track in Michigan.

Canadian National

The Canadian National (CN) railroad is headquartered in Montreal, Quebec. CN owns and operates 1,017 miles of rail in Michigan. CN's total system mileage is approximately 20,400 miles, of which 12,900 miles are located in Canada. The CN mainline that extends from Port Huron to Chicago serves major cities, including Detroit. CN has a major intermodal terminal in Ferndale. CN owns the former Wisconsin Central, which includes most of the track in the Upper Peninsula. The main commodities hauled by CN include petroleum, chemicals, grain, fertilizers, coal, metals, forest products, minerals, and automotive parts.

Norfolk Southern

Norfolk Southern (NS) is a Class I railroad in the United States with headquarters in Norfolk, Va. NS has a total system of approximately 21,500 miles of track. NS owns 595 miles of track in Michigan but only directly operates 474 miles of track. The remaining 121 miles are leased to short-line railroad companies. NS has three intermodal terminals in the Detroit metropolitan area. A major rail classification yard is located in Melvindale. The main commodity hauled by NS is coal, which is exported to steel mills and power plants around the world. Other commodities include iron ore, auto parts, and completed vehicles.

CSX Transportation

CSX Transportation (CSX) is a Class I railroad headquartered in Jacksonville, Fla. Out of a total 22,000 miles, CSX owns and operates 569 miles of rail in Michigan. CSX also owns additional track miles that it leases to several short-line railroads in Michigan, but the total mileage of these leased lines has not been reported to MDOT. CSX operates a number of large railroad yards around the system, with the closest yard to Michigan being the Stanley Yard in Toledo, Ohio. CSX also operates an intermodal terminal in Detroit. The main commodities hauled by CSX include agricultural products, automotive products, chemicals, coal, food, machinery, metals, minerals, paper, pulp, transportation equipment, and waste.

Table 2.1: Total Rail Mileage by Class in Michigan

Railroad	AAR Mark	Class I- Freight/Passenger		Class II- Regional			Class III- Short-Line			Switching & Terminal	
		Operated Miles	Owned Miles	Operated Miles	Owned Miles	State-Owned Miles	Operated Miles	Owned Miles	State-Owned Miles	Operated Miles	Owned Miles
Adrian and Blissfield	ADBF						17	69 *			
Amtrak (Passenger Rail)	AMTK		83								
Ann Arbor	AA						47	47	0		
Canadian National	CN	1,017	1,017								
Canadian Pacific/Soo Line	CP/ SOO	77	1								
Charlotte Southern	CHS						3	0	0		
Conrail Shared Assets Operations	CSAO									98	0
Coopersville and Marne	CMR						14	14	0		
CSX	CSX	569	569								
Delray Connecting	DCRR									15	1
Detroit Connecting	DCON						2	0	0		
Escanaba and Lake Superior	ELS						201	201	0		
Grand Elk	GDLK						123	0	0		
Grand Rapids Eastern	GR						50	50**	0		
Great Lakes Central	GLC			400	50	350****					
Huron and Eastern	HESR						365	320**	45****		
Indiana and Ohio	IORY			44	44**	0					
Indiana Northeastern	IN						73	33	40****		
Jackson and Lansing	JAIL						45	0	0		
Lake State	LSRC						225	120	105		
Lake Superior and Ishpeming	LSI						25	0	0		
Lapeer Industrial	LIRR						2	0			
Marquette	MQT						133	133	0		
Michigan Air-Line	MAL									8	0
Michigan Shore	MSR									52	52**
Mid-Michigan	MMRR						118	70**	0		
Michigan Southern	MSO									15	15***
Norfolk Southern	NS	474	595								
Saginaw Bay Southern	SBS						67	0***	0		
West Michigan	WMI									15	15***
Total by Class		**2,137**	**2,265**	**444**	**94**	**350**	**1,510**	**1,057**	**190**	**203**	**83**
Michigan Freight Rail Miles - Operated						**4,294**					
Michigan Freight Rail Miles - Owned						**3,499**					
Michigan Freight Rail Miles - State-Owned						**540 (530 miles active)******					

Note: Owned Miles indicates owned miles in Michigan.

Key: * *Includes miles from CHS, DCON, JAIL, and LIRR*

** *Owned by RailAmerica*

*** *Owned by Pioneer RailCorp*

*** *Owned by Lake State Railway*

**** *State-Owned Miles include10 inactive miles: GLC – 2.8 miles; HESR – 6 miles; IN 1.2 miles*

Canadian Pacific/Soo Line

The Canadian Pacific (CP) Railway is headquartered in Calgary, Alberta. Canadian Pacific/Soo Line (CP/SOO) is a Class I subsidiary holding company for CP's properties in the United States. CP owns approximately 14,000 miles of track across Canada and into the United States. The CP owns only one mile of railroad in Michigan through the Detroit River Tunnel, which connects Detroit with Windsor, Ontario. CP/SOO trains utilize trackage rights on CSX and NS to get to and from Detroit into Chicago. CP also operates an intermodal terminal in Detroit. The main commodities hauled by CP include coal, grain, and intermodal freight. Other shipping commodities include automotive parts and assembled automobiles, sulfur, fertilizers, other chemicals, and forest products.

2.1.1.2 Class II Regional Railroads

Michigan's Class II railroads are mid-sized freight-hauling railroads. The State of Michigan has two Class II railroads: Great Lakes Central Railroad and Indiana and Ohio Railway. The Great Lakes Central Railroad (GLC) is headquartered in Owosso and operates on tracks extending through the central and northern portions of Lower Michigan. The GLC operates on 350 miles of state-owned tracks under a lease agreement, and another 50 miles of track which it owns. Major commodities hauled by GLC include sand, grain, plastics, coke, fertilizers, sand, lumber and other chemicals.

The other Class II railroad is the Indiana and Ohio Railway (IORY), headquartered in Cincinnati, and owned and operated by RailAmerica. The IORY owns and operates 570 miles of track, of which 44 miles are in southeastern Michigan. The main commodities hauled by IORY include automobiles, pig iron and other metal products, chemicals, plastics, lumber, paper, and grain products.

2.1.1.3 Class III Local / Short-Line Railroads

The Class III short-line railroads in the United States are primarily former branch lines of larger railroads that now serve a limited area on their own. These railroads operate on over 1,500 miles of track in Michigan and are engaged primarily in providing connections between local industries and the national rail network operated by the Class I railroads. Michigan has 15 Class III short-line railroads, each operating over distances ranging from two miles to 365 miles. These are listed in **Table 2.1**. The percentage of the total rail mileage operated by short-line railroads has been increasing steadily in recent years as the Class I railroads have sold or leased the least productive segments of their rail networks. Short-line railroads generally can operate rail lines at a significantly lower cost than the large railroad companies, but often do not have the capital resources to maintain the physical plant to higher FRA track classifications.

2.1.1.4 Class III Switching and Terminal Railroads

A switching and terminal railroad is a Class III freight railroad company whose primary purpose is to perform local switching services or to own and operate a terminal facility. Michigan has eight switching and terminal railroads, ranging in length from two miles to 98 miles as shown in **Table 2.1**. These switching and terminal railroads operate just over 220 miles of track and play a key role in getting materials to and from their final destinations.

2.1.2 State-Owned Rail Lines

Michigan owns approximately 540 miles of rail lines, 10 miles of which are currently inactive, as shown in **Figure 2.2.** The state-owned rail lines are operated by several different short-line railroads under contract with MDOT and provide the only rail access to businesses in certain areas of the state. The 540 miles represent a portion of track that was purchased between the mid-1970s and mid-1980s in response to the federal government's attempt to restructure bankrupt railroads in the Northeast and Midwest regions of the country.

Michigan owns approximately 540 miles of rail lines, 10 miles of which are currently inactive.

The state-owned rail lines are low-tonnage lines that provide access to the national rail system to a number of companies that would otherwise have limited transportation options. These rail lines move many commodities, including agricultural products, forest products, and sand that are much more efficiently and economically transported by rail. The lines are currently utilized by approximately eighty shippers, and provide the only rail access for many more businesses in the state. In 2010, over 15,000 carloads were shipped via the lines.

The following companies operate on tracks owned by the State of Michigan:

- Great Lakes Central Railroad (GLC) from Emmet to Washtenaw County,
- Lake State Railway (LS) from Otsego to Bay County,
- Huron and Eastern Railway (HESR) in Bay and Tuscola counties, and
- Indiana Northeastern Railroad (IN) in Branch and Hillsdale counties.

Cities and towns served by state-owned rail lines include Alma, Ann Arbor, Cadillac, Grayling, Hillsdale, Mt. Pleasant, Petoskey and Traverse City. The state-owned rail lines are managed through MDOT's Capital Development program. The program's goal is to preserve service to shippers. The program works to maintain the commercial viability of the lines so they can be returned to the private sector. In 1998, the state legislature enacted legislation mandating that MDOT divest itself of four specific rail lines, as described in more detail in Section 3.2.2 of this Plan. As directed, MDOT is pursuing divestiture through a competitive proposal process with the goal of attracting a private-sector bidder who exhibits the best combination of purchase price and potential for providing long-term and reliable rail service.

Figure 2.2: State-Owned Rail Lines in Michigan

2.1.3 Abandonments

Due to poor track and market conditions, some rail lines still have the potential to become abandoned. Rail lines over which no local traffic has moved for two years without any formal complaint are exempt from the traditional process and can be abandoned simply by filing a notice with the Surface Transportation Board (STB).

Under the Interstate Commerce Commission's Termination Act of 1995, a railroad may abandon a line only with the permission of the STB. The STB must determine whether the "present or future public convenience and necessity require or permit" the abandonment. In making this determination, the STB balances two competing factors. The first is the need of local communities and shippers for continued service. That need is balanced against the public interest in releasing railroads from financial burdens that are a drain on their overall financial health and lessen their ability to operate economically elsewhere.

Once a rail line is abandoned, it can be sold or retained for potential trail or transportation use. The State of Michigan mandates that abandoned rail lines must first be offered respectively to both MDOT and the Michigan Department of Natural Resources (MDNR) before being sold. Rail corridors acquired by MDOT can be utilized for trail purposes. The railroads that have been abandoned and/or discontinued in Michigan since 1995 are listed in **Table 2.2**.

2.1.4 Intermodal Activity

Intermodal freight transport involves the transportation of freight in a container or vehicle that uses multiple modes of transportation (rail, ship, and truck) without any handling of the freight itself when changing modes. This reduces cargo handling, reduces costs, improves security, reduces damages and losses and allows freight to be transported faster. In Michigan, rail intermodal shipments are most often used for consumer goods and subassembly components.

Detroit is one of the top intermodal markets in the nation.

Intermodal volumes in Michigan have increased substantially over the past 10 years and intermodal shipments have become the number one source of railroad freight revenue.[12] Detroit is one of the top intermodal markets in the nation. Michigan does not have any intermodal rail movements that are completely internal within the state, but there are significant interstate and international intermodal movements. Michigan's intermodal terminals handle North American traffic that originates and terminates in Canada, the United States and Mexico. It also involves overseas traffic that utilizes ports in California, Maryland, Virginia, British Columbia, Nova Scotia and Quebec.

[12] Note that freight revenue for railroads does not equate with the value of goods shipped, as is reported in subsequent sections of this Plan.

Table 2.2: Abandoned and Discontinued Railroads in Michigan

Railroad Name	County	Miles	Date
Escanaba and Lake Superior Railroad	Ontonagon, Houghton	43	2010*
Michigan Air-Line Railway	Oakland	3	2010
Mid-Michigan Railroad	Kent, Ionia, Montcalm	25	2010
Mid-Michigan Railroad	Muskegon	4	2009
Central Michigan Railway	Kent	2	2009
Huron and Eastern Railway	Shiawassee	3	2009
Mid-Michigan Railroad	Kent, Ottawa	7	2009
Mid-Michigan Railroad	Kent, Ionia	16	2008
Sault Ste. Marie Bridge	Dickinson	1	2008
Lake State Railway	Otsego	4	2007
Mid-Michigan Railroad	Muskegon	3	2007
Grand Trunk	Oakland	1	2007
Grand Trunk	Genesee	2	2006
Conrail	Wayne	4	2006
Norfolk Southern	Kalamazoo	1	2006
Mid-Michigan Railroad	Kent, Ionia	5	2005
Mid-Michigan Railroad	Kent	2	2005
Lake Superior and Ishpeming Railroad	Marquette	9	2004
CSX Transportation and Mid-Michigan Railroad	Gratiot	6	2003
CSX Transportation	St. Clair	3	2003
Central Michigan Railway	Saginaw	2	2003
CSX Transportation	Ottawa, Allegan	6	2002
Grand Trunk	Oakland	3	2001
Grand Trunk	Genesee	3	2001
Wisconsin Central	Marquette, Alger	37	2001
Wisconsin Central	Marquette	9	2001
CSX Transportation	Saginaw	3	2001
Grand Trunk	Macomb, Oakland	18	2001
Lake State Railway	Alpena	8	2001
Lake State Railway	Presque Isle, Alpena	38	2000
Mid-Michigan Railroad	Kent, Ionia	5	2000
Wisconsin Central	Marquette, Alger	37	1999
Lake State Railway	Alpena	8	1999
Wisconsin Central	Marquette	1	1999
CSX Transportation	Midland	2	1999
Union Pacific Railroad	Ada	18	1999
Mid-Michigan Railroad	Kent, Ionia	5	1999
CSX Transportation	Saginaw	2	1999
Grand Trunk	Macomb, Oakland	18	1999
Lake Superior and Ishpeming Railroad	Marquette	4	1999
CSX Transportation	Muskegon	10	1998
Grand Trunk Railroad	Macomb, Oakland	23	1998
Michigan Shore Railroad	Muskegon	3	1997
CSX Transportation	Muskegon	4	1997
Total Miles Abandoned/ Discontinued		**411**	

Primary Source: Surface Transportation Board, Proposed Railroad Abandonments, 1995-2010.

* E&LS received STB authority in 2010 to abandon 43 miles in Ontonagon and Houghton counties, but a final decision on the amount of miles to be removed has not yet been made.

Intermodal freight will continue to grow and will require additional investment in the future, especially in the Detroit area. Currently seven intermodal terminals are scattered throughout Southeast Michigan. The capacity of these intermodal terminals and lack of coordination among the major railroads constrains the growth of freight operations in the region. The Detroit Intermodal Freight Terminal (DIFT) project has been developed to expand the capacity of intermodal terminals to accommodate the volumes of traffic expected in 2025. This project provides the enhancement and consolidation of intermodal operations by the four Class I railroads to increase the efficiency of freight movements through the southeast Michigan region.

2.1.5 International Border Crossings

The United States and Canada have the world's largest bilateral trade relationship, with Michigan serving as the primary border crossing location between the two countries. Goods and people moving across Michigan's borders significantly impact the economies of Michigan and Ontario, the economies of the United States and Canada, as well as other global destinations. In the last decade, trade between the United States and Canada has increased over 75 percent, and trade between Michigan and Canada increased 32 percent. The province of Ontario imported nearly 97 percent of Michigan's total exports to Canada in 2002.

The United States and Canada have the world's largest bilateral trade relationship, with Michigan serving as the primary border crossing location between the two countries.

Michigan has invested $1.5 billion in federal and state funds over the past 10 years in border crossings and the transportation corridors that serve them. Over $1 billion in additional investments are planned over the next eight years. While most of these investments are for highways crossing the international border, MDOT has also worked with CN, CP and other parties on projects to improve or replace rail border crossings.

Michigan has three international border rail crossings:

1. The **Sault Ste. Marie Bridge** Company, a subsidiary of CN, operates the railroad bridge spanning the St. Mary's River between Sault Ste. Marie, Mich. and Sault Ste. Marie, Ontario.
2. The **St. Clair International Rail Tunnel** is owned by CN/GT. The crossing extends across the Canadian border between Port Huron to Sarnia, Ontario. The original Port Huron Railroad Tunnel opened in 1891 and was the first international rail connection in North America. In 1995, CN completed construction of a new tunnel with expanded clearance to accommodate all freight cars currently in service in North America, including double-stacked containers.
3. The **Detroit River Tunnel** was constructed during the period of 1906 to 1910 and consists of twin, single-rail track tubes within a steel and concrete box structure. The tunnel was jointly purchased in 1985 by CN and CP after a period of ownership by various railroads. In 2001, CN sold its 50 percent share of the Detroit River Tunnel to Borealis Transportation Infrastructure Trust, an entity controlled by the Ontario Municipal Employees Retirement System (OMERS). CP and Borealis created the Detroit River Tunnel Partnership (DRTP) in 2002. In early 2009, CP sold a portion of its ownership to Borealis. Ownership of the tunnel is currently 83.5 percent by Borealis and 16.5 percent by CP. The DRTP has been exploring options for constructing a new rail tunnel to provide additional rail capacity, particularly for double-stacked containers. In June 2010, a new public/private partnership (P3) was created for the Detroit River Tunnel project. The Continental Rail Gateway (CRG), which includes Borealis Infrastructure, CP and the Windsor Port Authority, is pursuing United States and Canadian support for the project.

2.1.6 Port Access Facilities

Michigan has 36 active ports which accommodate bulk cargoes moving in the Great Lakes and the St. Lawrence Seaway. Nineteen of these active ports support outbound commodity movements. As of 2008, the ports that produce the most outbound tonnage are Stoneport, Marquette, Calcite, Port Inland, Escanaba, Alpena, Port Dolomite, Charlevoix, Port Drummond and Detroit.

In the Upper Peninsula, most of the port traffic at Escanaba and Marquette consists of outbound iron ore pellets mined and processed in the Upper Peninsula and destined for Great Lakes steel mills. Iron ore that is mined in Marquette County is moved by rail from the mine to the ports of Marquette and Escanaba. Almost 7 million tons of iron ore are transported to docks in Marquette, which are then transported by water. Over 5 million tons of iron ore are transported by rail to Escanaba to be shipped by water to southern Lake Michigan steel industry facilities in neighboring states.

With the exception of these iron ore movements, no significant rail-to-water or water-to-rail intermodal cargo transfers exist at Michigan ports. The principal reason is that Michigan's marine cargo facilities are designed for local or regional distribution and do not lend themselves to rail transport. Michigan's businesses and industries generate a large volume of overseas trade, but the vast majority of these shipments are transported by truck or rail to Pacific, Atlantic, or Gulf coast ports for ocean shipping.

2.2 Freight Rail Traffic

As discussed in the previous section, Michigan's freight rail system provides significant support for economic activity in the State of Michigan. This section discusses freight rail in more detail focusing on the integral role of commodities shipped by rail into, within and out of the state, including trans-border trade with Canada.

2.2.1 Economic Value-Chain Dependency on Rail

In addition to supporting Michigan's economic base, the rail transportation system supports earnings, output, and employment to many sectors of the state's economy. **Table 2.3**, **Table 2.4** and **Table 2.5** present the overall national earnings, output and employment that are directly supported by commodities shipped by rail into, within and out of Michigan, respectively. The analysis is based on input-output parameters from the Impact Analysis for Planning (IMPLAN) economic impact modeling system[13].

The top 10 dependent industries are described in the tables for each type of rail movement. This is based on the number of industry jobs associated with rail commodity flows. The numbers reflect:

- The estimated total annual dollars of output,
- The value added or personal income that are enabled by rail flows, and
- The total number of jobs that are associated with rail-dependent production.

The percentages in the tables show the share of earnings, output or employment that is associated with rail movements as a percentage of all transportation-dependent activity in the sector for a given industry.

[13] MIG, Inc. (Minnesota Implan Group, Inc). www.implan.com.

Table 2.3 is an analysis of jobs that rely on rail imports. The table shows that over 313,000 Michigan jobs rely on commodities imported by rail. More specifically, a large share, 64 percent, of jobs in transportation equipment manufacturing involve commodities brought into the state by rail, making this highly basic industry sector also one of Michigan's most dependent on rail imports. Furthermore, 30 percent of the jobs in transportation equipment manufacturing also involve commodities exported to downstream markets by rail – making this the largest industry sector dependent on rail exports (see **Table 2.5**).

Table 2.3 also shows that a significant share of jobs, over 42 percent, in the service sectors is rail-dependent. This points to the importance of rail and rail freight in particular for non-manufacturing sectors of the economy. For example, 40 percent of Michigan's jobs in maintenance, repair and personal services are reliant on inputs that enter the state by rail, and 30 percent of retail trade employment involves goods brought into the state by rail.

Table 2.4 shows Michigan's top 10 industries for rail movements within Michigan. The table shows that mining and support activities, primary metal manufacturing and utilities, along with other industries, are the primary industries that rely upon rail to move goods within the state. The volume of rail movements that begin and end within the state are much smaller than the volume of imports and exports to Michigan.

Table 2.5 is an analysis of Michigan's rail exports. It indicates that employment in most of Michigan's basic industries (those industries which export all or nearly all of their production) involves significant jobs associated with commodities shipped out of the state by rail, with a total of approximately 84,417 jobs in some way involving commodities exported by rail. It is important to note that in machinery and chemical manufacturing (both emerging knowledge-intensive manufacturing sectors in Michigan's economy) rail activity is associated with a significant share of transportation dependent jobs.

According to the Transportation Economic Development Impact System (TREDIS)[14] analysis, the actual tonnage of commodities entering and leaving Michigan by rail accounts for only nine percent of commodities on Michigan's overall transportation system. The above analysis shows, however, that a significant amount of employment and value-added activity is created by the work and services performed with these goods.

[14] TREDIS Consulting Group; Division of Economic Development Research Group, Inc. Web: http://www.tredis.com.

Table 2.3: Rail Import Dependency for Michigan Industries

Top 10 Industries for Jobs Created by Rail Imports to Michigan (Output, Value Added, Employment and Income Attributable to Rail, and Rail Share of Overall)					
NAICS*	Industry Description	$ and % of Output Using Rail-Transported Commodities	$ and % of Val-Added Using Rail-Transported Commodities	# and % of Jobs Using Rail-Transported Commodities	$ and % of Personal Income from activities using Rail-Transported Commodities
336	Transportation Equipment	$52,671	$11,222	82,444	$9,199
		64%	64%	64%	64%
920	Government & non NAICs	$3,713	$3,419	49,965	$3,019
		18%	18%	18%	18%
561	Administrative & Support Services	$1,214	$841	22,165	$693
		31%	31%	31%	31%
230	Construction	$2,918	$1,181	22,105	$1,078
		17%	17%	17%	17%
481-487	Transportation	$2,950	$1,510	18,451	$1,089
		42%	42%	42%	42%
811-812	Repair, Maintenance, & Personal Services	$1,447	$856	17,550	$503
		40%	40%	40%	40%
441-454	Retail Trade	$1,037	$707	16,319	$444
		30%	30%	30%	30%
621-624	Health Care & Social Services	$1,201	$734	13,950	$639
		10%	10%	10%	10%
721-722	Accommodations, Eating & Drinking	$425	$210	7,917	$137
		7%	7%	7%	7%
333	Machinery Manufacturing	$2,287	$767	7,778	$605
		20%	20%	20%	20%
	All Others	$16,108	$6,578	54,445	$3,604
		15%	13%	13%	13%
	Total	**$85,971**	**$28,025**	**313,088**	**$21,010**
		31%	**25%**	**23%**	**26%**

** NAICS (North American Industry Classification System) is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy.*

Source: Transportation Economic Development Impact System (TREDIS) - 2010

Table 2.4: Rail Internal Dependency for Michigan Industries

Top 10 Industries for Jobs Created by Rail Movements Within Michigan (Output, Value Added, Employment and Income Attributable to Rail, and Rail Share of Overall)					
NAICS	Industry Description	$ and % of Output Using Rail-Transported Commodities	$ and % of Val-Added Using Rail-Transported Commodities	# and % of Jobs Using Rail-Transported Commodities	$ and % of Personal Income from activities using Rail-Transported Commodities
920	Government & non NAICs	$336	$310	4,526	$273
		4%	4%	4%	4%
212-213	Mining & Support Activities	$329	$172	852	$75
		5%	5%	5%	5%
230	Construction	$49	$20	371	$18
		1%	1%	1%	1%
331	Primary Metal Manufacturing	$123	$26	191	$19
		4%	4%	4%	4%
327	Nonmetallic Mineral Products	$58	$24	173	$14
		3%	3%	3%	3%
221	Utilities	$136	$93	161	$27
		3%	3%	3%	3%
336	Transportation Equipment	$69	$15	108	$12
		0%	0%	0%	0%
621-624	Health Care & Social Services	$6	$4	71	$3
		0%	0%	0%	0%
322	Paper Manufacturing	$25	$6	50	$4
		2%	2%	2%	2%
111	Crop Production	$4	$2	44	$1
		0%	0%	0%	0%
	All Others	$103	$45	415	$23
		0%	0%	0%	0%
	Total	**$1,239**	**$716**	**6,961**	**$468**
		1%	**2%**	**1%**	**2%**

Source: TREDIS - 2010

Table 2.5: Rail Export Dependency for Michigan Industries

Top 10 Industries for Jobs Created by Rail Exports from Michigan (Output, Value Added, Employment and Income Attributable to Rail, and Rail Share of Overall)					
NAICS	Industry Description	$ and % of Output Using Rail-Transported Commodities	$ and % of Val-Added Using Rail-Transported Commodities	# and % of Jobs Using Rail-Transported Commodities	$ and % of Personal Income from activities using Rail-Transported Commodities
336	Transportation Equipment	$36,451	$7,766	57,056	$6,366
		30%	30%	30%	30%
333	Machinery Manufacturing	$2,133	$715	7,254	$564
		10%	10%	10%	10%
212-213	Mining & Support Activities	$1,729	$904	4,476	$394
		67%	67%	67%	67%
325	Chemical Manufacturing	$3,041	$716	2,965	$341
		15%	15%	15%	15%
332	Fabricated Metal Products	$636	$245	2,598	$158
		4%	4%	4%	4%
322	Paper Manufacturing	$1,206	$275	2,361	$194
		23%	23%	23%	23%
326	Plastics & Rubber Products	$518	$186	1,919	$117
		9%	9%	9%	9%
331	Primary Metal Manufacturing	$824	$175	1,283	$124
		7%	7%	7%	7%
311	Food Products	$577	$116	1,041	$60
		5%	5%	5%	5%
111	Crop Production	$89	$46	983	$15
		3%	3%	3%	3%
	All Others	$1,702	$612	2,482	$334
		3%	1%	0%	1%
	Total	**$48,908**	**$11,757**	**84,417**	**$8,667**
		17%	**15%**	**13%**	**16%**

Source: TREDIS – 2010

2.2.2 Significance of Trans-Border Trade with Canada

Canada is Michigan's dominant international trading partner for value of goods traded for all modes. Nearly half of the trading value of Michigan exports remains with Canada. However, over the past 10 years, the value of Michigan exports to Canada has decreased. In 1999, Canada accounted for 68 percent of the value of all Michigan exports. In 2009, the value of Michigan exports to Canada was 44 percent less than 1999 (in constant 2009 U.S. dollars).[15]

Mexico, China, Germany and Japan have emerged as viable export partners in recent years. In 2009, these nations combined account for 28 percent of the value of Michigan exports.[16]

Over the past 10 years, vehicles and parts have provided nearly half the value of Michigan exports to Canada, followed by industrial machinery and mineral fuels. Together, these three commodity groups have steadily accounted for 71 percent to 74 percent of total exports by value to Canada from Michigan.

Industrial machinery exports have been declining. In 1999, industrial machinery accounted for more than one-quarter of exports to Canada. In 2003, it declined to less than 20 percent, and by 2009 it declined to 13 percent of the value of exports. Conversely, mineral fuels exports have been increasing. This export represented one percent of the state's exports to Canada in 1999 and eight percent in 2009. **Figure 2.3** below illustrates these 10-year trends.[17]

Michigan exports to Canada are typically destined for Ontario, which received a 97 percent the state's exports annually from 1990 through 2003. By 2009, the exports to Ontario had decreased to 90 percent. During the same period, exports from Michigan to Alberta increased from less than one-half percent to five percent.[18]

Cross-border transport of Michigan's exports is less reliant on truck and more reliant on rail and pipeline largely due to a rise in mineral fuels exports. As shown on **Figure 2.4,** over 90 percent of the value of goods exported from Michigan was transported to Canada by truck in 1999. This proportion has decreased to 76 percent in 2009. Conversely, exports by rail have more than doubled, conveying 6 percent of exports to Canada in 1999 and increasing to 13 percent in 2009. The share of exports carried by pipeline has grown from less than one percent in 1999 to seven percent in 2009.

In 2009 exports by marine and aviation modes each accounted for two percent of the value of Michigan exports to Canada. This is a small increase from one percent each in 1999.[19]

The majority of United States-Canadian trade value crosses the international border by truck or rail at Port Huron-Sarnia and Detroit-Windsor[20].

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[15] Statistics Canada, International Trade Division, aggregated by WISERTrade.
[16] U.S. Bureau of Census Foreign Trade Division, aggregated by WISERTrade.
[17] Ibid.
[18] Ibid.
[19] Ibid.
[20] Data through 2005, source: The Great Lakes- A World-Leading Bi-national Economic Region, Brookings, 2007.

Figure 2.3: Value Trend in Michigan's Leading Exports to Canada

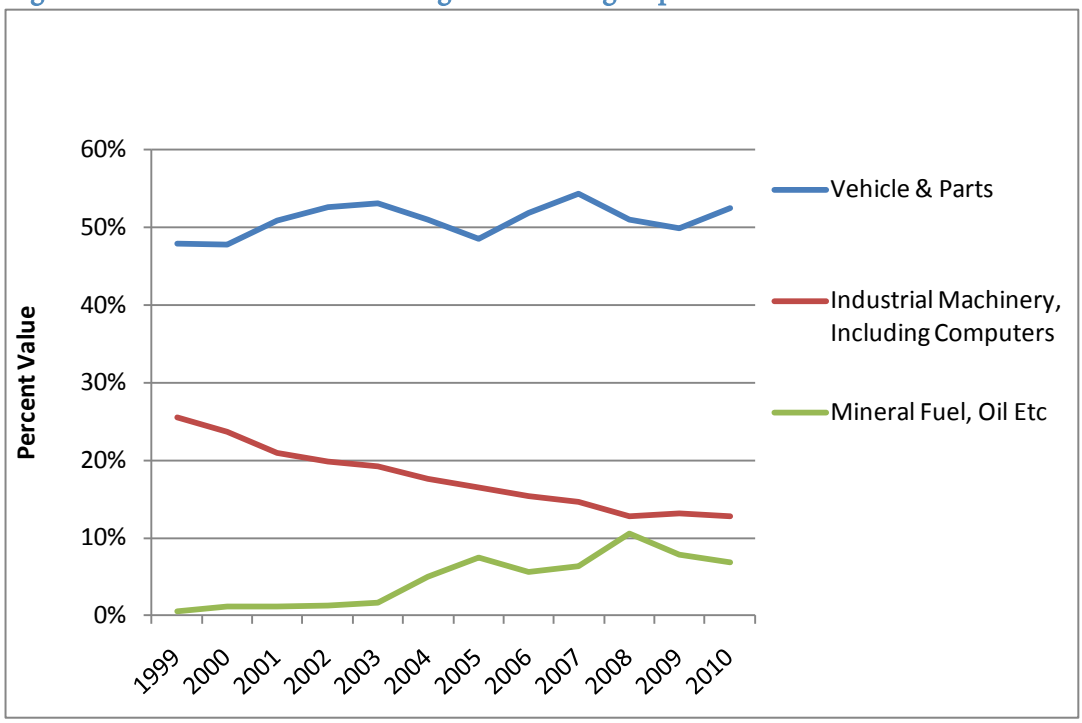
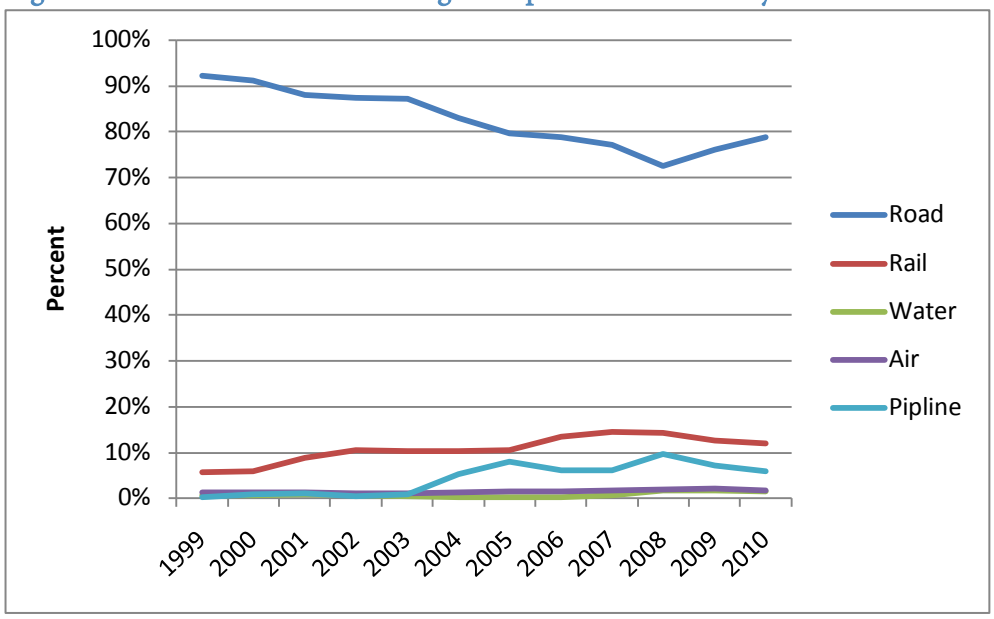


Figure 2.4: Value Trend in Michigan Exports to Canada by Mode



While not as robust as many of the service and manufacturing sectors comprising Michigan's economic base, it is likely that agriculture, agricultural products and timber will continue to be significant elements of Michigan's economy. Michigan is understood to be among the most agriculturally diverse states in the United States, producing over 200 commodities (one-third of which are exported). Michigan leads the nation in the production of 19 commodities; agricultural commodities and processed food exports to Canada comprise almost 50 percent of Michigan's global exports from this sector.[21] For this reason, flows and inter-modal connections for agricultural commodities, timber and food and kindred products exported to Canada are likely to be more strategically significant than today's numbers or forecasts might suggest.999

2.3 Economic Conditions and Forecasts

The Federal Highway Administration's Freight Analysis Framework (FAF3) was last fully updated in 2010. It included forecasts of commodity flows for Michigan rail imports and exports from 2007 to 2040. The FAF3 integrates data from a variety of sources to create a comprehensive picture of freight movement between states and major metropolitan areas by all modes of transportation. With data from the Commodity Flow Survey and additional sources, FAF3 provides estimates for tonnage and value, by commodity type, mode, origin, and destination.

The new 2010 FAF3 estimates are based on 2009 data and reflect different conditions related to the current economic re-structuring. **Table 2.6** and **Table 2.7** summarize the significant shifts in Michigan imports and exports anticipated by FAF3. The tables show the five Michigan rail export and import commodities forecast to experience the largest growth in tonnage from 2007 to 2040. These forecasts provide context for understanding the changing role of rail freight in Michigan's economy, and will be interpreted in the subsequent section with regard to Michigan's economic restructuring.

FAF3 anticipates an increase of just over 1.8 million tons of additional rail imports to Michigan in 2040, as shown in **Table 2.6**. This represents a compounded annual increase in Michigan's rail imports of 0.13 percent. Commodities likely to experience the greatest rate of increase among Michigan's rail imports are pharmaceuticals, agricultural products, precision instruments, furniture and electronics. While the tonnages of these increases are modest, the rate of increase indicates the changing uses and significance of Michigan's rail network. Anticipated declines in rail imports are expected to be in non-fuel coal related products, gravel, fertilizers, fuel oils and waste/scrap materials.

The transportation of commodities into Michigan is expected to increase at an annual rate of 0.13% through 2040.

[21] Michigan's Agri-Food Industry, MDA, 2008.

Table 2.6: FAF3: Rail Imports to Michigan by Commodity Group (2007-2040) – Domestic and International Combined

Top Increasing/Declining Flows	Commodity	Net Change in Tonnage (2007-2040)	% Change Compound Annual Growth Rate (2007-2040)
Top 5 Increasing Commodity Flows	Pharmaceuticals	0	5.58%
	Other ag prods.	86	4.97%
	Precision instruments	7	3.97%
	Furniture	56	3.83%
	Electronics	61	3.56%
5 Most Decreasing Commodity Flows	Coal	-749	-2.27%
	Gravel	-153	-2.49%
	Fertilizers	-382	-2.51%
	Fuel oils	-43	-6.03%
	Waste/scrap	-58	-8.85%
Other Flows	All Other Commodities	3,062	0.21%
Total Forecast Change	**All Commodities**	**1,886**	**0.13%**

Source: Freight Analysis Framework, FHWA 2010

As shown in **Table 2.7**, FAF3 anticipates a significant rate of increase in rail exports of meat and seafood, pharmaceuticals, waste and scrap material, gravel and paper articles by rail. Of these rapidly increasing commodities, only waste and scrap and paper articles account for significant tonnage during the 2007-2040 period. Anticipated declines in rail shipments in more traditional markets, including motorized vehicles and metallic ores to points outside the state will offset the overall benefits of rail exports to Michigan's economy. Overall, rail exports are anticipated to increase by over 23 million tons, with an average increase of 2.51 percent per year.

Table 2.7: FAF3: Rail Exports from Michigan by Commodity Group (2007-2040) -- Domestic and International Combined

Top Increasing/Declining Flows	Commodity	Net Change in Tonnage (2007-2040)	% Change Compound Annual Growth Rate (2007-2040)
Top 5 Increasing Flows (2007-2040)	Meat/seafood	3	8.66%
	Pharmaceuticals	15	8.56%
	Waste/scrap	1,628	6.53%
	Gravel	0.1	6.50%
	Paper articles	272	6.44%
Declining Flows	Motorized vehicles	-299	-0.36%
	Crude petroleum	-.4	-0.82%
	Metallic ores	-921	-1.03%
Other Flows	All Other Commodities	22,872	3.21%
Total Forecast Change	**All Commodities**	**23,569**	**2.51%**

Source: Freight Analysis Framework, FHWA 2010

The FAF3 also points to specific trading partners with whom Michigan is expected to increase its overall trade between 2007 and 2040. **Table 2.8** and **Table 2.9** indicate the five rail trading partners with which Michigan is expected to experience the greatest change in its imports and exports (respectively) through the year 2040.

The FAF3 anticipates increases in rail imports to Michigan from Southeast Asia and Oceana and Africa. Michigan's rail imports originating in Southeast Asia and Oceana are forecast to arrive largely (48 percent) in West Coast ports, where they access the rail system. Significant shares of Michigan's Southeast Asia/Oceana imports are also anticipated to enter Michigan by rail after arriving by water at ports in Texas (15 percent) and Louisiana (23 percent) as well.

Michigan's growing imports from Africa are expected to enter primarily through seaports in New Jersey (72 percent) where they will transfer to rail modes to access Michigan, with another 18 percent of anticipated Africa imports utilizing Michigan's rail system arriving by water directly at a Michigan port before being drayed to destinations within the state.

Imports from elsewhere in North and South America (beyond Canada and Mexico) also are anticipated to increase, with the largest share of these imports (46 percent) arriving by water at Louisiana ports and another 31 percent arriving by water at Texas ports, and 13 percent arriving by water at Alabama ports before accessing Michigan by rail.

The transportation of commodities from Michigan is expected to increase at an annual rate of 2.51% through 2040.

The fact that the rates of increase in Michigan's rail imports are from international origins in countries beyond Canada and Mexico points to the growing significance of Michigan's dependence on the global economy as well as the importance of rail connections to seaports beyond Michigan's borders. According to FAF3, in 2009 international water-to-rail movements account for approximately 1.3 percent of Michigan's rail tonnage and 4.8 percent of Michigan's rail value. These movements are forecast to increase, with non-North American trade accounting for an increasing share of that growth.

Significant rates of increase in rail imports from Montana and Tennessee also are among those expected to grow at the fastest rates. Rail imports from Maine, Connecticut, Kentucky, Massachusetts and New Jersey are expected to have some of the highest rates of decline from 2007 to 2040.

The FAF3 anticipates increases in rail exports from Michigan to New Hampshire, Vermont, Idaho, Eastern Asia and Iowa. The anticipated 2040 rail exports destined for East Asia are expected to enter the United States at seaports in California (42 percent) and Washington State (35 percent). Rail exports to Massachusetts, Nevada, Colorado, Oklahoma and Connecticut are expected to decline from 2007 to 2040.

These forecasts anticipate changes in global, national and state-level economic factors significantly affecting Michigan's outlook. Michigan's economic re-structuring is likely to have profound impacts on the role of the rail system for both imports and exports to and from Michigan to 2040 and beyond.

Table 2.10 shows the latest forecast for Michigan's industry sectors to the year 2035. While the new FAF3 forecast above goes all the way to 2040, other sources used give estimated economic changes to 2035, illustrating many of the same general trends that are reflected in the FAF3 estimates.

Table 2.8: FAF3: Rail Imports to Michigan by Origin (2007-2040) -- Domestic and International Combined

Top Increasing/Declining Flows	Origin	Net Change in Tonnage (2007-2040)	% Change Compound Annual Growth Rate (2007-2040)
Top 5 Increasing Flows	SE Asia & Oceania	25	2.75%
	Montana	18	2.63%
	Africa	1	2.61%
	Tennessee	3	2.59%
	Rest of Americas	142	2.52%
5 Most Decreasing Flows	Maine	-16	-3.62%
	Connecticut	0	-4.11%
	Kentucky	-4225	-7.65%
	Massachusetts	-57	-9.96%
	New Jersey	-155	-11.94%
Other Flows	All Other Locations	6,151	0.44%
Total Forecast Change	**All Commodities**	**1,886**	**0.13%**

Source: Freight Analysis Framework, FHWA 2010

Table 2.9: FAF3: Rail Exports from Michigan by Destination (2007-2040) -- Domestic and International Combined

Top Increasing/Declining Flows	Destination	Net Change in Tonnage (2007-2040)	% Change Compound Annual Growth Rate (2007-2040)
Top 5 Increasing Flows	New Hampshire	119	8.08%
	Vermont	69	8.00%
	Idaho	46	6.34%
	Eastern Asia	421	6.30%
	Iowa	239	5.50%
5 Most Decreasing Flows	Massachusetts	-11	-0.29%
	Nevada	0	-0.29%
	Colorado	-7	-0.86%
	Oklahoma	-4	-1.43%
	Connecticut	-4	-2.10%
Other Flows	All Other Locations	22,689	2.47%
Total Forecast Change	**All Commodities**	**23,569**	**2.51%**

Source: Freight Analysis Framework, FHWA 2010

Table 2.10: Employment Trend and Forecast for Michigan Industries

Michigan Industries	Industry Sector	2001 Employment	2010 Employment (Estimated)	Historic Growth Rate (Compound Annual)	2035 Employment (Estimated)	Projected Growth Rate (Compound Annual)
Growth Sectors	Administration, Waste Services	322,152	373,837	1.67%	481,004	1.01%
	Arts, Entertainment, Recreation	100,369	109,841	1.01%	140,793	1.00%
	Health Care, Social Asst	551,775	654,771	1.92%	837,485	0.99%
	Professional, Tech Services	366,306	382,234	0.47%	487,147	0.97%
	Services	2,118,461	2,351,744	1.17%	2,897,500	0.84%
	Accommodations, Food Services	350,383	373,670	0.72%	459,591	0.83%
	Educational Services	73,183	95,663	3.02%	111,458	0.61%
	Construction	304,276	265,742	-1.49%	292,467	0.38%
	Private Non-Farm	4,767,485	4,725,865	-0.10%	5,120,262	0.32%
	Finance, Insurance	207,866	222,122	0.74%	237,009	0.26%
	Financial Activities	375,624	426,361	1.42%	451,206	0.23%
	Other Services	285,445	295,800	0.40%	311,962	0.21%
	Real Estate, Rental, Leasing	167,758	204,239	2.21%	214,197	0.19%
	Wholesale Trade	196,162	193,530	-0.15%	200,582	0.14%
	Mngmt of Comp, Enter	68,848	65,929	-0.48%	68,060	0.13%
	Transportation, Warehousing	134,666	133,933	-0.06%	137,268	0.10%
Other Sectors	State Government	173,392	163,089	-0.68%	161,424	-0.04%
	Local Government	449,454	423,866	-0.65%	414,576	-0.09%
	Other Government *	699,496	660,600	-0.63%	645,308	-0.09%
	Trade, Transp. & Utilities	1,007,145	947,076	-0.68%	906,543	-0.17%
	Federal Civilian	54,628	53,664	-0.20%	51,168	-0.19%
	Information	87,123	79,372	-1.03%	74,613	-0.25%
	Forestry, Fishing, Other Nat Res	16,835	15,955	-0.59%	14,918	-0.27%
	Retail Trade	654,619	598,367	-0.99%	551,416	-0.33%
	Federal Military	22,022	19,980	-1.08%	18,140	-0.39%
	Natural Resources, Mining	31,113	29,048	-0.76%	25,823	-0.47%
	Mining	14,278	13,093	-0.96%	10,904	-0.73%
	Utilities	21,698	21,245	-0.23%	17,277	-0.82%
	Manufacturing	843,743	626,522	-3.25%	472,110	-1.13%
	Farm	72,906	66,605	-1.00%	46,670	-1.41%
	Total Employment	**5,539,887**	**5,453,071**	**-0.18%**	**5,812,239**	**0.26%**

** Other Government refers to special districts, port authorities or multi-jurisdictional governmental units.*

Source: Fulton & Grimes, 2008.

2.4 Passenger Service Profile

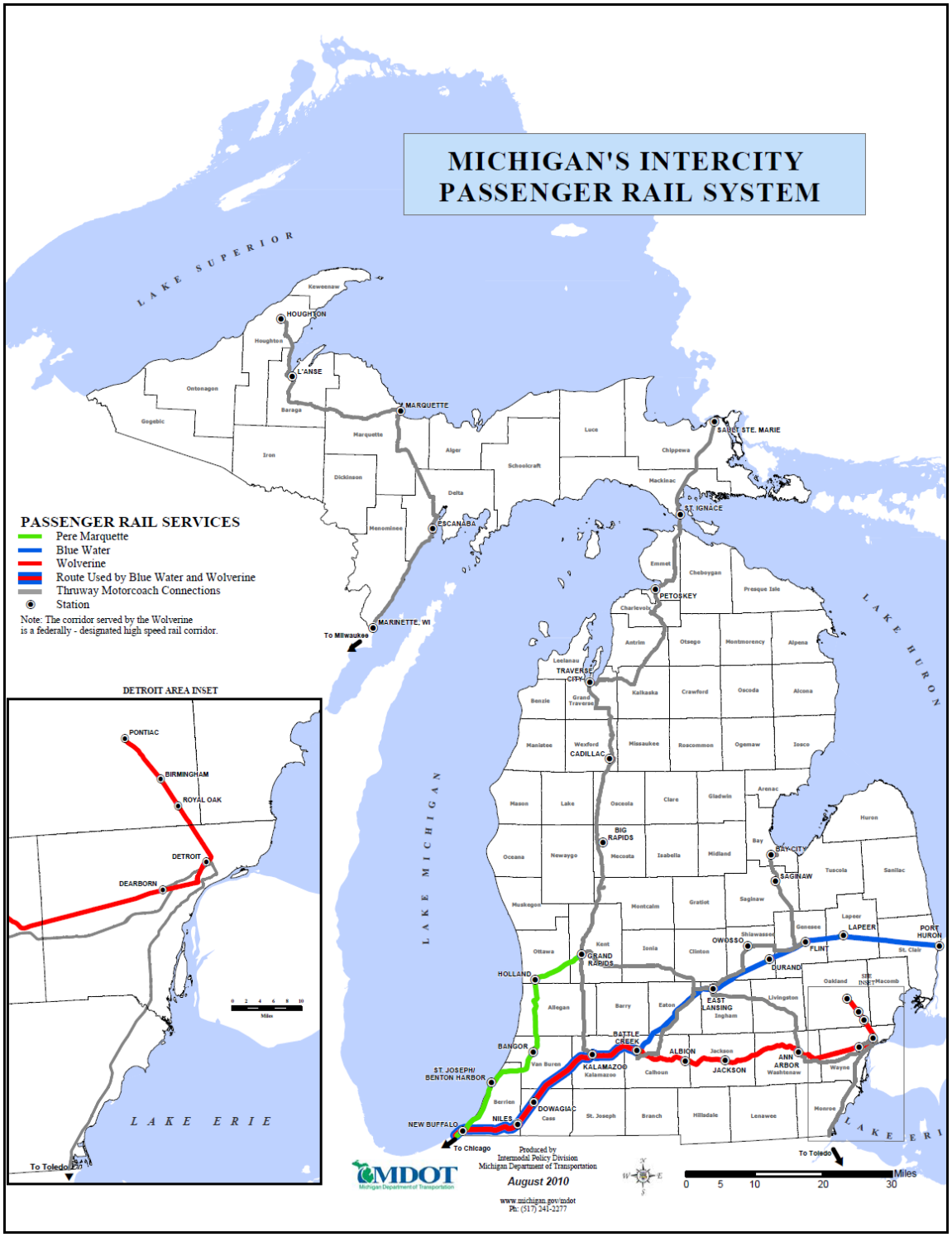
Amtrak offers intercity passenger rail services along three corridors in Michigan as shown in **Figure 2.5**. These three passenger rail corridors serve 22 stations and consist of 521 route miles. These services are:

- **Wolverine Service.** The Wolverine provides three daily round-trips on the 304-mile Chicago-Detroit/Pontiac corridor. Trains take approximately 6 ½ hours to travel from Chicago to Pontiac. The Wolverine trains serve stations in Chicago, Hammond-Whiting, Ind., Michigan City, Ind., New Buffalo, Niles, Dowagiac, Battle Creek, Kalamazoo, Albion, Jackson, Ann Arbor, Dearborn, Detroit, Royal Oak, Birmingham and Pontiac.
- **Blue Water Service.** Amtrak inaugurated the Blue Water service in 1974 along the 319-mile route between Chicago and Port Huron. In 1982, the line was replaced by the International Limited, operated jointly with VIA Rail Canada, between Chicago and Toronto. Delays associated with customs inspections at the border brought about the termination of the International Limited service and a restoration of the Blue Water in 2004. VIA still operates trains to Sarnia, right across the border from Port Huron. One round trip train per day is operated on the Blue Water route. Station stops are made in Chicago, New Buffalo, Niles, Dowagiac, Kalamazoo, Battle Creek, East Lansing, Durand, Flint, Lapeer and Port Huron. The Blue Water provides westbound service (Port Huron to Chicago) in the morning and eastbound (Chicago to Port Huron) service in the afternoon, traveling the entire route in approximately seven hours.
- **Pere Marquette Service.** The Pere Marquette service was initiated in 1984 through a partnership between MDOT and Amtrak. The train was named after the former railroad that operated in the southwest portion of the state, which was named for Father Jacques Marquette, a French missionary who founded Michigan's first European settlement in 1671. Station stops on this 176-mile route include Chicago, St. Joseph – Benton Harbor, Bangor, Holland and Grand Rapids. The one round trip train per day on this route operates west bound (Grand Rapids to Chicago) in the morning and eastbound in the evening (Chicago to Grand Rapids), traveling the entire route in approximately 4 hours.

The Chicago-Detroit/Pontiac corridor is one of the original federally-designated High-Speed Rail Corridors. The portion of this corridor between New Buffalo and Kalamazoo is owned by Amtrak, and is the only location outside of the Northeast Corridor where Amtrak owns the rail corridor on which its trains operate. It is also the only segment of track outside the Northeast Corridor that has the technical ability to allow trains to travel at 110 mph.

Amtrak has made considerable investments, supplemented with funding provided by MDOT and FRA, to upgrade its rail line between Porter, Ind. and Kalamazoo (83 miles in Michigan) to permit high-speed passenger train operations. Trains currently travel at speeds up to 95 mph on this corridor, and once operations tests on the Positive Train Control signal system that Amtrak has installed are completed, speeds will increase to 110 mph on the entire 97-mile Amtrak-owned segment beginning in August 2011.

Figure 2.5: Michigan Intercity Passenger Rail Service, 2011



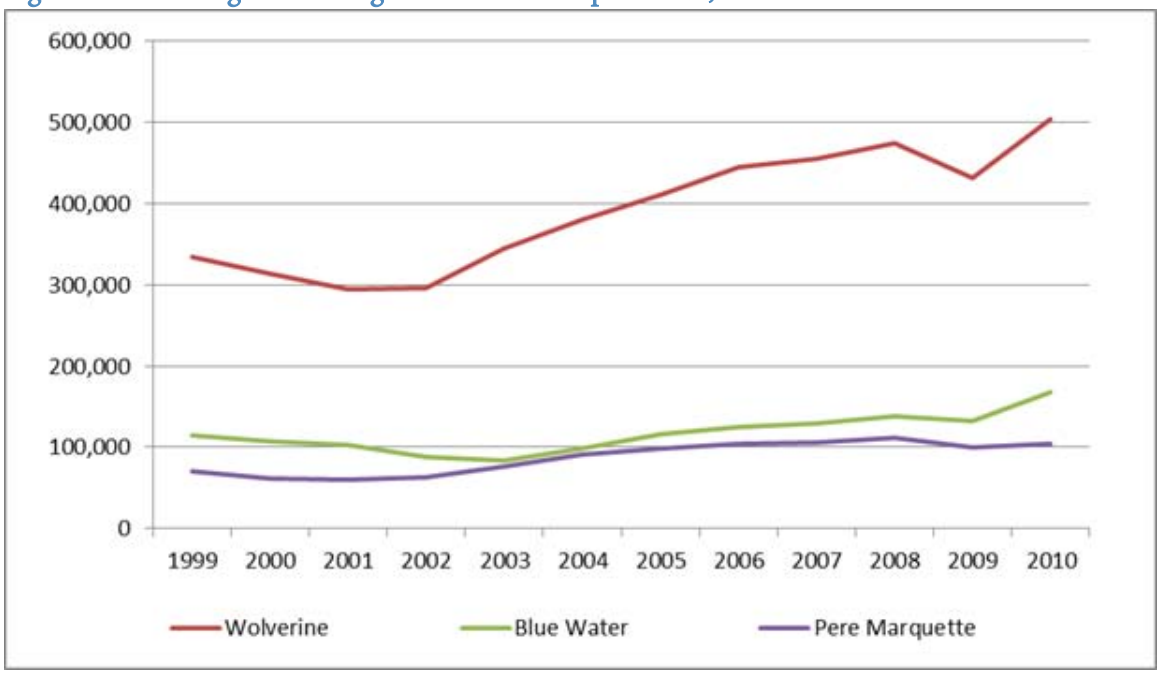
Unlike the Wolverine service, which is part of Amtrak's national system, the Pere Marquette and the Blue Water services are operated by Amtrak at the request of the State of Michigan. The state operating subsidy for these services ranges from $6 to $8 million per year. The price of operating each service is based on the allocation of direct costs, i.e., costs that are associated with train operation and service. These costs include shared-route costs to the host (freight) railroads, shared capital costs for maintenance on the Amtrak-owned infrastructure, fuel, labor, equipment maintenance, reservations, stations, etc. The operating subsidy is 100 percent of the projected route operating loss. The route operating loss is calculated as total operating revenue minus the total direct operating costs.[22]

Amtrak offers rail passengers a single-ticket, dedicated bus connection from East Lansing, Ann Arbor, Dearborn, and Detroit. These Thruway Bus connections travel to Toledo, Ohio, and connect to east coast trains. The bus operator Indian Trails and Amtrak also coordinate thruway bus service between Bay City, Saginaw, Flint, East Lansing and Battle Creek and also from Sault Ste. Marie, St. Ignace, Traverse City, and Grand Rapids to Kalamazoo. This provides service to many communities along the route and connections to trains along the Wolverine service. Thruway bus connections to Amtrak's Hiawatha service in Milwaukee also are provided from Houghton, L'Anse, Marquette and Escanaba.

2.4.1 Passenger Rail Ridership

Overall, ridership has increased on each of Michigan's three passenger rail services (Wolverine, Pere Marquette and Blue Water). **Figure 2.6** depicts the 10-year trends in ridership on each of these lines from 1999 to 2010.

Figure 2.6: Michigan Passenger Rail Ridership Trends, 1999-2010



[22] MDOT MI Transportation Plan 2005-3030. Intercity Passenger Technical Report. November 8, 2006.

Table 2.11 shows the total overall 10-year trend in boardings and alightings from trains at all stations for Michigan's Amtrak rail service from 1999-2010.

Table 2.11: Michigan Boardings and Alightings, 1999–2010

Station	Boardings 1999	Alightings 1999	Boardings 2010	Alightings 2010	% Increase in Boardings 1999-2010	% Increase in Alightings 1999-2010
Albion	750	1,038	812	815	8.3%	-21.5%
Ann Arbor	46,646	46,716	72,618	72,422	55.7%	55.0%
Bangor	1,067	1,320	2,035	1,820	90.7%	37.9%
Birmingham	4,880	4,802	11,814	12,081	142.1%	151.6%
Battle Creek	26,570	27,240	23,954	27,717	-9.8%	1.8%
CBM	21,654	21,595	N/A	N/A	N/A	N/A
Chicago	203,072	200,043	333,835	333,947	64.4%	66.9%
Dearborn	29,483	27,011	42,360	40,241	43.7%	49.0%
Detroit	26,756	26,555	34,993	35,754	30.8%	34.6%
Dowagiac	666	872	1,579	1,775	137.1%	103.6%
Durand	1,881	2,209	5,260	5,091	179.6%	130.5%
Flint	10,087	10,037	16,770	15,422	66.3%	53.7%
Greenfield Village	1,478	1,120	N/A	N/A	N/A	N/A
Grand Rapids	17,303	17,089	26,249	26,033	51.7%	52.3%
Hammond-Whiting, IN	7,924	8,388	3,331	3,856	-58.0%	-54.0%
Holland	11,459	13,922	18,578	18,650	62.1%	34.0%
Jackson	13,655	13,723	14,350	14,513	5.1%	5.8%
Kalamazoo	41,491	41,823	58,320	56,053	40.6%	34.0%
East Lansing	16,042	15,576	31,845	30,396	98.5%	95.1%
Lapeer	2,586	3,174	4,414	4,282	70.7%	34.9%
Michigan City, IN	941	1,458	1,542	2,356	63.9%	61.6%
New Buffalo (Pere Marquette)	501	1,109	N/A	N/A	N/A	N/A
New Buffalo (Wolverine/Blue Water)	N/A	N/A	5,040	6,654	N/A	N/A
Niles	12,393	11,976	9,544	9,537	-23.0%	-20.4%
Pontiac	4,336	4,192	8,477	7,858	95.5%	87.5%
Port Huron	6,516	5,760	9,574	9,133	46.9%	58.6%
Royal Oak	4,818	5,058	18,148	18,386	276.7%	263.5%
St. Joseph/ Benton Harbor	2,856	4,005	4,681	5,331	63.9%	33.1%
Unknowns	933	933	15,874	15,874	1601.4%	1,601.4%
TOTAL	**518,744**	**518,744**	**775,997**	**775,997**	**49.6%**	**49.6%**

Source: Amtrak/MDOT

As shown in **Table 2.12**, the Wolverine service (connecting Pontiac, Detroit and Chicago) is by far the most heavily utilized line, accounting for approximately two thirds of Michigan ridership. The second most utilized line is the Blue Water, which averaged between 17 percent and 22 percent of state ridership from 1999 to 2010. The line with the smallest share of ridership is the Pere Marquette, with ridership between 13 percent and 16 percent throughout the period. Trends in overall statewide utilization have been consistent throughout the period with no one line growing or declining in any given period disproportionately to other lines. However, it is notable that the Blue Water service reversed a trend of declining ridership and experienced steady growth since 2004 when the International Limited service to Toronto was ended and the route was terminated at Port Huron. The Blue Water service is one of the fastest growing services in the Amtrak system.

Amtrak set a ridership record in 2010, with over 775,000 passengers boarding Michigan trains.

Table 2.12: Annual Amtrak Ridership by Route

YEAR	Wolverine	Blue Water	Pere Marquette
1999	334,946	113,864	69,934
2000	313,255	106,866	61,102
2001	294,570	103,197	59,437
2002	295,550	88,045	63,596
2003	344,107	83,530	75,606
2004	379,677	98,356	90,522
2005	411,092	115,741	98,299
2006	444,319	124,953	103,912
2007	455,020	130,063	106,462
2008	474,479	138,604	111,575
2009	431,128	132,602	99,691
2010	503,964	168,248	103,785

Source: Amtrak/MDOT

2.5 Federal and State Funding Programs

Historically, Michigan and most other states have relied on a variety of relatively small federal and state funding programs to develop their passenger and freight rail systems. With the passage of PRIIA and ARRA, and the Transportation Investment Generating Economic Recovery (TIGER) discretionary program, which can fund freight and passenger rail projects, the federal funding picture has changed. PRIIA, enacted in 2008, provides a multi-year capital funding framework which emphasizes the role of the states in United States passenger rail development. In 2009, ARRA provided $8 billion in federal capital funding for state-sponsored high-speed and intercity passenger rail projects and $1.5 billion for the TIGER program.

This section highlights the major features of these new federal funding programs as well as the other selected federal funding programs available to Michigan for freight and passenger rail projects. Existing state funding programs that have been used to fund Michigan rail projects and to match available federal funding are also described and summarized below.

2.5.1 Federal Rail Funding Programs

Since 2008 the United States federal government has had an increased focus on improving the nation's passenger rail network. The passage of the Passenger Rail Investment and Improvement Act (PRIIA) in 2008 established the framework and authorized funding for a national passenger rail program. Over the past three years a significant amount of funding has been made available for passenger rail projects, both through PRIIA and ARRA. Michigan has been very successful in obtaining funding through these grant programs to support the development of the Chicago to Detroit/Pontiac high-speed rail corridor. A detailed list of the federal grants that have been awarded for this corridor is show in **Table 2.13** below.

Table 2.13: Federal Funding Committed for Chicago - Detroit/Pontiac Corridor

IMPROVEMENT	Source	Federal	State	Local	Total
Troy Station	ARRA (2009)	$8.50	$0.00	$0.00	$8.50
Dearborn Station	ARRA (2009)	$28.20	$0.00	$0.00	$28.20
Battle Creek Station	ARRA (2009)	$3.60	$0.00	$0.00	$3.60
Ann Arbor Station - PE/NEPA	ARRA (2011)	$2.80	$0.00	$0.70	$3.50
West Detroit Connection Track	ARRA (2009)	$9.40	$8.90	$0.00	$18.30
Kalamazoo-Dearborn - Acquisition/Corridor Enhancement/Professional Services	PRIIA (2010) ARRA (2011)	346.50	$18.75	$18.75	$384.00
Corridor Investment Plan - Environmental Clearance	PRIIA (2010)	$3.20	$0.20	$0.60	$4.00
Englewood Flyover (Illinois)	ARRA (2009)	$133.00	$0.00	$0.00	$133.00
NS Gateway Projects (Indiana)	ARRA (2009)	$71.40	$0.00	$0.00	$71.40
HSR - Porter, IN-New Buffalo (Amtrak)	ARRA (2009)	$32.90	$0.00	$0.00	$32.90
Total Corridor Investment		**$639.50**	**$27.85**	**$20.05**	**$687.40**
Midwest Next Generation Train Equipment Procurement (Michigan share TBD)	ARRA (2011)	$268.20	$0.00	$0.00	$268.20

The Passenger Rail Investment and Improvement Act of 2008 (PRIIA)

Congress passed the PRIIA in October 2008. This legislation reauthorized and reformed Amtrak, but most importantly, it provided a new statutory framework for a federal/state partnership to fund and develop United States high-speed and intercity passenger rail service using 80/20 federal/state capital grants. PRIIA legislation authorized $3.4 billion in capital grants over five years to states, groups of states, interstate compacts, public agencies, and in some cases Amtrak. This legislation requires Congressional action each year to appropriate the amounts authorized. Section 301 of the Act provides grants for Intercity Passenger Rail Service Capital Assistance. Section 501 provides capital grants for High-speed Rail Corridor Development for federally-designated corridors with planned speeds of 110 mph or more. Section 302 Congestion Grants are focused on relieving rail congestion bottlenecks. Section 303 requires each state develop and maintain a State Rail Plan to be eligible for the funding provided in Sections 301 and 501.

The American Recovery and Reinvestment Act of 2009 (ARRA)

Congress passed the American Recovery and Reinvestment Act (ARRA) in February 2009. ARRA included an appropriation of $8 billion in 100 percent federal funding providing "capital assistance for high-speed rail corridors and intercity passenger rail service." This program is based on the statutory framework provided by PRIIA and focuses on funding state sponsored projects. ARRA also provided $1.5 billion in 100 percent flexible multi-modal funding under the Transportation Investment Generating Economic Recovery (TIGER) discretionary grant program. Since then, another $600 million in 80 percent federal funding was appropriated in 2010 for the TIGER II discretionary grant program. The TIGER grant programs provide funding for both passenger and freight rail projects.

The FRA High-Speed and Intercity Passenger Rail Program (HSIPR)

In developing guidance for ARRA grants as well as grants offered under subsequent PRIIA appropriations, a structure for the FRA's High-Speed and Intercity Passenger Rail program (HSIPR) has evolved. The current structure is best reflected in the most recent notices of funding availability (NOFA) for FY 2010 appropriations for 80/20 federal/state grants under three program areas: 1) *Service Development Program Grants* issued in the Federal Register on July 1, 2010, 2) *Individual Project Grants* also issued on July 1, 2010, and 3) *Planning Grants* issued in the Federal Register on April 1, 2010. FRA will develop final guidance and regulations for the HSIPR over the next few years, but it is likely that these interim guidance documents will provide the basic framework for the PRIIA grant program as well as for future funding programs. Under the FY 2010 appropriation for these programs, $2.125 billion was provided for Service Development Program Grants, $245 million was provided for Individual Projects and $50 million was provided for Planning Grants.

FHWA Section 130 Highway-Rail Grade Crossing Program

The Federal Highway Administration (FHWA) Section 130 Highway-Rail Grade Safety Crossing program provides grants for the improvement of highway-railroad grade crossings that enhance safety. This includes: separation or protection of grades at crossings; the reconstruction of existing railroad grade crossing structures; and the relocation of highways or rail lines to eliminate grade crossings. Funds from the FHWA Section 130 program can be used for freight and passenger rail projects, provided that the projects improve safety at grade crossings. The amount of federal funds available for Section 130 is dependent on annual appropriations. Federal funds for grade-crossing safety improvements are available at a 90 percent federal share, with the remaining 10 percent to be paid by state and/or local authorities and/or the railroad. The federal share may amount to 100 percent for the following projects: signing; pavement markings; active warning devices; the elimination of hazards; and crossing closures. The decision on whether to allow 100 percent federal funding rests with the individual states.

FRA Rail Line Relocation and Improvement Capital Grant Program

Section 9002 of SAFETEA-LU authorized $350 million per year for the purpose of providing financial assistance for local rail line and improvement projects. For FY 2010, Congress appropriated $34,532,000 in federal funds for the Rail Line Relocation and Improvement program. Any construction project that improves the route or structure of a rail line and 1) involves a lateral or vertical relocation of any portion of the rail line, or 2) is carried out for the purpose of mitigating the adverse affects of rail traffic on safety, motor vehicle traffic flow, community quality of life, or economic development, is eligible. The federal share for

these funds is 90 percent, not to exceed $20 million. This program can also be useful for passenger rail projects which require the re-routing of freight operations to provide access for passenger service. No funding has been provided for this program in the 2011 appropriations process.

FHWA Funding Programs

While most funding programs controlled by the FHWA are targeted to roadway projects, several of the funding categories may be used for rail projects under special conditions.

- The **Surface Transportation Program (STP)** provides flexible funding that can be used for preservation of abandoned rail corridors, bridge clearance increases to accommodate double-stack intermodal trains, and freight transfer yards.
- The **Transportation Enhancement Program (TEP)** provides funding that can be used for the historic preservation and/or enhancement of rail stations.
- The **Congestion Mitigation and Air Quality Management (CMAQ)** program pays for transportation projects or programs that will contribute to attainment of national ambient air quality standards. CMAQ funds may be used for intercity passenger rail projects located in a nonattainment or maintenance area if they reduce emissions and meet the program's other eligibility criteria. Capital costs, as well as operating expenses (for the first three years), are eligible as long as the project contributes to attainment or maintenance of the air quality standard through reduction in vehicle miles traveled, fuel consumption or through other factors.
- **FHWA Traffic Mitigation** project funding is available to federally-eligible highway projects to address congestion resulting from construction activities in a given highway corridor. Where cost-effective, new or enhanced intercity passenger rail service can be considered as a traffic congestion mitigation measure. Federal highway funding can then be used to support all or part of the passenger rail operating costs during the life of the construction project. This funding option is most applicable to major multi-year highway improvement projects on high-volume interstate highways where intercity rail service operates in parallel to the highway corridor.

Federal Loan Programs

- The **Railroad Rehabilitation and Improvement Financing** (RRIF) program provides direct federal loans and loan guarantees to finance development of railroad infrastructure. Under this program, the FRA can authorize direct loans and loan guarantees to acquire, improve, or rehabilitate intermodal or rail equipment or facilities, including track, track components, bridges, yards, buildings and shops. It can be used to refinance outstanding debt incurred for the purposes listed above as well as for developing or establishing new intermodal or railroad facilities. While the program has been used largely for freight rail projects, it can be used for passenger rail and transit projects. In the case of passenger rail projects, RRIF funding is only workable where investment grade revenue and operating cost forecasts show that the project has the potential to provide a substantial revenue stream typically after a significant public investment is made in infrastructure and/or equipment.
- The **Transportation Infrastructure Finance and Innovation Act** (TIFIA) administered by the Federal Highway Administration, authorizes credit assistance on flexible terms in the form of secured loans, loan guarantees, and standby lines of credit. TIFIA financial assistance is provided directly to public/private sponsors of surface transportation projects of national significance. The TIFIA credit program's

fundamental goal is to leverage federal funds by attracting substantial private and other non-federal investment in critical improvements to the nation's surface transportation system. It can be used for both freight and passenger rail projects. A wide variety of intermodal and rail infrastructure projects are eligible and can include equipment, facilities, track, bridges, yards, buildings and shops.

- **Grant Anticipation Revenue Vehicle** (GARVEE) bonds can be issued by states for transportation projects receiving federal funding, and the project details must be approved by the FHWA. States repay the funds using anticipated federal funds. Grant Anticipation Bonds are useful when it is desirable to bring a project to construction more quickly than otherwise would be possible.

IRS Railroad Track Maintenance Credit Program

This program was authorized within the Internal Revenue Code to provide tax credits to qualified entities for an amount equal to 50 percent of qualified railroad maintenance expenditures on railroad tracks owned or leased by Class II or Class III railroads. The maximum credit amount allowed was $3,500 per mile of track.

Legislation was enacted in December 2010 to extend the tax credit program for an additional two-year period and maintains the credit limitation at $3,500 per mile.

2.5.2 Rail Funding Programs in Michigan

Funding for rail programs in Michigan has faced significant cuts over the past decade. The most recent reduction was a $1.7 million CTF cut in FY 2010, which was carried forward for FY 2011. At the end of FY 2010, the MiRLAP program was suspended and the fund balance was transferred to the State of Michigan's General Fund to assist in addressing the General Fund deficit. And although funding for railroad crossing safety on local roads has been more stable than CTF-funded programs in recent years, there was a drop in federal funding after the passage of SAFETEA-LU. In addition, $1 million in funding for the counterpart trunkline crossing program has been reallocated to other highway safety programs since FY 2008. Funding for the state-owned lines and Freight Economic Development programs is more than 63 percent less than in Fiscal Year 2001.

Funding for rail programs in Michigan has faced significant cuts over the past decade.

Michigan Rail Loan Assistance Program (MiRLAP)

The Michigan Rail Loan Assistance Program (MiRLAP) is a revolving loan program designed to contribute to the stability and growth of the state's business and industry by helping to preserve and improve Michigan's rail freight infrastructure. The program awards no-interest loans on a competitive basis to fund rail infrastructure preservation projects, such as track rehabilitation and bridge/culvert repair projects. Up to 90 percent of a project's eligible costs can be covered, with a repayment period of up to 10 years.

The balance of the MiRLAP fund was transferred to help address the General Fund shortfall in 2010. The program has been indefinitely suspended until the fund's balance is sufficient to support a competitive program. A history of MiRLAP funding is shown in **Table 2.14.**

Table 2.14: Michigan Rail Loan Assistance Program History

Fiscal Year	Appropriations*	Loan Obligations
1997	$3,000,000	$1,062,896
1998	$3,300,000	$721,776
1999	$3,300,000	$924,805
2000	$2,600,000	$2,567,196
2001	$2,000,000	$977,550
2002	($3,200,000)	$2,108,404
2003	$100,000	$553,111
2004	$100,000	$1,207,142
2005	$100,000	$1,445,353
2006	$100,000	$1,619,677
2007	$600,000	$0
2008	$600,000	$712,567
2009	$300,000	$1,389,798
2010	($5,700,000)	$0
TOTAL	**$7,200,000**	**$15,290,276**

** Includes un-allotments and fund transfers.*
Source: MDOT

In lieu of MiRLAP, the State Infrastructure Bank (SIB) (administered elsewhere in MDOT) can offer some assistance for rail infrastructure projects, but its applicability is significantly more limited. Both programs require that the loans be secured by appropriate collateral – most commonly a bank letter of credit, which typically subjects the borrower to additional costs. SIB loans are also subject to a three percent interest rate, versus MiRLAP's interest-free loans.

Freight Economic Development Program (FEDP)

Michigan's Freight Economic Development Program (FEDP) provides low-interest loans to provide new or expanding businesses access to the rail system. Projects are commonly a part of a larger incentive package organized by the Michigan Economic Development Corporation. As much as 50 percent of rail infrastructure costs can be loaned. Loans are made at a minimum interest rate of two percent below the prime rate. There is a five-year repayment period, but loan payments can be forgiven when annual shipping commitments are met. If shipping commitments are met for each of the five years, the loan effectively converts to a grant.

Applications are accepted continuously throughout the year. Businesses locating or expanding in Michigan or entities assisting these businesses are eligible to apply. **Table 2.15** provides a history of funding available under this program.

Table 2.15: Freight Economic Development and State-Owned Line Appropriations

Fiscal Year	Preservation & Development	Rail Freight Fund*	Property Management Funding**
1995	$5,547,566	$800,000	$2,600,000
1996	$4,200,000	$1,000,000	$2,600,000
1997	$1,800,000	$1,000,000	$2,000,000
1998	$2,500,000	$2,951,700	$1,850,000
1999	$3,500,000	$1,465,822	$2,000,000
2000	$4,100,000	$671,662	$1,893,300
2001	$4,328,000	$1,099,949	$1,893,300
2002	$7,668,800	$1,389,270	$1,893,300
2003	$3,592,900	$2,000,000	$1,500,000
2004	$3,492,900	$2,000,000	$1,500,000
2005	$1,621,738	$2,000,000	$1,000,000
2006	$1,392,900	$1,560,349	$1,000,000
2007	$2,592,900	$560,853	$1,000,000
2008	$2,992,900	$459,373	$1,000,000
2009	$2,992,900	$672,069	$1,000,000
2010	$1,264,200	$1,489,229	$1,000,000

** Maximum amount available for expenditure. Unspent dollars carry forward.*
*** Not a source of FEDP funds.*
Source: MDOT

State-Owned Rail Property Capital Development

The Capital Development Program provides ongoing property management and infrastructure rehabilitation in an effort to maintain the safety of the 530 miles of active state-owned lines and the existing level of service to the shippers. Ongoing property management includes vegetation control, and bridge, culvert and crossing repairs as necessary. Property leases and trackage-right agreements are maintained to span a gap in the corridor between Owosso and Durand. The program's goal is to maintain service to shippers. The program works to maintain the commercial viability of the lines so they can be returned to the private sector. The dollars reflected in **Table 2.14** serve as the funding source for this program as well.

Local Grade Crossing Program (LGCP)

The Local Grade Crossing Program (LGCP) provides assistance to local governments and railroad companies with developing and implementing projects that enhance safety at public highway-railroad crossings. In accordance with federal and state laws, the LGCP evaluates crossings statewide to develop an annual prioritized listing, and funds safety improvements where they will have the greatest impact for the public. Existing funding levels allow for approximately 40 railroad crossing safety projects per year. Although this is less than one percent of the local crossings in the state, the state is making steady progress on improving safety at local railroad crossings. Approximately 50 percent of the crossings in the state now have active warning devices, and car-train crashes have steadily declined.

Funding is also available for safety enhancements at crossings affected by road projects. In addition, the LGCP provides cash incentives to road authorities for road closures and covers up to 100 percent of the

project costs associated with relocating/realigning active track to eliminate public grade crossings. A history of expenditures for the LGCP is shown in **Table 2.16**.

Table 2.16: Grade Crossing Program Expenditure History

Fiscal Year	Local Crossings*	Trunkline Crossings	Total
2000	$5,880,280	$2,641,681	$8,521,961
2001	$8,322,827	$2,872,782	$11,195,609
2002	$5,916,607	$4,509,867	$10,426,475
2003	$6,548,542	$4,653,663	$11,202,206
2004	$7,441,394	$4,284,671	$11,726,065
2005	$6,842,337	$5,443,887	$12,286,224
2006	$3,637,261	$4,956,835	$8,594,096
2007	$7,260,623	$3,913,932	$11,174,554
2008	$7,243,952	$5,011,473	$12,255,425
2009	$4,889,692	$3,733,816	$8,623,508
2010	$7,041,077	$1,444,156	$8,485,232

Reflects new project authorizations and adjustments in project costs.
**Expenditures can exceed annual appropriations due to prior balances carried forward.*
Source: MDOT

Trunkline Railroad Crossing Program

The Trunkline Railroad Crossing program finances various safety measures necessary to improve crossing surface condition and to upgrade warning devices at state highway crossings. The projects typically are a part of highway work or stand-alone jobs initiated by the Trunkline Railroad Coordination in response to a request from the railroads, private citizens or other areas within MDOT. This program also participates in maintenance work on the trunkline grade crossings by assisting the railroad in financing approach pavement and any maintenance of traffic required. A history of expenditures for the Trunkline Railroad Crossing program is also shown in **Table 2.16**.

Passenger Rail Program

Michigan is one of 15 states that contract with Amtrak for the operation of trains that supplement the national Amtrak network by extending the reach of passenger rail services or increasing frequencies on national routes. Michigan's State Transportation Commission has adopted policies that acknowledge that intercity passenger rail service, including high-speed rail, should be an integral part of the transportation system that meets transportation needs now and in the future. MDOT recognizes that intercity passenger rail is most effective in high-volume travel corridors and that its best performance is achieved with high ridership.

Through its investments in operating and capital assistance to enhance Amtrak's nationwide system, MDOT endeavors to:

- Provide passenger rail service in Michigan's highest travel corridor. This includes connections to the largest population centers, employment centers, and university communities.
- Meet customers' long-distance travel needs including safe and accessible equipment and terminals.

- Increase coordination and build partnerships of various modes to balance the overall transportation system.
- Fund capital improvements to reduce rail congestion and support the development of the high-speed rail corridor which allows for increased speeds and shorter more reliable travel times.

MDOT's activities include providing an operating subsidy for rail passenger services to supplement intercity passenger rail services. MDOT supports operations on the Blue Water and Pere Marquette services. The Wolverine service is considered to be part of Amtrak's national network and the state does not contribute to the operation of these trains. A history of the state's subsidy of Amtrak operations is shown in **Table 2.17**.

Since Amtrak began operating the nation's passenger rail service in 1974, MDOT has invested over $100 million in state, federal and local funds on passenger-related rail projects.

MDOT has made significant capital investments in the state's rail network to support passenger rail service. Since Amtrak began operating the nation's passenger rail service in 1974, MDOT has invested over $100 million in state, federal and local funds on passenger-related rail projects. These projects have included new and rehabilitated stations and associated facilities, grade crossing improvements, separations and eliminations, track and signal upgrades (especially on the 97 miles of Amtrak-owned track between Porter, Ind. and Kalamazoo), and rail equipment upgrades. A detailed list of these capital investments is included in **Table 2.18**.

Table 2.17: Annual State of Michigan Subsidy of Amtrak Operations

Fiscal Year	Annual State Subsidy
1994	$965,000
1995	$1,100,000
1996	$1,897,500
1997	$2,050,000
1998	$2,050,000
1999	$2,050,000
2000	$2,050,000
2001	$5,700,557
2002	$5,700,000
2003	$5,700,000
2004	$7,100,000
2005	$7,100,000
2006	$7,100,000
2007	$6,236,555
2008	$6,124,306
2009	$6,435,296
2010	$7,585,976

Source: MDOT

Table 2.18: Michigan Capital Investments in Passenger Rail Service

Project	FY Started	State $	Federal $	Other $	Other Participants	Status
Jackson Study	2009	$60,000				ongoing
Durand Parking Lot	2009	$250,000				ongoing
Test Project-Denton Road	2007	$158,553	$118,447			ongoing
Battle Creek Signal Relocation	2007	$146,440				ongoing
LED Signals	2006		$277,000			complete
Generators-Amtrak Ownership	2006		$79,664			ongoing
Battle Creek Signage	2006	$5,000				complete
Detroit Station Rehabilitation	2006	$25,000				complete
East Lansing Station Rehabilitation	2006	$20,000				complete
Galien-Grant Street Closure	2006		$100,000			complete
Grand Rapids Station Rehabilitation	2006	$50,000				complete
Holland Protective Fencing	2006	$25,000				complete
Jackson Station Stabilization	2006	$300,000				ongoing
Troy Station Design	2006	$350,000				complete
Kalamazoo Station	2005					complete
Bangor Station Rehabilitation	2004	$125,000				complete
Port Huron Platform/Hook-ups	2004	$175,000				complete
Michigan Avenue/Kalamazoo Closures	2004	$115,000				complete
Galien-Grant Street Closure	2004		$55,720			complete
Jackson Station Study	2003	$50,000		$50,000	City	complete
Albion Grade Crossing Elimination	2002	$101,200				complete
Decatur Fencing Project	2001	$73,100	$42,500			complete
Three Oaks Fencing Project	2001	$22,840	$27,360			complete
Battle Creek Station Track Study***	2001	$435,757				complete
Amtrak Infrastructure Work*	2000	$5,577,958				ongoing
Niles Station Enhancement	2000	$396,040	$141,640			complete
Private Crossing Elimination*	1999	$200,000	$966,420			ongoing
Kalamazoo Grade Crossings	1999	$1,570,960				complete
Horizon Coach Refurbishment	1998	$3,000,000				complete
Dearborn-New Station	1997	$248,125	$992,500			complete
Grand Rapids Station Rehabilitation	1996	$131,000				complete
Automated Ticketing	1996	$500,000				ongoing
High-Speed Positive Train Control**	1995	$10,950,768	$19,430,012	$9,377,569	Amtrak, GE	ongoing
Durand Rehabilitation	1994		$102,000	$26,000	City	complete
Greenfield Village- Platform, Station	1994	$170,660	$122,640			complete
Pontiac Mechanical Building	1994	$32,000	$130,000			complete

Table 2.18: Michigan Capital Investments in Passenger Rail Service (continued)

Project	FY Started	State $	Federal $	Other $	Other Participants	Status
Battle Creek- Minor Rehabilitation	1993	$25,600		$6,400	City	complete
Detroit Permanent Station	1993	$2,590,000	$6,160,000			ongoing
Dowagiac- Platform, Enhancement	1993	$50,000	$341,048	$208,539	City	complete
Kalamazoo- Minor Rehabilitation	1993	$153,000				complete
Lapeer- Rehabilitation	1993	$25,000	$25,000	$6,000	City	complete
Section 1010 Grade Crossing Improvements	1993	$1,000,000	$3,650,000			ongoing
Pontiac Extension- Station and Track	1992	$2,942,000				complete
Holland- Major Station Rehabilitation	1991	$1,000,000		$700,000	City	complete
Lapeer- Station Rehabilitation	1991	$125,000				complete
Coach Refurbishment	1990	$4,925,000				complete
Conrail Grade Crossing Improvements	1989	$4,500,000				complete
Corridor Improvements	1989	$7,805,523				complete
Flint- Station Construction	1989	$700,000				complete
St. Joseph- Station Rehabilitation	1989	$150,000		$350,000	City	complete
Albion- Station Rehabilitation	1988	$150,000				complete
Detroit- Temporary Station	1988	$550,000		$150,000		complete
Durand- Station Rehabilitation	1988	$85,000		$15,000	City	complete
Niles-Station-Major rehab	1988	$275,000		$275,000	Amtrak	complete
Cab Control Cars	1987	$4,075,000		$4,075,000	Amtrak	complete
Amtrak Grade Crossing improvements	1986	$425,000				complete
E. Lansing- Station Rehabilitation	1985	$50,000	$75,000	$100,000	City/Amtrak	complete
Jackson- Station Rehabilitation	1985		$200,000			complete
Bangor- Station Rehabilitation	1984	$20,000		$30,000	City/Amtrak	complete
Grand Rapids- Temporary Station Construction	1984	$50,000		$100,000	City/Amtrak	complete
New Buffalo- Station Rehabilitation	1984	$10,000		$15,000	City/Amtrak	complete
Ann Arbor- Station Construction	1983	$375,000		$375,000	City/Amtrak	complete
Battle Creek- Construction	1981	$2,000,000				complete
Dearborn- Station Construction	1979	$375,000		$375,000	City/Amtrak	complete
Dowagiac- Major Station Rehabilitation	1977	$100,000				complete
Kalamazoo- Major Station Rehabilitation	1977	$1,000,000				complete
Port Huron- Station Construction	1974	$50,000		$100,000	City/Amtrak	complete
Total		**$60,846,524**	**$33,036,951**	**$16,334,508**	**$110,217,983**	

** $800,000 in state money added to Amtrak Infrastructure and $200,000 in state money added to Private Crossing Elimination in FY 2003 and an additional $795,000 of state funds put into Amtrak Infrastructure and $200,000 in Auto Ticketing Project in 2004.)*

*** This project was started in 1995 and additional monies have been added through 2006. In 2006 the following contributions were made: State- $250,768, FRA- $355,436, GE Transportation Systems- $580,000, Amtrak- $570,000) Amendatory Contract (96-0819/A8) between MDOT and the FRA does not reflect the $580,000 that is contributed by GE Transportation Systems. It is in the work plan but FRA did not want to reflect it in their total project costs.*

**** $775,058 in state money was added to Battle Creek Station Track Project/Study in FY 2003. Total of $2,868,343.28 was transferred in FY 2008 from this project to the West Detroit Connection Track Project which was not on list until FY 2009.*

Source: MDOT

2.6 Previous Studies

Numerous studies have been conducted by the State of Michigan and various regional and local governmental agencies that address the role of rail in the state's transportation network. These studies have focused on determining current and future rail needs and the benefits of investing in the state's rail network. Studies range from comprehensive statewide policy development plans to individual studies designed to move rail projects forward to implementation. Summary descriptions of some of the studies conducted since 1995 are included below. Additional detail regarding all of the studies can be found in *Technical Memorandum #2: Existing Conditions*.

2.6.1 Statewide Plans and Programs

2005–2030 Long-Range Transportation Plan: Moving Michigan Forward (MDOT June 2007)[23]

The State Long-Range Transportation Plan (SLRP) addresses Michigan's transportation needs through 2030. Seventeen technical reports and several other supporting documents were developed to examine issues for every mode of transportation as well as related topics such as the environment, land use, and the economy. Dozens of public meetings were held throughout the state to obtain customer and stakeholder input. Surveys were conducted, and trends were examined to better understand the current condition and future needs of transportation in Michigan.

The SLRP has identified the following rail projects that are being implemented along National/International corridors of focus, which are discussed later in this section:

- Midwest Regional Rail Initiative (MWRRI)
- Detroit Intermodal Freight Terminal (DIFT)
- Ann Arbor-Detroit-Pontiac Passenger Rail/Bus Rapid Transit Initiative

Other Plans and Programs

Other statewide plans and programs discussed in *Technical Memorandum #2: Existing Conditions* include the following:

- State Transportation Improvement Program, FY 2008-2011[24]
- MDOT Five Year Transportation Program[25]
- Michigan Intercity Bus and Passenger Rail Study[26]
- Michigan Passenger Rail Station Community Benefits Study[27]

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[23] http://www.michigan.gov/mdot/0,1607,7-151-9621_14807_14809---,00.html
[24] http://www.michigan.gov/mdot/0,1607,7-151-9621_14807_14808---,00.html
[25] http://www.michigan.gov/documents/mdot/MDOT_5_Year_Program_216970_7.pdf
[26] Grengs, J., Michigan Intercity Bus and Passenger Rail Study, University of Michigan, 2009.
[27] http://www.michigan.gov/documents/mdot/MDOT_Michigan_Passenger_Rail_Station_Community_Benefits_Study_299920_7.pdf

2.6.2 Regional Plans and Studies

Final Environmental Impact Statement (FEIS) and Final Section 4(f) Evaluation – Detroit Intermodal Freight Terminal (DIFT) (MDOT & Federal Highway Administration (FHWA), December, 2009)[28]

The FEIS for the Detroit Intermodal Freight Terminal (DIFT) describes the social, economic, and natural environmental impacts of a proposed freight terminal located in southwest Detroit between Wyoming and Livernois avenues, south of I-94. The preferred alternative involves consolidating intermodal operations of the CSX, NS, and CP railroads in Southwest Detroit at the Livernois-Junction Yard. The CP/Oak terminal will continue to be used for non-intermodal railroad purposes. The CN/GTW has opted not to shift its Moterm operation to the Livernois-Junction Yard and not to expand its terminal. However, it will pay its share of external-to-terminal rail improvements that are part of the DIFT project. Such improvements by the DIFT project will increase the efficiency of operations. Road improvements also will be made.

The Detroit Intermodal Freight Terminal will be used as a center for stimulating economic revitalization in southeast Michigan by improving rail freight transportation opportunities and efficiencies at a consolidated terminal in southwest Detroit.

This terminal will be used as a center for stimulating economic revitalization in southeast Michigan by improving rail freight transportation opportunities and efficiencies at a consolidated terminal in southwest Detroit. There is a current lack of adequate intermodal capacity in Southeast Michigan, and the connectivity between intermodal terminals is poor. Roadway improvements would be needed to realize this plan to successfully direct traffic into, out of, and around the terminal. The consolidated terminal would accommodate existing and future demands, while supporting the needs of residential neighborhoods and businesses in the area.

Ann Arbor-Detroit Regional Rail Project[29]

The Southeastern Michigan Council of Governments (SEMCOG) has been working to improve transit services along the 38-mile corridor between downtown Detroit and Ann Arbor. This project is part of the Lansing-Detroit project that emerged in 1999. The Alternatives Analysis/Draft Environmental Impact Statement (AA/DEIS) completed in 2006 analyzed five different alternatives using a combination of three different technologies (Bus Rapid Transit, Light Rail Transit and Commuter Rail Transit). The preferred alternative selected in the DEIS includes passenger rail service connecting to the proposed Woodward Avenue/M1 light rail corridor in Detroit.

The AA/DEIS determined that the proposed service would not meet the Federal Transit Administration's cost effectiveness requirements and was therefore not eligible for federal funding. Consequently, the state and SEMCOG decided to move this project forward. The intent is to start with a three to five year demonstration project plus run trains for special events. This will hopefully demonstrate that costs and ridership would be in a range to better qualify the project in either the federal New Starts or Small Starts program. The federal process would be continued at a later date after a successful demonstration period.

[28] http://www.michigan.gov/mdot/0,1607,7-151-9621_11058_26215---,00.html
[29] http://www.semcog.org/AADD.aspx

Washtenaw Livingston Rail Line (WALLY)[30]

WALLY is a proposed north-south passenger rail service between Ann Arbor and Howell, a distance of approximately 27 miles, with three intermediate stops. Under this proposal, the Ann Arbor Transportation Authority will operate four trips to Ann Arbor beginning in the morning and four return trips to Howell beginning in the afternoon. Projections estimate 1,200 passengers per day. Capital costs are estimated to be $32 million and the annual operating expense is approximately $7 million. In April 2010, supporters announced a scaled-back proposal with start-up costs of $16-$20 million, and yearly operating costs of $7.1 million.

About half of the money has been secured. The majority of funding is coming from MDOT, which is paying to refurbish 15 former Chicago-based Metra rail coaches, improve portions of the 27 miles of MDOT-owned track, and conduct an environmental assessment.

This line would ease traffic congestion on US-23 and promote economic development in Livingston and Washtenaw counties. MDOT determined that adding a third lane of traffic to the highway would cost approximately $500 million, far exceeding any budget in place. This line would also create economic development opportunities for existing and new businesses. Station sites are currently undergoing planning and environmental reviews.

Other Regional Plans and Studies

Other regional plans and studies discussed in the technical memorandum include the following:

- Service NEPA Environmental Assessment. Chicago-Detroit/Pontiac Rail Corridor Improvements from Chicago to Pontiac[31]
- Lansing to Detroit Passenger Rail Study[32]
- Direction2035 Regional Transportation Plan for Southeast Michigan[33]
- TranslinkeD Driving Global Connectivity[34]
- Detroit Regional Aerotropolis: Strategic Development Master Plan[35]
- Sault Ste. Marie Multi-Modal Initiative[36]
- Southeast Michigan Regional Rail Study

[30] http://www.theride.org/wally.asp
[31] http://www.michigan.gov/documents/mdot/MDOT_ServiceNepaEA_295227_7.pdf
[32] http://www.semcog.org/AADD_AdditionalMaterials.aspx
[33] http://www.semcog.org/Long-RangeTransportationPlan.aspx
[34] http://www.detroitchamber.com/index.php?option=com_content&view=article&id=73&Itemid=73
[35] http://www.detroitregionaerotropolis.com/pdf/JLLstudy.pdf
[36] Sault Ste. Marie Multimodal Initiative. Phase I Market Assessment Final Report. Destiny Sault Ste. Marie, 2007.

2.6.3 Multi-State and National Plans and Studies

Midwest Regional Rail Initiative Reports (MWRRI, 2004-2006)[37]

The Midwest Regional Rail Initiative is a cooperative, nine - state effort that recommends providing 3,000 miles of high-speed rail to connect over 100 cities.

The Midwest Regional Rail Initiative (MWRRI) is a cooperative, multi-agency effort that began in 1996 and involves nine Midwest states (Indiana, Illinois, Iowa, Michigan, Minnesota, Missouri, Nebraska, Ohio, and Wisconsin) as well as the FRA and Amtrak. This collaboration forges an enhanced partnership between USDOT, FRA and the Midwestern states for planning and providing passenger rail service. The MWRRI has developed a plan for the Midwest Regional Rail System (MWRRS) that includes:

- Amtrak operation of a Chicago-centered hub and spoke passenger rail system
- Use of 3,000 miles of rail rights-of-way to connect rural, small urban, and major metropolitan areas and operate on eight corridors; connecting 100 cities and 80 percent of the Midwest's 65 million residents
- Projected ridership: 13.6 million passengers annually
- 90 percent of the Midwest's population would be within an hour ride of a MWRRI rail station
- Introduction of modern trainsets capable of operating at speeds up to 110 mph
- Provision of multi-modal connections to improve system access
- Introducing a contracted rail operation that improves efficiency and reliability

The Chicago–Detroit–Pontiac corridor is one of the key corridors recommended for upgrade to 110 mph operation. Under the MWRRI plan, this 304-mile corridor would see a significant improvement in rail service resulting from upgrades to the track and signal network, the use of modern equipment, improved travel times and frequencies; competitive fares that maximize revenue yields, improved reliability and enhanced on-board and station amenities. The MWRRI Plan proposes to support this Michigan high-speed rail corridor with conventional enhanced passenger rail service in the Pere Marquette and Blue Water corridors and with feeder bus service.

The goal of the initiative is to develop a passenger rail system that offers business and leisure travelers shorter travel times, additional train frequencies, and connections between urban centers and smaller communities. The MWRRI will provide a large increase in service and will cut travel time between destinations by 30 to 50 percent.

As a result of these improvements that will create more frequent and higher quality on-time service, rail ridership in the routes that encompass the MWRRI are expected to increase greatly. This will help to reduce expected growth in automobile congestion on highways and reduce overcrowding and runway delays at regional airports.

[37] http://www.michigan.gov/mdot/0,1607,7-151-11056-166461--,00.html

Other Multi-State and National Plans and Studies

Other multi-state and national plans and studies discussed in the technical memorandum include the following:

- Vision for High-Speed Rail in America (Federal Railroad Administration, 2009)[38]
- Preliminary National Rail Plan (Federal Railroad Administration, 2009)[39]
- State Rail Planning Best Practices (AASHTO, 2009)[40]

38 http://www.fra.dot.gov/downloads/Research/FinalFRA_HSR_Strat_Plan.pdf
39 http://www.fra.dot.gov/Downloads/RailPlanPrelim10-15.pdf
40 American Association of State Highway and Transportation Officials. State Rail Planning Best Practices. November, 2009. (https://bookstore.transportation.org/item_details.aspx?ID=1557)

3 Organizational Opportunities

This section explores the roles that both the public and the private sector involvement have in rail. This is an important underpinning of this Plan because it addresses freight rail which is predominately privately owned and supported by private investments, as well as intercity passenger rail that is publicly supported but operates in large part on privately owned freight railroads.

This section first reviews public/private partnerships as an emerging mechanism for addressing both freight and passenger rail needs in an environment of limited public resources. Then, it reviews divesture requirements and opportunities. Finally, this chapter offers a summary of the existing rail program and a summary of rail programs in other states that can be used to understand program options available to Michigan. Further detail regarding all of these topics can be found in *Technical Memorandum #4: Institutional Considerations*.

3.1 Public-Private Partnerships

Both the public and private sector play important roles in the planning, design, construction, finance, operations and maintenance of freight and passenger rail transportation systems. In Michigan, there are 24 freight railroads (private sector) in operation, with intercity passenger rail service provided by Amtrak (a public sector corporation). The public sector in general has many goals related to rail transportation systems, with six primary goals identified in the Plan (See Section 1.6). These goals are not exclusive to the public sector. To be successful, the Plan must *align these goals with the private sector goals of greater market share and business growth*.

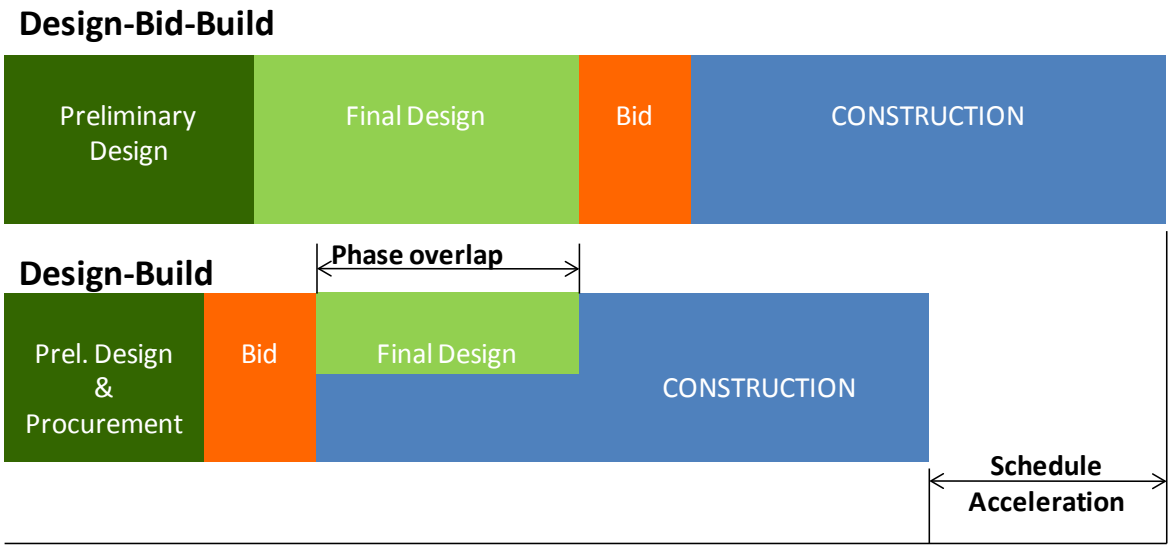
All rail projects funded by MDOT require some level of partnering between the state and private companies. The vast majority of the rail lines in the state are owned by private railroads. The other lines are owned by the state or Amtrak and have operating agreements with the private railroads. MDOT has been successful in negotiating private participation in publicly-funded rail projects based on the benefits that the project provides to the railroad. For example, MDOT was able to secure a railroad contribution to fund a portion of the non-federal share of improvements for passenger service to the Kalamazoo to Dearborn segment of the Chicago to Detroit corridor based on benefits to freight rail operations that will result from the planned capacity improvements. The Detroit Intermodal Freight Terminal (DIFT) is a substantial public/private partnership in which the railroads have committed to paying up to 50 percent of the individual project costs in recognition to the benefits that will accrue to their operations.

Various levels of public/private partnerships have application in a variety of transportation projects including freight and passenger rail. One of the keys to creating viable public/private partnership (P3) opportunities is to *identify areas of mutual interest* where the private sector can improve business, and the public sector can meet goals such as innovation, financing, and project schedule acceleration that can benefit from private sector involvement.

MDOT has experience partnering with the private sector to accelerate project delivery in Michigan on several ARRA-funded design-build projects, and two design-build-finance pilot projects dating back to 2008. A design-build approach allows a private sector design and construction team to achieve project cost savings by integrating constructability into the design and also provides project cost savings through schedule acceleration. A major reason for project schedule acceleration on design-build projects versus

traditional design-bid-build projects is the phase overlap where construction can be initiated in certain project areas while final design is being completed in other areas, as depicted in **Figure 3.1**.

Figure 3.1: Schedule Acceleration Potential of Design-Build



Another important aspect of business collaboration is *public sector readiness* by making the proper tools and techniques available for implementation, allowing the public and private sectors to enter into P3 contracts. As of January 2011, Michigan does not have P3 enabling legislation, whereas 29 states and Puerto Rico already have legislation in place that provides them with a competitive advantage in attracting private sector investment.

Once P3-enabling legislation is in place in Michigan, the public sector will have the ability to take advantage of entering into P3 contractual agreements, which allow for substantial risk to be allocated to the private sector- *including financial, operations, and maintenance components*- over the life of the P3 agreement. Using an innovative project delivery method is an important strategy to control public sector costs on rail projects, including the delivery of high-speed rail service, where a portion of financial risk can be transferred to the private sector.

3.1.1 Recent State Legislation Supporting Passenger Rail Projects

This section provides a highlight of recent state legislation which potentially impacts the planning, delivery, maintenance and operations of passenger rail service within Michigan. As previously discussed above, broad P3-enabling legislation was introduced, but has not been taken up as of April 2011. In 2010, however, several bills were enacted that provide increased opportunities to leverage both existing passenger rail programs and future passenger rail investments. Public Act 250 of 2010 created a new "private infrastructure investment financing" (PIIF) program. PIIF permits private investment in infrastructure to be repaid from value captured within the boundaries of a benefitted area.

Several of the bills enacted in December 2010 expanded existing Michigan economic-development programs and made them explicitly usable for rail- and transit-oriented developments. No substantial new funding sources were created, but redevelopment tax incentives, tax increment finance authorities, and the Transportation Economic Development Fund (TEDF) became usable for infrastructure or private development within one-half mile of a rail station. Other bills required closer coordination of land-use plans with transit service. The following list provides an overview of these economic-development related bills that became law and expanded the passenger rail delivery toolbox for Michigan communities and developers:

- **Brownfield Transit Oriented Development (TOD).** P.A. 241 of 2010 makes TOD (infrastructure with one-half mile of a transit station, or any public or private project housing a transit station) eligible for brownfield redevelopment tax incentives.
- **Corridor TOD.** P.A. 242 of 2010 makes TOD and infrastructure eligible for corridor-improvement authority tax incentives.
- **Building Authorities and TOD.** P.A. 243 of 2010 makes building authorities eligible to construct transit-oriented infrastructure.
- **Commercial Redevelopment Districts.** P.A. 244 of 2010 included transit-oriented infrastructure in Commercial Redevelopment Act tax abatements.
- **Tax Increment Financing Authorities (TIFA) for TOD.** P.A. 245 of 2010 makes TIFAs usable for TOD and infrastructure.
- **Transit and Site Plans.** P.A. 305 of 2010 requires zoning ordinances to include the provision that site plan reviews be required to consider proximity of transit service.
- **Transit Coordination:** P.A. 306 of 2010 requires municipal planning agencies to coordinate with transit and commuter train operators.
- **Private Infrastructure Investment Enable PIIF.** P.A. 236 of 2010 allows private contributions to infrastructure projects by investors repaid from flexible, optional, TIFA-style capture of tax increments on the benefited property. This law also requires that a public hearing be required.
- **Transit Planning.** P.A. 236 of 2010 allows inter-municipal committees to study TODs.
- **TIFIAs for TOD.** P.A. 237 of 2010 allows historic district tax increment finance authorities for TOD and stations.
- **TEDF and TOD.** P.A. 238 of 2010 allows TEDF to fund transit-oriented projects, from any category.
- **TIFAs for TOD.** P.A. 239 of 2010 amended the Local Development Financing Act to allow TIFAs for transit-oriented development.
- **TOD Incentives.** P.A. 240 of 2010 allows economic development corporations to build transit-oriented development and transit stations.

3.1.2 Recent Federal Funding Supporting Passenger Rail Projects

To establish the business case for the public and private sector to work together, a financial plan must be in place to identify funding sources, revenue streams, and anticipated cost sharing between participants. Additionally, to attract private sector investment for public infrastructure projects, *due diligence must be complete to enable private sector interests to assess risk and make informed business decisions.* Once the private sector has submitted its proposal, the public sector can then determine where additional funding or incentives might be necessary to supplement gaps in private sector support.

Public sector (FRA) funding available to support rail infrastructure projects in Michigan at this time focuses on passenger rail improvements for the Chicago-Detroit/Pontiac corridor. Since 2009, over $400 million in FRA grant monies have been allocated to Michigan. The following list provides a more detailed funding breakdown:

- $40 million (100 percent federal funding) grant for FY 2009 for the Troy (renovation), Battle Creek (renovation), and Dearborn (new) rail stations awarded to MDOT with no Michigan matching funds required.
- $150 million (80/20 match) grant for FY 2010 for MDOT to purchase and/or restore 135 miles of rail line between Kalamazoo and Dearborn from Norfolk Southern. 20 percent required match ($37.5 million) to be determined by negotiations between Michigan and Norfolk Southern.
- $7.9 million grant (50 percent federal, 50 percent state) for FY 2010 for new connecting track and crossovers, new bridge, and new rail traffic control system in western Detroit.
- $3.2 million (80/20 match) grant for FY 2010 for completion of planning and environmental studies for high-speed rail operations on the Chicago–Detroit/Pontiac corridor with Michigan, Indiana, Illinois and Norfolk Southern contributing $200,000 each.
- $196.5 million (100 percent federal funding) grant for FY 2011 for infrastructure improvements between Kalamazoo and Dearborn (2009 ARRA HSIPR funding).
- $2.8 million (80/20 match) grant for FY 2011 design and environmental clearance activities associated with a new station in Ann Arbor (2009 ARRA HSIPR funding).

3.1.3 Other Funding Sources

3.1.3.1 Passenger Revenue

Other funding sources to support rail infrastructure projects in Michigan include *passenger revenue*, which will benefit from rail infrastructure improvements that increase the number of daily trips. However, it is important to understand that passenger fares on the current Amtrak Michigan services do not generate enough revenue to cover operating costs, so there is little opportunity to generate sufficient revenues to contribute to capital. However, any increase in passenger revenue will reduce the operating subsidy requirements for Michigan, and any funding not used to support operations could potentially be used for capital projects.

Passenger revenue generated on Amtrak's current 79 mph Michigan routes has shown recent strong growth. Revenue declined by 6 percent during the economic recession in 2009 but rebounded with an 11.8 percent increase in 2010 to a record statewide total of $24.6 million.

Passenger revenue will further increase as passenger rail travel times become more competitive with other modes of transportation in the 100- to 500-mile range connecting major urban areas. For example, conventional Amtrak Wolverine Line service between Detroit and Chicago has longer travel times than other modes of transportation (currently taking approximately 45 minutes longer than driving). However, with the implementation of rail infrastructure improvements, high-speed rail service travel times will outpace automobile travel times (ultimately saving more than one hour of travel time) and be more competitive with airline trips between Detroit and Chicago (in particular when considering door-to-door travel time and cost).

3.1.3.2 Rail Stations and Related Development

Rail stations and the economic development surrounding the stations are another area of potential revenue, given recent legislative changes. With these authorizations in place, the next step is to prepare for private sector investment in stations and station areas. This means that local, regional and state agencies must take action on these legislative authorizations. Key institutional roles for these activities might include the following:

State of Michigan

- Develop a decision framework for project selection.
- Develop a database of passenger rail projects in varying stages of development and provide technical assistance to regional and local agencies. Offer training, best practices and other resource information.
- Facilitating successful partnerships between regional, county and local governments and rail service providers.

Regional Planning Agencies and MPOs

- Prepare multi-modal corridor plans coordinating with local agencies for service needs, technology, funding, community support and preliminary implementation programs.
- Assist local communities with the development of transit supportive land use plans, model zoning regulations and funding and finance strategies for corridor infrastructure.

County and Local Governments

- Prepare transit supportive land use plans and adopt appropriate zoning and development regulations to clarify community support for TOD and other development investment interests.
- Establish appropriate redevelopment finance authority, and establish local economic development and finance support mechanisms.

In addition to private sector development near rail and transit facilities, the private sector will have additional opportunities to invest in innovative multi-use station facilities. New high-speed passenger rail facilities proposed in California are incorporating both a multi-modal and multi-use approach that incorporate a mix of retail, commercial and office space within larger rail stations as well as immediately surrounding the stations in economic development zones. *Technical Memorandum #4: Institutional Considerations* provides case studies of existing and planned rail station facilities using a P3 model, including projects in Milwaukee and Denver. 2009 ARRA HSIPR funding will be used to advance planning efforts for this station concept at the Dearborn and Troy/Birmingham stations.

3.1.3.3 Revenue from Job Creation

According to a community benefits study prepared by MWRRI[41], Michigan can anticipate 6,970 new permanent jobs and an additional $138 million in extra household income once the high-speed rail network is in full service. Based on the average Michigan taxpayer paying $3,694 per capita in state and

[41]Midwest Regional Rail Initiative. Economic Impacts of the Midwest Regional Rail System. Transportation Economics and Management Systems, Inc. February 2007.

local taxes,[42] it can be estimated that the new permanent jobs will generate additional state and local tax revenue of up to approximately $25.7 million annually.

3.2 Divestiture Requirements

3.2.1 History

The State of Michigan has been actively involved in the rail freight business since 1976. The State Transportation Preservation Act of 1976 (Act 295 of 1976) created a mechanism to preserve critical rail corridors, including rail rights-of-way. The state's involvement was in response to the federal government's attempt to restructure bankrupt railroads in the Northeast and Midwest regions of the United States. The U.S. Railway Association (USRA), which was responsible for restructuring the railroad industry, recommended the abandonment of approximately 1,100 miles of track in Michigan. At the time, this figure equated to nearly 35 percent of Michigan's total rail freight system.

The potential loss of rail freight service was concentrated in rural areas. These areas would have suffered serious economic ramifications, including: curtailment of industrial expansion and economic development; increased energy consumption; increased food and merchandise costs for urban and rural consumers; and the elimination of numerous railroad, industrial and agricultural jobs.

The loss of these railroad lines had the potential of adversely affecting not only rural areas, but Michigan's overall economy as well. Therefore, Michigan opted to protect the public interest by implementing a comprehensive program geared toward providing and maintaining an adequate and efficient railroad network. Of the 1,100 miles originally proposed for abandonment by USRA, Michigan determined that 900 miles were worthy of retention, and the state took action to keep these rail lines in operation. The state provided subsidies to some railroads to continue operations, leased facilities from some railroads, and made outright purchases of other key lines. The state currently maintains ownership of approximately 530 miles of active rail lines, with agreements in place with four different railroads to operate freight services on those lines.

3.2.2 Divestiture Legislation

In July 1998, the State Transportation Preservation Act was amended to provide a framework for divesting four defined rail segments. The objective of this legislation, which is codified as Section 10 of the Act (MCL 474.60), was to return commercially viable rail operations to the private sector, thus minimizing state involvement where not necessary to the state's transportation goals. The state pursues divestiture through the competitive bid process. MDOT will divest each line to the private sector bidder who exhibits the greatest potential for providing continuous, efficient and reliable rail service which, when coupled with an offer of compensation, represents the highest value to the state.

The objective of the divestiture amendment to the State Transportation Preservation Act is to return commercially viable rail operations to the private sector.

[42] www.taxfoundation.org

MDOT successfully completed the sale of the first rail line (Lenawee County System) to the Adrian and Blissfield Railroad (ADBF) in November 2000. Under the sales agreement, the ADBF is making quarterly payments over a 20-year period based on the number of freight carloads handled and the number of dinner train passengers carried.

MDOT is currently negotiating with the operating railroad (Indiana Northeastern Railroad) on the sale of a portion of the second line (Hillsdale County System). The remaining two segments, the Vassar Area System and the Ann Arbor and Northwest Michigan System, will be offered at a later date. A fifth rail line, the North Central Michigan System, which runs between Bay City and Gaylord, is not subject to the divestiture requirements.

Although the primary intent of the 1998 law was to provide a mechanism for the sale of the state-owned lines, the act also provides a framework for leasing the lines if there are no acceptable offers to purchase the properties.

If MDOT determines that the right-of-way it owns is no longer necessary for railroad transportation purposes, the department may preserve and utilize the right-of-way for other transportation purposes or it may dispose of the property. However, MDOT must first offer to transfer the right-of-way to the Michigan Department of Natural Resources. The corridor may be developed with an indefinite lease as a commuter or recreational trail, However, MDOT is required to preserve the option of taking back ownership of the corridor if it becomes needed at some point in the future for rail activity.

3.3 Organization of State Rail Programs

MDOT's mission is to provide "the highest quality integrated transportation services for economic benefit and improved quality of life."

MDOT's mission is to provide "the highest quality integrated transportation services for economic benefit and improved quality of life." Assuring the state has an efficient and robust rail system supports both the economic and quality of life elements of this mission statement. The responsibility for implementing Michigan's rail programs is currently spread across several different MDOT divisions. MDOT is generally organized by function rather than mode, and rail projects are delivered in much the same manner in which a highway project is implemented.

The responsibilities for implementing Michigan's rail programs are spread across several different divisions of MDOT. Numerous offices throughout MDOT have some role in planning, programming, designing and construction of rail projects.

The **Intermodal Policy Division** is part of the Bureau of Transportation Planning in MDOT's central office. The division provides general freight and passenger rail planning needs. Division staff works with the Class 1 and short-line railroad companies to preserve and improve the railroad network in Michigan.

The Intermodal Policy Division monitors ridership and revenue, along with on-time performance and other performance measures for Passenger Rail and Thruway Bus services in Michigan. Operational duties regarding Amtrak are the responsibility of the Office of High Speed Rail & Innovative Project Advancement (HSR/IPA) (see Section 6.4).

The **Statewide Transportation Planning Division** is part of the Bureau of Transportation Planning in MDOT's central office. This division is responsible for programming functions associated with adding rail projects to MDOT's Five-Year Transportation Program. The division also completes all necessary Metropolitan Planning Organization coordination and tracks and analyzes freight commodity flows and analysis.

The planning and programming of freight rail projects is directed by the **Freight Services and Safety Division (FSSD)**. The FSSD has five regulatory and program functions:

1. The **Capital Development Program** manages the 530 miles of active rail lines that are owned by the State of Michigan. The Division manages contracts with four short-line railroads to operate these lines and performs property management services including track improvement projects. The program's goal is to maintain service to shippers. The program works to maintain the commercial viability of the lines so that they ultimately can be returned to the private sector.
2. The **Freight Economic Development Program (FEDP)** supports rail infrastructure improvements that facilitate economic development. The FEDP provides a low-interest loan that can be converted to a loan, to assist new or expanding companies with access to the rail system.
3. The **Michigan Rail Loan Assistance Program (MiRLAP)** is a revolving non-interest loan fund designed to contribute to the stability and growth of the state's business and industry by helping to preserve and improve Michigan's rail freight infrastructure. Due to state budgetary constraints, the MiRLAP fund balance was diverted to the general fund in 2010. The program is not currently accepting applications.
4. The **Local Grade Crossing Program (LGCP)** provides funding to assist local road authorities and railroad companies with the development and implementation of projects that improve motorist safety at public highway-railroad crossings.
5. The Division's regulatory responsibilities include:
    - Assessing the physical condition and safety needs of public at-grade crossings.
    - Overseeing proper clearances in the vicinity of railroad tracks and rights-of-way. Close Clearance Inspections are held to ensure proper clearance requirements are being adhered to and/or to grant any variances as appropriate.
    - Ensuring adequate sanitation and shelter facilities for railroad employees. FSSD will perform inspections as requested regarding unsafe working conditions.

To administer its programs and provide regulatory oversight, the Division works directly with railroad companies, loan applicants and local road authorities. In addition, the Division works with various other areas within MDOT. The Division provides assistance to the **Highway Design** bureau on railroad work related to local road projects led by MDOT. The Division also works closely with the **Trunkline Railroad Coordination** unit within the **Real Estate** bureau on issues related to railroad crossings. The two areas share some support functions, and the Division is responsible for some trunkline project identification and regulatory oversight.

In 2010 a significant reorganization of the department was completed, and a new **Office of High Speed Rail & Innovative Project Advancement** was created with reporting responsibility directly to the State Transportation Director. This office combined staff from several divisions into one location that has responsibility for planning new passenger rail services, obtaining funding, supporting existing state-

supported Amtrak service, and implementing new projects and programs. The HSR/IPA Office has been successful in obtaining over $400 million in Federal ARRA and HSIPR funds over the past two years, and they are currently working to finalize all of the required agreements in order to move these projects forward.

The HSR/IPA was also responsible for submitting necessary applications in response to the Notice of Funding Availability (NOFA) issued for the High-Speed Intercity Passenger Rail program by U.S. Department of Transportation on March 11, 2011. Federal funding obtained by this office for passenger rail programs are shown in **Table 2.13**.

The **Governmental and Trunkline Railroad Coordination Unit** is located within the Real Estate Division. The unit currently functions as the interface between the railroads and the department for highway construction projects. The Governmental and Trunkline Railroad Coordination unit also provides all applicable construction documents (i.e. coordination clauses, special provisions, agreements, etc) that are necessary for local road projects let by MDOT. In addition, the unit obtains approvals from the railroads for highway design plans, reviews estimates for force account work and authorizes the railroads to perform engineering and construction work as needed for highway projects.

Other areas of MDOT play intermittent, yet vital, roles relative to passenger and freight rail. **Real Estate**, within the Bureau of Highway Development, assists the Freight Services and Safety Division (FSSD) with the management of the state-owned rail lines. Region and Transportation Service Center (TSC) staff, in the **Bureau of Highway Delivery**, assists FSSD with managing bid projects on those lines. Other region and TSC staff work directly with freight railroads and rail users and coordinate with FSSD to develop projects as appropriate. Additional support functions, housed in the **Bureau of Passenger Transportation**, the **Bureau of Transportation Planning** and the **Bureau of Finance and Administration**, include financial, bid-letting and contract services.

While the responsibilities for rail projects are spread out among several different areas, MDOT has been able to effectively implement its railroad programs and to coordinate these improvements with highways and other modes of transportation. The various sections of the department that have rail responsibilities work closely with each other to ensure that all of the state's responsibilities are met without conflict or duplication of efforts.

3.4 Rail Program Organization in Other States

Research was conducted to review how other states govern and fund their passenger and freight rail programs. Detailed information for 12 states was compiled and is presented in *Technical Memorandum #4: Institutional Considerations*, including a description of each state's rail-related organizational structure and information on sources and uses of funding for passenger and freight rail capital and operations. **Table 3.2** provides a summary of how these states organize their rail programs, and the sources of funding for each state.

In summary there are a variety of organizational approaches for rail programs at the state level:

- Virginia has an independent state agency for all intercity passenger and freight rail and transit functions

- North Carolina has a Bureau function within the North Carolina Department of Transportation that has comprehensive responsibility for all freight and intercity passenger rail activities which currently includes intercity passenger rail equipment purchase and refurbishment and maintenance activities.
- California features an independent High-Speed Rail Authority with access to state bond funding for its proposed 800 mile, $40 billion high-speed rail system.
- Illinois's Division of Public and Intermodal Transportation within the Illinois Department of Transportation supports a comprehensive freight and intercity passenger rail program with the exception of rail safety which is administered within the Illinois Commerce Commission.
- In Wisconsin, Freight and Passenger Rail programs are now operated out of a Railroads and Harbors Section within a Bureau of Transit, Local Roads, Rails and Harbors in the Wisconsin Department of Transportation.
- Minnesota has formed a small Passenger Rail Office to support its early stage intercity passenger rail program.

Each of these approaches has features that could be considered by MDOT for implementation as its freight and passenger rail programs evolve and mature.

Table 3.1: Summary of State Level Rail Program Governance and Funding

	Virginia	Wisconsin	California	North Carolina	New York	Florida	Illinois	Indiana	Minnesota	Ohio	Pennsylvania	Washington
Who governs the state's rail programs?	Dept. of Rail and Public Transp.	WisDOT, Bureau of Transit, Local Roads, Rails & Harbors	CalTrans, Division of Rail	NCDOT, Rail Division	NYSDOT, Freight and Passenger Rail Bureau	FDOT, Rail Office	IDOT, Division of Public and Intermodal Transpor-tation	INDOT, Rail Division	MNDOT, Freight, Railroad and Waterways	Ohio Rail Development Commission	PennDOT, Bureau of Rail Freight, Ports and Waterways	WSDOT, Rail and Marine Office and the Washington State Transportation Commission
Who oversees freight programs?	Dept. of Rail and Public Transp.	WisDOT, Bureau of Transit, Local Roads, Rails & Harbors	Caltrans Office of Goods Movement	NCDOT, Rail Division	NYSDOT, Freight and Passenger Rail Bureau	FDOT, Rail Office	IDOT, Division of Public and Intermodal Transpor-tation	INDOT, Rail Division	MNDOT, Freight, Railroad and Waterways	Ohio Rail Development Commission	PennDOT, Bureau of Rail Freight, Ports and Waterways	WSDOT, Rail and Marine Office and the Washington State Transportation Commission
Who oversees passenger rail programs?	Dept. of Rail and Public Transp.	WisDOT, Bureau of Transit, Local Roads, Rails & Harbors	CalTrans, Division of Rail	NCDOT, Rail Division	NYSDOT, Freight and Passenger Rail Bureau	FDOT, Rail Office	IDOT, Division of Public and Intermodal Transpor-tation	INDOT, Rail Division	MNDOT, Freight, Railroad and Waterways	Ohio Rail Development Commission	PennDOT, Bureau of Rail Freight, Ports and Waterways	WSDOT, Rail and Marine Office and the Washington State Transportation Commission
Who oversees high-speed rail programs?	Dept. of Rail and Public Transp.	WisDOT, Bureau of Transit, Local Roads, Rails & Harbors	High-Speed Rail Authority	NCDOT, Rail Division	NYSDOT, Freight and Passenger Rail Bureau	Florida Rail Enter- prise	IDOT, Division of Public and Intermodal Transpor-tation	INDOT, Rail Division	MNDOT, Freight, Railroad and Waterways	Ohio Rail Development Commission	PennDOT, Bureau of Rail Freight, Ports and Waterways	WSDOT, Rail and Marine Office and the Washington State Transportation Commission
Who oversees rail safety programs?	Dept. of Rail and Public Transp.	Office of the Commissioner of Railroads	California Public Utilities Commission	NCDOT, Rail Division	NYSDOT, Office of Modal Safety and Security	FDOT, Rail Office	Illinois Commerce Commission	INDOT, Office of Roadway Safety	MNDOT, Freight, Railroad and Waterways	The Public Utilities Commission of Ohio	PennDOT, Bureau of Rail Freight, Ports and Waterways	WSDOT, Rail and Marine Office
Who oversees grade-crossing programs?	Dept. of Rail and Public Transp.	Office of the Commissioner of Railroads	California Public Utilities Commission	NCDOT, Rail Division	NYSDOT, Office of Modal Safety and Security	FDOT, Rail Office	Illinois Commerce Commission	INDOT, Rail Division	MNDOT, Office of Freight and Commercial Vehicle Operations	The Public Utilities Commission of Ohio	PennDOT, Design Services Division	WSDOT, Rail and Marine Office
Does the state fund freight rail projects?	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Does the state fund passenger rail capital projects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Does the state provide operating support for Amtrak?	Yes	Yes	Yes	Yes	Yes	No	Yes	No	No	No	Yes	Yes
Does the state provide support for other passenger rail services (i.e. commuter)?	Yes	No	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Does the state fund high-speed rail projects?	Yes	Yes*	Yes, bonds	Yes	Yes	Yes*	Yes	No	Yes	Yes*	Yes	Yes

** Wisconsin, Florida and Ohio have recently cancelled high-speed rail programs supported with grants from the American Recovery and Reinvestment Act of 2008 (ARRA) and returned those funds to the federal government. The future of high-speed rail programs in these states is currently uncertain.*

4 Outreach Activities

Outreach activities are important to build consensus and support among key stakeholders and the general public for the Michigan State Rail Plan. To make sure all interested persons and organizations have an opportunity to be informed, consulted and involved during the planning process, MDOT developed a public outreach strategy that involves railroads, manufacturers, shippers, passenger rail advocates, local and regional agencies and the general public.

Outreach activities were important to build consensus and support among key stakeholders and the general public for the Michigan State Rail Plan.

The outreach strategy includes the following activities:

- Internet connections and resources
- Statewide public participation meetings
- Stakeholder meetings and presentations
- Coordination with Michigan by Rail

These activities are discussed in greater detail in the subsequent sections of this chapter.

4.1 Internet Connections and Resources

MDOT created a dedicated Web site (www.michigan.gov/mirailplan) to provide information regarding the State Rail Plan. MDOT felt the Web site was particularly important for a statewide plan because it was not financially feasible to hold meetings in every community of the state. As a result, the Web site gave interested persons the opportunity to engage with the rail planning team and stay informed at all times during the day and week.

The Web site featured a wealth of project information including:

- Overview of the project
- Upcoming public involvement opportunities
- On-line comment form
- Related documents
- Links to materials and displays that were provided at public meetings
- Links to relevant plan resources
- Contact information

4.2 Public Meetings - Round One

The first round of public meetings focused on the issues and opportunities facing rail in Michigan. The meetings were conducted early on in the planning process to help obtain input on the plan's goals and objectives and to describe the plan development process to the public.

MDOT conducted the first round of public information meetings at four different locations throughout the state between September 21 and September 29, 2010 as shown on **Table 4.1**.

To encourage attendance at the meetings, MDOT posted the meeting dates, times and locations on its rail plan Web site and sent out a press release. They also E-mailed an ePostcard to nearly 400 individuals and organizations prior to the meeting dates. The E-mail list was comprised of state and local public officials; MDOT, MPO and Tribal representatives; transit and transportation organizations; businesses and stakeholder organizations; individuals that indicated interest through the rail plan Web site.

The meetings were conducted in an open-house-style format and ran from 4:00 p.m. to 7:30 p.m. At the meetings, participants were able to browse a series of display boards, obtain a take-home brochure and submit a comment form. To encourage dialogue, the rail planning team was available to speak with meeting participants and answer questions. Participants could also submit comments directly on the rail plan Web site after the meeting.

Table 4.1: Meeting Dates, Locations and Attendance

Date	Location	Number of People Who Signed-In
September 21, 2010	Michigan Iron Industry Museum 73 Forge Rd. Negaunee, MI	23
September 22, 2010	Michigan Works! Service Center 1209 S. Garfield Ave. Traverse City, MI	104
September 28, 2010	Michigan State University Detroit Center Building 3408 Woodward Ave. Detroit, MI	25
September 29, 2010	MDOT Transportation Service Center 2660 Leonard St. Grand Rapids, MI	39
Total	**All locations**	**191**

4.2.1 Comment Summary for Round One Public Meeting

After the first round of public meetings, MDOT collected all comments from the public meetings and from the rail plan Web site. All comments were placed in a database to identify and analyze common themes.

MDOT received a total of 340 comments. The majority of comments, 263, were submitted on the rail plan Web site. The other 77 comments were submitted at the public meetings on comment boards or on written comment forms.

4.2.1.1 Comments by Topic

Comments were classified into three main topics: passenger rail, freight rail and plan process. Some comments discussed more than one topic and were classified more than once.

Most of the comments, 327, focused on passenger rail topics. Passenger rail comments most frequently discussed expanding service to specific locations, increasing the frequency of service and enhancing service with new amenities such as allowing bicycles on passenger trains.

327 of the 340 comments received during the Round One Public Meetings focused on passenger rail topics.

Freight rail topics were included in 53 comments. Freight comments focused on providing better freight service to reduce the need for truck-oriented freight service. Many comments said freight rail is more efficient, less dependent on oil and more energy efficient in comparison to truck freight. Also, expanding rail freight would help reduce the costs associated with maintaining roads and bridges. In addition, several comments said freight rail is important to enhance economic development throughout Michigan. Related to this, several comments expressed concern about divesture laws and felt that service in areas facing abandonments should be maintained to avoid losing businesses.

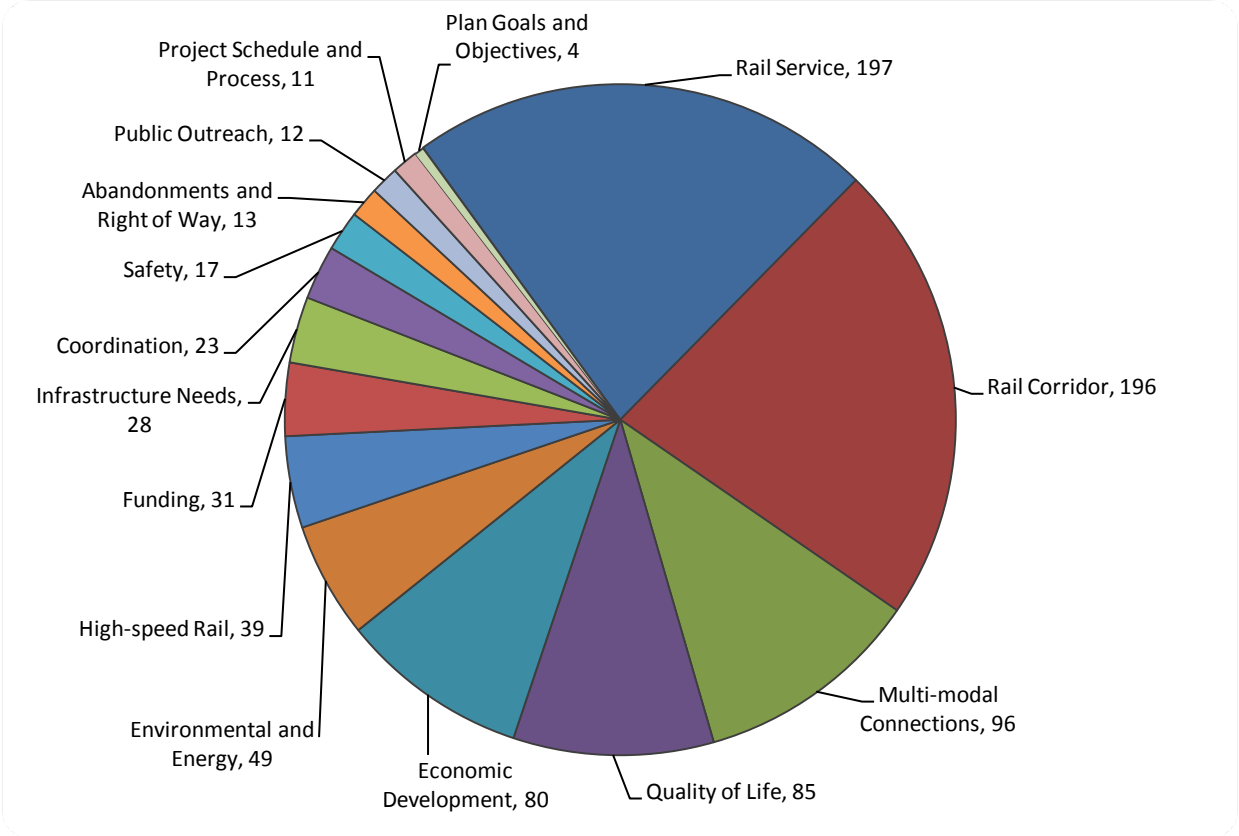
Plan process topics were mentioned in 13 comments. Most comments on this topic expressed support for the plan and its process. Comments also expressed the need to begin planning for corridors now and encourage MDOT to incorporate steps in the planning process to make sure the plan is implemented.

4.2.1.2 Comments by Sub-Topic

Comments were broken down into sub-topics to further explore common themes and issues relating to rail in Michigan. It is important to note that many comments were assigned to multiple sub-topics. **Figure 4.1** shows the distribution of sub-topics.

Sub-topics regarding rail service and rail corridors were discussed most frequently in the comments. Other popular sub-topics were related to multi-modal connections, quality of life and economic development. Many comments also discussed environmental concerns.

Figure 4.1: Distribution of Sub-Topics for Round One Meetings



4.2.1.3 Rail Corridor Comments

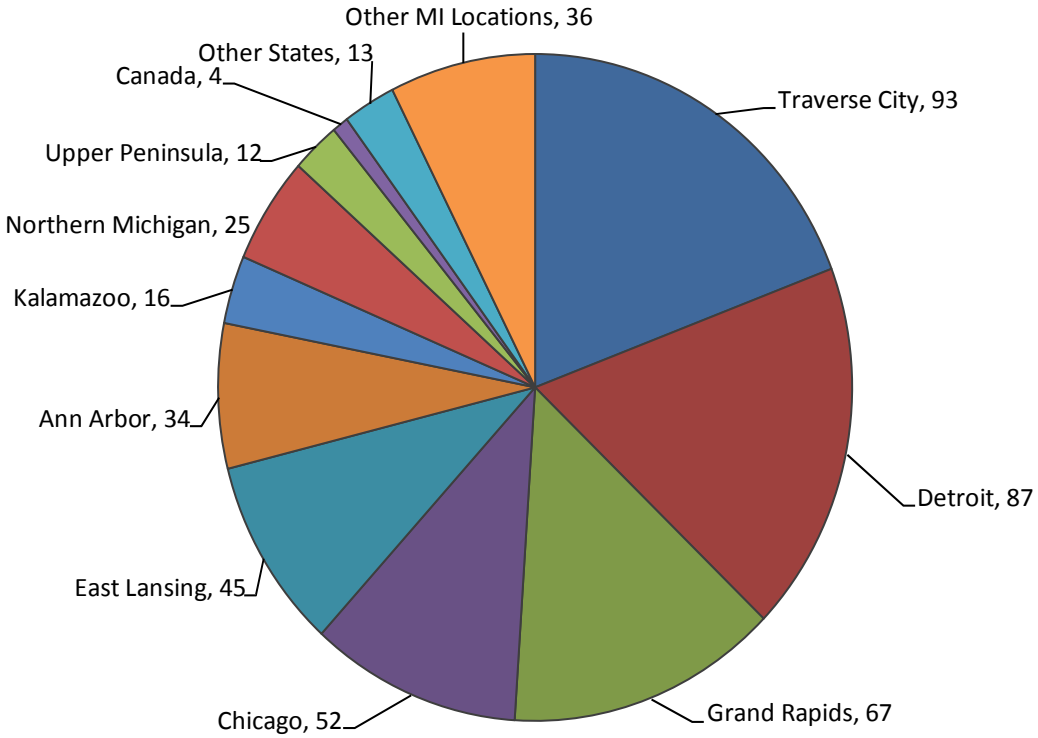
Comments regarding rail corridors were reviewed in greater detail since this sub-topic was important to addressing future rail priorities in the State Rail Plan. This discussion focuses on passenger rail corridors since comments most often referred to improving existing or expanding future passenger service.

Figure 4.2 shows a breakdown of the cities that people identified most frequently for improving or expanding passenger rail connections. The most common destinations identified were Traverse City (93), Detroit (87), Grand Rapids (67) and Chicago (52). Ann Arbor (34), East Lansing (45), Northern Michigan (23), Kalamazoo (16) and Toledo, Ohio (10) were mentioned as common locations of interest for increased passenger rail services.

> *"We are very much looking forward to increased passenger rail service in northern Michigan. Feel it is an important attractor and indicator of a place's livability; connecting to other towns and cities both within Michigan and points beyond."*
>
> *Josephine A.*
> *Traverse City, MI*

The most common corridor mentioned or some smaller combination of it was Detroit-Ann Arbor-East Lansing-Grand Rapids-Traverse City. Other corridors mentioned frequently fell into the following general corridors: Detroit-Ann Arbor-Kalamazoo-Chicago, Kalamazoo-Grand Rapids-Holland, Chicago-Grand Rapids and Port Huron-Lansing-Kalamazoo-Chicago.

Figure 4.2: Locations Identified for Passenger Rail Connections During Round One Meetings



4.3 Public Meetings: Round Two

MDOT held a second round of public meetings after the Draft State Rail Plan was released. These meetings were used to let the public know about Michigan's proposed rail policies and to give them an opportunity to review the plan and make comments.

Six public meetings were held at locations throughout the state between June 7, 2011 and June 16, 2011 as shown in **Table 4-2.** The meetings were open to the public between 4:00 p.m. and 7:30 p.m. During this time two formal presentations were given by MDOT and HNTB staff. Participants could browse display boards that summarized the plan's key findings and recommendations, review copies of the draft plan and listen to the presentation. A copy of the plan's executive summary was also available for participants to read and take home. Notification for the meetings was generally the same as the first round of public meetings.

Meeting participants had several opportunities to ask questions and provide feedback. Staff was available throughout the meeting to speak with participants. A question and answer session was held after each presentation and a comment form was available at the meeting. After the meeting, participants could also review the presentation and display boards and submit comments on the rail plan Web site.

Table 4.2: Round Two Public Meetings - Dates, Locations and Attendance

Date	Location	Number of People Who Signed-In
June 7, 2011	**MSU Detroit Center 3408 Woodward Avenue Detroit, MI**	**21**
June 8, 2011	Battle Creek Unlimited 4950 W. Dickman Road Battle Creek, MI	13
June 9, 2011	Mass Transit Facility 1401 S. Dort Highway Flint, MI	3
June 14, 2011	Bay de Noc Community College 2001 N. Lincoln Road Escanaba, MI	14
June 15, 2011	Michigan Works Service Center 1209 S. Garfield Avenue Traverse City, MI	53
June 16, 2011	Grand Rapids Transportation Service Center 2660 Leonard Street NE Grand Rapids, Michigan	14
Total	**All locations**	**118**

4.3.1 Comment Summary for Round Two Public Meetings

This section provides a summary of the comments that were received after the release of the Draft Michigan State Rail Plan. In total, MDOT received 178 comments at the meetings and on the rail plan Web site. MDOT also received several letters from organizations. Like the first round of public meetings, all comments were placed in a database to identify and analyze common themes. Technical Memorandum #5 has more details about comments that were received and includes the comment database.

Some of the most common themes received included:

- Rail investment will provide many economic, environmental, transportation and community development benefits.
- Develop an intermodal freight terminal in western Michigan.
- Address the freight rail needs of the Upper Peninsula.
- Preserve railroad corridors that are going to be abandoned for future freight and passenger service.

"The Right Place, a local Grand Rapids economic development agency, will continue to support shifting trips from commercial vehicles on Michigan's highway system to rail. Protection of Michigan's rail system remains a very high priority for this organization."

- Identify ways to make existing passenger rail more attractive to increase ridership and be more competitive with airlines.
- Continue the development of high-speed rail corridors.
- Address capacity needs of shared freight and passenger rail corridors.
- Provide the operating subsidy for the Wolverine service beginning in 2014.
- Identify state matching funds for federal grants that have been awarded to the state.
- The state should purchase the Dearborn to Kalamazoo corridor.
- Address pedestrian safety along high-speed rail corridors near college and university campuses.
- Maintain smaller rail stations as high-speed rail service is implemented.
- Increase the frequency of service on Michigan's existing passenger rail lines.
- Maintain the existing alignment of the Pere Marquette even if a connection from Grand Rapids to Kalamazoo is provided in the future.
- Move up the timeline for reviewing new passenger rail connections to Grand Rapids including studying connections to Kalamazoo, Lansing and Detroit.
- Make a passenger rail connection to Traverse City a higher priority in the plan.
- Make north-south passenger rail connections a priority over high-speed rail development between Chicago and Detroit.
- Expand passenger rail service to Toledo, OH.
- Initiate the Ann Arbor-Detroit and Howell-Ann Arbor regional commuter rail services.
- Integrate the passenger rail and feeder bus systems.
- Encourage development around rail corridors and stations.
- Improve the state's multimodal connections between rail, airports and downtown transit systems.
- Provide roll-on bicycle capabilities on passenger trains.
- Recommend and fund a higher level of rail investment over the next 20 years.
- Identify the long term operation and maintenance costs of the plan before making any commitments to expand service.
- Identify public/private partnerships to help fund rail improvements.

> *"Make reconnecting passenger rail to Traverse City a top priority! The track already exists, making this a frugal and a sensible idea. Traverse City has been one of the ONLY areas in the state with positive growth, and can help bring a positive impact not only to the immediate region of NW Lower Michigan, but to the entire state"*
>
> *Deborah G.*
> *S. Boardman, MI*

> *"Need to add the evaluation of the Grand Rapids to Kalamazoo service so Grand Rapids can become plugged into the Detroit to Chicago HSR corridor."*
>
> *Name withheld*
> *Grand Rapids, MI*

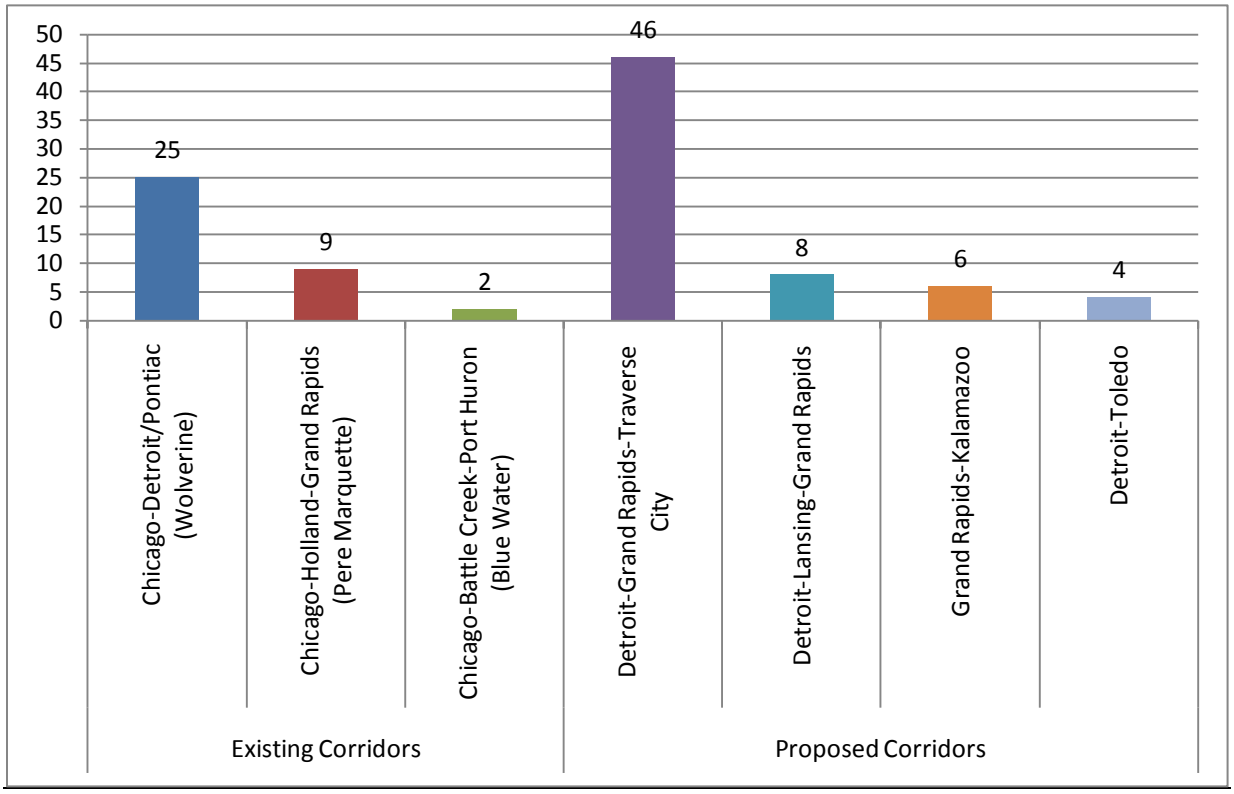
4.3.1.1 Intercity Passenger Rail Corridor Comments

Many people who submitted comments about the Draft State Rail Plan discussed existing passenger rail corridors that they would like to see improved or new corridors they would like to see expanded or created. **Figure 4.3** shows the frequency that the corridors were mentioned.

For the existing passenger rail corridors, comments most often mentioned the Chicago-Detroit/Pontiac corridor or Wolverine service. Comments typically discussed support for ongoing investments to improve service and achieve high-speed rail along the corridor. The Pere Marquette was mentioned by several people who submitted comments, but only a few comments mentioned the Blue Water service.

The most common proposed service connection was to Traverse City from either Grand Rapids or Detroit. Several comments also proposed new connections to Grand Rapids. Some comments suggested adding service to the Grand Rapids-Lansing-Detroit corridor and other comments proposed a corridor between Grand Rapids and Kalamazoo to improve access to the future high-speed rail line. A few comments also mentioned adding passenger rail service to Toledo from Detroit to improve access from Michigan to east coast destinations.

Figure 4.3: Passenger Rail Corridors Discussed in Public Comments from Round Two



4.4 Stakeholder Involvement

A separate outreach effort was conducted to reach out to key rail stakeholders at the same time as other public outreach efforts were being accomplished. This outreach was designed to solicit dialogue with companies and organizations that have a direct economic stake in Michigan's rail network.

The Rail Plan team met with the railroads, industry groups, shippers, and local, regional and statewide governmental agencies and organizations to obtain input on the state's rail needs. Over 30 freight meetings were held during the development of the State Rail Plan as shown in **Table 4.3**.

Rail stakeholders share an interest in preserving, expanding, redeveloping and establishing new industries and markets that can be served by Michigan's rail freight infrastructure.

Rail system users expressed interest in increasing their use of rail transportation as a means to reduce total transportation costs. Some users highlighted that the rail industry has changed significantly in their focus on business processes and facility development. Most rail system users commented that working with the railroads can be complex and time consuming.

Table 4.3: Stakeholder Speaking Engagements

Date	Organization
8/17/2010	Michigan Transportation Planning Association
9/14/2010	Michigan Chamber of Commerce
9/17/2010	Michigan Economic Developers
9/23/2010	Eastern Michigan Council of Supply Chain Management Professionals
9/23/2010	Lake States Shippers Association, Inc.
9/24/2010	Southeast Michigan Council of Governments (SEMCOG)
10/19/2010	Canadian/American Border Trade Alliance
10/19/2010	Genesee Regional Chamber of Commerce
11/4/2010	Transportation Club of Detroit
11/17/2010	Flint Intermodal Center at Bishop International Airport
11/00/2010	Tour of Port Huron Rail Tunnel
12/1/2010	Michigan Railroads Association
12/7/2010	Great Lakes Timber Professional Association
12/2/2010	Michigan Tech Transportation Institute
12/7/2010	Transportation Club of Detroit
12/7/2010	Detroit Port Authority
12/7/2010	Michigan Chamber of Commerce
12/8/2010	Michigan Port Collaborative
3/17/2011	The Right Place
3/23/2011	Michigan Forest Products Council
3/23/2011	Michigan Farm Bureau
3/24/2011	Southeast Michigan Council of Governments
3/24/2011	Detroit Regional Chamber of Commerce
3/24/2011	Detroit/Wayne County Port Authority
3/25/2011	Business Leaders for Michigan

The stakeholders shared an interest in preserving, expanding, redeveloping and establishing new industries and markets that can be served by Michigan's rail freight infrastructure. Working with a variety of industry-specific groups, the rail plan team was able to gain detailed information about the constraints of the existing rail network. The stakeholders also were able to provide specific recommendations for improvements that would allow them to better utilize the freight railroads and encourage other shippers to use freight as well.

Many of the industry organizations and individual shippers indicated they have difficulty in identifying the right decision makers for railroads and this is often a key barrier in utilizing rail services. Several groups also mentioned they had an interest in developing sites with rail access to encourage new business opportunities, but it was difficult to get the railroads to participate in planning activities without a specific business prospect. Furthermore, many of the stakeholders identified difficulty in securing equipment, rates and interest from the carriers as major impediments to developing new rail freight facilities.

Interest in intermodal facility development was high in the Flint and Grand Rapids area. These stakeholders have freight containers moving to and from their regions on trucks and believe that business development opportunities would improve if they had local intermodal rail access. These groups feel corridor connections with Canadian ports has a potential for growth and cite highway congestion, fuel consumption and general environmental benefits as reasons to support intermodal freight development in the Flint and Grand Rapids regions. Business interests in these areas believed that access to rail service for intermodal users may help them reduce transportation costs and increase market area for locally produced products.

The stakeholder participants recognized that maintaining rail access was essential for economic vitality and felt that railroads can play a key role in the growth of Michigan's economy. Access to rail service can encourage local business development by allowing more efficient transportation of the raw materials needed by an industry for the delivery of products to markets. Expansion of rail services will create jobs, directly with the railroads and those jobs generated by the economic expansion supported by rail. Many stakeholders felt identifying funding for new rail initiatives would be challenging and provisions for determining who would be eligible to receive money should be addressed.

4.5 Coordination with Michigan by Rail

During the same period of time as the public and stakeholder outreach efforts, the Michigan Environmental Council (MEC) and the Michigan Association of Railroad Passengers (MARP) collaborated to hold a series of statewide public forums to discuss Michigan's passenger rail system. Sixteen public forums were held across the state during the summer and fall known as the Michigan by Rail meetings. The purpose of these public forums was to begin a statewide conversation about Michigan's passenger rail system, to better understand what Michigan residents and businesses want out of the state's passenger rail system, and to encourage citizens to submit their ideas to MDOT for incorporation into the official State Rail Plan.

MDOT has been coordinating with the Michigan by Rail team throughout the State Rail Plan process. Incorporating the results of these events expands the public input for the State Rail Plan. This section

provides a summary of the Michigan by Rail findings and a discussion of the five common themes that emerged from their forums.

The forums took place on weekday evenings and were primarily participant-driven. **Table 4.4** shows the dates and locations of the Michigan by Rail public forums. They began with opening remarks which included an explanation of Michigan by Rail public forums and the State Rail Plan. MEC and MARP clearly distinguished Michigan by Rail public forums from MDOT's four listening sessions. Roughly 1,100 citizens participated along with numerous sponsors, communities, chambers of commerce, federal, state and local elected officials and others.

Table 4.4: Michigan by Rail Public Forums – 2010

Date	Location
6/14/2010	Royal Oak – St. John's Episcopal Church
7/8/2010	East Lansing – The Peoples Church
7/15/2010	Battle Creek – W.K. Kellogg Foundation
7/22/2010	Traverse City – Grand Traverse County Civic Center
8/18/2010	New Buffalo – Marina Grand Resort
8/26/2010	Jackson – The Michigan Theater
9/8/2010	St. Joseph/Benton Harbor – Silver Beach Center, St. Joseph
9/15/2010	Dearborn – U-M Dearborn, Fairlane Center South
9/23/2010	Holland – Holland East Public School
9/30/2010	Flint – Mass Transportation Authority
10/14/2010	Grand Rapids – The Rapid Central Station
10/21/2010	Monroe – Monroe County Fairgrounds
10/28/2010	Detroit – MSU Detroit Center
11/18/2010	Kalamazoo – The Fetzer Center, Western Michigan University
12/1/2010	Muskegon – Shoreline Inn and Conference Center
12/9/2010	Ann Arbor – Washtenaw Community College

Interactive mapping sessions consumed the majority time at each of the forums. Participants clustered around tables in groups of about 10 and were instructed to draw lines to destinations they would like to travel by passenger rail. A representative from Amtrak or the Michigan Association of Railroad Passengers explained Michigan's current passenger rail system after the map presentations. The overview of the current system was intentionally delayed until after each table presented its map so as not to influence the mapping session. The system overview led into wide-ranging discussions on future rail needs for the state.

Common themes emerged both in the discussions and written input submitted by participants. Nearly all of the participants wanted an improved and expanded rail system including more frequent and reliable service. The following five passenger rail themes emerged over the course of 16 Michigan by Rail public forums:

- **Michigan's passenger rail system should include a Traverse City to southern Michigan connection.** Each map at each forum included connecting Traverse City to the southern part of the state in some fashion. The southern connection points varied between Grand Rapids and the Ann Arbor area depending on where the forum was held. The maps, discussion, and comments, however, were consistent across forums regarding a Traverse City to southern Michigan passenger rail connection.
- **Michigan's passenger rail system should connect east Michigan to west Michigan.** Almost every map included connecting Michigan's east side to west side from Detroit to Lansing to Grand Rapids (and often Holland). Discussions around this passenger rail connection focused on linking together Michigan's three principal cities (without first traveling to Chicago); commuter possibilities; connecting two major universities, Michigan State University and Wayne State University; make doing business easier in the three cities; and tourist travel — sports venues in Detroit, Art Prize in Grand Rapids, and the Capitol and other state government interests in Lansing.
- **Michigan's passenger rail system should connect Michigan's universities.** Participants mentioned a desire to connect Michigan's universities and colleges. Some Michigan college towns are currently served by Amtrak; increasing service frequency, re-scheduling to accommodate the academic calendar, and connecting the college and universities together were reoccurring points. The rationale that surfaced most typically in connecting the state's academic institutions was to allow for instructors and students to more easily work and study at more than one institution.
- **Michigan's passenger rail system should include commuter rail connections.** Participants at each forum discussed the need for some sort of commuter rail service connecting the principal cities to outlying areas, particularly Detroit, Ann Arbor, Flint and Grand Rapids. These discussions included a direct rail connection to Detroit Metropolitan Wayne County Airport (DTW).
- **Michigan's passenger rail system should connect to Toledo.** Connecting Michigan's existing passenger rail system to Toledo was raised at each forum. Participants discussed that one must travel to Chicago — or by motor coach to Toledo, Ohio — to travel to points east such as New York. Connecting Toledo to the Wolverine at Ann Arbor or Detroit was typically suggested.

5 Identification of Investment Needs

The following are addressed in this chapter: development of the list of projects and programs, development of project investment packages for purposes of analysis, and identification of unmet needs. Further detail can be found in *Technical Memorandum #3: List of Projects*.

5.1 Development of List of Projects and Programs

A key component of the Michigan State Rail Plan is the identification and prioritization of rail projects for the state. MDOT has well established programs to plan, design and implement rail projects. Rail projects are also being developed on a regional and local level.

A list of potential projects has been developed from three primary sources: existing plans and studies, railroad capital plans and public input. Using these three sources, an extensive list of projects has been developed. This list includes projects that have gone through extensive planning and design efforts and are in various stages of programming and implementation. The list also includes projects that are still very conceptual in nature and will require a great deal of planning, design and programming before they can be implemented.

Rail investment needs were developed from existing plans and studies, projects identified by railroads, and input provided during the public outreach process.

The Passenger Rail Investment and Improvement Act of 2008 (PRIIA) requires State Rail Plans to include Short- and Long-Range Investment Programs as follows.

- The **Short-Range Rail Investment Program** includes rail capital projects to be considered for the next five years. Projects that fall under this program in Michigan include short-line and regional rail rehabilitation, highway-rail grade crossings; planning and service development programs for high-speed intercity passenger rail; new and rehabilitation of passenger rail stations; positive train control; freight intermodal terminal rationalization in Detroit; and a new border crossing between Detroit and Windsor, Ontario.
- The **Long-Range Rail Investment Program** includes rail capital projects to be considered for the next 6 to 20 years which are anticipated to be undertaken and/or supported by the state. Projects that fall under this program in Michigan include planning and service development programs for high-speed intercity passenger rail and freight rail capacity improvements

5.1.1 Existing Plans and Studies

As documented in *Technical Memorandum #2: Existing Conditions*, there are numerous plans and studies that have been conducted at the local, regional, state and national level that identify Michigan rail projects. The *Michigan 2005 – 2030 Long Range Transportation Plan*, which was completed in 2007,[43] provides a framework for addressing Michigan's transportation needs, including rail. The Plan addresses needs for the entire state, but recommends focusing efforts on eleven highly significant corridors. Performance measures for all modes are identified, and strategies are recommended for integrating the

[43] http://www.michigan.gov/mdot/0,1607,7-151-9621_14807_14809---,00.html

transportation system, encouraging context sensitive solutions and minimizing and mitigating adverse impacts. The Plan also identifies funding needs and recommends appropriate sources for these funds.

Numerous other studies that address specific rail needs have also been completed. Michigan has played an active role in the development of the Midwest Regional Rail Initiative (MWRRI)[44], which is a comprehensive plan for high-speed rail service developed by a consortium of nine states, Amtrak and the Federal Railroad Administration (FRA), focused on a Chicago hub network. MWRRI provides the basis for the development of passenger rail service and includes a high-speed rail route between Chicago and Detroit/Pontiac with several rail and bus feeder routes. Other key passenger studies include the Ann Arbor – Detroit Regional Rail project[45] conducted by the Southeast Michigan Council of Governments (SEMCOG) and the Washtenaw Livingston Rail Line (WALLY) plan[46] conducted by the WALLY Coalition. Major development plans have been conducted for the Detroit New Center Multi-Modal Transportation Center, which will serve Amtrak, high-speed rail, Ann Arbor to Detroit regional rail and Woodward Avenue light rail, and Ann Arbor, which will serve Amtrak, high-speed rail, regional rail and local transit. The most significant freight planning effort has been MDOT's Environmental Impact Study of the Detroit Intermodal Freight Terminal (DIFT)[47].

5.1.2 Projects Identified by Railroads

The vast majority of the Michigan rail network is owned and operated by private railroad companies. These companies have the responsibility for maintaining and expanding their rail infrastructure to continue their business of moving freight. As part of the data collection process for this study, railroads were asked to provide information on their planned capital initiatives over the 20-year study period. MDOT also provided information on projects planned for the state-owned rail lines and for major railroad initiatives such as DIFT and the Detroit-Windsor Tunnel.

5.1.3 Public and Stakeholder Input

A key component of the planning process for the State Rail Plan has been the provision of opportunities for the public and key stakeholders to provide input. This outreach effort is described in detail in Chapter 4 of this Plan. Several key recommendations provided through public input have been incorporated into the list of rail projects, including the analysis of potential passenger rail service to Traverse City.

A separate series of public forums were also held by Michigan by Rail as discussed in Chapter 4. Michigan by Rail provided MDOT with a summary of the comments that were received during these forums, and this information has been incorporated as part of the public input for this study. The recommendations for improvements to passenger rail service that were received from these forums are consistent with the input provided through the state's outreach process.

A separate outreach effort was simultaneously conducted to reach out to key rail stakeholders. This outreach was designed to solicit dialogue with companies, organizations and local and regional government agencies that have a direct economic stake in Michigan's rail network. The State Rail Plan

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[44] http://www.michigan.gov/mdot/0,1607,7-151-11056-166461--,00.html
[45] http://www.semcog.org/AADD.aspx
[46] http://www.theride.org/wally.asp
[47] http://www.michigan.gov/mdot/0,1607,7-151-9621_11058_26215---,00.html

team met with the railroads, industry groups, shippers, and local, regional and statewide governmental agencies and organizations to obtain input on the state's rail needs. Recommendations for the preservation and expansion of the state's rail network have been incorporated in the list of potential projects for the State Rail Plan.

5.2 Development of Project Investment Packages

Based on the input received from these sources, a list of potential rail projects in Michigan has been developed for this State Rail Plan. This "unconstrained" list includes all projects identified through previous planning efforts at the local, state and regional level. The list also includes projects identified by the railroads and other key stakeholders, in addition to several projects that were identified through the public outreach process for this Plan. This unconstrained list of rail needs includes more than 140 projects with a total cost of over $10 billion.

To assess funding requirements for rail projects over the twenty year study period of this State Rail Plan, projects were assigned to investment packages that are intended to represent various levels of service based on potential levels of investment. These packages have been developed to be consistent with the investment levels identified by the Michigan Transportation Funding Task Force (TF2) which was created in response to Public Act 221 of 2007 and published its recommendations in November 2008[48]. The investment packages used in this State Rail Plan are described below, with their associated estimated costs summarized in **Table 5.1**.

The unconstrained needs identified in this State Rail Plan include more than 140 projects with a total cost of over $10 billion.

There is a strong interest in developing passenger rail service in new corridors throughout the state. The investments packages include recommendations for implementing new services to various regions of the state, including Northwest Michigan (i.e., Traverse City/Petoskey), Grand Rapids, and between Detroit and Toledo, Ohio. These recommendations are spread throughout the different investment packages in order to be consistent with the phasing required for a major corridor service development program. In accordance with the FRA corridor planning process, the first step is to conduct thorough alternatives analysis to determine feasibility, select a preferred alternative for service, determine cost and benefits and identify how the service would be funded. Depending on the outcome of the feasibility study, projects would be advanced by conducting preliminary engineering and environmental reviews. Once this phase is complete the project moves to final engineering, construction and implementation.

This State Rail Plan incorporates this phased implementation approach by including the investment studies in the earlier investment packages. The feasibility studies for service to Grand Rapids and to Traverse City/Petoskey are included in the Good investment package, and the study of the feasibility of new service between Detroit and Toledo is included in the Better Scenario. Funding for the engineering, design and construction is only included in the investment packages for the Traverse City/Petoskey service. However, depending on the outcome of these feasibility studies, it is possible that some of these projects may be accelerated, depending on ridership demand, cost, benefits provided, public support and the availability of funding.

[48] http://www.michigan.gov/mdot/0,1607,7-151-9623_31969_49303---,00.html

- **Baseline:** This investment package includes projects that can be funded if current levels of funding are maintained over the 20 year planning horizon. *Under this scenario, both freight and passenger services are likely to deteriorate, as funding levels are not sufficient to maintain the aging rail infrastructure.* There will be a huge reduction in passenger rail service under this scenario, because it does not include funding for operating support of the Wolverine service, which the state will be required to provide by federal law beginning in October 2013.

  Under the Baseline investment package, both freight and passenger services are likely to deteriorate, as funding levels are not sufficient to maintain the aging rail infrastructure.

  Projects in the Baseline scenario include:

  1. Completion of the following Chicago – Detroit/Pontiac corridor projects funded under ARRA and PRIIA, including:
     a. Englewood Flyover (Chicago)- ARRA
     b. Norfolk Southern Indiana Gateway project(Northern Indiana) - ARRA
     c. West Detroit Track Connection- PRIIA
     d. New stations and/or renovations in Dearborn, Battle Creek and Troy/Birmingham- ARRA
     e. Chicago – Detroit/Pontiac Corridor Investment Study- PRIIA
     f. Acquisition of Dearborn to Kalamazoo segment of the high-speed corridor
     g. Final design and construction of improvements to track, structures and grade crossing warning devices and installation of Positive Train Control signal system on the Dearborn to Kalamazoo corridor segment
  2. Continuation of state support for Blue Water and Pere Marquette passenger rail services
  3. Amtrak funded corridor improvements including the Incremental Train Control System (ITCS)
  4. Completion of procurement of Midwest next generation passenger train sets (cars and locomotives) which includes equipment for all three Michigan corridors
  5. Ann Arbor - Detroit Regional Rail – Cab car coach refurbishment and leasing
  6. WALLY – Cab car coach refurbishment and leasing
  7. Improvements to the Jackson and Durand stations
  8. Continuation of MDOT freight financing programs including MiRLAP, Freight Economic Development Program, State-Owned Rail Line Capital Development Program, and grade crossing improvement programs
  9. Completion of a variety of privately financed track, structure and equipment replacement projects for Class I and short-line freight railroads

- **Good:** *Under this scenario there would be modest growth in freight and passenger rail investments.* Under the Good investment package operating subsidies would be provided to allow the Wolverine service to continue operations at its current level. Investments would be made to allow for the initiation of demonstration regional rail service to Ann Arbor and Howell. State funds would be provided to match Federal passenger rail grants to make improvements to the Chicago-

  The Good investment package would allow modest growth in freight and passenger rail investments.

Detroit/Pontiac corridor. Key DIFT projects would be undertaken in conjunction with the railroads and the Detroit River Tunnel would be constructed.

The Good investment package consists of over 90 projects, including all projects in the Baseline scenario. Major additional projects included in the Good investment package include:

1. Improvements to other segments of the Chicago – Detroit/Pontiac corridor, including: Grand Crossing (Chicago), Battle Creek West Track project (CN-owned segment), Detroit to Pontiac (CN-owned segment)
2. Annual operating support for Wolverine service
3. Construction of new intermodal stations in Detroit and Ann Arbor
4. Completion of improvements for Ann Arbor - Detroit Regional Rail along with operating and maintenance costs
5. Completion of improvements for WALLY Regional Rail along with operating and maintenance costs
6. Installation of Positive Train Control on all passenger lines and hazardous material freight lines, as required by the FRA
7. Tier I EIS and Alternative Analysis completed for service to the Detroit/Lansing/Grand Rapids corridor. This study will include an analysis of expanding the existing Pere Marquette service and proposed new services from Kalamazoo to Grand Rapids and Holland.
8. Tier I EIS completed for Battle Creek to Port Huron corridor
9. Completion of a feasibility study of service connecting Traverse City/Petoskey to Chicago (via Grand Rapids) and/or Detroit
10. Completion of a feasibility study of service between Detroit and Toledo
11. Completion of a feasibility study for a West Michigan Intermodal Freight Terminal in the Grand Rapids region
12. Completion of a substantial portion of the Detroit Intermodal Freight Terminal project
13. Construction of new freight rail tunnel between Detroit and Windsor, Ontario
14. Additional funding for state-funded freight programs including grade crossings and state-owned rail line investments
15. Significant investments in short-line rail infrastructure to preserve service and expand economic development opportunities

- **Better***: This investment package allows for the implementation of several key freight and passenger rail infrastructure projects.* The Better investment package includes all of the projects identified in the Good and Baseline scenarios plus the following projects:

1. Completion of improvements for high-speed rail service in the Chicago-Detroit/Pontiac corridor, and supporting corridor and service improvements to Grand Rapids and Port Huron
2. Completion of all of the DIFT projects
3. Completion of Tier II NEPA documentation and Preliminary Engineering for service to Traverse City/Petoskey

The Better investment package allows for the implementation of several key freight and passenger rail infrastructure projects.

4. Completion of NEPA, Preliminary Engineering, Final Engineering and Construction for new service between Detroit and Toledo, OH
5. Conducting an assessment of true high-speed rail service (220 mph) between Chicago and Detroit, and continuing to Toronto

- **Best:** This scenario represents the unconstrained needs and includes all projects that were identified in the public outreach process. The Best investment package includes all of the projects identified in the Better, Good and Baseline packages plus the following:

The Best investment package includes all unconstrained rail needs identified in the State Rail Plan.

1. Completion of all MWRRI projects in Michigan
2. Provision of additional annual operating subsidy to support increased frequency on all passenger service lines in Michigan
3. Procurement of new passenger rail equipment for all Michigan corridors
4. Implementation of new passenger rail service to Traverse City/Petoskey

Table 5.1: Summary of Project Costs by Scenario (2011-2030)

Passenger						
Investment Package	Capital Cost	Railroad	Federal	State	Other	Unfunded
Baseline	$828	$74	$568	$183	$4	$0
Good	$2,181	$93	$933	$235	$35	$885
Better	$2,629	$93	$933	$235	$35	$1,333
Best	$4,893	$93	$933	$235	$35	$3,597

Freight						
Investment Package	Capital Cost	Railroad	Federal	State	Other	Unfunded
Baseline	$3,031	$2,743	$116	$140	$32	$0
Good	$4,987	$2,784	$116	$140	$222	$1,722
Better	$5,197	$2,784	$116	$140	$222	$1,935
Best	$5,197	$2,784	$116	$140	$222	$1,935

Total						
Investment Package	Capital Cost	Railroad	Federal	State	Other	Unfunded
Baseline	$3,859	$2,817	$683	$323	$36	$0
Good	$7,168	$2,877	$1,049	$375	$257	$2,610
Better	$7,826	$2,877	$1,049	$375	$257	$3,268
Best	$10,090	$2,877	$1,049	$375	$257	$5,532

All costs in millions of 2010 dollars

5.3 Identification of Unmet Needs

The Good, Better and Best investment packages include a significant number of rail programs and projects that cannot be fully funded under current conditions. Some of these have a reasonable expectation of receiving partial funding over the State Rail Plan study period, but most of these identified needs have no current sources of funding. These unmet needs are shown in **Table 5.2**.

With the passage of PRIIA in 2008 and the funding provided through ARRA in 2009 and PRIIA in 2010, the federal government has for the first time made a commitment to provide funding for passenger rail projects. While the future of PRIIA funding for passenger rail projects is uncertain due to the federal deficit crisis, it is clear that significant investments in improving passenger rail service and moving toward the implementation of high-speed rail service cannot be accomplished without a significant federal funding program. Federal funding will also be needed to move forward significant freight rail projects such as DIFT and the Detroit River Tunnel.

5.3.1 Funding the Baseline Investment Package

By definition the Baseline investment package includes only those projects which can be paid for from currently available funding sources. This scenario assumes that existing federal and state rail funding programs will continue at their current levels. This package also assumes that federal grants for passenger rail service which have been awarded through ARRA and PRIIA will continue to be available for those projects for which they were originally intended. Railroads are anticipated to continue to make significant investments in their rail infrastructure in the state, most notably for the maintenance of their infrastructure.

The total cost of the projects included in the Baseline investment package exceeds $3.5 billion over the twenty year Plan study period. Of this total, the railroads are anticipated to invest over $2.8 billion to maintain and upgrade their existing network. Over $600 million in federal funding is projected, including ARRA and PRIIA grants already awarded and Section 130 Grade Crossing program funds. The Baseline scenario assumes that current rail funding programs will continue, and over $300 million is anticipated for the Freight Economic Development program, State-Owned Rail Line Capital Development program and the grade crossing improvement programs. Other funding includes approximately $30 million in loan repayments for MiRLAP. Only those projects that are anticipated to be fully funded from existing funding sources between 2011 and 2030 are included in this scenario.

5.3.2 Funding the Good Investment Package

The Good bundle of projects includes all of the Baseline investment package projects plus approximately 90 passenger and freight projects which are critical to the advancement of both passenger and freight services in Michigan. The total cost of these projects (in 2010 dollars) is approximately $7.1 billion (over $3.3 billion Baseline costs plus $3.8 billion for additional projects in the Good scenario). This scenario assumes modest increases in the amount of funding from all sources, with the largest amounts coming from additional federal grants for high-speed rail and Canadian funding for the Detroit-Windsor Tunnel project. There are $2.6 billion in unmet needs in this investment package.

Table 5.2: Sources of Funding for Unmet Needs

Good Investment Package				
Funding Program	**Unmet Needs**	**Railroad**	**Federal**	**State**
Federal HSIPR Program	$418	$0	$335	$84
Passenger Rail – Operating	$467	$0	$0	$467
Freight: Detroit River Tunnel	$200	$100	$100	$0
Positive Train Control	$750	$600	$150	$0
Grade Crossing Improvement Program	$76	$0	$53	$23
Rail Infrastructure Improvement Program	$18	$0	$0	$18
State Owned Rail Lines Program	$15	$0	$0	$15
Freight Economic Development Program	$10	$0	$0	$10
Freight: DIFT	$222	$79	$114	$28
Freight: Regional/Short line/Switching	$434	$0	$217	$217
Total	**$2,610**	**$779**	**$969**	**$862**
Average/Year	**$130**	**$39**	**$48**	**$43**

Better Investment Package				
Funding Program	**Unmet Needs**	**Railroad**	**Federal**	**State**
Federal HSIPR Program	$866	$0	$693	$173
Passenger Rail – Operating	$467	$0	$0	$467
Freight: Detroit River Tunnel	$200	$100	$100	$0
Positive Train Control	$750	$600	$150	$0
Grade Crossing Improvement Program	$76	$0	$53	$23
Rail Infrastructure Improvement Program	$18	$0	$0	$18
State Owned Rail Lines Program	$15	$0	$0	$15
Freight Economic Development Program	$10	$0	$0	$10
Freight: DIFT	$432	$154	$222	$55
Freight: Regional/Short line/Switching	$434	$0	$217	$217
Total	**$3,268**	**$854**	**$1,435**	**$978**
Average/Year	**$163**	**$43**	**$72**	**$49**

Best Investment Package				
Funding Program	**Unmet Needs**	**Railroad**	**Federal**	**State**
Federal HSIPR Program	$3,130	$0	$2,504	$626
Passenger Rail – Operating	$467	$0	$0	$467
Freight: Detroit River Tunnel	$200	$100	$100	$0
Positive Train Control	$750	$600	$150	$0
Grade Crossing Improvement Program	$76	$0	$53	$23
Rail Infrastructure Improvement Program	$18	$0	$0	$18
State Owned Rail Lines Program	$15	$0	$0	$15
Freight Economic Development Program	$10	$0	$0	$10
Freight: DIFT	$432	$154	$222	$55
Freight: Regional/Short line/Switching	$434	$0	$217	$217
Total	$5,532	$854	$3,246	$1,436
Average/Year	**$277**	**$43**	**$162**	**$72**

All costs in millions of 2010 dollars

5.3.3 Funding the Better Investment Package

In addition to the projects listed for the Baseline and Good scenarios, the Better investment package includes a dozen key projects that make significant improvements to passenger rail service and complete the DIFT improvements. The cost for these additional projects is approximately $600 million (in 2010 dollars). There is no funding currently identified to fund projects above what were previously identified within the good scenario. The total unmet need for the Better investment package is $3.2 billion.

5.3.4 Funding the Best Investment Package

The Best scenario includes all projects identified in the Baseline, Good and Better investment packages and an additional $2.2 billion in additional passenger rail projects. Under this scenario, the high-speed and feeder passenger rail network envisioned by MWRRI would be completed and new service to Traverse City would be initiated. No funding for these projects has been identified, so the entire cost of the projects in this scenario is an unmet need. Under the Best investment package, the total unmet need over the 20-year study period is over $5.5 billion.

5.4 Funding Unmet Needs

Additional funding will be needed to implement any of the projects identified in the scenarios beyond the Baseline. It is clear that the implementation of the projects identified in the Good, Better and Best investment packages is well beyond the resources of the State of Michigan. A robust federal program to fund both passenger and freight rail projects is essential to the implementation of all of these scenarios. While there has been broad national support for a federal rail programs, the long term federal funding outlook is unclear pending action by Congress to reauthorize the transportation program.

A robust federal funding program for both passenger and freight rail projects is essential to the implementation of the Good, Better and Best investment packages.

The funding strategies incorporated in this plan assume that federal funds will be available to support 80 percent of all passenger rail projects. The same federal funding ratio is assumed for the non-railroad costs of several major freight rail projects, including those associated with DIFT.

The 20 year (2011–2030) unmet rail needs identified in this Plan range from $2.6 billion in the Good scenario to $5.5 billion in the Best scenario. The average annual need ranges from $137 million in the Good scenario to $289.5 million in the Best scenario. The railroads are expected to provide the majority of funding for the installation of Positive Train Control signal systems on all non-passenger hazardous material routes. The railroads are also expected to participate in the DIFT projects. The state and the DIFT railroad partners have agreed that the railroads would fund 50 percent of the cost of terminal projects and public funds would be used for the projects outside of the terminal area.

It is further assumed that federal funding will be available to cover 80 percent of the unmet costs of High Speed and Intercity Passenger Rail projects included in the Good, Better and Best investment packages. Federal funding is also assumed to be available for the Detroit River Tunnel project, grade crossing improvement programs and short-line improvement projects. The average annual amount of federal funding assumed in the Plan ranges from $48.4million for the Good investment package to $162.3 million for the Best investment package.

The State of Michigan currently invests approximately $16 million per year in various passenger and freight rail programs. This includes funding for passenger rail operating subsidies, grade crossing programs, economic development programs and the management of state-owned rail lines. The amount of state funding is projected to increase to an average of $43 million per year under the Good investment package, $48.9 million per year under the Better investment package, and $71.5 million per year for the Best investment package. The largest single new expense item is the operating subsidy for the Wolverine service, which is projected to cost $25 million per year.

6 Analysis of Benefits

Rail transportation has the potential to provide significant benefits for the State of Michigan. Both passenger and freight rail services provide an alternative to less efficient transportation modes. By diverting passengers from automobiles and freight from trucks, rail provides significant benefits from reducing congestion and wear and tear on roadways, to reducing fuel consumption and reducing emissions of pollutants. Rail transportation is also a catalyst for economic development and job creation. Access to freight rail transportation helps to encourage the development of new businesses and the expansion of existing businesses. Passenger rail services can be an important catalyst for shaping communities and spurring growth around rail stations.

Rail transportation is a catalyst for economic development and job creation.

To analyze the potential benefits generated by the rail projects being proposed in this Plan, broad criteria were established to determine the impact of the implementation of those projects. Projects have not been evaluated individually; rather, they have been grouped into investment packages as described in Section 5.2. These packages of projects were then analyzed to determine the economic benefits generated by each. For each bundle, the benefits derived from passenger service improvements and freight rail improvements were separated out and direct, indirect and induced economic benefits were calculated. The results of this evaluation can be found in Section 6.3.

Quantitative assessments of the energy, air quality, transportation, land use, noise and vibration and other environmental impacts of rail have not been conducted for this Plan. A general description of the types of benefits that accrue from rail projects is included in Section 6.1 below.

6.1 Environmental Considerations

Over the years MDOT has demonstrated its leadership in carrying out environmental reviews under the National Environmental Policy Act (NEPA) and other federal and state regulations through its initiatives of streamlining, environmental stewardship, innovative public outreach, and stakeholder inclusiveness through context sensitive solutions. The state's multi-modal transportation needs are greater than ever, and MDOT is committed to meeting these needs in more sustainable ways while ensuring that valuable community, historic and natural resources are protected for future generations.

Freight and passenger rail service provides environmental benefits in terms of reduction in vehicle miles of travel and related benefits such as reduced fuel consumption, air quality improvements and enhanced mobility opportunities.

The environmental planning goals of MDOT's rail infrastructure projects have included:

- Building a credible environmental review process that facilitates open and unbiased project decision-making;
- Ensuring a highly proactive and individualized approach to public involvement; and
- Optimizing the character and amenities of rail corridors, and the communities/neighborhoods through which they pass, while improving the state's freight and passenger rail mobility and access.

The purpose of this section is to present the environmental considerations and benefits for the selected and prioritized rail projects. Implementing intermodal, freight, passenger and commuter rail projects could potentially affect and potentially benefit the environment, the transportation network, and the communities and local economies along the selected project routes. For each of the priority rail projects, some level of environmental analysis review will need to be accomplished along with conceptual and preliminary design. This analysis is especially important in the areas of proposed new track, rail stations, parking areas and new operations/maintenance facilities that may be required. State and federal environmental database searches for selected corridor routes, field investigations, and resource impact analyses will need to be conducted. The potential environmental benefits, such as reduced fuel consumption, improved air quality, increased economic development, and potential for transit-oriented development, will need to be assessed and documented for the respective rail projects.

The following pages of this section focus on the potential benefits or impacts of the priority rail projects for the following resource areas: energy, air quality, transportation (including public safety), land use and community resources, noise and vibration, and other environmental considerations.

6.1.1 Energy

Rail travel is the most energy efficient land-based transportation mode in the country. Railroads, on average, are over two and one-half times more fuel efficient than trucks as measured by ton-miles per gallon of fuel[49]. Also, because greenhouse gas emissions are directly related to fuel consumption, every ton of freight moved by rail instead of truck reduces greenhouse gas emissions by 53 percent[50].

All types of rail construction, whether new construction, upgrading existing rail corridors or typical rail maintenance activities for existing train service, would require temporary additional energy consumption. These activities would have short-term energy impacts lasting as long as the construction phase of the project. However, implementing the Michigan rail projects listed in this State Rail Plan would provide net benefits related to energy consumption in the state. Energy efficiency, fuel conservation and emissions reduction are important environmental issues that all transportation sectors need to address.

6.1.1.1 Passenger Rail

For passenger rail projects, energy consumption is usually estimated for the existing and future transportation modes in the proposed rail corridor. The basic data used to calculate energy consumption are ridership estimates, calculated as person-miles of travel (existing and future person trip-data multiplied by the estimated number of corridor miles) and energy consumption rates for rail travel, estimated from the proposed rail operations. Energy consumption units for all travel modes are converted to a common base unit, the British Thermal Unit (BTU), to allow comparison between transportation modes. Depending upon ridership forecasts, rail travel is more efficient than auto or air travel, but less efficient than bus travel. Increases in rail ridership in the future could reduce fuel consumption per passenger as the same numbers of trains carry more passengers by operating at closer to

[49] Texas Transportation Institute. A Modal Comparison of Domestic Freight Transportation Effects on the General Public, Executive Summary. December 2007.
[50] Ibid.

full capacity. Generally, intercity passenger rail service uses 21 percent less energy per passenger mile traveled than autos and 17 percent less than airline travel[51].

6.1.1.2 Freight Rail

Freight railroads are a more energy efficient mode for moving goods over land than trucking. A typical freight car can carry 110 tons of cargo, as compared to 25 tons in a typical truck trailer[52]. One gallon of fuel will carry one ton of freight 413 miles via rail, as compared to 155 miles by truck[53]. Moving more goods by rail is, therefore, an important way to reduce energy use and greenhouse gases.

6.1.2 Air Quality

The implementation of new passenger rail service is expected to improve air quality in the region where it is operating, thereby providing another benefit to the environment. This is because the number of vehicle miles traveled (VMT) would be reduced, thereby reducing the commensurate automobile emissions. A related positive effect of reducing traffic congestion would also lower the amount of CO pollution created, as well as hydrocarbons and oxides of nitrogen (NOx). Rail locomotives may create some localized new air emissions from both long-haul trips and maintenance yard operations. There may be some modest isolated increases in locomotive pollutants such as particulates, NOx and sulfur oxides (SOx) most often due to idling train locomotives. However the reduction in commuter vehicle miles and associated automobile emissions would greatly offset any potential increase in emissions from locomotives for CO and hydrocarbons.

The air quality benefits occur because auto users switch to more energy efficient passenger rail service. Approximately two-thirds of train passengers previously used their private vehicle. These "diverted" passengers reduce overall VMT and contribute to reduction of traffic congestion and air pollution. The reduction in carbon monoxide is especially important since it is major component of the classification process for air quality attainment.

Nationally, freight railroads account for a small percentage of greenhouse emissions compared to motorized vehicles, especially trucks. Most transportation related greenhouse gas emissions are due to motorized consumption of fossil fuels such as petroleum. Any increase in particulate matter and nitrogen oxide emissions is usually caused by locomotive use of diesel fuel and is most prevalent only with idling locomotives. Because freight rail transportation is expected to increase significantly, overall fuel savings and reduced greenhouse gas emissions are expected.

On a community level, the potential for some localized air impacts at selected locations where motor vehicles are delayed waiting for trains at rail/roadway at-grade crossings can occur but the effect is usually minimal. When air quality studies are required, coordination with the Michigan Department of Environmental Quality (DEQ) and the U.S. Environmental Protection Agency (EPA) would be accomplished during the early preliminary engineering phase and air quality modeling done if appropriate.

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[51] Oak Ridge National Laboratory. Transportation Energy Data Book, Edition 26. May 2007.
[52] Texas Transportation Institute. A Modal Comparison of Domestic Freight Transportation Effects on the General Public, Executive Summary. December 2007.
[53] Ibid.

Under the Clean Air Act, the U.S. EPA has developed a national program to reduce emissions from diesel engines, including railroad locomotives. To respond to this EPA program, the railroads are working to reduce fuel consumption in a number of ways: more fuel efficient locomotives, locomotive monitoring systems for optimum operations, railroad engineer training, information technology, and reduced idling in rail yards and on side-tracks.

6.1.3 Transportation

Implementing passenger rail service in the rail project corridors will provide residents of these metropolitan areas the benefit of having another way to use public transit to go to work, to do shopping or attend entertainment, recreational and cultural events. Experience has shown nationally that even if ridership projections are initially modest, the new rail system once in place will attract riders who formerly drove a vehicle to work, and in practice ridership usually exceeds projections. This is true of both commuter rail and intercity passenger services. The benefit of expanded or new passenger rail service is that any reduction in peak hour traffic on the major highways will relieve traffic congestion and improve travel speeds and levels of service. Savings in vehicle miles traveled (VMT) will occur as a direct result of the removal of vehicles from the roadway system. Another potential benefit is savings in time, measured in vehicle hours traveled (VHT), that will also result from both the direct effects of fewer vehicles on the roadways and the improvement in travel times resulting from lower traffic volumes during peak hours. Rail service in new or expanded rail corridors provides better regional access and mobility, especially for those riders who do not own vehicles.

Most rail riders arrive at the train stations by automobile. This could increase traffic volumes in the immediate vicinity of the stations and parking lots. Proper access, design and intersection controls can mitigate any potential traffic congestion due to ridership demand. Also, the availability of local transit connections to a rail station can significantly reduce the number of automobile trips at that station.

Any new rail service can have an impact on public safety. While the safety record of passenger train travel is significantly better than that for highway travel, any expansion of rail service has the potential to increase traffic safety impacts related to changes in traffic volumes and congestion in the rail station and parking areas, and in increased rail line volumes (number of trains per day) at at-grade roadway/railway crossings. The additional trains running in a rail corridor present more opportunity for train/auto/pedestrian conflicts. This can be mitigated by the provision of enhanced grade crossing protection devices on these corridors. Grade separations and grade crossing closures should also be considered to reduce these conflicts. In the stations themselves, provision of a grade separated route for pedestrians should be included wherever feasible to minimize the potential for incidents.

Education and enforcement programs that increase public awareness of grade crossing safety are an integral part of an overall public safety program for communities. MDOT is involved with the national Operation Lifesaver program through which railroads provide grade-crossing safety education to communities around the state. MDOT is also participating in the testing of new grade crossing technology, such as in-ground raisable barriers, which could further decrease the potential for grade crossing incidents.

6.1.4 Land Use and Community Resources

Several considerations related to land use and community resources are discussed in the sections below.

6.1.4.1 Land Use Compatibility

Since freight and passenger rail operations have been ongoing in the State of Michigan for more than 150 years, many existing rail lines and future corridors have been incorporated into local and regional land use and comprehensive plans as an integral part of the transportation infrastructure. Freight lines serve established industrial areas that originally developed in large part due to their proximity to rail, including large-scale facilities for the processing, storage and transfer of both raw materials (grain, timber, ore, etc) and manufactured goods (automobiles, finished lumber, etc). Based on long-range plans prepared by local municipalities, these areas are either targeted for industrial retention and growth based upon the advantages of proximity to rail and the potential for intermodal transfer, or for redevelopment with new uses. New passenger rail routes, which will follow the same track alignment as the freight lines and Amtrak routes, are in most cases fully compatible with existing and/or planned land uses.

In areas targeted for industrial retention, investment in freight rail infrastructure and coordination with roadway investment to ensure the viability of intermodal operations will encourage private sector business investment. Maintaining industrial activity in historically rail-served locations often brings the advantages of job creation in close proximity to an established workforce and the ability to serve these areas with existing or upgraded infrastructure. When historically industrial areas are abandoned in favor of sites served only by the highway network, the costs for new infrastructure expansion, coupled with the challenges of redevelopment of the "brownfields" left behind, result in higher public costs overall. The benefits of investment in maintaining freight rail infrastructure are particularly clear when considered in this broader context.

The implementation of passenger rail service frequently results in transit-oriented development (TOD) near rail stations to serve rail passengers, spurring investment that serves both existing neighborhoods and areas targeted for a transition from industrial uses to urban infill development. This can occur at a range of scales depending upon the quality and frequency of service. For example, dry cleaners, restaurants, newsstands, coffee shops, and day care centers are common complimentary services that would attract daily rail riders. Synergies with transit in downtown locations often produce a much more dynamic mix of commercial and retail uses, including office uses. The introduction of passenger stations in existing or planned commercial settings strengthens business and development opportunities. This transit-oriented development provides a potential land use benefit to the cities and communities that have rail stations. The existing and proposed stations in major Michigan cities, such as Ann Arbor, Dearborn and Detroit, may benefit from enhanced commercial development near the rail stations.

Over the last decade in particular, passenger rail systems have generated demand for convenient housing near rail stations. This is particularly true for commuter rail systems, which are designed to provide transportation between suburban residential areas and central employment areas. Available housing within walking distance of stations is desirable, especially for those passengers who are daily commuters. Passengers enjoy a living environment that includes walkable commercial and entertainment conveniences. The mix of housing and commercial uses creates a unique lifestyle choice for home buyers. Urban dwellers also choose to live in these mixed use "transit villages" because transit affords the opportunity for families to eliminate the cost of an automobile that is no longer necessary due to job access by transit. The change in commuter mode has the benefit of VMT reduction and air quality benefits described above. Eventually, if demand is great enough in larger cities,-such as Lansing, Ann Arbor, Grand Rapids, or downtown Detroit- transit-oriented development at varying scales could emerge.

Historically, the cost of housing has not included the cost of transportation, particularly in relation to commuting patterns. Traditionally, housing is considered affordable when it demands less than 30 percent of the household budget. The reality, however, is that those who purchase more affordable housing at a greater distance from job centers pay a premium in transportation costs. Recent research undertaken by the Center for Neighborhood Technology (CNT) includes the cost of transportation associated with housing location and offers a more realistic picture of the true cost of housing. The CNT Housing + Transportation Affordability Index[54] illustrates that households that are located in "transportation efficient neighborhoods," such as transit villages, can achieve 15 percent to 28 percent in real costs savings due to reductions in transportation costs. Passenger rail transit creates the development opportunities to provide affordable housing options at greater distances from job centers, and should have the same effect in reduction of household transportation costs.

New light rail transit and commuter rail service can also contribute to the containment of urban sprawl since rail services typically have the effect of concentrating population near rail stations and generally along rail corridors. Implementing new rail service should promote beneficial land use infill and redevelopment in the station areas, including higher density development patterns overall. As noted in the discussion of public/private partnerships in Chapter 3, public agency diligence in station area land use planning and infrastructure programming for multi-modal access is essential to attracting private investment and creating the environmental advantages discussed. For some rail projects, there may also be opportunities for brownfield redevelopment. All of these conditions would improve economic activity in the rail service corridor.

Consequently, rail stations are viewed as a community asset, providing a physical link to a convenient and desirable transportation alternative to the motorized vehicle.

6.1.4.2 Right-of-Way Acquisition and Potential Displacements

Construction of new rail stations in urbanized areas will likely require property acquisition. In many cases, property located next to the railroad tracks or existing stations is owned by the freight railroads. Residential or commercial displacements can sometimes occur. If additional parking is needed at a rail station, property may be needed for this use. Coordination with property owners would need to occur during the design phase of project development. Typically, however, limited new right-of-way would be required for track improvements associated with new rail projects. Further design study would be required during early preliminary engineering to determine what exact right-of-way needs, if any, are necessary.

If any business or residential relocations are necessary they would need to be accomplished in accordance with the procedures of the Uniform Relocation Assistance Act. Relocation payments in addition to the purchase price of real property would occur if businesses or residences are displaced and relocated as a result of rail station and parking lot construction.

6.1.4.3 Environmental Justice and Title VI Issues

Executive Order # 12898 was implemented to ensure that low-income households, minority households and minority business enterprises are an integral part of the community outreach and decision-making

[54] http://htaindex.cnt.org/

process, and they do not receive a disproportionate share of adverse environmental impacts for projects that receive federal funds. An environmental justice screening for new rail projects must be accomplished to ensure that low-income persons or minority populations are not discriminated against during project decision-making and that no neighborhoods would be affected differently by the potential physical impacts.

Also, it is important to determine that lower income and minority populations are not denied the benefits of the proposed rail or transit project, that there is equity in the transportation investment being made, and that they are not burdened with a disproportionate share of the impacts. Title VI of the Civil Rights Act of 1964 requires that federal programs and expenditures are not discriminatory and that the benefits of federal investments are shared across all populations. A Title VI screening should also be considered and accomplished on rail projects. If environmental justice or Title VI issues are identified, they must be properly addressed during the project development and NEPA review process.

6.1.5 Noise and Vibration

Trains are an intermittent source of noise. Trains produce noise in four ways: internal combustion (diesel) engine operations, steel wheels on steel rails, braking, and mandatory warning noises (i.e., locomotive horns and bells). On existing freight and passenger rail lines, land uses abutting the existing rail corridor are already exposed to some noise from existing railroad operations. Increases in the speed and frequency of passenger rail service will result in an increase in sound exposure at locations adjacent to rail corridors. Since much of the land abutting rail corridors are commercial and industrial, anticipated noise impacts would be minimal. However, in more densely populated residential areas the increase in train noise could be perceived as a "nuisance" by nearby residents and be of concern. A major source of noise impacts from rail projects are the locomotive horns at at-grade roadway/railway crossings. Crossing mitigation measures, such as quiet zones which preclude the need for train horns and bells, can address this concern.

Vibration impacts are rarely anticipated for most rail projects. Vibration is usually only a consideration and a concern in densely populated, urban areas where the rail transit system is located near the curb of an existing street and there may be the presence of older or historic residential and commercial buildings.

6.1.6 Other Environmental Considerations

The implementation of any major infrastructure project has the potential for significant environmental impacts. Rail projects often have much less impact than other modal projects because they take advantage of existing corridors and the right-of-way requirements are generally less than those for comparable highway projects. But thorough analysis of potential environmental impacts must be undertaken before any rail project can be initiated, and efforts must be made to minimize and mitigate those impacts. Additional environmental considerations for rail projects include:

- **Ecological Resources and Wetlands**. Rail projects may have an impact on water quality, wetlands and/or floodplains. Effects to ecological resources and wetlands are usually measured by using county or regional land use data to estimate the acres of agriculture, open space (grassland/shrubs), woodlands, wetlands, and open water within a certain distance of each rail corridor alignment.
- **Historic and Cultural Resources.** Federal guidelines regarding historic and cultural resources must be followed during the development of rail projects. The potential for cultural resources concerns is

usually low, but a survey to determine the presence of cultural resources is recommended during the preliminary engineering and environmental assessment phase for rail projects. Sometimes historic sites or buildings connected with railroad history, such as train depots, may be located next to the railroad right-of-way and may be either included in or eligible for inclusion in, the National Register of Historic Places.

- **Hazardous Materials and Special Waste**. Along any rail corridor there are likely to be a number of industrial and commercial properties that either abut or are close to the railroad tracks. Industrial land uses commonly have the potential for surface or underground contamination, particularly at sites that were used for industry before current environmental regulations went into effect. Moreover, since contamination can migrate underground via groundwater, properties that are not adjacent to the railroad right-of-way but are nearby also need to be considered during literature reviews and site inspections.
- **Visual Resources.** Visual and aesthetic concerns for railroad projects include the potential effects on views and effects on neighborhood or community character or setting. Compatibility with the surrounding urban environment is important as well as potential effects on pedestrian linkages and people-oriented spaces near the rail lines.
- **Construction Impacts**. Any infrastructure project will have short-term impacts while that project is project is under construction. These impacts can be both environmental (run-off, damage to adjacent property) and operational (disruption to rail and road traffic). Any rail construction project must incorporate plans to minimize and mitigate the impacts that are likely to occur during construction.

6.1.7 Summary of Environmental Considerations

For the majority of rail transit, freight and passenger rail projects, there are usually no environmental issues that would preclude the project from moving forward. The rail service for the State of Michigan provides significant benefits and an additional viable transportation option to move people and goods throughout Michigan, the Great Lakes states and beyond. In general, freight and passenger rail service provides environmental benefits in terms of reduction in vehicle miles of travel and related benefits such as reduced fuel consumption, air quality improvements and enhanced mobility opportunities. For most rail projects a streamlined environmental review and clearance process would be required during the project development phase which would include early preliminary engineering and an environmental assessment. This process under the auspices of NEPA would address all of the environmental issues adequately, ensure that coordination with the resource and regulatory agencies occurs, and ensure that communities and stakeholders are included in the project decision-making. MDOT, through its environmental stewardship, has the opportunity to promote energy and land use efficient transportation choices through new, expanded or enhanced state rail service.

6.2 Regional Balance

The development of the railroad network in Michigan has historically followed the population and economic growth patterns of the state. As a result, the majority of the state's rail facilities are concentrated in the southern tier of the state, focused on the Detroit area and key east-west transportation corridors. Rail lines are in place throughout Michigan and the passenger and freight rail service they provide are key components of the economy in every region of the state. In many cases rail is a

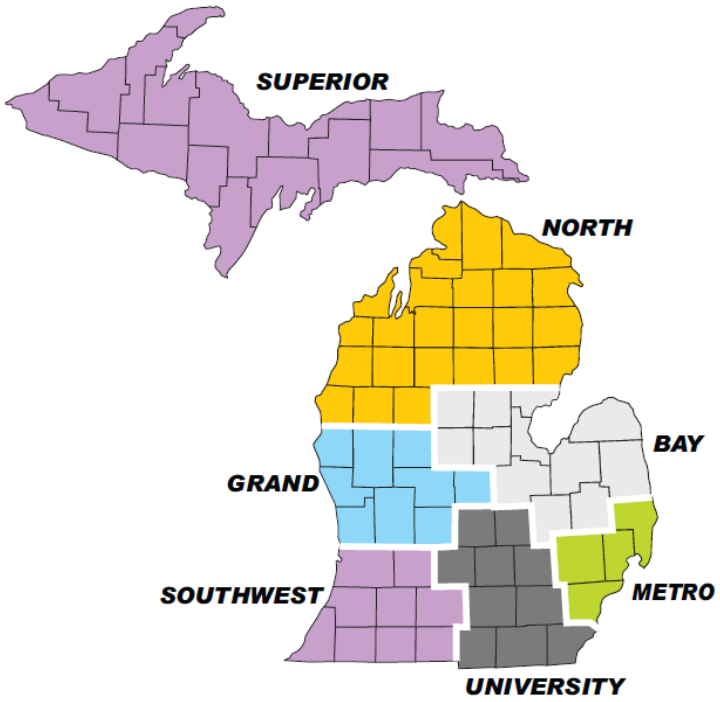
The improvements proposed in the State Rail Plan will benefit all regions of Michigan.

critical economic lifeline for rural areas of the state that have limited transportation alternatives. The state has recognized the importance of rail in these underserved communities, and the state has sought to preserve rail access, including the management of over 500 miles or rail lines.

The Michigan Department of Transportation divides the state into seven geographical regions (see **Figure 6-1**). The MDOT regions provide a good delineation of the geographical and economic conditions of the various parts of the state and are a useful way to describe the distribution of rail resources in Michigan.

Below is a brief description of the existing rail services that are provided in each region, a description of the improvements being proposed in this plan for each region and an analysis of the benefits provided by these rail services.

Figure 6.1: Michigan DOT Regions



6.2.1 Superior Region

The Superior Region encompasses the entire Upper Peninsula of Michigan. This large land mass is completely separated from the remainder of the state by Lake Michigan and Lake Huron. This region is sparsely populated but has historically been a major producer of natural resources, including iron ore, copper and timber. Railroads are the primary mode used to transport these resources, and an extensive network of rail lines was built in the early twentieth century to bring the minerals and timber to market. The mineral resources in the Upper Peninsula have largely been expended and currently only two active iron ore mines still exist, although new mines for other minerals are currently under development. Rail service continues to be critical to the operation of these mines. The iron ore is excavated from mines in

the Marquette Range in the central Upper Peninsula, processed into taconite pellets, loaded onto rail cars and delivered to the ports of Marquette and Escanaba where they are transloaded onto lake freighters and shipped to steel mills across the Great Lakes. The railroads also provide essential transportation services for the timber industry, carrying logs to paper mills in the Upper Peninsula and exporting them outside of the state.

Over the past 40 years the rail mileage in the Upper Peninsula has declined as the mining and timber industries have contracted in the region. In 2010, the Escanaba and Lake Superior Railroad received authority from the Surface Transportation Board to abandon 43 miles of rail line between Ontonagon and Sidnaw. This line served a paper mill in Ontonagon which has closed. A final decision on the amount of track that will be removed has not yet been made. Economic development agencies have been working to find a new operator for the paper mill in Ontonagon, and the availability of rail access is a key component of that marketing effort.

The Upper Peninsula is also served by an east-west Canadian National main line which includes an international border crossing in St. Sault Marie. This rail line serves overhead traffic between Canada and the central and western United States. It also provides rail access for local customers located along the line and on several spurs throughout the Upper Peninsula.

No direct passenger rail service is supported within the Superior Region. However, intercity passenger bus service to provide connections from several of the Upper Peninsula's activity centers south to passenger rail service in Grand Rapids and Milwaukee, Wisconsin respectively.

The preservation of the state's existing rail network benefits Michigan's overall economy by enabling the efficient movement of freight, reducing the burden on the state's highway system and ensuring mobility of goods. Because of its trade mix, economic base and geography, the Upper Peninsula is especially sensitive to the preservation of freight rail, and benefits disproportionately from the preservation investment offered in the investment packages. **Table 6-1** below shows the comparative overall rail utilization of Michigan's upper and lower peninsulas, and the comparative rail dependency within the context of regional and state output and gross domestic product.

Table 6.1: Michigan Upper Peninsula Rail Utilization and Dependence

Measure	Lower Peninsula	Upper Peninsula	Statewide
Proportional Utilization of Rail Mode			
Total Outlays for Transportation ($ millions)	$6,410.2	$126.9	$6,537.1
Total Outlays for Rail Transportation ($ millions)	$772.7	$21.1	$793.8
% of Transportation Outlays Spent on Rail	12%	17%	12%
Economic Dependence on Rail Services			
$ of Rail Service consumed per $ million of GDP	$3,444	$4,239	$3,461

Sources: MIG, Inc.; analysis performed by EDR Group, 2011.

Table 6.1 shows that while the Lower Peninsula purchases considerably more rail transportation services than the Upper Peninsula, rail plays a larger strategic role in the Upper Peninsula's transportation economy. Rail accounts for 17 percent of transportation services procured in the Upper Peninsula in

comparison to only 12 percent for the rest of the state. Furthermore, firms in the Upper Peninsula procure 23 percent more rail transportation services than in the Lower Peninsula. The disproportionate dependence on rail transportation services indicates that regardless of how rail services are expanded in the future, the benefits provided through the preservation of the existing network are critical to the economy of the Upper Peninsula.

The Michigan State Rail Plan recommends the preservation and enhancement of the existing rail network in the Upper Peninsula. These rail lines are critical to the economic vitality of the region. Concerns have been expressed about the potential for abandonment of other rail lines on the Upper Peninsula. MiRLAP and FEDP are particularly important to make strategic investments in order to encourage the expansion of businesses and industries in the Upper Peninsula and to help keep the rail network in the region viable. The recommended "Good" Investment Strategy in this Plan includes a study of the feasibility of an intermodal terminal facility to service northern Michigan, including the UP. Several key projects identified by the two short-line railroads serving the Upper Peninsula (ELS and LSI) including capital maintenance projects, upgrades to the iron ore docks, grade crossing improvements and replacement of ore and timber rail cars.

6.2.2 North Region

The northern portion of the Lower Peninsula of Michigan is also largely undeveloped and sparsely populated. The region includes extensive lake shores on both Lake Michigan and Lake Huron; consequently tourism is a major driver for local community economies within this region.

The North Region is served by four rail lines which extend to Manistee, Traverse City, Petoskey, Gaylord and Alpena from the southern part of the state. All of these are operated by short-line railroads, and two of these lines are state-owned (the line terminating at Traverse City and Petoskey and operated by the Great Lakes Central (GLC), and the line operated by the Lake State Railroad (LS) that terminates in Gaylord). Although all of these lines have relatively low volumes of freight traffic, they are critical components of the economy of the region. No direct passenger rail service is currently provided within the North Region. However, MDOT does subsidize intercity passenger bus service to provide connections from Traverse City, Cadillac and Big Rapids to Grand Rapids, where users can access passenger rail.

Implementation of passenger rail service to Traverse City and/or Petoskey was consistently identified as a top priority through the State Rail Plan public outreach effort. Supporters argue that regular passenger rail service would provide a substantial benefit to the region by providing transportation alternatives for visitors and residents alike. This plan recommends that MDOT initiate a feasibility study of passenger rail service to this region of Michigan that considers potential routes to both Detroit and Chicago. The design, construction and implementation of this service are included in the Better and Best investment packages, depending on the outcome of the feasibility study and the availability of funding.

MDOT has made substantial investments into the state-owned lines operated in this region by GLC and LS. The plan recommends continued investments in the other two railroads in the region, the LS line to Alpena and the Marquette Rail (MQT) line to Manistee and Ludington. North Region projects in the recommended Good investment package include the repair of bridges, track rehabilitation and grade crossing improvements. MiRLAP and FEDP are particularly important for the North Region to make

strategic investments to help preserve and expand the rail network in the region in order to encourage the expansion of businesses and industries.

6.2.3 Grand Region

The Grand Region includes the state's second largest city, Grand Rapids. The Grand Region is served by CSX and several short-line railroads. The Amtrak's Pere Marquette provides daily passenger service to Grand Rapids and Holland in the region. Intercity passenger bus service is also provided to connect from Grand Rapids to Kalamazoo (Wolverine) as well as from Grand Rapids to East Lansing (Blue Water).

The State Rail Plan recommends the study of alternatives for expanding passenger service to Grand Rapids. The Pere Marquette currently provides service along the Lake Michigan shore, with stops in St. Joseph/Benton Harbor, Bangor, Holland and Grand Rapids. The MWRRI plan includes recommendation for establishing a direct connection between Kalamazoo, Grand Rapids and Holland. Public and stakeholder interest has also been expressed for establishing a new passenger service that would connect Grand Rapids and Detroit via Lansing and Ann Arbor. The State Rail Plan recommends that all of these passenger service alternatives be studied in detail in order to develop a comprehensive implementation plan for passenger service in the Grand Region.

As with other regions of the state, freight rail plays a critical role in the Grand Region's economy. Likewise, ongoing statewide investments are planned through the Freight Economic Development Program, the Michigan Rail Loan Assistance Program and the grade crossing programs. In addition, based on input received from business and railroad stakeholders in the region, the State Rail Plan includes a recommendation to conduct a study of the feasibility of developing a regional intermodal terminal facility in the Grand Rapids area. This facility would improve freight transportation opportunities and efficiencies for business and industry. It would also support the economic competitiveness of western Michigan, business development and short- and long-term job creation.

6.2.4 Bay Region

The Bay Region is in the east central portion of the state and covers the area that is known as the "thumb" of Michigan. The region has major chemical, manufacturing and agricultural interests that utilize rail to transport raw materials in and finished goods out of the area. The Bay Region is served by the Canadian National main line which has an international border crossing through the St. Clair Tunnel in Port Huron (in MDOT's Metro Region). The region is also served by several short line railroads whose activities are focused around the industries located in Saginaw, Bay City, Midland and Flint.

The region receives daily passenger service from the state-supported Blue Water route, which serves Flint. MDOT also subsidizes intercity passenger bus service to provide connections north through Bay City and Saginaw to connect with the Blue Water route in Flint. Key projects in the State Rail Plan for this region include the upgrade of the Blue Water as proposed in MWRRI. These upgrades include improvements to the rail corridor to reduce travel time and to allow for additional frequencies and reduced delays.

A significant portion of the state-owned rail lines are in the Bay region, including a southern portion of the line to Traverse City and Petoskey operated by GLC, the southern end of the line to Gaylord operated by LS and the Vassar area system operated by the Huron and Eastern Railway. Continued state investments in short line rail infrastructure are a key element of the State Rail Plan recommendations.

Ongoing statewide investments are planned through the Freight Economic Development Program, the Michigan Rail Loan Assistance Program and the grade crossing programs. The Bay Region will also receive significant safety benefits from investments in Positive Train Control signaling systems that are required by federal law on rail lines that carry high volumes of hazardous materials. Southwest Region

The Southwest Region of Michigan is unique in that it is the only place outside of the Northeast Corridor where Amtrak owns a significant stretch of main line railroad. The approximately 100 mile long section of track between Porter, IN and Kalamazoo, MI is also the only place outside the Northeast where passenger trains are operating at speeds in excess of 79 mph. MDOT is in the process of expanding the publicly-owned section of the Chicago to Detroit/Pontiac high-speed passenger corridor. The state has received federal funding to assist in the purchase of the line between Kalamazoo and Dearborn, and MDOT is currently in negotiations with Norfolk Southern to acquire this line. The state has also received federal funding to upgrade the track and signals between Kalamazoo and Dearborn, and Amtrak is investing in improvements to the portion of the high-speed passenger rail corridor which it owns.

The Southwest Region has the most extensive passenger service in Michigan. All three Michigan Amtrak routes (Wolverine, Pere Marquette and Blue Water) provide service to some portion of this region. The State Rail Plan includes recommendations for substantial investments in the Chicago-Detroit/Pontiac and to upgrade service to Grand Rapids and Port Huron that will all benefit this region by providing additional frequencies and reducing rail travel times.

The region is serviced by CSX Transportation, Canadian National, as well as several short line railroads. The Michigan State Rail Plan includes recommendations for the freight rail network in the Southwest Region, including track rehabilitation and bridge replacements for the Grand Elk Railroad. In addition, ongoing statewide investments are planned through MiRLAP, FEDP and the grade crossing programs.

6.2.5 University Region

Passenger rail service also plays a key role in this south-central region of the state. The Chicago – Detroit/ Pontiac high-speed rail corridor passes through the center of this region and serves stations in Jackson and Ann Arbor. The Blue Water route serves East Lansing and Durand. Intercity passenger bus service is also provided from Lansing, Owosso, Ann Arbor, Battle Creek, and Grand Rapids to connect with the Wolverine and Pere Marquette routes as well as from Detroit (Metro Region) to Toledo through Monroe County. MDOT is working with regional and local agencies to develop two regional rail service proposals, between Ann Arbor to Detroit and between Ann Arbor and Howell (the WALLY Line). The State Rail Plan includes recommendations to complete the construction and procurement of equipment of these proposed rail corridors and to implement the service. The proposed feasibility study for additional passenger service to Grand Rapids could also benefit the University Region as one of the alternatives that will be studied is new service between Grand Rapids and Detroit via Lansing and Ann Arbor.

The State Rail Plan recommends the upgrade of three passenger stations in the University Region. The Jackson and Durand stations are identified for rehabilitation and MDOT is working with the City of Ann Arbor to develop a new multi-modal station that would serve both intercity rail and the local transit system.

The University Region serviced by Norfolk Southern, CSX, Canadian National and several short line railroads. The State Rail Plan includes recommendations for continued investment in the infrastructure

of the state-owned Hillsdale system, operated by the Indiana Northeastern Railroad, including the rehabilitation of rail and culverts. In addition, ongoing statewide investments are planned through MiRLAP, FEDP and the grade crossing programs.

6.2.6 Metro Region

The Metro Region is the most densely populated MDOT region and has the highest concentration of rail lines and the highest volume of freight traffic in the state. All four Class I railroads that serve Michigan (Norfolk Southern, CSX, Canadian Pacific and Canadian National) have rail lines and intermodal facilities in the Metro Region. Several short-lines and terminal railroads also operate in the region. There are also two major international rail border crossings in the Metro Region, the CN's St. Clair Tunnel in Port Huron and the CP Detroit River Tunnel.

Passenger rail is also extensive in the region, with the Amtrak Wolverine route serving stations in Pontiac, Troy/Birmingham, Royal Oak, Detroit and Dearborn, and the Blue Water Route serving Port Huron.

The State Rail Plan includes numerous recommended projects that will directly benefit the Metro Region. The implementation of high-speed rail service between Chicago and Detroit/Pontiac will provide an important transportation alternative for residents of the region. The implementation of regional passenger service between Ann Arbor and Detroit will provide alternatives for daily commuters in that market and it has the potential to provide a significant economic benefit to the region. The Plan recommends the construction of a new intermodal passenger station in the New Center area of Detroit that will provide for direct transfers to the proposed Woodward Avenue light rail line. New stations will also be built in Dearborn and Troy/Birmingham using ARRA funds.

The State Rail Plan includes recommendations for substantial investments in the freight railroad network that serve the Metro Region. Most notably, the Plan supports the construction of a new rail tunnel between Detroit and Windsor that will accommodate unconstrained double stack operations, thereby greatly increasing the capacity and efficiency of this major rail international rail connection. Also, a series of projects have been identified related to the Detroit Intermodal Freight Terminal that will consolidate intermodal operations of the CSX, NS, and CP railroads in Southwest Detroit at the Livernois-Junction Yard. DIFT also includes several external-to-terminal rail improvements that are designed to increase the efficiency of operations through the region. Road improvements will be made to direct traffic into, out of, and around the terminal and to support the needs of residential neighborhoods and businesses in the area. The consolidated terminal will accommodate existing and future demands and will stimulate economic revitalization in the Metro Region by improving rail freight transportation opportunities and efficiencies at a consolidated terminal in southwest Detroit.

6.3 Economic Impacts

Investment in Michigan's rail system has far-reaching economic impacts on the state's economy. The State Rail Plan evaluates a series of different economic "investment package" strategies that the state can consider for future rail planning and investment periods. Generally, the potential impacts of the investment packages developed as part of this State Rail Plan can be broadly grouped into three categories:

1. The economic impact and ongoing benefits of simply continuing service at today's levels relative to the economic consequences of losing rail service altogether;

2. The impact of rail expenditures made in Michigan's economy under each package (including new federal and private investment in Michigan), in relation to any adverse impacts of raising taxes to qualify for federal matching funds; and

3. The potential system-level transportation performance/efficiency benefits of significant expansions to Michigan's rail system. These include major capital freight improvement projects such as the DIFT project, construction of a new Windsor Tunnel, passenger improvements such as 110mph passenger rail service, new passenger rail service to Traverse City and increased passenger capacity in the long-term.

This section describes the economic implications of the four potential investment packages discussed in Chapter 5 with respect to each of these types of impacts to Michigan's economy. Additional information and detailed analysis on the economic findings contained within this section is available in *Technical Memorandum # 3: List of Projects*.

6.3.1 Benefits of Preserving Current Service

The availability of rail transportation supports significant efficiencies for Michigan's population and businesses. For many commodity shipments, and individual passenger-trip purposes, rail is far more efficient in terms of travel time and cost advantages than other alternatives. While rail accounts for only a small share of Michigan's overall transportation system, Michigan has a significant economic stake in preserving and enhancing its rail network and services.

Based on trends from Amtrak data presented in *Technical Memorandum #2: Existing Conditions*, Michigan's rail network is projected to carry over 845,000 passengers in 2011. According to the 2007 STB waybill sample (with growth factors from FAF3), Michigan's freight rail network is projected to carry over 80 million tons in 2011. If all of these trips had to be carried by passenger cars and trucks on Michigan's highway system, it would place an additional 736 million vehicle miles[55] of travel on Michigan's highways this year.

If Michigan's rail trips and tonnage had to be carried on the highway system, 161 billion additional vehicle miles would be added and transportation costs would increase $16.8 billion.

Over the life of the plan (from 2011 to 2030), if Michigan's rail trips and tonnage had to be carried by the highway system, this diversion of trips would create over 161 billion additional vehicle miles of travel on Michigan's Highway system. The additional vehicle operating costs, travel time costs, safety, environmental, reliability and other costs of moving Michigan's rail passengers and freight to highway modes would be expected to total over $16.8 billion over the life of the plan.

[55] All findings of highway mileage/VMT associated with shifting rail movements to highway are based on origin-destination pairs from AMTRAK data (provided by MDOT in January 2011), Estimates from the USDOT Freight Analysis Framework (FAF), 2010 or USDOT waybill data, 2007, converted to the equivalent minimum time and distance paths as shown on NAVTEQ, 2010 roadway networks.

The majority of the highway costs are due to the much higher vehicle operating costs and crew costs of shifting freight from rail to truck. Loss of rail service in Michigan would be expected to cost over $24.8 billion[56] in additional freight costs due to highway travel. Loss of passenger rail service in Michigan would cause an expected $60 million in additional highway user costs. However, the additional highway user cost would be largely offset by the travel time savings from the increased speed of passenger car travel in comparison to current train services.

Shifting Michigan's rail passenger and freight traffic to the highway system through the year 2030 would be expected to cost the state's economy an average of over 7,500 jobs for each year of the Plan, with cumulative economic losses to the state of over $27 billion in economic output, and approximately $7.4 billion in lost income.[57] These losses account for the transportation inefficiency of diverting existing rail traffic to highways, but do not take into account the additional losses which may occur due to foregone state and federal investment in the state (discussed later in this chapter). Additional investment in Michigan's rail system will not only prevent the economic and job losses which would occur without the system in place, but may also create additional efficiencies, benefits and economic opportunities for Michigan's households and businesses.

6.3.2 Investment Packages

This section analyzes the economic impact of the Baseline, Good, Better and Best scenarios described in Section 5.2. The general approach used to determine the economic impact of the investment packages involved the following steps:

1. Summarizing, for the life of the Plan, the total dollars spent on rail infrastructure and services under each investment package.
2. Applying appropriate assumptions regarding what percentage of this spending occurs within Michigan, and which Michigan industries are involved.
3. Using ratios from Implan to estimate the number of jobs, and therefore the amount of personal income, that rail spending will create in the state's economy.
4. Using multipliers from Implan to calculate how this spending works its way through Michigan's economy. The multipliers can be understood as providing a measure of the ripple effects of this spending in the state's economy.
5. Using the same methodology as described above to determine the impact of tax increases associated with each package, and subtracting the adverse impacts of tax increases from the beneficial impacts of investment, to arrive at a net economic impact from the different spending levels.

The economic impacts are summarized as totals, which include direct, indirect and induced impacts. **Direct Impacts** are those initial economic activities generated by a project. For a rail project, this would be the construction budget, such as laying new railroad track and/or adding a station or terminal. **Indirect Impacts** are derived from the purchase of goods and services by business engaged in direct activity. The suppliers of these goods and services are the indirect beneficiaries. The dollars used to buy

[56] All costs are shown in 2010 constant dollars.

[57] TREDIS Consulting Group; Division of Economic Development Research Group, Inc. Web: http://www.tredis.com

these goods and services, in turn, pay for jobs and other business expenses purchased by the first round of indirect suppliers. Impacts are limited to the spending that occurs within the project region, which in this case would be the State of Michigan, and continues until dollars leave the state. **Induced impacts** are derived from the household spending in Michigan of wages earned by workers engaging in direct or indirect project activities.

Additional information regarding the methodology and assumptions associated with this economic impact analysis is available in *Technical Memorandum # 3: List of Projects*.

Table 6.2 summarizes the investment levels associated with each investment package for passenger and freight over the 20 year planning period (from 2011 to 2030). The table separates the State of Michigan's investment share from federal and private sector railroad investments required for each investment package. The $3.5 million Baseline investment package shows current state, federal and railroad investments in passenger and freight rail service in Michigan. It does not include additional funding which will be required to support the Wolverine service under current PRIIA requirements.

Table 6.2: Proposed Investment in Michigan's Economy

Baseline Investment Package							
	Total Federal Investment in MI	Total Railroad and Other Investment in MI	Total Outside Investment	Total Already Committed State Money Spent	Total Additional Taxes Raised Within MI	Total Michigan Share	Total Rail Investment
Passenger	$567	$78	$645	$182	$0	$182	$829
Freight	$116	$2,775	$2,891	$140	$0	$140	$3,031
Total	**$683**	**$2,853**	**$3,536**	**$322**	**$0**	**$32**	**$3,860**

Good Investment Package							
	Total Federal Investment in MI	Total Railroad and Other Investment in MI	Total Outside Investment	Total Already Committed State Money Spent	Total Additional Taxes Raised Within MI	Total Michigan Share	Total Rail Investment
Passenger	$1,268	$128	$1,395	$182	$603	$786	$2,181
Freight	$749	$3,788	$4,537	$140	$310	$450	$4,987
Total	**$2,017**	**$3,916**	**$5,932**	**$322**	**$913**	**$1,236**	**$7,168**

Better Investment Package							
	Total Federal Investment in MI	Total Railroad and Other Investment in MI	Total Outside Investment	Total Already Committed State Money Spent	Total Additional Taxes Raised Within MI	Total Michigan Share	Total Rail Investment
Passenger	$1,626	$128	$1,754	$182	$693	$875	$2,629
Freight	$857	$3,863	$4,720	$140	$337	$477	$5,197
Total	**$2,483**	**$3,991**	**$6,474**	**$322**	**$1,030**	**$1,352**	**$7,826**

Best Investment Package							
	Total Federal Investment in MI	Total Railroad and Other Investment in MI	Total Outside Investment	Total Already Committed State Money Spent	Total Additional Taxes Raised Within MI	Total Michigan Share	Total Rail Investment
Passenger	$3,437	$128	$3,565	$182	$1,145	$1,328	$4,893
Freight	$857	$3,863	$4,720	$140	$337	$477	$5,197
Total	**$4,294**	**$3,991**	**$8,285**	**$322**	**$1,482**	**$1,805**	**$10,090**

In 2010 millions of dollars

6.3.3 Economic Impacts of Rail System Spending

The investment packages assume different levels of state, federal and private investment in Michigan's rail system. Because opportunities often exist to attract federal and private matching funds into Michigan's economy, this section explores the direct, indirect and induced economic impacts associated with each investment package.

The impacts described in this section include the *direct* impacts (jobs, personal income, and output) stimulated in Michigan's economy by private and federal investment in the rail system. The findings also include *indirect* and *induced* impacts which occur as this money works its way through Michigan's economy.

The analysis also considers the adverse impacts of raising taxes or user fees to generate the required state match that would likely be needed to achieve the levels of outside investment given for each service package.

Because this analysis is made from the standpoint of Michigan's economy, the impacts given in this section do not represent net new economic benefits to the United States as a whole, but rather a transfer of jobs, earnings, output, income and value-added into Michigan that would have otherwise occurred elsewhere in the United States if Michigan did not receive the outside investment associated with each investment package.

Table 6.3 summarizes the *net economic impact* of spending and associated tax increases that would be required to implement each of the rail investment packages (including direct, indirect and induced impact of new spending, less the offsetting impact of state taxes raised to support the needed state matches). This table shows *net changes* from the current levels of earnings, output and jobs. A negative figure indicates a net decrease in earnings, output and/or employment. A zero figure indicates that the package represents no change from the earnings, output and/or employment provided currently. A positive figure represents a net increase in earning, output and/or employment.

The Baseline investment package includes only those revenues that are already in place, either through ongoing federal and state funding programs or through one-time federal grant awards that have already been received. The Baseline does not include sufficient revenue to support the operating subsidy of Amtrak's Wolverine service. Section 209 of PRIIA requires the State of Michigan to take over this responsibility in Fiscal Year 2014. Without this support, the Wolverine service will be discontinued, resulting in the loss of earnings, output, and employment for the State of Michigan. This analysis demonstrates that while the Baseline scenario is free from any adverse tax impacts, the overall loss of federal investment (anticipated from loss of operating subsidies) results in a negative impact to the state's economy.

Table 6.3: Net Economic Impact of Investment Scenarios after Tax Impact

Baseline Investment Package			
	Michigan Earnings (Cumulative 2011-2030)	Michigan Output (Cumulative 2011-2030)	Michigan Employment (Average Jobs per Year)
Passenger	-$220	-$776	-187
Freight	$0	$0	0
Total Michigan Investment	$323		
Total Investment	$3,859		

Good Investment Package			
	Michigan Earnings (Cumulative 2011-2030)	Michigan Output (Cumulative 2011-2030)	Michigan Employment (Average Jobs per Year)
Passenger	$260	$921	173
Freight	$919	$2,902	843
Total Michigan Investment	$1,236		
Total Investment	$7,166		

Better Investment Package			
	Michigan Earnings (Cumulative 2011-2030)	Michigan Output (Cumulative 2011-2030)	Michigan Employment (Average Jobs per Year)
Passenger	$431	$1,506	321
Freight	$1,054	$3,263	985
Total Michigan Investment	$1,352		
Total Investment	$7,824		

Best Investment Package			
	Michigan Earnings (Cumulative 2011-2030)	Michigan Output (Cumulative 2011-2030)	Michigan Employment (Average Jobs per Year)
Passenger	$1,184	$4,490	935
Freight	$1,054	$3,263	985
Total Michigan Investment	$1,805		
Total Investment	$10,088		

**All figures shown in millions of 2010 dollars*
Sources: MIG, Inc.; analysis performed by EDR Group, 2011.

The analysis also shows that the spending impacts from federal and private investment in the state more than offset any adverse tax impacts in the Good, Better and Best scenarios, with each scenario creating progressively more earnings, output, value-added and jobs in Michigan's economy as rail investment is increased. This finding is consistent with the assumption that since the new outside investment in Michigan with the Good, Better and Best scenarios outpaces the increase in taxes within Michigan by 6 to 1, an overall net improvement in the state's economy is expected.

It is important to again note that this positive impact on Michigan's economy should be understood as a transfer of earnings, output, and employment from elsewhere in the United States, and should not be

confused with a net economic benefit to society from the transportation efficiency gains or other direct benefits created by the projects. The potential net economic benefits to society is explored in the next section, and are based on the nature of transportation investments, and their potential effects on the performance of Michigan's transportation system.

6.3.4 Societal Benefits from Investing in Michigan's Rail System

In addition to bringing new jobs and economic impact to Michigan through federal and private investment in the rail system, the investment packages of the statewide rail plan also provide opportunities to improve the overall efficiency of Michigan's transportation system, creating net societal benefits from investment at different levels. While many of the projects in each investment package include improvements such as positive train control, rail car, track preservation, terminal maintenance and other investments not expected to significantly change system performance, some investments are expected to have significant and quantifiable improvements in both travel operating costs (i.e., vehicle operating costs, safety, emissions and reliability), and travel time savings.

Because the preservation benefit of projects cannot be readily isolated and quantified with existing models and data, a full cost-benefit analysis of each investment package is not available. For example, many car and track refurbishments, terminal facilities, positive train control and grade-crossing safety improvements have multiple types of overlapping benefits and do not lend themselves to a simple cost-benefit ratio. This is why section 6.3.1 gives an overall preservation benefit level, which exceeds all of the cost levels considered in this Plan.

6.3.4.1 User Benefit Analysis Key Assumptions

The investment packages also offer some meaningful changes in the type and quality of service available from Michigan's rail network. This section explores the benefits available to Michigan's economy by analyzing the user benefits when improvements are made in:

- Freight rail speed and capacity; and
- Passenger rail speed and capacity.

The general approach used to determine the economic benefit of a series of different economic "investment packages" involved the following steps:

1.) Developing baseline assumptions about anticipated future trends in passenger car and truck VMT and VHT at the statewide level, based on current trends. This baseline includes an assumption about modal shares, passenger car and truck traffic growth for rail and highway modes based on the Michigan Transportation Plan or historic trends in Amtrak statistics.

2.) Ascertaining potential changes from baseline conditions likely to occur with different funding scenarios in terms of passenger and commercial (freight) VMT and VHT. Any significant changes in rail speed or capacity that may increase the rail mode's share of passengers or freight tonnage are analyzed. Personal miles of travel and freight tonnages for future years are adjusted to account for potential modal diversions from truck to rail (or rail to truck). Rail VHT is also adjusted to account for increased travel speeds for packages where investments are expected to increase travel speeds.

3.) Applying appropriate travel time cost factors to changes in VHT by mode, and appropriate vehicle operating cost factors to changes in VMT by mode. Because passenger and truck have different

safety, environmental, reliability, travel time characteristics and per-mile travel costs, the different modal shares, speeds and routings found in Step 2, result in different overall user costs or savings in Step 3.

4.) Developing a time series of impacts accruing by year based on MDOT "background" traffic growth factors, and applying an appropriate discount rate to report user benefits of any given package. It is expected that just as highway traffic demand increases over time, so does the potential level and overall benefit of diverting highway traffic to rail. The analysis assumes that trips diverted from highway to rail will increase over the life of the plan at the same rate as other highway trips.

5.) Summarizing and classifying user benefits into safety, logistics, reliability, travel time, operating cost and other categories based on the cost factors applied for each of these categories (in Step 3). The results of this summary are presented in the user-benefit tables within Section 6.3.

The analysis of user benefits discussed in this section is given in 2010 constant dollars, and is based on Amtrak[58] ridership data combined with Navteq[59] drive time analysis, analyzed in conjunction with capacity changes taken from the following:

- Midwest Regional Rail Initiative study on high-speed rail; [60]
- Passenger inter-city cross-modal elasticities from the US Conference of Mayors High Speed Rail study[61]; and
- Cost factors available EDR's TREDIS system[62].

The freight user benefits is also based on origin-destination (O-D) pairs and distances from the waybill sample (used in *Technical Memorandum #2: Existing Conditions*), assumptions about modal diversion potential given in the DIFT Environmental Impact Statement (commodity flow modeling report), and cost factors available within EDR's TREDIS system. Because all user benefits are in 2010 constant dollars, benefits of improvements which occur in later funding periods (such as the Traverse City line and increased capacity from Battle Creek to Port Huron) are affected by discounting. However, for these projects, the impact on statewide VMT and VHT is given along with the overall user benefits, to indicate the magnitude of potential effects on transportation efficiencies.

6.3.4.2 Benefits of Freight Capacity Improvements

The different investment packages offer different levels of investment in expanding Michigan's freight rail capacity. The Detroit Intermodal Freight Terminal[63] project and the new proposed Windsor Tunnel are

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[58] AMTRAK 2010 ridership data, provided to MDOT in January, 2011.
[59] "The Navteq Network" provided by NAVTEQ, 2010 (public equivalent visible from www.mapquest.com)
[60] Economic Impacts of the Midwest Regional Rail System, Transportation Economics and Management Systems, Inc. and HNTB, November 200.
[61] The Economic Impact of High-Speed Rail on Cities and their Metropolitan Areas, US Conference of Mayors, 2011.
[62] Transportation Regional Economic Development System, licensed by EDR Group to Michigan DOT, September, 2010-February 2011
[63] The Detroit Intermodal Freight Terminal has been studied extensively through its environmental review process. The DIFT environmental process yielded a number of observations about the degree of rail utilization, diversion from truck and overall efficiencies in southeast Michigan's freight system that can be made possible through this

examples of major expansions in Michigan's freight rail capacity funded to varying degrees by the different investment packages in the Plan. The investment packages also include targeted freight rail investments throughout the state and expansions to funding programs to support investments for short-line railroads.

Full funding of the freight investments considered in this Plan offers the potential to divert 22.6 million VMT of heavy commercial vehicles[64] from the highway system to rail over the life of the Plan. This amount of diversion accounts for (all in constant 2010 dollars):

- $576.1 million in logistics savings to businesses (travel time and reliability of freight),
- $30.7 million of savings in commercial vehicle operating costs,
- $72.5 million in travel time and reliability savings associated with commercial vehicle crew time savings,
- $1.6 million in environmental savings (associated with air quality and health improvements); and
- $0.5 million in safety savings.

The overall benefits of full investment in rail freight reflected in the Best scenario are estimated (when converted to 2010 constant dollars) to equate with a value of just over $634 million. These benefits are allocated to the different investment packages by funding period based on the share of potential freight investments funded in each investment package, with both the Better and Best scenarios enjoying the full benefits of all proposed freight projects, as they fund the rail freight improvements at 100 percent.

6.3.4.3 Benefits of Passenger Rail Speed and Capacity Improvements

The Good, Better and Best investment packages include a combination of projects which support significant increases in passenger rail speed and capacity on Michigan's rail network. Speed improvements from Chicago to Kalamazoo and on to Dearborn, from Ann Arbor to Howell, and from Kalamazoo to Battle Creek are all implemented to varying degrees as the investment level progresses from Good to Better to Best.

New rail capacity is also offered from Detroit to Toledo in the Better and Best scenarios, as well as four times the current passenger rail capacity from Battle Creek to Port Huron in the Best scenario. A new service from Kalamazoo to Traverse City is also provided in the Best scenario. These increases in service,

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important project. Although there is no current and up-to-date model of DIFT available for testing of scenarios in this Plan, and no current cost-benefit analysis for the project, some assumptions are derived from documentation and prior studies on this project, and applied to per-mile, per-ton and per-vehicle cost factors from the TREDIS economic analysis system. Benefits for DIFT are estimated based on loadings estimated in the DIFT environmental document, and the distribution of rail freight from southeast Michigan (according to the current waybill sample).

[64] All findings of highway mileage/VMT associated with shifting rail movements to highway are based on origin-destination pairs from AMTRAK data (provided by MDOT in January, 2011), Estimates from the USDOT Freight Analysis Framework (FAF), 2010 or USDOT waybill data, 2007., converted to the equivalent minimum time and distance paths as shown on NAVTEQ, 2010 roadway networks.

speed and capacity are expected to shift nearly 1.2 billion passenger car VMT and 19.8 million passenger VHT from the state's highway system[65] onto the rail system.

Overall, when the different relative travel time advantages of improved passenger rail speed and capacity in the plan are considered, the potential passenger rail improvements offered over the life of the Plan (with full implementation of the Best scenario) are estimated to carry a potential net $801.8 million in societal benefits. These societal benefits are broken down into the following broad categories (all in constant 2010 dollars):

- $311.6 million in vehicle operating cost savings (due to diversion from passenger cars to trains),
- $350.4 million in personal travel time and reliability savings for travelers,
- $100.1 million in safety savings,
- $24.7 million in business travel time and reliability savings for travelers, and
- $15.1 million in environmental savings.

Further analysis is given later in this section regarding how much of these potential societal benefits can be realized with each incremental investment package.

6.3.4.4 Comparative Benefits of Investment Packages

Each of the investment packages is found to offer different economic efficiencies (or inefficiencies) relative to today's conditions over the 2011-2030 life of the Plan. This section summarizes the comparative benefits of each package.

All findings of highway mileage/VMT associated with shifting rail movements to highway are based on origin-destination (O-D) pairs from Amtrak data (provided by MDOT in January 2011), estimates from the 2010 U.S DOT Freight Analysis Framework (FAF3), or 2007 U.S. DOT waybill data, converted to the equivalent minimum time and distance paths as shown on Navteq 2010 roadway networks.

Baseline Investment Package. The Baseline package, by requiring discontinuation of Amtrak's Wolverine service, is expected to shift 707 million passenger VMT and nearly 11 million passenger VHT to Michigan's highway system over the life of the Plan. This discontinuation of service is expected to impose a societal cost of $60 million (or a societal loss of $60 million below the efficiency expected if today's conditions and performance were maintained). Approximately 73 percent of this societal cost is expected to be in the form of vehicle operating costs, 23 percent due to safety costs and the remaining 5 percent due to environmental costs of traffic diverting from rail to passenger cars.

Good Investment Package. The Good package offers approximately $731 million in societal benefits above and beyond the preservation benefit (above and beyond the benefits that accrue from today's rail conditions and performance). In the Good scenario approximately 85 percent of freight investments are funded (including approximately half of the DIFT program and fully funding the Windsor tunnel),

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[65] All findings of highway mileage/VMT associated with shifting rail movements to highway are based on origin-destination pairs from AMTRAK data (provided by MDOT in January, 2011), Estimates from the USDOT Freight Analysis Framework (FAF), 2010 or USDOT waybill data, 2007., converted to the equivalent minimum time and distance paths as shown on NAVTEQ, 2010 roadway networks.

yielding a total of approximately $505 million in freight benefits. Passenger rail benefits in the Good package total approximately $226 million (above the benefits of today's conditions) because of increasing speeds from Chicago to Kalamazoo and from Kalamazoo to Dearborn, as well as increased speeds from Detroit to Pontiac and on the Amtrak route from Ann Arbor to Howell. Overall, these passenger improvements have the potential to shift nearly 75.1 million passenger VMT and nearly 1.3 million passenger VHT from Michigan's highway system to the rail system.

Better Investment Package. The Better package offers over $879 million in societal benefits above and beyond the preservation benefit (above and beyond benefits that will accrue from simply maintaining today's conditions and performance). This includes approximately $583 million of user benefits from fully funding all of the proposed freight improvements. Passenger rail benefits under the Better package total $296 million, which now includes all the improvements of the Good package plus, a faster re-routed service between Kalamazoo and Grand Rapids (but lost service to other points en-route to Holland) and addition of new service between Detroit and Toledo. Overall these passenger improvements are expected to shift over 153.2 million passenger VMT and nearly 2.6 million passenger VHT from Michigan's highway system to the rail system.

Best Investment Package. The Best scenario offers $1.2 billion in societal benefits above and beyond the preservation benefit (above and beyond benefits that will accrue from simply maintaining today's conditions and performance). The improvement of this scenario over the Better package is due to added service to Traverse City, and a significant improvement in capacity from Battle Creek to Port Huron (quadrupling the number of trains). This grows the passenger rail benefit from $296 million in the Better package to $623 million, while maintaining all of the freight improvements. Implementing the complete schedule of passenger improvements in the Best scenario has the potential to shift over 1.2 billion passenger car VMT and over 19.8 million passenger VHT from Michigan's highway system to the rail system.

Table 6.4 provides a comparative summary of the potential user benefits available over the life of the Plan for all four investment packages as they relate to each benefit category (i.e. preservation, rail expansion, passenger rail expansion, operation and maintenance, etc.). The "preservation benefit" is the total benefit that the state receives from the rail network in its current condition.

Table 6.4: Potential User Benefits of Rail Investment Packages

Benefit Classes	Investment Packages			
	Baseline (Wolverine Shut Down)	Good	Better	Best
Preservation Benefit	$17,593	$17,593	$17,593	$17,593
Freight Rail Benefit	$-60	$505	$583	$583
Passenger Rail Benefit	$0	$226	$296	$623
Overall Benefits of Package	$17,533	$18,324	$18,472	$18,799
Total Improvement Costs	$3,860	$7,166	$7,824	$9,728
Total O & M Costs	$220	$742	$742	$742
Total State Money Spent	$375	$1,236	$1,352	$1,733
Total Money Spent	$3,912	$7,166	$7,824	$9,728

In 2010 millions of dollars
Source: TREDIS[66]

6.3.4.5 Conclusions

Overall, the transportation efficiencies of keeping Michigan's rail system in the condition it is in today is expected to protect 10,140 jobs in Michigan's economy, generate $33.4 billion in economic output and $9.2 billion in personal income over the 2011-2030 horizon of the current plan. The impact of combined federal, private and state spending on the rail system can account for up to an additional 2,500 Michigan jobs, $4.6 to $9.1 billion in economic output, $2.1to $4.2 billion in value-added and $1.4 to $2.7 billion in personal income over the life of the plan. It also includes freight expenditures yielding between $3.2 billion and $3.6 billion in output, with passenger expenditures yielding between $1.4 billion and $5.5 billion in output over the life of the plan. The additional freight investment represented by the investment packages can yield between $1.0 million and $1.2 billion in additional personal income, with the passenger investment yielding between $437 million and $1.5 billion in Michigan's economy over the life of the plan.

Maintaining Michigan's rail system in its current condition will protect 10,140 jobs in Michigan's economy; generate $33.4 billion in economic output and $9.2 billion in personal income over the 2011-2030 plan horizon.

The State of Michigan will be exposed to negative economic impacts if it does not maintain its current rail network. The loss of operating support for the Wolverine passenger service is estimated to result in:

[66] TREDIS Consulting Group; Division of Economic Development Research Group, Inc. Web: http://www.tredis.com

- $77.3 million in societal costs to Michigan's transportation system users over the life of this Plan
- Losses of an annual average of 187 jobs; and
- Cumulative losses of $220 million in earnings and $362 million in output, over the life of the Plan.

Investing in improved rail operations can reduce the vehicle operating costs, travel time, safety and environmental costs of utilizing the state's highway system by diverting existing highway trips to the rail network. Investments such as the DIFT project, the Detroit-Windsor Tunnel, and improvements in Michigan's passenger rail speed and capacity can yield additional benefits ranging from $88 million to $1.4 billion, depending on the level at which these improvements are funded. The potential new benefits of investing in expanded freight service range from $542.7 million to $634 million, and the potential new benefits from investing in expanded passenger service range from $286 million to $801 million.

While the majority of today's rail economic benefits are attributable to freight efficiency, major passenger rail improvements (such as expanded service from Kalamazoo to Traverse City, and a quadrupling of passenger capacity between Battle Creek and Port Huron) are likely to have significant impacts on passenger VMT in the long-term. If the Better or Best investment packages are implemented, a significant share of the new economic benefits of expanded service will be as a result of passenger rail improvements. The passenger rail share of new economic benefits is 34 percent under the Good scenario, 37 percent under the Better scenario and 55 percent under the Best scenario.

While the economic impact and economic benefits offered in this State Rail Plan are of a general nature (and are based on broad assumptions from previous analyses), the analysis suggests that Michigan's economy is best served by a level of rail investment *at least commensurate with the Good investment package*. The analysis furthermore suggests that the direct, indirect and induced effects of funding Michigan's rail services with federal, state, and private matches at the Good level more than offset the adverse effects of tax or user fee revenues needed to secure the necessary state matching funds.

The long-term net efficiencies of additional investment (at the Better and Best levels) of fully funding the DIFT program, the Traverse City service and the additional capacity from Battle Creek to Port Huron are found to have significant potential sources of benefit, and warrant further study with more detailed data and modeling when available.

Overall, the economic analysis concludes that significant loss of service from today's levels is likely to have an adverse effect on the state's economy, and that investment at the Good or Better scenario level more than recoups the public cost of funding these packages in the long-term.

7 Recommendations

The State of Michigan has a long history of investment in freight and passenger rail services. Facing the potential loss of over a third of the rail route miles in the state during the railroad bankruptcy crisis of the 1970s, the state chose to acquire over 900 miles of track in order to ensure that communities and businesses that depended on rail service would be able to maintain access to the national rail freight network. The state has also made substantial investments to maintain and expand passenger rail services in Michigan. MDOT has invested over $100 million in rail infrastructure improvements for the three Amtrak routes that serve Michigan, and the state currently supports the operations of the Pere Marquette and Blue Water services.

This history demonstrates Michigan's commitment to maintain and enhance rail services, and it is anticipated that the state will continue to provide funding for rail projects in the future. The economic analysis described in Section 6.3 makes it clear, however, that current funding levels will not be sufficient to maintain current levels of service, and certainly will not allow for any expansion of rail in the future. The purpose of this Plan is to help Michigan develop a vision for the future of freight and passenger rail and to provide strategies for how to achieve that vision.

7.1 Addressing Current and Future Passenger Needs

MDOT has developed a funding program to support its passenger rail initiatives. On the freight side, money has been allocated on an annual basis to support rail economic development projects, to maintain the state-owned rail lines, and to make grade crossing improvements. On the passenger side, funds have been made available to support Amtrak operations for the Pere Marquette and Blue Water services, and MDOT has been successful in obtaining federal and state funds for corridor infrastructure improvements.

Michigan has two critical rail issues that must be addressed immediately: 1) the purchase and rehabilitation of the segment of the passenger rail corridor between Kalamazoo and Dearborn; and 2) providing state subsidy for the full operating cost of the Wolverine.

The freight and passenger rail programs in the State of Michigan are at a critical juncture in 2011. Michigan was one of the states hardest hit by the recession which began in 2008, and the manufacturing sector was particularly impacted by the economic downturn. The state is working diligently to revitalize the economy and to create new jobs; the preservation and expansion of the freight rail network, and access to that network, can be an important economic development tool. Passenger rail service also provides economic benefits to the state; there has been a steady increase in ridership on the Amtrak routes in Michigan over the past decade as more and more people are turning to the train as a transportation alternative for intercity trips. Michigan has invested a significant amount of federal and state funds in its passenger rail corridors, and MDOT has been successful in obtaining approximately $360 million in additional passenger rail funds from the federal government over the past two years. Michigan has played an active role in the MWRRI and has a detailed plan in place for the development of high-speed rail service to serve the citizens of the state.

There are two major issues that Michigan must address over the next three to five years if the state wants to maintain and expand its current level of passenger rail service.

1. Norfolk Southern (NS), which owns the majority of the rail line over which the Wolverine service (Chicago-Detroit/Pontiac) operates, has indicated that they no longer have a business need to maintain the track between Kalamazoo and Dearborn at FRA Class IV standards, which allows for passenger train speeds of up to 79 mph. In fact, they have indicated that their freight business on that line only requires track standards to provide service at 25 mph. NS has indicated that without substantial state support, either through the purchase of the line or through payments for incremental maintenance costs, the railroad will allow the corridor to be downgraded over the next few years by issuing a series of slow orders which will reduce maximum passenger train speeds to 25 mph.
2. The second issue relates to subsidizing the operations of the Wolverine Service. Michigan currently contracts with Amtrak to provide state supported service, which includes the Pere Marquette and Blue Water trains. The Wolverine service historically has been fully funded by Amtrak as part of its national system. However, Section 209 of the Passenger Rail Infrastructure and Investment Act of 2008 (PRIIA) requires Amtrak to develop and implement a single, nationwide standardized methodology for establishing and allocating the operating and capital costs among the states and Amtrak for all routes that are less than 750 miles long, beginning in October 2013. Current estimates for operating and capital costs for the current level of Wolverine service is approximately $25 million. Further work still needs to be done to refine those costs.

Michigan must address these issues to maintain the existing levels of passenger rail service before it can even consider investments to develop high-speed rail service as envisioned by MWRRI. New sources of public funding must be found if Michigan wants to continue to expand passenger rail services. New federal rail programs, funded through ARRA and PRIIA, provide new revenue sources, but they require a state match and are not available to support operating costs. MDOT has been successful in obtaining over $360 million in federal rail grant funds over the past two years, including partial funding for the purchase and upgrade of the Kalamazoo to Dearborn line from NS. A state match is required for these federal capital funds, and state funds will be needed for operations. Identifying a stable and reliable source of state funding for passenger rail capital and operating costs will be very challenging in the current economic environment. MDOT is struggling to find adequate funding to support its existing programs for all modes of transportation.

7.2 Assessment of Rail Investment Alternatives

A list of potential rail projects in Michigan has been developed as part of this State Rail Plan. This "unconstrained" list includes all projects identified through previous planning efforts on the local, state and regional level. The list, which is included in Technical Memorandum #3, also includes projects identified by the railroads and other key stakeholders, in addition to several projects that were identified through the public outreach process for this Plan. This unconstrained list of rail needs includes more than 140 projects with a total cost of over $10 billion (in 2010 dollars).

In order to assess funding requirements for rail projects over the study period of this State Rail Plan (2011 – 2030) projects were assigned to investment packages that are intended to represent various levels of service based on potential levels of investment. These packages have been developed to be consistent with the investment levels identified in both Michigan's Long Range Transportation Plan (2007) and within the

Michigan Transportation Funding Task Force (TF2) which published its recommendations in November 2008. The investment packages used in this State Rail Plan are:

- **Baseline**. This investment package includes projects that can be funded if current levels of funding are maintained over the 20 year planning horizon. Under this scenario, both freight and passenger services are likely to deteriorate, as funding levels are not sufficient to maintain the aging rail infrastructure. There will be a huge cut in passenger rail service under this scenario, because there is no funding for operating support for the Wolverine service, which the state will be required to provide by federal law in October 2013.
- **Good**. Under this scenario there would be modest growth in freight and passenger rail investments. Operating funds would be provided to allow the Wolverine to continue service at its current level. Investments would be made to allow for the initiation of demonstration regional rail service to Ann Arbor and Howell. State funds would be provided to match federal passenger rail grants to make improvements to the Chicago-Detroit/Pontiac corridor. Tier I EIS's and Alternative Analyses would be conducted for new and enhanced passenger service to Traverse City/Petoskey, Grand Rapids and between Detroit and Toledo. Key DIFT projects would be undertaken in conjunction with the railroads. The Detroit River Tunnel would be constructed. Capital projects designed to maintain and expand the operations of the state-owned rail lines and other short-lines would be supported.
- **Better**. This scenario allows for the implementation of several key freight and passenger rail infrastructure projects. All of the DIFT projects would be completed. The MWRRI improvements to support the proposed high-speed rail service in the Chicago-Detroit/Pontiac corridor, and supporting feeder services to Grand Rapids and Port Huron, would be funded. Studies, including preliminary engineering and environmental analyses, would be conducted in several different corridors, including an assessment of true high-speed rail service (220 mph) between Chicago and Detroit, with possible continuation to Toronto.
- **Best**. This scenario represents the unconstrained needs and includes all projects that were identified in the public outreach process. This includes the completion of all MWRRI projects in Michigan, the procurement of new rail equipment, and the implementation of new passenger rail service to Traverse City.

It is recommended that the State of Michigan pursue implementation of the projects included in the Good investment package. In order to support implementation of these projects, the state will need to put into place mechanisms to provide funding for these proposed investments in railroad infrastructure, passenger trainsets, stations and operating subsidies.

7.3 Policy Recommendations

This section outlines the policy recommendations resulting from assessment of the rail investment alternatives. In addition to the following general recommendations, more specific recommendations are discussed in the sections that follow.

1. *Identify stable, dedicated sources of funding.* In order to maintain and grow passenger and freight rail services, Michigan must find reliable and stable sources of funding to continue existing programs and provide matching funds for potential federal support. Identifying a dedicated revenue stream will be difficult to accomplish in today's economy, as Michigan faces declining revenues for all of its transportation programs. Rail investments have the potential to provide significant benefits to the

state both in terms of creating new businesses and jobs and in reducing the congestion and environmental impacts of other modes of transportation.

2. *Pursue implementation of the Good Scenario.* Michigan should actively pursue the implementation of the projects included in the Good scenario. These projects, both individually and collectively, will create significant economic benefits for Michigan. The state needs to develop creative funding strategies that will allow for the leveraging of both federal funds and funding from private sources, including the railroad companies themselves.

7.3.1 Passenger Rail

Passenger rail strategies that Michigan should consider adopting to accomplish needed improvements include:

1. *Passenger rail project priorities and implementation schedule.* Develop a more detailed passenger rail implementation plan that lists passenger rail projects and service improvement segments in priority order. Provide an updated implementation schedule reflecting recent federal funding awards. Highlight implementation tasks, including: Tier 1 NEPA and SDP, Tier 2 Project NEPA and PE, Final Design, Construction.

2. *Feeder bus system.* Expand the network of low cost/low risk feeder bus routes to provide connectivity to communities not directly served by the priority projects above. Also, use feeder bus service to add additional frequencies or begin new service segments in advance of the expansion of passenger service to priority corridors.

3. *Investigate operational changes to improve passenger services.* Analyze the costs and benefits derived from having a mid-corridor (Battle Creek and/or Kalamazoo) trip beginning and ending location.

4. *Implement regional rail service.* Continue with the implementation of the proposed regional rail services between Ann Arbor and Detroit and between Ann Arbor and Howell (WALLY). Investigate opportunities for expanding these services by adding more frequencies and extending the Ann Arbor to Detroit service to Jackson.

5. *New routes.* Conduct feasibility studies of new rail service routes. Critical analysis should include strict criteria for determining whether or not benefits are sufficient to warrant investment. Proposed studies include:
    a. Assessment of the feasibility of new service to:
        i. Traverse City/ Petoskey with consideration of a route to Chicago via Grand Rapids or Detroit
        ii. Grand Rapids to Detroit via Lansing and Ann Arbor with alternatives including expanded service on the current Pere Marquette route, a new direct alignment between Kalamazoo and Grand Rapids and continuing on to Holland.
        iii. Detroit to Toledo, Ohio.
    b. True high-speed rail service (220 mph) in the Chicago to Detroit to Toronto corridor.

6. *State capital funding.* Establish a state bonding program to provide 20 percent state match funds for federal funds as required under the PRIIA state capital program for High Speed and Intercity Passenger Rail.

   A flexible source of state match funding will enable Michigan to take maximum advantage of future federal funding as it becomes available. A key funding criteria in the FRA High Speed Intercity Passenger Rail (HSIPR) program is the degree to which a state can show that it can "commit" to providing 20 percent state match required. A state bonding authorization for intercity passenger rail development can provide a source of "committed" state match funding for HSIPR funding applications while not having any state budgetary effect until the federal grant is offered and state bonds are actually issued for the required match. A state general obligation (GO) bond authorization of $394 million would cover the 20-year state capital match requirement for intercity passenger rail identified in the Good investment package. To reduce the overall amount of state bonding required and its impact on state bond capacity for other purposes as well as on state bond ratings, federally guaranteed RRIF and TIFIA loans could be pursued for specific projects in lieu of state GO bonding.

7. *Ticket fees.* Consider initiating a modest state ticket fee or tax to generate revenues that can be applied to state match and passenger rail capital expenditures. This revenue source initially will be small and almost symbolic. Based on experience regarding airport passenger facility charges (PFC) and airport improvement fees nationally, over the long run, ticket fees could generate significant revenues as the quality of rail service improves.

8. *Local capital funding.* Recommend that state and federal funds only be used to make basic station improvements (i.e., platforms, lighting, canopies, security and parking). All other improvements and ongoing station operations and maintenance would be a local responsibility. Fully utilize recently passed legislation which encourages local public- private partnerships where developers would be encouraged to fund mixed use developments including retail, food service, car rental, housing, and parking concessions with seed capital provided by local Tax Increment Finance (TIF) funds.

9. *Federal operating support.* Utilize FHWA's CMAQ funding to support Michigan passenger rail services for up to three years. CMAQ funding can be structured under current rules to provide 100 percent operating funding support for passenger rail service in designated air quality non-attainment and maintenance areas. Also investigate the use of FHWA Traffic Mitigation Funding to provide operating support. FHWA Traffic Mitigation funds can also be used, where associated with specific federally funded projects on the federal aid highway system.

10. *Pricing strategies for operating funding.* Conduct market studies to maximize ticket yields through higher ticket prices, and revenue maximization pricing strategies (i.e., time of day, advance purchase etc.). Studies should address current and forecast highway congestion, and projected auto and jet fuel prices. Both of these trends are likely to make rail increasingly competitive to highway and air travel, and should increase revenue yields.

11. *Outsourcing strategies to reduce Amtrak-required operating support.* Investigate outsourcing where appropriate and cost effective, including: equipment maintenance (i.e., Pontiac facility), eliminating or outsourcing Amtrak reservation services, and/or outsourcing food services.

12. *Marketing strategies to increase revenue yields*. Initiate a media campaign in Chicago, Detroit and other Michigan media markets to increase awareness and ridership on Michigan corridor services similar to campaigns in Wisconsin and Illinois. Publicize the fact that Michigan already has 95 mph high-speed service in the Detroit-Chicago corridor. Initiate coordinated advertising with Michigan's tourism and economic development promotion programs to leverage limited rail advertising resources. Cost effective co-op advertising could be tied into marketing statewide efforts such as the Pure Michigan campaign, and for local events like the Ann Arbor Blues Festival, the North American International Auto Show in Detroit, and sports events with the Tigers, Red Wings, Pistons, etc. Investigate on-board advertising, station advertising and advertising "wraps" which have been used by transit agencies as a supplemental revenue source. Use economic impact data from the Michigan State Rail Plan to support public investment in Michigan passenger rail service.

13. *Station area economic development strategies*. The state should continue to encourage multi-use development around intercity passenger rail stations. The availability of multi-modal connections is a key component in the success of inter-city passenger rail operation by providing transportation options between the station and the final destination of the traveler. Local municipalities and regional and local economic development agencies should work with developers to encourage the use of the new legislation on Transit Oriented Development to focus appropriate development around the state's passenger rail stations.

14. *Provisions for bicycles*. Michigan has seen a large increase in the use of bicycles in recent years. Bicycle tourism is a rapidly growing industry, and Michigan has an extensive network of trails that help bring cyclists into the states. Residents are also using bicycles as a mode of transportation. Special accommodations need to be made both to the train equipment and to stations to make rail service more accessible to people who are traveling with bicycles. When appropriate and feasible, older rail cars should be retrofitted and new rail cars should be built to accommodate bicycles through on board bike racks. Provisions for both short and long-term bike parking should be made at passenger rail stations across the state.

7.3.2 State-Owned Lines

Starting in FY 2011, investments in the state-owned system will be almost evenly split between the fixed costs of property management and track/bridge rehabilitation projects. In FY 2010, significant track rehabilitation was advanced through the use of bond funds. However, with existing funding levels rehabilitation work will be limited to critical repairs. The state's contract operators will also be required to undertake more maintenance responsibilities.

Divestiture would obviously cut the costs associated with the state-owned lines. However, additional state funding may be necessary in the short-term to encourage economic development and to make improvements to the rail lines in order to make them more attractive to potential buyers. The state's divestiture efforts have been on hold for some time, due primarily to statutory restrictions as well as staff availability. Strategies that MDOT should pursue in order to advance the divestiture of the state-owned lines include:

1. *Legislative Action*
    a. *Divestiture.* Continue to pursue divestiture in accordance with existing state law. MDOT has interpreted the law to state that they must address the smallest system first and then work their way up in system size. MDOT should consider seeking legislative permission to begin divestiture of larger systems that may have an interest in moving forward with divestiture prior to the smallest systems.
    b. *Preservation of segments critical to future passenger rail service.* The state should consider what additional protections may be necessary to ensure that those segments of the state-owned system that have the potential for future passenger service are preserved with that purpose in mind. There is an ongoing interest in implementing passenger rail services on the Ann Arbor and Northwest System, for both regional rail service between Howell and Ann Arbor and longer distance service connecting Detroit to Traverse City. The state should consider maintaining ownership of these lines until future passenger rail service plans are completed. The state should also include provisions in any sales agreement for a line that has the potential for future passenger rail activities to ensure that passenger trains can be operated on the line in the future if feasible to do so.

2. *Sale of short segments.* Look for additional opportunities to spin off short segments that may not be critical to the viability of the overall state system. Special exceptions have already been placed in the law to exempt the segment in Petoskey north of Emmet Street, and the segment of the Hillsdale County System in Jonesville, from the prohibition against breaking up the rail corridors. There may be other short segments that could be sold off separately without affecting the overall viability of each of the state-owned rail systems. For example, there is a section of rail line that is currently inactive on the Ann Arbor and Northwest System, between Fergus and St. Charles, which may have some potential for use as a recreational trail.

3. *Encouraging industry expansion/location on rail-served sites.* The state should continue to encourage the location of new industries and the expansion of existing industries on state-owned rail lines. By strengthening the rail business opportunities on the state-owned lines, MDOT can help ensure the commercial viability of these lines and make them more attractive to potential buyers.

4. *Strategic increases in rail load capacity.* The state should continue to focus on rail infrastructure investments to ensure that the railroads have the capability to carry the loads that shippers need in order to maintain and expand their business capacity. In some cases, this may mean upgrading lines to be able to accommodate 286,000 pound car loads, and in other cases this may mean upgrading tracks to higher FRA track standards. These investments should be focused on those lines which have the highest volume of traffic and are therefore likely to be the most attractive candidates for sale.

7.3.3 Freight Rail

In addition to those projects identified in the Good investment package, Michigan should consider adopting the following freight rail strategies to accomplish needed improvements:

1. Identify regional economic development strategies developed by MPOs, regional planning commissions, utilities, chambers and regional economic development groups. Work with each of these planning entities to include freight rail development as a prominent part of their strategies.

2. Identify which types of freight rail projects will have the most economic development impact and prioritize them accordingly.

3. Develop brochures and promotional materials on Michigan freight rail funding programs that can be shared with regional economic development agencies and groups as well as with potential grant applicants. Establish a Michigan Freight Rail program speaker's bureau and outreach program to publicize the availability of state funding for freight rail projects.

4. Develop regional economic distress indicators and focus Michigan rail program resources in these areas. Structure freight rail assistance programs to provide additional incentives for high distress areas.

5. Conduct a follow up study to identify freight flow origins and destinations in Michigan which are currently underserved by rail, and where additional freight rail service could divert truck traffic from highways. Target specific industries geographically as appropriate.

6. Conduct a follow-up study to further identify short haul intermodal facility needs, and develop a state intermodal facility funding support program if appropriate.

7.3.4 Preservation of Rail Corridors

The extent of the rail network in Michigan has been shrinking continuously since the early 1900's and the state now has less than one-third of the total rail miles than it had at the peak one hundred years ago. The remaining railroads in Michigan play a critical role in the economic vitality of every region of the state, and the loss of service on even the lowest density freight lines can have a major impact on local communities. Rail lines are valuable transportation assets, and Michigan should make efforts to preserve these corridors when necessary. Michigan should work with railroads, shippers and local agencies to preserve rail service on all existing rail lines where feasible. Specifically, when strategic rail lines are abandoned along one of the rail corridors identified within this Plan, Michigan should preserve these corridors for future transportation uses. Strategies that the state should pursue for preserving rail corridors include:

1. Identify and maintain a database of rail segments that may be potential candidates for abandonment. Prioritize corridors based on whether or not that corridor has a project identified within the Master Project List (Technical Memorandum # 3) contained within this Plan as well as their potential for future use as a passenger rail corridor, and the economic and community impacts of the loss of service.
2. Work with railroads, governmental agencies, business organizations, the Michigan Economic Development Corporation, regional/local economic development groups to develop strategies to encourage the expansion of existing rail users and the location of new industries along these threatened lines.
3. Consider additional purchases of railroad segments that would otherwise be abandoned to preserve critical transportation corridors for future uses.
4. When rail corridors are converted into trails through the Rails-to-Trails program, work with the Department of Natural Resources to preserve the corridor for conversion back to rail use in the future. Expand the use of Rails-with-Trails strategies to other viable locations throughout the state where the program could be implemented according to established standards.

7.3.5 Freight Economic Development Program

The Freight Economic Development program's funding source is shared with the state-owned line capital program. Projects are commonly part of a larger incentive package organized by the Michigan Economic Development Corporation. The program has funded approximately three projects per year, which on average aided in the creation/retention of approximately 75 jobs per project.

FEDP has the potential to be a critical resource in the State of Michigan's efforts to encourage businesses to locate and expand in the state. The program has been able to fund all qualified applicants, but there are reservations about over-extending the available funding if the program proactively solicited projects. Michigan should consider implementing the following strategies to maintain and strengthen the Freight Economic Development Program:

1. Continue to provide funding for FEDP.

2. Increase efforts to attract qualified applicants that will bring new and expanded businesses and additional jobs to the state.

7.3.6 Michigan Rail Loan Infrastructure Program

Before it was suspended, the Michigan Rail Loan Assistance Program (MiRLAP) seemed to hold promise, but was not widely utilized in recent years. Short line railroads seemed to have been helped most by access to funding that MiRLAP provided, with all but two of the MiRLAP loans to railroads going to short-lines. However, even though the program was designed to assist railroads with the preservation or improvement of existing facilities, over 40 percent of the applicants have been non-railroad companies requesting funding for new spur tracks or other economic development-related construction.

The self-sustaining nature of MiRLAP seemed to offer some stability to the program since an annual appropriation was not necessary. However, anecdotal feedback indicates that loan assistance was not sufficiently appealing to potential applicants. If annual funding was available, a grant program may be a better way to improve the state's rail infrastructure, particularly as more and more lines become owned and/or operated by short-line railroads. Michigan should consider implementing the following strategies for the Michigan Rail Loan Infrastructure Program:

1. Re-institute MiRLAP once the fund balances have been restored with payments from existing loans.

2. Implement a grant program for rail infrastructure improvements that will support economic development, create jobs and offer measurable public benefits.

7.3.7 Local Grade Crossing Program

While Michigan has made steady progress in improving grade crossing protection, approximately 50 percent of the crossings in the state have no warning device. The state has focused its improvement efforts on dangerous and high traffic volume crossings.

However, crossing surface condition is a growing safety concern that the program does not currently have sufficient funding to address. Approximately 11 percent of the 4,800 crossings in the state were last rated in poor condition. In 2009, local road authorities identified over 800 crossings to be addressed. Michigan's strategy for grade crossings should be to:

1. Provide additional funding to allow MDOT to adequately address grade crossing needs in the state.

2. Create a matched grant program to provide railroads with additional funding for grade crossing surface improvements.

7.3.8 Federal Funding

ARRA and PRIIA have established a federal source of funding for passenger rail projects. MDOT has been successful in pursuing this funding. Both the 2011 ARRA and the 2010 PRIIA award are particularly significant because it establishes a path for funding improvements on the entire Chicago – Detroit/Pontiac corridor. The Detroit to Chicago Investment Plan Study will help move the process forward and will establish the documentation required to begin implementing high-speed rail improvements to relieve congestion, and increase capacity and service frequencies. While the outlook for continued funding is unclear in the short term, Michigan should continue to move forward with creating Service Development Plans, Alternative Analyses and NEPA documentation to insure that projects are ready to proceed when additional funding becomes available.

ARRA also provided a source for the funding of freight rail infrastructure programs through the TIGER Grant program. This program has proven to be extremely popular throughout the country and the process of securing a portion of the limited amount of available funding has been extremely competitive. It is anticipated that additional rounds of TIGER funding will be made available in the near future.

Michigan should pursue the following strategies to obtain federal funding for rail projects:

1. MDOT should continue to develop those projects that are eligible for funding, and review previous grant awards to gain a full understanding of the program requirements and the components of winning projects.

2. Michigan should continue to move projects through the planning and environmental review processes so that they are eligible when federal funding is made available.

3. Michigan needs to ensure that adequate state funding is available to match federal funds that are awarded. The state should pursue opportunities to get the freight railroads and other private entities to provide some of the matching funds.

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