

1. RAIL NEEDS ANALYSIS

To be comprehensive, this needs analysis considers the opportunities and needs of Ohio's rail network by thematic area. These areas correspond to the goals as outlined by Access Ohio 2040. The needs analysis considers the extent to which the rail network meets these goals. It also identifies areas for improvement.

- **Preservation:** Preserve transportation assets so that they remain in state-of-good repair and meet or exceed acceptable service levels.
- **Safety:** Reduce transportation-related fatalities and injuries.
- **Mobility and efficiency:** Increase travel time reliability for passengers and freight.
- **Accessibility and connectivity:** Improve the access to the Ohio multimodal system, as well as network connectivity within and between transportation modes.
- **Stewardship:** Optimize usage of public funds by partnering with private sector and local funding partners. Minimize environmental impact of transportation system.
- **Economic development:** Identify and deliver economic development projects

1.1 Preservation

System preservation impacts the rail network in Ohio as well as the U.S. rail network as a whole, particularly for low density rail lines. If traffic volumes do not enable carriers to fund the full upkeep of rail lines and bridges, carriers defer maintenance and rail lines/bridges fall into a poor state of repair. Particularly during the 1980's and 1990's, Class I rail carriers divested unprofitable rail lines to short line rail operators. However, in many cases, the former operators of these lines had deferred maintenance for years, and many of these lines were in a poor state of repair. The new short line owners were able to keep these lines in operation because of their lower cost structures than their Class I counterparts, but short line operators frequently lack the resources to fully restore their lines to a good state of repair. Due to this situation, many states have created grant or loan funds to help to rehabilitate rail lines. The Ohio Rail Development Commission (ORDC) Track Rehabilitation Program is an example.

The issues of rail line state of repair and the ability of rail lines to accommodate 286,000 pound railcars are related. In most cases, rail lines that are in poor state of repair cannot handle heavy railcars, and rail lines that cannot accommodate heavy railcars are in poor state of repair. Exhibit 1 below describes instances where rail lines in Ohio are unable to accommodate 286,000 pound railcars. These locations represent a need to upgrade portions of Ohio's rail network to current standards.

Exhibit 1: Rail Lines Unable to Handle 286,000 lb. Railcars

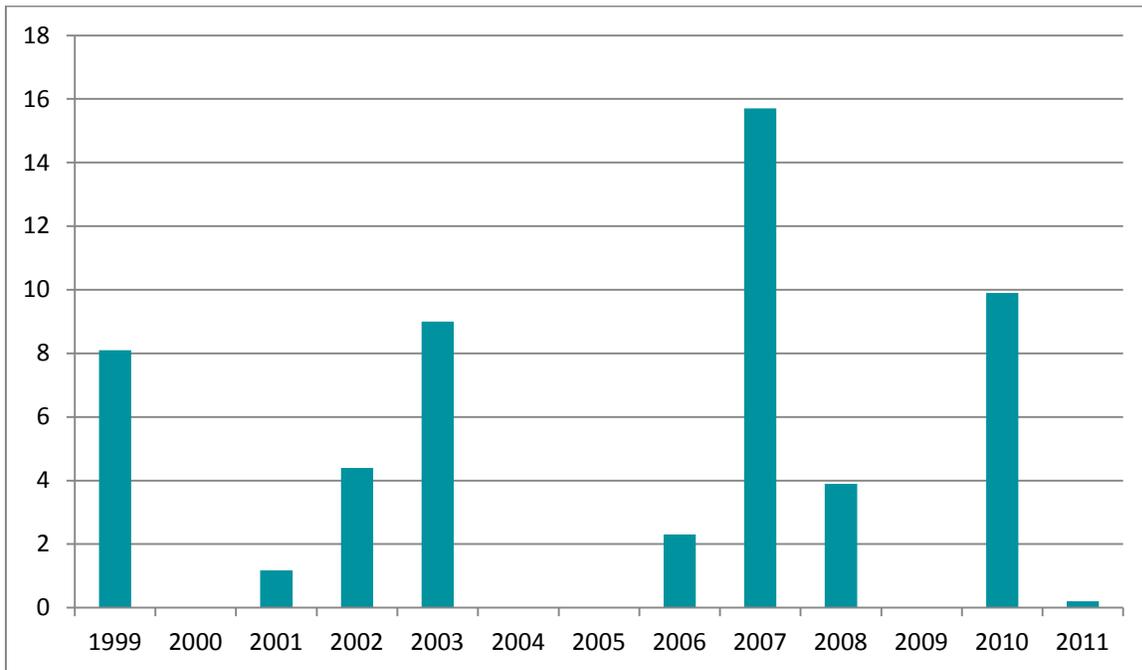
Railroad/Rail Line	Cities without 286,000 lb. Rail Lines*
IORY Monroe to Mason	Mason
IORY Monroe to Lebanon	Lebanon
IORY Columbus to Logan	Lancaster & Logan
IORY Cincinnati to Brookville, Indiana	Harrison, Ohio (and Brookville, Indiana)
Maumee & Western	Antwerp, Napoleon, Liberty Center
Ohio-Rail Minerva to Hopedale	Amsterdam, Bergholz, Hopedale
US Rail, City of Jackson Line	Jackson, Wellston, Hamden, MacArthur
Wheeling & Lake Erie Canton to Carrollton	Carrollton

*Note: Lines may handle individual cars with special handling but not in regular service

Another rail line preservation issue relates to abandonments and rail corridor preservation. Generally, the United States rail network carries far more traffic over many fewer route miles than it did 40 years ago. The rail network as of 2011 was about 45 percent of the mileage of the U.S. rail network in 1960, but carried about three times the tonnage.¹ Nationwide, the rate of rail line abandonments has slowed in recent years. Small segments of the Ohio rail network have been abandoned over the last 14 years. Rail owners and operators must apply to the U.S. Surface Transportation Board for permission to discontinue or abandon freight service on a line. Additional trackage within Ohio is out of service but not technically “abandoned.” In these cases, no traffic is carried over rail lines, but the tracks are still in place and no abandonment proceeding with the U.S. Surface Transportation Board has been initiated. The ORDC Rail Line Acquisition/Preservation program provides assistance for the acquisition of rail lines to prevent cessation of service or preserve the line or right of way for future rail development. ORDC also considers providing assistance to acquire a line if the acquisition can enhance the line's viability, and Ohio law grants the ORDC the power to acquire, construct, and improve rail lines on behalf of the state if necessary. Thus the authority and the mechanism is in place for the State of Ohio to act on rail preservation where useful, to maintain or aid reintroduction of service in support of industry and growth.

¹ Association of American Railroads, U.S. Bureau of Transportation Statistics.

Exhibit 2: Ohio Abandoned Rail Miles Approved by the Surface Transportation Board by Year



Source: Ohio Statewide Rail Plan, U.S. Surface Transportation Board

Even when rail lines no longer provide freight service, rail corridor preservation is an issue. Particularly as new opportunities emerge that were previously unforeseen, policy makers often prefer to ensure that rail lines are kept intact for future usage. For example, OKI Freight Plan by the Ohio-Kentucky-Indiana (OKI) Regional Council of Governments includes a \$2.38 million project to acquire an NS abandonment of right of way from Bond Hill to Idlewild Railroad Junction in Hamilton County, OH. The issue of rail corridor preservation has appeared in other regional freight plans in Ohio as well, including the BHJ Freight Study, completed for the Brooke Hancock Jefferson Planning Commission in January 2011. Exhibit 3 displays the extensive network of abandoned rail corridors in Ohio.

Exhibit 3: Active and Abandoned Rail Lines in Ohio



Source:ODOT (Source file for abandoned corridors has not been audited)

Section 8(d) of the National Trails System Act, enacted by Congress in 1983, allows railroads to transfer inactive railroad corridors to qualified trail managers for interim use as trails, until such time as these rights of way are needed for future rail service. Trail managers assume all carrying costs of the right of way and are not permitted to remove certain structures that would be needed for future rail service. The process is referred to as “rail banking.”

The restoration of dormant rail corridors to service is relatively rare. However, in Ohio, several corridors were returned to service after dormant status over the past 12 years:

- 21 miles of the Ohio Central between Zanesville and New Lexington were returned to service in 2000 after going out of service in 1990
- 36 miles of the Ohio & Pennsylvania between Youngstown, OH and Darlington, PA were returned to service in 2001 after going out of service in 1996

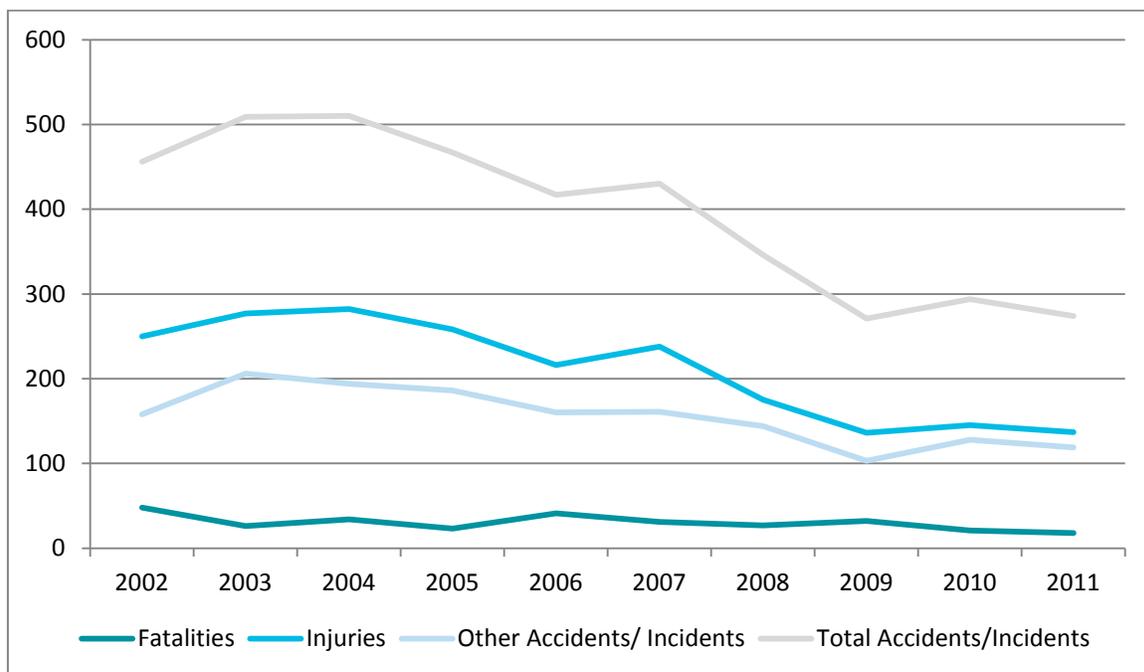
- 6 miles of the Columbia & Ohio River Railroad between Cadiz and Cadiz Junction were returned to service in 2004 after going out of service during the 1980's

The fact that rail service has been reestablished on some of Ohio's rail corridors suggests that there can be value to retaining corridors and that there could be a need to preserve certain rail corridors as appropriate. Rail banking and other measures may be called for.

1.2 Safety

Exhibit 3 below displays rail-related accidents and incidents in Ohio for the period 2002 to 2011. As can be seen, the numbers of rail-related fatalities, injuries, and other accidents/incidents have generally trended downward. However, one rail-related fatality or injury is too many, and a variety of public and private entities in Ohio seek to improve the safety of the rail system further.

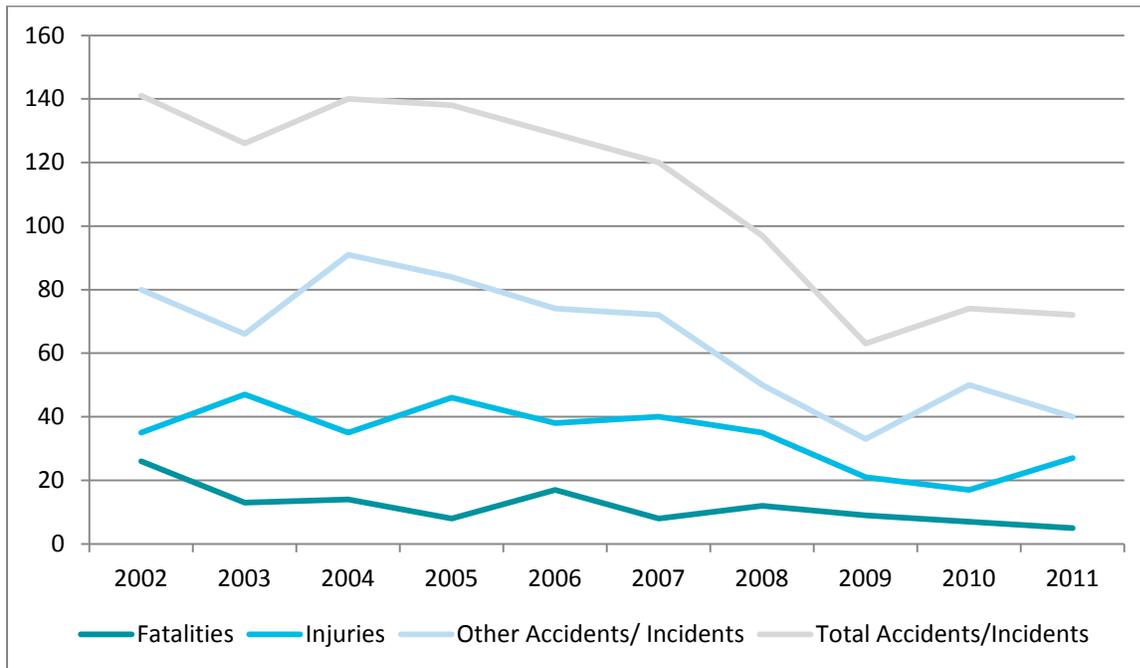
Exhibit 4: Rail-Related Accidents and Incidents in Ohio 2002 - 2011



Source: Federal Railroad Administration

Public agencies particularly focus on areas of rail safety over which they have the most control, namely highway/rail at-grade crossings. According to the U.S. Federal Railroad Administration, 2,783 of Ohio's 5,752 public grade crossings are now equipped with modern lights and gates. According to the Ohio Rail Development Commission (ORDC) 101 grade crossings have been closed since the year 2000. Exhibit 4 displays accidents/incidents at public highway/rail grade crossings for the period between 2002 and 2011.

Exhibit 5: Public Highway/Rail At-Grade Crossing Accidents and Incidents in Ohio 2002 – 2011



Source: Federal Railroad Administration

Ohio has an unusually high number of highway/rail at-grade crossings. The state ranks fifth after Texas, California, Illinois, and Indiana in the total number of public crossings. But the Ohio highway system is also not as extensive as states like Texas and California, so the concentration of crossings on the roadway system is higher. Ohio is ranked third after Indiana and Illinois in terms of the frequency with which highway/rail at-grade crossings are encountered on the public roadway network, with one crossing per approximately 21 miles of roadway.

The safety of highway/rail at-grade crossings is improved by a number of different measures such as:

- upgrading warning devices and countermeasures by adding improved signage, train activated signals such as lights, and gates, etc.
- maintaining adequate visibility, such as vegetation control, etc.
- closing the crossing,
- separating the roadway right of way from the rail right of way, known as grade separation.

Of these, grade separation projects tend to be the mostly costly to implement, although separating roadway and rail rights of way has the added benefit of improving on-road travel times, since automobiles and freight vehicles no longer need to wait for trains to clear highway/rail at-grade crossings.

A number of regional plans within Ohio call for crossing improvements, grade separation, or crossing closures.

- The *OKI Regional Freight Plan* recommends an at-grade crossing safety study. The cities of Mason, Fairfield, Middletown, Sharonville, and Hamilton include numerous grade-crossings likely to see a rise in activity as rail freight use increases. The purpose of the study would be for OKI to coordinate grade crossing safety improvements. The study would cost about \$25,000.
- NS trains block the Reading Road grade crossing in Sharonville, often related to Sharon Yard movements. A grade separation at this location would reduce rail and vehicular traffic delays and increase vehicular safety. This project would cost \$25 million.
- In the area around Dayton, there is a potential need for investments to minimize delays and crashes resulting from clusters of grade crossings, specifically in locations such as Troy, Tipp City, Dayton, Miamisburg, Germantown and Carlisle.² As rail traffic increases, the likelihood of incidents at crossings increase.
- In the Lima-Allen County region, grade separation projects are needed on South Main Street and Vine Street in Lima.³
- Rail trackage extensions and additional stacking, loading and unloading amenities could eliminate the need for additional grade separation projects and reduce conflicts between trains and vehicles on Sugar Street and Leonard Avenue in Lima (est. cost \$20M)

The persistence of rail-related fatalities and injuries in Ohio points to the need for continued efforts to improve the safety of Ohio's rail network. Given Ohio's relatively high concentration of highway/rail at-grade crossings, there is a need to continue improvements in safety at these locations. Measures could include improvements to countermeasures, signage and pavement markings, sight lines, crossing orientation, crossing closures, grade separation, as appropriate.

1.3 Mobility and Efficiency

The reliability and efficiency of Ohio's rail network is influenced by a broad range of factors. The capacity of Ohio's rail network is determined not only by throughput capacity, e.g. trains per day, but also the dimensions and weight of rail equipment that can use rail lines. Significant funds have been spent on expanding the network over which double stack intermodal trains can operate in Ohio, including the NS Heartland Corridor initiative and the CSX National Gateway initiative. Double stacked hi-cube containers require 20' 9" of vertical clearance above the rail. Twenty-two feet vertical clearance above rail is necessary to meet the height requirements of intermodal cars and safely allow for car sway and clearance changes due to track maintenance. The industry standard maximum gross weight of railcars is currently 286,000 pounds, although Class I carriers can now accommodate 315,000 pound railcars in some locations. Exhibit 1 showed eight locations where the Ohio rail network is unable to accommodate 286,000 railcars.

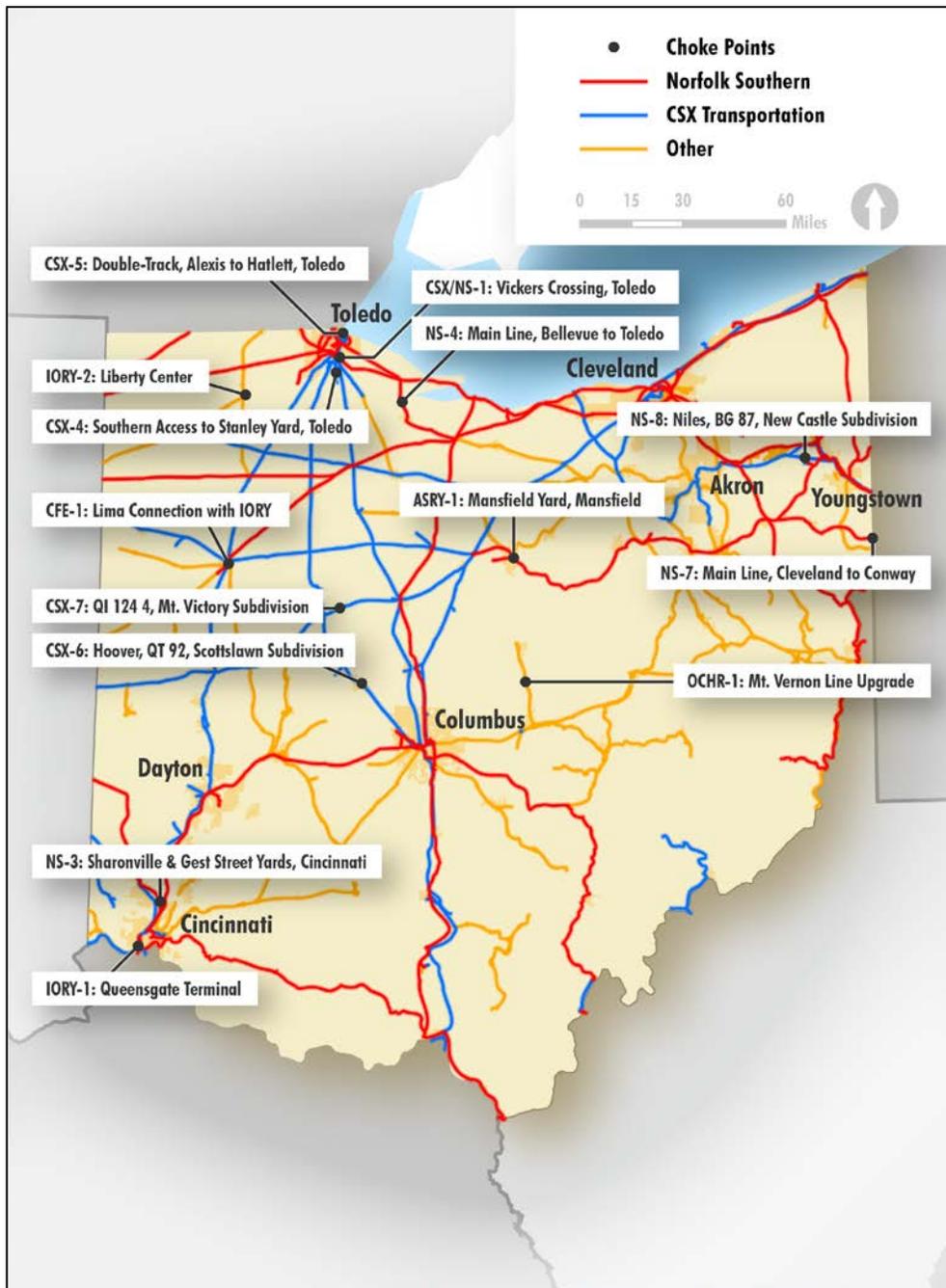
Rail line throughput capacity is influenced by a wide variety of considerations, including the number of tracks, the type of control system, the number and spacing of passing sidings, the mix of train, relative flow of train traffic, train types and dimensions, locomotive consists, the topography of the rail line in

² Miami Valley Regional Planning Commission, *Miami Valley Freight Movement Study*, May 2006

³ The Lima-Allen County Regional Planning Commission's *2030 Long Range Transportation Plan Update*.

terms of grades, curves, etc. Rather than modeling capacity, it is often most efficient and effective to identify rail line capacity issues through empirical observation, i.e. asking those who are most familiar with rail lines where capacity issues exist. Based upon stakeholder discussions to update the *Ohio Freight Rail Choke Point Study*, Exhibit 5 provides an update of those choke points that have not been addressed and are still considered choke points by rail carriers interviewed for this study.

Exhibit 6: Map of Choke Points Rated Medium/High Priority by Stakeholders



Source: PB, Choke Point Study

The choke points listed in Exhibit 5 represent needs for the Ohio rail network to be addressed. However, who will address these needs depends upon the specific circumstances. In most cases, these would be the responsibility of the rail carriers themselves, although they may seek public assistance. In general, projects may warrant public funding participation if there is a significant public need/benefit and rail carriers would not or could not otherwise have fully funded the project within a reasonable time frame.

1.4 Accessibility and Connectivity

Within the context of rail, connectivity generally refers to the rail multimodal interface, i.e. connections between rail, water or truck modes, as well as connections within the rail network. Projects to improve connections between rail and truck, rail and water encompass:

- Intermodal terminals that were recently completed, including the CSX terminal in North Baltimore and the NS Rickenbacker terminal in Columbus
- Intermodal terminal expansions and improvements that are under construction as of 2012, including the CSX Buckeye Yard in Columbus and the NS Airline Yard in Toledo
- Expansion of rail access in the ports of Toledo, Cleveland, and Cincinnati.

Other connectivity issues relate to providing access to rail facilities. For example, due to anticipated increases in freight traffic associated with the Rickenbacker Global Logistics Park, including the NS Rickenbacker Intermodal Facility, the Mid-Ohio Regional Planning Commission (MORPC) convened the Rickenbacker Infrastructure Coordinating Committee (RICC) to “identify/prioritize projects, seek funding, and to foster cooperation.”⁴ The RICC developed a list of High Priority Projects and Long Term Projects based on discussion between the RICC members. Projects are primarily roadway in nature with the aim of improving truck access to enhance overall yard access and efficiency. The table below identifies over \$800 million in High Priority Projects intended to enhance the effectiveness and utility of the Rickenbacker IMF.

Exhibit 7: Rickenbacker Infrastructure Coordinating Committee Infrastructure Priority Projects

Project Name	Description	Estimated Cost (2011)
Pickaway East/West Connector	New road to serve as a back door connection between the intermodal area and US 23.	\$44.07M
Alum Creek/Groveport Road Phase III	Project will add further capacity to Rickenbacker’s front door.	\$9.6M
I-270 Widening from US 23 to I-71	Roadway widening and upgrades to the interchanges at I-270/US 23, I-270/I-71, and I-71-Stringtown Road.	\$182M
I-270/I-71 Interchange Upgrade	Roadway widening and upgrades to the interchanges at I-270/US 23, I-270/I-71, and I-71-Stringtown Road.	\$182M
I-270/US 23 Interchange Upgrade	Roadway widening and upgrades to the interchanges at I-270/US 23, I-270/I-71, and I-71-Stringtown Road.	\$182M

⁴ MORPC, *MORPC Freight Fact book, 2011*, <http://www.morpc.org/transportation/freight/freight.asp>

Project Name	Description	Estimated Cost (2011)
Rickenbacker Parkway Extension	Final phase of a loop road around Rickenbacker International Airport	\$27.7M
US 23 Sustainability – Access Management/ROW Preservation	ODOT Study completed	\$500k
I-71/Stringtown Road Interchange Upgrade	Roadway widening and upgrades to the interchanges at I-270/US 23, I-270/I-71, and I-71/Stringtown Road.	\$182M
Connection to I-71	Long-term project, connection from the Rickenbacker area to I-71.	TBD
Alum Creek Drive from SR 317 to Rathmell Road	Roadway widening	TBD
Bixby Road from Ebright Road to Winchester Pike	Project dependent on ODOT's new interchange at Bixby Road/US 33.	\$18.4M

Source: Rickenbacker Infrastructure Coordinating Committee, Spring 2011

In some cases connectivity issues arise due to connections that are lacking within the rail network. For example, the IORY and MAW cross at Liberty Center but do not connect, and one of the projects listed in the *Ohio Freight Rail Choke Point Study* is to build a connection. In other cases, carriers may block access to one another. For example, RailAmerica and some barge terminal operators lack full access to barge facilities near Route 50 in Cincinnati as CSX property serve as an obstacle for terminal access for RailAmerica.

These cases point to a continuing need to improve the interface between rail and other modes within Ohio, as well as new or improved connections within the rail network. This includes:

- Improvements or new truck/rail multimodal facilities
- Improvements in rail access to port facilities
- Improved truck access to multimodal facilities, particularly container intermodal terminals
- Improved connections between carriers

1.5 Stewardship

Access Ohio 2040 lists a variety of objectives under the Stewardship goal area. One of the goals is to minimize the air quality impacts of the state transportation system. Because freight rail is a relatively efficient transportation mode in terms of fuel consumption, rail produces few greenhouse gas emissions relative to trucking. According to a recent report by the Federal Railroad Administration, rail is about four times more fuel efficient than trucking.⁵ The Association of American Railroads calculates that if 10 percent of long-haul freight now moving by trucking moved by rail instead, annual greenhouse gas emissions would fall by approximately 11 million tons.⁶ The rail system also has the

⁵ ICF International for the Federal Railroad Administration, *Final Report: Comparative Evaluation of Rail and Truck Fuel Efficiency on Competitive Corridors*, November 19, 2009.

⁶ Association of American Railroads, *Freight Railroads Help Reduce Greenhouse Gas Emissions*, July 2012.

potential to reduce fuel consumption by reducing highway congestion. Vehicles caught in traffic consume more fuel per mile than vehicles in free flow traffic condition. If freight trains can divert trucks off of the highway, they could potentially help to mitigate traffic congestion and lower fuel consumption by highway vehicles.

Freight rail also produces fewer emissions of other harmful pollutants. However, the gap between truck and rail is not as sizeable as in the case with greenhouse gases (CO₂) due to stringent new EPA requirements for truck emissions and a longer average useful life of diesel locomotives. (Older, more polluting locomotives stay in service longer.) Exhibit 7 provides a comparison of truck and rail emissions factors for two pollutants, Particulate Matter (PM) and Oxides of Nitrogen (NO_x).

Exhibit 8: Comparison of Truck and Rail Emissions in Grams per Ton-Mile

Year	Truck	Rail
PM₁₀		
2009	0.078	0.022
2020	0.012	0.010
NO_x		
2009	2.21	0.89
2020	0.79	0.53

Source: Connecticut Department of Energy and Environmental Protection

The Clean Air Act, which was last amended in 1990, requires EPA to set National Ambient Air Quality Standards (NAAQS) for wide-spread pollutants from numerous and diverse sources considered harmful to public health and the environment. Areas of the country where air pollution levels persistently exceed the national ambient air quality standards may be designated "nonattainment." Several parts of Ohio are considered non-attainment areas for several of the EPA's "criteria pollutants." Areas that are considered nonattainment are required to consider pollution reduction in their transportation plans. The pollutants of concern are:

- **8-Hour Ozone.** Ozone is created by chemical reactions between oxides of nitrogen (NO_x) and volatile organic compounds (VOC) in the presence of sunlight. The EPA's standard measures the fourth highest concentration over 8 hours per year, then averages each 8 hour period over the past three years. The Cincinnati, Columbus, Cleveland, and Akron metropolitan areas are considered non-attainment for this pollutant.
- **Particulate Matter (2.5 microns).** The EPA has two standards for PM_{2.5}. The first measures the average annual concentrations, averaged over 3 years. Most major metropolitan areas in Ohio are considered non-attainment for this standard. The EPA also measures the concentration of PM_{2.5} on the day that is in the 98th percentile for concentrations of this pollutant per year, then averages these 98th percentile days for three years. The area around Cleveland and Akron is considered non-attainment for this pollutant.

Not only can rail influence pollution levels through a modal shift, but some regions have initiated projects aimed at reducing rail-related emissions. Generally, these projects have focused on yard

locomotives, since yard locomotives operate within specific areas, and rail yards are often located within densely urban populated areas that have high concentrations of air pollution. New low-emission yard locomotives can reduce rail-related emissions. GenSet locomotives emit 80 percent less nitrogen oxides, 90 percent less particulate matter, and use 30 percent less fuel when compared to current older switch engines. Another environmentally friendly yard locomotive is referred to as the “Green Goat.” It uses diesel-battery hybrid technology which is designed to cut air emissions by 80 percent and reduce diesel fuel usage by 16 percent when compared to conventional diesels used in switching service. Other projects aimed at reducing locomotive emissions focus on locomotive idling. Locomotives idle for a variety of reasons. In some cases, train crews are waiting for an assignment or instruction. In other cases, the engine needs to be kept warm so that coolant water does not freeze or oil does not become stiff. In many instances, the engine could not be restarted if the temperature is cold, or power is needed for other systems, such as for keeping toilet water from freezing or heating the engine cab. New technologies reduce locomotive idling by allowing locomotive main engines to be shut down temporarily.

The Ohio Environmental Protection Agency (Ohio EPA) administers the Ohio Diesel Emissions Reduction Grant Program, which is funded by the U.S. DOT Congestion Mitigation and Air Quality (CMAQ) program. Railroad grants include:

- The Chicago, Ft. Wayne & Eastern Railroad received \$1,468,558 to repower a switcher locomotive with lower emission power.
- The Columbus and Ohio River Rail Road Company received \$263,351 to install auxiliary power units on 11 locomotives to reduce idling.
- The Indiana & Ohio Railway Company received \$1,468,558 to repower a switcher locomotive with lower emission power.

Based upon U.S. EPA emissions factors and estimates for the typical number of hours that switch locomotives run per year and assuming a fuel consumption rate of 7 gallons per hour, the typical switch locomotive subject to U.S. EPA Tier 0 (Manufactured prior to 2001) emission standards generates around 8 tons of NO_x per year and 0.2 tons of PM_{2.5} per year. Using U.S. DOT prescribed economic costs of pollutants, this translates to an environmental cost of around \$66,000 per locomotive.⁷ Given these figures, there may be a need to continue to reduce rail-related emissions in Ohio.

Another rail environmental issue relates to noise pollution. Under FRA requirements, locomotive engineers are required to sound train horns in advance of all public grade crossings to warn motorists. Communities can establish quiet zones where locomotive engineers do not sound train horns if sufficient safety countermeasures are in place at crossings, including flashing light and gate automatic warning systems. Communities must work with owning railroads and state transportation authorities to determine the measures necessary to mitigate risks of silencing train horns. Quiet zones are an

⁷ <http://www.dot.gov/tiger/application-resources>.

issue in Ohio and have been addressed in several regional planning documents. Given the concern of communities, there is a need to continue to reduce the rail-related quality of life impacts, such as noise pollution.

1.6 Economic Development

Railroads are inextricably linked with economic development in Ohio. According to the Association of American Railroads, the railroad industry employed 7,154 individuals in Ohio with 25,524 retirement beneficiaries. But rail is also fundamental to Ohio's status as a logistics hub. According to the Ohio Department of Development, logistics is a \$16 billion industry in Ohio. Good access to rail services is part of what attracts logistics firms to Ohio.

A number of other industries within Ohio have a heavy reliance on rail. Coal has the highest volume of originated and terminated tons in the state. Much of the electricity generation in Ohio relies on rail for deliveries of coal. A variety of manufacturing industries are heavy users of rail, including steel and steel products, chemicals, and non-metallic mineral products. Ohio's farmers are also major rail users, as is a broad range of other industries.

Rail is a component of Ohio's economic development initiatives. The ORDC provides assistance to companies for new rail and rail-related infrastructure. The goal of this program is to retain, attract, and grow Ohio companies through rail transportation. Companies who are considering adding rail to existing operations in the state are also eligible under this program. ORDC works closely with the Ohio Department of Development and other public and private development related organizations to provide assistance to companies. The Ohio Job Ready Sites program through the Ohio Department of Development has provided several rounds of grant funding to improve sites and make them marketable and "certified" for immediate development by large scale end users. Among the improvements that qualify under this program are transportation infrastructure improvements, including rail access.

Rail-related economic development initiatives can take one of a number of forms, of which the following is a partial list:

- **Logistics Centers.** The state's multimodal terminals, including 13 truck/rail intermodal terminals serve as centers of logistics activity. Logistics and manufacturing firms locate in close proximity to these facilities in order to save money accessing the facilities. As one example, the Rickenbacker Global Logistics Park is a master-planned 1,576-acre logistics park capable of handling 28 million square feet of development. The logistics park is associated with the NS Rickenbacker Intermodal Terminal. The employment potential of the Logistics Park tenants which rely on the terminal is much higher than the employment at the Rickenbacker Intermodal Terminal itself. In another example, officials from Wood County, the Henry Township, and the Ohio Department of Development are marketing a 1,000 acre site in close proximity to the CSX Northwest Ohio Integrated Logistics Center (ILC) in North Baltimore. Tenants would be attracted by the diverse, frequent and direct intermodal hub service available from this ILC. Logistics centers do not need to be focused on containerized freight. Other logistics facilities could be based on bulk or breakbulk multimodal facilities, combining rail, truck, and in some cases, maritime modes.

- **Industrial Parks.** Industrial parks are tracts of industrial land that are subdivided for industrial usage. Industrial parks attract employers by providing an integrated package of infrastructure within a specific location. Rail can be a component of this infrastructure. Rather than building separate rail access to each facility, tenants within an industrial park can share rail infrastructure and services. Numerous rail-served industrial parks have been built or are under construction in Ohio, including the Dual Rail Industrial Park in Marion, the Point Industrial Park in South Point, the Ohio Commerce Center in Lordstown, and the Youngstown-Brier Hill Industrial Park in Youngstown. The distinction between industrial park and logistics center is not always precise, since industrial parks are sometimes built in conjunction with multimodal facilities.
- **Mega-Sites.** Mega-Sites, also called supersites, are large contiguous tracts of land that are choice locations for big industrial operations. They differ from industrial parks in that they are typically marketed for a single industrial usage rather than to be subdivided. Mega-sites also generally exceed some threshold of location size or anticipated employment, but the definition of what constitutes a “mega-site” varies by location. Multiple acreage and multiple intended employment levels may fall into the category of mega-site, depending upon the jurisdiction’s definition. Two prominent mega-sites that are currently being marketed in Ohio are the Fayette County Mega-Site in the Jefferson and Jasper townships and the Van Wert Mega-Site near the City of Van Wert. Rail is an important component of the marketing package for each of these sites.
- **New or Existing Business with Direct Rail Access.** New companies may locate in Ohio and desire rail access at either a greenfield or brownfield location. Existing companies may wish to build new rail access or improve existing access. The cost of building rail access may vary with the density of a rail line. Building access to an industrial site on a busy mainline can be like building a new location along an interstate highway. New shippers need ramps to accelerate and decelerate to safely merge onto and off of the mainline. But the required infrastructure to access the mainline adds cost to constructing a siding, since powered switches are required, and the railroad may specify miles of running track to enable trains to accelerate and decelerate safely. It is often cheaper to locate on low density rail lines, where industrial trackage requirements are not as strict.

JobsOhio, a nonprofit corporation designed to help Ohio’s job-creation efforts, has identified 9 industries for 2012 that the organization believes will have the greatest impact on job creation in Ohio. Some of these industries are major rail users, and the success of developing these industries will depend upon the Ohio rail network.

Exhibit 9: Target Industry Usage of Rail

Target Industry	Usage of Rail
Energy (Utica Shale)	Heavily dependent upon rail. Typically, a shale well requires 30 rail carloads of inbound well service materials (pipe, sand, aggregates and lubricants) and can produce more than 20 carloads of outbound materials (drill cuttings, brine water, NGLs and crude).
Polymers & Chemicals	The chemical industry is heavily dependent upon rail, since chemical supply chains frequently require shipments of low value, bulky commodities.
Automotive	Outbound shipments of automobiles to middle and long-distance markets depend on rail; inbound shipments tend not to use rail because of tight

Target Industry	Usage of Rail
	time requirements in manufacturing.
Aerospace & Aviation	Low dependence on rail
Advanced manufacturing	Usage of rail depends upon the manufacturing operations. However, JobsOhio cited ArcelorMittal among the advanced manufacturing companies who had invested in Ohio. Steel manufacturing inputs and outputs are among the highest volume commodities originating and terminating in Ohio by both value and tonnage.
Financial Services	The railroad industry may use financial services, but there is nothing to ship.
Agribusiness & Food Processing	Rail is heavily used for shipping grains and food products.
Biohealth	Rail is rarely used for transporting biohealth products.
Information Technology & Services	The railroad industry may use IT services, but there is nothing to ship.

Rail is a vital component to marketing Ohio for many of these target industries. In terms of providing incentive packages to prospective employers or to keep existing employers within the state, there is a need for rail access or rail improvements to be included. Rail service can be particularly helpful in marketing sites to be used for Utica shale development, chemical manufacturing, certain types of advanced manufacturing, and agribusiness & food processing.