

## 4. Freight Rail Issues and Opportunities, Proposed Improvements

A number of issues and opportunities have been uncovered during the preparation of this Rail Plan, that were identified through consultation with stakeholders, review of information on the condition of Ohio's rail lines, and an assessment of trends that currently or will affect Ohio's rail network. In many cases, investments and improvements have been put forward to address the issues and opportunities. Several topics will be discussed:

- Ohio's rail network needs to change to meet the needs of Ohio's changing industrial base.
- Rail maintains an important role for economic development in Ohio.
- Due to unique characteristics of rail service in Ohio, rail usage within the state is particularly sensitive to fluctuations in rail rates and service.
- Ohio continues to be an intermodal hub, and the intermodal network continues to change.
- Demand exists for more access to the Ohio rail network, as well as more connections within the rail network.
- Local railroads in Ohio continue to face challenges.
- Continued efforts are needed to address safety and quality of life issues related to modal conflicts.

### 4.1 OHIO'S CHANGING INDUSTRIAL BASE

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#### 4.1.1 *Ohio's Changing Steel Industry*

Ohio's rail network was built to serve an economy that was in many ways different from today's. For example, Ohio's steel industry traditionally relied on rail transportation for raw material inputs, movements between steel plants for intermediate steps of the steel manufacturing process, and delivery of finished steel products. Ohio remains the nation's second-largest steel producer behind Indiana, and the steel industry continues to be a major user of rail in the state. Figure 4-1 displays the location of steel production facilities in Ohio. Of these, AK Steel in Middletown and ArcelorMittal in Cleveland are basic oxygen process furnaces (integrated) steel mills. Most of the rest are electric arc furnaces (minimills).

The technology and location of Ohio steel mills has changed. In the past, more integrated steel mills operated in Ohio and were concentrated in areas where steel production has since fallen. For example, two of the largest steel mills in the nation used to be located in Youngstown, which have since closed. Similarly, the Upper Ohio River was once a major steel manufacturing center, but mills have closed both in Ohio and on the West Virginia side of the river.

**Figure 4-1. Map of Notable Ohio Steel Establishments (Employing over 400)**



Source: Office of Research, Ohio Development Services Agency

From the perspective of Ohio's rail network, these shifts have caused some rail assets to be underutilized while new needs have been created elsewhere. One of the largest terminals at the Port of Toledo is the CSX Toledo Docks. One dock handles metallurgical coal, while another handles iron ore, important inputs to integrated steel mills. These docks continue to serve the AK Steel plant in Middletown but are nevertheless underutilized, since they were originally constructed

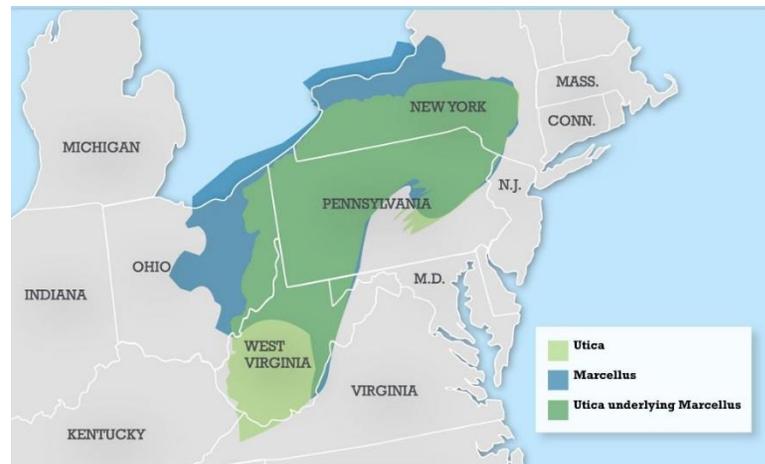
to serve a larger number of integrated steel mills. The overcapacity is a potential lost opportunity.

At the same time, other assets are being redeveloped and utilized for the current needs of Ohio's economy. Cleveland-Cliffs, Inc. is building a hot-briquetted iron production facility in Toledo at the port. Hot briquets are a relatively new technology. The plant will provide feedstock for electric arc furnaces. Hot briquets are a supplement to pig iron and scrap steel, the traditional feedstock for electric arc furnace mills. The process converts iron ore to metallic iron. This facility will utilize both the water and rail capacity at the Port of Toledo, and Ohio ORDC has provided financial support to improve the rail access to the facility.

#### **4.1.2 Ohio's Petrochemical Opportunities**

With improvements in gas drilling technology, natural gas extraction in the Appalachian region has increased dramatically. Natural gas is extracted from shale rock formations, including the Marcellus and Utica formations shown in Figure 4-2. Most production has been in Pennsylvania, West Virginia, and Ohio.

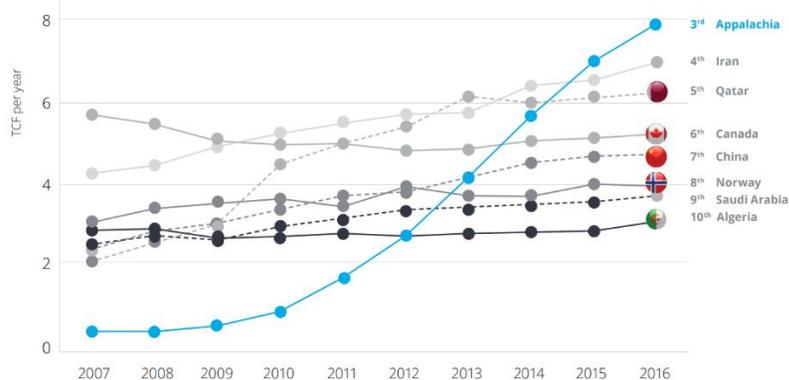
**Figure 4-2. Location of Utica and Marcellus Formations**



Source: Marcellus Shale Coalition

To place the growth of the region’s natural gas production into perspective (Figure 4-3), if the region were a country, its production would be ranked third in the world above countries such as Iran and Qatar.

**Figure 4-3. Appalachia’s Ranking among Natural Gas Producers**



Source: Deloitte Consulting

Natural gas (methane) is generally transported by pipeline, but the inputs to natural gas extraction are often shipped by rail. Typically, a shale well requires 30 rail carloads of inbound well-service materials (e.g., pipe, sand, aggregates and lubricants) and can produce more than 20 rail carloads of outbound materials (e.g., drill cuttings, brine water, natural gas liquids, and crude). Furthermore, much of the gas extracted in Ohio is “wet gas,” which includes natural gas liquids such as ethane and butane that may be shipped by rail.

An opportunity exists for the region to develop a petrochemical industry in eastern Ohio around natural gas and its byproducts. Ethane, for example, can be converted to ethylene, which is a feedstock for plastics. It is important to regional economic development to keep value-added processing in the area rather than shipping natural gas and its byproducts elsewhere for processing. For example, the Gulf Coast around Texas and Louisiana similarly has seen a boom in shale gas production. However, because of the existing resin manufacturing base in the Gulf Coast region, resin manufacturing capacity in this region has grown dramatically over the past several years with billions of dollars of investment. As of late 2018, the Port of New Orleans reports record-breaking exports of plastic resins.

Infrastructure is needed to keep value-added processing within the Appalachian region. Much of this infrastructure is not rail-related, including gathering lines, processing plants, pipelines, storage facilities, and fueling stations. However, rail also plays an important role. Retaining value-added activities in the area not only supports the local economy but is also more efficient. For example, a local manufacturer near Steubenville sources plastic pellets from the Gulf

Coast.<sup>1</sup> If the plastic pellets could be locally sourced, shipping costs would be reduced, and the manufacturer could produce at lower cost.

Rail infrastructure on the Ohio River near the shale gas production area of eastern Ohio was designed to support the steel industry. It must be modified to support energy-related opportunities or other rail traffic. ORDC was awarded a \$16.5 million 2018 Infrastructure for Rebuilding America (INFRA) grant to rehabilitate 30 miles of Norfolk Southern Railway line in Jefferson and Belmont Counties, which has a total cost of \$31.8 million. The project, which also includes improvements to rail yards at Mingo Junction and Martins Ferry, is a necessary improvement to support a proposed \$10 billion ethane cracker plant along the Ohio River 120 miles west of Columbus. Stakeholders noted that rail would also be a component of a planned shale hub near Steubenville, which would store and distribute ethane.

#### 4.1.3 Addressing Changes in Coal Markets

Coal is an important commodity to Ohio's rail network. As discussed in Page 2-44, as of 2016 coal remained the top commodity for both traffic originating from and terminating in Ohio. Much of this traffic is intrastate with 42 percent of coal tonnage shipped by rail terminating in Ohio being shipped from sources within the state. However, as shown in Figure 4-4, Ohio's 2016 coal production was less than a quarter of the state's peak coal production in 1970. Furthermore, Ohio's coal production has not remained in the same place. Throughout the history of Ohio's coal industry, stretching back into the early 19<sup>th</sup> century, mines have been developed and then

abandoned. Abandoned coal mines are so common in areas such as eastern Guernsey County, that they hamper economic development, since developable properties are literally undermined.<sup>2</sup> Since many of these mines were once served by rail, southwestern Ohio is also dotted with underutilized or abandoned rail lines. In addition to the decline in Ohio's coal production, coal consumption in Ohio has also declined (Figure 4-4). Shipments of coal terminating in Ohio fell by over half between 2008 and 2016. This too has created underutilized rail lines that formerly served Ohio power plants.

**Figure 4-4. Ohio Coal Production in Tons (1900 – 2016)**



Sources: U.S. Geological Survey, U.S. Energy Information Administration

The Buckeye Hills Regional Council, which serves eight counties in southeastern Ohio, reported that abandoned rail corridors are a major

<sup>1</sup> From discussion with Brooke Hancock Jefferson MPO.

<sup>2</sup> Because the location of mines is uncertain, test bores must be dug, which adds cost. If a location is undermined, a mine must be filled with slurry or a building must be built on caissons, either of which is expensive.

issue in the region due to uncertainty of ownership. Within southeastern Ohio, Perry County in particular has a high number of abandoned corridors. Frequently, it is unclear who owns the properties, and local governments would like to initiate an effort to identify ownership. Sometimes, the best use of these rights-of-way may be as recreational trails. Southeast Ohio has a strong tourist industry, and the additional trails could support this. Before corridors can be converted, ownership must be established.

The presence of abandoned and underutilized rail lines points to a need to develop a policy and/or guidance to help define actions to address disposition of the lines. This could provide guidance in determining the following:

- The ownership of abandoned rail corridors
- The best use of an underutilized corridor, whether that be as any of the following:
  - Preservation as a rail corridor
  - Conversion to a recreational trail
  - Repurposing as something other than a corridor
  - Some other function such as a utility corridor.

## 4.2 IMPORTANCE OF RAIL TO ECONOMIC DEVELOPMENT IN OHIO

During stakeholder outreach conducted for this Rail Plan, rail transportation was consistently viewed by stakeholders as valuable to economic development. Numerous stakeholders were concerned about a lack of rail-served industrial sites. Rail access can be an important differentiator in marketing industrial sites to potential companies that might move into an area. Economic development officials consulted for this Rail Plan were interested in having rail sidings or spurs installed at industrial sites located near rail lines. Fifteen projects to provide rail access to industrial sites were identified.

JobsOhio has completed an innovative initiative (SiteOhio) to identify marketable industrial sites within the state. The initiative consisted of an in-depth review and analysis of sites submitted by local communities throughout the state. Sites authenticated through this initiative are considered ready for immediate development with a guarantee that all utilities are on site with adequate capacities, due diligence studies are complete, and the site is free of incompatible uses. While not a requirement, rail authentication is a component of the screening process and recognized as a critical element to attract specific industries.

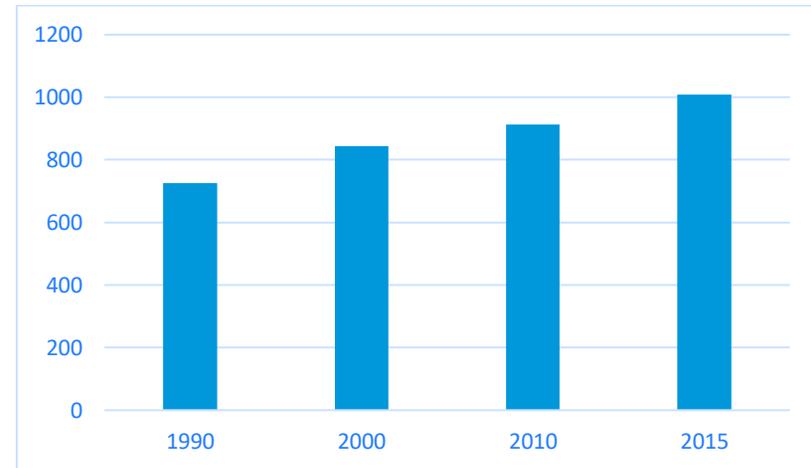
Additionally, railroads in the state often employ dedicated staff to facilitate industrial development projects and work with local, regional, and state economic development professionals on these projects.

### 4.3 SENSITIVITY OF OHIO SHIPPERS TO RAIL RATES AND SERVICE

Nationwide over the past 20 years, railroad transportation has become increasingly specialized, serving markets that are distinct and different from those served by truck transportation. Railroads have focused on markets where the economics of railroad transportation are more favorable than trucking. Some costs of railroad transportation are fixed and do not vary with trip distance or shipment volume. In general, the relative economics of railroad transportation improve with shipment distances and shipment sizes. It is usually much more efficient on a cost-per-ton-mile basis to ship trainload shipments (unit trains) than individual carloads or blocks of carloads and it is less costly per mile to use rail to ship long distances than short distances.

Average shipment distances in the United States have increased steadily with the average length of haul growing (Figure 4-5).

Figure 4-5. Average Nationwide Rail Haul Distance (Miles)



Source: Association of American Railroads

At the same time, shipment sizes have increased. As evidence of this, the share of ton-miles in shipments of over 60 carloads (excluding intermodal) increased from 45 percent in 2000 to 55 percent in 2013.<sup>3</sup>

As mentioned on page 2-49, the average haul distance for shipments to and from Ohio is estimated to be 619 miles compared to 1,008 miles nationwide. Less than a quarter of the ton-miles originating or terminating in Ohio are in shipments of over 60 carloads compared to over half nationwide. Rail is used for shipping a wide variety of commodities to/from Ohio, not just products such as coal, grain, or petroleum, which typically exhibit longer haul distances and larger shipment sizes. Because of the relatively short shipment distances and small shipments in Ohio, trucking competes more heavily with

<sup>3</sup> Association of American State Highway Officials, 2018 Freight Rail Bottom Line Report.

railroad transportation in Ohio than in other parts of the United States. When rail costs rise or rail service falters, the attractiveness of rail as an alternative to trucking quickly deteriorates. Likewise, changes in the regulatory framework can impact competition between all freight transportation modes.

While average railroad revenue per ton-mile dropped significantly between the passage of the Staggers Act in 1980 and its low point in 2002, nationwide, revenue per ton-mile has steadily moved upward since 2002. Between 2002 and 2016, average revenue per ton-mile increased by 36 percent in constant dollars. If revenue per ton-mile serves as a proxy for rail rates and rail rates to Ohio shippers follow national trends, this has been a major price increase for shippers to absorb, particularly in Ohio where rail competes closely with truck transportation.

Agricultural producers sometimes have little flexibility in their ability to absorb increases in rail rates. Shipment costs must be less than the difference in price received for crops at a destination compared to its origin. During one stakeholder meeting, agricultural producers stated that some agriculture shippers are avoiding railroad transportation by selling crops to local food, feed, and ethanol processors rather than shipping by rail out of state. Whether this supply chain reconfiguration is in fact the cause or not, the tonnage of agricultural commodities shipped from Ohio fell by 10 percent between 2009 and 2016.

An aggregates shipper reported that shipment transit times had increased threefold at one point, causing the shipper to reduce rail volumes by half. Transit times have improved somewhat for this aggregates shipper but are nevertheless double, and rail shipment

volume are down 15 percent from what they were before the service problems started.

State agencies such as ORDC do not have jurisdiction over rail rates or service. However, competition may help to mitigate price increases and deteriorating service. It is possible to promote competition by looking for cost-effective opportunities for new connections, supporting industrial locations or multimodal facilities that are served by multiple railroads, or providing support for local and regional railroads that can interchange with multiple Class I railroads.

#### 4.4 OHIO'S STATUS AS AN INTERMODAL HUB AND CHANGES TO THE INTERMODAL NETWORK

Intermodal rail service has been a success story for Ohio. With 12 terminals, Ohio is the state with the third highest number of intermodal terminals in the country behind Illinois and Texas. Intermodal services to and from Ohio support retail and manufacturing and contribute to Ohio's \$15.5 billion logistics industry. Intermodal service in and through Ohio removes truck traffic from Ohio's highway system, thus reducing congestion, pavement damage, and emissions, and improving safety. Ohio's intermodal network is continually evolving. The most recent changes are described in the following sections.

##### 4.4.1 Heartland Corridor and National Gateway Corridor

During the completion of the *2010 Ohio Statewide Rail Plan*, the Heartland Corridor project to clear obstructions to allow double-stack intermodal trains to operate on the Norfolk Southern rail line between Chicago and the Port of Virginia was underway. The State of Ohio was also working with Norfolk Southern to clear the route between

Columbus and Cincinnati for double-stack operations. These projects have since been completed and have enabled intermodal services that would not have otherwise been possible.

At the time of the *2010 Ohio Statewide Rail Plan*, the CSX National Gateway Corridor project to clear obstructions to allow double-stack trains on the CSX rail line between Ohio and Washington, DC, between Baltimore, MD, and North Carolina, and between Wilmington and Charlotte, NC, had also been started. As of late 2018, CSX has completed a new tunnel in Washington, DC, which is the last of 61 projects to complete the National Gateway Corridor project.

The northwest end of the National Gateway Corridor is anchored with the NW Ohio Intermodal Terminal in North Baltimore, Ohio (Figure 4-6). Originally, the facility was intended to serve as a hub for a new intermodal hub-and-spoke operating model similar to the system used by the airline industry. Traditionally, intermodal service is point-to-point with trains operating directly between origins and destinations, occasionally with cars picked up or dropped off at smaller terminals along the route.

**Figure 4-6. NW Ohio Intermodal Terminal**



However, in late 2017, CSX announced that it would no longer be developing the hub-and-spoke system. In 2018 industry watchers report that North Baltimore is nevertheless fully utilized for local intermodal traffic and “block swapping.” Under the block swapping role, intermodal traffic interchanges with western railroads in Chicago, as well as other locations, and is sorted at North Baltimore for movement to/from other parts of the CSX system. In late 2018, CSX announced a new haulage agreement with BNSF Railway to improve western access to the Ohio region whereby CSX would haul complete BNSF trains between Chicago and North Baltimore for processing at North Baltimore. CSX also announced new service to and from the Port of New York and New Jersey.

#### **4.4.2 Jeffersonville Intermodal Facility**

A new intermodal terminal, the Central Ohio Intermodal Center, is opening in Jeffersonville off I-71 southeast of Dayton and southwest of Columbus. The new terminal will provide international intermodal service between Jeffersonville and Vancouver, British Columbia. It is

made possible by a cooperative agreement between Canadian Pacific Railway, Indiana & Ohio Railway, and Bluegrass Farms. Containers from Asia will travel on the Canadian Pacific Railway between Vancouver and Chicago, transfer to the Chicago, Fort Wayne & Eastern Railroad in Chicago, and transfer to the Indiana & Ohio Railway in Lima, and then be offloaded at the Bluegrass Farms terminal in Jeffersonville.

**Figure 4-7. Canadian Pacific/Indiana & Ohio Railway Service to Jeffersonville**



Sources: Canadian Pacific

The project will provide new intermodal options to shippers in western and central Ohio. Traditionally, intermodal service to the Dayton area was provided through terminals in Columbus or

<sup>+</sup> Identity preserved soybeans are kept separate from other soybeans during the storing and shipping process so that unique characteristics of these particular soybeans are not lost through comingling.

Cincinnati, but the new terminal will be closer, requiring a shorter truck move. All other intermodal services in Ohio are provided by either Norfolk Southern or CSX. Canadian Pacific is a new entrant into the Ohio intermodal market, and the Canadian Pacific Railway/Indiana & Ohio Railway service could introduce a new competitive element to intermodal service offerings in the state. The terminal also provides export opportunities. Many containers arrive from Asia into the United States, then are unloaded and returned to Asia empty. Bluegrass Farms specializes in identity preserved,<sup>+</sup> food-grade soybeans. With the new facility, containers can be reloaded with identity preserved soybeans and returned to Asia full rather than empty.

To operate double-stack trains on the Indiana & Ohio Railway, several vertical obstructions must be cleared in the Springfield area. ORDC is assisting with a project to do so. The Chicago, Fort Wayne & Eastern Railroad, and the Indiana & Ohio Railway also intend to improve speeds along their rail lines on which the service will rely so that the route will be rated to 40 miles per hour.

## 4.5 DEMAND FOR ADDITIONAL RAIL ACCESS AND CONNECTIVITY

### 4.5.1 Access

Through outreach for this Rail Plan, stakeholders have identified needs for additional access to the rail network. As mentioned in Section 4.2, economic development officials put forward projects to add rail access

to industrial locations, including new sidings and spurs. Local railroads surveyed for this Rail Plan recommended additional projects to either improve existing access to customers or add new access to industrial locations.

Accessing the rail network is more costly and difficult in areas served by high-density mainlines instead of a low-density branch lines or local railroads. For example, an industrial park is under development in Lorain. While the development is adjacent to a Norfolk Southern Railway mainline, it is uncertain if the park will be rail-served due to the cost and difficulty of providing access.<sup>5</sup>

For shippers that do not have direct rail access to their locations, transload facilities can serve as alternate points of access to the rail network. Local railroads surveyed for this Rail Plan put forward seven potential transload facilities with an estimated construction cost of \$19.7 million. Similar to other freight rail development projects, ORDC has financially supported the development of transload facilities with demonstrated public benefits.

#### 4.5.2 Connectivity

Rail lines cross each other at many locations around Ohio. However, there are fewer locations where rail traffic can move from one line or railroad to another. Additionally, because many of these connections were put in place years ago, the connections are often not optimized for rail traffic needs. Railroads and other stakeholders surveyed for

this Rail Plan have identified four projects to improve interchanges between railroads with an estimated cost of \$59.5 million.

#### 4.6 CHALLENGES TO OHIO'S LOCAL RAILROADS

A challenge for many of the local railroads in Ohio and nationally is to maintain their infrastructure in a state of good repair. Local railroads have fewer financial resources than Class I railroads. Data published by the Association of American Railroads suggests that the average revenue per route mile operated by a local or regional railroad is about one-eighth that of a Class I railroad.<sup>6</sup> In a survey of local and regional railroads in Ohio conducted for this Rail Plan, respondents reported 244 miles of Federal Railroad Administration (FRA) Class Excepted track, which is track in poor condition that typically does not meet the minimum standards of the FRA track classification system. Bridges are also an issue. Some bridges have reached or are nearing the end of their useful life or cannot accommodate industry standard 286,000-pound capacity rail cars. Several local railroads have warned that bridges on their lines are approaching the ends of their useful lives, and that they are in danger of closing lines unless bridges can be rehabilitated.

In addition, local railroads reported that 147 miles of track cannot accommodate industry standard 286,000-pound capacity railcars. Some of these miles are among the 244 miles of FRA Class Excepted track, but others are FRA Class 1 track or better, which are nevertheless unable to accommodate 286,000-pound railcars. In addition to track, bridges can also limit the capacity of railcars that a

<sup>5</sup> Ohio Department of Transportation, Ohio Maritime Study, Working Paper 5 – Options for Enhancing Use of Ohio's Maritime Transportation System, November 2017.

<sup>6</sup> Route mileage and revenue data from the Association of American Railroads, *Railroad 10 year Trends 2005 – 2014*, 2012 Industry Overview, page 9.

rail line can accommodate. The inability to handle heavier rail cars places shippers on these lines at a disadvantage. The rates that shippers pay per railcar are often the same regardless of railcar size. Because 263,000-pound railcars typically hold around 10 percent less freight than 286,000-pound railcars, shippers pay the same amount but are restricted to ship less per railcar. The limitation affects not only the portion of the rail move on the local railroad's line, but the entire rail move. Thus, the local railroad becomes a bottleneck. The problem will worsen as smaller capacity railcars are retired, and shippers must pay extra for high-capacity railcars that cannot be fully loaded due to weight restrictions.

Some local railroads in Ohio operate over rail lines owned by others, such as Class I railroads, local governments, or the State of Ohio. The dynamics of who decides or who has the incentive to upgrade a line will depend upon the terms of a lease agreement. Twenty-eight track/bridge rehabilitation and upgrade projects worth over \$42.3 million were put forward based on a survey of local railroads in this Rail Plan. Additional needs were mentioned by a local government owner of rail lines.

Another issue for local railroads in Ohio is the federal requirement to install positive train control (PTC). Local railroads are generally exempt from the requirement to install PTC on their own rail lines. However, in some cases, these railroads must operate over Class I rail lines for efficient interchange that will be equipped with PTC. The Class I host railroad may require that a short line accessing their track have locomotives equipped with PTC. The difficulty with PTC implementation for local railroads is twofold. First, local railroads' locomotives are often at least 25 years old and not designed to

accommodate modern electronics such as for PTC. Second, companies must also have the relevant "back office" infrastructure to communicate with Class I PTC systems. Given the small operating budgets of local railroads, these costs can be prohibitive. Several local railroads have expressed significant concern over the impact of PTC, indicating that the requirement may force them to curtail operations.

#### **4.7 CONTINUED EFFORTS TO REDUCE MODAL CONFLICTS**

##### **4.7.1 Highway/Rail Crossing Safety Issues**

Ohio is a crossroads state with extensive transportation infrastructure that features a dense network of railroads. Within the state are approximately 5,000 miles of active rail in the state as well as approximately 127,000 miles of roadway, resulting in a large number of public crossings. As of 2017 approximately 5,800 at-grade vehicular public crossings were located in Ohio of which 58 percent have lights and gates, 32 percent have passive systems such as crossbucks, and 10 percent have flashing lights.

Ohio has experienced some variation in crash numbers in the last five years. Eight grade-crossing fatalities occurred in 2017, up from six in 2016. A source of frustration is the number of crashes that occur at crossings with active warning devices. Six of the fatalities in 2017 were at crossings equipped with lights and gates, and most crashes (82 percent) occurred at crossings with active devices. ORDC has addressed this trend by expanding its formula program to include crossings that are already equipped with lights and gates. Nine projects were programmed under this new initiative.

In recent years, grade-crossing safety projects have increased in complexity and present greater challenges, particularly in urban areas. ORDC continues to seek ways to address these challenges through planning initiatives and cooperation with railroads and local entities.

#### 4.7.2 *Blocked Crossings*

Stakeholders consulted for this Rail Plan expressed concern about highway/rail grade crossings that are blocked by trains for extended periods of time. These can create hazards, such as a crossing in Lima that causes traffic to back up near a ramp to an interstate highway. At blocked crossings with significant pedestrian traffic at multiple locations across Ohio, pedestrians have been seen climbing through trains. Some communities are concerned about emergency vehicles being blocked by trains at crossings for long periods of time. Monroe Township in Butler/Warren Counties for example, is spending \$7 million on a new firehouse to make sure that the community can respond to an emergency when a train is blocking access from the main fire station. Stakeholders feel that the problem has become worse recently with operational changes to the Class 1 railroads such as increased length of trains. Beyond safety concerns, blocked crossings can also harm quality of life for residents and the economic development opportunities for affected communities. For example, Ohio Department of Transportation is progressing a project on State Route 309 in Marion County. In this instance, the trains accessing the facility block trucks accessing the same facility.

Grade separation of roadways and rail lines is a guaranteed way to eliminate blocked crossings. In 1999, Ohio began the Rail Grade Separation Program in response to increased train traffic on certain lines in the state due to Conrail splitting their operations between

CSX and Norfolk Southern. This program provided \$200 million in funds for grade separation projects. These funds are now exhausted. A neighboring state, Indiana, recently announced the availability of over \$121 million in matching funds for their Local Trax program. This program was developed in partnership with railroads operating in the state and is intended to fund grade crossing safety projects, including grade separations. Grade separations are a comprehensive solution to blocked crossing issues but are often difficult to implement because of cost and disruption to adjacent property. Several alternative strategies are being considered in Ohio:

- **Public notification of blocked crossings.** Communities are experimenting with using technological solutions to notify drivers of blocked crossings before reaching the crossing so that drivers can consider alternate routes where possible. These efforts range from customized software solutions to stationary cameras with YouTube channels.
- **Reduction in redundant crossings.** In some areas of the state, crossing blockages occur at crossings where trains use passing sidings or are stopped for crew changes. One initiative is to identify mitigation measures that would eliminate the need for the crossing, thus providing railroads the capacity to perform their necessary operations.

ORDC is working with the railroads to determine if improvements to track infrastructure—such as power switches on sidings, extending sidings, upgraded signaling or other such improvements—could increase rail network fluidity and reduce the amount of time crossings are blocked.

### **4.7.3 Other Crossing Issues**

Some stakeholders complained about humped crossings. Humped crossings can be problematic for buses, as well for agricultural equipment that may need to be moved on roadways.

Rough crossings are frequent subjects of complaint for the traveling public. In 2015, ORDC and ODOT partnered on a pilot program to address rough crossing concerns. The program, which was limited to ODOT-maintained roadways, expended nearly \$1 million to repair and rebuild rough crossings throughout the state. These funds were provided on a 50-50 railroad/state matching basis with railroads guaranteeing the condition of the surface for 10 years. While the pilot program has ended, it has provided a framework for ODOT to partner with railroads on roadway improvement projects involving grade crossings.

### **4.7.4 Movable Rail Bridges**

For the Port of Toledo, modal conflicts are limited to not only those between rail and roadway users but also conflicts between rail and marine vessels. Several movable rail bridges on the Maumee River routinely become stuck in a closed position, halting maritime traffic to/from much of the Port of Toledo until the problem is resolved.

### **4.7.5 Non-Compatible Railroad Assets**

One area of concern multiple stakeholders identified was the non-compatibility of existing rail assets within the context of the communities' needs. Many examples were provided, but most focused on rail overpasses and train noise. Some rail overpasses are too low for all tractor semi-trailers to clear. In Lima, on average one tractor semi-trailer becomes stuck per month under the same

overpass. Inexperienced drivers follow GPS navigation to the underpass. According to local officials at Lima, height restrictions of rail overpasses hinder economic development in this corridor, which is zoned for commercial use. Other jurisdictions reported rail overpasses with inadequate clearances as well. As with Lima, alternate crossings are less than optimal for the community's purposes. Further discussion of this issue appears in Section 2.1.7 under the Community Impacts section.

In other instances, the land use surrounding the rail asset has changed, bringing rail crossings into conflict with the new development around the crossing. Several stakeholders mentioned the need for quiet zones. For example, the former Hercules Engine Factory in Canton is being redeveloped as a residential apartment building, but the building is located next to a crossing where trains are required to sound their horns. This was not a problem when the building was a factory but is problematic when the building is used for residential apartments. With quiet zones, railroads are asked to cease routine sounding of horns when approaching crossings within a specific area. In exchange, communities are required to mitigate the additional risks from trains no longer sounding their horns. These include the introduction of safety countermeasures at each grade crossing in the area. Traditional grade crossing safety funds are not eligible for quiet zones unless the creation of a quiet zone includes the closure of at least one highway/rail grade crossing. Communities in Ohio often struggle with the costs associated with the safety improvements required to implement quiet zones.