

CHAPTER 7 • FREIGHT ALTERNATIVES

7.1 Existing Conditions & Issues

The North-South Transportation Initiative Corridor hosts a significant volume of freight movements. It is home to both the busiest north-south rail freight route east of the Mississippi and a major trucking corridor between Canada, the Midwest, and Southeastern United States.

Truck Movements

A significant number of trucks use the highway system in the I-75 corridor. In 1995, trucks comprised 15% to 30% of the total traffic on I-75, depending on the specific corridor segment. About the same proportion of truck traffic is projected for 2030 as well, but at much higher volumes.



According to the Transportation Research Board Highway Capacity Manual (2000), a single truck has the equivalent effect on highway traffic congestion and capacity as do 2.5 to 3.5 cars in flat terrain, and the same as up to 15 cars on grades. For this Major Investment Study, the impacts of these truck movements were considered in the evaluation of alternative highway improvements, but consideration of ways to improve the movement of freight, and to mitigate the impact of trucks on highway system capacity and performance, is also warranted. This could include diversion of freight from truck to rail.

Rail Freight Service Trends

The diversion of some truck traffic to rail has an obvious potential to improve the performance of the highway network. The evaluation of this opportunity, however, requires a consideration of the regional and nationwide freight rail system of which the Cincinnati region is a part. It is also important to recognize that current trends in the movement goods by rail (except bulk materials like coal and grain) reflect an increasing use of intermodal services, at least for long-distance movements of about 500 miles or more.



Intermodal refers to the use of a combination of transportation modes to complete a single shipment. Intermodal railroad technology can include both truck trailers on flatcars as well as containers on flatcars. Containers are overwhelmingly popular for international shipments because they can be moved by air, sea, and land and more than 80% of today's intermodal shipments use containers.

Rail-related intermodal services are growing because they can combine the advantages of rail and ocean-going (high efficiency over long distances) with the flexibility of trucks (door-to-door service of a particular shipment at a particular time). In general, railroads are often encouraging most freight generators (except those with significant traffic volumes) to ship via intermodal, avoiding the need for railroads to handle small numbers of shipments using other railcar types, which require additional handling and processing.

Currently, intermodal shipments account for approximately 20% of revenue for Class 1 (major) railroads according to the Association of American Railroads. Between 1990 and 2002 annual volumes of intermodal shipments grew at an average rate of 3.6%, and also grew as a proportion of overall rail traffic. It is expected to overtake coal soon as the single largest type of rail freight traffic in North America. A significant proportion of intermodal

traffic, probably including traffic in southwest Ohio, involves inbound goods and parts from Asia and other overseas destinations.

It is suggested that an increase in intermodal shipments may be the most viable means of diverting freight movements from truck to rail, so intermodal opportunities are a focus of this evaluation.

Corridor Rail Facilities and Operations

The heart of rail operations in the study area is a 66-mile north-south main route owned by CSX, and located approximately parallel with I-75 in Hamilton County and the southern half of Butler County. It is anchored on the south end by the Queensgate yard, located west of downtown Cincinnati, which is one of CSX's major classification and servicing points handling 1,900 cars per day. Both NS and CSX operate major intermodal loading/unloading facilities in the Queensgate vicinity.

The portion of route through the Mill Creek valley just north of downtown Cincinnati constitutes the sole north-south rail corridor through the metropolitan region, and on a national basis the primary north-south rail route between those in Maryland and in the Mississippi River basin area. It is also used by other railroads including Norfolk Southern (NS), Canadian National (CN), and the Rail America (Indiana & Ohio Railway and Central Railroad of Indiana) system. It connects Cincinnati with major rail origins and destinations in all directions, including Chicago, Toledo, Columbus, Louisville, Atlanta, Richmond, and points beyond. About 100 to 110 trains per day pass over the line, mostly (and generally equally divided between) CSX and Norfolk Southern.

North of Ivorydale, the main north-south route divides into several directions, and two of the lines connect Cincinnati and Dayton. One, via Middletown, is owned by Norfolk Southern and is largely double track, while the other is single track north of Hamilton and owned by CSX. Both lines come together to share a double-track bridge at Dayton and a grade-separated rail structure in that city.

Portions of these and other lines also connect Cincinnati and Hamilton. In order to overcome historic, chronic congestion problems on the portion of route in the Mill Creek valley, CSX and Norfolk Southern began a directional running experiment in April 2000, in which northbound CSX and Norfolk Southern trains leaving Cincinnati operate over CSX's track between Cincinnati and Hamilton, while southbound trains of both railroads operate over Norfolk Southern's track. CSX also made certain investments in its entire Cincinnati-Toledo line such as the installation of switch heaters, upgrade of sidings, signal system upgrades, and other enhancements. The experiment was declared a success in August 2000, with benefits including a virtual elimination of congestion, a reduction in time required for freight cars passing through Cincinnati, and an increase in average train velocity. Rail traffic continues to operate in this manner today.

CSX Freight Service in the Corridor

Although a rail traffic volume breakdown for southwest Ohio is not available, CSX did note in a February 2001 presentation that its fourth largest year, 2000 Ohio shippers in terms of carloads include AK Steel (with a major facility at Middletown in the North-South Transportation Initiative Corridor) and three auto makers. Intermodal and doublestack intermodal (containers mounted two units high) comprise the fifth and sixth largest single traffic flows from Ohio for CSX, totaling a combined 23,000 or more railcars per year. CSX estimates that the traffic originating from these largest shippers



would equate to more than 800,000 additional trucks on the state's highways. Norfolk Southern, the other dominant railroad in Ohio and the corridor, likely has corridor traffic levels of a similar order-of-magnitude.

Today, CSX intermodal services from Cincinnati are advertised to include destinations such as Jacksonville, Miami, Mobile, AL, New Orleans, and Charleston, SC. Following the acquisition of some former Conrail lines, service is now also provided to Boston, other Massachusetts terminals, and Chicago. Historically, CSX's Cincinnati intermodal service has been oriented to the south, and with only minimal services north of Cincinnati. This was partially because of congestion resulting from the large volume of rail traffic typically operated on CSX's single-track line between Cincinnati, Dayton, and Toledo in the I-75 corridor.

The traffic situation on the line has also changed since the purchase of the former Conrail lines in 1999 because some of the Cincinnati-Toledo line traffic was actually East Coast-Cincinnati-St. Louis traffic that now uses an east-west former Conrail route via Indianapolis. This seems highly pertinent to this study, if capacity is available, and if other market factors are favorable. It is logical to suggest that both CSX and Norfolk Southern may be interested in this market considering the large volume of truck traffic on I-75; the geographical routing of I-75 connecting Canada with much of midsection and south of the United States; and the expanding rail intermodal market.

NS Freight Service in the Corridor

For Norfolk Southern, Cincinnati is an intermodal hub for service in all directions, with advertised service including the destinations of Jacksonville, Miami, Savannah, Charleston, SC, Mobile, AL, New Orleans, Atlanta, Norfolk, VA, and Chicago.

According to documents filed by NS with the Surface Transportation Board describing planned operations incorporating former Conrail lines, NS planned to implement new train schedules that would eliminate some switching of trains in locations including Cincinnati. NS also indicated its intent that intermodal trains would be operated wherever volume or business prospects justify, including both longhaul and shorthaul intermodal traffic. This was a change as compared to Conrail's strategy of focus on long haul east-west traffic, and is significant for the North-South Transportation Initiative Corridor because of its north-south orientation.



NS also operates the Triple Crown network of RoadRailer trains. These trains are comprised of special truck trailers that can be directly mounted onto rail equipment, in effect forming trains of trailers on rails. This service eliminates the need to lift containers or conventional trailers at rail termination points, but does require special equipment that weighs more (and costs more) than standard highway trailers. Cities served by the network include Cincinnati, but information regarding traffic flows was not available.

Improvements in the movement of freight through the North-South Transportation Initiative Corridor potentially provide at least two types of benefits. One is the improved efficiency and related economic benefits for shippers and their customers. For example, traffic on the corridor includes movement of goods to and from distribution warehouses, an activity that is sensitive to delays and unpredictable travel times. Traffic delays increase the costs of doing business in the corridor, and affect the region's competitiveness. The other benefit is improved mobility for people in the corridor, since truck traffic contributes to highway congestion. If a portion of truck traffic is diverted to rail, or if the movement of trucks is improved in some way, reduced congestion and possible decreased travel time for highway users would result.

7.2 Alternatives to Improve Freight Movement

Enhance Rail Freight System

This could include the diversion of existing through freight movements to rail, as well as taking steps that result in additional movement of freight by rail in the future. It is not realistic to divert local truck traffic to rail, because of rail's inefficiency in serving short distances. However, it is reasonable and desirable to consider and encourage movement of through-freight by rail rather than over I-75 and other highways. This would, of course, require the consideration of a much larger geographic area than the corridor as currently defined.

An example of this approach exists in the I-95 corridor in the northeastern states. The I-95 Corridor Coalition is a regional partnership of major public and private transportation agencies, toll authorities and industry associations serving the northeastern portion of the United States from Maine to Virginia. The Coalition began in the early 1990's as an informal group of transportation professionals working together to reduce the operational and institutional barriers to coordinated management of highway incidents such as accidents. Its initiatives have expanded to include the identification of transportation solutions across boundaries involving all modes.

The Mid-Atlantic Rail Operations Study is one result of the initiative. The study is the joint product of five states (Delaware, Maryland, New Jersey, Pennsylvania, and Virginia), the I-95 Corridor Coalition (representing these five states and eight others in the Northeast Corridor), and three railroads (Amtrak, CSX, and Norfolk Southern). The study examines the deteriorating performance of the Mid-Atlantic's highway, aviation, and rail systems, with special emphasis on the region's rail system. The study identifies alternatives and opportunities to better utilize the region's existing rail assets; formulates a program of system-wide rail investments in all five states; and recommends a public-private partnership to fund and implement the improvements.

Some of the key findings to date as reported by the study include:

- The Mid-Atlantic rail system is constrained by significant choke points that must be eased if the region's increasing demands for passenger and freight movements are to be met. A program of 71 infrastructure and information system improvements must be implemented across the five states and the District of Columbia over the next 20 years to relieve these choke points. The estimated cost of these improvements is \$6.2 billion dollars, which neither the railroads nor the states can afford entirely on their own.
- These rail improvements serve a public purpose by helping to relieve the pressure on the region's highway system and meeting the region's social, economic, and quality-of-life needs. It is in the public interest for all levels of government – federal, state, regional, and local – to work cooperatively with the railroads.
- The Mid-Atlantic region is an integral part of the larger Coalition region. Rail issues in the Mid-Atlantic region directly affect additional other adjacent states. A comparable assessment of rail issues and needs in these other areas should be undertaken.

It is likely that a similar analysis of the North-South Transportation Initiative Corridor would result in similar findings and opportunities. The Mid-Atlantic initiative is not the only example of public-private initiatives to improve the movement of freight by rail. Others that have been implemented include: the mega-project that provided a new rail link to the Ports of Los Angeles and Long Beach; rail bypasses in Littleton, CO and Lafayette, IN; and bridge projects in Kansas City and even in Cincinnati, where public transportation funds were used to assist with the construction of a third main track for NS north of Queensgate yard in the mid-1990's. This additional main track not only improved rail traffic flow but also improved the roadway network by replacing outmoded structures that had limited vertical clearance and caused roadway congestion.

A regional (or multi-state) public-private initiative to improve intermodal service on or parallel to I-75 might be envisioned to reach into adjacent states or even as far as Detroit, Atlanta, or beyond. Objectives could include the development of additional and/or enhanced truck-competitive rail service, removal of system bottlenecks, and addressing the adequacy of intermodal facilities.

Public actions to improve or expand the movement of freight by intermodal cannot succeed without the active participation of private industry. The decisions involved must ultimately be a private business decision, based on economics, because of the changing nature of freight transportation and the changing nature of the national and global economy itself. On the other hand, if private industry sees a profit in developing or enhancing intermodal traffic flow through the North-South Transportation Initiative Corridor (and beyond on I-75), government participation can spur the project.

It must also be recognized that stakeholder goals and enthusiasm for such a process will differ, there will be concerns about release of proprietary information, and competitive pressures will affect the effort and may restrict the ability to proceed.

It is also cautioned that even rail intermodal movements require the use of the local roadway network for delivery to the ultimate destination, and planning for this must be incorporated into the effort.

Develop New Intermodal Terminal

CSX's Queensgate and Norfolk Southern's Gest St. intermodal yards are confined and restricted by urbanization in the Mill Creek valley, making expansion difficult. Consideration of the development of an intermodal yard(s) outside the highly urbanized parts of the study area, with the capability of handling future growth in a less restricted environment, may be warranted.



Two examples of such facilities are located in the Chicago region. Late in 2002, the Burlington Northern Santa Fe Railway opened a new intermodal facility near Joliet IL, about 48 miles southwest of Chicago. Including an auto loading facility, it is 380 acres in size and can handle about 30,000 container "lifts" per month. The Union Pacific Railroad is opening a similar major facility in Rochelle IL, 75 miles west of the city core. This facility will be more than 300 acres in size (not including related development) and is also projected to handle 30,000 lifts per month or more. These large state-of-the-art facilities are located far from urban centers for several reasons, including: the ability to avoid rail congestion caused by rail/rail and rail/highway crossings and other restrictions in

urban areas; resistance from local residents in populated areas; concern about truck traffic on city streets and highways; and the ability to provide space for industrial development.

It must be re-emphasized that the process of considering a new intermodal facility requires a very strong working relationship with the involved freight railroad(s), and the initiative must help achieve their internal financial and operational goals. Federal funding has been used to construct at least one freight intermodal terminal (near Canton, Ohio) which has not lived up to expectations because of poor planning and insufficient major railroad "buy-in". The location selected for the facility did not permit train operations that were conducive to the flow of intermodal traffic through the area. As a result, intermodal traffic volumes were very low and rail service was very limited.

The evaluation of this new terminal alternative must also include consideration of whether the development of an intermodal facility would divert trucks from using I-75, or whether the new site (or sites) would exacerbate the problem of truck congestion on I-75 by generating additional traffic.

Other Policies

Other actions and programs could be considered, including some sort of government assistance to shippers that meet certain criteria and who agree to switch from truck to rail,

7.3 Recommendations

perhaps in the same way that some states currently fund construction of rail sidings and loading/unloading facilities for firms that relocate into the state.

It is recommended that the region consider developing and participating in a coalition of involved parties including freight railroads and adjacent states to further the maintenance and development of the region's major freight transportation corridors. This complements recommendations contained in ODOT's June 2002 study "Freight Impacts on Ohio's Roadway System", which recommends that freight should be considered explicitly in planning and programming transportation improvements, with specific attention given to retaining and expanding rail freight service within Ohio.

The benefit of the implementation of this recommendation is that a process would be established to permit involved parties to communicate, coordinate, and consider jointly leverage efforts and resources to permit the region to maintain or improve its competitiveness.