

10. Summary, Conclusions and Next Steps

The Ohio and Lake Erie Regional Rail - Ohio Hub Study has identified the costs associated with, and the benefits to be derived from the construction and operation of the proposed intercity/interstate passenger rail system. The study has defined the market for passenger rail service, developed service characteristics, train operating plans and costs, and train schedules, and identified the corridor capacity improvements along with the estimated capital costs. Furthermore, the Midwest Regional Rail System is integrated into the implementation plan for a full build-out of the interstate system. The study uses the suggested project phasing as the basis for the analysis of the economic feasibility as well as the analysis of the financing needs and preliminary financing plan. Finally, there was an evaluation of the institutional arrangements needed to guide the planning, implementation and operation of the Ohio Hub System.

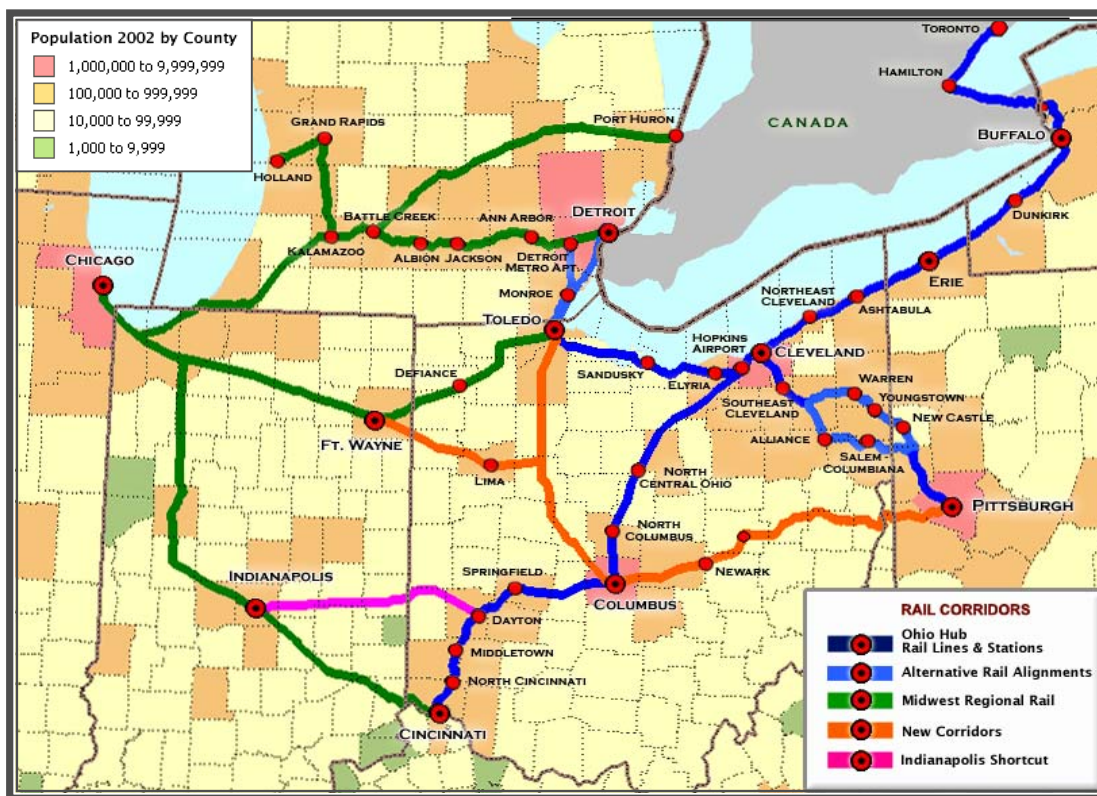
One of the primary system planning goals is to create a national passenger rail network by linking the Ohio Hub to other regional rail corridors. The Ohio Hub study has confirmed that an interconnected national passenger rail network will create economies of scale that will increase regional ridership and revenue and reduce overall system operating costs. While the Ohio Hub provides connections to the east at Pittsburgh, Buffalo, and Toronto, it is also very closely tied to Chicago and the Midwest Regional Rail System.

The updated 2007 Ohio Hub Study advanced an integrated systems planning approach, where the three eastern MWRRS routes are directly incorporated into the Ohio Hub ridership and financial forecasting models. The layered networks allow an assessment of connecting revenues and the overall financial viability of the Ohio Hub system, and served as input to the implementation plan. The three-layered network structure provided a comprehensive analysis of the potential intercity/interstate corridors in the region and clusters them into logical sub networks as follows:

- Layer One: MWRRS Eastern Routes:
 - Chicago to Michigan (all routes)
 - Chicago to Toledo and Cleveland
 - Chicago to Indianapolis and Cincinnati
- Layer Two: Ohio Hub Four Corridor Route System
 - Cleveland to Columbus, Dayton and Cincinnati
 - Cleveland to Toledo and Detroit
 - Cleveland to Pittsburgh
 - Cleveland to Buffalo and Toronto
- Layer Three: Ohio Hub Incremental Corridor Additions
 - Columbus to Lima, Fort Wayne and Chicago
 - Columbus to Pittsburgh
 - Columbus to Toledo and Detroit

Exhibit 10-1 shows the envisioned fully-built out MWRRS and Ohio Hub networks, overlaid on a population density map of the Upper Midwest region. The original four-route Ohio Hub System, in blue, was presented in the 2004 Study and encompassed approximately 860 route miles covering four states and one Canadian province. The updated Ohio Hub Study enhances the system by adding the three “incremental corridors” which are in orange or approximately 410 route miles, bringing the total size of the proposed Ohio Hub system to approximately 1,244 route miles, not including the connecting MWRRS corridors. The total system miles for all three layers, not including the shortcut, is 2,326-miles.

Exhibit 10-1: MWRRS and Ohio Hub Rail Systems with Incremental Corridors Added



By incorporating new technology and improving transportation inter-connectivity, the Ohio Hub service characteristics are identical to those proposed for MWRRS, with average train speeds comparable to that of Amtrak’s Northeast Corridor. As a stand-alone system, the Ohio Hub System would serve a broad market of nearly 22 million people in the Ohio and Lake Erie region. The total travel market population served by the MWRRS eastern corridors and Ohio Hub System is estimated at 33 million.

The phasing of Ohio Hub corridor development was based on the prospect of ridership and projected farebox revenue. The implementation plan that was developed for the original four-route system has been enhanced, by interweaving the new incremental corridors as well as explicitly coordinating the timing of Ohio Hub corridor implementation with the MWRRS plan.

10.1 Study Conclusions and Key Findings

On the basis of the *Commercial Feasibility* criteria that has been established by the FRA, all of the proposed Ohio Hub sub-networks are viable. Financially, the three eastern MWRRS routes, along with the 3-C and Chicago-Columbus corridors are the strongest performers; after this, more Ohio Hub routes can be added and network interconnectivity results in a multiplier effect on revenue, ridership, consumer surplus and external mode benefits. The connecting ridership effect helps maintain high operating and cost benefits ratios as the network is expanded.

In terms of the options that were evaluated in the earlier 2004 plan, it was shown that Option 1 using Detroit Metro Airport and Youngstown was the route combination that produced the best financial result. For this reason only Option 1 was carried forward into the 2007 incremental corridors plan. In terms of technology, 110-mph options are far superior to any of the 79-mph options both in operating performance and cost-benefit results. While the original 2004 analysis suggested that some 79-mph routes may be viable as feeders to a 110-mph MWRRS system, in fact the Ohio routes are all economically strong enough to justify upgrading to 110-mph except where physical constraints such as curvature or urban restrictions prevent this speed increase. 110-mph service would boost ridership on average of 50%, double revenues and could enable the Ohio Hub to be viable as a stand-alone system. A 110-mph upgrade more than doubles consumer surplus and environmental benefits without proportionately raising capital or operating cost. Therefore, 110-mph produces much higher cost benefit ratios than a 79-mph option.

This study has found that a 110-mph Ohio Hub system could meet the FRA *Commercial Feasibility* criteria and could even be developed separately from the MWRRS system, although clearly the results would be better if the two systems were developed together. For this reason 110-mph Option 1 (Detroit Metro Airport plus Youngstown) was taken forward for development of a detailed implementation plan for the Ohio incremental corridors system.

The following are the key findings of this Study:

- Consistent with previous studies, this business plan update has recognized the importance of Chicago access and has assumed connectivity to the three proposed MWRRS eastern corridors. The financial modeling work has shown that these three corridors would be operationally viable on a stand alone basis if necessary independent of the MWRRS system, and that their implementation would develop a solid system of core routes that could be extended by the Ohio Hub system.
- However, since MWRRS development requires the cooperation of a number of States and is dependent upon the progress of the South-of-the-Lake improvement through the CREATE project, some preliminary financial assessments were developed in support of implementation planning. These assessments have suggested that a stand-alone Ohio Hub network, based on either a Cleveland or Columbus hub, would be economically and financially viable. At present, it appears that a Columbus hub network may be easier and less expensive to develop. A Cleveland hub would generate higher ridership and stronger operating performance, but would be more difficult to develop because the rail lines it would rely upon for access to Cleveland are all very heavily used by freight trains.

- The 3-C corridor lies entirely within Ohio's borders and is financially the strongest corridor. Therefore, 3-C development is Ohio's obvious first priority. Beyond this, financial modeling shows that there is a lot of flexibility for determining which corridors should be added next. The corridors can be added in a different order than was assumed in Chapter 8 while still producing positive operating results. It is suggested that the actual prioritization of corridor extensions beyond 3-C be based on partnership potential with adjoining states, and on the level of cooperation that can be developed with the host freight railroads. It is recommended that ORDC begin to engage the neighboring states as well as freight railroads with the results of this expanded study, to determine which corridor(s) will actually be developed next.
- The Ohio & Lake Erie Regional Rail – Ohio Hub System will increase the regional transportation system capacity by improving the railroads for both passenger and freight trains. The capital investments suggested in the Ohio Hub plan will help remove impediments and improve the fluidity of railroad operations. The nation's privately owned freight railroads are a vital part of the transportation system and the Ohio Hub capital investments will help ensure that the railroads continue to serve commerce and economic growth.
- The Ohio & Lake Erie Regional Rail – Ohio Hub System is an appropriate extension of the nation's future passenger rail system. The Ohio Hub should be federally designated as part of the national passenger rail network.
- The Ohio Hub rail investments will improve highway/railroad crossing safety. The original four-route Ohio Hub system would invest \$236 million in highway/railroad grade crossing safety improvements. Incremental corridors would add \$154 million to this total, bringing the Ohio Hub investment in crossings to \$390 million, not including investment that would be made on the MWRRS routes. This would expand upon ODOT's ongoing \$200 million Grade Separation Program, and obviously would greatly expand on ORDC's annual \$15 million investment in highway crossing improvements.

10.2 Challenges

The proposed Ohio Hub System will encounter a series of challenges as the project proceeds through the planning and implementation stages. These challenges include:

10.2.1 Public Funding

Securing federal funding requires the states to form a strong coalition to advocate for funding to the U.S. Department of Transportation and its agencies as well as the U.S. Congress, particularly to obtain the 80/20 federal match assumed in the Financial Analysis. A grassroots effort to promote the project to the state leadership, local communities, businesses, Congress and other interested groups will need to be undertaken to gain funding support.

10.2.2 Long-term Debt

The issuance of long-term debt requires advance financial planning by each state and significant coordination among the states. Modifications to state laws and debt ceilings might be required by some states' legislatures. Additionally, some states might not possess the expressed authority to issue bonds for transportation purposes. Consequently, appropriate actions would need to be taken by these states to obtain this authority or identify an alternative financing strategy.

10.2.3 Freight Railroads

A critical component of the Ohio Hub implementation is the use of freight railroad tracks and rights-of-way for passenger services. While Amtrak has the right to operate on lines owned by the freight railroads, capital investment in, and operation of, the Ohio Hub System must be carefully integrated with the needs of the railroads to secure their cooperation and support for the project.

A key element in this study has been a review and discussion of the freight railroads' needs with respect to infrastructure. As a result of these reviews and discussions, this Study incorporated the suggested 28-foot track separation requirement for passenger rail operation exceeding 90-mph service on heavily-used freight corridors. Further details must still be coordinated with the freight railroads to ensure sufficient capacity for existing and future freight and passenger rail service needs. The funding for the improvements needed to meet the safety standards for the passenger rail service has been incorporated in the capital cost estimates for the Ohio Hub System.

The Ohio Hub Study has attempted to resolve the issues related to the costs for track maintenance and fees for access to railroad tracks and rights-of-way. The FRA funded an in-depth analysis of potential track maintenance costs associated with high-speed rail operations and these results have been added to the operating cost estimates in this study. The study also identifies and provides a capital cost placeholder for potential land costs associated with access to tracks and rights-of-way.

10.3 Suggested Next Steps

Concurrent with continuing efforts to broaden and strengthen support for the Ohio Hub System from local, state and federal stakeholders, the business community and citizens, there is a need to advance the technical planning for the proposed system, refine the financing plan and strategies and develop institutional arrangements related to the Ohio Hub System. Additionally, it is important to secure federal/state funds for required environmental reviews and railroad coordination, preliminary engineering and design, project construction and finalizing operating plans and system implementation. Moreover, the development of innovative marketing programs will further enhance the case for the Ohio Hub System and contribute to the system's long-term success. To summarize, the short-term actions that the participating states need to take include:

- Continue coordination with the railroads;
- Obtain plan endorsement by the affected local governments;
- Obtain plan endorsement by the states and the federal government;
- Build grassroots support for the project by holding citizen participation and outreach meetings; and
- Secure federal/state/local funds for advanced project planning, development and engineering.

10.3.1 Ohio Hub Programmatic Environmental Impact Statement

The next step in project development involves the advancement of a Programmatic Environmental Impact Statement (PEIS) or a Tier 1 environmental review of the Ohio Hub rail corridors. As a result of the Ohio Hub Study, the Ohio Rail Development Commission recognizes that complex environmental, location, design, and technical issues that must be resolved before the project qualifies for potential federal funds for capital investment.

Rail system planning issues may be addressed as part of the environmental reviews and project development process under the National Environmental Policy Act (NEPA) process. Rail corridor planning and conceptual engineering, including the selection of final routes, the resolution of railroad capacity improvements, the delineation of a final implementation plan, and the decision to “build” or “don’t build” will be addressed during a NEPA Tier 1 and PEIS planning and environmental review process.

While the Federal Railroad Administration has suggested that the Tier 1 PEIS be advanced to satisfy the requirements under NEPA, this could follow many of the project development steps outlined by the Ohio Department of Transportation. The intent would be to advance the Ohio Hub using a process that is similar to the Ohio Department of Transportation’s 14-step project development process.

10.3.2 Analysis of Alternative Ohio Hub Routes under a Tier 1 PEIS

While the current Ohio Hub Study evaluated alternative options for Cleveland-Detroit and Cleveland-Pittsburgh corridors, other options should be examined to optimize the benefits of the Ohio Hub System. The advantage of advancing the PEIS process is that it will lead to a formal “Record of Decision” that is a key requirement for obtaining federal funding. Exhibits 10-2 through 10-5 show a variety of potential route and network options that are available to both passenger and freight traffic in the Ohio region.

Exhibit 10-2: Ohio Hub Network Using only NS Lines



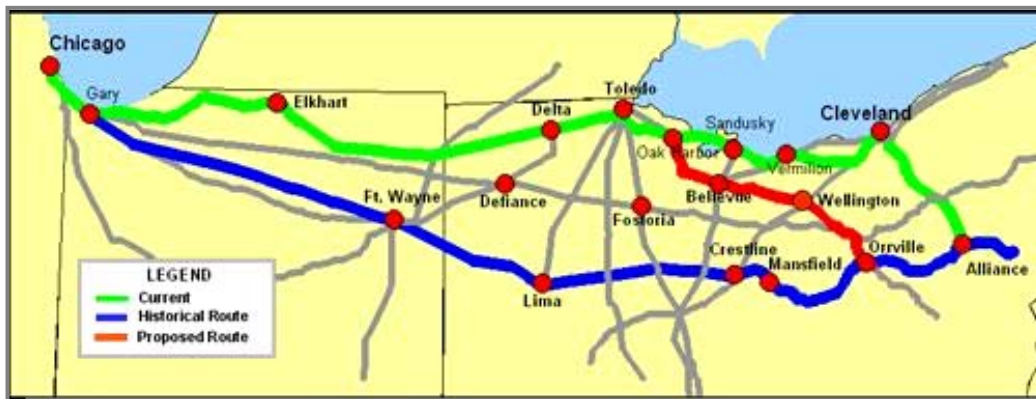
Exhibit 10-3: Ohio Hub Network Using only CSX Lines



Exhibit 10-4: Columbus-Cleveland-Pittsburgh “Triangle”



Exhibit 10-5: Potential Orrville-Bellevue Freight Re-route



10.3.3 List of Other Areas Requiring Analysis

During the course of the Ohio Hub study, a variety of potential route options and freight rail capacity improvement projects were identified. All of these will need to be examined in more detail as part of the Ohio Hub PEIS. An initial list of route alternatives and capacity improvement projects are identified below. The following list is expected to expand as the Ohio Hub PEIS is initiated.

- Cleveland-Columbus-Dayton-Cincinnati: While the 3-C corridor has already been federally designated as one of the nation's high-speed passenger rail corridors, further analysis on route alternatives should be conducted.
 - Alternative routes through the City of Hamilton between Cincinnati and Dayton: If the CSX Indianapolis to Hamilton rail line were used to provide an Indianapolis to Columbus connection as envisioned by the parametric analysis, the 3-C corridor would probably need to use the CSX rail line through Hamilton rather than the parallel NS route through Sharonville. Adding a stop on the 3-C corridor at Hamilton may slightly lengthen the train schedules but would add a strong intermediate traffic generator, which may prove beneficial to 3-C ridership in any case. However, there is substantial freight traffic congestion today on the shared CSX/NS rail line through downtown Hamilton. To make passenger rail service to Hamilton feasible, an effective strategy would have to be developed to mitigate this congestion.
 - Mill Creek Valley Railroad Capacity: Further study of the possibility of entering Cincinnati from the east to avoid the need to operate passenger trains through the congested Mill Creek Valley.
 - 3-C Corridor Capital Costs and Railroad Specifications: As a result of railroad input into the Ohio Hub study, freight railroad authorities specifically suggested the 28-foot track separation for passenger rail services exceeding 90-mph. Since the infrastructure cost assessment for the Cleveland-Columbus-Cincinnati corridor under this specification has not been conducted, the infrastructure cost for this corridor should be re-evaluated. Freight traffic is lighter from Galion to Dayton, so with sufficient capacity improvements to either the 3-C corridor or parallel freight lines, new dedicated passenger track may not be needed everywhere.

- Cleveland-Columbus: There are two alternative routes between Cleveland and Columbus that require some additional study:
 - Columbus-Delaware-Marion-Bucyrus-Chatfield-Greenwich, and
 - Columbus-Coshocton-Brewster-Canton-Akron-Cleveland.
 - The Canton-Akron-Cleveland alignment is part of a possible Columbus-Cleveland-Pittsburgh “triangle” as shown in Exhibit 10-3.
- Cleveland-Pittsburgh: For the Cleveland-Pittsburgh corridor, additional analysis of the following potential routes and route segments is needed:
 - The direct Erie railroad alignment from Cleveland-Warren, including the Randall Secondary and portions of the abandoned corridor between Mantua, OH and Leavittsburg, OH;
 - A new cross-country connection between Mantua and the Norfolk Southern Freedom Secondary;
 - Using the W&LE from Cleveland to Earlville would reduce the need for extensive double-tracking on the Cleveland to Ravenna segment;
 - The Ohio Central-owned portion of the Erie line between Warren and Niles;
 - The old Lake Erie and Eastern railroad corridor through the Youngstown area;
 - The CSX alignment from Akron-Youngstown that was considered in earlier studies conducted by the Ohio Rail Development Commission.
- Cleveland-Buffalo: The CSX railroad corridor between Cleveland and Buffalo is heavily used. As a result of the Ohio Hub study, it was found that the parallel Norfolk Southern route offers a potential alternative that should be evaluated as part of the next steps in project development. In addition, the need for upgrading and maintaining only one track on the NS alignment as opposed to two tracks on the CSX alignment mitigates in favor of conducting a detailed evaluation of the NS alignment.
 - Niagara Falls Border Crossing: The scope of this study did not allow for the development of a detailed concept of the border crossing at Niagara Falls. There are two existing border crossings, separated by only 500-600 feet on either side of the river, one in the U.S. and one in Canada. This frequently causes a travel time delay of one or more hours. Thus, the next phase of the Ohio Hub study should address this issue and evaluate various issues and opportunities at the border crossing. The concept of one border crossing facility in Niagara Falls should be further explored by working with US Border Guard and US Customs to determine what options may be possible. Another possibility may be to establish US Homeland Security clearance points at VIA’s Toronto and Hamilton, Ontario stations. Then it may be possible to “pre-clear” US-bound passengers before boarding the train, eliminating the need to stop the train at the border.
 - In addition to Niagara Falls, the development of an additional international gateway by extending VIA Rail service to downtown Detroit is also suggested. In addition, the development of a new rail service from Detroit to Flint, Saginaw and Bay City, Michigan would be a good fit with the proposed Ohio Hub Detroit-Cleveland and Detroit-Columbus corridors.

- **Columbus-Pittsburgh:** For the Columbus to Pittsburgh corridor via the Panhandle, the feasibility of using all or a portion of the W&LE alignment between Bowerston, OH and Bridgeville, PA should be evaluated. Using W&LE over this segment would avoid the need to replace the abandoned segment of the Panhandle east of Steubenville. It is also recommended as part of this study to evaluate the feasibility of clearing the Columbus to Pittsburgh line via the Panhandle for double-stack freight trains, possibly for establishing a direct link from New York's on-dock Expressrail container terminals to the new Rickenbacker logistics park now under development in Columbus.
- **Columbus-Indianapolis:** Based on the positive results of the parametric analysis that was performed for Indiana DOT, further study of the feasibility of re-establishing a direct rail link between Columbus and Indianapolis is recommended. Study of an additional corridor that would connect Louisville, Indianapolis, Fort Wayne, Toledo and Detroit is also recommended in the context of an Indiana State Rail Plan.
- **Cincinnati-Toledo:** A direct Cincinnati-Toledo passenger service is suggested for future study. This service could be developed by using the I&O Railway from Springfield to Bellefontaine; then constructing a dedicated track parallel to the CSX main line from Bellefontaine to Ridgeway, finally using the CSX Scottslawn subdivision from Ridgeway to Toledo. Optionally, NS Cincinnati freight trains could also obtain trackage rights over CSX from Marion to Bellefontaine to use this same route for bypassing terminal congestion in downtown Columbus.
- **Orrville Freight Rail Reroute:** An evaluation of the feasibility of re-routing heavy through freight traffic away from the Cleveland area should be conducted. Particularly, an Orrville freight reroute option would facilitate Ohio Hub plans by diverting heavy NS freight away from corridors that are envisioned for upgrading for passenger rail use. Additionally, the diversion of freight trains off the Alliance to Cleveland segment via Orrville and Bellevue may improve the feasibility of using the NS Cleveland Line via Alliance for passenger service. The Orrville freight reroute is illustrated in Exhibit 10-4.
- **Line Capacity and Simulation:** Detailed line capacity simulation work is needed to confirm the infrastructure requirements and capital cost estimates. To date, as part of the MWRRRI Study, a preliminary line capacity analysis was completed only for the Cleveland-Toledo segment, but this analysis did not include the additional train frequencies operated as part of the Ohio Hub system.
- **Potential Joint Development with Commuter Rail Projects:** In addition to business and leisure travelers, the study found that the Ohio Hub could also serve a significant number of commuters. The study examined the potential commuter rail market between Toledo and Detroit and found that 20 to 30 percent of the corridor ridership would include commuter traffic. A strategy for integrating Ohio Hub with proposed local public transportation services in Cleveland, Detroit, Columbus, Cincinnati and Pittsburgh should be developed.