

10.0 Ohio Passenger Rail

This chapter describes Ohio's current passenger rail efforts for new, improved and expanded passenger rail services in Ohio along with regional, multi-state plans for major investments in the development of an interstate passenger rail network. It includes sections on intercity passenger rail, high speed rail, and commuter rail. The scope of this chapter includes all systems that would be fully or partially regulated by the Federal Railroad Administration.

Thirty-eight years of conventional and high speed rail planning studies initiated by governors or legislators from both major political parties have explored responsible, cost effective ways to restore passenger train service to Ohio's largest cities. All studies have concluded that Ohio is one of the best candidates in the U.S. for developing a system of intercity passenger rail services. The state is densely populated, it has multiple metropolitan areas, and its major downtowns are a little over one hundred miles apart. Additionally, Amtrak's existing long-distance train service in the State is not designed to serve Ohio with frequent and reliable intercity passenger rail service. However, despite decades of studies and recommendations, the State of Ohio has failed to invest in developing passenger train service in the state. The 2002-2007 Ohio Hub Study was the most recent effort, which studied the feasibility of developing a 110 MPH system in seven corridors. The Ohio Hub Study concluded that developing a 110 MPH system would provide the best value for the State of Ohio beginning with the 3C corridor. While the corridor has undergone dramatic changes in the rail-line ownership and the loss of key rail routes such as direct links to Akron via Mansfield, the conclusions of the studies have not. Like all of the prior studies, the Ohio Hub identified the Cleveland-Columbus-Cincinnati or 3C corridor as the starting point because ***"In all network options, the 3C Corridor has the highest projected load factors on the largest trains with the greatest revenue potential."***

In order to meet the short-term, as well as the long-term passenger rail development goals, Ohio is advancing two parallel efforts: 1) the implementation of the Cleveland-Columbus-Dayton-Cincinnati (3C) "Quick Start" Service and 2) continuation of the planning for the *Ohio & Lake Erie Regional Rail – Ohio Hub System* and the proposed *Midwest Regional Rail Initiative (MWRRI)*. The 3C "Quick Start" Corridor Program is the first step in a long-range vision including system expansions and full realization of service benefits.

From the beginning of Ohio's high speed rail planning efforts, to the ongoing 3C "Quick Start" effort, ORDC and ODOT have included the owners and operators of the freight rail lines involved. Railroad representatives from NS, CSX, and Rail America have participated in and provided critical input into Ohio passenger rail planning and development efforts. Ohio's public/private partnership with the freight railroads is well established and "the table has been set" to negotiate and finalize the 3C "Quick Start" capital plan and the access and maintenance arrangements needed to initiate and operate the conventional passenger train service at speeds up to 79 mph on the shared track.

The recent \$400 million federal award to Ohio for the 3C project presents a unique opportunity to establish a viable passenger rail service in Ohio as well as position the state to qualify for future federal funding opportunities to both expand its passenger rail program. While all decisions about whether to initiate or improve service must be done in consultation with the host freight railroads and local officials and the approval of the General Assembly, developing passenger rail service incrementally over time is a proven model around the country.

In addition to the various passenger rail planning efforts of the state, ODOT has recently undertaken a new initiative called the "Go Ohio". This initiative will develop a strategic guide for ODOT to use in making transportation investment decisions with the goal enhancing economic development. Go Ohio will identify

policies affecting transportation in Ohio and recommend opportunities to fill gaps and streamline processes. The key elements of Go Ohio are to define a strategic multimodal transportation system in Ohio and develop options for a future investment strategy to fund improvements to the strategic system. Performance-based methods for prioritizing transportation investments will be established to address the needs identified on the strategic system. The final product will provide a comprehensive evaluation of the Ohio transportation system and policies and identify strategies for the future.

The development of Go Ohio is being guided by the vision of the 21st Century Transportation Priorities Task Force set forth in January 2009. The Go Ohio effort will involve a wide range of participants and decision-makers to ensure it achieves the task force's vision of a comprehensive, realistic, and actionable strategy that has buy-in among key stakeholders and the public.

10.1 Intercity Passenger Rail Service

This section addresses planning for a passenger rail system that would connect many of the urban areas within Ohio and also provide services to smaller on-line communities and connect to passenger rail systems in adjacent states. High speed rail systems are a subset of intercity rail passenger service, and planning for those systems will be covered in later sections. Similarly, commuter rail systems, which often operate over portions of the intercity network, generally address suburb to city corridors around major urban areas. These systems will also be covered in subsequent sections.

Since 1971, intercity rail passenger service in the United States has been operated by Amtrak. This quasi-public corporation has been charged with operating a skeletal network of intercity passenger rail lines that cross through Ohio and were described in more detail in **Chapter 9**. Amtrak is willing to operate new intercity rail services if the state provides sufficient capital funding for infrastructure and rolling stock as well as an operating subsidy to cover the difference between revenue and expenses. This concept has been successfully implemented in a number of states including California, Illinois, Michigan, New York, Virginia, and North Carolina.

Intercity passenger service generally operates over a combination of freight railroad tracks and sections of track owned by Amtrak or its state partners. In order to initiate and operate new services, a variety of things need to happen including agreements with the host/freight railroad owners and with the passenger rail operator; construction of infrastructure improvements, track and signal upgrades needed to operate the trains in an efficient and reliable manner; station improvements, intermodal connections; rolling stock sufficient to operate the schedule; maintenance and storage facilities for the trains; and administration including marketing, audit, and oversight.

Intercity train service within a state usually consists of a diesel locomotive, a number of passenger cars to match the demand, and some limited food service equipment or other compatible equipment such as Diesel Multiple Units or DMUs. Trains operate at track speed (usually 60 mph to 79 mph), with various speed limitations through congested areas. Tracks often have numerous highway grade crossings and at-grade railroad crossings. Frequency of service is sometimes limited by use of the tracks by freight railroads.

10.1.1 The Beginning of Passenger Rail Planning in Ohio

In 1975 the Ohio General Assembly created the Ohio Rail Transportation Authority, responsible for producing a statewide, long-range passenger rail plan. The legislature mandated two corridors for inclusion in the plan: 1) Cleveland-Akron-Columbus-Dayton-Cincinnati, and 2) Toledo-Cleveland-Youngstown. In 1977 ORTA released the Phase 1 Ohio High Speed Intercity Rail Passenger Plan, which focused on rehabilitating Ohio's existing railroad

infrastructure to reinstitute modern passenger rail service. It considered four train-speed improvements, with maximum speeds of 60 mph, 80 mph, 110 mph, and 150 mph. The 110-mph option was described in detail, but it was not formally recommended. However, ORTA recognized the advantages of implementing “the use of conventional diesel trains in the initial implementation of the Ohio System” because conventional equipment could be operated at higher speeds, up to 90- and 110-mph, and conventional service could be implemented quickly by the target date of 1985.

The final routes that comprised the 1977 plan included: 1) Cleveland to Cincinnati via Akron, (through Barberton, Rittman, Creston, and Ashland) with intermediate stops in Mansfield, Columbus, Springfield, Dayton, and Middletown; 2) Toledo via Elyria to Cleveland, Akron and Youngstown; 3) Toledo to Columbus via Fostoria, Marion, and Delaware; and 4) three interstate extensions from Toledo to Detroit; Youngstown to Pittsburgh; and Cincinnati to Louisville. The study concluded that the Cleveland, Columbus, Cincinnati route via Akron would be the most heavily traveled route. The study also suggested that if the Cleveland-Columbus-Dayton-Cincinnati route, also known as the 3C route, were the only route in the system, the estimated ridership would be approximately 716,000 passengers annually in 1985.

10.1.2 High Speed Rail Planning History

Beginning in the late 1970’s, most of Ohio’s passenger rail efforts focused almost exclusively on high speed passenger rail development with speeds in excess of 150-mph. None of these studies resulted in projects advanced beyond the feasibility study phase. The challenge with all of these efforts was the high capital costs associated with dedicated passenger rail infrastructure. In 1979, the Midwest High Speed Rail compact was established to explore the potential for the development of a high speed rail system within the Great Lakes region and to encourage a cooperative and coordinated regional approach for planning and development activities. By 1984, the compact member states included Ohio, Michigan, Missouri, New York, Pennsylvania, Illinois, and Indiana. A technical committee published its first Regional Rail Passenger Development Program in 1989. The program identified potential corridors for the development of both conventional and high speed corridors as part of an interstate regional rail network.

In 1979, ORTA’s planning efforts began to shift to a 150-mph electrified state-of-the-art high speed railroad. Following an extensive public involvement program and a thorough review, a 600-mile system connecting 13 Ohio cities with future out-of-state connections was recommended by ORTA for implementation. The total estimated capital cost in 1982 dollars was approximately \$14 million per mile, for a total of \$8.2 billion. ORTA’s plan also suggested high speed rail would create new opportunities for economic growth and industrial expansion in the state. ORTA proposed the high speed rail system be financed through a one cent sales tax increase which appeared on the ballot in 1982. However, this ballot request was turned down.

Despite the defeat at the ballot and the subsequent break-up of ORTA, high speed rail remained an issue under discussion in Ohio. The potential for high speed rail within the Cleveland-Columbus-Dayton-Cincinnati Corridor held the interest of Governor Richard F. Celeste and the Ohio Legislature. In 1983, a High Speed Rail Task Force was created by the Ohio Legislature. The goal of this group would be to reexamine whether or not a high speed rail system could be built and operated as a joint public-private venture and to develop a financing plan that would minimize financial support from the state.

The task force focused on the construction of electrically powered trains designed to operate at a maximum speed of 170-mph. The trains would use dedicated track on exclusive right-of-way, grade separated along most of the route. The initial line would be the Cleveland-Columbus-Cincinnati corridor with intermediate stops in Mansfield and Dayton, as well as suburban stations in Columbus and Cincinnati. The inclusion of Akron on the 3C

corridor was dependent on whether or not the added capital, operating costs, and travel times could be offset by higher passenger and other revenues. Future expansion of the system would include a Youngstown-Akron-Cleveland-Toledo route, a Toledo-Lima-Dayton-Cincinnati route, and out-of-state connections to Detroit, Indianapolis, Pittsburgh, Chicago, and New York.

The task force concluded high speed rail was desirable and recommended that a state authority be created and equipped with all of the necessary powers for financing the construction and operation of the system. In response, legislation establishing the Ohio High Speed Rail Authority was signed into law by Governor Celeste in June 1986.

10.1.3 Creation of Ohio High Speed Rail Authority

The underlying goal of OHSRA was to develop a financing plan that would minimize the capital and operating support from the state while maximizing private investment. To this end, OHSRA began a process to bring the private sector into the project to help plan, finance, design, construct, and operate the service. In 1988 OHSRA issued a request for proposals, and the Ohio Railway Organization Inc. responded. ORO was a private sector partnership of individuals and companies who were willing to invest in the project. The members combined the technical, financial, and corporate resources of several of the world's most prestigious engineering and financial organizations who built their reputations on successful transportation development projects. ORO was promised the franchise, or the right to build and operate the rail system, if it met certain conditions. Therefore, it was at its own expense that ORO prepared a \$1.5 million action plan to implement high speed rail linking Cleveland, Columbus, and Cincinnati. Ultimately the state and ORO partnership struggled to secure funding to advance the project to Phase 2 – Pre-Construction. In 1994 the General Assembly disbanded OHSRA and transferred staff to the newly created Ohio Rail Development Commission.

10.1.4 Conventional Speed Passenger Rail Planning Efforts

In 1984, the ODOT Division of Rail pursued a parallel planning effort for conventional speed passenger rail service. ODOT asked Amtrak to investigate the condition of the Conrail-owned railroad lines between Cleveland, Columbus, Dayton, and Cincinnati and to evaluate the potential for running an Amtrak service. Amtrak produced an engineering assessment while ODOT staff performed field reviews, assessed station locations, and outlined the potential costs to initiate and operate conventional speed service on the 258-mile line.

By 1992, ODOT's conventional speed rail planning was still considered preliminary and did not sufficiently analyze the capital and operating requirements, or ridership and revenue estimates. Therefore, as part of development of the state's new transportation plan, Access Ohio, ODOT hired consultants to significantly advance the analysis. A variety of reports were prepared including "Initiation of Passenger Rail Service on the Cleveland-Columbus-Cincinnati". This study concluded that "the implementation of service posed no technical or operational obstacles assuming cooperation, coordinated analysis, and good-faith negotiating between the State of Ohio, Conrail, CSX, and Amtrak."

The Cleveland-Columbus (2C) Passenger Rail Project was initiated in the fall of 1998 as part of an effort to explore ways to mitigate traffic congestion and travel delay on Interstate 71 during the highway's 10-year reconstruction program. The primary objective was to investigate potential capital and operating costs associated with a two-year demonstration and to determine if conventional rail service could be initiated for no more than \$32 million in capital and \$3 million per year in operating support. However, the state was not able to meet this maximum threshold for capital requirements without risking the on-time performance and reliability of the passenger rail service. As a result, in May 2000 the state of Ohio announced it would not proceed with the implementation of the 2C passenger demonstration project.

10.1.5 The Midwest Regional Rail Initiative

Since its inception in 1996, Ohio has been a contributor to the Midwest Regional Rail Initiative; the other sponsoring Midwest states include Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Nebraska, and Wisconsin. Over the years the MWRRI has advanced from a series of individual corridor service concepts into a well defined, integrated vision to create a 21st Century regional passenger rail system. The system was envisioned as a hub-and-spoke passenger rail system providing service to and through Chicago to locations throughout the Midwest including two routes to Ohio cities: Chicago-Toledo-Cleveland and Chicago-Indianapolis-Cincinnati.

The master plan for the MWRRI became known as the Midwest Regional Rail System Plan. The plan encompasses a rail network of more than 3,000 route miles and serves a population of over 60 million people. The system would introduce modern train equipment operating at speeds up to 110 mph, and it would use existing railroad rights-of-way shared with existing freight services.

10.1.6 Ohio Corridors Receive Federal Designation

The Intermodal Surface Transportation Efficiency Act of 1991 established a special federal program to fund safety improvements at highway-rail grade crossings on corridors designated as high speed intercity passenger rail corridors based on their potential for future development. Seven of the 10 designated corridors were selected by the U.S. Secretary of Transportation. Designation involved an evaluation of projected ridership, public benefits, anticipated partnership participation of states, localities, and the freight railroads, and most importantly, the corridor's ability to achieve high speed train cruise speeds of at least 110 mph over much of the route.

By 1999 the preliminary MWRRI technical findings were complete, and both ORDC and the Indiana Department of Transportation prepared applications for federal high speed rail corridor designations for Chicago-Indianapolis-Cincinnati and the Chicago-Toledo-Cleveland. An updated 3C Corridor plan was also developed by ORDC and submitted to the FRA. All three corridors were able to meet the federal criteria, and the U.S. Department of Transportation awarded federal high speed rail corridor designations to the three lines. These federally designated high speed rail corridors were incorporated in 2009 into **Exhibit 10-1**. Additionally, the Governors of region formed the Midwest High-Speed Rail Steering Group to promote the various passenger rail plans in the Midwest.

Exhibit 10-1 Vision for High-Speed Rail in America



Source: Vision for High Speed Rail in America
US Department of Transportation/ Federal Railroad Administration, April 2009

10.1.7 Planning Studies and Reports

As a recap, the following reports were developed over the years as part of Ohio’s planning efforts for passenger rail.

- 1975 Rapid Rail Transit Between Cleveland, Columbus, and Cincinnati, Staff Research Report No. 119, Legislative Service Commission
- 1977 Ohio Rail Transportation Authority: Phase I Ohio High Speed Intercity Rail Passenger Plan (Statewide System Plan)
- 1980 Ohio Rail Transportation Authority : Phase II Ohio High Speed Intercity Rail Passenger Program (Statewide System)
- 1985 High Speed Rail Task Force Final Report (Statewide System)
- 1992 Ohio Railway Organization for the Ohio High Speed Rail Authority: Implementation Plan for High Speed Rail in Ohio (3C)
- 1995 Ohio Department of Transportation: Access Ohio: Element 4 Initiation of Passenger Rail Service between Cleveland-Columbus-Cincinnati (3C)
- 1995 Access Ohio: Element 4, Initiation of Passenger Rail Service on the Cleveland-Columbus-Cincinnati Corridor; Access Ohio Element 5, Initiation of Passenger Rail Service on the Cleveland-Pittsburgh Corridor; and, Access Ohio Element 7, Eight Corridor Passenger Rail Service Feasibility Study
- 2000 Ohio Rail Development Commission, Ohio Department of Transportation: Cleveland to Columbus Passenger Rail Initiative (2C)

- 2001 Ohio Rail Development Commission: Cleveland-Columbus-Cincinnati High Speed Rail Feasibility Study
- 2004 Ohio Rail Development Commission: Ohio & Lake Erie Regional Rail – Ohio Hub Study
- 2007 Ohio Rail Development Commission: Ohio & Lake Erie Regional Rail – Ohio Hub Study Update
- 2007 Ohio Rail Development Commission: Ohio Hub Economic Impact Study

10.2 3C Quick Start Service Development Program

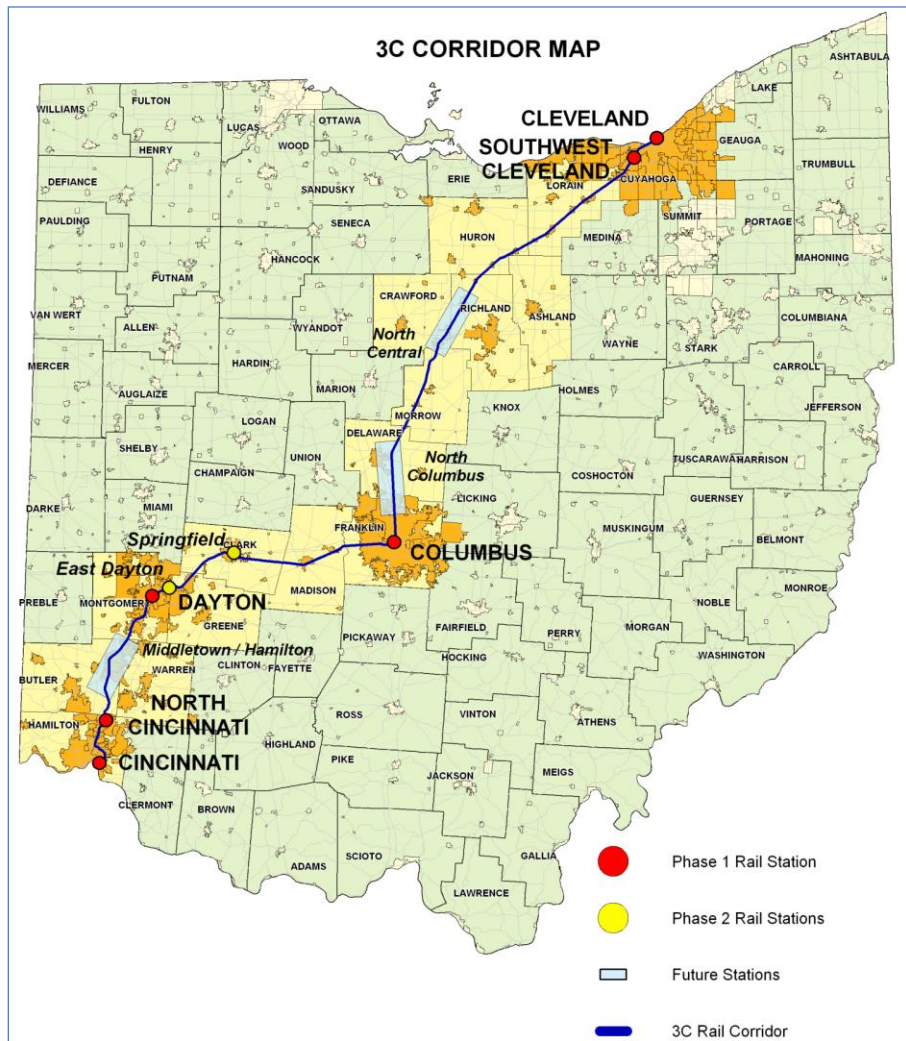
On January 28, 2010, the Federal Railroad Administration (FRA) announced that it had selected and reserved \$400 million in American Recovery and Reinvestment Act (ARRA) funds to help Ohio develop and implement passenger rail service in Ohio's Cleveland-Columbus-Dayton-Cincinnati corridor, (3C Quick Start Service). This Federal funding does not require a state/local match and would cover 100% of capital investments needed to implement the new service. This project will have independent utility as a 79 MPH conventional service. It will also provide a foundation for Ohio to follow the model proven to work in other states of incrementally developing the service over time.

Ohio's 3C "Quick Start" Corridor Program advances a strategy to restore passenger rail service to one of the most densely populated corridors without rail service in the U.S. Regularly scheduled passenger trains have not operated in this corridor since 1971. As passenger rail service improves and expands around the country, the 3C "Quick Start" Corridor Program will demonstrate that Ohio's travel markets are ripe for corridor development and that the State stands ready to introduce new service to the 6.8 million people living along this important corridor. The 3C Corridor Program is, as described, "quick" because the service can be initiated in the relatively fast timelines required for the ARRA funding that reinforces the "stimulus" opportunities that the High Speed Intercity Passenger Rail Program was intended to support.

The goals of the projects are:

- Ohio's near term 3C "Quick Start" Service strategy emphasizes making an early investment that will yield tangible benefits within the next few years.
- Ohio's "Quick Start" Service will create direct and indirect jobs related to the establishment of new service in Ohio.
- The development of the 3C "Quick Start" Service will cultivate the technical expertise necessary to design, build, operate, and maintain rail service in Ohio.
- The 3C "Quick Start" Service will improve mobility by providing another travel option that will begin to establish the Ohio rail market for further expansion.
- The 3C "Quick Start" Service Program is the first critical step toward realizing the ultimate vision of a national network of high speed trains connecting Ohio to Chicago, to the east coast, to Canada, and many other destinations throughout the Midwest.

Exhibit 10-2 3C Corridor



Source: Ohio High Speed Intercity Passenger Rail Application
3C "Quick Start" Corridor Program,
Route and Station Locations
October 2009

The 3C Corridor (EXHIBIT 10-2) is Ohio's priority passenger rail corridor. The size of the major cities and their proximity to each other along the line make this corridor an ideal candidate for intercity passenger rail service. As demonstrated by a long history of feasibility studies and market analysis, among all of the potential intercity passenger rail corridors serving Ohio the 3C Corridor shows the strongest potential to generate the ridership and produce the economic benefits necessary to justify the on-going project development efforts.

The public involvement for the 3C Quick Start Passenger Rail project was required as part of the Federal application process and led by ODOT and ORDC. Input was sought from all applicable state and federal agencies, railroads, local governments, transit agencies, local/regional/statewide interest groups, and the general public.

Outreach efforts for this project included stakeholder workshops and briefings, public meetings, community presentations, statewide radio and newspaper advertising, social media outreach, project web site, e-mail alerts,

toll-free telephone hotline, on-line public meetings, press releases, media interviews, mailings and postcard distributions, railroad coordination, and agency coordination among other efforts. In addition, it should be noted that other grassroots advocacy organizations, not involved as project sponsors, volunteered their resources to help spread the word about the 3C Quick Start Plan.

Specific issues and questions raised at each community will be reviewed at the onset of the upcoming environmental impact assessment report phase and study efforts will be focused accordingly.

10.3 High Speed Passenger Rail Service

High speed rail services planned for Ohio are described under two programs: the Ohio Hub Plan and the Midwest Regional Rail Initiative. The Ohio Hub Plan envisioned a Cleveland, Columbus, and Toledo-centric system

10.3.1 Midwest Regional Rail Initiative

The Midwest Regional Rail Initiative is a cooperative, multi-agency effort that began in 1996 and involves nine Midwest states (Indiana, Illinois, Iowa, Michigan, Minnesota, Missouri, Nebraska, Ohio, and Wisconsin) as well as the Federal Railroad Administration. The MWRRRI envisions a Chicago-centric system with lines connecting Cleveland and Toledo to Chicago, Columbus to Chicago, and Cincinnati to Chicago. See **Exhibit 10.3**, a map of the Midwest Regional Rail System. The system elements include:

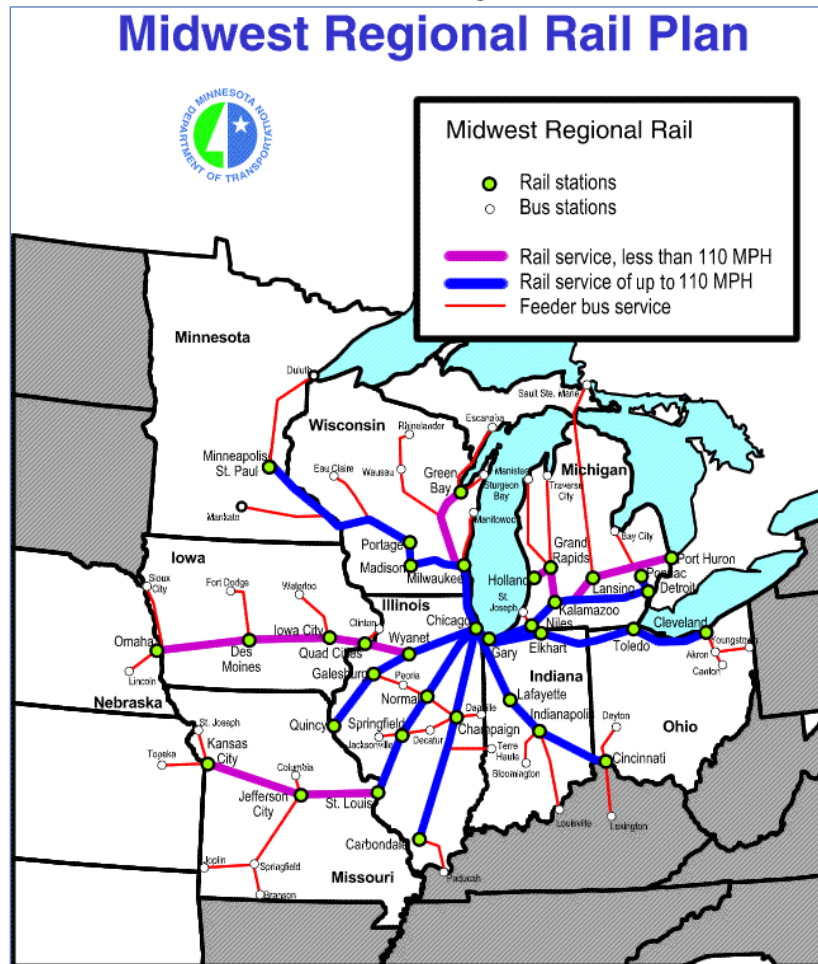
- Use of 3,000 miles of existing rail right-of-way to connect rural and urban areas
- Operation of a hub-and-spoke passenger rail system
- Introduction of modern, high speed trains operating at speeds up to 110 mph
- Provision of multimodal connections to improve system access

The goal of the initiative is to develop a passenger rail system that offers business and leisure travelers shorter travel times, additional train frequencies, and connections between urban centers and smaller communities.

The MWRRRI will provide a large increase in service and will cut travel time between destinations by 30 to 50 percent. In addition, new equipment with reduced maintenance requirements, an advanced train signaling and control system, and line capacity improvements will help to establish and sustain a high level of on-time performance.

Trains are expected to travel at speeds up to 110 mph on the primary routes, and 80 to 90 mph on secondary lines. Existing trains run at speeds of about 55 to 79 mph. Raising passenger train speeds can significantly reduce trip times. A trip between [Milwaukee](#), WI, and Chicago could be reduced from about 90 minutes to just over an hour. The trip from Minneapolis/St. Paul, MN to Chicago could drop from 8 hours to 5.5 hours. Travelers between Chicago and [Cincinnati](#) could see the biggest travel time reductions, with four hour trip times.

Exhibit 10-3 Midwest Regional Rail Plan



Source: [Executive Report on the Midwestern Regional Rail System](#), February 2000

If implemented, planners forecast 9.3 million annual trips by the year 2025. The frequency of train trips could also be increased: areas that currently only see one train in each direction daily now could see four or six trips each way daily.

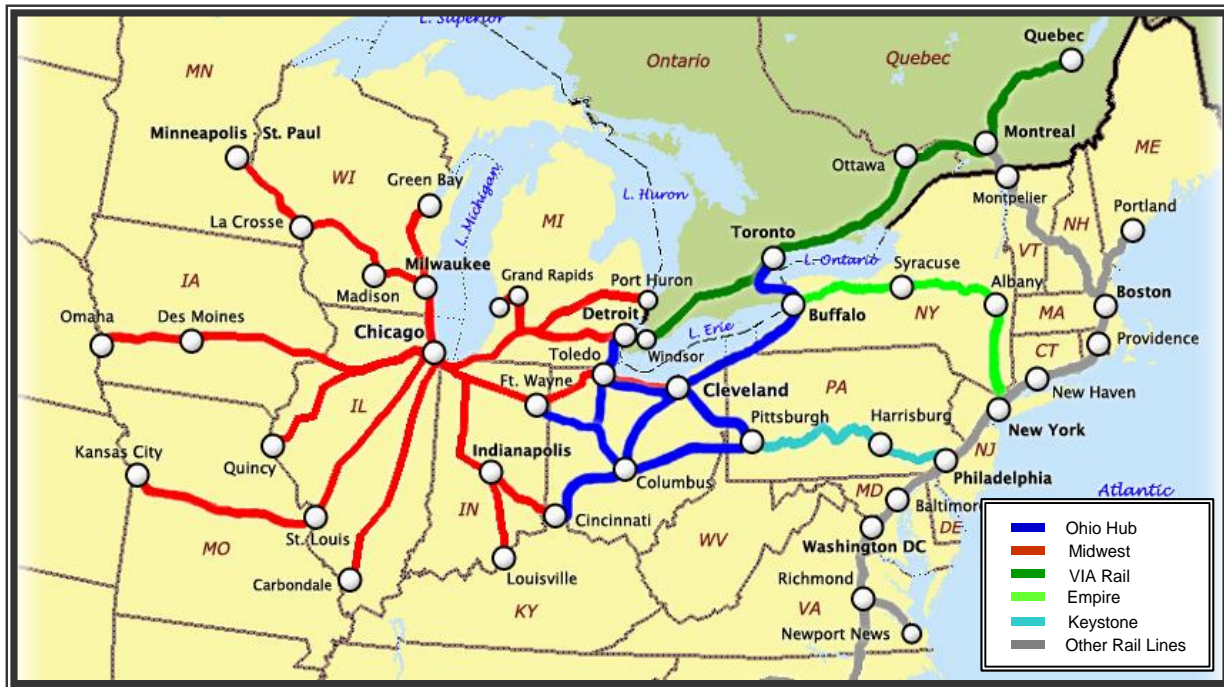
10.3.2 Ohio’s Long Term Vision for Passenger Rail – The Ohio Hub System

The Ohio & Lake Erie Regional Rail - Ohio Hub Study, provided the conceptual basis for Ohio’s long-term, Intercity Passenger Rail Service Development Plan. Initiated in 2002 and updated in 2007, the study culminated a multi-year effort to determine the financial and economic feasibility of developing an intercity/interstate passenger rail system serving all of the major metropolitan areas in the region while connecting to other developing rail corridors.

Ohio’s neighboring state departments of transportation partnered in the study and contributed to the analysis. Senior staff from the transportation agencies from Ohio, Indiana, Michigan, Pennsylvania and New York, as well as Amtrak, VIA Rail and the freight railroads, including NS, CSX and Canadian National (CN) railroads all provided critical input into the planning process.

The study examined the potential role that the Ohio Hub could play as part of an interconnected network of regional passenger rail services. As shown in **Exhibit 10-4** below, the envisioned regional rail system integrates the region’s air, highway and transit networks and interconnect with New York’s *Empire Service*, Pennsylvania’s *Keystone Service*, the Northeast Corridor, Canada’s *VIA Rail* as well as the MWRRS.

Exhibit 10-4 Regional Rail Corridors Connecting to the Ohio Hub System



The original Ohio Hub Study integrated the Midwest Regional Rail System (MWRRS) eastern routes into the feasibility analysis by combining the two systems. This Ohio Hub Study, published in October 2004, focused on four interconnected corridors serving a hub in Cleveland:

- Cleveland-Columbus-Dayton-Cincinnati
- Cleveland-Toledo-Detroit via the “preferred” route serving Detroit Metro Airport
- Cleveland-Pittsburgh via the “preferred” route serving Youngstown
- Cleveland-Erie-Buffalo-Niagara Falls-Toronto

An updated 2007 Ohio Hub Study carried the feasibility analysis forward by adding three additional or “incremental” corridors:

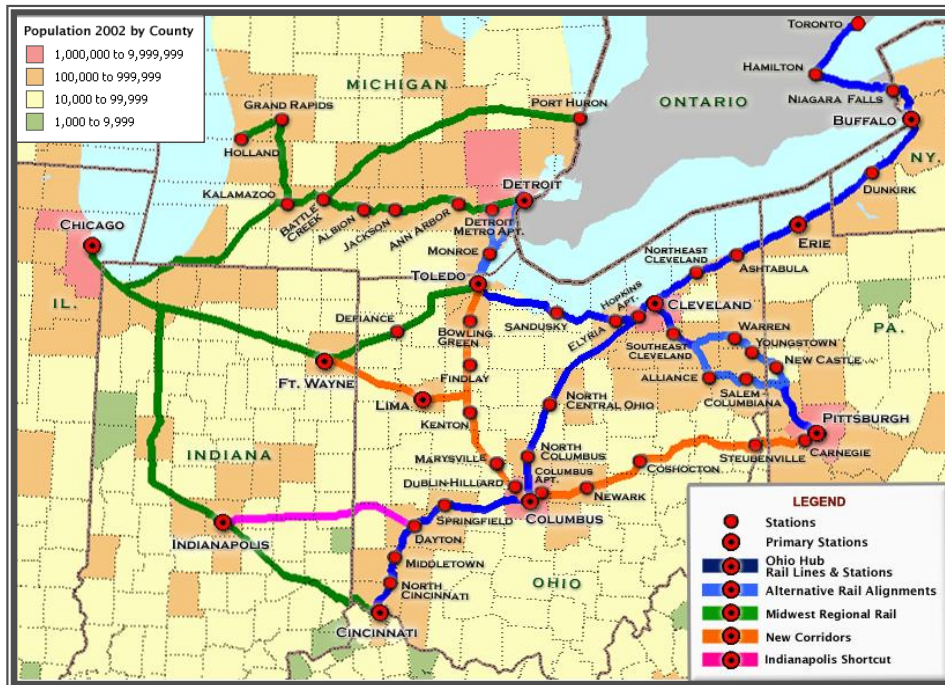
- Columbus-Pittsburgh via the “Panhandle” route
- Columbus-Toledo with through service continuing on to Detroit
- Columbus-Lima-Fort Wayne with through service continuing on to Chicago

The interconnecting eastern lines of MWRRS were also integrated into the updated 2007 study:

- Chicago-Toledo-Cleveland via the “preferred” route serving Fort Wayne
- Chicago-Indianapolis-Cincinnati
- Chicago-Michigan (Detroit)

Exhibit 10-5 shows the envisioned fully-built out MWRRS and Ohio Hub networks, overlaid on a population density map. The original Ohio Hub System, in blue, presented in the 2004 Study, encompassed 860 route miles. The updated Ohio Hub Study enhanced the system by adding the corridors in orange, another 410 route miles, bringing the total size of the proposed Ohio Hub System to approximately 1,244 route miles. The total system miles, including the connecting MWRRS eastern corridors, minus the Indianapolis shortcut illustrated below, is 2,326-miles.

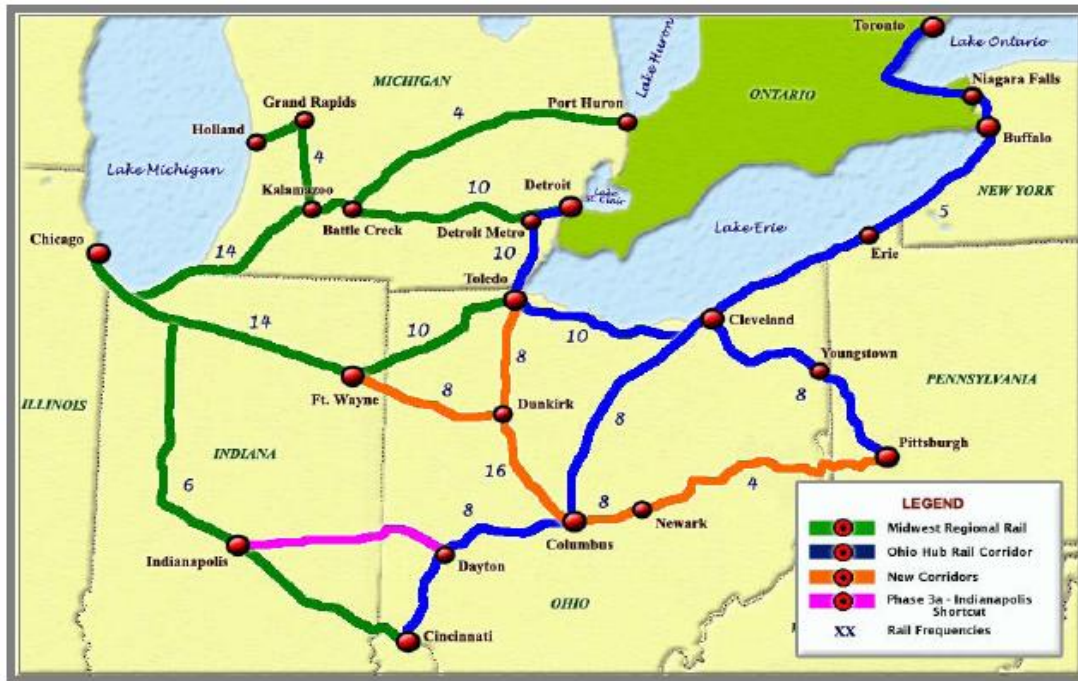
Exhibit 10-5 Ohio Hub plus MWRRS Eastern Routes



The Ohio Hub routes connect to cities in neighboring states to the east via existing Amtrak lines including New York’s Empire Service, Pennsylvania’s Keystone Service, the Northeast Corridor System, and Canada’s VIA Rail System; the 3,000-mile Midwest Regional Rail Initiative, also called the Midwest Regional Rail System, would connect cities as far west as Omaha and Kansas City. The proposed Ohio Hub daily passenger train frequencies are illustrated on the map in **Exhibit 10-6**.

The Ohio Hub study included an analysis of alternative routes on two of the corridors: two Cleveland-Pittsburgh routes were examined – one alternative via Alliance, the other via Youngstown. Two Cleveland-Toledo-Detroit routes were also analyzed – one runs via Wyandotte, Michigan, the other via Detroit Metro Airport. The study compared these routes and provided the estimated capital costs and ridership forecasts for each alternative. A primary result of the study was the finding that the Youngstown and Detroit Metro alternatives were the two routes that generated the best financial performance, so these were the preferred corridors that were advanced in the analysis. With respect to the evaluation of alternative routes, however, the Ohio Hub Study concluded that the final selection of the routes and stations would be decided as part of a Tier 1 NEPA document or a Programmatic Environmental Impact Statement.

Exhibit 10-6 Future Daily Train Frequencies within and outside Ohio



Source: The Ohio & Lake Erie Regional Rail Ohio Hub Study
Technical Memorandum & Business Plan, July 2007

The population from the metropolitan regions served by Ohio’s Cleveland-Columbus-Dayton-Cincinnati corridor serves just over 6.7 million, which is about 58 percent of Ohio’s total population. The larger Ohio Hub/MWRRRI system of routes illustrated in Exhibit 10-5 could serve a population of 33 million in six states and Southern Ontario, Canada. The Ohio Hub Plan, assuming a fully developed seven corridor system, estimated that by 2025 there will be roughly 9.3 million riders using the proposed rail network.

As part of the Ohio Hub Study, an engineering assessment was conducted on each of the route segments to determine the condition of the track and the ability to accommodate joint freight and passenger train operations. Different operating scenarios were examined which would allow 79 mph to 110mph passenger operating speeds. While representatives from the freight railroads participated in the Study, the Ohio Hub feasibility planning was advanced prior to resolving engineering details that would need to be negotiated and finalized with the freight railroad owners.

The Ohio Hub Study projected that the overall cost to develop the entire seven corridor Ohio Hub rail system would be approximately \$4 billion or about \$3.1 million per mile for a 79 mph system, and \$4.9 billion or \$3.8 million per mile for the 110 mph system¹¹. This estimate included the costs of required rail infrastructure upgrades, access costs to railroad property, passenger equipment purchases, and the cost of the shared Midwest Regional Rail System line segments. Capital costs for infrastructure improvements fell into one of the following categories: trackwork and curves, stations, turnouts, rail and highway bridges, railroad crossing safety improvements, and signals.

¹¹ These costs were calculated for the Ohio Hub Study in 2007 based on prices observed in 2002.

It is not anticipated that Ohio would have to cover all these capital costs, but that a significant level of federal grant assistance would be available and that the state-share of the costs for interstate corridors would be shared among Ohio's neighboring states

The estimated annual operating costs for the Ohio Hub Plan were expected to mostly be attributed to the costs for train crews, energy/fuel, train maintenance, track maintenance, insurance, sales and marketing, station costs, administrative costs, on-board services, and the operation of a feeder bus service. These estimated operating costs represent total system costs and have not been allocated to individual states. The method of cost allocation would be determined in later project development phases. The estimated cost for operating the 110 mph Ohio Hub system was \$201.5 million. Of this, the 3C Corridor required most of this expense at \$55.2 million, or 27 percent, of the total annual cost. The operating cost category with the largest expense was train equipment and maintenance at \$56.1 million, or 29 percent.

In 2005, the ORDC initiated a comprehensive analysis of the economic impact of the Ohio Hub. The resulting *Ohio Hub Economic Impact Study*, completed in June 2007, was based on a 860-mile Ohio Hub system with four corridors that provided a hub in Cleveland and connected to: Columbus, Dayton, and Cincinnati; Youngstown and Pittsburgh; Toledo and Detroit; and Erie, Buffalo, Niagara Falls and Toronto. The Ohio Hub economic forecasts were carried out in adherence to the FRA criteria. For the purposes of the Ohio Hub Study, the U.S. Department of Transportation Federal Railroad Administration Cost Benefit Methodology was adopted. This methodology, as set out in the FRA report "*High Speed Ground Transportation for America*," provided the most authoritative guide to the economic evaluation requirements for an intercity rail project to attract federal funds. Benefits were quantified in terms of passenger rail user benefits, other-mode user benefits, and resource savings benefits. Transportation improvements provided user benefits in terms of time and costs savings, as well as convenience, comfort and reliability. User benefits included: a reduction in both travel times and costs that users received; benefits that users of other modes received as a result of lower congestion levels; and resource benefits such as savings in airline fares and reductions in emissions as a result of travelers being diverted from air, bus and auto to the regional rail system. At the feasibility level of such a study, when a benefit/cost ratio is above 1.2, the ratio was considered sufficient to validate the proposed system's economic feasibility.

The 2007 *Ohio Hub Passenger Rail Economic Impact Study*, concluded that over the project's 30-year life, the Ohio Hub would create nearly \$9 billion in user benefits with \$4.9 billion in costs including capital, maintenance, and operating expenses, producing a 1.8 benefit/cost ratio. Moreover, the Ohio Hub would:

- Create 16,700 permanent jobs which is equivalent to more than 500,000 person years of work;
- Raise the region's income by over \$1 billion over the life of the project;
- Increase the average annual household income in the region by at least \$90;
- Generate more than \$3 billion in development activity near stations;
- Increase land values and create the potential for communities to develop new retail, office and residential developments near the passenger rail stations;
- Create an annual \$80 million impact on state tourism by generating 320,000 overnight trips;
- Increase Cleveland Hopkins Airport traffic by 5% and create a \$500 million to \$1 billion economic benefit;
- Create a potential benefit for freight operations in the range of \$3 to \$6 billion; and
- Generate an annual fuel savings of approximately 9.4 million gallons of fuel.

With regard to the Ohio Hub Plan, ORDC actively sought public opinion. ORDC, regional planning commissions, and metropolitan planning organizations hosted 22 technical and/or public meeting in 10 Ohio cities attended by over 700 citizens, elected officials, business and community leaders, and technical experts. Approximately 1,000 additional citizens and legislators heard about the plan at presentations and one-on-one briefings. News stories and opinion pieces appeared in at least 15 local newspapers and news stories and interviews were broadcast on at least 13 local television and radio stations. Ten organizations wrote resolutions and letters in support of the plan. Some of the objectives resulting from public and agency outreach for the Ohio Hub Study have been stated as follows:

- The passenger rail system should be integrated into the region's air, highway, and local transit networks and should connect directly to international airports.
- An interconnected national passenger rail network will create economies of scale that increase regional ridership and revenue and reduce overall system operating costs.
- Once fully implemented under the FRA criteria, the system's revenues should cover the operating costs.
- The new passenger service must not impair freight railroad operations or create chokepoints; rather, railroad improvements must increase capacity and improve the fluidity of railroad operations.
- The service operating plan should be developed to accommodate the requirement for fast, frequent, and reliable passenger service with minimal delays for station stops or equipment servicing. The most important characteristic of the operating plan is the overall train travel time.
- An improvement in the efficiency of moving people, goods, and labor among markets and communities has the potential to improve the investment and business climate of the state, which in turn, can lead to a higher rate of economic growth.

10.4 Commuter Rail Service

There are 22 commuter rail services in the U.S. either operating or planning to initiate operations in the near future. The majority of these are comparatively new, having begun operations since the early 1990s.

Commuter rail systems traditionally link bedroom communities with urban work centers. A typical commuter rail trip can be 30 miles long or even longer. Stations are often set an average of five miles apart. In most cases, commuter trains travel on tracks belonging to freight railroads, and thus often share track with freight trains.

Commuter rail services come in all sizes. They range from major systems, carrying over a 100,000 passengers per weekday (Long Island Railroad in New York and Metra in Chicago) to small systems, carrying between 5,000 and 10,000 passengers per weekday or less (Sounder in Seattle and COASTER in San Diego). Some systems are even smaller, with boardings of 2,000 passengers or less per weekday (Music City Star in Nashville and Shore Line East in Connecticut).

The rise of so many different commuter rail services throughout the U.S. has been driven by the mode's ability to move large numbers of commuters over long distances efficiently. Riders routinely cite travel time savings and elimination of long and stressful auto commutes as reasons why they opt for commuter rail. Urban areas where commuter rail feasibility is being investigated include Atlanta, Orlando, Houston, Cleveland, Columbus, Cincinnati, Denver, Phoenix, the North San Francisco Bay Area, Charleston, and Anchorage.

Appendix B to this plan includes a Commuter Rail Checklist. It defines steps in the planning process for an analysis of a potential commuter rail service. The list is not definitive. Rather, it cites fairly common tasks that are performed when commuter rail feasibility is being investigated and service is being implemented. It is included in the Ohio State Rail Plan as a check list for Ohio urban area planners who might be entertaining

studying or establishing commuter rail services alone or as a complement to planned rail passenger services. It must be emphasized that any commuter rail planning efforts that use existing, privately owned freight rail infrastructure must receive freight railroad concurrence.

Commuter rail systems can provide a good transportation option where existing rail corridors can be developed for joint freight and passenger use. In many cases, portions of the lines recommended as part of the Ohio Hub Study could also be used for commuter rail services to access major metropolitan areas. As part of ODOT's ongoing rail planning efforts, potential corridors would need to be evaluated following Federal Transit Authority procedures to determine whether commuter rail is an appropriate mode to move forward with (i.e. the locally preferred alternative or LPA). If so, those corridors could become part of the Ohio State Rail Plan.

10.4.1 Commuter Rail Planning in Ohio

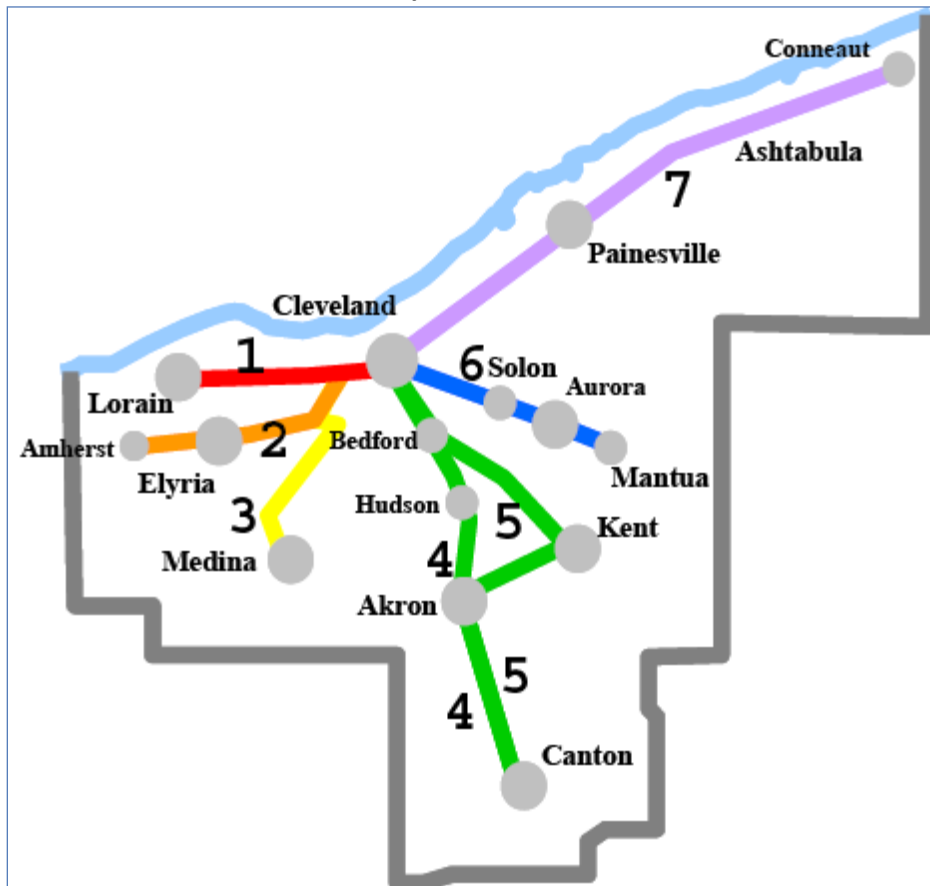
A number of Ohio public transportation agencies have examined the feasibility of commuter rail services in the State.

The Northeast Ohio Commuter Rail Feasibility Study or NeoRail, which was completed in May 2001, was sponsored by the Northeast Ohio Areawide Coordinating Agency (NOACA). Commuter rail corridors were suggested for Cleveland, Columbus, and Cincinnati. Light rail transit (LRT) is the current preferred rail transit mode choice for Columbus and Cincinnati. LRT is a mode with the capability to operate either on a dedicated guideway or on street within mixed traffic. The vehicles are comprised of a narrower car body and articulation and are electrified. They are not equipped to handle large numbers of people or operate longer distances like commuter rail vehicles. The studies by the local agencies are detailed in the following sections.

10.4.2 Cleveland Commuter Rail

Exhibit 10-7 shows the 2001 NeoRail proposal for a Cleveland commuter rail system that consisted of six corridors, with two options for the proposed Akron/Canton line. The Lake West (#1 to Lorain) and East (#6 to Mantua) lines were the two recommended for early implementation. However development of the Lake West corridor (#1) was opposed by local communities in 2001.

Exhibit 10-7 NeoRail Proposal for Cleveland Commuter Rail



Source: Ohio Hub Passenger Rail Economic Impact Study, 2007

Lake West – #1 – to Lorain: This branch line corridor was recommended along with the East Corridor (# 6) as one of the first two NeoRail routes to be implemented. The route would use NS’ mainline, having wayside signals and high quality track in place. Population density along the lake is higher as compared to #2, the inland route via Elyria, but Route #1 bypasses Hopkins Airport. There is the potential to also run Cleveland-Detroit or Cleveland-Chicago intercity trains along this same route.

East – #6 – to Mantua: This branch line corridor via Aurora is the western remnant of the former Erie Railroad mainline from Warren. Since the Erie Railroad has been abandoned east of Aurora, the line sees only light local freight traffic. This route could also provide an alternative for the Ohio Hub Pittsburgh corridor. This line may offer a more direct route from Cleveland to Warren.

West Corridor – #2 – Cleveland to Amherst via Elyria: Although NeoRail scored this route low on cost effectiveness criteria, its forecast ridership would be almost as strong as that of the Lake West corridor (#1), and the corridor has strong local support. If Ohio Hub were to share capacity improvements, the cost effectiveness score may be greatly improved.

Southwest Corridor – #3 – Cleveland to Medina – jointly developed with the 3C Corridor: There are two options with this corridor. The first option would be a new rail alignment, as proposed in the NeoRail study. The second option would be in conjunction with the 3C Corridor development. The route would follow the 3C

Corridor west to Grafton, where the 3C crosses a former Baltimore & Ohio Railroad branch line from Sterling to Lorain. At Grafton the route would continue on a spur track south 12 miles to Medina.

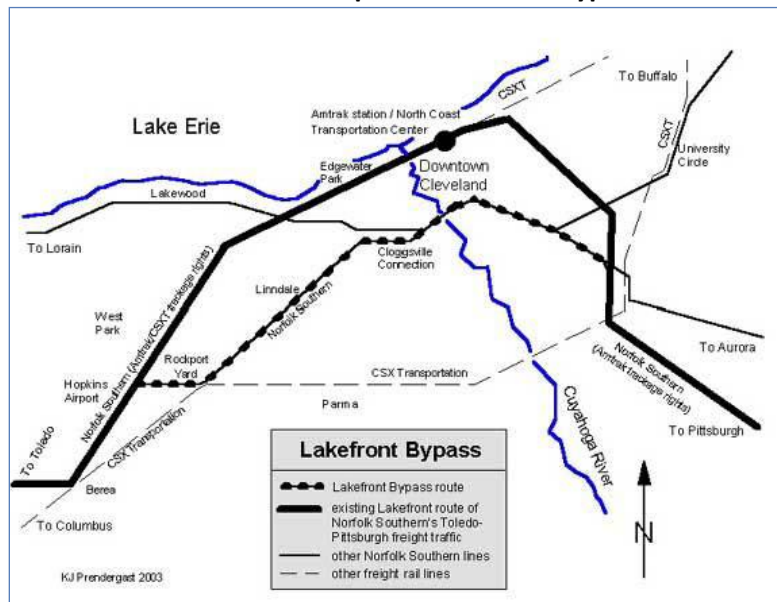
South Corridor – #4 and #5 – two options to Akron/Canton: Two different route options were evaluated by NeoRail between Cleveland and Akron. Option #4 would use the NS Alliance line from Cleveland to Hudson, whereas Option #5 would use the Wheeling & Lake Erie Railroad from Cleveland to Kent. Note that the Ohio Hub Pittsburgh Corridor is currently routed via Hudson.

Lake East Corridor – #7 to Painesville: The NeoRail report notes that there is very little commuter ridership expected east of Painesville. If Ohio Hub trains serve the longer-distance travel market, the commuter corridor could be terminated at Painesville. Ohio Hub has proposed to add a third track to the entire length of this corridor, so it should be possible to also accommodate a few commuter trains out to Painesville.

The NeoRail plan considered development of a NS Southern rail bypass as a prerequisite for implementing a commuter rail system. Issues associated with development of this alternative route to the Lakefront Rail Line have been extensively documented by the Cleveland Lakefront Freight Rail Bypass Study. The NeoRail study noted that the development of a double-tracked Lakefront Bypass may not provide enough capacity to handle all NS traffic through Cleveland. The proposed bypass may not be sufficient to accommodate all NS traffic from Buffalo as well as from Pittsburgh. In addition, NS had identified the Cleveland-Alliance rail line as a bottleneck regardless of the addition of the proposed passenger traffic. The proposed bypass may lack enough capacity, necessitating continued use of the Lakefront line by NS freight trains. Additionally, the single-track bottleneck on CSX's Short Line route may necessitate continued use of the Lakefront by CSX as well.

To meet the long-term capacity need, it may be reasonable to develop both the Lakefront Bypass within Cleveland (see **Exhibit 10-8**) as well as a proposed Orrville reroute, which may bypass several NS through freight trains completely out of the Cleveland area. Development of both bypasses may be needed to accommodate both Ohio Hub and commuter trains, as well as to handle increasing freight traffic volumes.

Exhibit 10-8 Proposed Lakefront Bypass

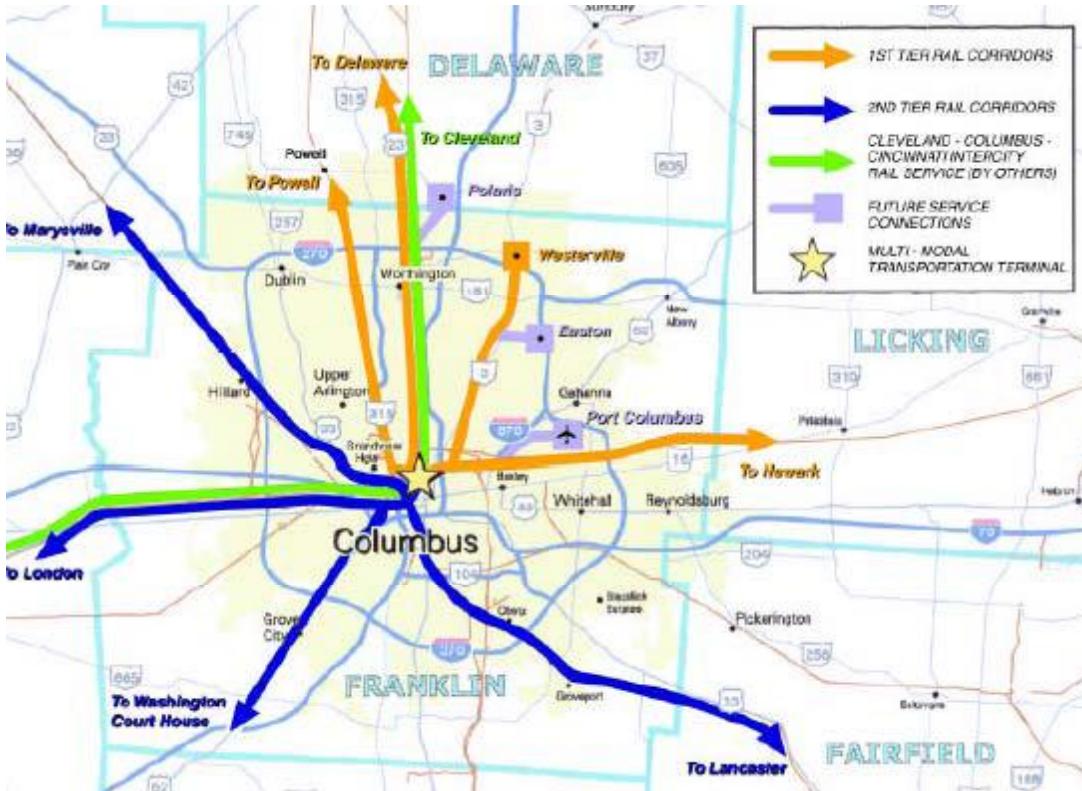


Source: Ohio Hub Passenger Rail Economic Impact Study, 2007

10.4.3 Columbus Commuter Rail

In 2001, the Central Ohio Transit Authority conducted the Central Ohio Regional Rail Study. **Exhibit 10-9** shows the Central Ohio Transit Authority Vision 2020 Rail Corridors from this study. A Columbus commuter rail system consisting of up to seven radial rail corridors was envisioned. Commuter rail to London/Springfield, and to Delaware/Marion, could be considered with the 3C Corridor development. Also, commuter services to Marysville, Newark, or Zanesville may be implemented in conjunction with the proposed incremental corridors identified in studies.

Exhibit 10-9 COTA Vision 2020 Rail Corridors

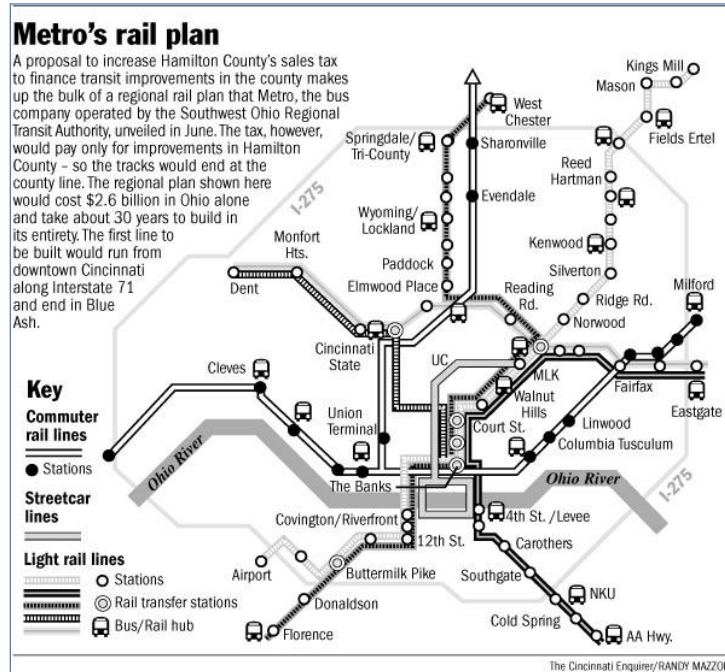


Source: Ohio Hub Passenger Rail Economic Impact Study, 2007

10.4.4 Cincinnati Commuter Rail

Exhibit 10-10 shows a rail proposal that has been developed for Cincinnati. Many of these lines were proposed to be built using LRT technology that may even be capable of operating in Cincinnati’s abandoned downtown subway tunnels. However, three of the lines to Lawrenceburg, KY (to the south), Dayton (to the north), and South Milford (to the east) have been suggested as commuter rail routes.

Exhibit 10-10 Proposed Cincinnati Rail System



Source: Ohio Hub Passenger Rail Economic Impact Study, 2007

10.4.5 Cost Savings for Commuter Rail Development

The Ohio Hub Plan could provide mainline capacity improvement and downtown station development that could also support implementation of new commuter services. As Cleveland's NeoRail study showed, commuter rail corridors are easiest to develop on lightly-used freight branch lines, but developing only the branch lines would leave substantial gaps in the area coverage of the rail commuter networks. However, with the Ohio Hub, comprehensive commuter rail networks can be developed for both Cleveland and Columbus, and a Dayton-Cincinnati service can also be implemented.

It is important to note that the local match for the Ohio Hub investment would be provided using state dollars rather than local funds. This would make the development of commuter rail much more affordable to the local entities, which could be leveraged for commuter train stations, rolling stock, and branch line extensions.

10.4.6 Technology

Commuter rail technology is defined in this document as FRA-compliant¹² vehicles that can share tracks with freight trains, Amtrak trains, and future Ohio Hub intercity trains. One of the recent technologies being explored by ORDC for the 3C Quick Start program is the use of a Diesel Multiple Unit passenger rail vehicle. DMUs combine the passenger car with the diesel engine, making each individual railcar self-propelled, unlike conventional passenger trains that use a locomotive to pull the trains. These trains are most efficient on lighter density lines. However, there are currently no FRA-complaint designs being manufactured, although US Railcar,

¹² FRA-compliant vehicles are vehicles that meet the crashworthiness standards of the Federal Railroad Administration (FRA) for operation on track shared simultaneously with freight and conventional passenger trains.

a Columbus company, reportedly has plans to produce domestically manufactured, FRA-compliant DMU vehicles.

Exhibit 10-11 shows a FRA-compliant DMU vehicle that was manufactured by Colorado Railcar, a company no longer in business. US Railcar purchased the design rights to the vehicle and its variants.

Exhibit 10-11 FRA Compliant DMU Vehicle



Source: Ohio Hub Passenger Rail Economic Impact Study, 2007

10.5 Synopsis of Recent Ohio Intercity and High Speed Rail Studies

Ohio Hub Passenger Rail Economic Impact Study (May 2007)

Prepared by Transportation Economics & Management Systems, Inc.

- Performed economic analysis and cost benefit studies to determine the state of Ohio's and federal government's contribution
- Conducted an assessment of the transfer payments to Ohio from the spending of federal grants
- Suggested that construction and operation of the Ohio Hub System would stimulate economic activity in Ohio
- Estimated the Ohio Hub could be expected to contribute a 0.1 percent growth to the region's economy
- Proposed Ohio Hub stations would be the gateway to communities and provide the "front door" to the other rail travel across Ohio. At these "gateway" or "front door" locations, considerable development potential would exist.

The Ohio and Lake Erie Regional Rail – Ohio Hub Study (July 2007)

Prepared by Transportation Economics & Management Systems, Inc.

- Developed a multistate plan using synergies with existing and proposed rail services
- Explored both 79 mph and higher speed 110 mph options
- Estimated service fares at 24¢ to 37¢ per seat mile for the 110 mph service
- Produced ridership estimates of 9.3 million in 2025; revenues of \$311 million; and operating expenses of \$202 million
- Developed a capital cost estimates for 79 mph at \$4.0 billion; 110 mph at \$4.7 billion, in 2002 dollars
- Produced an estimated benefit-cost ratio: 1.80

Ohio Hub Economic Impact Analysis (September 2007)

Prepared by GEM Public Sector Services

- GEM Public Sector Services reviewed the Ohio Hub study prepared by Transportation Economics & Management Systems, Inc. to confirm findings and methodologies of operating a high-speed passenger rail system in Ohio
- Identified a benefit-cost ratio of 1.24 and confirmed that ridership projections were reasonable
- Examined operating and maintenance expenses; operating ratios of 1.23 in 2015 and 1.39 in 2025
- Suggested a successful high speed passenger rail network is contingent upon several critical factors including sufficient speed, capacity, and reliability to be competitive with the automobile for intercity trips in Ohio, attractive, comfortable rolling stock and facilities, service integrated into larger Midwest and national high speed rail systems, and a regional bus system to draw potential riders from a larger area
- Estimated that interconnectivity with other transit systems adds about 35 percent to projected ridership
- Identified local economic benefits of \$2.38 billion direct and \$6 billion total. Suggested 7,120 annual construction jobs affected over 8 years.
- Identified annual operating benefits affecting 1,761 new jobs and creating \$290 million in salaries
- Estimated increases in real estate value along line contributing to a three to four percent total increase
- Suggested that the project would be feasible with an 80 percent federal construction match
- Suggested connections to airports and dual use of corridors for commuter rail

Ohio High Speed Intercity Passenger Rail Application: 3C Quick Start Corridor Program Service Development Plan (October 2009) by Ohio Department of Transportation

- The Quick Start program was designed to demonstrate that 38 years of studies showing the viability of passenger rail improvements in Ohio can be implemented to serve 6.8 million living along the corridor
- Suggested that convention passenger rail service can be started in time to meet stimulus funding program requirements
- Described a \$7 million state commitment for programmatic environmental impact statement
- Progressed Ohio's first priority in Ohio Hub Study, the Cleveland-Columbus-Dayton-Cincinnati service
- Supported establishment of 79 mph operations along the corridor as 110 mph emerging high speed rail program is progressed
- Supported the linking all major forms of public transportation
- Estimated an annual corridor ridership of 478,000 and can be expected gross revenue is \$12.2 million
- Estimated fares at 15¢ per seat mile based on a 6 hour 30 minute corridor running time
- Identified infrastructure cost estimates for corridor of \$388.7 million, and \$175.0 million for rolling stock

Amtrak Feasibility Report on Proposed Amtrak Service Cleveland-Columbus-Cincinnati (September 2009)

Performed route study, ridership, and capital costs for conventional 79 mph passenger service

- Study considered 15 route combinations, narrowed to shortest route via Berea and Middletown
- Proposed rail operation would serve areas inhabited by 6.8 million persons out of 11.5 million in Ohio



- Confirmed that Amtrak trainsets would not be available for service; suggested new rolling stock
- Recommended local communities fund station facilities (except Cleveland where existing station is sufficient)
- Suggested a preliminary 6.5-hour schedule, 3 round trips, 255 mile route is feasible for an estimated capital costs of \$517.6 million
- Estimated annual ridership: 478,000; revenue: \$12.2 million; state investment \$17 million; total operating expense: \$29.2 million