



Ohio Hub High-Speed Rail System (Source: Ohio Hub Study, 2007)

The Ohio Hub high-speed rail system is a system of proposed routes containing 864 miles in four segments with a hub in Cleveland, Ohio, and spokes connecting to Cincinnati, Ohio, via Columbus, Ohio; Toronto, Canada, via Buffalo, New York; Pittsburgh, Pennsylvania, via Youngstown, Ohio; and Detroit, Michigan, via Toledo, Ohio. The Ohio Hub high-speed rail system is based on incremental improvements to existing freight railroad rights-of-way, with

maximum train speeds projected to be up to 110 mph. Development of high-speed intercity passenger rail in the Ohio Hub system had progressed to the point of receiving a \$400 million grant from the Federal Railroad Administration to implement rail service on the Cleveland to Cincinnati segment; however, the project was canceled in 2010, and thus is in the *Proposed* stage.

SYSTEM DESCRIPTION AND HISTORY

System Description

The Ohio Hub high-speed rail system described in this summary consists of four segments, as summarized below.

Ohio Hub High-Speed Rail System Segment Characteristics

Segment Description	Distance	Segment Status	Designated Corridor?	Segment Population
Cleveland, OH, to Cincinnati, OH	258 Miles	Proposed	Yes	7,192,021
Cleveland, OH, to Toronto, Canada	290 Miles	Proposed	No	7,797,741
Cleveland, OH, to Pittsburgh, PA	140 Miles	Proposed	No	4,999,297
Cleveland, OH, to Detroit, MI	176 Miles	Proposed	No	7,254,019

The Cleveland to Cincinnati segment is 258 miles in length and includes the communities of Columbus and Dayton along the route. It is often referred to as the “3C Corridor” because of the three major Ohio cities through which it passes—Cleveland, Columbus, and Cincinnati. The total population of communities being considered for proposed high-speed rail stations along this segment was 7,192,021 in 2010. The Cleveland to Toronto segment is 290 miles in length and includes major communities of Buffalo and Niagara Falls, New York, along the route. The total population of communities being considered for proposed high-speed rail stations along this segment was 7,797,741 in 2010. The Cleveland to Pittsburgh segment is 140 miles long and includes the major community of Youngstown along the route. The total population of communities being considered for proposed high-speed rail stations along this segment was 4,999,297 in 2010. The Cleveland to Detroit segment is 176 miles long and includes Toledo and the Detroit Metro Airport along the route. The total population of communities being considered for proposed high-speed rail stations along this segment was 7,254,019 in 2010.

High-speed rail service on all four segments of the Ohio Hub high-speed rail system is based on incremental improvements to existing freight railroad right-of-way. Freight railroads that own the projected routes include Canadian National, CSX, Norfolk Southern, and the Wheeling and Lake Erie Railroads.

System History

Planning for high-speed rail in the Ohio Hub high-speed rail system dates back to the mid-1970s with the creation of the Ohio Rail Transportation Authority (ORTA) in 1975 and initial high-speed rail planning studies produced by the ORTA in 1977. Since that time, the ORTA and its successor agencies have coordinated a number of planning

and feasibility studies for high-speed and conventional intercity passenger rail in Ohio. These studies assessed the feasibility of an intra-Ohio passenger rail network as well as connectivity between Ohio communities and proposed intercity passenger rail networks in surrounding states. A more detailed history of high-speed intercity passenger rail planning in Ohio can be found in the 2010 *Ohio Statewide Rail Plan*.

The June 2007 Ohio Hub feasibility study noted that moving from a 79 mph system to a 110 mph system increased ridership by 50 percent, but more than doubled system revenue because faster service was more attractive to higher fare-paying business travelers.

The most recent efforts to implement high-speed intercity passenger rail in the Ohio Hub high-speed rail system was the Ohio & Lake Erie Regional Rail project, known more simply as the Ohio Hub project. The Ohio Hub project was initiated in 2002 with the first comprehensive feasibility study completed in October 2004. The initial proposal for the Ohio Hub rail system focused on developing rail service with up to 10 daily trains at speeds up to 110 mph on four interconnected corridors serving a hub in Cleveland:

- Cleveland–Columbus–Dayton–Cincinnati.
- Cleveland–Toledo–Detroit, MI via the Detroit Airport.
- Cleveland–Pittsburgh, PA via Youngstown, OH.
- Cleveland–Erie, PA–Buffalo, NY–Niagara Falls, NY–Toronto, Ontario.



Cleveland, Ohio

An updated version of the Ohio Hub project feasibility study, entitled *The Ohio & Lake Erie Regional Rail Ohio Hub Study Technical Memorandum & Business Plan* was released in July 2007. In the updated study, three new or incremental corridors were added to the project:

- Columbus–Pittsburgh, PA.
- Columbus–Toledo with through service to Detroit, MI.
- Columbus–Lima–Fort Wayne, IN, with through service to Chicago, IL.

The Ohio Hub rail project feasibility studies provided a comprehensive analysis of the proposed network, encompassing an engineering evaluation of proposed route alignments, ridership and revenue forecasts, and economic analysis of the project. The studies also integrated the proposed Ohio Hub project routes with the three eastern corridors that were being considered as part of the proposed Midwest Regional Rail System.

In January 2010, the Federal Railroad Administration (FRA) awarded the State of Ohio a grant from the *American Recovery and Reinvestment Act of 2009* high-speed rail funding worth \$400 million to begin construction of new intercity passenger rail service on the Cleveland–Columbus–Cincinnati (3C) segment of the Ohio Hub high-speed rail system. In fall 2010, the new Governor-elect of Ohio, John Kasich, indicated that the Ohio Hub project would

not move forward under his administration and returned the grant funds to the FRA. The FRA redistributed the \$400 million to other states in December 2010, and there has been no additional development of high-speed passenger rail on the Ohio Hub high-speed rail system since that time.

Federally-Designated Corridors

The entire Cleveland to Cincinnati segment of the Ohio Hub high-speed rail system is part of the federally-designated Chicago Hub High-Speed Rail Corridor. The designation, which also included the intermediate communities of Columbus and Dayton, was approved by the U.S. DOT in October 2000. Also approved in October 2000 was a similar extension of the Chicago Hub High-Speed Rail Corridor from Chicago to Toledo and Cleveland, a portion of which is concurrent with the Cleveland to Detroit, MI segment of the Ohio Hub high-speed rail system described in this summary. The *Passenger Rail Improvement and Investment Act of 2008* directed the U.S. DOT to study an extension of the federally-designated Keystone High-Speed Rail Corridor from Pittsburgh, PA, to Cleveland. This extension would elevate the Cleveland to Pittsburgh segment of the Ohio Hub high-speed rail system to federally-designated corridor status. The Cleveland to Toronto, Canada, segment of the Ohio Hub high-speed rail system described in this summary is not part of a federally-designated high-speed rail corridor.

Existing Intercity Passenger Rail Service

Amtrak intercity passenger rail service covering portions of the Ohio Hub high-speed rail network includes two Amtrak long-distance trains, the Capitol Limited and the Lake Shore Limited. These trains operate across the northern portion of Ohio between Toledo and Cleveland, with the Capitol Limited continuing south toward Pittsburgh, PA, and the Lake Shore Limited continuing north to Buffalo, NY.

Sources: 2010 U.S. Census, Ohio Statewide Rail Plan Final Report, The Ohio & Lake Erie Regional Rail Ohio Hub Study Technical Memorandum & Business Plan, U.S. DOT News Archives, Federal Railroad Administration High-Speed Rail Corridors Chronology, Amtrak System Timetable Fall 2011/ Winter 2012

ESTIMATED SYSTEM COSTS AND FUNDING SOURCES

Estimated System Costs

The July 2007 Ohio & Lake Erie Regional Rail Ohio Hub Study Technical Memorandum & Business Plan provided estimates of the capital costs associated with developing high-speed intercity passenger rail on the four segments of the Ohio Hub high-speed rail system. Capital cost estimates were developed for two scenarios, Modern service with a maximum speed of 79 mph and High-Speed service with a maximum speed of 110 mph. Frequencies varied between 5 and 10 trains per day, depending upon the segment. The estimated capital costs on a per-mile basis are shown below.

Ohio Hub High-Speed Rail System Capital Cost Estimates

Segment Description/Study Name/Year	Maximum Speed/ Scenario	Estimated Capital Cost per Mile (\$ Millions)
Ohio Hub Study Technical Memorandum & Business Plan (2007)		
• Cleveland, OH, to Cincinnati, OH	79 mph Modern	\$2.6 – \$2.8
• Cleveland, OH, to Toronto, Canada	79 mph Modern	\$2.1
• Cleveland, OH, to Pittsburgh, PA	79 mph Modern	\$3.3
• Cleveland, OH, to Detroit, MI	79 mph Modern	\$3.1 – \$3.4
Ohio Hub Study Technical Memorandum & Business Plan (2007)		
• Cleveland, OH, to Cincinnati, OH	110 mph High-Speed	\$4.3 – \$4.5
• Cleveland, OH, to Toronto, Canada	110 mph High-Speed	\$2.8
• Cleveland, OH, to Pittsburgh, PA	110 mph High-Speed	\$3.5
• Cleveland, OH, to Detroit, MI	110 mph High-Speed	\$3.4 – \$3.7

Estimated operating costs per train-mile (2002 dollars) for the Ohio Hub high-speed rail system ranged from \$31.29 to \$39.11 for 110 mph service, generating projected operating ratios between 1.55 and 1.99 by the year 2025. Economic analysis estimated that the Ohio Hub high-speed rail system would generate nearly \$9 billion in user benefits and resource savings over the life of the project, generating a 1.8 benefit/cost ratio.

Projected Funding Sources

No specific funding sources have been designated for the Ohio Hub high-speed rail system.

Recent Funding Awards

In January 2010, the Federal Railroad Administration awarded the State of Ohio a grant worth \$400 million from the American Recovery and Reinvestment Act of 2009 high-speed rail funding to begin construction of new high-speed intercity passenger rail service on the Cleveland–Columbus–Cincinnati segment of the Ohio Hub high-speed rail system. As previously discussed, this award was returned to the Federal Railroad Administration upon the project’s cancellation in December 2010. No additional grants have been provided to the State of Ohio.

Sources: The Ohio & Lake Erie Regional Rail Ohio Hub Study Technical Memorandum & Business Plan, Ohio Statewide Rail Plan Final Report, U.S. DOT News Archives



Cincinnati, Ohio

TRANSPORTATION SYSTEM IMPACTS

Ridership Estimates

Ridership for the four segments of the Ohio Hub high-speed rail system was estimated in the June 2007 *Ohio & Lake Erie Regional Rail Ohio Hub Study Technical Memorandum & Business Plan* feasibility study. Two scenarios for ridership were considered: a Modern type service with a maximum speed of 79 mph and High-Speed type service with a maximum speed of 110 mph. Daily frequencies varied between 5 and 10 trains per day, depending upon the segment considered. The estimated year 2025 ridership for each segment is shown below.

The June 2007 Ohio Hub feasibility study noted that moving from a 79 mph system to a 110 mph system increased ridership by 50 percent, but more than doubled system revenue because faster service was more attractive to higher fare-paying business travelers.

Ohio Hub High-Speed Rail System Ridership Estimates

Segment Description	Estimated 2025 Ridership (79 mph)	Estimated 2025 Ridership (110 mph)
Cleveland, OH, to Cincinnati, OH	1,600,000	2,560,000
Cleveland, OH, to Toronto, Canada	590,000	910,000
Cleveland, OH, to Pittsburgh, PA	600,000	860,000
Cleveland, OH, to Detroit, MI	1,520,000	2,230,000
Total All Four Segments	4,310,000	6,560,000

Mode Choice

Ridership projections for the Ohio Hub high-speed rail network estimated that rail service would be able to capture up to two percent of all travel in the four segments considered here. Between 70 and 85 percent of Ohio Hub rail passengers were estimated to be attracted from auto travel, while shifts from airplane accounted for approximately 10 to 20 percent of rail passengers.

Connectivity with Other High-Speed Rail Systems

The proposed segments of the Ohio Hub high-speed rail system feature extensive connections to other high-speed rail systems. Connectivity between the Ohio Hub system and the proposed Midwest high-speed rail system is provided in Cincinnati, OH; Cleveland, OH; and Detroit, MI. Connectivity is also provided with the Keystone high-speed rail system via Pittsburgh, PA, and the Empire Corridor high-speed rail system in Buffalo, New York.

Sources: The Ohio & Lake Erie Regional Rail Ohio Hub Study Technical Memorandum & Business Plan



Columbus, Ohio

GOVERNANCE

All freight and passenger rail transportation planning in the State of Ohio is coordinated by the Ohio Rail Development Commission (ORDC), an independent agency within the Ohio Department of Transportation. Created in 1994, the mission of the ORDC is to plan, promote, and implement a statewide rail network for freight and passen-

ger transportation and to administer rail-related funding programs in the state. The ORDC was the primary agency that oversaw the planning and feasibility studies for the Ohio Hub high-speed rail project from its creation in 1994 until the project's cancellation in 2010.

Source: Ohio Rail Development Commission Website

BIBLIOGRAPHY

Ohio Rail Development Commission Website

URL: <http://www.dot.state.oh.us/Divisions/Rail/Pages/default.aspx>

The Ohio Hub Project Website

URL: <http://www2.dot.state.oh.us/ohiorail/Ohio%20Hub/Website/ordc/index.html>

The Ohio & Lake Erie Regional Rail Ohio Hub Study: Technical Memorandum & Business Plan

Prepared for the Ohio Rail Development Commission, Indiana Department of Transportation, Michigan Department of Transportation, New York Department of Transportation, and Pennsylvania Department of Transportation by Transportation Economics & Management Systems, Inc. in association with HNTB, July 2007

URL: <http://www2.dot.state.oh.us/ohiorail/Ohio%20Hub/Website/ordc/theproject.html>

Date Accessed: May 29, 2012

Ohio Statewide Rail Plan

Prepared by the Ohio Rail Development Commission and the Ohio Department of Transportation, May 2010

URL: <http://www.dot.state.oh.us/Divisions/Rail/Programs/StatewideRailPlan/Pages/default.aspx>

Date Accessed: June 7, 2012