



Minnesota High-Speed Rail System (Source: Texas A&M Transportation Institute)

The Minnesota high-speed rail system described in this summary consists of two proposed routes containing 240 miles, primarily within the state of Minnesota but with a short segment in northwest Wisconsin, connecting the Twin Cities (Minneapolis and St. Paul) with the cities of Duluth and Rochester. The Twin Cities to Duluth segment is based on incremental improvements to existing freight railroad rights-of-way, with maximum train speeds pro-

jected to be up to 125 mph. The Twin Cities to Duluth segment is currently in the *Planning/Environmental* stage. The Twin Cities to Rochester segment is primarily based on constructing new high-speed rail right-of-way with maximum train speeds of up to 250 mph evaluated in feasibility studies. The Twin Cities to Rochester segment is also in the *Planning/Environmental* stage.

SYSTEM DESCRIPTION AND HISTORY

System Description

The Minnesota high-speed rail system consists of two segments, as summarized below.

Minnesota High-Speed Rail System Segment Characteristics

| Segment Description | Distance | Segment Status | Designated Corridor? | Segment Population |
|---------------------------------------|-----------|------------------------|----------------------|--------------------|
| Minneapolis-St. Paul to Duluth, MN | 155 Miles | Planning/Environmental | No | 3,561,404 |
| Minneapolis-St. Paul to Rochester, MN | 85 Miles | Planning/Environmental | No | 3,465,844 |

The Twin Cities to Duluth segment is 155 miles in length and includes the communities of Hinckley, MN, and Superior, WI, along the route. The total population of communities along this segment was 3,561,404 in 2010. High-speed rail service on this segment is based on incremental improvements to existing BNSF Railway freight railroad right-of-way between the Twin Cities and Duluth.

The Twin Cities to Rochester segment is 85 miles in length and includes the communities of St. Paul and Rosemont, MN, along the route. The total population of communities along this segment was 3,465,844 in 2010. A 2003 feasibility study for this segment included station stops at the Minneapolis/St. Paul International Airport and the Rochester International Airport along the route, with no intermediate communities considered. High-speed rail service along this segment is primarily based on constructing new rail right-of-way along the U.S. Highway 52 corridor between the Twin Cities and Rochester.

System History

Planning for high-speed rail in the Twin Cities to Duluth segment has been on-going since 1985, when Amtrak service between the two communities was suspended. An initial concept study for restoring service in this segment was completed in 2000, and a detailed feasibility study for the 155-mile segment was completed in December 2007. In 2008, the name “Northern Lights Express” was selected for the Twin Cities to Duluth high-speed passenger rail project. In May 2011, the Minnesota Department of Transportation (MnDOT) was awarded a \$5 million grant from the Federal Railroad Administration to continue environmental study and conduct preliminary engineering for the segment. This grant was matched by a \$3 million appropriation from the State of Minnesota, and the work associated with the grant is underway as of spring 2012.

Planning for high-speed rail in the Twin Cities to Rochester segment started in the early 1990s with the completion of the *Tri-State Study* in 1991 and the subsequent *Tri-State*

II Study in 2000. The Tri-State studies were focused primarily on the Chicago–Milwaukee–Twin Cities corridor covering the three states of Illinois, Minnesota, and Wisconsin. In January 2003, a study was completed examining the feasibility of a high-speed rail link between the Minneapolis/St. Paul International Airport and the Rochester International Airport. The Midwest Regional Rail Initiative has also evaluated routing the Twin Cities to Chicago segment of the Midwest high-speed rail system through Rochester. In September 2009, a new study entitled *Tri-State III High-Speed Rail Study: Minnesota Segment Assessment* was completed on behalf of the Southeast Minnesota Rail Alliance. This study recommended that the Twin Cities to Chicago line incorporate the Twin Cities to Rochester segment as part of its routing. However, preliminary environmental studies for the Twin Cities to Chicago route did not select the Rochester route as the preferred alternative for detailed study, instead opting for the “River Route” alternative. In January 2011, the name “Zip Rail” was selected for the Twin Cities to Rochester high-speed passenger rail project.

Federally-Designated Corridors

Neither of the two segments of the Minnesota high-speed rail system are part of federally-designated high-speed rail corridors.

Existing Intercity Passenger Rail Service

No intercity passenger rail service currently exists in the two segments of the Minnesota high-speed rail system. Amtrak intercity passenger rail service on the Twin Cities to Duluth segment operated until 1985.

Sources: 2010 U.S. Census, Minneapolis - Duluth/Superior Restoration of Intercity Passenger Rail Service Comprehensive Feasibility Study and Business Plan, Rochester Rail Link Feasibility Study, Federal Railroad Administration High-Speed Rail Corridors Chronology, Minnesota State Rail Plan, Amtrak System Timetable Fall 2011/Winter 2012



Minneapolis, Minnesota

ESTIMATED SYSTEM COSTS AND FUNDING SOURCES

Estimated System Costs

Specific feasibility studies for the two segments, as well as an alternative assessment of statewide corridors in the February 2010 *Minnesota State Rail Plan*, provided estimated capital costs for the two segments. The estimated capital costs on a per-mile basis are shown below.

Projected Funding Sources

For the Twin Cities to Rochester segment, one potential revenue source considered was the development of an air

cargo transportation hub at the Rochester airport. The use of the proposed high-speed rail route to transport air cargo from the proposed hub in Rochester to the Twin Cities was estimated to generate approximately \$7.7 million in revenue for 2010, growing to \$26.2 million by 2039. No specific rail funding options have been evaluated.

Recent Funding Awards

The Minnesota Department of Transportation was awarded \$5,000,000 from the Federal Railroad Administration to continue environmental study and preliminary

Minnesota High-Speed Rail System Capital Cost Estimates

| Segment Description/Study Name/Year | Maximum Speed/ Scenario | Estimated Capital Cost per Mile (\$ Millions) |
|---|-------------------------|---|
| Twin Cities to Duluth | | |
| • TEMS Feasibility Study (2007) | 79 mph | \$0.5 – \$1.3 |
| • TEMS Feasibility Study (2007) | 110 mph | \$2.3 – \$2.5 |
| • TEMS Feasibility Study (2007) | 125 mph | \$3.9 |
| • Minnesota State Rail Plan (2009) | 110 mph | \$4.5 – \$5.8 |
| Twin Cities to Rochester | | |
| • Rochester Rail Link Study (2003) | 150 mph Non-Electrified | \$8.2 – \$9.0 |
| • Rochester Rail Link Study (2003) | 180 mph Electrified | \$10.2 – \$11.0 |
| • Rochester Rail Link Study (2003) | 250 mph Maglev | \$65.5 – \$69.8 |
| • Tri-State III Study: Rochester Route (2009) | 110 mph | \$6.4 |
| • Tri-State III Study: Rochester Route (2009) | 220 mph | \$12.9 – \$18.4 |
| • Minnesota State Rail Plan (2009) | 110 mph | \$7.4 – \$8.7 |



engineering for the Twin Cities to Duluth segment of the Minnesota high-speed rail system. The funding source for this award was the *American Recovery and Reinvestment Act of 2009* high-speed rail awards.

Sources: Minneapolis - Duluth/Superior Restoration of Intercity Passenger Rail Service Comprehensive Feasibility Study and Business Plan, Rochester Rail Link Feasibility Study, Minnesota State Rail Plan, Federal Railroad Administration

Ridership projections for the Twin Cities to Duluth segment of the Minnesota high-speed rail system estimated that between 7 and 11 percent of passengers on that segment would connect from the Midwest high-speed rail system.

TRANSPORTATION SYSTEM IMPACTS

Ridership Estimates

Ridership for the Twin Cities to Duluth segment was estimated in a December 2007 feasibility study. A base case of typical Amtrak intercity train service consisting of a single daily round-trip at 79 mph maximum speed was evaluated against six alternatives: 79 mph maximum speed with 2 and 4 daily round trips, 110 mph maximum speed with 4 and 8 daily round-trips, and 125 mph maximum speed also with 4 and 8 daily round-trips. For the projected buildout year (2010), estimated annual ridership on the Twin Cities to Duluth segment ranged between 151,000 (79 mph, 2 daily round-trips base case) and 937,000 (125 mph, 8 daily-round trips alternative). Travel time along the 155-mile corridor between the Twin Cities and Duluth was projected to range from 110 and 170 minutes, depending upon the maximum speed.

Ridership for the Twin Cities to Rochester segment of the Minnesota high-speed rail system was estimated in a January 2003 feasibility study. Estimated annual ridership for 2010 on the Twin Cities to Rochester segment was as follows: 1.4 million for 150 mph service, 1.6 million for 185 mph service, and 2.4 million for 250 mph MAGLEV service. Estimated annual ridership for 2039 for the Twin Cities to Rochester segment for the three maximum speed scenarios were 2.4 million, 2.8 million, and 4.3 million, respectively.

The *Minnesota State Rail Plan*, completed in 2010, provided preliminary ridership estimates for both segments, as well as for other non-high-speed rail corridors in the state. Ridership forecasts for the Twin Cities to Duluth and Twin Cities to Rochester segments were developed for maximum train speed scenarios of 110 and 150 mph assuming eight daily round-trips for each scenario. Ridership forecasts for 2030 showed that the Twin Cities to Duluth segment estimated that high-speed rail could achieve between 430,000 and 650,000 annual passengers while the Twin Cities to Rochester segment could achieve between 531,000 and 750,000 annual passengers.

Mode Choice

Ridership projections for the Twin Cities to Duluth segment estimated that rail service would be able to capture between 1 and 6 percent of all travel between the two cities, depending upon the maximum train speed and frequency of service. Ridership projections from the 2010 *Minnesota State Rail Plan* estimated that, by 2030, high-speed rail service could capture between 11.0 and 16.6 percent of all trips in the Twin Cities to Duluth segment and between 8.7 and 12.3 percent of all trips in the Twin Cities to Rochester segment.

Connectivity with Other High-Speed Rail Systems

The two proposed segments of the Minnesota high-speed rail system connect to the Chicago to Twin Cities segment of the Midwest high-speed rail system via Minneapolis/St. Paul. Ridership projections for the Twin Cities to Duluth segment of the Minnesota high-speed rail system estimated that between 7 and 11 percent of passengers on that segment would connect from the Midwest high-speed rail system.

Sources: Minneapolis - Duluth/Superior Restoration of Intercity Passenger Rail Service Comprehensive Feasibility Study and Business Plan, Rochester Rail Link Feasibility Study, Minnesota State Rail Plan

GOVERNANCE

Intercity passenger rail planning and implementation activities in the Twin Cities to Duluth segment of the Minnesota high-speed rail system are coordinated by the Minneapolis-Duluth/Superior Passenger Rail Alliance joint powers board. Created in 2007, representatives on the joint powers board include the regional rail authorities of Hennepin, Anoka, Isanti, Pine, and St. Louis and Lake Counties (MN), the cities of Minneapolis and Duluth, and the Mille Lacs Band of Ojibwe. Also participating are Douglas County, WI, Superior, WI, and other cor-



Saint Paul, Minnesota

ridor agencies and communities. Intercity passenger and freight rail planning and advocacy in the Twin Cities to Rochester segment of the Minnesota high-speed rail system is coordinated by the Southeast Minnesota Rail Alliance, a partnership among Olmstead County, the City of Rochester, Rochester Area Chamber of Commerce, and the Mayo Clinic. The Minnesota High-Speed Rail Commission is another organization comprised of local elected

officials that promote high-speed intercity passenger rail development along the “River Route” between Chicago and the Twin Cities.

Source: Northern Lights Express Website, Southeast Minnesota Rail Alliance Website, Minnesota High-Speed Rail Commission Website

BIBLIOGRAPHY

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URL: <http://www.NorthernLightsExpress.org/>

Southeast Minnesota Rail Alliance

URL: <http://www.semnrail.org/>

Zip Rail (Twin Cities to Rochester Service)

URL: <http://www.goziprail.org/index.html>

Minnesota High-Speed Rail Commission

URL: <http://www.mnhighspeedrail.com/index.php>

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Prepared for The Southeast Minnesota Rail Alliance by Transportation Economics & Management Systems, September 2009

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