

Northstar Rail Corridor Post-Pandemic Study

Appendix C: Rail Extension Technical Report

FINAL

Metropolitan Council

Prepared by:



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Rail Extension Technical Report

Introduction

This technical report documents additional considerations regarding potential extension of rail service that are identified in this study's main report. Items presented here are not intended to recommend a course of action regarding the selection of rail extension as the preferred transit service type, nor to identify the preferred train operator, but rather to outline the additional analysis needed to inform future decisions.

As outlined in the Transit Service Scenarios section of the Final Report, Scenarios 3 and 4 outline "Base" and "High" service levels, respectively, drawing on information developed in MnDOT's Northstar Commuter Rail Extension Feasibility Assessment (2020). For the purposes of this study, these scenarios have been named "Extend Rail" to reflect the primary difference between these scenarios and commuter rail. Several assumptions have been made to facilitate analysis:

- "Extend Rail" is used here to refer to scenarios that involve extension of existing commuter rail service to serve St. Cloud. The scenarios in this study differ from the options evaluated in the MnDOT study which assumed that underlying Northstar commuter rail trips (peak-oriented trips terminating in Big Lake) would no longer operate.
- In both Scenario 3 and Scenario 4, trips would serve all existing Northstar stations. The resulting schedules would provide access for commute trips to and from downtown Minneapolis at peak hours, but would also operate service in the reverse direction, providing bi-directional service to and from St. Cloud. This operation would allow the Extend Rail scenarios to serve a hybrid market of daily commute trips as well as midday, multi-purpose trips, similar to Amtrak's Downeaster corridor.
- In the Final Report (as in the MnDOT study), potential costs for Extend Rail scenarios are based on the assumption that BNSF would continue to operate the rail service using existing fleet and facilities. Consideration of conversion to Amtrak as the operator is described further in this Rail Extension Technical Report.

Building on these assumptions, this document outlines the factors that may inform project partners' decision-making regarding the operator of the Extend Rail scenarios, if selected. Two distinct options for are presented:

- **Option A: Continued BNSF Operation** using existing Northstar crews and equipment.
- **Option B: Conversion to Amtrak-Operated Service** using Amtrak crews and equipment, with financial support from a local sponsor.

For either option, decisions will need to be made by the original Northstar Corridor funding partners and corridor cities regarding which agency will sponsor the project and thereby provide the management function for day-to-day rail service operations, maintenance, and promotion. These determinations are beyond the scope of this study and will evolve from post-study considerations about which transit service scenario to advance for project development and implementation. The

possibilities for eventual project and operations agency sponsor or sponsors include Metro Transit, MnDOT, or an undetermined new corridor transit operating agency similar to corridor authorities that currently exist in several areas of the U.S.

Options for Future Operations

The following options outline differing approaches for delivering rail service that could be applied to either of the Extend Rail to St. Cloud scenarios evaluated in this Northstar Rail Corridor Post-Pandemic Study. These options should be considered as possible implementation methods that could be applied regardless of the level of service operated and the specific local sponsor identified.

Option A: Continued BNSF Operations

- Assume rail service is extended to St. Cloud and operates as a standalone service with continuing stops at existing Northstar stations and schedules modified to meet bi-directional trip patterns as outlined in the [Northstar Commuter Rail Extension Feasibility Assessment](#), conducted by MnDOT in 2020.
- BNSF would continue as the operator and retain responsibility for track maintenance.

Option B: Conversion to Amtrak-Operated Service

- Assume Northstar is converted to an Amtrak-operated corridor with service extended to St. Cloud as a standalone rail corridor, or if a standalone corridor is not workable, plan for extended service to Saint Paul Union Depot in order to connect with Amtrak's national network.¹
- Amtrak would become the operator. Northstar project partners would sell or dispose of the existing fleet and Amtrak would operate the corridor using its own fleet of locomotives and cars.

Key Considerations for Decision-Making

Operations and Maintenance Costs

- If Amtrak becomes the operator, the corridor may lose its ongoing formula funding support from the FTA. There is no comparable federal program for continual operations funding of intercity passenger rail.

¹ While the service could also potentially connect with the national network in St. Cloud, it is expected that Amtrak would require the connection to be in St. Paul, where the service could connect with a new daily intercity train between St. Paul, Milwaukee, and Chicago that may start service as soon as 2023. St. Paul is also closer to Amtrak's primary maintenance facility in Chicago and would avoid the need to deadhead equipment between St. Cloud and Chicago.

- The sponsor would need to identify a new, on-going, dedicated funding source (state and/or local) to support operations.
- If BNSF remains the operator, the project should proceed using operations and maintenance cost estimates scaled from existing Northstar service as featured in the main report.
 - Preliminary estimates based on current Northstar costs deliver an estimate of \$17.3 million to \$26 million annually for operations and maintenance, depending on the level of service in each scenario.
 - As a standalone service with a captive fleet and one host railroad, there would be fewer variables that impact on-time performance.
- If the line is run by Amtrak, the cost methodology established under the Passenger Rail Infrastructure and Investment Act of 2009 (PRIIA) Section 209 for Amtrak state-supported routes could be applied.
 - Conceptual estimates provided by Amtrak for two similar corridors suggest costs of \$44 to \$58 per train mile and \$6.4 million to \$15.8 million annually, as shown in Table 1. While details were not provided, it is anticipated that these costs are for an average train consisting of one locomotive and six or fewer cars. Amtrak utilizes single-level coaches for Midwest state-supported routes which have about half the passenger capacity of an existing Northstar coach. To meet ridership projections, the use of Amtrak equipment would require longer trains that would increase the per-train-mile cost due to the need for additional cars and locomotives. Results are shown for both Extend Rail to St. Cloud scenarios evaluated in this study, including the base scenario (four trips per day) and the high scenario (nine trips per day).

Table 1: Operations and Maintenance Costs (Based on Amtrak Peer Corridors)

SCENARIO	ANNUAL TRAIN MILES ¹	ANNUAL TRIPS	2023 ESTIMATED O&M COST (LOW ESTIMATE) ²	2023 ESTIMATED O&M COST (HIGH ESTIMATE) ²
Extend Rail Base	146,730	1,460	\$6.4 million	\$8.4 million
Extend Rail High	274,868	2,735	\$12.0 million	\$15.8 million

¹ Annual train miles are based on an alignment between St. Cloud and Target Field Station in downtown Minneapolis. If Amtrak requires that the route be connected to the national network, approximately 12 additional train miles would be added to each trip to reach Union Depot in downtown St. Paul, increasing annual train miles by between 15 and 20 percent. Operating costs in this case would depend on Amtrak’s operational decisions, including whether to interline this service with other Amtrak routes.

² “Low” and “High” cost estimates are based on a FY22 average costs of \$43.57 and \$57.34 per train mile, respectively, as recommended by Amtrak based on peer intercity rail corridors.

- Amtrak may require the train to be operated as an extension of another service that operates on other host railroads. Longer runs operated on multiple host railroads introduce additional variables that can impact on-time performance.
- More detailed estimates using Amtrak’s full cost and revenue model that account for the potential need to connect with Amtrak’s national network, may need to be developed and could include additional mileage to connect with St. Paul and/or other destinations.

Capital Costs: Equipment and Stations

- If BNSF remains the operator, the project should assume continued use of the existing Northstar train equipment as featured in the final report.
- If Amtrak becomes the operator, the project should assume conversion to Amtrak fleet using single-level coaches that have lower passenger capacities than Northstar coaches.
 - Amtrak fleet costs would likely take the form of capital equipment use charges and other ancillary charges under the PRIIA 209 methodology and would need to be paid by the local sponsor as an ongoing cost.
 - Stations platforms may need to be lengthened to accommodate the longer Amtrak trains needed to meet potential demand.
 - Station platforms would need to be modified to meet ADA accessibility requirements due to differing boarding heights between existing Northstar equipment and Amtrak equipment.

Capital Costs: Track Improvements

- If BNSF remains the operator, improvements would be needed at the St. Cloud Amtrak station to facilitate midday layovers for Northstar trains. The Big Lake siding track would also need to be extended or improved to provide access to existing mainline tracks. Crossovers would also need to be added north of Big Lake and south of Saint Cloud. In the high service scenario, the Big Lake station would also be expanded and additional track work completed to allow trains to serve the station without leaving the BNSF mainline tracks. These improvements are described in detail in the Northstar Commuter Rail Extension Feasibility Assessment, Appendix G (2020). Other track upgrades could be necessary between Big Lake and St. Cloud depending on proposed schedules and operating requirements.
- If the corridor is converted to Amtrak operations, all the improvements required for the BNSF option would likely be required for the Amtrak service. In addition, new and/or upgraded track infrastructure may be required to facilitate a connection with Amtrak's national network via St Paul's Union Depot.
- If a standalone corridor option between Minneapolis and St. Cloud is not workable, a feasibility study would be required to determine the extent, alignment, and cost of track improvements between downtown Minneapolis and downtown Saint Paul that would be needed to connect to Amtrak's national network via Union Depot in downtown Saint Paul. In addition, MnDOT recommends this study include analysis of potential track improvements between Big Lake and St. Cloud, as well as potential station improvements to accommodate Amtrak trains. In addition to Northstar, this study would benefit future operations of proposed intercity passenger rail corridors identified in the State Rail Plan, the Federal Railroad Administration's Midwest Plan, and Amtrak's national plan.

Next Steps

Option A: Continued BNSF Operations

If pursuing continued BNSF operations, project partners will need to:

- Identify the timeline for proposed rail extension to St. Cloud and determine whether any changes will be made to existing commuter rail service in advance of rail extension.
- Discuss with FTA and the Federal Rail Administration the implications and requirements of extending rail service to St. Cloud, including terms of funding agreements and future funding opportunities.
- Engage with BNSF to develop detailed operations assumptions and cost estimates for rail service and potential capital infrastructure improvements needed to serve St. Cloud.
- Determine a project-sponsoring agency and funding arrangements, including federal and non-federal partner contributions.
- Construct improvements.
- Negotiate and begin operations under a new BNSF operating agreement.

Option B: Conversion to Amtrak-Operated Service

If pursuing conversion to Amtrak-operated service, project partners will need to:

- Determine how to transition from existing commuter rail service to extended service with conversion to Amtrak operations.
- Determine the process for sale or disposal of Northstar train equipment.
- Discuss with FTA and the Federal Rail Administration the implications and requirements of extending rail service to St. Cloud, including terms of current funding agreements and future funding opportunities.
- Engage with Amtrak to develop operational forecasts, including updates to ridership and revenue estimates.
- Determine a project-sponsoring agency and funding arrangements, including federal and non-federal partner contributions.
- Determine the desired fare structure and federal/non-federal funding partner contributions.
- Determine the most feasible and cost-effective rail route between Target Field Station in Minneapolis and St. Paul Union Depot.
- Develop detailed capital costs and ongoing operations and maintenance costs using Amtrak's cost model.
- Identify new dedicated and ongoing state and/or local funding sources to support the service.
- Negotiate an operating agreement with Amtrak.
 - Amtrak would also need to negotiate operating agreements with any host railroad (e.g., Canadian Pacific Railroad if running on existing route to Union Depot).
- Construct improvements as needed.
- Begin operations under a new operating agreement with Amtrak.