EAST METRO RAIL

YARDS IMPROVEMENT PROJECT

Project Summary Report

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Prepared for:



Prepared by:

Tran Systems Kimley » Horn



Revision History

Revision Number	Date	Description
0	10/25/2018	Initial draft to Ramsey County for review and comment
1	12/6/2018	Addressed Ramsey County's review comments.
2	1/28/2019	Addressed Ramsey County's final review comments.







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Introduction

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The East Metro Rail Yards Improvement Project (YIP) includes proposed improvements to the rail network in an area that accommodates five percent of the nation's freight rail volume as well as Amtrak passenger trains. The East Metro Rail Capacity (East Metro) Study, completed in 2012, developed multiple improvement options to enhance the fluidity of existing trains and provide capacity for more trains to safely move along the 19-mile East Metro corridor. Option 1.5 – Northern Upgrades proposed a specific group of projects in Saint Paul just south and east of Union Depot, which would provide capacity to better accommodate existing freight and passenger rail traffic, as well as 10 years of anticipated growth in rail traffic. These projects would also lay the groundwork for implementation of additional passenger service. Ramsey County commissioned the YIP to complete the modeling, engineering, planning and environmental documentation needed to confirm and make improvement projects from the East Metro Study shovel-ready and poised to seek future funding for construction. The YIP included a reevaluation of the improvements identified in Option 1.5-Northern Upgrades to ensure that the proposed improvements still address the needs identified in the East Metro Study.

Study Area

The study area for the YIP, shown in Figure 1, extends from Union Depot southeast to approximately I-494. This area includes the Division Street Wye and Hoffman Interlocking, as well as subdivisions and multiple rail yards owned by BNSF Railway (BNSF), Canadian Pacific Railway (CP), and Union Pacific Railroad (UP).









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Study Process

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East Metro Rail Capacity Study (East Metro Study)

Prompted by a long-term plan to introduce commuter, higher speed, and incremental intercity passenger rail to the Twin Cities area with the hub at Union Depot in Saint Paul, Ramsey County Regional Railroad Authority (RCRRA) commissioned the East Metro Study to:

- Identify the needs of the rail network in the area for both existing freight and passenger service, as well as future, incremental freight traffic and new passenger service,
- Understand the physical, operational, environmental, and other constraints that could hinder the network's ability to accommodate future traffic,
- Propose potential solutions, both physical and operational, to address these constraints, and
- Develop conceptual engineering designs for proposed infrastructure improvements and planning-level cost estimates.

Figure 2 shows the Primary Study Area for the East Metro Study was essentially the same as the full study area for the YIP (shown in Figure 1). The East Metro Study also included a secondary study area that extended south and east of the primary study area, incorporating the reach of a proposed Red Rock commuter system with Hastings as its outermost station and UP's Albert Lea Subdivision approaching Rosemount.



Figure 2: Primary and Secondary Study Areas for East Metro Study

Source: East Metro Rail Capacity Study, 2012.





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The study first entailed gaining a thorough understanding of existing network conditions (Option 1)—both the infrastructure and operating practices—through observation and interviews with railroad personnel and confirmation of understanding through simulation. The modeling results also helped to identify current bottlenecks in the network. After layering additional freight and then passenger trains on top, the model illustrated that the network would incur significantly more delays with incremental freight traffic, let alone with new passenger service.

Through collaboration with railroad staff, the study team identified infrastructure and operational changes that would increase network capacity and facilitate train movements. Proposed infrastructure improvements were grouped as Options 1.5, 2, 3 (an alternative to 2), and 4, which could be implemented in phases. Using an iterative process with the model, the study team tested the impacts of proposed changes and used the results to prioritize proposed improvements.

As part of the East Metro Study, the study team also generated conceptual engineering designs for the proposed infrastructure improvements, completed initial steps for environmental review, and attended meetings to inform the public about potential improvements.

East Metro Rail Yards Improvement Project (YIP)

Ramsey County commissioned the YIP to complete the modeling, engineering, planning, and environmental documentation needed to confirm and make Option 1.5 improvement projects from the East Metro Study shovel-ready so that project partners will be poised for seek future funding for construction. While higher speed passenger rail and incremental Amtrak trains are still being considered, the plan for Red Rock commuter rail within the East Metro network has been dropped from consideration. Accordingly, after consultation with project stakeholders, a flyover structure to provide dedicated passenger train access to Union Depot as well as those projects identified in the East Metro Study already constructed by the railroads were eliminated from the Option 1.5 group of projects for the YIP.

Scope of Work

The YIP entailed the following tasks:

- Confirmation: The consultant team refreshed the understanding of network operations for changes in conditions
 since the East Metro Study, including current train volumes and infrastructure changes made in the interim. As was
 the case with the East Metro Study, this was achieved through observation, interviews with railroad staff, and
 simulation exercises. The consultant team also performed Rail Traffic Controller (RTC) capacity modeling at
 volumes estimated for ten years in the future, both with and without proposed YIP improvements, confirming that
 this set of improvements is still expected to adequately accommodate the network's needs.
- Engineering Design: The YIP advanced engineering design to the preliminary design level. Design entailed preparation of design criteria agreeable to the host railroads and development of design plans. The consultant team then used to the design as the basis to estimate the project's cost.
- Environmental Analysis: The consultant team prepared environmental documentation in compliance with National Environmental Policy Act (NEPA), including communication and public engagement. Due to the lack of official federal action, the environmental analysis was prepared as a draft categorical exclusion (CE) in anticipation of future action. The YIP as currently defined does not meet thresholds for mandatory environmental documentation under the Minnesota Environmental Policy Act (MEPA). The Federal Railroad Administration's (FRA) role in the environmental analysis was limited to providing consultation and feedback. When funding is available and official federal action is imminent, the FRA will be asked to concur in writing with the recommendation that a CE is the appropriate NEPA class of action for YIP.
- Financial Planning and Analysis: The consultant team prepared a benefit-cost analysis (BCA) for YIP suitable to accompany a federal grant application following USDOT's June 2018 Benefit-Cost Analysis Guidance for

Discretionary Grant Programs. As part of the BCA, the consultant team estimated future maintenance costs of the proposed infrastructure.

 Memorandum of Understanding (MOU) Framework: The consultant team prepared an agreement framework that summarizes the identified projects, the anticipated capacity benefits, and anticipated responsibilities of the parties to the agreement. The goal of the MOU framework is to facilitate the development and execution of a final MOU, allowing the YIP to progress without a constant need to revisit completed work and maintaining momentum toward implementation.

Stakeholder Engagement

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The goal of the public engagement efforts was to educate and inform the community about the YIP and to provide forums for the community to offer input on proposed improvements and potential impacts, ultimately building consent and momentum for the YIP.

The YIP was led and managed by Ramsey County, with input from other groups and agencies as illustrated in Figure 2. The RCRRA Board of Commissioners provided project oversight and approval as the lead public agency for this phase of the project.



Project Management Team (PMT)

The PMT was a group of staff engaged to guide the YIP and facilitate small working groups. PMT members worked collaboratively to prepare information for the Stakeholder Advisory Group (SAG) and Railroad Working Group (RWG) to review. The PMT included Ramsey County staff, the consultant team, and key staff from the Minnesota Department of Transportation (MnDOT). The PMT coordinated monthly.

Stakeholder Advisory Group (SAG)

The SAG included representatives from key partnering agencies and organizations, Ramsey County staff, and the consultant team. The SAG met four times between March 2017 and May 2018. Meetings focused on informing stakeholders of project progress, and as necessary, asking for input on specific work items. The following agencies and organizations were invited to serve on the SAG:

- Ramsey County (Public Works and Parks and Recreation)
- Washington County
- Dakota County
- City of Saint Paul (Public Works, Parks and Recreation, and Planning and Economic Development)
- City of Maplewood
- City of Newport
- City of Saint Paul Park





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- City of Cottage Grove
- City of South Saint Paul •
- City of Rosemount
- City of Inver Grove Heights •
- Denmark Township •
- City of Hastings •
- Minnesota Historical Society •
- National Park Service
- Saint Paul Area Chamber of Commerce •
- Metropolitan Council •
- Minnesota Department of Natural Resources •
- Canadian Pacific Railway •
- **BNSF** Railway
- Union Pacific Railroad •
- Amtrak •
- Twin Cities and Western Railroad •
- MnDOT Passenger Rail Office and Freight Rail Office •
- Federal Railroad Administration (FRA)
- Saint Paul District Councils 1, 3, 4, and 17 •

Railroad Working Group (RWG)

A multi-level approach was taken when communicating with the railroads: engagement of locally established government affairs staff, day to day line staff through one-on-one meetings and site visits, and engagement of strategic planning staff through the Railroad Working Group (RWG). The RWG met seven times throughout the project, with a focus on discussing concepts of operating and infrastructure changes, and building consensus for proposed projects. The following entities are all potentially impacted by the projects and were part of the RWG:

- Canadian Pacific Railway
- Union Pacific Railroad
- BNSF Railway
- Twin Cities and Western Railroad
- Union Depot Railroad (RCRRA)

Agency Coordination

Additional coordination beyond the PMT, SAG, and RWG occurred with the Federal Railroad Administration (FRA). Through periodic coordination calls, the FRA was engaged in the design and review of the project.

Community Engagement

Two open houses were held to gather input and inform the community on the project. The first one was held on July 24, 2017, as part of "Kicking off" the project and served to reintroduce the project to the public, explain the project purpose and need, and gather input. The second open house on September 19, 2018, was held before final decisions were made and was used to present potential improvements and summarize preliminary environmental impacts for public review and comment. Open house notifications were distributed and posted via email, social media, press releases to local news outlets, and distribution of invitation flyers to community centers and apartment complexes to reach communities which may not have access to other notification channels. County staff and the consultant team partnered with Saint Paul District

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1 Community Council to host the open houses, broadening the distribution of information about the YIP via local channels, including District 1 social media, local newsletter *The District 1 News*, and staff contact with neighborhood residents.

In addition to open houses, the community was informed about the YIP via a project email list, Ramsey County and Union Depot social media accounts, and a project web page (<u>https://www.ramseycounty.us/your-government/projects-initiatives/east-metro-rail-yards-improvement-project</u>). A short, graphically focused video was produced as a public information tool and made available via the project website and Ramsey County's YouTube channel, garnering over 400 views. Ramsey County staff visited both District Councils in the project area (Districts 1 and 4) to present information about the YIP and field questions from residents and Council members. A YIP project flyer was also developed which was used at all open houses and community presentations, available on the project web page, and provided to SAG members for distribution in their communities.

The community was invited to share comments and questions about YIP at open houses, community meetings, and on the website. Between the two open houses, four formal comment forms and ten comments on exhibits were received, as well as several comments and questions addressed verbally in conversations between attendees and staff. All comments were documented in an open house summary and reviewed for consideration in advancement of the design. As a result of multiple early concerns about increases in noise, a full noise analysis was performed for the proposed improvements. The noise analysis concluded that the YIP would not exceed federal noise thresholds and this information was reported back to the public. Community comments were also shared with the RWG and SAG. Throughout the YIP, Ramsey County's project manager received a limited number of calls and emails about the YIP, but none entailing substantive comments warranting a change in course. A reply to each communication was provided via phone or email.





Summaries of Related Projects and Plans

Previous and ongoing studies and projects in the study area that have or may have an influence on freight traffic and the YIP were reviewed and summarized. For each project or plan reviewed, the following was summarized:

- Purpose and background
- Findings, conclusions, or next steps
- Impact on the East Metro Rail Yards Improvement Project

It should be noted that the content of some of the reports is now outdated. Table 1 lists the projects and plans that were summarized.

Project/Plan	Lead Agency/Organization	Year Completed
Twin Cities-Milwaukee-Chicago Intercity	MnDOT and Wisconsin Department of	Ongoing
Passenger Rail Service Phase 1 Study	Transportation (WisDOT)	Ongoing
Twin Cities to Milwaukee High-Speed Rail	FRA and MnDOT	Ongoing
Corridor to Chicago	DCDDA are basis of the Duck Line Consider	
Study	Task Force	2017
Riverview Corridor Pre-Project Development Study	RCRRA	2017
Bruce Vento Pedestrian and Bicycle Bridge	City of Saint Paul	Ongoing
Kellogg Boulevard/3 rd Street Bridge Replacement	City of Saint Paul	Ongoing
Trout Brook Regional Trail Connections	City of Saint Paul	Ongoing
BNSF Railway Project in Saint Paul Park	BNSF	Ongoing
UP/BNSF Grade Separation	RCRRA	Ongoing
Eau Claire to Twin Cities Passenger Rail Initiative	Organizing Council	Ongoing
Red Rock Corridor Implementation Plan	Washington County Regional Railroad Authority (WCRRA) on behalf of the Red Rock Corridor Commission	2016
Minnesota Statewide Freight System Plan	MnDOT	2016
Minnesota State Rail Plan	MnDOT	2015
Feasibility Report on Proposed Amtrak Service Chicago-Milwaukee-La Crosse-Twin Cities-(Saint Cloud)	Amtrak	2015
East Metro Rail Continuity Project TIGER Application	RCRRA	2014
East Metro Rail Yards Fluidity TIGER Application	RCRRA	2013
Great River Passage Master Plan	City of Saint Paul	2013
East Metro Rail Capacity Study	RCRRA	2012

Table 1: Related Projects and Plans





Confirmation of Project Package

Description of Project Package

The YIP includes the following proposed improvements developed from Option 1.5 – Northern Upgrades in the East Metro Study. The improvements were modified based on projects that were built by the host railroads or deemed no longer necessary by the RWG. For example, the Union Depot Flyover was eliminated due to reduction in future volume of passenger service (elimination of Red Rock commuter trains). However, future growth of passenger and freight volume should be monitored to determine if a flyover or other improvements are needed.

The YIP includes the following proposed improvements:

- UP Altoona Subdivision Power Turnouts: The Altoona Subdivision east of the Westminster Junction has hand thrown, manual switches which requires crews to stop all westbound and eastbound trains before manually aligning the switches. For longer trains, this can create a situation where UP trains are temporarily parked while extending onto the mains of the BNSF's Saint Paul Subdivision fouling the track. Automatic, powered switches are proposed to eliminate the need for train crews to stop and throw switches.
- **Four Track Connections:** With the improvements to the Hoffman Interlocking and the addition to the joint mainlines, a new four track connection will be made between Westminster Junction and Division Street. This proposed improvement will allow for improved track routing in this area.
- **UP/CP Connection:** A direct connection between the CP's River Subdivision and the Saint Paul, Midway and Altoona Subdivisions, comparable to the Joint Mainline 2 connection for the BNSF, increases capacity by allowing higher train speeds.
- Joint Mainline 2: Joint Mainline 2 will provide a direct connection between BNSF Mainline 2 and the Saint Paul, Midway and Altoona Subdivisions. This connection will allow a higher speed access and reduce mainline track occupancy to the one plus mile length grade that varies between 1.4 percent and 1.6 percent ascending going north which currently limits heavier trains to speeds less than 10 mph.
- Hoffman Interlocking Upgrade: The proposed track through the Hoffman Interlocking MP 428.8 to MP 429.3 of the BNSF Saint Paul Subdivision will be constructed and existing main tracks shifted and reconstructed to allow for better horizontal geometry (i.e., straighter tracks). Coupled with the upgrade of mainline turnouts through the interlocking, the improved geometry will increase allowable speeds through Hoffman Interlocking from 10 mph to 40 mph for both straight-through and diverging movements. Furthermore, the crossovers between 7th Street and Westminster will be reconfigured to give more and better options for train movements through that area. Based on concerns raised by BNSF about the stability of the adjacent bluff, plans for track and an access road near the bluff will require further review and potential revisions when conceptual plans are advanced further.
- **BNSF Auto Facility Tail Track:** A new tail track long enough to accommodate 10 cars and a switch engine will allow more efficient switching between Dayton's Bluff Yard and the auto facility tracks MP 428.5 BNSF Saint Paul Subdivision. While this switching does not normally foul the mainline, the existing switch from the tail track to the mainline will be removed, eliminating the possibility altogether.

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- BNSF Dayton's Bluff Yard Shift: Currently, Dayton's Bluff Yard tracks are more widely spaced than necessary, under-utilizing the underlying property. Shifting existing tracks 8001- 8006 to the east will free up adequate spacing for two additional mainlines and one new departure track between Dayton's Bluff MP 428.5 and Saint Paul Yards MP 427 on BNSF Saint Paul Subdivision. This will allow for a total four mainlines and increase capacity and terminal speeds. Access roads will also be installed on the outside of the four mainlines.
- Joint Mainline: Approximately 4.5 miles of additional mainline track between Oakland MP 426.7 on the BNSF • Saint Paul Subdivision and Westminster MP 1.1 on the BNSF Midway Subdivision. This new mainline will allow a new four-track connection to be made between Division Street and Westminster Junction by all railroads (joint trackage) and is part of the overall Hoffman Interlocking improvements. This proposed new mainline lessens delay and congestion through Hoffman Interlocking and, in conjunction with the other proposed improvements, would accommodate proposed intercity passenger trains between the Twin Cities and Chicago.
- BNSF Dayton's Bluff Yard Lead Extension: One purpose of Dayton's Bluff Yard is for handling manifest trains and interchanging railcars. Manifest trains will work on yard tracks that are open and of sufficient length. Often, though, the yard tracks are not long enough, so the manifest trains are forced to occupy Main Track 1. Extension of the yard lead approximately 1,500 feet to the southeast at MP 426.7 of BNSF Saint Paul Subdivision will allow BNSF to perform its switching without fouling the mainline. This improvement will necessitate revised drainage and a new retaining wall of approximately 1,900 feet.
- **UP Second Mainline:** The second mainline will be approximately 1.9 miles in length, doubling capacity between Hoffman Yard mainline connection MP 352.1 and Hoffman Bridge at MP 349.8 and will provide UP a more direct route from the yard to its Altoona Subdivision. UP currently uses the Robert Street Bridge to access the Altoona Sub, a slow process that causes delays for BNSF and CP traffic because UP can occupy both the BNSF Saint Paul and Midway Subdivisions and the CP Merriam Subdivision.
- Canadian Pacific Railway Crossovers: The access to the Canadian Pacific Dunn Yard for eastbound trains requires trains to stop near the Newport crossovers and back into the Red Rock Industrial Lead, a process that can foul the mainline for over 45 minutes during its execution. A new set of universal crossovers just south of the existing south end of Dunn Yard will be installed. This set of crossovers will allow CP to make head in moves off the mainline onto the Red Rock Industrial Lead at 30 mph and will substantially reduce the time the mainline is fouled.











Figure 4: East Metro Rail Yards Proposed Improvements

Capacity Modeling

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The East Metro Rail Capacity Study, completed in 2012, identified a specific group of projects (Option 1.5 – Northern Upgrades) in Saint Paul needed to address capacity issues which could be anticipated with incremental freight volumes and implementation of commuter rail, high speed passenger, and additional Amtrak service. The East Metro Study team used TranSystems' Transportation Modeling Studio (TMS) simulation software to help identify and to test the efficacy of the proposed improvements with multiple iterations of simulation.

For the YIP, the TMS model was replicated with Bentley's Rail Traffic Controller (RTC) modeling software, a tool used by all Class I railroads. The model was then updated to include the existing track configuration which captures projects which the railroads built since the East Metro Study's completion. Additionally, the flyover to Union Depot proposed in Option 1.5 was excluded due to commuter rail being removed from long-term passenger rail plans. However, future growth of passenger and freight volume should be monitored to determine if a flyover or other improvements are needed. Finally train volumes, schedules, and area routings were updated based on data from and field interviews with area railroad operations representatives from BNSF, CP, and UP.





Methodology

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The modeling exercise entailed loading appropriate network data, application of modeling assumptions, and a series of model runs for various scenarios. Network data captured by the model includes, among other data, existing and proposed track configurations, train schedules, volumes, and routings. The RTC model is based on assumptions that eight days of train activity (a "run") is sufficient to measure network performance, that yard operations would be treated as "black boxes," that freight volumes will grow two percent each year, and that dispatching priority, from highest to lowest priority, is Amtrak trains, then intermodal trains, then all other non-UP freight trains based on entry time into study area, and lastly all UP trains.

The RTC model was run for five main scenarios to illustrate network performance under different conditions, as follows:

- 1. Baseline: Baseline scenario depicts current network physical and operational conditions and volumes.
- 2. Baseline with growth: This scenario applies future train volumes with both incremental freight volumes and new passenger service to the network's current infrastructure.
- 3. Build alternative with growth: This scenario includes all the proposed YIP infrastructure improvements and applies future train volumes.
- 4. Baseline with growth no added passenger: This scenario is like Scenario 2, except that passenger train volumes are kept at current levels, two Amtrak trains per day.
- 5. Build alternative no added passenger: This scenario is like Scenario 3, except that passenger train volumes are kept at current levels, two Amtrak trains per day.

Random runs (30) for each scenario were completed to measure performance variability. Special runs were done to estimate the impact two-hour maintenance of way work windows would have on train delays under Baseline and Build infrastructure conditions.

Results

The capacity modeling exercise confirmed that the proposed YIP improvements would address the capacity concerns associated with increased freight volumes and new developments with passenger rail. The metrics measuring RTC modeling results include average run time per train, average train delay, and average train speed. Of these metrics, average run time per train is most useful because it incorporates multiple factors impacting network performance and fluidity (e.g., delays, speed, and routing options) into one measurement. See Figure 4 for a comparison of run times for the five simulation scenarios described above.









Figure 5:: YIP Modeling Results

RTC results demonstrated that East Metro network with YIP infrastructure would handle future, higher volumes—including new passenger service—better than existing network handles current volumes. Accordingly, simulation modeling supports the advancement of YIP infrastructure.

Engineering

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The East Metro Study's Option 1.5 conceptual plans were modified to account for completed projects and to eliminate the proposed passenger flyover. The design was then advanced to a level sufficient to complete the environmental process.

Design Criteria

The Design Criteria document provides an overview of the proposed projects, as well as defines specific design criteria for track, civil, and bridge improvements. It is a hybrid of multiple railroads and American Railway Engineering and Maintenance of way Association (AREMA) standards as it seeks to accommodate multiple railroads that own property in the study area. Horizontal and vertical track design follows the host railroad's standards, or the most restrictive railroad's standards when there are adjacent railroads. Structural design follows the general structural design standards for each respective railroad (Cooper E80 design live load for BNSF and UP and Cooper E90 for CP) and AREMA guidelines for pier protection.

Concept Plans

The consultant team advanced engineering plans to a level sufficient to complete the environmental analysis. While these are generally considered to be preliminary plans, each railroad defines preliminary slightly differently. For example, some railroads design signal improvements as part of preliminary plans while the industry as a whole does not. The YIP concept plans do not include signal design. Accordingly, the plans developed may not cover every element all the railroads expect from preliminary plans. When the YIP is advanced such elements will be incorporated into the YIP engineering plans.







RWG Input on Engineering Plans

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Input from the RWG was considered in the advancement of engineering plans. In response to review comments from CP, a crossover on CP tracks was moved from the location included in RTC modeling to a point farther south. (This change would not be expected to materially impact RTC results.) Based on concerns raised by BNSF about the stability of the bluff, plans for track and an access road near the bluff will require further review and potential revisions when conceptual plans are advanced further.

Environmental

The YIP proposes infrastructure for which federal, state and/or local funds may be sought in the future, prompting the need for an environmental review. The consultant team prepared draft environmental documentation following guidelines under the National Environmental Policy Act (NEPA) for an assumed Categorical Exclusion. Without federal funding for the project, the purpose was to advance the analysis to understand potential impacts and position for funding. Once the project has secured federal funding and is considered a federal action, formal documentation under the NEPA process will be completed in consultation with FRA. Fieldwork and agency coordination for threatened and endangered species, wetlands, cultural resources, and hazardous materials will be completed once funding is secured. The YIP, as currently defined, does not meet thresholds for mandatory environmental documentation under the Minnesota Environmental Policy Act (MEPA). Accordingly, the consultant team did not prepare an Environmental Assessment Worksheet.

Document Classification

Since the YIP is predominantly a freight rail project, the FRA is the appropriate federal agency for environmental review. The FRA's role in the current environmental analysis was limited to providing consultation and feedback. The YIP best fits the NEPA class of action of Categorical Exclusion (CE) for the following reasons:

- The proposed rail improvements are relatively minor, are consistent with existing zoning requirements, are confined to the railroads' right-of-way, and will not alter traffic density characteristics.
- The YIP entails improvements to existing, rather than new, facilities. •
- Environmental restoration, remediation, and pollution prevention activities will be conducted in conformance • with regulations and permit requirements.

When the YIP advances, the NEPA class of action will be revisited and confirmed.

Purpose and Need

The purpose of the YIP is to implement improvements that will enhance the fluidity of existing trains and provide capacity for more trains to safely move through the East Metro area. The goals of the YIP are as follows:

- Reduce train delay.
- Provide sufficient rail network capacity that improves routing efficiency and flexibility while accommodating existing and forecast freight and passenger trains.
- Increase capacity for growth.

The YIP addresses the need to alleviate or avoid the following conditions:

- Slow train speeds and track congestion that limit the East Metro rail network's throughput.
- Capacity constraints which could hinder the introduction of additional passenger train frequencies.
- Delays to the rail and roadway network due to the limited track's geometrics and operating characteristics.
- Limited rerouting alternatives in the national rail network which can add 500 miles to a train's route.





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Environmental Resources and Impacts

Due to the nature and location of the YIP, the environment—disturbed floodplain and grassland—does not change substantially across the project area.

The environmental analysis determined that the YIP did not impact an air quality non-attainment or maintenance area, navigable waterways, coastal zones, nor prime or unique farmlands nor require property acquisition. It would have positive impacts to transportation and safety and would have no anticipated impact on parks and recreation facilities or communities.

Environmental resources which may be impacted include the following:

- Cultural Resources: While the YIP will not impact the known archaeological sites and historic structures in • vicinity of the project area, further analysis, field investigation, and consultation with Native American tribes will be necessary during a NEPA evaluation to identify any unknown archaeological sites and architectural history properties and determine whether the YIP would impact them.
- Noise and Vibration: The YIP will impact three noise-sensitive areas, but the increases to noise and vibration are • not substantial enough to warrant mitigation.
- Hazardous Materials and Waste: There are 26, 16, and 36 high, medium, and low risk hazardous sites, respectively, within the study area (i.e., within 500 feet of the YIP's construction limits), a Phase I Environmental Site Assessment would be completed prior to construction.
- Wetlands: Wetlands and wetland boundaries were identified through the use of existing mapping and by examining digital resources, providing a reasonable estimate of current wetland boundaries for potential impact analysis on the study area, the area roughly one-quarter mile around the project construction limits. Two wetlands with a total of 0.97 acres are located within the project construction limits, and the necessary permits will be obtained prior to construction.
- Floodplains: Based on Federal Emergency Management (FEMA), Flood Insurance Rate Maps and FEMA Flood • Insurance Studies information, a majority of the YIP lies within the 100-year floodplain. There would be fill associated with placement of new tracks and extension of a culvert beneath the railroad to address floodplains impacts.
- Water Quality: The YIP is not anticipated to further the impairment of any of the four impaired waters into which it discharges. When the YIP infrastructure is advanced, coordination with local watershed districts and the Minnesota Pollution Control Agency will be conducted to ensure compliance with all regulations pertaining to these resource.
- Critical Habitat and Endangered Species: There are two species listed in the project area: the Rusty Patched • Bumble Bee and the Northern Long-Eared Bat but no designated critical habitat for these species within the project construction limits. Any tree removal for the YIP will need to be timed to avoid impacting hibernation habitat. Before the YIP infrastructure is constructed, the U.S. Fish and Wildlife Service should conduct a field review to confirm there is no critical habitat within the project construction limits and to identify any appropriate mitigation measures for potentially affected wildlife habitat, as necessary.



Public Benefits Analysis

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Capital, Operating, and Maintenance Costs

Capital, operating and maintenance costs are all considerations for the Public Benefits Analysis. These costs are calculated and described in the YIP Public Benefits Analysis Report.

Capital Costs

The cost to construct the YIP infrastructure is estimated to be approximately \$120 million and is based on engineering estimates of material quantities and engineer's opinions of probable unit cost. (See Appendix B of the East Metro Rail YIP Public Benefits Analysis Report for the capital cost estimate.).

Operating Costs

Since the YIP will not generate additional traffic nor train-miles, it is not expected to necessitate additional operating costs, such as crew or equipment costs.

Maintenance Costs

After the rail infrastructure is placed in service, the YIP infrastructure will incur ongoing maintenance costs. Annual railroad maintenance costs per track-foot were estimated using 2017 maintenance of way costs for Class I railroads, excluding depreciation, and Class I track-miles operated. This unit cost of \$4.79/track-foot was applied to the YIP's incremental trackfeet of 52,000 to estimate annual maintenance at \$248,873.

Public Benefits Analysis Summary

A benefit-cost analysis (BCA) is a tool to evaluate proposed YIP infrastructure, identifying the various associated benefits and costs and their timing. By attaching monetary values to the benefits and costs and discounting them back to present values, one can objectively determine whether a project's benefits exceed its costs, through its benefit-cost ratio (B-C ratio) and its net present value (NPV). The United States Department of Transportation (USDOT) requires that applicants for its discretionary grants include a BCA as part of their requests for funding. The YIP is consistent with many of the priorities and selection criteria of several previous USDOT grants, including economic competitiveness and safety. The BCA for the YIP was developed following the USDOT's 2018 Benefit-Cost Analysis Guidance for Discretionary Grant Programs.

Benefits

Most of the benefits of the YIP stem from reduced train delays, estimated using Bentley's Rail Traffic Controller (RTC) modeling software, and include fuel, labor, and equipment costs. The public is subjected to emissions whenever locomotives run and shippers incur carrying costs of the goods held on the railcars, so reduced train-hours generates emissions and inventory benefits. The addition of infrastructure necessitates its ongoing maintenance, a cost that would not otherwise be incurred. Such operating costs are "contra-benefits" or "disbenefits" of the YIP. A final benefit of the YIP is the residual value of the infrastructure after the 20-year BCA study period, net of future maintenance.

Costs

The cost to construct the YIP infrastructure is estimated to be approximately \$120 million and is based on engineering estimates of material quantities and engineer's opinions of probable unit cost. Construction will negatively impact existing rail traffic. Track will have to be taken out of service during construction, causing train delays with associated fuel, crew,

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equipment and emissions costs. Costs related to train delays caused by construction were added to construction costs, resulting in total project cost of \$124 million. While the assumption may be slightly optimistic, the BCA has placed all project costs in Year 0 of the analysis.

BCA Results

EAST METRO RAIL

YARDS IMPROVEMENT PROJECT

The YIP has a net present value (NPV) of \$62 million and a Benefit-Cost (B-C) ratio of 1.50, surpassing the 1.00 threshold for some USDOT discretionary grants.



Figure 6: East Metro Rail Yards Cashflows Over Time





YARDS IMPROVEMENT PROJECT PROJECT SUMMARY REPORT

Memorandum of Understanding Framework

The purpose of a memorandum of understanding (MOU) is to facilitate coordination and collaboration between parties over a project or projects of mutual interest. The YIP infrastructure involves several private and public parties and the timing of further development is uncertain. An MOU can serve to document each party's support of and good faith intentions to advance the projects.

MOU Framework Summary

A Memorandum of Understanding is a non-binding agreement signed by two or more parties setting terms and details for each party's participation in an action.

Summary of Content

A MOU contains information that sets a clear direction for advancing an action. It generally contains the following sections:

- Parties: All entities involved in the agreement should be specifically listed.
- Overall intent: This clause should reflect the exact intent of the understanding of all parties included in the MOU.
- Responsibilities and Disclaimers: This section outlines the reasons for putting a MOU in place. It should clearly outline the responsibilities and duties of each party (even if shared) so there is no misunderstanding.
- Time Period: Time limitations should be listed including the start and end date of the action under consideration.
- Financial Agreements: If payment is expected between parties, this section should outline the payer, payee and form of payment. This section could also outline the intent of future payments as the action advances.
- Signatures: Although an MOU is not legally binding, including signatures of the parties involved is important to show commitment to the action.

Intent for Use on the East Metro Rail Yards Improvement Project

Past studies conducted in the East Metro Rail study area focused on freight rail mobility and capacity, as well as the potential for additional commuter rail service and higher speed passenger rail. The East Metro Rail Yards Improvement Project synthesized these past studies and reviewed data provided by MnDOT, BNSF, CP, UP, and Amtrak, to confirm if improvements are already in place, are no longer needed, or if modifications will better serve railroad operations. As the YIP advances, the local, state, and private parties need to continue to engage their common interest towards successful implementation. A MOU is a formal agreement that could be executed for advancing the entire program, specific projects of interest, or continued engagement to further investigate solutions for mobility and capacity in the East Metro Rail study area.

Project Partner Coordination

In an effort to formalize a partnership, UP assisted Ramsey County in drafting a multi-party MOU. This MOU will facilitate coordination and collaboration between the railroad stakeholders with respect to the projects and any potential transaction or transactions associated with the funding, planning, design, construction, operation, maintenance, and repair of the currently identified projects or other projects connected with expanded passenger service.

The MOU is currently under review by Ramsey County and the partner railroads. While an MOU was not executed during the YIP, Ramsey County intends to use the framework to continue negotiation of final MOU terms.



East Metro YIP Implementation

Ramsey County commissioned the YIP on behalf of RCRRA to complete the modeling, engineering, planning and environmental documentation needed to confirm and make improvement projects from the East Metro Study shovelready and poised to seek future funding for construction. The MOU framework will allow for continued coordination and collaboration between parties to advance a project or projects of mutual interest. As a project or projects of mutual interest are identified, funding sources will need to be pursued before final engineering, environmental clearance, and construction can take place.

Securing funding to implement the overall improvements in the YIP will need to consider multiple sources and potentially phased implementation. Some improvements may be undertaken by the private railroad partners based on an internal business case review. For projects with mutual public and private benefit, funding sources should consider options of private, local, state or federal programs.

The United States Department of Transportation (USDOT) issues various discretionary grants that could be considered to fund the implementation of the YIP infrastructure. Past grants have included the following:

- BUILD, Better Utilizing Investments to Leverage Development,
- CRISI, Consolidated Rail Infrastructure and Safety Improvements, and •
- FASTLANE, Nationally Significant Freight and Highway Projects.

During coordination meetings, the FRA indicated that the YIP would be a suitable candidate for these federal grant programs. Additionally, matching funding could be secured through State of Minnesota or local options.

As federal funding is secured and specific projects are considered for final engineering and construction, each project will undergo environmental clearance under NEPA. FRA preliminary review of the initial environmental analysis concludes that the proposed improvements could be cleared with a Categorical Exclusion. Once environmental clearance is obtained, final engineering can be completed. The owning railroads will be directly involved in the final engineering that will lead to any construction of projects.

Ramsey County intends to continue to work in collaboration with owning railroads, MnDOT and other stakeholders toward implementation of these important projects to ensure that the Twin Cities area will remain a leader in local, regional, and national freight service and to add additional passenger rail service. Further public/private collaboration will be necessary to advance passenger rail planning, to fund the proposed improvements, and to coordinate final engineering and construction.





