



MAY 2015

PREVIOUSLY COMPLETED WORK TECHNICAL MEMO



PREPARED FOR

Red Rock Corridor Commission

PREPARED BY

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Your Ticket to the
Southeast Metro.

Hastings

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Introduction

Background review is especially important for the Red Rock Corridor Implementation Plan, because several studies with similar purposes had already been completed (the Red Rock Alternatives Analysis (AA) and the Red Rock Alternatives Analysis Update (AAU)). The information presented in these documents and the framework they created had to be fully understood and is used as a foundation for the Implementation Plan. In addition, many complementary studies and transportation initiatives have been completed for the Corridor. Key previous studies include the Station Area Planning Reports, the transportation sections of comprehensive plans for communities in the study area, and planning and analysis work related to passenger rail and freight rail in the East Metro Area.

Development of the Implementation Plan for the Red Rock Corridor will build on the findings and recommendations from the AAU. As such, the following document provides an update to the Previously Completed Work Memo developed during the AAU. The summary text and format is maintained, but updating some data, as appropriate. Some new document summaries have been added, including Thrive MSP and the updated State Rail Plan. Additionally, recommendations stated in the AAU are provided.

It should be noted that the content of many of the reports is now outdated. In many cases, the conclusions have been superseded by the results of other studies, while in other cases plans have been implemented. The relevant content of the previous plans for the corridor are described as they were originally written, although in some cases updated information is provided.

Document Review

Local Transportation Studies

2000 - MNDOT COMMUTER RAIL SYSTEM PLAN DRAFT

This study used the Twin Cities Metropolitan Commuter Rail Feasibility Study as its base and explored many details of commuter rail service in the Minneapolis-St. Paul Area.

In 1999, the Commissioner of MnDOT was granted authority to plan, design, construct, and operate commuter rail in Minnesota. This report addressed how MnDOT would manage this new authority and how commuter rail would be advanced in the Region. It outlined the advantage of having authority for commuter rail development in a single entity as opposed to many, and it provided ground rules for funding, financing, and engineering standards. It also provided a framework for conducting negotiations with host railroads for the use or purchase of rail right-of-way. MnDOT, as a state agency, was also given authority to plan for commuter rail lines that extended beyond the seven-county Minneapolis-St. Paul area. It should be noted that the Northstar Commuter Rail line currently extends into Sherburne County which is outside of this area, and the proposed commuter rail line in the Red Rock Corridor would serve Red Wing, also outside of this area.

The report discussed the question of governance and the possible establishment of a Joint Exercise of Powers Agency (JPA) or state-wide transit agency to plan and operate commuter rail. A third option was to have Metro Transit implement commuter rail. The report held up the Central Puget Sound Region as a model of governance that worked for commuter rail.

Other elements related to commuter rail development in the Region were noted, as follows:

- The report stressed that final approval for any commuter rail plans would have to go through MPOs before final design. Furthermore, any modifications to the system plan would have to go through the MPOs.
- Communities needed to practice Smart Growth policies and include them in their comprehensive plans, transportation plans, development strategies, and zoning ordinances. Standards for TOD were discussed.
- The commuter rail work would need to be included in Statewide and Regional Transportation Plans. The projects would also have to align with New Starts criteria.
- Cost-sharing would have to be addressed, with federal, state, local and railroads being players. The “Moving Minnesota” document discussed funding options, including motor vehicle excise tax and regional sales tax.
- Commuter rail extensions would be considered when the total transit operating costs would be reduced by the elimination or truncation of bus routes. The criterion of 100 riders per station was also suggested as a good planning rule of thumb for justifying new service.
- The report recommended that municipalities acquire land for stations and parking lots in the near term. It suggested that the sponsor could buy land for stations and parking lots, but then lease these lands to municipalities and require them to carry out tasks such as maintenance and policing.
- Facilities at the terminals would be needed for train storage and light maintenance.
- Heavier maintenance would possibly be done through contracts with existing railroads, if the vehicles were compatible, or at a new central maintenance facility in the future if that was cost effective and if a site was acquired. Any feasible coordination with Metro Transit’s LRT maintenance and storage facilities was recommended, too.
- A fare zone structure was envisioned. Fares would reflect a reasonable cost per mile, and discounts would be available for tickets bought in bulk.
- Free parking was envisioned at the stations.

- The report gave significant attention to the necessary task of negotiating with the railroads. It recommended that MnDOT be the chief negotiator on a team with the municipalities in the corridor and the agency sponsoring any given corridor. This would provide some continuity from the perspective of the railroads. The Northstar Commuter Rail project would be used as an example of how negotiations would be handled once that project was completed. The report also stressed the importance of getting legal counsel and engineering experts on the team. The railroads needed to really understand the passenger services that were being considered to understand the impact to them in terms of cost, risk, and capacity. The report stated that insurance was very important and recommended that all parties be covered.
- The report recommended acquiring new rolling stock because there were multiple options for buying equipment made in North America.
- The report stated that communications equipment must be compatible with the railroads'.
- The report stated that the new commuter rail service would have to recognize FTA safety standards.
- The report recommended creating standard operating procedures for all commuter rail services.
- The report recommended the use of relay crews to improve operations at the downtown terminals.

This report proposed initially operating three-car trains in the Red Rock Corridor, but building stations for five- to six-car trains to allow for future capacity expansion. The proposed schedule included four morning peak trips and four afternoon peak trips, but no service on weekends or in the middle of the day. It suggested the option of service for special events. Maximum speeds of 79 mph were assumed. A trip from Hastings to downtown St. Paul would be 29 minutes, while a trip from Hastings to downtown Minneapolis would be 60 minutes (this would include some time for crew repositioning at the St. Paul depot). The report explained that a commuter rail link would be more critical to the Red Rock Corridor than the Northstar Corridor because there is more demand from the Southeast to Minneapolis than there is from the Northstar corridor to St. Paul.

The report stressed the importance of coordinating the commuter rail service with existing transit services. It recommended new community circulator vans in Hastings, with service meeting every departure and arrival. It suggested that commuter rail service could effectively replace express bus service, with, one fewer bus needed for every 40 commuter rail passengers, reducing bus operating costs. The Red Rock Corridor could allow for the reallocation of 22 buses by 2020 (see the table below). It was noted in the report, however, that express buses would actually be faster than commuter rail between St. Paul and Minneapolis, and the travel time advantages of commuter rail with respect to express bus would be minimal for trips that started in Newport or points north and west. In principle, however, the service offered by the commuter rail should be faster and more reliable than that offered by express bus.

Table 1: Buses Removed by Corridor

BUSES REMOVED BY CORRIDOR		
CORRIDOR	BUSES REALLOCATED	
	2005	2020
Bethel	5	6
Dan Patch	24	28
Northstar	24	28
Norwood/Young America	10	9
Red Rock	18	22
Rush Line	16	15
TOTAL	97	108

SOURCE: 2010- MNDOT COMMUTER RAIL SYSTEM PLAN DRAFT

The report discussed how freight traffic in the Red Rock Corridor is very heavy, and so CP, the main owner, would not consider selling the right of way. However, in principle, railroads might consider selling right of way in corridors that get less use.

The report noted that the Red Rock Corridor commuter rail service will have to merge with the Rush line services going into St. Paul if that line is built as commuter rail. This report also noted that if a commuter rail line was built along the Central Corridor, it would have to accommodate traffic from up to six lines in the future.

2001 - THE RED ROCK CORRIDOR COMMUTER RAIL FEASIBILITY STUDY

In this report, it was assumed that the corridor required the following attributes:

- Travel speeds must be at least 30 mph
- Vehicle must have capacities for more than 221 passenger for commuter rail vehicles, 25 to 220 passengers for line haul service vehicles, and 7 to 24 passengers for circulator service
- Bus services would have to operate in mixed traffic
- The vehicles must have a self-contained power supply
- Vehicle propulsion should be diesel or hybrid diesel/electric
- Control/communication should be manual
- Vehicles can be single, articulated or capable of being combined into trains
- Suspension should be rubber tire or rail

In this report, commuter rail was selected as the preferred alternative after a discussion of options. A technology evaluation/selection process made note of the available transportation and utility corridors explaining that TH 61 and the shared CP/BNSF rail corridor were the only rights of way in the study corridor. This led the authors to the conclusion that there was no available space for LRT or a dedicated busway. As a result, only mixed-traffic bus service and commuter rail were moved forward in the planning process. Commuter rail was assumed as the long-term solution for the corridor, in spite of its significant capital costs.

The report furthered supported its claim that commuter rail would meet the needs of the corridor by presenting the following table:

Table 2: Objectives for the Red Rock Corridor

OBJECTIVE	SUPPORT/COMPLIANCE
Improve existing transit service to complement corridor transit service.	<ul style="list-style-type: none"> ▪ Local and express bus service would be improved to complement commuter rail operating in the corridor.
Improve connections between all modes of transportation.	<ul style="list-style-type: none"> ▪ Commuter rail operating in the corridor can interface directly with commuter rail operations in other corridors including Central and North Star. ▪ Stations will provide transfer opportunities between commuter rail and other modes including walk, bicycle, auto, local bus and LRT.
Improve level of service and travel time.	<ul style="list-style-type: none"> ▪ Commuter rail would be faster than existing bus service.
Invest in infrastructure, facilities and services that improve the connectivity, transfer and circulation of the region.	<ul style="list-style-type: none"> ▪ Commuter rail would connect or provide transfer to other modes in the region.
Coordinate with other regional commuter rail, transit, light rail transit and road projects.	<ul style="list-style-type: none"> ▪ Direct connection to other commuter rail lines and transfer to light rail and bus.
Provide efficient connections to other transportation corridors and modes.	<ul style="list-style-type: none"> ▪ Accessible to park-and-ride lots with direct connection to commuter rail and transfer to light rail and bus.
Work with Midwest Regional Rail System	<ul style="list-style-type: none"> ▪ Commuter rail would share tracks and stations with Midwest Regional Rail System.
Locate transit and/or commuter rail stations in locations where development/redevelopment of existing neighborhoods can readily occur.	<ul style="list-style-type: none"> ▪ Stations ideally suited to accomplish this objective.
Minimize right of way takings and displacement of homes and businesses.	<ul style="list-style-type: none"> ▪ Commuter rail would require minimal new right of way compared to other modes such as LRT or BRT.
Meet FTA goals as they relate to cost effectiveness.	<ul style="list-style-type: none"> ▪ Commuter rail can be implemented with relatively low capital cost with capacity that matches potential passenger volumes for the corridor.
Plan and develop transit stations with applicable FRA safety guidelines.	<ul style="list-style-type: none"> ▪ Existing rail facilities can be enhanced to improve compliance with FRA safety guidelines for both freight and passenger service.
Provide safe corridor crossing locations for vehicles and pedestrians.	<ul style="list-style-type: none"> ▪ Existing crossing locations can be improved for increased safety of vehicles and pedestrians, especially at station areas.

SOURCE: 2001 -THE RED ROCK CORRIDOR COMMUTER RAIL FEASIBILITY STUDY

The commuter rail service concept was peak period service, with ten daily trips spaced 30 minutes apart and access to rail stations provided by feeder bus services. The report assumed that there would be four peak direction trips and one non-peak direction trip during each peak period. The report estimated that 23 vehicles would be required, including 5 locomotives, 6 bi-level coach cab cars, and 12 bi-level coach cars. 150 seats per car were assumed. The report also assumed that a maintenance facility and a layover facility would be needed. The layover facility was envisioned in Hastings, where trains could be stored overnight and during the middle of the day.

This report assumed that commuter rail services would use existing BNSF/CP tracks which would be upgraded as necessary to support commuter rail operations. Commuter rail service would share the tracks with 20 to 60 freight trains per day.

Through analyses carried out as part of this study, daily ridership for Minneapolis-to-Hastings service was forecast to be 5,900 per weekday in 2020. Of these, 4,200 were new riders, with the rest shifting from bus to rail. Travel time was assumed to be 27 minutes between Hastings and St. Paul and 26 minutes between St. Paul and Minneapolis. The analysis suggested that 60% of riders would be starting from or going to the five stations in the Southeast and 15% of trips would be transfers to/from the Northstar Commuter Rail service.

This report presented a commuter rail capital cost estimate of \$261.6 million (in 2001 dollars), with some elements that could be shared with other transit systems. This cost estimate did not include land acquisition costs, and it only included the portion of the line between Hastings and St. Paul. The annual operating and maintenance costs were estimated to be \$7.9 million in 2010 dollars. This included costs for feeder bus service in Hastings. A proposed weekday schedule is shown below.

Table 3: Preliminary Commuter Train Schedule

	Morning / Westbound Schedules				PM RC from RR2	AM RC from RR1	Evening / Eastbound Schedules			
STATION	RR1 Leave	RR3 Leave	RR5 Leave	RR7 Leave	RR9 Leave	RR10 Arrive	RR2 Arrive	RR4 Arrive	RR6 Arrive	RR8 Arrive
Hastings	6:00	6:30	7:00	7:30	16:37	8:14	16:27	16:57	17:27	17:57
Cottage Grove	6:10	6:40	7:10	7:40	16:47	8:05	16:18	16:48	17:18	17:48
Newport	6:16	6:46	7:16	7:46	16:53	7:59	16:12	16:42	17:12	17:42
Lower Afton Road	6:20	6:50	7:20	7:50	16:57	7:55	16:08	16:38	17:08	17:38
St. Paul Station	6:27	6:57	7:27	7:57	17:04	7:47	16:00	16:30	17:00	17:30
St. Paul Station	6:37	7:07	7:37	8:07	17:14	7:37	15:50	16:20	16:50	17:20
Rice	6:42	7:12	7:42	8:12	17:19	7:33	15:46	16:16	16:46	17:16
Snelling	6:49	7:19	7:49	8:19	17:26	7:26	15:39	16:09	16:39	17:09
U of M	6:56	7:26	7:56	8:26	17:33	7:19	15:32	16:02	16:32	17:02
Northeast Mpls	6:59	7:29	7:59	8:29	17:36	7:16	15:29	15:59	16:29	16:59
Minneapolis	7:02	7:32	8:02	8:32	17:39	7:12	15:25	15:55	16:25	16:55
	Arrive	Arrive	Arrive	Arrive	Arrive	Leave	Leave	Leave	Leave	Leave

SOURCE: 2001 - THE RED ROCK CORRIDOR COMMUTER RAIL FEASIBILITY STUDY

This report placed more emphasis on the southeast piece of the Red Rock Corridor because the Central Corridor piece was being studied separately. In this report, alternative station sites were examined for Downtown St. Paul, Newport, and Cottage Grove. Technical Memorandum #4 of this document was particularly important because it served as the base for the cost analysis of commuter rail option carried out in the 2007 Alternatives Analysis.

Public Involvement Notes:

The consultation for this Alternatives Analysis included the following:

- Technical Advisory Committee (TAC) and Red Rock Corridor Commission (RRCC) Meetings
- Open Houses
- Land Use Forum
- Station Area Planning Workshops
- Newsletter
- Website

Vision Notes:

The vision for the Red Rock Corridor includes the following elements.

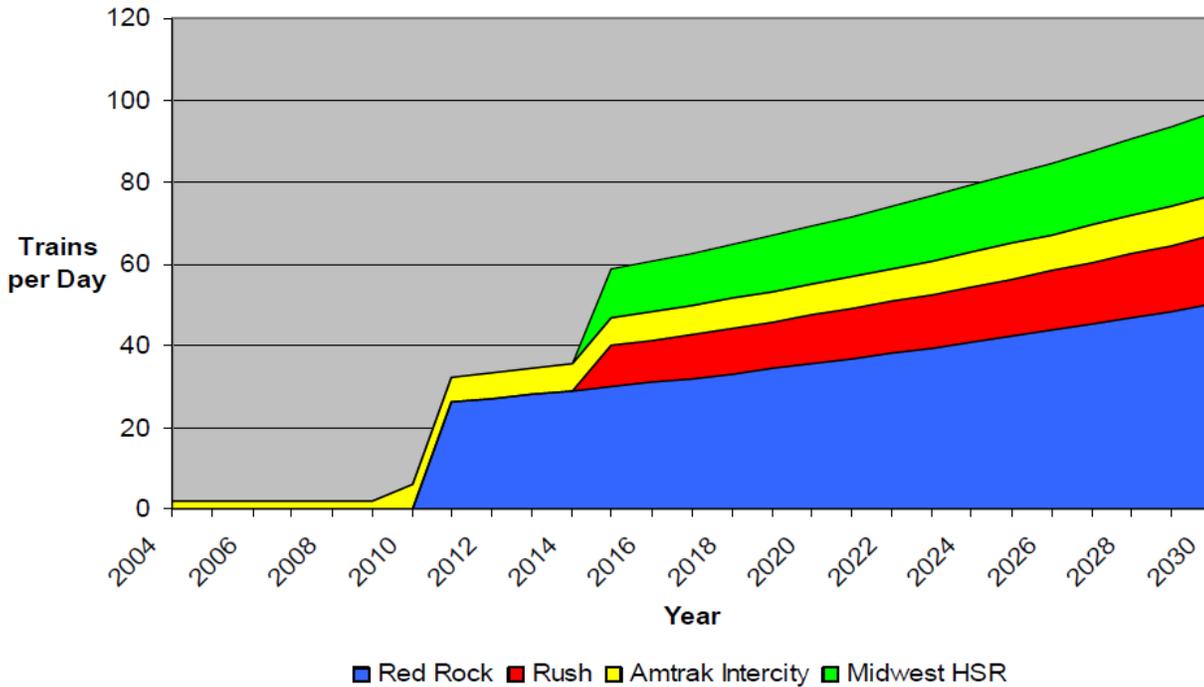
- Improve mobility and access for personal travel and goods movements. Significant growth is expected in the corridor and congestion is already a concern on TH 61. Transit options that reduce travel time and travel delays can provide a solution that addresses this growth and congestion in a more cost-effective way than roadway investments.
- Coordinate transportation investments to provide a seamless, integrated regional multimodal transportation network. This reflects the fact that links in the transit system are being added regularly, and they all need to fit together. The effective linking of the various segments will translate into a cost-effective system.
- Encourage the implementation of transit supportive development.
- Promote positive environmental impacts.
- Support a stable and reliable capital and operating funding source for transportation investments.
- Improve safety conditions for vehicular traffic and pedestrians.

2003 – SAINT PAUL UNION DEPOT ANALYSIS

This study laid out the foundations for the conversion of the St. Paul Union Depot into a multimodal transportation terminal, a process that is already well underway. A grand opening ceremony was held at Union Depot on December 8, 2012, and Amtrak service moved to the Union Depot on May 7, 2014.

This report described how the building would be acquired and repurposed to integrate many passenger services into one location. It described how buses would access its lower level and how passengers would be able to connect to the main passenger waiting area using the building's original platform access doors. It described how new passenger tracks and platforms would be built to accommodate Amtrak trains, allowing for the closure of the Midway Station (which took place in May 2014). Following that, it described how new tracks and platforms would serve the Red Rock Commuter Rail corridor and how future freight rail movements would be accommodated. In later years, the report showed how additional tracks would be added to serve Midwest high speed rail services from Chicago. The report was written with the assumptions summarized below about the potential passenger rail growth in St. Paul.

Figure 1: Forecasted Passenger Rail Growth in St. Paul



SOURCE: 2003 – SAINT PAUL UNION DEPOT ANALYSIS

The report described the project’s funding and how it was expected to bring about revitalization of the St. Paul Lowertown area. It also described how the future LRT would be integrated into the terminal.

Notably, the project would revitalize the historic building and return it to its original function as a transportation hub.

2004 - MIDWEST REGIONAL RAIL SYSTEM EXECUTIVE REPORT

This report described how nine Midwest states joined the Midwest Regional Rail Initiative (MWRRI) to implement high-speed rail in the Midwest. This report is a follow-up to reports in 1998 and 2000 concerning regional rail. This plan offered new cost estimates, new ridership estimates, and new ideas about feeder bus service, and it addressed freight rail capacity in greater detail.

This initiative started with a desire to simply increase operating speeds, train frequencies, reliability, and system connectivity. It transformed into a desire to bring 21st century train service to the Midwest. The report assumed that the tracks would be shared with freight trains and there would be joint development at all stations.

The report assumed that train speeds would be up to 110 mph and the system would be designed as a hub-and-spoke network with the hub in Chicago. The purpose would be to connect rural and small urban areas as well as metropolitan areas.

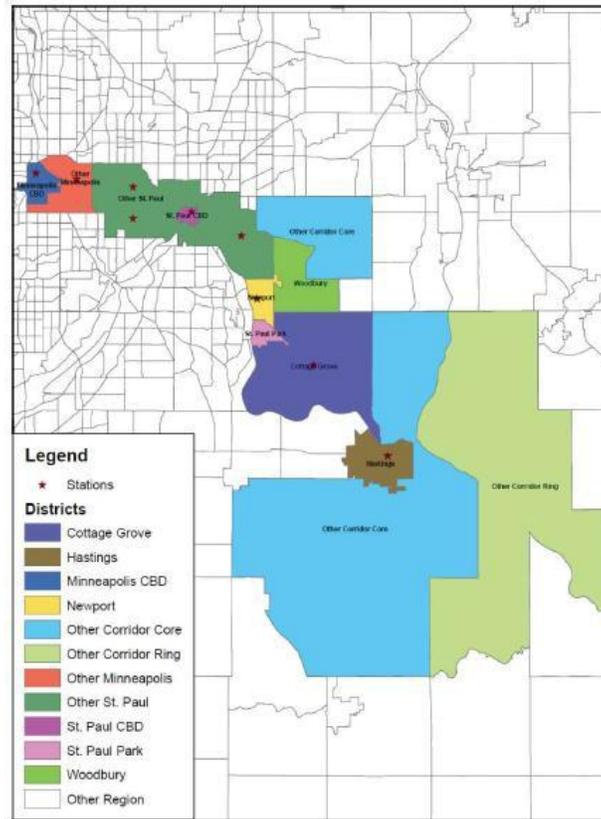
The Red Rock Corridor is part of the anticipated link between St. Paul and Chicago (via Milwaukee). The plan would see an increase from three to eight trains per day to Chicago from St. Paul. The travel time would be reduced from about 8 hours to 5.5 hours. Operating cost subsidies would be needed, initially, but it is envisioned that fares would cover operating costs as the service matured. The line between Chicago and St. Paul would be relatively profitable.

The report assumed that the total system cost would be \$7.7 billion, with 80% being federally funded and the remaining funding coming from the states.

2007 - RED ROCK CORRIDOR ALTERNATIVES ANALYSIS FINAL REPORT

The following map shows the study area and station locations assumed in the 2007 Alternatives Analysis Report.

Figure 2: Red Rock Corridor Study Area



SOURCE: 2007 - THE RED ROCK CORRIDOR ALTERNATIVES ANALYSIS

The purpose of the Alternatives Analysis (AA) was to develop and evaluate options for the corridor. The AA defined a study area that had a population of 376,859 in 2000 and 488,954 in 2030 (a 29% increase). Potential technologies were selected based on the following criteria:

- Proven technology
- Financial feasibility
- Compatible with existing infrastructure
- Compatibility with travel demand patterns

The five technologies/modes that passed were commuter rail, BRT, LRT, local bus, and commuter bus. Technologies that did not pass included high-speed rail and ferry. The minimum operating segment (MOS) was defined as Hastings to St. Paul.

BRT and LRT options were subsequently eliminated due to their lack of cost-effectiveness and compatibility with the corridor’s land uses. The report assumed that both BRT and LRT would require a dedicated right-of-way adjacent to TH 61 or in its median, and would thus be cost-prohibitive. The report assumed that the densities in the corridor were not sufficient to produce enough ridership to justify LRT.

The options that were carried forward included a base case, three express bus options, and five commuter rail options. The express bus options varied in terms of their use of the shoulder lane and other travel time enhancements, but shared fifteen minute

headways. The commuter rail options varied in terms of the alignment between St. Paul and Minneapolis and the stations that would be served, but all included five trips in the morning and five in the evening. A fifth option omitted service between St. Paul and Minneapolis. The Regional Council Transportation Model was used to forecast 2030 ridership for these options. Bus options resulted in 1,280 to 2,350 additional corridor transit passenger boardings per day over a base case scenario in which no improvements were made to the travel corridor and peak period buses departed approximately every 30 minutes. Commuter rail options resulted in 955 to 1,010 additional passenger boardings per day over this base case.

Annual operating costs for the rail option between Hastings and St. Paul were estimated to be \$6.7 million. This option included 2-car trains and five stations. Bus costs were estimated based on a three point cost model incorporating a base cost for peak period operation, a per hour cost, and a per bus mile cost and varied according to the level of service provided in the option.

Short-term, intermediate, and long-term strategies were recommended to build transit ridership in the corridor and prepare for the cost-effective implementation of commuter rail.

As the project progressed, the conclusion was reached that the specified FTA process was not at this time the most prudent course to strictly follow. Hence, the AA-Scoping Study evaluation and process was modified to reflect a non-federalized alternatives evaluation and decision-making process.

The AA discussed usage of the existing transit services. These included Routes 361, 365, 364, and 320 (note that Route 320 has since been discontinued as fixed-route service), which had 860 average weekday boardings in total in the second quarter of 2007. It also mentioned Route 94, which provides express service between downtown St. Paul and downtown Minneapolis. This service had 3,920 boardings per weekday, on average, in April 2007. The 2012 combined daily ridership for Routes 361, 364, and 365 is estimated to be 951.

The discussion of existing transit service performance also included information about the park-and-ride facilities. The park-and-ride usage at the time of this study was such that both the Cottage Grove and Lower Afton Road park-and-ride facilities were under-utilized, with 224 of 494 spaces used at the Cottage Grove park-and-ride facility and 79 of 114 spaces at the Lower Afton Road facility in October 2006. The report also mentioned the availability of parking in the City of Hastings in the vicinity of the railroad depot and identified a location for a station in the City of Newport.

The report cited the following daily train volumes on various segments of the rail network: 87 trains on the BNSF tracks between St. Paul and Minneapolis, 12-26 trains on the CP tracks from St. Paul to Minneapolis, and 68 trains per day on the CP/BNSF tracks from Hastings to St. Paul. These should be comparable to the train volumes used as the baseline in the 2012 East Metro Rail Capacity because this study used 2006 train volumes for this purpose.

The vehicles were assumed to consist of three vehicles – one locomotive and two coaches. The station costs were based on the station designs on the Northstar commuter rail line. Station costs included 25% for engineering, 30% for contingency, and 10% for project oversight.

A summary of the options are listed below:

Commuter Rail Options:

- Option A: Alignment uses BNSF track (the Northern alignment) but serves no intermediary stations between St. Paul and Minneapolis.
- Option B: Alignment uses BNSF track (the Northern alignment) and serves intermediary stations between St. Paul and Minneapolis.
- Option C: Alignment uses CP track (the Southern alignment) but serves no intermediary stations between St. Paul and Minneapolis.
- Option D: Alignment uses CP track (the Southern alignment) and serves intermediary stations between St. Paul and Minneapolis.
- Option E: No Alignment between St. Paul and Minneapolis.

Express Bus Options:

- Option A: This option includes two new routes, one connecting Hastings to St. Paul and another connecting Hastings to Minneapolis. Both routes would operate every 15 minutes.
- Option B: This option includes two new routes, one connecting Hastings to St. Paul and another connecting Hastings to Minneapolis. Both routes would operate every 15 minutes and use bus shoulder lanes for increased travel speeds and reliability for the entire route.
- Option C: This option includes two new routes, one connecting Hastings to St. Paul and another connecting Hastings to Minneapolis. Both routes would operate every 15 minutes and use bus shoulder lanes for increased travel speeds and reliability for the entire route. In addition, travel times and reliability would be further enhanced by the use of transit signal priority.

A summary of the option evaluation from the report is provided in the table below.

Table 4: Red Rock Corridor Option Evaluation

	Options	Capital Costs (\$2007), not including contingency, engineering, or oversight costs (\$ millions)	Real Estate Costs	Annual Operating Costs (\$2007)	Average Weekday Ridership (2030)	End-to-End Travel Time (min), for bus options, Route 361 / Route 365 (2030)	Route Miles Route, for bus options, 361 / Route 365	Vehicle Costs, not including contingency, engineering, or oversight costs
Commuter Rail	A: BNSF/Limited	\$243.65	variable estimate	not included	1580	62	30	\$36.50
	B: BNSF/All	\$252.92	variable estimate	not included	1620	65	30	\$36.50
	C: CP/Limited	\$236.30	variable estimate	not included	1635	55	30	\$36.50
	D: CP/All	\$244.47	variable estimate	not included	1605	58	30	\$36.50
	E: Hastings to St. Paul	\$183.56	variable estimate	\$6.71	1560	31	19.5	\$36.50
Express Bus	A: 15 min headways	\$0.00	not included	not included	1915	90 / 99	20.6 / 31.0	not included
	B: A + shoulders to Hastings	\$18.00	not included	not included	2645	75 / 67	20.6 / 31.0	not included
	C: B + TSP	\$75.00	not included	not included	2940	68 / 59	20.6 / 31.0	not included

Vision Notes:

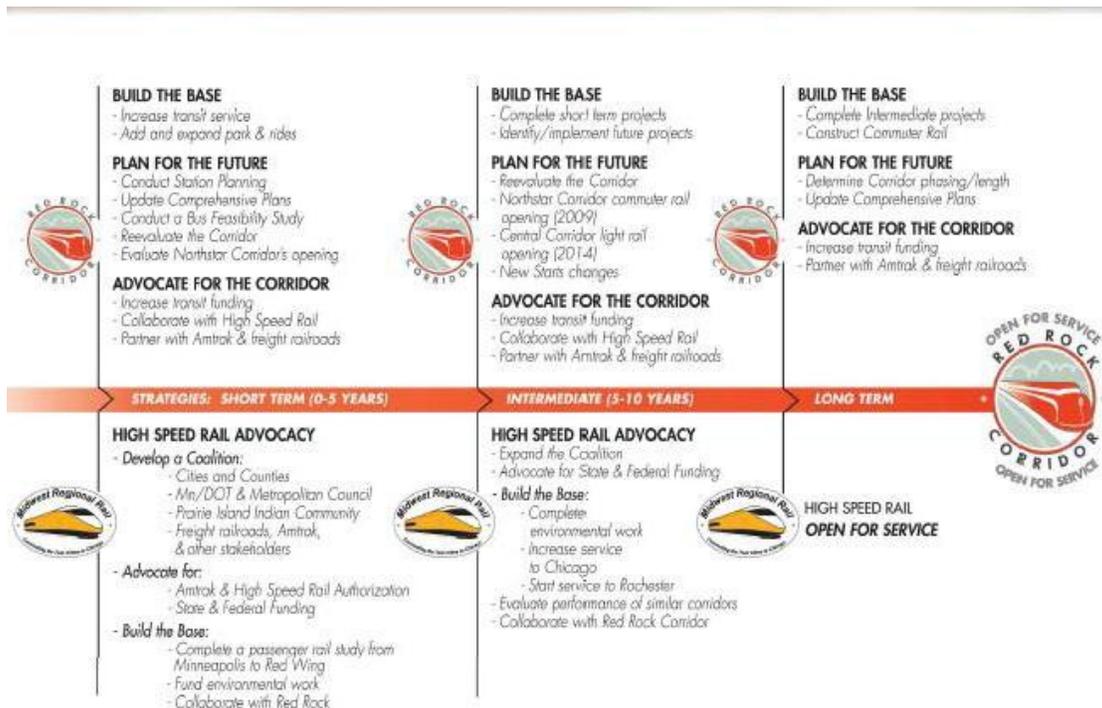
The overall corridor vision for the Red Rock Corridor that emerged from the Alternatives Analysis was the construction of commuter rail in the long term in coordination with high speed rail, but the introduction of enhanced express bus service in the near term. This vision complemented the Metropolitan Council’s 2030 Regional Transportation Plan, which aimed to double the current transit ridership by 2030 and develop a network of transitways. The resulting vision also supported the goals for the project, which were to:

- Cost effectively address transportation problems in the corridor

- Provide mode choice to people in the corridor
- Stimulate community and economic development
- Enhance regional transit system performance
- Improve the quality of the natural and manufactured environment
- Provide financially feasible options
- Provide travelers with a means to avoid congestion
- Reduce travel times in the corridor
- Facilitate travel in the peak period for employment

The following graphic illustrates the implementation plan for commuter rail in the Red Rock Corridor.

Figure 3: Implementation Plan from the Alternatives Analysis



SOURCE: 2007 - THE RED ROCK CORRIDOR ALTERNATIVES ANALYSIS

It should also be noted that the Station Area Planning work which concluded in 2012 was a recommended outcome of this study. Successful station areas, consisting of multiple land uses and higher densities, will be able to generate the ridership required to make commuter rail service cost effective.

Public Involvement Notes:

There were newsletters, a website, press releases and other media relations, presentations to local community staff, fact sheets, paid advertising, specific outreach to ethnic communities, and a booth at the 2007 Minnesota State Fair. Two public open houses were held in 2004, and four public open house meetings were held in 2007.

Consultation with the public and stakeholders indicated an interest in dual-mode operation (i.e., using commuter rail to serve demand in the peaks and buses to serve demand in the off-peaks, connections with other transit services, project coordination, and schedules. Many people expressed an interest in helping to move the project forward.

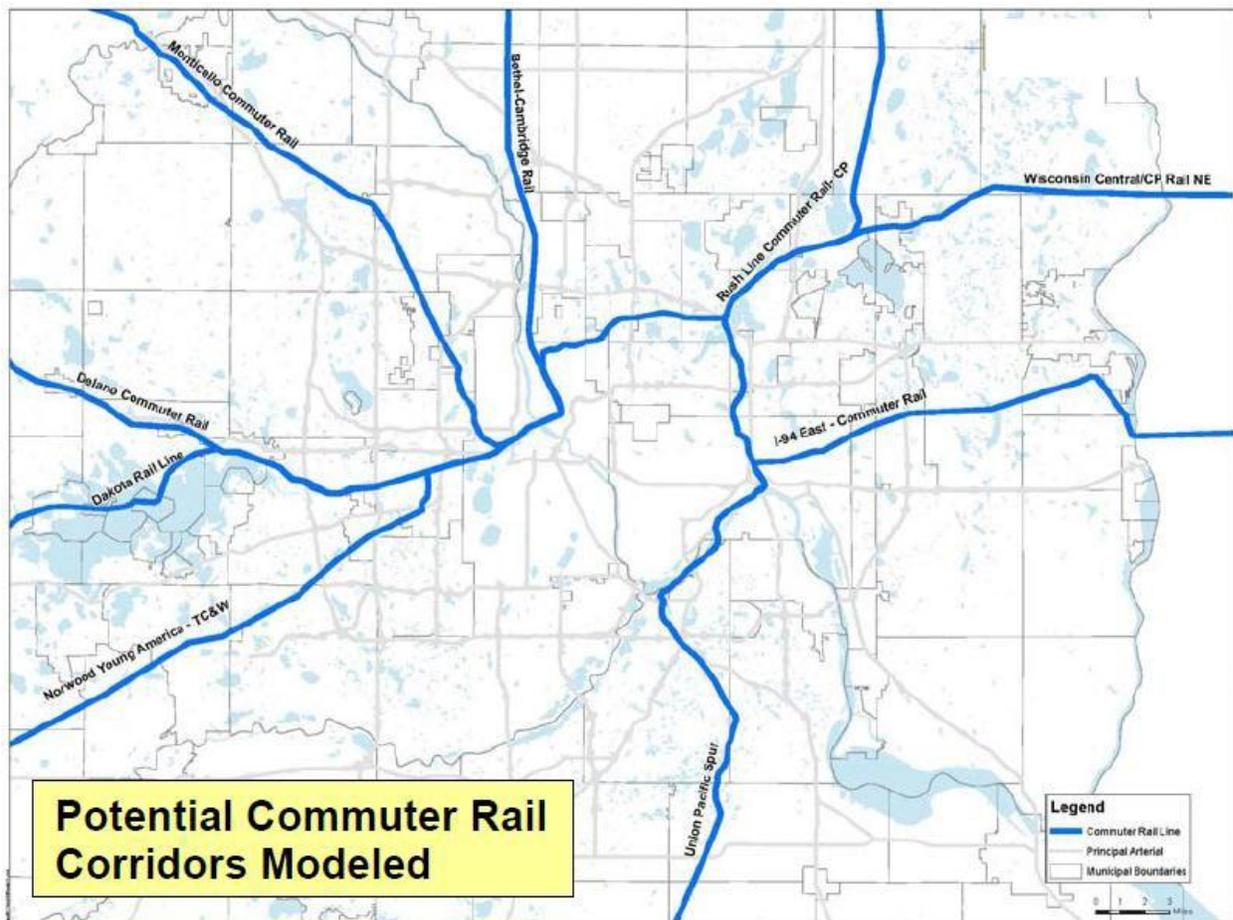
The main questions answered through the public consultation process were:

- What is the Red Rock Corridor?
- What is the Red Rock Corridor Commission?
- What is an Alternatives Analysis, its purpose, and the proposed timeline?
- Who is paying for the Alternatives Analysis Study?
- What happens after the Alternatives Analysis is complete?
- When will the transit service be open for use?
- How does the Red Rock Corridor relate to the Central Corridor?
- How does the Red Rock Corridor fit into the regional plans for transit?
- Why should the public care that studies are continuing for the Red Rock Corridor?
- How can I become involved in the planning or find out more about the Corridor?

2008 - 2030 TRANSIT MASTER STUDY

This report was an update of the 2020 Transit Master Plan. In this report, 29 corridors were evaluated and compared. From 2001 to 2007, some corridors were removed from consideration due to low ridership estimates. Notably, the Red Rock Corridor is not included on this list of corridors. The corridors considered for commuter rail are shown in the image below:

Figure 4: Potential Commuter Rail Corridors Modeled



SOURCE: 2008 – 2030 TRANSIT MASTER STUDY

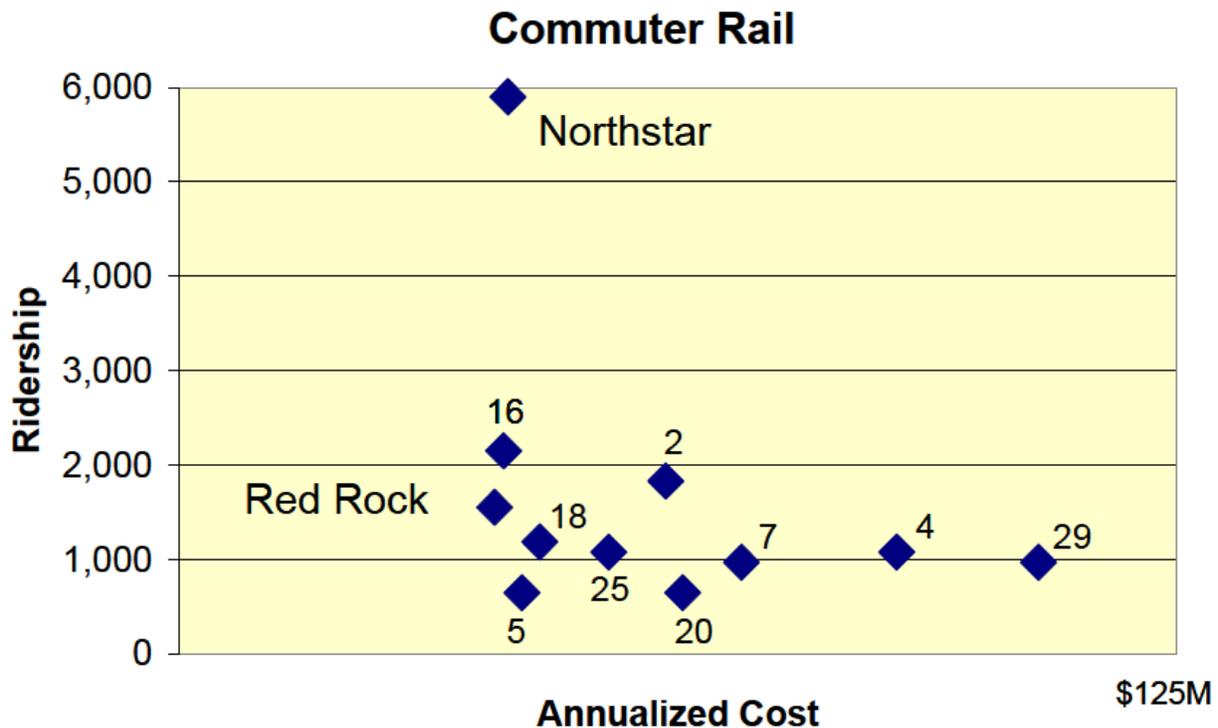
The Study made note of large numbers of people from outside the transit taxing district using the transit services. At the time of the Study, 25% of the people using regional park-and-ride facilities were coming from outside the transit-taxing district.

The region has free park-and-ride facilities. The plan is to greatly enhance express bus services which serve these park-and-ride facilities with nonstop service to downtown St. Paul, downtown Minneapolis, and the University of Minnesota campus. Some express bus routes do local pickups. At the time of the study, there were 141 park-and-ride facilities, with many more planned.

At the time of the study, there were 250 miles of bus only shoulder lanes, but by 2030, it was anticipated that there would be an increase of 145 miles of these assets.

In a comparison of the Red Rock Corridor to the Northstar Corridor and other potential commuter rail corridors, it had relatively low construction costs. However, it had low ridership potential compared to the Northstar Corridor. The image below illustrates this point.

Figure 5: Northstar and Red Rock Corridor Cost Comparisons



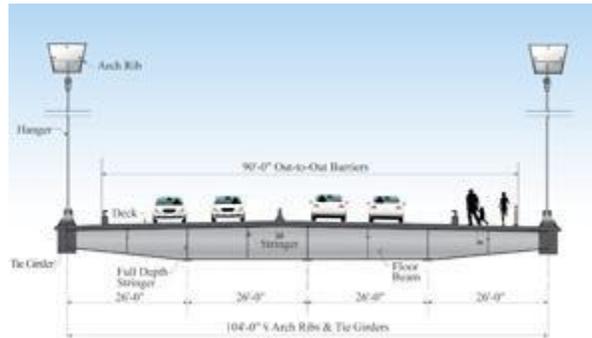
SOURCE: 2008 – 2030 TRANSIT MASTER STUDY

2008 - HASTINGS BRIDGE SCOPING STUDY

This report discussed the new bridge for crossing the Mississippi River at Hastings. The existing bridge had only two lanes, and it was congested, experiencing LOS E in the peak periods. It was the busiest two-lane highway segment in the state, with 31,500 vehicles per day.

The new bridge will be open in 2013, with construction completed in 2014. The new bridge does not include any dedicated bus lanes. A cross section of the bridge is shown below.

Figure 6: Rendering of the Hastings Bridge



SOURCE: [HTTP://WWW.DOT.STATE.MN.US/HASTINGSBRIDGE/MAINSPAN.HTML](http://www.dot.state.mn.us/hastingsbridge/mainspan.html)

Public Involvement Notes:

Three public meetings were held.

2009 - COMMUTER BUS FEASIBILITY STUDY

The Commuter Bus Feasibility Study was carried out in response to the Alternatives Analysis, which recommended that enhanced bus service be introduced in the corridor to build ridership for future commuter rail service.

The transit needs assessment of the study considered service from downtown Minneapolis to downtown St. Paul and Red Wing, with potential, intermediate stops at the University of Minnesota, Snelling Avenue, the State Capitol, Lower Afton Road, Newport, St. Paul Park, Cottage Grove, Hastings, and the Prairie Island Indian Community.

The study built on the ridership forecasts developed for the 2007 Alternatives Analysis. To build the ridership model, the following stations were considered trip origins:

- Lower Afton Road
- Newport
- St. Paul Park
- Cottage Grove
- Hastings
- Prairie Island
- Red Wing

The following stations were considered trip destinations:

- Downtown Minneapolis
- University of Minnesota
- Snelling Avenue
- State Capitol Area
- Downtown St. Paul
- Near Northeast Minneapolis

The travel demand between these origins and destinations at the time of the study was determined from the 2006 Longitudinal Employer-Household Dynamics (LEHD) data and is summarized in the table below.

Table 5: Employment by Catchment of the Red Rock Corridor

Residence by Catchment Area	Employment by Catchment					
	Downtown Minneapolis	University of Minnesota	Near Northeast Minneapolis	Snelling Avenue	State Capitol	Downtown St. Paul
Lower Afton Road	240	100	10	90	150	420
Newport	170	70	0	20	80	220
St. Paul Park	110	40	0	30	80	220
Cottage Grove	520	120	30	120	260	860
Hastings	270	70	10	50	120	330
Prairie Island Indian Community	10	10	0	0	0	10
Red Wing	50	10	0	0	10	30
Total	1,360	420	40	300	690	2,080

SOURCE: 2009 – COMMUTER BUS FEASIBILITY STUDY

Analysis of Northstar commuter bus service ridership suggested that the bus services were attracting 22.3% of the work trip market. This was higher than the overall regional transit commute mode share which is 4.5%, but in line with the transit commute mode share for downtown Minneapolis workers, which is 25.1%. In this study, the prevailing transit mode share was used as a basis for determining high, medium, and low transit mode shares for commute trips, as shown below.

Table 6: Commute Mode Share

Commute Mode Share	High	Medium	Low
To St. Paul	12.8%	9.0%	5.9%
To Minneapolis	25.1%	22.3%	19.5%

SOURCE: 2009 – COMMUTER BUS FEASIBILITY STUDY

In this study, accommodation was made for the fact that some people would drive to a Hiawatha LRT station to get to downtown Minneapolis. 20% of transit users from Hastings, Prairie Island, and Red Wing were assumed to do this. These transit mode shares and total transit volume estimates were used to estimate the values in the following chart, which shows ridership estimates under a high transit commute mode share scenario.

Table 7: Employment by Catchment of the Red Rock Corridor, Accounting for Those Driving to the Hiawatha LRT

Residence by Catchment Area	Employment by Catchment					
	Downtown Minneapolis	University of Minnesota	Near Northeast Minneapolis	Snelling Avenue	State Capitol	Downtown St. Paul
Lower Afton Road	120	50	0	20	40	110
Newport	90	40	0	10	20	60
St. Paul Park	60	20	0	10	20	60
Cottage Grove	260	60	10	30	70	220
Hastings	110	30	0	10	30	80
Prairie Island Indian Community	0	0	0	0	0	0
Red Wing	20	10	0	0	0	10
Total	650	200	20	80	180	530

SOURCE: 2009 – COMMUTER BUS FEASIBILITY STUDY

Note that some numbers may not sum due to rounding.

This report provided an overview of transit services that existed at the time and provided four alternative bus-based services for the Red Rock Corridor (with a sub-alternative considered for the second alternative). These alternatives varied in terms of route linkages, route terminals, and trip volumes. The alternatives were evaluated in terms of capital cost, operating cost, ridership, and resulting measures of effectiveness.

The scenarios were as follows:

- **Scenario 1:** Routes 361 and 365 are extended south to Hastings, with new trips added to both routes. Traditional buses would be used.
- **Scenario 2:** Two new commuter coach routes are established from Hastings, one to Minneapolis, and one to St. Paul. Routes 361 and 365 would remain unchanged.
- **Scenario 3:** Trips are added to Scenario 2 to provide one additional trip in each peak period and a round trip during the midday period. These additional trips would be less direct, linking Minneapolis, St. Paul, the Cottage Grove Park & Ride, as well as Hastings.
- **Scenario 4:** Some trips in Scenario 3 are extended to provide service to Red Wing. Additional park-and-ride lots would be required.

Scenario 2 was recommended due to its superior performance in comparison to the other alternatives. It was then modified so that there were fewer trips. The evaluation is summarized in the table below.

Table 8: Scenario Evaluation

Effectiveness Measure	Scenarios With Bus Purchase				Scenarios With Bus Leasing			
	1	2	3	4	1	2	3	4
Cost per Passenger Trip	4 th	1 st	2 nd	3 rd	4 th	1 st	2 nd	3 rd
Cost per In-Service Hour	3 rd	4 th	1 st	2 nd	3 rd	4 th	2 nd	1 st
Riders per Trip	4 th	2 nd	3 rd	1 st	4 th	2 nd	3 rd	1 st
Riders per In-Service Hour	4 th	1 st	2 nd	3 rd	4 th	1 st	2 nd	3 rd
Annual Cost per Passenger Trip (O&M + Capital)	4 th	3 rd	2 nd	1 st	4 th	1 st	2 nd	3 rd
Annual Subsidy	2 nd	1 st	3 rd	4 th	2 nd	1 st	3 rd	4 th
Comprehensive Score	4 th	1 st	2 nd	3 rd	4 th	1 st	2 nd	3 rd

SOURCE: 2009 – COMMUTER BUS FEASIBILITY STUDY

Seven buses were required for peak period service in the option selected. This option also resulted in 3,500 annual in-service bus hours and 96,900 annual in-service bus-miles. Daily ridership on the Minneapolis route was estimated to be 200 and on the St. Paul route it was estimated to be 160.

Buses were expected to access the Hastings Depot Station via 2nd Street and leave via 3rd Street, although the report indicated that this would have to be reexamined at a later date closer to implementation. The new routes would bypass Cottage Grove and Lower Afton Road park-and-ride lots. The two routes proposed in this study are shown in the figure below.

Figure 7: Routes Proposed in the Commuter Bus Feasibility Study



SOURCE: 2009 – COMMUTER BUS FEASIBILITY STUDY

The options for oversight were the Metropolitan Council (Metro Transit) and the Red Rock Corridor Commission. The report assumes that the Red Rock Corridor Commission will be the responsible agent. There is preference to contract the service because that means there is less commitment, initially.

Recommended fares were \$3.25 for the St. Paul route and \$4.75 for the Minneapolis route.

Potential funding could come from CMAQ, Counties Transit Improvement Board (CTIB), TH 61 Bridge Replacement Funds, Greater Minnesota Transit Grants, Local Government General Funds, Regional Transit Capital Communities (formerly Transit Taxing District), Chapter 152 Funds, or Public Transportation on Indian Reservations funds.

As of March 2015, the Route 364 has been added to provide three express trips between St. Paul Park and Newport and downtown St. Paul in the peak direction. Metro Transit has proposed additional routes in their Service Improvement Plan for this corridor. These include Route 363, a 30 minute weekday midday and early evening express service between the Cottage Grove Park & Ride and downtown St. Paul/downtown Minneapolis via the Newport and Lower Afton Park & Rides, and Route 367, a new 30 minute weekday peak period express service from Hasting to downtown Minneapolis via the Newport Park & Ride.

2010 - METROPOLITAN COUNCIL PARK-AND-RIDE PLAN

This plan reflects policies developed in the Metropolitan Council’s 2030 Transportation Policy Plan. The purpose of the report is to select, prioritize, and implement park-and-ride improvements. The specific projects and priorities may change when a community joins the Transit Capital Levy Community group. The plan is based on the results of the 2008 Park-and-Ride Annual Survey. This

survey concluded that that 70% of park-and-ride users come from within the transit taxing district, 14% come from within the 7-county metro area but outside of the transit taxing district, 8.5% come from the collar communities around the 7-county metro area, and 1% come from outside the 19-county metro area. 6.4% of users come from unknown origins.

There were a total of 25,792 park-and-ride spaces in 2008 and 18,335 spaces were used at the time of the survey. Most park-and-ride facilities are owned by Metro Transit, but some are owned by the Minnesota Valley Transit District and some by Maple Grove Transit. This study does not include park-and-pool facilities.

Demand was estimated using a Traffic Analysis Zone (TAZ) model. This demand model was quite linear. It started with estimated TAZ populations, then estimated the portion that is in the workforce, then estimated the portion that travels to St. Paul or Minneapolis, then estimated the transit mode share, then estimated the share that used park-and-ride. Outputs were park and ride demand by TAZ. Estimates do not reflect transitway investments’ impact on ridership.

Park-and-ride generally serves customers who are traveling to the downtowns, as that is the destination of most of the routes.

The following is a summary of the usage of park-and-ride facilities along the Red Rock Corridor in 2008.

Table 9: 2008 Park & Ride Annual Survey Summary

Park-and-Ride	Counted Usage	Capacity	Future Expansion
Lower Afton	114	117	75
Newport	0	0	125
Cottage Grove	284	525	300

A summary of the park-and-ride facility usage in 2012 is provided below:

Table 10: 2012 Park & Ride Annual Survey Summary

Park-and-Ride	Counted Usage	Capacity	Utilization
Lower Afton	136	114	119%
Cottage Grove	314	525	60%

The report suggested that park-and-ride enhancements, such as a new park-and-ride facility in Newport, could be pursued in the Red Rock Corridor in advance of commuter rail to support bus service.

2012 – REGIONAL SERVICE IMPROVEMENT PLAN (RSIP)

The 2012-2016 RSIP identified and prioritized transit improvements across all transit systems in the Twin Cities Metropolitan Area. This included Metro Transit and the suburban transit agencies. The RSIP concentrated on the implementation of regional LRT and BRT transitway service, expansion of local route network frequency and coverage, and expansion of express service to meet park-and-ride demand. Although various routes were listed, no routes in the Red Rock Corridor were shown for potential improvement in this plan.

2012 - EAST METRO RAIL CAPACITY STUDY

This report stated that the capacity of existing freight lines in the Red Rock Corridor were already constrained. Adding commuter rail, higher speed passenger rail, and additional intercity passenger rail will further strain capacity. The Ramsey County Regional Railroad Authority (RCRRA) and Red Rock Corridor Commission (RRCC) commissioned this study to investigate the existing capacity constraints around Union Depot and the Red Rock Corridor and to identify solutions for increasing capacity.

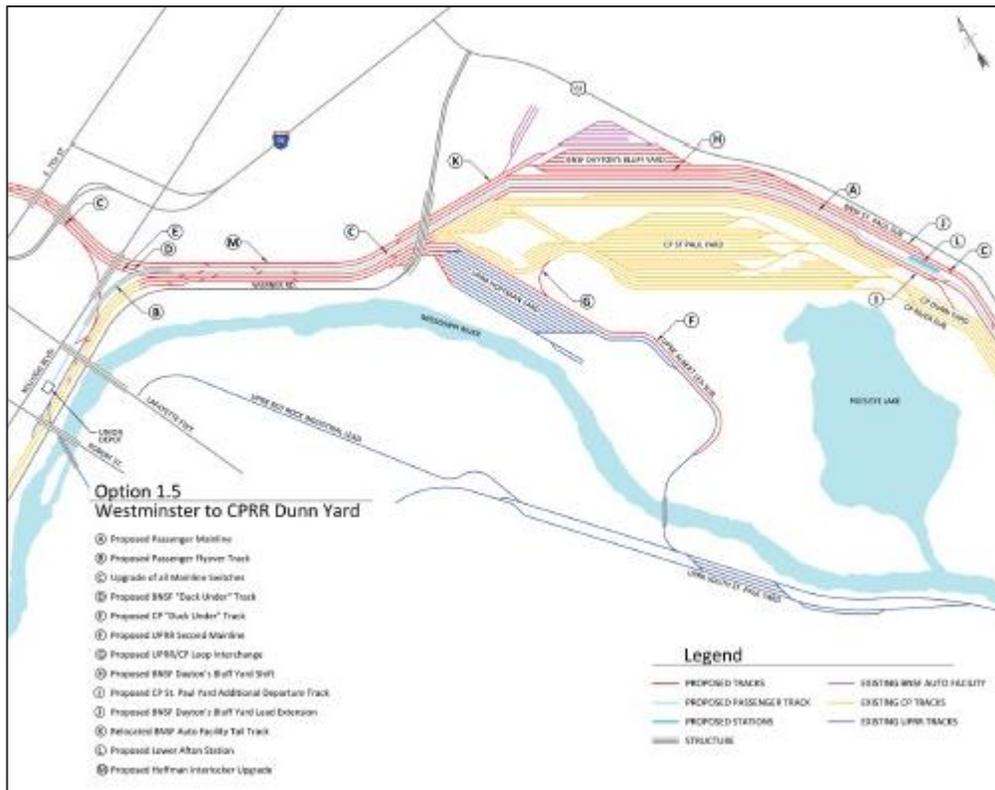
The analysis was carried out by defining the baseline and a scenario in which there was 36% more volume of goods being transported. Then there were five packages of capital improvement options developed. Minor improvements were shown to be insufficient to maintain current speeds with both the increase in volume and the introduction of new passenger service, but sufficient to maintain speeds with just the volume growth. Other options, which included a new third mainline track, could maintain or improve the average travel speeds even with the volume growth and the new passenger service.

The impact of the five capital improvement packages was tested through simulations. These simulations reflected three days of operation, train speeds per segment, acceleration/deceleration information, bridge outage schedules, and priorities for routing (i.e., passenger trains would be given first priority, while empty trains would be given last priority, and anyone could use any track). Comparison output for simulations was average freight train speeds, as this value best captured the quality of railroad operation. The simulations tested base demand, a 36% increase in freight but no new passenger service, and 36% increase in freight with new passenger service.

The recommendations were to pursue the package of minor improvements around St. Paul, except for the Union Depot flyover, to address freight volume growth, then to pursue improvements such as the new third mainline track along the TH 61 corridor all the way south to Hastings. This report proposed packages that can be constructed as funding becomes available. The report indicated that there were not many opportunities for increasing capacity through operational changes, except in the instances where train crew are changed while through trains are on the mainline.

An image showing the location of the proposed improvements around St. Paul are shown in the image below.

Figure 8: Proposed Rail Improvements around St. Paul



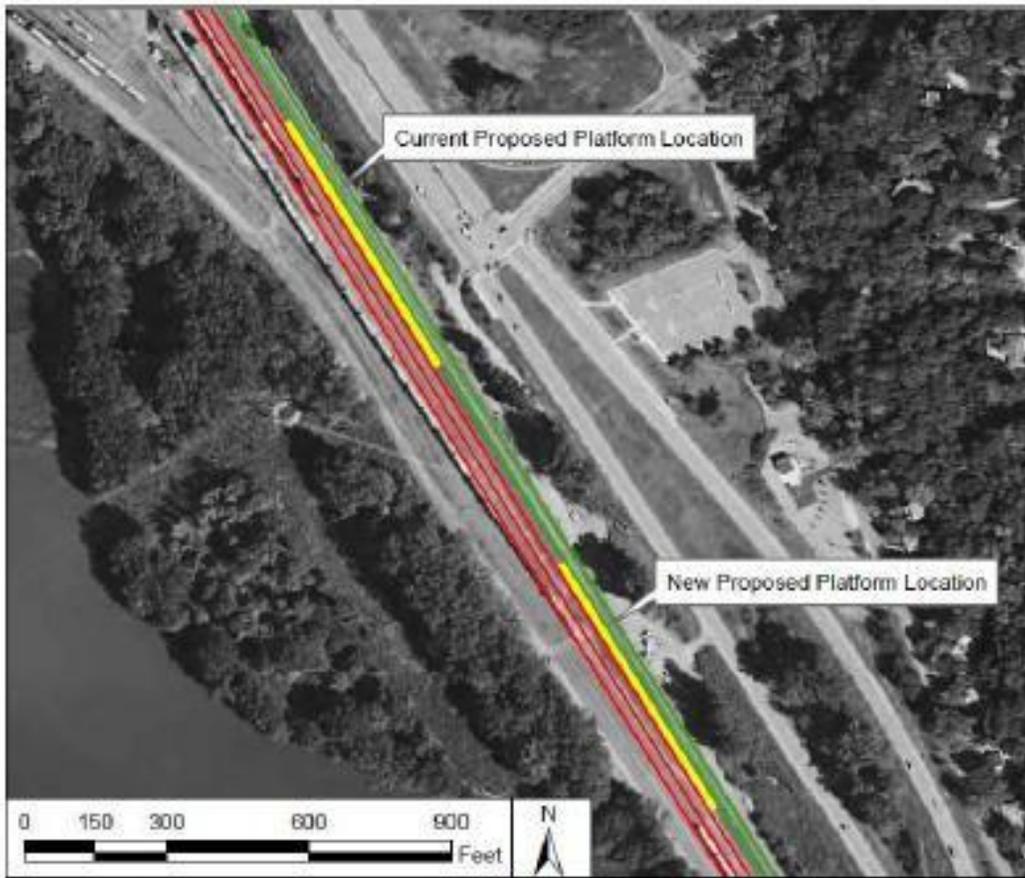
SOURCE: 2012 EAST METRO CAPACITY STUDY

The report suggested that another evaluation may be needed in five to ten years, or whenever passenger rail is introduced, because conditions might have changed. For example, if either commuter rail or high speed rail does not go through Hastings, then the new Hastings rail bridge would not be needed.

In this study, the Red Rock commuter rail service was modeled to include ten trains per day consistent with the conceptual schedule from the alternatives analysis study, and service would use the CP tracks between St. Paul and Minneapolis.

Notably, this study proposed a new location for the Lower Afton Station. The location proposed in the 2012 Station Area Planning report would interfere with the construction of a longer yard lead that could be used keep trains off of the mainline when handling manifest trains and interchanging railcars from them. The station location proposed in this study is shown below.

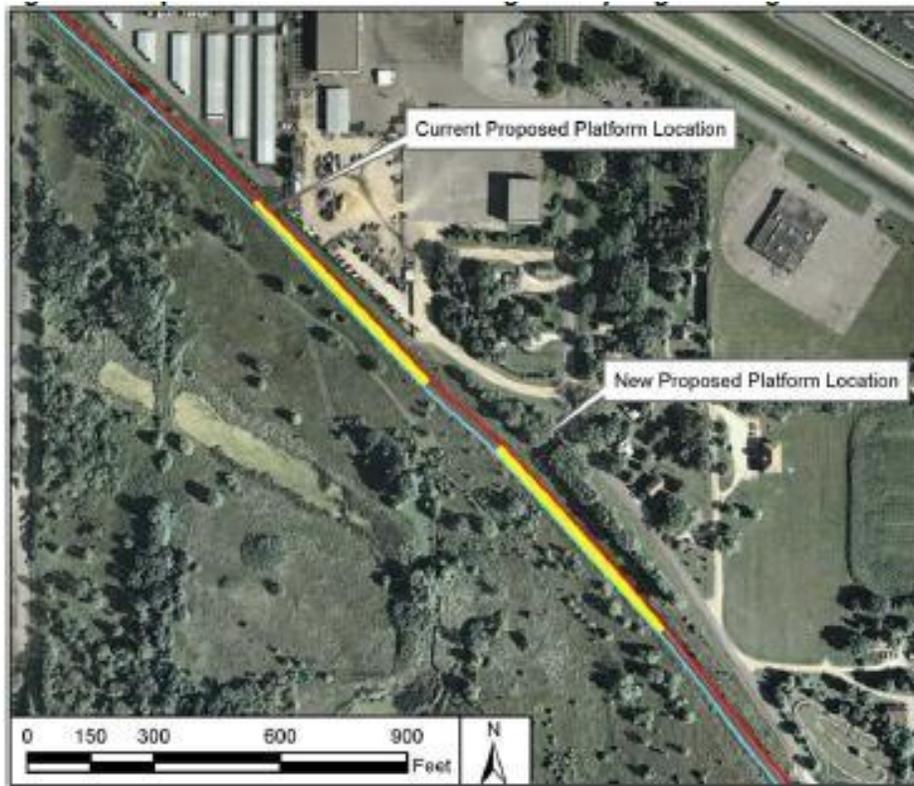
Figure 9: Proposed Red Rock Corridor Station in Lower Afton



SOURCE: 2012 RED ROCK STATION AREA PLANNING FINAL REPORT; 2012 EAST METRO RAIL CAPACITY STUDY

A different station location was recommended for the Cottage Grove Station to improve track geometry. The station location proposed in this study is shown in the figure below.

Figure 10: Proposed Red Rock Corridor Station in Cottage Grove



SOURCE: 2012 RED ROCK STATION AREA PLANNING FINAL REPORT; 2012 EAST METRO RAIL CAPACITY STUDY

A second Hastings Bridge would be needed to accommodate passenger rail in the current routing plans.

The modeling also included 12 higher-speed intercity passenger trains in the Twin City-Chicago Corridor per day.

Public Involvement Notes:

For this project, a project management team (PMT) was developed to provide technical input into the study. The PMT was part of a larger stakeholder group that was kept informed of the progress over the course of the project. The project team also held one-on-one meetings with the railroads. There were also a handful of public meetings.

ANNUAL REPORT OF MINNESOTA HIGH SPEED RAIL

This report provided an overview of current high speed rail projects. These include the following:

- Second Empire Builder Train Study – This study analyzes the feasibility of implementing a second daily Amtrak train between the Twin Cities and Chicago. The draft feasibility report has been completed and will be released after review by the participating freight railroads.
- Twin Cities to Milwaukee Tier I EIS - This work began in 2012 and is expected to be published in 2015. It will study the environmental impacts of a high speed rail service between the Twin Cities and Milwaukee. The report will study the feasibility of establishing eight round trips between the destinations. This is an important step for gaining approval for construction of high speed rail from the Federal Railroad Administration.

2040 TRANSPORTATION POLICY PLAN

The region's Transportation Policy Plan discussed multiple funding scenarios for transit system development and enhancement through 2040. Contrary to previously completed regional planning efforts, the Metropolitan Council elevated the importance of associating development planning with the transit system in the Transportation Policy Plan.

The Transit Investment Direction and Plan section (Chapter 6) within the Transportation Policy Plan depicted the long-term course of where transit will or should be implemented within the region, depending on the "Current Revenue Scenario" or "Increased Revenue Scenario". In the "Current Revenue Scenario", four new METRO lines and three arterial BRT lines would be funded and constructed in the first ten years of the plan, and additional funds would be distributed towards other projects currently in planning phases.

The Transportation Policy Plan noted the Alternatives Analysis Update completed for the Red Rock Corridor, and referred to the AAU's recommendation for a staged approach to developing highway BRT in the corridor. The Counties Transit Improvement Board (CTIB) prioritizes the Red Rock Corridor as a Phase I Project for transitway improvements and it is included as such in the TPP. No amendment to the TPP would be required in order for work to proceed on the Red Rock Corridor, but an amendment may be appropriate to identify the specific mode and alignment implementation schedule once the Implementation Plan is completed.

2015 - MINNESOTA STATE RAIL PLAN

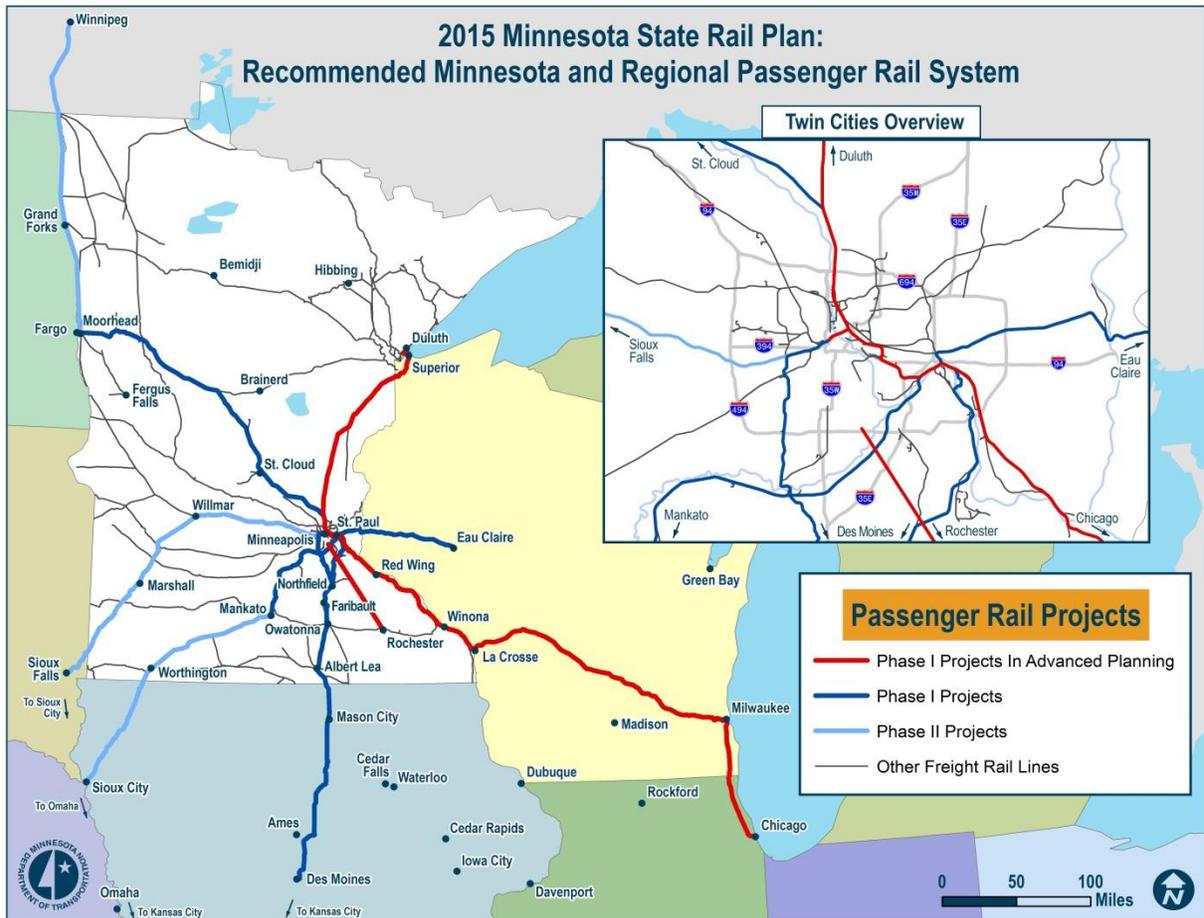
The 2015 State Rail Plan was an update to the 2010 Comprehensive Passenger Rail & Freight Plan and outlined a long-term plan for rail corridor investments within Minnesota.

Similar to the 2010 Plan, the data in the 2015 Plan illustrated a continuing rail utilization trend for freight movements within the state. The Rail Plan noted that freight shipments are vital for Minnesota's economy and that rail carried 38% of the state's freight by weight at that time. However, increased shipments of oil from the Bakken region in North Dakota coupled with record agricultural harvests have strained the state's freight capacity, and a vast amount of upgrades are needed on various rail arteries. Main freight goals stated in the 2015 Plan were improving rail safety conditions, addressing critical freight rail bottlenecks, and upgrading important rail corridors to 25 mph minimum speeds, as warranted.

The 2015 Plan also covered Minnesota's vision to develop a robust passenger rail system, with the system hub located in the Twin Cities. Phase I Projects in Advanced Planning included the Northern Lights Express (NLX) to Duluth, the Zip Rail to Rochester, and the Twin Cities to Milwaukee High Speed Rail Corridor. Phase I Projects, those that are not yet in planning phases included projects from the Twin Cities to Albert Lea, Mankato, and Eau Claire, as well as expanding Amtrak's Empire Builder service to two daily round trips. The Red Rock Corridor was not mentioned in the plan specifically, but development of the Twin Cities to Milwaukee High Speed Rail line would be located within the corridor.

The following image summarizes the plan's recommended future regional passenger rail system.

Figure 11: 2015 Recommended Minnesota and Regional Passenger Rail System Map



SOURCE: 2015 MINNESOTA STATE RAIL PLAN

2014 – RED ROCK CORRIDOR ALTERNATIVES ANALYSIS UPDATE (AAU)

The Red Rock Corridor Alternatives Analysis Update built upon the 2007 Alternatives Analysis (AA) Report. The purpose was to re-evaluate and supplement the 2007 AA findings with updated transportation, population, regional planning language, and land use trend data. While the 2007 AA focused on peak hour mobility demands, the 2014 AAU analyzed other transit needs in the corridor, including off-peak and reverse commuting demands.

The AAU included a vital public involvement component within the project. A Citizens Advisory Committee (CAC), listening sessions with key stakeholder groups, online questionnaires, and other methods were performed to ensure an open public process.

The AAU evaluated several alternatives for the corridor, including no-build, express bus, highway BRT, and commuter rail alternatives. Travel demand models were used to determine average 2030 weekday ridership values, as well as appropriate frequency of service. Capital and operating cost estimates were established for each mode, as well as criteria for environmental impacts.

2015 – METRO TRANSIT SERVICE IMPROVEMENT PLAN (SIP)

The SIP is a service expansion plan that was built on the existing transit network and identified potential new routes within the Metro Transit system. Existing population & employment, job concentration areas, subsidy per passenger, intersection density, social equity considerations, automobile availability, and overall system connectivity considerations were the criteria that determined the rating of each improvement.

The SIP lists recommendations for transit improvements in the Red Rock Corridor on existing routes, as well as adding new routes. The proposed improvements in the Red Rock Corridor include the expansion of service on the existing Route 363, which would introduce 30 minute weekday midday and early evening express service. This improvement scored as a “medium” priority project for an implementation between 2018 and 2020.

The SIP also lists a new express route, the Route 367, which would operate in the peak period in the peak direction between Hastings and downtown Minneapolis via the new Newport Park & Ride. This route would introduce 30 minute weekday peak period express service and serve a new Hastings market.

2015 – MNDOT METRO DISTRICT 10-YEAR CAPITAL HIGHWAY WORK PLAN

This plan from the Minnesota Department of Transportation outlined the next 10 years of planned highway projects in the Metro District. The Plan was aligned with goals and objectives derived in the Minnesota 20-year State Highway Investment Plan (MnSHIP). The overall mobility of the Metro District was one performance measure considered and was measured based on the percentage of congested metro-area freeway miles. Other performance measures considered included bridge preservation, pavement preservation, and the strategic expansion of metro highway corridors.

The improvements listed in the plan in the Red Rock Corridor are strategic intersection modifications along US Highway 61. These improvements are to be implemented in 2016 and include geometric and signal modifications at Maycrest Avenue and a roundabout construction at the TH97 intersection.

Table 11: Bus Rapid Transit Statistics from the Alternatives Analysis Update

ALTERNATIVE	RIDERSHIP	FREQUENCY	SPAN	CAPTIAL COST	OPERATING COSTS
Highway BRT	2,400	15 minutes	6 a.m. – 10 p.m.	\$45,810,000	\$3,810,000

The report concluded that highway BRT was the mode best suited for implementation based on the corridor’s goals and objectives and should be the transit mode choice to move forward in future project development. It was also stated that the Red Rock Corridor Commission will move forward utilizing a staged implementation strategy and establish a guiding Implementation Plan. The AAU also stated that the Commission will also continue to pursue other ongoing transit-supportive strategies, such as advocating for multi-modal investments in the corridor, advocating for mobility improvement funding, and monitoring peak capacity needs and transit ridership in the area.

Comprehensive Plans

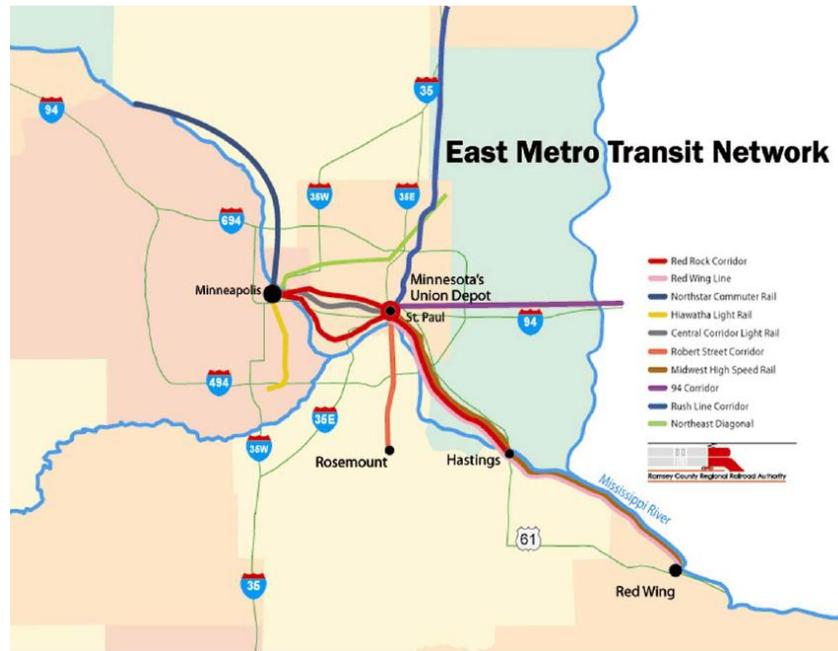
2008 - RAMSEY COUNTY COMPREHENSIVE PLAN – SECTION B (TRANSPORTATION, TRANSIT AND SURFACE WATER)

One of the base assumptions of the transportation section of the Ramsey County Comprehensive Plan was that despite growing population and employment in the County, few highway projects were planned for the future. As a result, the County would have to rely on expanded travel demand management (TDM), travel system management (TSM), and asset management efforts to address the additional demand. Transit was categorized as a type of travel system management, and its stated purpose was to serve primary economic centers. The Plan said that the County will encourage state and federal governments to expand inter-city and suburban transit modes.

The plan highlighted Ramsey County’s desire to pursue projects that will result in service at Union Depot.

The plan mentioned the Central LRT, Rush Line, Red Rock, Robert Street, Northeast Diagonal, Riverview, 1-94, Highway 36, Snelling Corridor, and high speed rail as key transit corridors. These corridors are shown in the image below.

Figure 12: East Metro Transit Network



SOURCE: RAMSEY COUNTY COMPREHENSIVE PLAN: SECTION B

2009 - CITY OF HASTINGS 2030 COMPREHENSIVE PLAN: TRANSPORTATION

This plan noted that MnDOT is responsible for TH 61, the main road through the City of Hastings. TH 61 in Downtown Hastings has left turns, driveways, and parking that slows down traffic.

The plan noted tension between the desire to widen the Hastings Bridge in order to reduce congestion and a desire to protect parking and properties in Downtown Hastings and to minimize speeding, noise, visual impact, and accidents.

Hastings is in Metro Transit Market Area III, which means that it has potential for peak-only express service, circulator service, paratransit, and ridesharing. Metropolitan Council has regional traffic forecasts for major roadways, and these are presented in the plan.

The report indicated that dial-a-ride service was provided through Hastings Transportation around the City (TRAC) at the time of the study. This service was provided with four buses, two or three of which are active at any given time. This service was supported by user fees, federal money, and state funding. This service has since been replaced by Dakota County Transit Link, a dial-a-ride service provided by Metro Council. There was also a dial-a-ride service that was specifically for seniors and people with disabilities that is called Dakota Area Resources and Transportation for Seniors (DARTS). The City of Hastings is not currently a Transit Capital Levy Community.

The plan noted a park-and-ride facility at TH 61 and US TH 10 (north of the City). This facility closed in March of 2011. The plan also noted a future park-and-ride facility planned in conjunction with future commuter rail service.

Amtrak runs through Hastings but does not stop.

2010 – CITY OF ST. PAUL PARK 2030 COMPREHENSIVE PLAN: THE PLAN FOR TRANSPORTATION

This report described how the City of St. Paul Park used to have a park-and-ride facility, but it was closed. This report stated that residents can use the Cottage Grove or Lower Afton Road Park & Ride facilities to access express routes. The report indicated that the Newport Transit Station will be another option once that station opens in 2013. The report discussed South County Circulator dial-a-ride service that connects Newport, St. Paul Park, and Cottage Grove. This service has been replaced by Washington County

Transit Link service, a dial-a-ride service provided by Metro Council. The plan noted that the City is supportive of Red Rock Corridor commuter rail planning efforts and would support high speed rail going through the City if it reduced the costs of introducing commuter rail.

2010 – NEWPORT 2030 COMPREHENSIVE PLAN: TRANSPORTATION SECTION

This plan summarized transportation activity in the plan. A major transportation activity that had been ongoing for more than a decade was the upgrade of the I-494 and TH 61 interchange. This project will improve traffic flow in the City, but it came at the cost of a loss of 9% of its tax base and 500 jobs.

There is significant BNSF and CP railroad traffic through the City, with 80 trains per day cited in the report. It is expected that there will be 120 trains per day in 2030. The plan indicated that there were four at-grade crossings in the City at the time of the study, although all of the cross traffic is relatively light. Newport recognized that commuter rail service might come one day and that it will have a station.

The report indicated that there had recently been pedestrian/bicycle bridges built over TH 61 to assist with access to the transit station sites, of which there were three. The County purchased a former Knox Lumber site, so the station site has been selected.

The plan stated that the Metropolitan Council Office of Transportation and Transport Development proposed adding bus-only shoulder lanes in each direction on TH 61 in anticipation of greater transit usage after improvements have been made to the I-494 /TH 61 corridor. Signage and a local bus circulator route on 7th Avenue was also recommended by the Metropolitan Council. The report stated that Newport was in Transit Market Area IV, which supports express service in the peak period and general public dial-a-ride.

Opened on December 1st, 2014, the Newport Transit Station, which is served by Route 364 to downtown St. Paul, includes 150 parking stalls as well as an enclosed, climate-controlled waiting area with bathrooms. The station was built using federal, state, and Counties Transit Improvement Board funding, with a local match from the Washington County Regional Railroad Authority. As of 2015, the City of Newport is served by Routes 361 and 364, which are both peak period express routes that travel between Newport and downtown St. Paul. The City is also served by Washington County Transit Link, a dial-a-ride service provided by the Metropolitan Council.

2010 – CITY OF WOODBURY 2030 COMPREHENSIVE PLAN – TRANSPORTATION

There is not a station planned in the City of Woodbury, but parts of the City were included in the 2007 Alternatives Analysis study area and it is assumed that some people from the City will use the Red Rock Corridor transit service.

The City of Woodbury's Comprehensive Plan does not make mention of the Red Rock Corridor. Rather, they show support for the development of the transit in the I-94 Corridor (now the METRO Gold Line BRT Corridor) and the development for more express bus services to Downtown St. Paul and Minneapolis. The City is already served by several express routes and park-and-ride facilities, and future park-and-ride facilities are planned. Local serve is currently available through a dial-a-ride service. Prior to 2005, local conventional bus service was available, but this was eliminated due to low ridership.

2010 – CITY OF ST. PAUL 2030 COMPREHENSIVE PLAN – TRANSPORTATION

The City of St. Paul Comprehensive Plan makes mention of the Red Rock Corridor as one of seven transitways that will serve the Downtown in the future. The Union Depot is highlighted as the convergence point of many of these services, including high-speed rail. The plan recognizes the full Red Rock Corridor from Minneapolis to the southeastern suburbs as a future transitway. It also identified I-94 as potentially being able to accommodate limited stop bus service. I-94 currently has shoulder lanes but no stations.

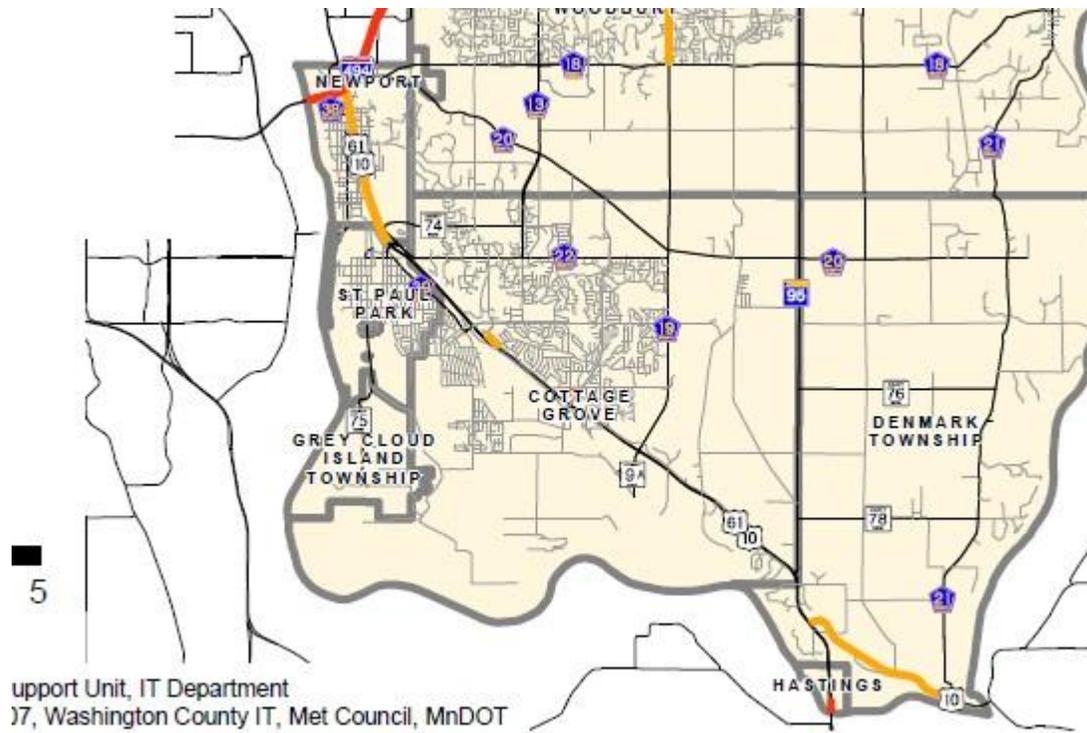
2010 – WASHINGTON COUNTY 2030 COMPREHENSIVE PLAN – TRANSPORTATION

The Transportation section of the Washington County Comprehensive Plan supported the development of transitways throughout the Region, including the five within its jurisdiction (Gateway, Red Rock, Rush Line, Highway 36, and the High Speed Rail line). Planning is furthest along for the transitway in the Red Rock Corridor.

In support of the Red Rock Corridor service, it described a park-and-ride facility in Newport that would be built after station area planning work was carried out. This park-and-ride facility is currently under construction.

The Comprehensive Plan also discussed the existing roadway network, which includes the Red Rock Corridor. TH 61 is considered a principal arterial, the highest roadway designation. Present congestion along this corridor is minimal, as shown in the figure below, which highlights segments of the road with higher volume to capacity ratios (segments on which volume exceed capacity are shown in red).

Figure 13: Congestion along the Red Rock Corridor



SOURCE: WASHINGTON COUNTY 2030 COMPREHENSIVE PLAN

2011 – CITY OF COTTAGE GROVE 2030 COMPREHENSIVE PLAN – TRANSPORTATION

In this plan, overall transportation goals related to transit included:

- Support and participate in the Red Rock Corridor Commission
- Support the development of high speed rail between St. Paul and Chicago along a route that goes through Cottage Grove
- Expand commuter bus and circulator bus service

In the northern part of the City, TH 61 was built to freeway standards and has no at-grade crossings. At the time of the creation of the report in 2008, the current usage volumes were 32,500 vehicles per day, and these were expected to grow to 52,000 by 2030. In

the southern part of the City, TH 61 has several intersections. In this section, at the time of the plan, there were 28,500 vehicles per day, and this was expected to grow to 36,000 per day by 2030.

The City of Cottage Grove is in Metro Transit Market Area III and IV. In addition to the express bus services, there are dial-a-ride services provided by Metro Council called Transit Link. These replaced the services described in the report provided by Human Services, Inc. and South County Circulator.

It is recommended that in the short term, express bus service be expanded with more peak period service, new midday services, and new crosstown services that serve destinations such as the Hiawatha LRT line, the airport, and the Mall of America.

The plan called for a study of the station areas around Langdon Village and the site of the existing park-and-ride facility, and this was carried out as part of the Station Area Planning work which is described in Section 2.3.

THRIVE MSP

This plan detailed the Metropolitan Council's 30-year vision for the Twin Cities Metropolitan Area and included goals and strategies to improve overall prosperity, equity, livability, sustainability, and stewardship in the region. One of the recommendations to improve stewardship was to maintain, rather than expand, the region's highway and wastewater infrastructure. Another key element was the recommendation to leverage transit investments in places with higher expectations of land use and to construct intensive employment and residential areas rather than continuing the low-density growth seen in the past several decades. Other goals included encouraging redevelopment and infill, improving lifestyle choices for all demographics, investing in a diversity of housing along transit corridors, and promoting healthy communities and active living through strategic land use investments.

Area Studies

2011 - MARKET ASSESSMENT REPORT: RED ROCK CORRIDOR STATION AREA AND SITE MASTER PLANNING STUDY

This report discussed how the primary driver of change in the Red Rock Corridor will be employment and population growth, but it also acknowledged that transit investments may play a role, too. The report concluded that the corridor is mostly residential in nature, and the major employers listed were school districts, county governments, 3M in Cottage Grove, and a medical center in Hastings. The report provided employment, population, and households estimates for ½ mile, 1-mile and 3-mile catchment areas. These estimates are shown in the table below.

Table 12: Population, Household, and Employment Forecasts for Red Rock Corridor Station Areas

	Population			Households			Employment		
	1/2-Mile	1-Mile	3-Mile	1/2-Mile	1-Mile	3-Mile	1/2-Mile	1-Mile	3-Mile
2010									
Lower Afton	575	5,319	64,583	202	1,979	24,632	149	547	27,949
Newport	485	2,564	52,704	199	1,055	21,063	1,488	4,583	20,008
Hamlet Park	1,837	8,979	32,911	697	3,369	12,169	601	3,605	7,404
Langdon Village	1,246	3,473	22,367	424	1,196	8,078	1,293	2,668	6,401
Hastings	1,580	6,665	25,234	690	2,640	9,592	1,809	4,729	9,392
2020									
Lower Afton	580	5,733	67,064	204	2,160	25,887	180	370	31,961
Newport	544	2,925	56,573	225	1,220	23,075	1,883	5,762	22,474
Hamlet Park	1,926	9,632	43,196	719	3,633	16,181	690	4,097	8,894
Langdon Village	1,460	3,766	28,785	499	1,277	10,459	1,447	3,298	7,716
Hastings	1,652	8,500	30,634	751	3,503	12,190	1,872	5,353	9,890
2030									
Lower Afton	597	5,900	69,972	213	2,256	27,240	190	391	33,901
Newport	591	3,289	60,046	253	1,421	24,501	2,350	6,732	24,057
Hamlet Park	1,876	9,580	49,556	720	3,654	19,157	720	4,337	9,784
Langdon Village	1,675	3,875	34,838	600	1,378	13,108	1,613	3,706	8,788
Hastings	1,730	10,563	34,421	830	4,405	14,181	1,953	5,766	10,551
2010-2030 Change									
Lower Afton	22	581	5,389	11	277	2,608	41	-156	5,952
Newport	106	725	7,342	54	366	3,438	862	2,149	4,049
Hamlet Park	39	601	16,645	23	285	6,988	119	732	2,380
Langdon Village	429	402	12,471	176	182	5,030	320	1,038	2,387
Hastings	150	3,898	9,187	140	1,765	4,589	144	1,037	1,159

SOURCE: METROPOLITAN COUNCIL

Note that in the above table, two stations for Cottage Grove are listed, Hamlet Park (the location of the existing park-and-ride facility) and Langdon Village. It is assumed that only one of these stations will be built, and in the Station Area Planning work, the Langdon Village site was selected as the locally preferred alternative for a commuter rail station. The advantage of the Langdon Village site was that it has significant residential development planned and greater potential for the development of land adjacent to the station. The report provided land to value ratios and identified developable land around each station area.

The report states that 80% of households in the corridor own their home. It also mentions that there are only three retail areas, all of which are fairly local in reach. These are located at TH 61 and 80th Street in Cottage Grove, TH 61 and Jamaica in Cottage Grove, and Highway 55 and Pleasant Drive in Hastings. The prospects for additional office space development in the Red Rock Corridor are limited because there is lots of empty office space in the East Metro area.

The report provided several examples of TOD in places such as Colorado, Texas, Washington, Oregon, Illinois, and Wisconsin.

The summary of the report suggested that of all of the stations, Hastings has the greatest potential for TOD in the near term given its existing grid roadway network. Other stations will have to develop their roadway network and attract development to meet the expectations of TOD.

Site Plans

2009 - UNION DEPOT ENVIRONMENTAL ASSESSMENT

The Union Depot Environmental Assessment was carried out by the Ramsey County Regional Railroad Authority in order to assess what, if any, environmental impacts would result from the rehabilitation of Union Depot and its restoration as a transportation hub. This report outlined the intended future uses of Union Depot for Amtrak service, Greyhound service, Jefferson Bus Lines, Metro buses, taxi service, bicycle services, and pedestrian connections. The results of the assessment were that there would not be any significant environmental impacts from the rehabilitation of the station.

2010 UNION DEPOT ACTIVATION AND DEVELOPMENT STRATEGY

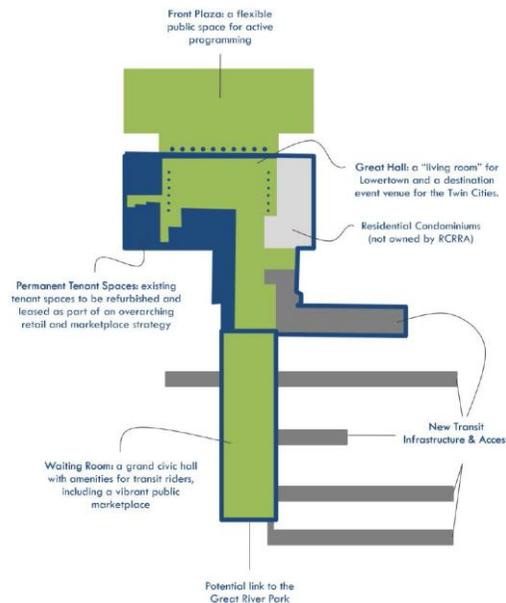
This report summarized the vision for Union Depot and the potential benefits it can bring to St. Paul and the Region. The market assessment indicated that there were 4,500 residents and 35,000 workers within ½ mile from the Depot, and that the growth in this area between 2000 and 2009 was extensive. The report outlined three overarching initiatives that can help ensure Union Depot becomes a vibrant and inviting place that encourages transit ridership, generates revenue to sustain its operations, and catalyzes economic and real estate development for Ramsey County and the City of Saint Paul, while leveraging private resources to the greatest extent possible to maximize the benefit of public funds.

The context of these initiatives must consider the phasing of transit services scheduled for Union Depot:

- Phase 1 – Amtrak, Greyhound, Jefferson Lines, and Metro Transit
- Phase 2 – all of the above plus the Central Corridor LRT
- Phase 3 – all of the above plus high-speed rail, inter-city rail service, Red Rock service, Rush line service, Gateway service, Riverview service, Mankato service, and Robert Street service.

A concept plan for the depot is shown in the image below.

Figure 14: Union Depot Concept Plan



SOURCE: UNION DEPOT ACTIVATION AND DEVELOPMENT STRATEGY

2012 - STATION AREA PLANNING FINAL REPORT

Hastings Station Summary Notes:

The proposed Hastings Station is located at the edge of downtown Hastings along 2nd Street, which is lined with historic 2- and 3-story buildings. The development and activity tapers out in the blocks closest to the station site. There is development potential around the station at several sites, notably along 2nd Street and in the blocks along the CP corridor. This document proposes future uses and building heights at these sites.

The station would have a 600' platform. The document proposes that the preferred track for the commuter rail serve would be the one furthest West, which is currently used to serve a freight customer off of the main line. However, it also suggests that having the ability to use tracks on both sides of the existing depot would be ideal in a situation where the commuter rail line is extended or high-speed rail is introduced into the corridor.

There is an at-grade crossing at 2nd Street and it is designated a "quiet zone." Additional safety features are added to crossings in "quiet zones" so that the train horns do not need to be sounded.

When commuter rail starts to serve Hastings, it is envisioned that Hastings Station would not only serve Hastings residents, but also residents in eastern Dakota County and the Red Wing area as a terminus station. There is the possibility of the commuter rail line being extended south of Hastings at a future date.

The station plan uses the assumption that 500 stalls will be needed for commuter parking. The plan noted that the Metropolitan Council had estimated a parking demand of 90 at this station, the Bus Feasibility Study had recommended 115 to 285 stalls, while the Alternatives Analysis had recommended 195 stalls. The plan also suggests that the parking initially be provided through surface lots, but as time goes by and there is greater development, that a parking structure ("ramp") be built and that the surface parking just west of the station be used for short-term parking.

In addition to driving, passengers would be able to access the station via the sidewalk network or via the bicycle network which runs along the Mississippi River.

The anticipated costs for the station area includes \$14.75 million for public infrastructure and \$56.6 million for development. A park-and-pool lot has been constructed at this site in anticipation of future transit enhancements. A map of the near-term station area plan is provided below.

Figure 15: Hastings Station Area Plan



SOURCE: STATION AREA PLAN

The City of Hastings is now looking to utilize the block located on the northwest of 2nd Street and the CP Railroad for a mixed-use residential and commercial development. The plan calls for a larger parking ramp, which the City envisions will be located on the site of the proposed Red Rock parking lot or on other city owned properties to the south.

Langdon Village Station Summary Notes:

The site is different that the site currently served with bus service and with a park-and-ride facility. This site has the advantage of meeting the Community’s planning goals and not requiring passengers to cross active tracks. It is further south from the current express bus station, and is expected to be a more central location in the future given expectations of future residential development.

The site is currently underdeveloped. The City of Cottage Grove’s Public Works facility is located on the site, and the City has been purchasing other parcels in the vicinity to create space for future transit-oriented development.

A second track could be built in this location to add capacity and reduce conflicts between passenger and freight trains.

Park-and-ride is envisioned first on surface lots, and as development progresses, in parking structures. The plan foresees a need for 850 parking stalls for commuters. This is in addition to 3,948 stalls needed for the new developments. The current Hamlet Park Park & Ride facility has 545 stalls.

A completely new roadway system, including sidewalks and regional trail facilities, would have to be built in this area.

The public investment is anticipated to be \$36.4 million and the private investment is estimated at \$247.7 million. The near term plan for the station is shown below.

Figure 16: Langdon Village Station Area Plan



SOURCE: STATION AREA PLAN

Newport Station Summary Notes:

The land for the future station has been purchased by the Washington County Regional Railroad Authority in 2010. It is located at the intersection of I-494 and Highway 61. There are some existing residential and commercial areas south of the station, but the existing development, roadway network, and sidewalk system is limited. The site is likely larger than what is needed for a transit station and park-and-ride facility, so other uses could fit there, such as office space and a hotel. The plan suggests an almost complete change in the land uses in the station area, although it is cautious about saying how marketable development on this piece of land will be.

Passengers will be required to use an overhead walkway to access the station due to the presence of active mainline tracks between the commuter rail tracks and the park-and-ride site.

The park-and-ride demand is expected to require about 500 stalls. Metropolitan Council estimated a demand of 125 stalls for bus service, and the Washington County Capital Improvement Plan suggests 500 stalls are required. The parking stall requirements related to the new development is estimated to be 2,783.

The estimated costs are \$28.9 million for transit costs and \$205.3 million for private development.

Figure 17: Newport Station Area Plan



SOURCE: STATION AREA PLAN

Afton Station Summary Notes:

This proposed station is located just north of the existing park-and-ride lot. This location would allow for the efficient use of space, for views to be maintained, and for easier access by drivers in the morning. The old site is constrained by Native American burial grounds and the shape of the land parcel. The plan is to move the park-and-ride to the north lot and allow the existing lot to be returned to nature.

The current park-and-ride is at capacity with 114 stalls. Most people using this facility are traveling to downtown Minneapolis, as St. Paul is too close to be an attractive destination by bus. The new facility is expected to accommodate 275 commuters.

There is no development potential around this site, although a small private development could be possible within the new parking structure. The suggested use is a welcome center for the adjacent regional park.

Circulator routes 350 and 363 could be adjusted so that they serve the new facility.

The public costs are assumed to be \$15.1 million, while the private costs would be \$0.5 million. The long-term plan for the station area is shown below.

Figure 18: Afton Station Area Plan



SOURCE: STATION AREA PLAN

Vision Notes:

Vision elements for all of the stations included the following:

- Bus service between Hastings and the two downtowns will develop ridership for the eventual commuter rail service.
- Station area development will happen slowly over time.
- Current uses will remain until they choose to leave.
- The planning horizon is 2020 for service to Hastings, and the line may be extended by the 2040 planning horizon.

Ordinances or Design Standards

1997 GUIDELINES ON SHOULDER USE BY BUSES

The purpose of allowing buses to use the shoulder lanes of highways is to encourage transit use and fully use the capacity of the highway system. These guidelines describe how the shoulder lanes are to be used by buses.

Firstly, buses can only use designated shoulder lanes if their operations are funded by the Metropolitan Council and their drivers have received instructions on how to drive in these shoulder lanes. Designated shoulder lanes should be provided in segments of the highway system where there are predictable congestion delays, defined as speeds of less than 35 mph during the peak periods. To be considered, congestion delays should occur at least once a week, at least six transit buses per week should use the shoulder lane, and the expected times savings should at least eight minutes per mile per week. The width of the shoulder lane should be ten feet or more.

Guidelines for operating in the designated shoulder lanes are as follows:

- Bus shoulders can only be used when traffic is moving less than 35 mph
- Maximum speed of buses while using the shoulder is 35 mph
- Buses in the shoulders should not operate more than 15 mph greater than the regular traffic
- If traffic is stopped, the speed of buses should be no more than 15 mph
- Use of shoulders should be reduced if water, snow, or ice is present
- Bus shoulders can be used for deadheading

This MnDOT policy document is still current and valid.

2012 REGIONAL TRANSITWAY GUIDELINES

This document develops guidelines for four transitway modes: (1) commuter rail, (2) LRT, (3) Highway BRT, and (4) Arterial BRT. They do not directly address Express Bus or BRT within an exclusive guideway. Highway BRT service types include station-to-station service (all-day frequent service) and express service (commuter express service coordinated with highway BRT station-to-station service). Highway BRT station-to-station service is a coordinated set of routes that stop at most stations in a BRT corridor, which is defined by stations and a runningway. It provides service 7 days a week, 16 hours a day, and at least every 10 minutes during peak periods with lower frequencies during the mid-day and evenings. Weekend frequency is based on demand. Highway BRT is coordinated with station-to-station service, using the same BRT runningway and park-and-ride facilities as the station-to-station service. It provides at least 30- minute service in the peak periods in Transit Market Areas I and II with at least three peak period trips in Transit Market Areas III and IV.

These guidelines require coordination of transit services, the elimination of competing routes, appropriate route structure, minimum frequencies, minimum span of service, travel times, productivity, and acceptable loading. They also address station siting and spacing, vehicle design, and fare collection system design.

Data Review

The following summarizes information available from existing transitway services and regional transportation modeling.

Travel

2010 TRAVEL BEHAVIOR INVENTORY (TBI) SURVEY

The “draft version” of the TBI survey data consists of three sets of information including:

- Person Records,
- Household Records, and
- Trip Records

The data was gathered by the Metropolitan Council via two different survey types, GPS Survey and Home Interview Survey (HIS). There were 10,362 household records in the survey dataset, 214 of them were collected via GPS survey while the remaining 10,148 records were obtained via HIS. The survey followed 21,298 individuals from those 10,362 households and generated a total of 79,236 trips that traveled between December 2010 and November 2011. Trips include information about origin, destination, mode choice, and trip time of day.

TRANSIT ON-BOARD SURVEY

The transit on-board survey data contains information from trips from the 2005 and 2010 data collection efforts. Each trip record was geocoded with the traveler’s origin zone, destination zone, and boarding and alighting zones. The survey also included some other pertinent information such as access and egress modes, number of transfers, and time-of-day. The 2010 survey was conducted in four separate time-of-day periods, including AM Early, AM Peak, Midday, and PM Peak, while the 2005 survey was conducted only for two time periods, peak and off-peak. The 2010 dataset will primarily be used for the Alternatives Analysis Update, although the 2005 data will also be summarized and used for reference or comparison purposes.

TWIN CITIES REGIONAL TRAVEL DEMAND FORECAST MODEL (RTDFM)

The Metropolitan Council owns the Twin Cities Regional Travel Demand Forecast Model (RTDFM). The model was mainly developed using the Cube/TPPlus (TPP) software package and is executed in a DOS environment. The model also contains several FORTRAN executable routines and a DLL file (DFORRT.DLL). The model chain is executed using a DOS batch file that comprises a series of TPP scripts or routines and executable files. This model is used in conjunction with updated 2010 and 2040 highway networks and the 2010 socioeconomic data (SED) from the Metropolitan Council.

Table 13: Twin Cities Regional Travel Demand Forecast Model Results

COUNTY	POPULATION			HOUSEHOLDS			TOTAL EMPLOYMENT		
	2010	2040	CAGR	2010	2040	CAGR	2010	2040	CAGR
Anoka	330,844	426,080	0.8%	121,227	171,200	1.2%	106,387	152,700	1.2%
Carver	91,042	156,520	1.8%	32,891	62,550	2.2%	31,836	53,430	1.8%
Dakota	398,552	524,740	0.9%	152,060	210,700	1.1%	170,192	245,880	1.3%
Hennepin	1,152,425	1,431,300	0.7%	475,913	604,150	0.8%	805,089	1,066,260	1.0%
Ramsey	508,640	597,310	0.5%	202,691	248,550	0.7%	316,937	408,680	0.9%
Scott	129,928	201,900	1.5%	45,108	77,800	1.8%	41,534	67,930	1.8%
Washington	238,136	337,810	1.2%	87,859	135,140	1.4%	71,897	107,210	1.4%
Total	2,849,567	3,675,660	0.9%	1,117,749	1,510,990	1.0%	1,543,872	2,102,090	1.0%

The 2010 and 2040 socioeconomic data (SED) for the seven counties within the modeled region are shown in the table above. The compounded annual growth rate (CAGR) for regional population between 2010 and 2040 is approximately 0.9%, while the CAGR for both regional households and total employments is 1.0%. Carver County was projected to have the fastest growing population and employments, with both at approximately 1.8% per year. Washington County, where Cottage Grove and most of the Red Rock

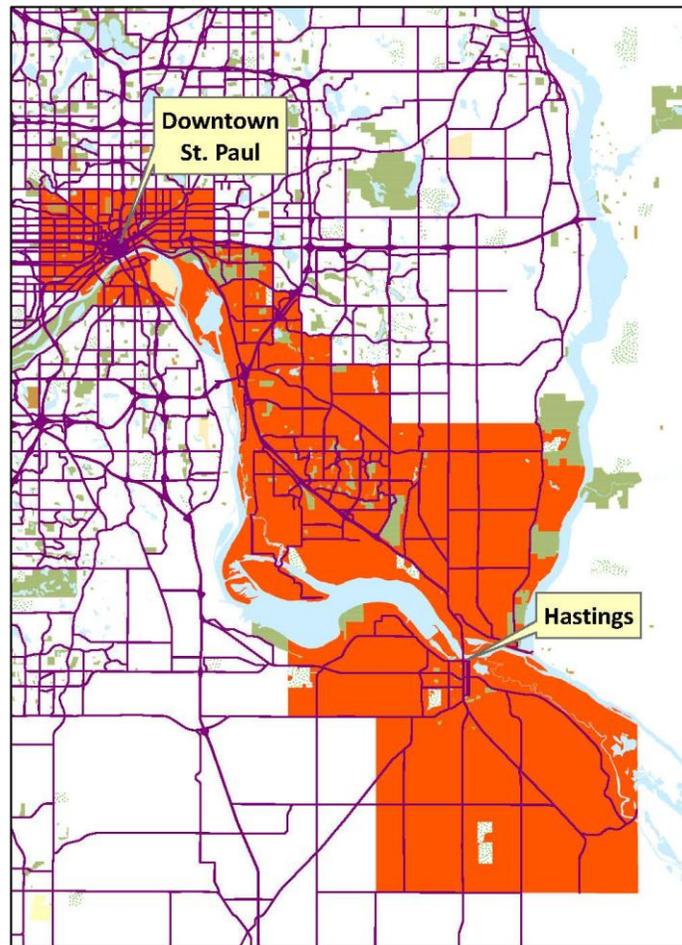
alignment are located, has a relatively high employment growth rate at 1.4% per year. The population and employment in the Red Rock Corridor’s study area grow approximately 0.9% and 1.2% per year, respectively, compounded annually as shown in the table below.

Table 14: Socioeconomic Data Summary for the Red Rock Corridor (Hastings to Downtown St. Paul)

COUNTY	POPULATION		
	2010	2040	CAGR
Population	228,197	296,840	0.9%
Households	85,092	121,930	1.2%
Employment	123,390	176,280	1.2%

The study area coverage for the Red Rock Corridor is shown in the figure below.

Figure 19: Red Rock Alternatives Analysis Update Study Area



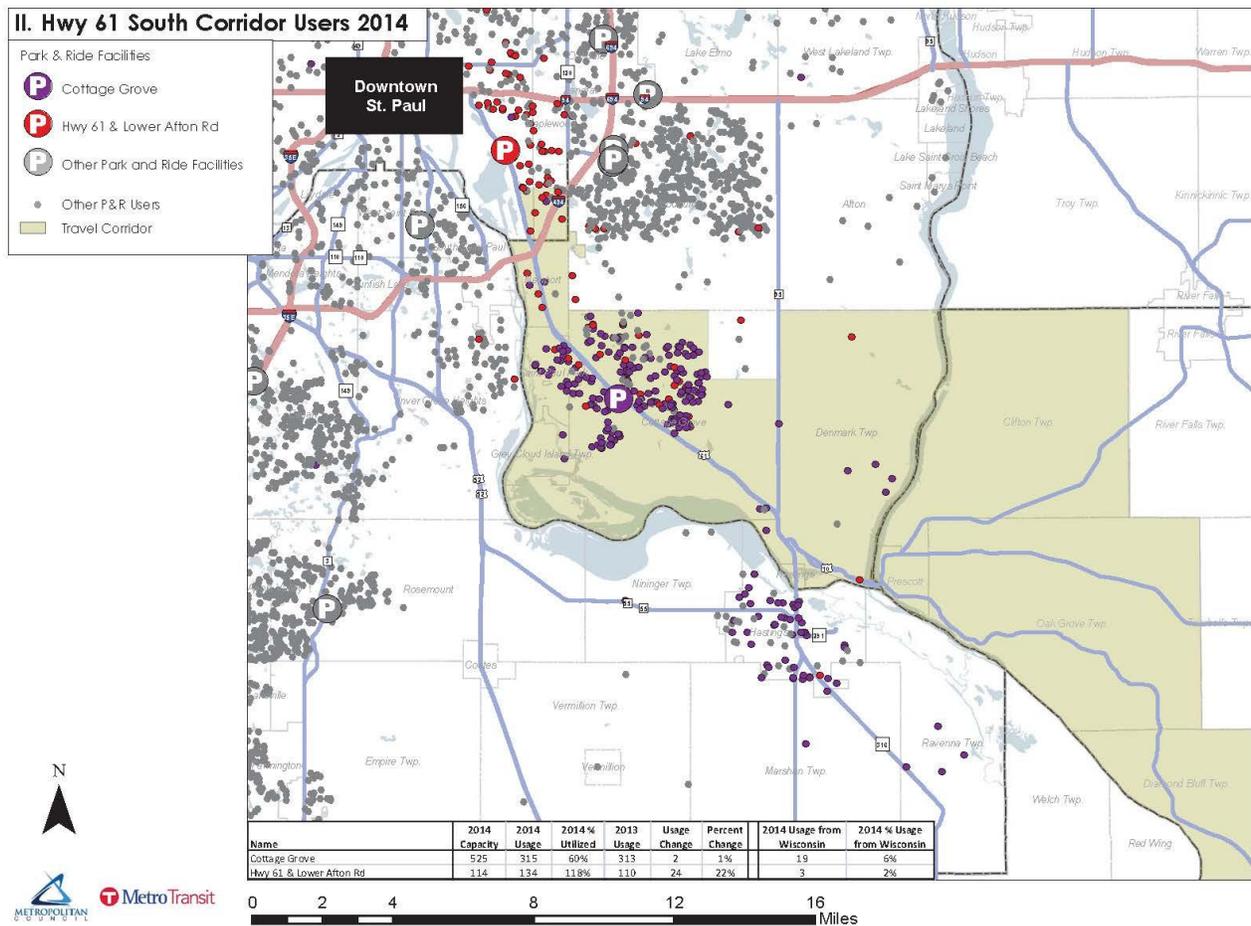
2014 ANNUAL REGIONAL PARK-AND-RIDE SYSTEM REPORT: MARCH 2015

The 2014 Annual Regional Park-and-Ride System Report assessed the overall usage of park-and-rides across the region. The document provided the park-and-ride utilization in the Red Rock Corridor based on data collected in Fall 2014.

The Cottage Grove Park & Ride and the Lower Afton Road Park & Ride were assessed in the US Highway 61 South Corridor in 2014. The 150-stall Newport Transit Station opened in 2014, and was therefore not assessed for this report. The map of the US Highway 61 South Corridor 2014 vehicle origins and park-and-ride locations is shown in Figure 20.

The 525-stall Cottage Grove Park & Ride was 60% utilized in 2014, with the majority of users coming from the Cottage Grove and Saint Paul Park. Compared to the 2012 report, more vehicles traveled from the Hastings area to this park-and-ride. The assessment also showed that the 114-stall Lower Afton Road Park & Ride facility was 118% utilized in 2014, with the majority of users coming from eastern St. Paul, southern Maplewood, and western Woodbury.

Figure 20: Highway 61 South Park & Ride Facilities & 2014 User Origins



Population

Population figures for 2010, as well as forecasts for 2020 and 2030, are available by traffic analysis zone (TAZ). These values will be used for the travel forecasting work.

Employment

Employment figures for 2010, as well as forecasts for 2020 and 2030, are available by traffic analysis zone (TAZ). These values will be used for the travel forecasting work.

Transportation Services

The following lists information about existing and planned transitways in the Minneapolis-St. Paul area.

NORTHSTAR COMMUTER RAIL

The following information is from the National Transit Database: It provides a summary of the operations and costs of the Northstar Commuter Rail service which opened in 2009 and serves travel between Big Lake and downtown Minneapolis.

Table 15: Northstar Commuter Rail Statistics

	2011	2012	2013
Vehicles Operated in Maximum Service	20	23	23
Unlinked Trips	703,424	700,276	787,241
Operating Costs	\$15,957,385	\$16,419,740	\$17,753,560
Fare Revenues	\$2,670,812	\$2,566,862	\$2,602,172
Vehicle Revenue Miles	537,307	515,698	536,880
Vehicle Revenue Hours	14,595	14,173	15,064
Operating Expense per Vehicle Revenue Mile	\$29.70	\$31.84	\$33.07
Operating Expense per Vehicle Revenue Hour	\$1093.35	\$1158.52	\$1178.54

2012 CEDAR AVENUE TRANSITWAY UPDATE

This presentation summarizes the elements included in the three stages of the Cedar Avenue BRT project. In the first stage, there will be station-to-station service between the Mall of America and Apple Valley Station. In subsequent stages, infill stations will be built and the line will be extended to 215th St Station. The line includes a mix of walk-up and park-and-ride stations. The total cost of construction is \$250 million, although stage 1 only costs \$112 million.

The Metro Red Line (the new name for the Cedar Avenue BRT), which will operate along the transitway, will replace a handful of express bus services and operate every 15 minutes throughout the day. The service will make use of new 40-ft buses and new transit signal priority in the corridor. At the stations, customers will be able to look at real-time bus arrival time information and use ticket vending machines similar to the ones on the LRT and commuter rail lines. The presentation discusses the various roles of the Council, DCRR, and MVTA as well as the funding source for Stage 1 investments. 2014 Highway Transitway Corridor Study

The Highway Transitway Corridor Study (HTCS) examined the feasibility of implementing highway BRT in existing, highly traveled, highway corridors in the Twin Cities metropolitan area. The study stated that highway BRT systems would provide all-day, frequent operations between stations, with the purpose of providing fast, reliable, all-day service that connects population, job, and transit centers in highway corridors.

The HTCS analyzed eight corridors and developed alignments, operating plans, and ridership forecasts for each one. The Study graded each corridor with a high, moderate, or low rating for implementation based on goals related to efficiency, cost-

effectiveness, population density, employment density, and development potential. The study recommended that four corridors—Highway 36, Highway 169, Interstate 394, and Interstate 94 northwest of downtown Minneapolis—advance for additional study. Highway 61 was not included in the study because the corridor had already progressed further in the planning process.

The HTCS also stated that several types of station configurations would be constructed and would be based on projected ridership, surrounding land use, and highway right-of-way availability. Online, inline, and offline stations were evaluated at all locations within each of the corridors. It was assumed that the majority of stations would be inline stations except stations near existing park-and-rides, where offline stations would be utilized. All stations are to include premium amenities seen in other transitway stations in the region.

The HTCS also reported that depending on the highway configuration, highway BRT vehicles would travel either in dedicated busways, bus-only shoulders, MnPASS lanes, or in mixed traffic. In most cases, the study assumed that BRT vehicles would not operate in MnPASS lanes, since they are located in the center of highways and would require buses to merge across all lanes. It was noted, however, that MnPASS lanes provide a significant transit advantage during peak hours due to their time savings. Therefore, the study recommended future evaluations of highway BRT operations in MnPASS lanes, with potential online station implementation.

ORANGE LINE (I-35W BRT)

METRO Orange Line BRT will utilize roadway improvements, upgraded transit stations, and improved bus service to provide fast, frequent, and reliable all-day transit service along I-35W south of downtown Minneapolis. The 22-mile corridor has been the most heavily traveled express bus corridor since the 1970s, with about 14,000 daily rides.

Buses will travel on Marquette and 2nd Avenues in downtown Minneapolis, utilizing congestion-free, transit-only lanes. South of downtown, the Orange Line will provide frequent, limited-stop service to upgraded stations at Lake Street, 46th Street, 66th Street, 76th Street, American Boulevard, 98th Street, and Burnsville Transit Station. The second phase of the project is planned to extend service and improvements from Burnsville to Lakeville.

Numerous investments in the I-35W South corridor have helped to establish strong transit markets for both station-to-station and express BRT, and provided major station improvements that are critical to opening Orange Line service. These include the construction of an online station at 46th Street and a park-and-ride at Kenrick Avenue in Lakeville, and the restructuring of service in the corridor serve these stations. A family of corridor transitway services, including Orange Line BRT and BRT Express, will continue to benefit from shared capital improvements and complimentary service planning.

In 2013, Metro Transit received federal approval from the FTA to enter project development for the Orange Line, setting a target 2019 opening date. Engineering and environmental work will continue through 2016, with construction beginning in 2017. The July 2014 Orange Line Update incorporated many community and agency comments, stated that the Lake Street Station reached 60 percent design, determined the Knox Avenue alignment near I-494 as the preferred routing, and announced that \$18 million has been secured towards project implementation.

Conclusion

In the 1990s, there was a push in the Minneapolis-St. Paul area for commuter rail service, and MnDOT became the lead agency for commuter rail planning efforts. This resulted in early planning for a commuter rail network and led to the eventual creation of the Northstar Commuter Rail service. The Red Rock Corridor was included in this early planning work as another potential commuter rail corridor.

Meanwhile, high-speed rail was being considered for the greater Midwest region. The proposed network of high speed lines included a link between Chicago and St. Paul. An initial study assumed that this link would travel through Rochester, but given the potential synergies between high-speed rail investments and commuter rail investments, the high-speed rail service was soon assumed to be using the Red Rock Corridor.

In 2007, the Red Rock Corridor Alternatives Analysis was developed as an initial phase in attaining federal funding for future commuter rail service. This analysis concluded that commuter rail was appropriate for the long term, especially in the event that high speed rail was introduced into the corridor and provided a mechanism for reducing capital costs. The analysis recommended that commuter bus services be developed in the short-term to build transit demand.

The 2014 Alternatives Analysis Update (AAU) concluded that highway BRT is the best transit mode alternative to meet the corridor's goals and objectives. Community and agency feedback highlighted that all-day frequent transit service was important to those living and working along the corridor, which was an influential factor for selecting highway BRT.

The AAU stated that the Red Rock Corridor Commission will pursue ongoing strategies to reach the corridor's goals and objectives and that transit will be implemented in stages rather than at a single point in time. The AAU listed three stages for implementing transit in this corridor:

Stage 1 – Prime the corridor for transit improvements by increasing express bus service, promoting land use and development patterns around station areas, and encouraging Hastings to join the transit taxing district.

Stage 2 – Continue evaluating the highway BRT alternative and begin phased implementation of BRT improvements as transit usage rises.

Stage 3 – Design and construct full highway BRT infrastructure, procure BRT vehicles, and begin BRT service. As ridership increases, consider adding transit services, alternative modes, or capital improvements to meet peak period capacity as warranted.

The focus of the Implementation Plan will be to:

- Update transit ridership forecasts for the corridor
- Create service plans that meet the travel patterns of those living and working along the corridor
- Develop capital and operating cost estimates
- Update the corridor station area planning