

### 3.0 ALTERNATIVES

*Figures referenced in Section 3.0 are included at the end of this section.*

#### 3.1 Proposed/Revised Preferred Alternative

The proposed project consists of two modal elements: commuter rail and LRT. The commuter rail component would begin in downtown Minneapolis and extend northwest through Hennepin, Anoka, and Sherburne counties to Big Lake, Minnesota, a total distance of approximately 40.1 miles. The majority of the route is on BNSF's Chicago to Seattle transcontinental line (Figure 3.1).

With the planned capacity improvements, the entire commuter rail route will be double-tracked, allowing commuter trains to run concurrently with 35 to 60 freight trains per day. Signals will be upgraded, with the entire commuter rail route using the centralized train control (CTC) system upon completion. BNSF will dispatch and may also operate the commuter rail trains. The Federal Railroad Administration (FRA) Class 4 track will allow passenger speeds up to 79 miles per hour and freight speeds up to 60 miles per hour. The boarding platforms will be located within BNSF right-of-way and, in most locations the commuter trains will stop directly on the BNSF mainline tracks to board passengers. The two terminal stations will include off-line platforms where boarding will occur from siding tracks.

Five trains will run in the peak direction on weekday mornings and afternoons at half-hour intervals. Three trains will run in the reverse-peak direction during those periods. One train will run in each direction during midday. There are a total of 18 trains per weekday, nine in each direction. There will be three trains, in each direction, or six trains per day, on weekends and holidays.

Stations will be located in downtown Minneapolis, Fridley, Coon Rapids-Riverdale, Anoka, Elk River, and Big Lake (See Table 3.1). All stations, except downtown Minneapolis will contain park-and-ride lots.

Commuter rail rolling stock obtained for the project will be maintained at a maintenance facility and storage site located adjacent to the end-of-line station in Big Lake. The commuter rail fleet will consist of five locomotives, six cab coaches, and twelve trailer coaches.

The LRT component includes a four-block connection from the downtown Minneapolis Intermodal Station to the Hiawatha LRT Warehouse District Station. The connection will provide a transit link from the Northstar Corridor to downtown Minneapolis and beyond to the Hubert. H. Humphrey Metro dome, Minneapolis-St. Paul International Airport, and the Mall of America.

The LRT connection will conform to Hiawatha LRT design standards. The intermodal station will offer vertical circulation, with a stairway, escalator, and elevator between the commuter rail station on the lower level and the LRT station on the 5<sup>th</sup> Street Bridge (one level above).

Two light rail vehicles (LRVs) will be procured to maintain desired frequencies over the Hiawatha Line when LRT is extended to the Downtown Minneapolis Intermodal station.

Construction of the project is proposed to occur between 2007 and 2009.

### 3.1.1 Alternative Evaluation Process

This section provides a more detailed discussion regarding the proposed changes to the system elements of the preferred alternative evaluated in the FEIS and the revised preferred alternative evaluated in the EA. Please refer to Table 1.2 for a summary of the primary reasons for the specific system element changes.

#### Stations

The MOS of the preferred alternative defined and evaluated in the FEIS included the following stations and site characteristics.

**Table 3.1 — Stations (MOS) of Preferred Alternative**

Station Location	Site Size	Park-and-Ride Lot	Stormwater Ponds
Downtown Minneapolis	0.7 acre	0	No
Minneapolis Northeast	1.1 acres	0	No
Fridley	10.2 acres	595 spaces	Two Stormwater Detention Basins
Coon Rapids - Foley	4.62 acres	248 spaces	On-Site Stormwater Detention Basin
Coon Rapids - Riverdale	9.77 acres overall/ 7.72 acres developed	453 spaces	Commuter Coach facility
Anoka	4.95 acres	258 spaces	Off-Site Stormwater Detention Basin
Elk River	13.16 acres/11.2 acres developed	731 spaces	On-Site Stormwater Detention Basin
Big Lake and Layover Facility (MOS)	8.46 acres/4.1 Developed	400 spaces	On-Site Stormwater Detention Basin (west)

The revised preferred alternative evaluated in the EA includes the following stations and site characteristics.

**Table 3.2 — Stations of Revised Preferred Alternative**

Station Location (Figure #)	Site Size	Park-and-Ride Lot (# of spaces)	Stormwater Ponds
Downtown Minneapolis (Figure 3.2)	0.7 acre	0	No
Fridley (Figure 3.3)	3.7 acres (West) 4.8 acres (East)	281 (West) 337 (East)	On-site Stormwater Detention Basin (west and east sides)
Coon Rapids-Riverdale (Figure 3.4)	9.6 acres 7.0 acres currently developed	460 spaces	Drains to Existing On-Site Pond
Anoka (Figure 3.5)	The exact configuration of the parking facility is to be determined by the City of Anoka. The site size of 4.95 acres defined and evaluated in the FEIS reflects station facilities on both the north and south sides of the tracks.  Figure 3.5 reflects the general site area proposed by the City of Anoka for the parking facility (south side of tracks).	The City of Anoka is taking the lead in the development of a parking structure at this station (up to 450 spaces/ 2 level structure).  The Northstar Project is a funding partner for the proposed parking structure at the Anoka Station.	Off-Site Stormwater Detention Basin <i>(to be constructed as part of the Northstar Corridor Rail Project)</i>
Elk River (Figure 3.6)	13.2 acres 9.5 acres currently developed	754 spaces	On-Site Stormwater Detention Basin
Big Lake/Layover Facility (Figure 3.7)	5.9 acres (station) 3.9 acres (roadway connection to maintenance facility)	400 spaces	On-site Stormwater Detention Basin

Table 3.3 presents the cumulative distance for the proposed MOS stations of the revised preferred alternative, along with cumulative travel times for the system.

**Table 3.3 — Northstar Cumulative Station Distance and Travel Times**

Proposed Station	Distance	Minutes (cumulative)
Downtown Minneapolis	0	0
Fridley	9.2	16
Coon Rapids - Riverdale	18.2	24
Anoka	20.3	27
Elk River	29.9	35
Big Lake	40.1	43

**Track Improvements**

Both the DEIS and the FEIS each included a specific section that identified potential track improvements. The most noteworthy change from the DEIS to FEIS stage, was the removal of the Coon Creek siding from MP 18.8 to 20.7 and third main track from MP 15.6 to 20.7. With the removal of the Coon Creek siding/third main, all of the proposed track improvements were assumed to be within existing BNSF right-of-way (See figure in Appendix A.2).

A summary of the BNSF required track improvements for the revised preferred alternative is reflected in Table 3.4. For comparison, the track improvements evaluated in the EIS are included as a reference. Based on the proposed improvements included in the BNSF Agreement, the impact evaluation included in this EA will be limited to the proposed third mainline from MP 15.1 to MP 21.1 (see Figure 3.8 for the location of the third mainline improvements). The third mainline would be located in the cities of Fridley and Coon Rapids, from just south of I-694 to just north of Coon Rapids Boulevard. Mn/DOT and the NCDA will continue to work with the BNSF regarding specific right-of-way requirements associated with improvements at the Northtown Yard.

**Table 3.4 — Summary of Proposed Track Improvements under the Revised Preferred Alternative**

Item Number <sup>1</sup>	Description	Defined in EIS*	New Evaluation Required Based on Design Modification/Change in Surrounding Area
1	Construct Double Track Through Northtown Yard (43 <sup>rd</sup> Avenue to 35 <sup>th</sup> Avenue) with Double Crossover at 43 <sup>rd</sup> . Construct replacement of May Brothers Lead Track	Yes	BNSF ROW limits in this area currently being confirmed
2	Install CTC Signaling System from Elk River to Coon Creek on Staples Subdivision	CTC signal locations not defined/evaluated in EIS as they would be located within existing ROW	No
3	Install CTC Signaling System from Big Lake to Elk River on Staples Subdivision	CTC signal locations not defined/evaluated in EIS as they would be located within existing ROW	No
4	Install CTC Signaling System from Harrison Street to Holden Street on Wayzata Subdivision	CTC signal locations not defined/evaluated in EIS as they would be located within existing ROW	No

*Continued*

Item Number <sup>1</sup>	Description	Defined in EIS*	New Evaluation Required Based on Design Modification/Change in Surrounding Area
5	Construct Double Crossovers at Elk River (MP 39.3) and Ramsey (MP 29.3)	Yes	No
6	Construct Double Crossovers at Big Lake MP 45.1 or MP 43.5	Yes	No
7	Construct Double Crossovers at MP 32.9 on Staples Subdivision	Yes	No
10	Upgrade “Old Main 2” on Midway Subdivision	Yes	No
11	Upgrade Siding from Holden Street to Harrison Street to Mainline and Extend Double Track Through West Leg of the Minneapolis Jct. Wye	Yes	No
12	Construct Crossover at MP 11.3 on Wayzata Subdivision to Allow Eastbound Commuter Trains to Cross Over into the Depot	Yes	No
13	Extend Double Track from Minneapolis Jct. Wye to St. Anthony on Midway Subdivision	Yes	No
14	Upgrade Crossover at MP 11.11 on Midway Subdivision	Yes	No
15	Upgrade Main 3 on Staples Subdivision West of University (MP 11.7 to MP 12.5)	Yes	No
16	Extend Midway Subdivision Main 2 from MP 11.7 to MP 12.3	Yes	No
19	<p>Construct Third Main from Coon Creek to Interstate (just south of I-694) (MP 15.1 to MP 21.1)</p> <p>Third Main on west (railroad south) side from MP 15.1 to approximately MP 16.6.</p> <p>Third Main on east (railroad north) side from approximately MP 16.6 to MP 21.1.</p>	<p>DEIS identified and evaluated the Coon Creek Siding (MP 18.8 to 20.7) on the east (railroad north) side of existing mainline and Third Main Track from MP 15.6 to 20.7 (5.1 miles) on the west (railroad south) side of mainline track.</p> <p>Third Main and siding were not included in the preferred alternative identified and evaluated in the FEIS</p>	Yes
20	Connect South Runner as Continuous Track from Interstate to Main 1 on the St. Paul Subdivision at University	Yes	No
21	Construct Additional Tracks for Lost Capacity on the Wayzata Sub between MP 11.9 and 12.6	No	No — tracks will be located within existing BNSF ROW

\* The impact evaluation included in the EIS was limited to proposed improvements that would be located outside the existing BNSF right-of-way. Based on track improvements defined at the time the EIS was prepared, the impact analysis was limited to the proposed third mainline from MP 15.6 to 20.7 and the Coon Creek Siding from MPs 18.8 to 20.7.

<sup>1</sup> Item numbers reflect the BNSF numbering scheme for required capacity improvements per agreement with the NCDA.

As presented in Tables 1.2 and 3.4, the third main is proposed to be located on the west (railroad south) side from MP 15.1 to 16.6, then transition to the east (railroad north) side of the mainline at MP 16.6. The proposed third main would then be located on the east (railroad north) side to its end point at MP 21.1. This alignment location was defined and evaluated to avoid and/or minimize impacts to the surrounding social and environmental resources in the area. Specifically, the proposed alignment reduces potential noise, right-of-way, wetland, floodplain, and parkland/trail (4(f)/6(f)) impacts previously documented in the DEIS, when the third main was proposed to be located on the west (railroad south) side of the mainline.

Figure 3.8 illustrates the capacity improvements under evaluation in the EA. Figure 3.9 presents the typical cross sections of the proposed capacity improvements.

### ***Vehicle Maintenance Facility***

The DEIS identified and evaluated three alternative vehicle maintenance facility sites, including Big Lake, Elk River North, and Elk River South.

The preferred alternative in the FEIS identified a vehicle maintenance facility south of the Elk River station site (Elk River South). The design developed at the time of the FEIS indicated that the main and shop leads would be partially within existing BNSF right-of-way. Approximately 28 acres of land would therefore be needed for the construction of the balance of the facility.

To avoid deadheading trains from Elk River South to the end of the line at Big Lake, the Big Lake site has been identified as the revised preferred site. The total site for the vehicle maintenance facility, layover facility, and relocated Big Lake station would be approximately 37.5 acres (See Figure 3.10).

Functions at the vehicle maintenance facility would be the same as those evaluated in the DEIS/FEIS, including:

- Main lead track to station for passenger boarding and deboarding
- Shop lead track for vehicle access to shop complex
- Vehicle maintenance building
- Train wash building
- Employee parking
- Train vehicle storage

### ***LRT Track Connection and Station***

The FEIS identified and evaluated a Hiawatha LRT extension on the north side 5<sup>th</sup> Street from 3<sup>rd</sup> Avenue North to the Downtown Minneapolis Intermodal Station (tail tracks extending to 6<sup>th</sup> Avenue North). As noted in Table 1.2, the ROD indicated that a transportation mitigation measure for the LRT alignment on 5<sup>th</sup> Street North would be investigating the possibility of locating the LRT tracks on the south side of 5<sup>th</sup> Street North, northwest of 3<sup>rd</sup> Avenue North (See figures in Appendix A.2).

The revised preferred alternative evaluated in the EA includes an LRT extension on the south side of 5<sup>th</sup> Street from 3<sup>rd</sup> Avenue North to the Downtown Minneapolis Intermodal station, with rail tracks extending to 6<sup>th</sup> Avenue North (See Figures 3.2 and 3.11).

### 3.2 Capital Costs and Local Financial Commitment

As part of the preliminary engineering efforts for the Northstar Corridor Rail project, capital cost estimates were prepared and included in the FEIS. The capital costs included the following: right-of-way, right-of-way preparation, structures, trackwork, pavements/parking lots, and grade crossings, signals and electrification, rail vehicles, art in transit, contingencies, and engineering/administration/construction management. The capital cost estimates presented in the FEIS are summarized in Table 3.5.

**Table 3.5 — Capital Cost Summary from FEIS (December 2002)**

Item Description	Total Project Cost (MOS – Downtown Minneapolis to Big Lake)		Total Project Cost (Downtown Minneapolis to Rice)	
	2001 Dollars	2005 Dollars	2001 Dollars	2005 Dollars
Northstar Corridor Commuter Rail	\$214,292,600	\$238,390,500	\$243,263,100	\$270,618,800
Intermodal Connector (1 <sup>st</sup> Avenue North to 5 <sup>th</sup> Avenue North)*	\$21,017,700	\$23,380,100	\$21,016,700	\$23,280,100
<b>Total</b>	<b>\$235,309,300</b>	<b>\$261,770,600</b>	<b>\$264,279,800</b>	<b>\$293,998,900</b>

\* The Northstar Corridor FEIS evaluated the proposed Hiawatha LRT connection from 3<sup>rd</sup> Avenue North to the proposed Intermodal Station in downtown Minneapolis. The impacts and mitigation measures associated with the LRT line from 1<sup>st</sup> Avenue North to 3<sup>rd</sup> Avenue North were documented in the Hiawatha LRT FEIS Reevaluation and ROD (April 2000).

Table 3.6 presents a summary of the capital cost estimate for the revised preferred alternative (Year of Expenditure).

**Table 3.6 — Capital Cost Estimate, Revised Preferred Alternative – Downtown Minneapolis to Big Lake (Year of Expenditure)**

Cost Category	Total (millions)
Guideway and Track Elements	\$43.86
Stations, Stops, Terminals, and Intermodal Facilities	\$16.19
Support Facilities: Yards, Shops, and Administration Buildings	\$23.32
Sitework and Special Conditions	\$18.34
Systems	\$41.11
ROW, Land, and Existing Improvements	\$9.44
Vehicles	\$71.43
Professional Services	\$38.48
Unallocated Contingency	\$25.62
Finance Charges	\$1.26
<b>Total</b>	<b>\$289.05</b>

The 2005 Minnesota Legislature passed a bonding bill that included \$37.5 million for the Northstar Corridor Rail project. The bill was signed into law on April 11, 2005 by Governor Tim Pawlenty.

In addition to these funds, the Metropolitan Council of the Twin Cities committed \$2.5 million to the project and the NCDA Capital Partners committed over \$44 million. The combined non-federal commitment to date is over \$85 million.

The non-federal share of the estimated project capital costs is approximately \$144 million.

### 3.3 Revised Operating Plan and Costs

The Northstar Corridor FEIS (*Section 2.8, page 2-34*) identifies the total annual operating costs for the full regional commuter rail system (and regional bus service) to be \$15 million in fiscal year 2005 for the corridor defined as Downtown Minneapolis to Rice, and \$11.1 million for the MOS (Downtown Minneapolis to Big Lake).

The proposed modifications to the preferred alternative reflect commuter rail service between Big Lake and downtown Minneapolis, along with some modifications to the corridor bus service. As noted previously, proposed station stops include:

- Downtown Minneapolis
- Fridley
- Anoka
- Coon Rapids – Riverdale
- Elk River
- Big Lake

Proposed commuter rail patterns in the peak periods are as follows:

- Big Lake to Minneapolis – All stops, 2-trips in both directions
- Elk River to Minneapolis – All stops, 2-trips in the peak direction
- Anoka to Minneapolis – All stops, 1-trip in both directions

In the peak periods, there will be five peak-direction and three reverse peak-direction trips. There will also be one proposed midday round trip between downtown Minneapolis and Big Lake. This plan results in 18 one-way trips each weekday. Weekend and holiday service would consist of three round trips; with two round trips (morning and evening) between downtown Minneapolis and Big Lake and one round trip (midday) between downtown Minneapolis and Elk River.

Based on analysis completed in July 2005, the annual project system operating cost in year 2005 dollars is \$10.9 million.

### 3.4 Ridership

The FEIS identified year 2020 average daily ridership at 9,485 for the MOS (downtown Minneapolis to Big Lake), and 10,829 for the full build out system from downtown Minneapolis to Rice (*see Table 2.8-1; page 2-34 of the FEIS*). The MOS identified in the FEIS, included eight station locations (Downtown Minneapolis, Minneapolis Northeast, Fridley, Coon Rapids-Foley, Coon Rapids-Riverdale, Anoka, Elk River, and Big Lake).

Since the publication of the FEIS, Mn/DOT, the NCDA, Metropolitan Council, and the FTA have been working on refining the ridership projections for the proposed system. Additionally, the revised ridership forecasts reflect the removal of the Minneapolis Northeast and Coon Rapids-Foley station locations.

Table 3.7 presents a summary of the current ridership forecasts for the revised Northstar Corridor preferred alternative. The ridership model is continuing to be enhanced and refined to more accurately reflect the anticipated ridership.

**Table 3.7 — Northstar Commuter Rail Daily Ridership for Revised Preferred Alternative**

Station	Inbound plus Outbound Boarding by Station of Origin	
	2009 (Opening Year) Ridership	2025 Ridership
Big Lake	450	620
Elk River	570	790
Anoka	190	270
Coon-Rapids- Riverdale	550	770
Fridley	350	490
Downtown Minneapolis	1,920	2,650
<b>Total</b>	<b>4,030</b>	<b>5,590</b>