6.0 TRANSPORTATION

This chapter provides an analysis of the transportation impacts of the Central Corridor Light Rail Transit (LRT) project alternatives described in Chapter 2 of this document. Evaluation of these alternatives is based on the projected ridership, transportation network capacity, transportation system performance measures, traffic impacts to the roadway network, and anticipated construction impacts on these facilities. The data for the transit and roadway analyses were generated from the regional travel demand forecasting model used by the Metropolitan Council for the Twin Cities area. The methodology used to assess these impacts is consistent with those discussed in Chapter 6 of the Central Corridor Alternatives Analysis and Draft Environmental Impact Statement (AA/DEIS), and Supplemental Draft Environmental Impact Statement (SDEIS). The AA/DEIS and the SDEIS are incorporated by reference and are considered a part of this Final Environmental Impact Statement (FEIS).

Section 6.1 provides an overview of the methodology and anticipated effects on existing and future transit operations.

Section 6.2 provides an overview of the methodology and anticipated effects on the existing and future roadway traffic operations and on the 2030 transportation network based on the Preferred Alternative.

Section 6.3 discusses the long-term impacts of the Preferred Alternative on parking

Section 6.4 discusses the long-term impacts of the Preferred Alternative on pedestrians, bicycles, and other transportation facilities.

6.1 Transit Effects

6.1.1 Methodology

The transit analysis and ridership forecasts for each transit alternative were developed using the Metropolitan Council's regional travel demand model set. The model set and its components are the same as those used in most large urban areas in North America. The model uses what is known as the standard four-step planning process of trip generation, trip distribution, mode choice, and traffic/transit assignment. The structure of the model and the process of applying it to transportation studies are consistent with the method endorsed by the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA). The forecast year for the model is 2030.

The primary inputs used in the model are the Central Corridor LRT study area population, employment, household and socioeconomic characteristics, parking costs, transit fares, automobile operating costs, and highway and transit levels of service (LOS). The model set simulates travel on the entire transit and highway system within the Twin Cities metropolitan area. As such, it contains all the existing and planned rail and bus lines. The model contains service frequency (i.e. how often trains and buses arrive at any given transit stop), routing, travel time, and fares for all these lines. In the highway system, all express highways and principal arterial roadways, and many minor arterial and local roadways are included.

Results from the computer model provide detailed information relating to transit ridership demand. Estimates of passenger boardings on all the existing and proposed transit lines can be obtained from the model output. The model also generates a number of statistics that can be used to evaluate the performance of a transportation system at several levels of geographic detail.

In the FEIS, the evaluation of the No-Build Alternative, Baseline Alternatives and Preferred Alternative are made by comparing daily linked transit trips, unlinked trips by transit mode, bus and rail ridership within the study area, daily passenger miles and passenger hours of travel, station boardings on the LRT, and transportation system user benefits (TSUB).

6.1.2 Major Changes in Technical Assumptions

Since the AA/DEIS was completed, several changes have occurred in the existing and planned transit system in the following areas: LRT alignment, station size and locations, supporting bus system, LRT end-to-end travel times, and an Operations and Maintenance Facility (OMF) in downtown St. Paul. Another significant change was the horizon year used in the travel forecasting model—in the AA/DEIS, the horizon year was 2020, but in the FEIS it is 2030. Collectively, all these changes resulted in significantly higher ridership forecasts for all the FEIS alternatives than for the AA/DEIS alternatives. These changes were analyzed and addressed in the SDEIS; however, refinements since publication of the SDEIS have resulted in minor changes to the model output. The revised travel demand output based on revisions during preliminary engineering are presented in this chapter.

6.1.3 Description of Transit Service Plan

The transit service plan associated with the No-Build Alternative, Baseline Alternative, and the Preferred Alternative are restated briefly in this chapter to facilitate interpretation of ridership impacts.

6.1.3.1 No-Build Alternative

The No-Build Alternative includes roadway and bus system improvements along the University Avenue and I-94 corridors as specified in the appropriate agency Transportation Improvement Programs (TIP) and 2030 Transportation Policy Plan for which funding has been committed. The current transportation and transit facilities and services, with minimal modifications or expansions, form the basis for this alternative. Further details describing the No-Build Alternative, and all regionally constrained projects included in it are documented in Section 2.3.1 of the AA/DEIS. Under the No-Build Alternative, transit service along University Avenue would be provided using four primary bus routes: 16, 21, 50, and variations of 94 as shown in Table 6-1.

6.1.3.2 Baseline Alternative

The Baseline Alternative consists of improvements to the transit system that are relatively low in cost and the "best that can be done" to improve transit without major capital investment for new infrastructure. For the Central Corridor LRT project, the Baseline Alternative would use an enhanced Route 50 limited stop service along University Avenue to provide improved future transit service. This route would stop at the same locations as the proposed Central Corridor LRT station locations (including the revised downtown St. Paul alignment). Due to the lower loading capacity of buses versus light rail vehicles, the Baseline Alternative assumes shorter service headways of 6 minutes (7.5 was assumed for the AA/DEIS) during peak hours to manage forecast loads. The Baseline Alternative would require 23 additional vehicles over existing service. Feeder bus service to the enhanced Route 50 would be required under the Baseline Alternative and would be identical to the service assumed for the Preferred Alternative as described in this document and as illustrated in Figure 6.1-1.

Table 6-1 Transit Service Plan Headways (Minutes)

	Year 2000	Year 2030		
		No-Build	Baseline	Preferred Alternative
16 Peak 16 Off-peak	10 10	10 10	20 30	20 30
21 Peak 21 Off-peak	10 15	10 15	10 15	10 15
50 Peak 50 Off-peak	30 60	12 30	6 10	n/a n/a
94 B Peak 94 B Off-peak	20 30	20 n/a	n/a n/a	n/a n/a
94C Peak 94 C Off-peak	n/a 30	n/a 30	n/a n/a	n/a n/a
94 D Peak 94 D Off-peak	20 n/a	20 n/a	15 n/a	15 n/a
LRT Peak LRT Off-peak	n/a n/a	n/a n/a	n/a n/a	7.5 10

Source: Metropolitan Council Engineering Services Consultant, July 2008

As disclosed in the SDEIS, the current Baseline Alternative is slightly different from the one assumed in the AA/DEIS. Changes are summarized as follows:

- Route 16 – AA/DEIS assumption of 10-minute all-day service frequency is modified to 20-minute peak period, 30-minute midday, evening, and weekend (same as AA/DEIS LPA service)
- Route 50 (new Baseline Service) – AA/DEIS assumption of 15-minute peak/30-minute midday (no evening or weekend service) is modified to 6-minute peak/10-minute midday, evening and weekends
- Route 94B – Eliminated midday and weekend service
- Route 94C – Eliminated weekday, midday, and evening service

6.1.3.3 Preferred Alternative

Based on comments received on the SDEIS, continued coordination with project partners, and refinements during preliminary engineering, several modifications were proposed to the AA/DEIS LPA and the subsequent changes described in the SDEIS. These proposed refinements were necessary to remedy several design issues, reduce cost, and to minimize specific environmental and community impacts along the corridor. A detailed description of these changes is included in Chapter 2 (section 2.1.4.5) of this FEIS.

The most significant change to the AA/DEIS LPA will occur on Washington Avenue on the University of Minnesota's (U of M) East Bank campus. The Preferred Alternative assumes the LRT would operate at-grade on Washington Avenue in a Transit/Pedestrian Mall—the AA/DEIS LPA assumed the LRT would operate below-grade in a tunnel. Other adopted changes incorporated in the Preferred Alternative include changes to the location of LRT stations on the West and East Bank Campus. The West Bank station was shifted to the west, to accommodate a future double crossover track between the station and the Washington Avenue Bridge. This will allow for maximum future flexibility to run "gap trains" for special events. The Stadium Village Station would be located on the east side of 23rd Avenue SE just north of University Avenue, adjacent to the proposed U of M multi-modal center and the East Bank Station would be located on Washington Avenue between Harvard and Union streets.

The service frequencies of the Preferred Alternative would continue to be the same as for the AA/DEIS LPA (i.e., 7.5 minutes in peak periods and 10 minutes during midday period). The average operating speed of the LRT would be about 16 MPH. The total end-to-end travel time is projected to be about 40 minutes. There would be 20 stations along the alignment. The first five stations on the western portion of the alignment would be common to both the Central Corridor Preferred Alternative and the Hiawatha LRT line. Intermodal connections with the underlying bus network would be provided at key stations. Bus routes 2, 3, 6, 7, 8, 21, 22, 53, 60, 62, 262, 65, 67, 83, 84, 87, 134, 144 and all of the U of M bus routes would have intermodal connectivity with the Central Corridor LRT. Figure 6.1-1 shows the entire proposed Central Corridor Preferred Alternative alignment, station locations, and the connecting bus network.

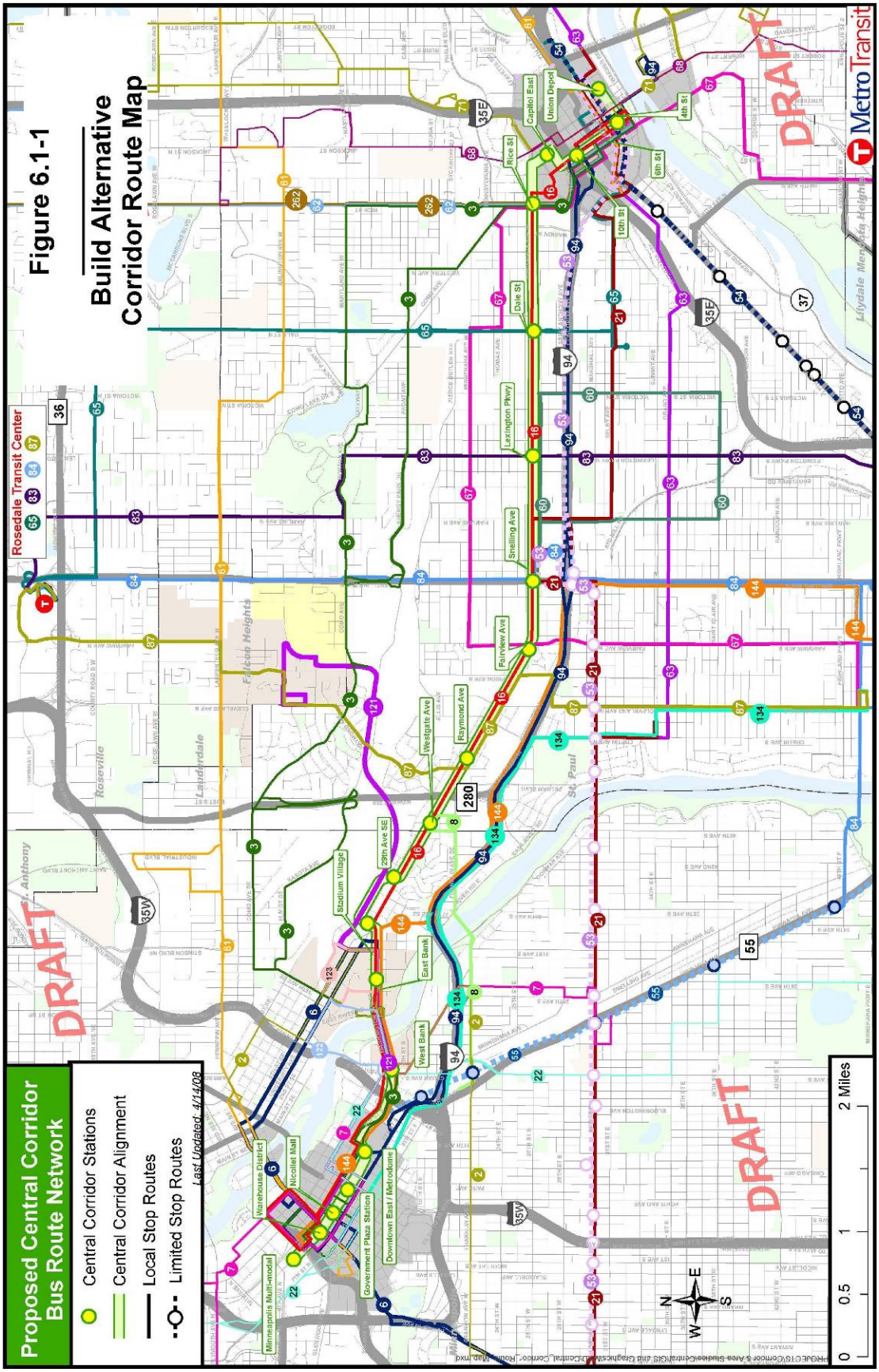


Figure 6.1-1
Build Alternative
Corridor Route Map
Proposed Central Corridor
Bus Route Network
Central Corridor Stations
Central Corridor Alignment
Local Stop Routes
Limited Stop Routes
Last Updated: 4/14/08
DRAFT
Metro Transit
Rosedale Transit Center
Capitol East
Union Depot
Rice St
4th St
6th St
10th St
Dale St
Lexington Pkwy
Snelling Ave
Fairview Ave
Raymond Ave
Westgate Ave
28th Ave SE
Stadium Village
East Bank
West Bank
Downtown East / Metrodome
Government Plaza Station
Nicollet Mall
Warehouse District
Minneapolis Multi-modal
Roseville
Lauderdale
Falcon Heights
St. Anthony
St. Paul
Lilydale
Mendota Heights
0 0.5 1 2 Miles
N
S
E
W

6.1.4 Long-Term Effects

6.1.4.1 System-Wide Impacts

The transit trips projected for the alternatives were estimated using linked and unlinked passenger trips. A linked passenger trip includes segments of travel from point of origin to point of final destination as a single trip, regardless of transfers or intermediate stops. As such, the number of linked passenger trips provides an estimate of the number of people using the transit system. An unlinked passenger trip counts each segment of an overall trip as a separate unlinked trip. Unlinked passengers trips represent the activity experienced by each route segment and travel mode. In presenting the analysis of transit patronage, both linked and unlinked passenger trips are reported to provide a comprehensive assessment of each alternative.

Table 6-2 provides a summary of projected daily performance measures for the 2030 No-Build Alternative, Baseline Alternative, and the Preferred Alternative. As seen from the table, under the No-Build Alternative, it is projected there would be 335,500 linked trips on the transit system. When service improvements are added to Route 50 (in addition to feeder bus system improvements) as part of the Baseline Alternative, the number of linked transit trips increases to 337,600 or by about 2,100 trips a day. The increase in transit trips would be as a result of people switching from auto to transit mode. This means, in the Baseline Alternative, there would be 2,100 fewer auto person trips. When expressed in terms of auto vehicles, this reduction would translate to 1,750 fewer auto vehicles per day on the region's roadway system. For the purpose of converting auto person trips to auto vehicle trips, an average auto occupancy of 1.2 was used (i.e. 1.2 people per auto). Under the Preferred Alternative, the system-wide linked transit trips are projected to go up by another 6,100 trips a day, compared to the Baseline Alternative. Stated differently, there would be 6,100 fewer auto person trips under the Preferred Alternative. In terms of auto vehicle trips, there would be 5,100 fewer autos on the region's roadway system. When compared to the No-Build alternative, the Preferred Alternative would contribute to a reduction of 6,850 (i.e. 1,750 + 5,100) auto trips in the region per day.

Table 6-2 Summary of Transit Ridership Forecasts for 2030

	No-Build Alternative	Baseline Alternative	Preferred Alternative
System-wide linked transit trips	335,500	337,600	343,700
New transit trips	N/A	2,100 (relative to No-Build Alternative)	6,100 (relative to Baseline Alternative)
Approximate number of auto trips reduced regionally		1,750	5,100
System-wide Unlinked Trips			
Local Bus	356,750	364,500	335,100
Express Bus	106,870	104,500	101,320
LRT	18,440	17,960	64,070
Commuter rail	780	880	900
Total	**482,840**	**487,840**	**501,390**
Increase in unlinked trips	N/A	5,000 (relative to No-Build Alternative)	13,550 (relative to Baseline Alternative)
Corridor Trips			
Bus Boardings	55,790	62,380	23,250
Light Rail Boardings	n/a	n/a	41,690
Total Boardings	55,790	62,380	64,940
Increase in corridor boardings	n/a	6,590 (relative to No-Build Alternative)	2,560 (relative to Baseline Alternative)
Daily Passenger Miles	2,510,350	2,539,390	2,572,240
Daily Passenger Hours	133,400	133,580	136,980
System-wide daily vehicle miles of travel (VMT)	109,168,370	109,141,230	109,091,260
Decrease in VMT	n/a	27,140 (relative to No-Build Alternative)	49,970 (relative to Baseline Alternative)

Source: Model results generated by Metropolitan Council Engineering Services Consultant, July 2008

In terms of unlinked trips, the No-Build Alternative would carry 482,840 trips (see Table 6-2). Under the Baseline Alternative, the unlinked transit trips would increase by 5,000 a day to total 487,840. Most of the increase is due to the service improvements on Route 50. Under the Preferred Alternative, the Central Corridor LRT is projected to carry an additional 13,550 unlinked trips system-wide (total of 501,390). The Central Corridor LRT is projected to carry 41,690 trips a day in the year 2030. Approximately 50 percent of the trips on the LRT line would be work-related trips resulting from linking the two central business districts and significant employment centers at the U of M and Capitol Area.

6.1.4.2 Corridor Trips

Within the study area, the No-Build Alternative is projected to carry about 55,800 daily boardings on the bus system. With the improved service on Route 50 in the Baseline Alternative, the corridor ridership is projected to increase by 6,600 a day, or approximately 62,380 total trips. Implementation of the Central Corridor LRT line would add another 2,560 trips per day in the corridor for a total of 64,940.

System Productivity

The Metropolitan Council model projects the Central Corridor LRT will provide 2.5 percent more passenger miles of service and 2.7 percent more passenger hours of service per day than the No-Build Alternative. This represents a moderate increase in system productivity.

6.1.4.3 Vehicle Miles of Travel on the Highway System

As discussed earlier, the Central Corridor LRT would contribute to about 6,850 fewer auto trips in the region compared to the No-Build as more patrons switch from auto to transit modes. The reduction in automobile trips would result in a decrease in regional vehicle miles traveled (VMT). The model results indicate there would be about 77,100 fewer VMT under the Preferred Alternative than the No-Build Alternative. The reduction in VMT would contribute to reductions in air pollutants from vehicles and contribute to easing congestion.

6.1.4.4 LRT Station Volumes

Table 6-3 presents the estimated 2030 LRT boardings at each station along the proposed alignment. The first five stations starting from the Downtown Minneapolis Ballpark Station would be common to both the Hiawatha LRT and Central Corridor LRT. The daily boardings shown for these stations are for the Central Corridor Preferred Alternative only and do not include boardings for the Hiawatha LRT line. As shown in Table 6-3, 2030 Central Corridor Daily Volumes by Station, the East Bank and Nicollet Mall stations are projected to have daily boardings of about 6,680 and 6,990 respectively. Downtown East/Metrodome and Warehouse District/Hennepin Avenue stations would have the next highest boardings—about 4,120 and 3,700 a day. The Nicollet Mall, Downtown East/Metrodome, and Warehouse District/Hennepin Avenue stations are in the heart of the Minneapolis Central Business District. In addition to the employment, retail, special event, and other attractions at these stations, there are transfer opportunities to numerous Metro Transit and other regional routes serving Minneapolis and the region. While all three stations are existing Hiawatha stations, Downtown East/Metrodome is the first “common” station (and transfer opportunity) which provides service to other important destinations in the region (Minneapolis-St. Paul Airport, Mall of America). Observed Hiawatha count data from Metro Transit (2008 Average Weekday) show 3,700 boardings at Nicollet Mall, 1,900 at Downtown East/Metrodome, and 2,500 boardings at Warehouse District/Hennepin Avenue.

The East Bank station is located in the heart of the main campus of the University of Minnesota. Students, faculty, and others are forecasted to use this station throughout the day. Observed count data from Metro Transit (2006 Average Weekday) show approximately 3,000-4,000 boardings and alightings on Routes 16 and 50 on Washington Avenue between Oak Street and the Mississippi River, which is the area that will be served by the East Bank station.

With the exception of three stations, all the other stations on the Central Corridor LRT line would carry approximately 1,000 or more boardings per day. Model results indicate 65 percent of the daily LRT boardings would occur during the peak periods.

Table 6-3 2030 Central Corridor LRT Daily Volumes by Station

Weekday Boardings			
Station	**Peak hours**	**Off-Peak hours**	**Total Daily**
Downtown Minneapolis Ballpark Station	250	150	400
Warehouse District/Hennepin Avenue	2,430	1,270	3,700
Nicollet Mall	4,820	2,170	6,990
Government Plaza	740	310	1,050
Downtown East / Metrodome	2,710	1,410	4,120
West Bank Station	910	290	1,200
East Bank Station	4,180	2,500	6,680
Stadium Village Station	710	260	970
29th Avenue Station	670	280	950
Westgate Station	750	390	1,140
Raymond Avenue Station	840	410	1,250
Fairview Avenue Station	1,300	600	1,900
Snelling Avenue Station	1,500	1,430	2,930
Lexington Parkway Station	540	390	930
Dale Street Station	420	290	710
Rice Street Station	780	420	1,200
Capitol East Station	250	140	390
10th Street Station	1,080	780	1,860
4th and Cedar Streets Station	820	380	1,200
Union Depot Station	1,210	910	2,120
Total Daily Boardings	**26,910**	**14,780**	**41,690**

Source: Model results generated by Metropolitan Council Engineering Services Consultant, August 13, 2008

6.1.4.5 Beneficiaries of the Central Corridor Light Rail Project

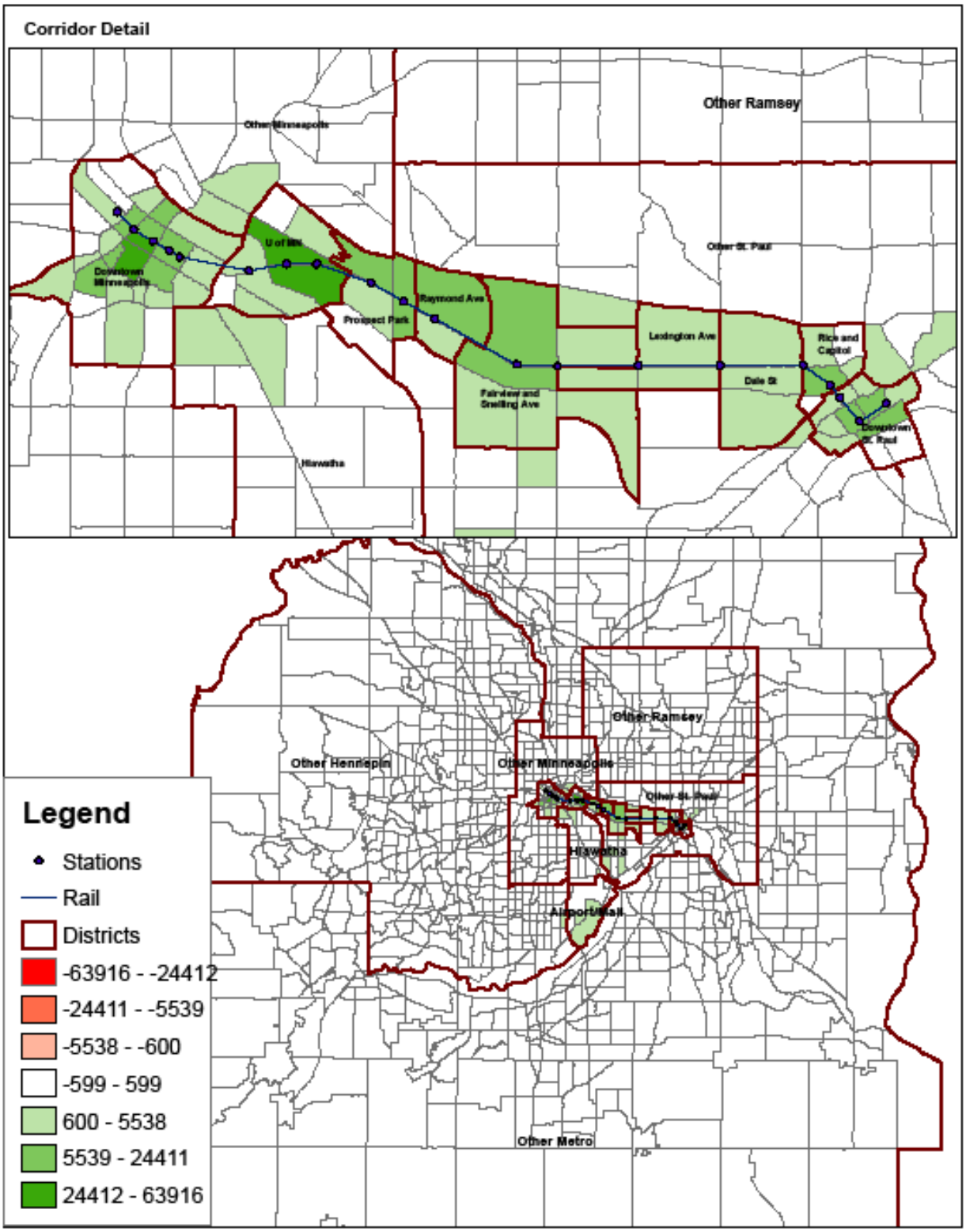
The results of the travel demand model are used to illustrate the extent to which different geographic areas in the region would potentially benefit from the Central Corridor LRT project. These benefits are usually projected as the overall travel time savings (also called User Benefits) and are estimated using a software program called SUMMIT. Using the travel model results, the SUMMIT program compares the performance of the Baseline Alternative

and the Preferred Alternative and estimates the overall time and cost savings. To make the comparison easier, all cost savings are converted to equivalent time savings.

The SUMMIT model results indicate about 45 percent of all the user benefits (incremental estimated mobility impacts, in terms of weighted travel time) would be attributable to trips that occur in the peak periods and the remaining 55 percent would occur in the off-peak periods. During the peak period, about 47 percent of the benefits would be attributable to trips that are attracted to downtown Minneapolis and downtown St. Paul. About 13.7 percent of the benefits would go to trips attracted by the U of M. About 78 percent of the total benefits accrued in the peak period are attributable to areas located within the corridor. The trips attracted to the airport would enjoy about 5 percent travel time savings. The distribution of user benefits are shown using what is known as thematic maps. Figure 6.1-3 shows the magnitude of benefits enjoyed by different areas. Those areas receiving high level of benefits are shown in dark green color, medium benefits in a slightly lighter shade of green and so on. Sometimes, a transportation project can generate negative benefits to some areas and positive benefits to other areas at the same time. Areas receiving negative benefits (meaning their travel times have increased in the Preferred Alternative) are shown in shades of red color. As seen from Figure 6.1-2, the Minneapolis CBD, U of M, Minnesota State Capitol, and the St. Paul CBD are among the districts receiving a significant amount of user benefits. As one would expect to see, most of the user benefits are distributed along both sides of the LRT alignment.

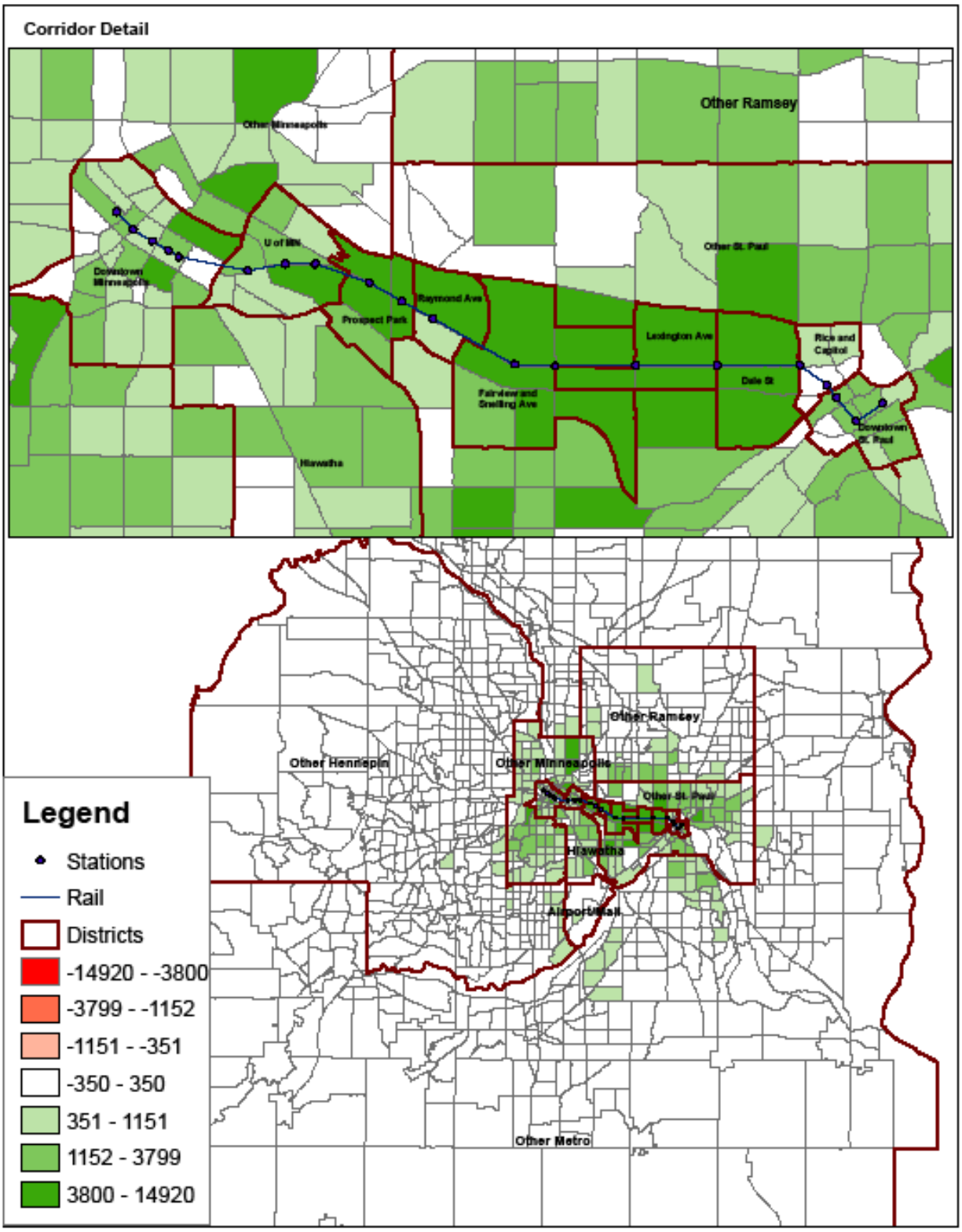
The SUMMIT model results indicate about 78 percent of all the benefits during the off-peak period would go to trips attracted to downtown Minneapolis, downtown St. Paul and the U of M. The U of M alone is projected to receive 29 percent of all the off-peak period benefits. Because a major portion of the U of M trips occur during off-peak periods, it follows that most benefits enjoyed by U of M related trips would also occur during the off-peak period. Figure 6.1-3 shows the distribution of user benefits at the trip production end (i.e. where the home end of the trip is located). U of M college student residents, residents of Prospect Park, the Raymond Avenue area, the Fairview / Snelling district, Lexington Avenue area and Dale Street district are among the areas receiving a significant amount of user benefits. Also, a large number of trips originating from areas west of downtown Minneapolis and north of downtown St. Paul are the recipients of significant user benefits.

Figure 6.1-2 Distribution of User Benefits (for Trips Attractions)



Source: Metropolitan Council SUMMIT Model Results, 2008

Figure 6.1-3 Distribution of Daily User Benefits (for Trips Productions)



Source: Metropolitan Council SUMMIT Model Results, 2008

6.1.4.6 Short-term Effects

Some disruption of Route 16 and Route 50 service on University Avenue would occur during construction. For short-term changes to bus routes during construction, information would be posted at bus-stops indicating the distance of the detour and number of stops removed from service. Detour information would also be placed on Metro Transit's web site and updated daily.

6.1.5 Mitigation

Metro Transit would follow standard procedures for route changes and deletions. Metro Transit would communicate service changes along the corridor as part of its community outreach program described in Chapter 11.

6.2 Effects on Roadways

The Central Corridor study area is expected to see about a 30 percent growth in population by 2030 and about a 35 percent increase in employment by 2030. Because of the population and employment growth forecast for the corridor, traffic is expected to consistently increase in the corridor. Under the No-Build Alternative, travel in the corridor would be highly auto-oriented. The Central Corridor Preferred Alternative is focused on providing people who live, work, or go to school in the corridor with travel choices to reduce auto-oriented travel demand in the corridor.

This section presents the existing and planned roadway system in the Central Corridor, as well as the potential effects of the Preferred Alternative on the planned system.

6.2.1 Methodology

The effect of the No-Build Alternative and Preferred Alternative on regional and local roadways was determined using travel demand forecasts developed from the Metropolitan Council Regional Travel Demand Model. The Regional Travel Demand Model was used to develop 2030 Average Daily Traffic (ADT) forecasts and peak hour turning movement forecasts for both the No-Build Alternative and the Preferred Alternative.

The effects of the alternatives on the regional roadway system were defined based on the anticipated change in ADT between the No-Build Alternative and the Preferred Alternative. The effects on the local roadway system were defined based on a traffic operations analysis of AM and PM peak hour intersection turning movement counts at key intersections for both the No-Build Alternative and Preferred Alternative. A peak hour operations analysis was conducted for the key intersections in the corridor with 2030 AM and PM peak hour turning movement forecasts using Synchro highway capacity analysis software. The existing lane geometry was used for the analysis of the existing conditions.

For the No-Build Alternative the existing lane geometry was also used except at locations where improvements have been planned or programmed, in which case the planned or programmed improvements were assumed. The No-Build Alternative was defined as existing and committed transportation projects. The regional roadway/highway facilities included in the analysis assume implementation of all projects included in the financially constrained 2030 Transportation Policy Plan. The analysis of the Preferred Alternative is based on the lane geometry shown in the preliminary engineering drawings included in Appendix L.

For local roadways, which provide land access and intersect at-grade with other local roadways, intersection operations are a key performance factor. Level of Service (LOS) is used as a measure of the performance of at-grade intersections. Intersections are assigned a letter grade from A through F to indicate the LOS at the intersection. LOS “A” represents the best LOS and LOS “F” represents the worst LOS. LOS “D” is typically considered an acceptable LOS in an urban area. The LOS for an intersection is determined based on the average delay per vehicle at the intersection based on the designations below.

- LOS A – up to 10 seconds per vehicle
- LOS B – greater than 10 and up to 20 seconds per vehicle
- LOS C – greater than 20 and up to 35 seconds per vehicle
- LOS D – greater than 35 and up to 55 seconds per vehicle
- LOS E – greater than 55 and up to 80 seconds per vehicle
- LOS F – greater than 80 seconds per vehicle

6.2.2 Existing and Planned Roadway System

The Central Corridor between downtown St. Paul and downtown Minneapolis is served by a number of regional and local roadway facilities. This section provides an overview of these facilities, including a general assessment of current traffic operations.

6.2.2.1 Regional Roadways

The regional roadways that will be affected by this project are illustrated on Figure 6.2-1 along with the current ADT counts. These roadways currently provide regional access to the corridor as well as a regional connection between Minneapolis, the U of M, and downtown St. Paul.

Interstate 94 (I-94) runs east-west about 0.5 miles south of University Avenue connecting downtown St. Paul with downtown Minneapolis. Generally this section of I-94 is six lanes and carries between 160,000 and 170,000 vehicles per day. MnDOT has classified this corridor as having an existing high mobility deficiency, meaning it experiences significant congestion and delays during the AM and PM peak periods. The section of I-94 between I-35W and TH 280 was re-striped after the collapse of the I-35W bridge to add an additional lane in each direction to carry the additional demand. It was necessary to eliminate the shoulder bus lane in this section to add the fourth lane. MnDOT and the Metropolitan Council finalized an agreement in September 2008 that leaves the temporary fourth lane in place on I-94 between I-35W and Highway 280 while the conversion of the temporary lane into a “managed lane” is studied. A “managed lane” is defined as a lane that is a controlled access lane used for 1) emergency vehicles, 2) for transit and carpools, and 3) for possible use by single occupant vehicles that would pay a toll for use of the lane.

Interstate 35W (I-35W) runs north-south on the west end of the corridor passing between downtown Minneapolis and the U of M. The collapse of the I-35W bridge over the Mississippi River on August 1, 2007 closed I-35W to regional through traffic between I-94 and TH 280 and significantly changed travel patterns in the area. Local access was provided from I-35W to downtown Minneapolis and the U of M. The I-35W Bridge reopened on September 18, 2008. Prior to the collapse, approximately 140,000 vehicles traveled over the bridge and MnDOT had rated this section of I-35W as having a medium mobility deficiency. Additional lanes were added to the new bridge over I-35W (five in each direction), however no changes were made to the existing sections of I-35W north and south of the bridge.

Snelling Avenue (TH 51) is a State Highway of Regional Significance, running north-south through the middle of the corridor. Snelling Avenue provides regional and local access to commercial, institutional, and employment activity centers between its southern terminus at West 7th Street (TH 5) and destinations outside the study area to the north, near Interstate 694. Snelling Avenue is typically two lanes in each direction, and carries between 26,000 and 46,000 vehicles per day.

Trunk Highway 280 (TH 280) runs north-south in the central part of the corridor. TH 280 is a four-lane freeway, carrying over 50,000 vehicles per day. MnDOT implemented several changes on TH 280 after the collapse of the I-35W bridge to increase its capacity and reduce delays. Prior to these improvements, MnDOT classified this corridor as having a high mobility deficiency. The improvements helped TH 280 handle the additional demand that resulted from the collapse of the I-35W bridge, but there still remains significant peak hour congestion in the corridor, especially at its junctions with I-94 and I-35W.

Interstate 35E (I-35E) runs north-south on the east end of the corridor passing between downtown St. Paul and the state Capitol. Between I-94 and TH 36, I-35E carries 140,000 to

150,000 vehicles per day. MnDOT has classified this corridor as having an existing high mobility deficiency. MnDOT's Transportation System Plan includes the addition of one lane to the section between I-94 and I-694.

6.2.2.2 Local Roadways and Intersections

In addition to the regional facilities described above, there are numerous local roadways that provide for short to medium length trips within the project corridor. The discussion of the existing intersection operations within the corridor is broken out by geographic area.

Downtown St. Paul

The existing traffic flows on downtown St. Paul streets are relatively low and there is little congestion or delay. The current ADT counts on downtown streets are shown on Figure 6.2-2. The streets in this area generally provide local access and circulation and do not provide for through movement of longer trips. Table 6-4 shows the existing levels of service for the affected streets in downtown St. Paul. All of the intersections currently operate at LOS "B" or better with the exception of the intersection of Robert Street and 12th Street which operates at an acceptable LOS "C" in the PM peak hour.

Midway and Capitol Area

University Avenue in the Midway area of the corridor is currently a four-lane divided minor arterial with parking on both sides of the roadway in many areas of the corridor. This section of University Avenue carries daily traffic volumes of between 20,000 and 28,000 vehicles per day. Figure 6.2-1 shows the current ADT counts in different segments of the corridor. Major cross-streets with higher traffic volumes include Cromwell Avenue, Vandalia Street, Snelling Avenue, Hamline Avenue, Lexington Parkway, Dale Street, and Rice Street. An analysis of the existing (2007) traffic operations in the Midway Corridor was conducted and the results are presented in Table 6-5. In general, the existing roadway operates at an acceptable LOS (LOS "D" or better) in both the AM and PM peak hours. The only exception is at Lexington Parkway which operates at LOS "E" in the PM peak hour.

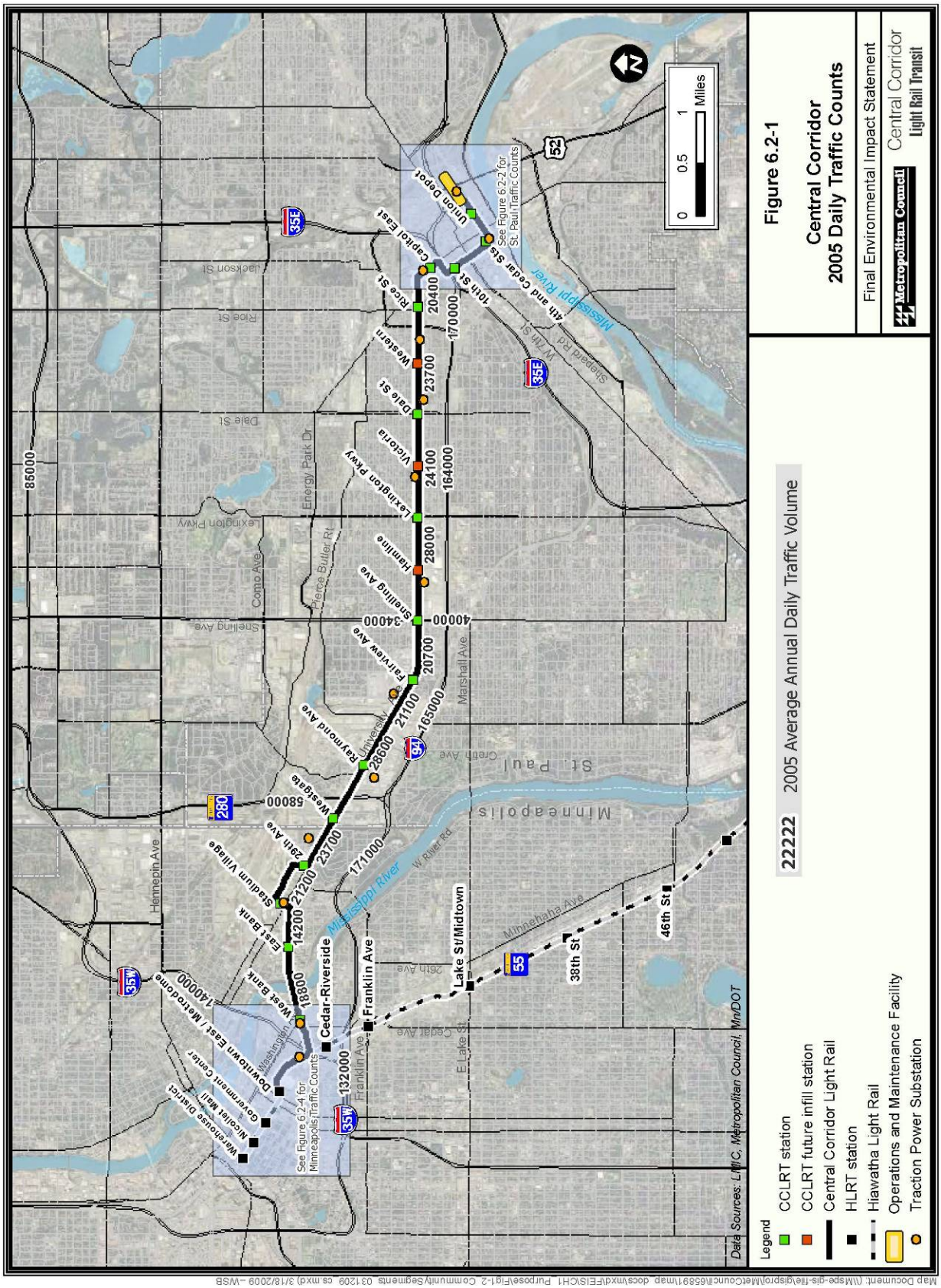


Figure 6.2-1
Central Corridor
2005 Daily Traffic Counts
Final Environmental Impact Statement
Metropolitan Council
Central Corridor
Light Rail Transit
22222 2005 Average Annual Daily Traffic Volume
Legend
CCLRT station
CCLRT future infill station
Central Corridor Light Rail
HLRT station
Hiawatha Light Rail
Operations and Maintenance Facility
Traction Power Substation
Data Sources: LMIC, Metropolitan Council, MnDOT
0 0.5 1 Miles
Union Depot
4th and Cedar St
See Figure 6.2-2 for St. Paul Traffic Counts
See Figure 6.2-4 for Minneapolis Traffic Counts
Capitol East
Rice St
Western
Dale St
Victoria
Lexington Pkwy
Hamline
Snelling Ave
Fairview Ave
Raymond Ave
Westgate
29th Ave
Stadium Village
East Bank
West Bank
Cedar-Riverside
Franklin Ave
Lake St/Midtown
38th St
46th St
Minnehaha Ave
Mississippi River
W River Rd
Marshall Ave
University Ave
St. Paul
Minneapolis
Hennepin Ave
Como Ave
Energy Park Dr
Pierce Butler Rt
Lexington Pkwy
Snelling Ave
Dale St
Rice St
Jackson St
Sheperd Rd
W 7th St
E Lake St
Cedar Ave
26th Ave
Washington Ave
Warehouse District
Nicollet Mall
Government Center
Downtown East / Metrodome
85000
164000
170000
23700
24100
28000
34000
40000
20400
20700
21100
28600
165000
68000
23700
17100
21200
14200
18800
132000
140000
35E
35W
94
280
52
55
12

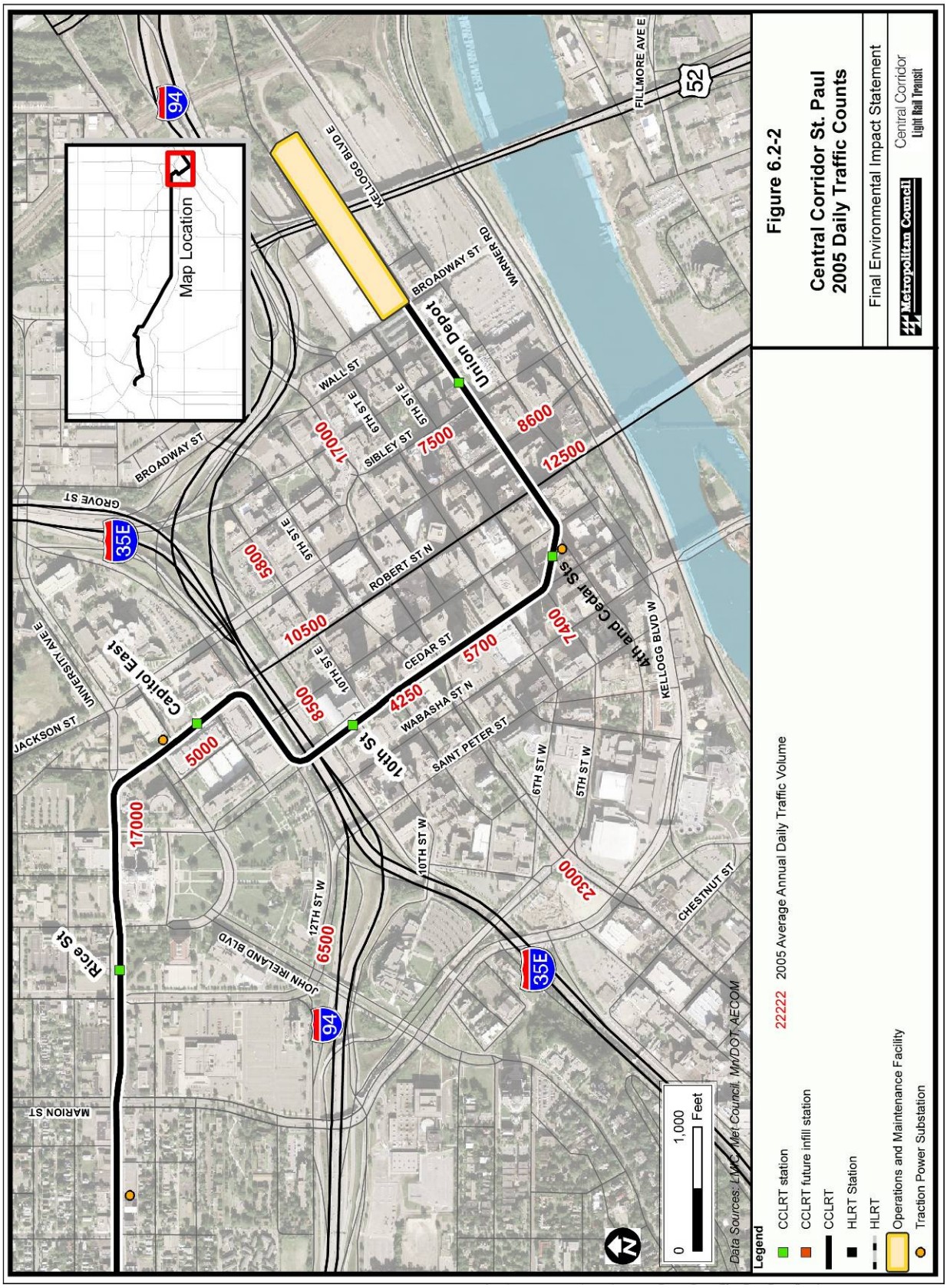


Figure 6.2-2
Central Corridor St. Paul
2005 Daily Traffic Counts
Final Environmental Impact Statement
Metropolitan Council
Central Corridor
Light Rail Transit
Map Location
Legend
CCLRT station
CCLRT future infill station
CCLRT
HLRT Station
HLRT
Operations and Maintenance Facility
Traction Power Substation
22222 2005 Average Annual Daily Traffic Volume
Data Sources: LMIC, Met Council, Mn/DOT, AECOM
0
1,000
Feet
Union Depot
4th and Cedar Sts
10th St
Capitol East
Rice St
BROADWAY ST
WALL ST
5TH ST E
6TH ST E
SIBLEY ST
GROVE ST
9TH ST E
ROBERT ST N
10TH ST E
CEDAR ST
WABASHA ST N
SAINT PETER ST
JACKSON ST
UNIVERSITY AVE E
MARION ST
JOHN IRELAND BLVD
12TH ST W
10TH ST W
6TH ST W
5TH ST W
CHESTNUT ST
KELLOGG BLVD W
KELLOGG BLVD E
WARNER RD
FILLMORE AVE E
17000
5000
6500
4250
5700
7400
23000
10500
5800
7500
8600
12500
94
35E
52

Table 6-4 Existing (2007) Traffic Operations in Downtown St. Paul

Intersection		AM Level of Service	PM Level of Service
		LOS	LOS
Robert Street	12th Street	B	C
12th Street	Minnesota Street	A	B
12th Street	Cedar Street	A	B
Cedar Street	11th Street	A	B
Cedar Street	E 7th Street	A	B
Cedar Street	E 6th Street	A	A
Cedar Street	5th Street	A	B
Cedar Street	4th Street	B	B
4th Street	Minnesota Street	B	B
4th Street	Robert Street	B	B
4th Street	Jackson Street	B	B
4th Street	Sibley Street	B	B

Source: Synchro Analysis of Existing Turning Movement Counts provided by Metropolitan Council, 2008

Table 6-5 Existing (2007) Traffic Operations in Midway Segment of Central Corridor

Intersection		AM Peak Hour	PM Peak Hour
		LOS	LOS
University Avenue	Malcolm Avenue	A	B
University Avenue	Bedford Street	A	A
University Avenue	Eustis Street	B	D
University Avenue	Cromwell Avenue	C	C
University Avenue	Franklin Avenue	A	A
University Avenue	Raymond Street	D	C
University Avenue	Hampden Avenue	A	A
University Avenue	Vandalia Street	B	D
University Avenue	Cleveland/Transfer	B	B
University Avenue	Prior Avenue	B	C
University Avenue	Fairview Avenue	B	C
University Avenue	Aldine Street	A	B
University Avenue	Fry Street	A	A
University Avenue	Snelling Avenue	C	D
University Avenue	Pascal Street	A	B
University Avenue	Albert Street	A	B
University Avenue	Hamline Avenue	C	D
University Avenue	Lexington Parkway	C	E

Intersection		AM Peak Hour	PM Peak Hour
		LOS	LOS
University Avenue	Victoria Street	B	B
University Avenue	Dale Street	C	C
University Avenue	Western Avenue	B	B
University Avenue	Marion Street	B	B
University Avenue	Rice Street	C	C
University Avenue	Park/ML King	B	B
University Avenue	Robert Street	B	B
University Avenue	12th Street	B	C

Source: Synchro Analysis of Turning Movement Counts; Provided by Metropolitan Council, 2008

University of Minnesota/Prospect Park

Washington Avenue runs through the heart of the U of M Campus connecting with 3rd Street and 4th Street in downtown Minneapolis and with University Avenue on the east side of the campus. Washington Avenue is currently a four-lane arterial that provides access to parking and businesses on the East Bank of the U of M campus as well as carrying through traffic between downtown Minneapolis, I-35W, and University Avenue. Washington Avenue also is a major corridor for transit services to the U of M as well as transit services between St. Paul and Minneapolis along University Avenue. On the West Bank of the U of M, Washington Avenue has controlled access. On the East Bank of the U of M, Washington Avenue has at-grade intersections at Church Street, Union Street, Harvard Street, Walnut Street, Oak Street, Ontario Street, Huron Boulevard, and University Avenue. The street system on the east side of the U of M campus has been recently reconfigured as part of the new TCF Bank Stadium. The new street system with the stadium is shown on Figure 6.2-3. The existing PM peak hour LOS on Washington Avenue are summarized in Table 6-6. All of the intersections currently operate at an acceptable LOS.

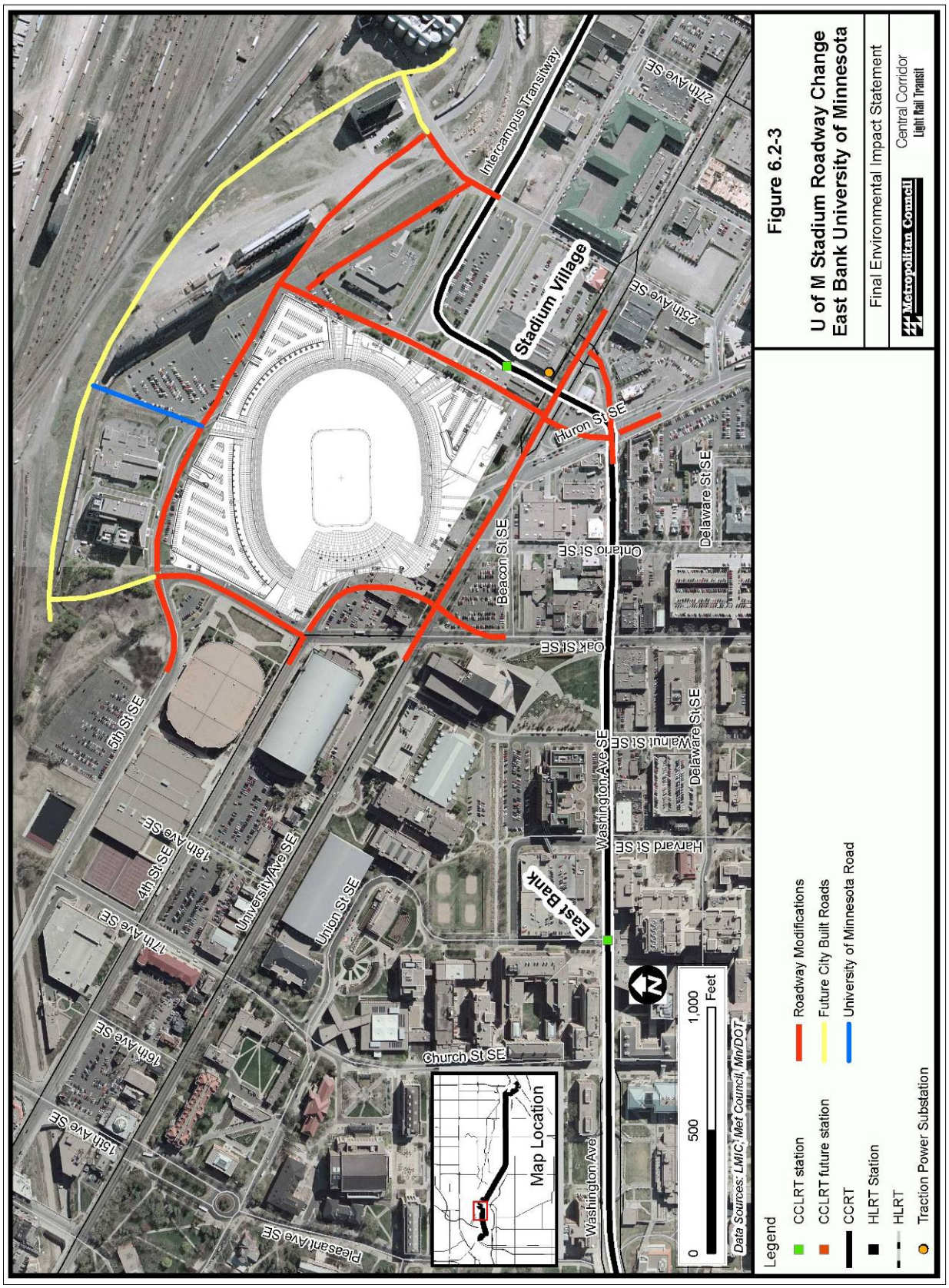


Figure 6.2-3
U of M Stadium Roadway Change
East Bank University of Minnesota
Final Environmental Impact Statement
Metropolitan Council
Central Corridor
Light Rail Transit
Legend
CCLRT station
CCLRT future station
CCRT
HLRT Station
HLRT
Traction Power Substation
Roadway Modifications
Future City Built Roads
University of Minnesota Road
0
500
1,000
Feet
Data Sources: LMIC, Met Council, MnDOT
Map Location
Intercampus Transitway
Stadium Village
East Bank
Church St SE
Washington Ave
Washington Ave SE
Union St SE
University Ave SE
Harvard St SE
Walnut St SE
Oak St SE
Ontario St SE
Beacon St SE
Huron St SE
Delaware St SE
23th Ave SE
27th Ave SE
5th St SE
4th St SE
18th Ave SE
17th Ave SE
16th Ave SE
15th Ave SE
Pleasant Ave SE

Table 6-6 Summary of Existing (2007) Traffic Operations at U of M

Intersection		PM Peak Hour
		LOS
Washington Avenue	Church Street	B
Washington Avenue	Union Street	B
Washington Avenue	Harvard Street	B
Washington Avenue	Walnut Street	No Signal
Washington Avenue	Oak Street	B
Washington Avenue	Ontario Street	B
Washington Avenue	Huron Boulevard	C
Washington Avenue	University Avenue	A
University Avenue	Huron Boulevard	D

Source: Synchro Analysis of Turning Movement Counts; Provided by Metropolitan Council, 2008

Downtown Minneapolis

In downtown Minneapolis, Light Rail Transit will operate on the existing Hiawatha LRT line on 5th Street between 3rd Avenue North and Park Avenue South where it crosses diagonally to 4th Street South on the north side of the Metrodome. Currently 5th Street only provides local vehicle access to adjacent properties. The existing ADT counts on streets in downtown Minneapolis are shown on Figure 6.2-4.

The streets crossing 5th Street that could potentially be impacted by implementation of the Preferred Alternative include 5th Avenue North, 3rd Avenue North, 2nd Avenue North, 1st Avenue North, Hennepin, Nicollet, Marquette, 2nd Avenue South, 3rd Avenue South, 4th Avenue South, Portland, Park, Chicago and 11th Avenue South. Currently an acceptable LOS is provided at the intersection of these roadways where they cross 5th Street, since generally there is very little conflicting traffic on 5th Street other than the LRT trains.

As part of *Access Minneapolis*, the City of Minneapolis's Ten Year Action Plan, the City of Minneapolis, in partnership with MnDOT and Hennepin County will be implementing several significant changes in downtown Minneapolis over the next several years that will reconfigure local circulation. Figure 6.2-5 highlights significant changes in this plan. These changes may include the conversion of 2nd Avenue North, 1st Avenue North, Hennepin Avenue, Park Avenue and Portland Avenue from one-way to two-way streets, the reconfiguration of 2nd Avenue South and Marquette Avenue to provide double width contra-flow bus lanes and the installation of a new traffic control server that might facilitate priority treatment for transit in downtown Minneapolis. In addition to the roadway reconfigurations, transit service in downtown Minneapolis will also be reconfigured. The configuration of 5th Street will likely not be changed as part of the Ten Year Action Plan. Because construction has already begun on several of the Access Minneapolis elements, the impact of these roadway and transit changes on the performance of the downtown Minneapolis street system can not be quantified at this time. The 2014 opening year will become the existing conditions for the project, as it incorporates the new transportation network in downtown Minneapolis. These conditions are described in Section 6.2.3, Long-Term Effects.

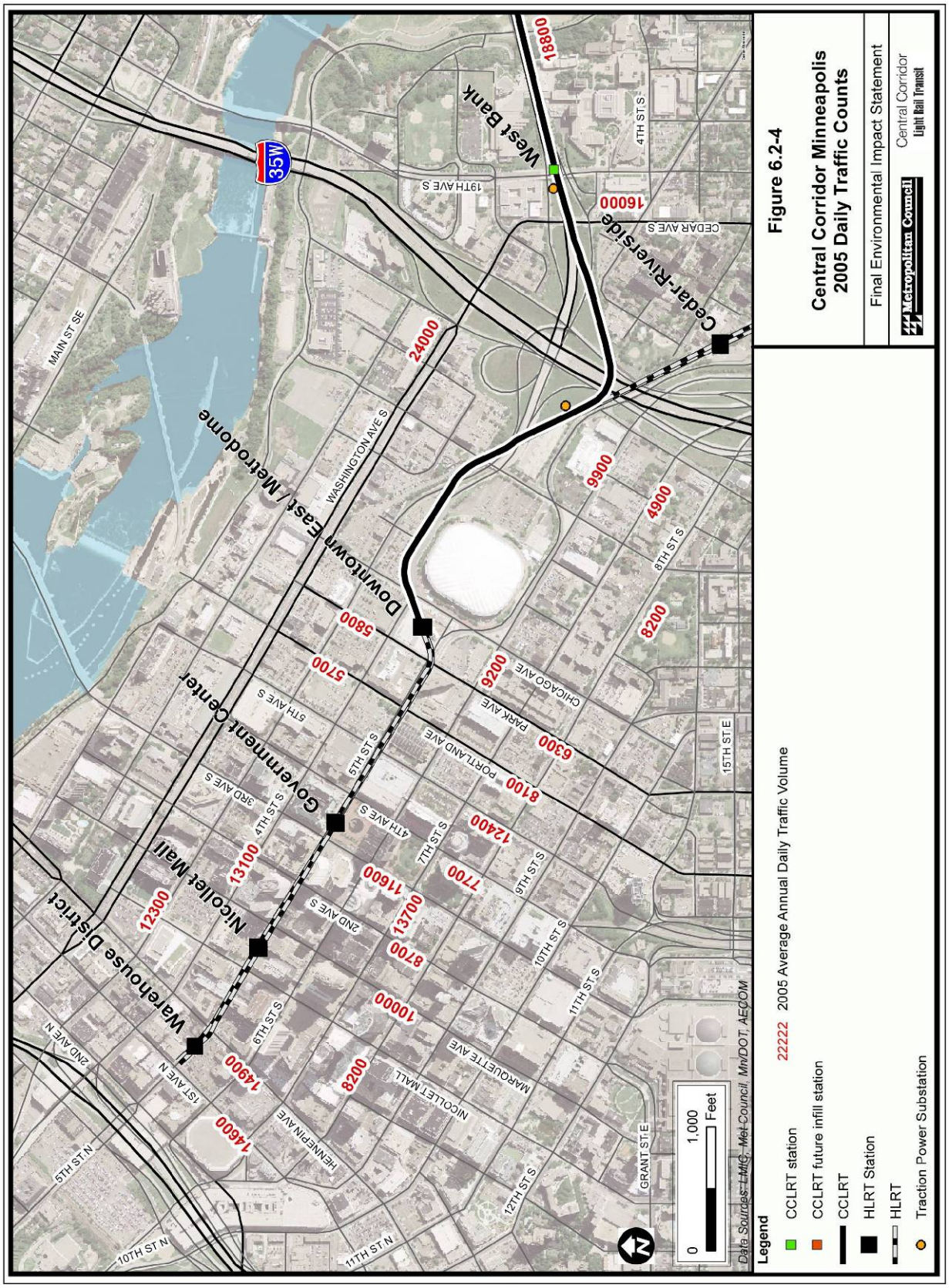


Figure 6.2-4
Central Corridor Minneapolis
2005 Daily Traffic Counts
Final Environmental Impact Statement
Metropolitan Council
Central Corridor
Light Rail Transit
Legend
CCLRT station
CCLRT future infill station
CCLRT
HLRT Station
HLRT
Traction Power Substation
22222 2005 Average Annual Daily Traffic Volume
Data Sources: LMIC, Met Council, Mn/DOT, AECOM
0
1,000
Feet
West Bank
Cedar-Riverside
Downtown East / Metrodome
Government Center
Nicollet Mall
Warehouse District
18800
16000
24000
9900
4900
8200
9200
6300
8100
5800
5700
12400
7700
11600
13700
8700
10000
14900
14600
8200
12300
13100
35W
19TH AVE S
CEDAR AVE S
4TH ST S
MAIN ST SE
WASHINGTON AVE S
8TH ST S
CHICAGO AVE
PARK AVE
PORTLAND AVE
15TH ST E
5TH AVE S
5TH ST S
3RD AVE S
4TH ST S
4TH AVE S
7TH ST S
9TH ST S
2ND AVE S
10TH ST S
11TH ST S
6TH ST S
MARQUETTE AVE
NICOLLET MALL
GRANT ST E
HENNEPIN AVE
1ST AVE N
2ND AVE N
5TH ST N
10TH ST N
11TH ST N
12TH ST S

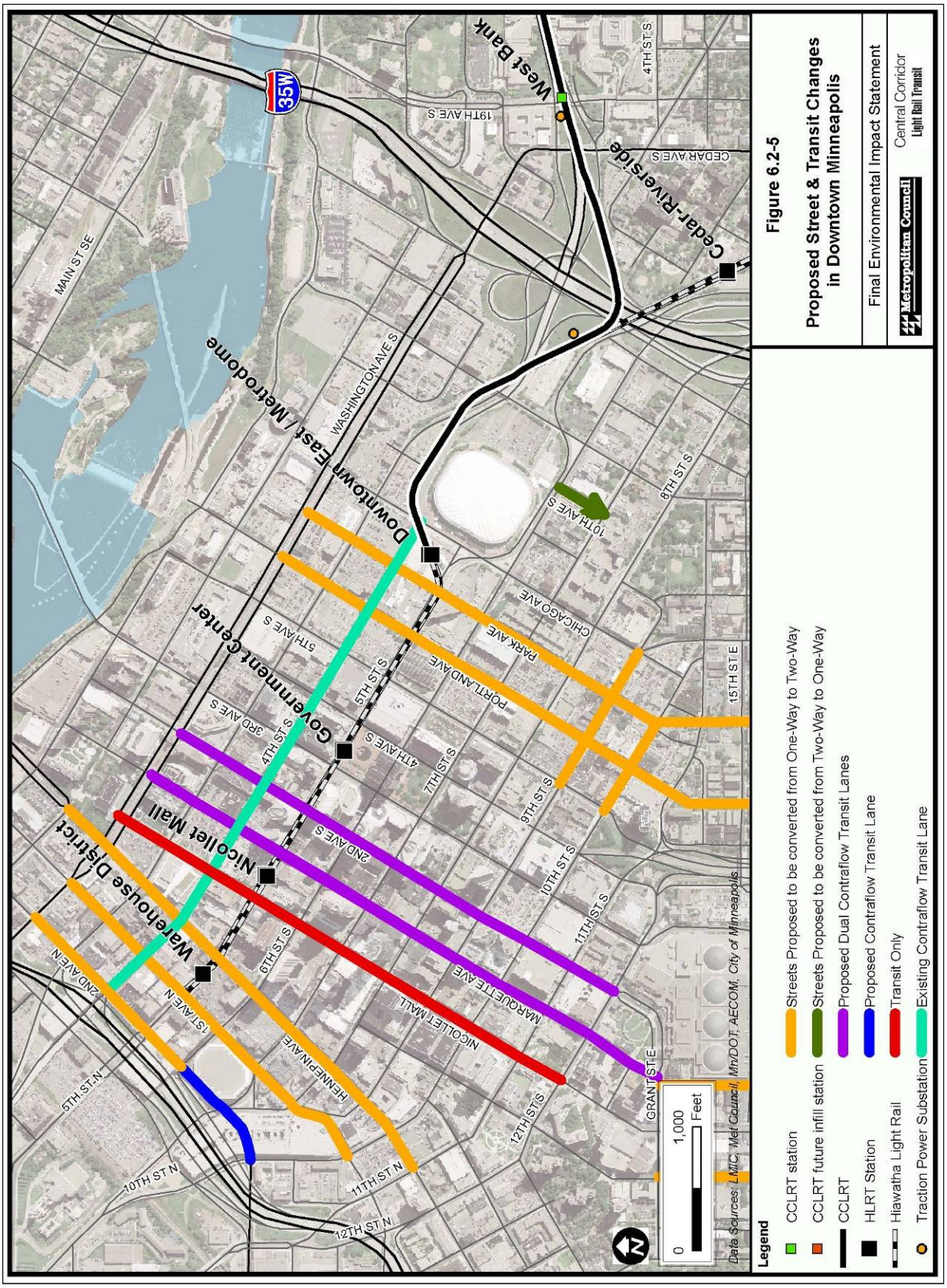


Figure 6.2-5
Proposed Street & Transit Changes in Downtown Minneapolis
Final Environmental Impact Statement
Metropolitan Council
Central Corridor Light Rail Transit
West Bank
Cedar-Riverside
Downtown East / Metrodome
Government Center
Nicollet Mall
Warehouse District
35W
MAIN ST SE
WASHINGTON AVE S
19TH AVE S
4TH ST S
CEDAR AVE S
10TH AVE S
8TH ST S
CHICAGO AVE
PARK AVE
PORTLAND AVE
15TH ST E
5TH AVE S
3RD AVE S
4TH ST S
5TH ST S
4TH AVE S
7TH ST S
9TH ST S
2ND AVE S
10TH ST S
11TH ST S
6TH ST S
MARQUETTE AVE
NICOLLET MALL
HENNEPIN AVE
1ST AVE N
2ND AVE N
5TH ST N
10TH ST N
11TH ST N
12TH ST N
12TH ST S
GRANT ST E
0
1,000
Feet
Data Sources: LMIC, Met Council, MnDOT, AECOM, City of Minneapolis
Legend
CCLRT station
CCLRT future infill station
CCLRT
HLRT Station
Hiawatha Light Rail
Traction Power Substation
Streets Proposed to be converted from One-Way to Two-Way
Streets Proposed to be converted from Two-Way to One-Way
Proposed Dual Contraflow Transit Lanes
Proposed Contraflow Transit Lane
Transit Only
Existing Contraflow Transit Lane

In addition to the changes to the street system in downtown Minneapolis, changes are also proposed in the access to downtown Minneapolis from I-35W on the east side of downtown. Specifically, it is proposed that additional access be provided to northbound I-35W from 3rd and 4th Streets. Currently there is access to and from the south on I-35W from these streets; however access to the north on I-35W on the east side of downtown is limited to Washington Avenue. The access from northbound I-35W to 3rd Street is free-flow and the access from southbound I-35W is also free-flow. The proposed configuration will create at-grade crossings on 3rd and 4th Streets at I-35W which would allow traffic from downtown Minneapolis and from the U of M to access northbound I-35W. It is important to note that this project is not a programmed improvement. This project has been proposed by the City of Minneapolis, but has not been approved by MnDOT or FHWA.

6.2.3 Long-Term Effects

The implementation of the Preferred Alternative will impact traffic operations on roadways where the LRT is proposed to operate and on streets the LRT crosses. At the U of M there will also be an impact on secondary roadways because of the proposal to close Washington Avenue to automobile traffic between Pleasant Street and Walnut Street. Because the proposed alignment does not use regional highways, the effects on roadways are generally greatest on the local roadways. The impact on regional facilities is related to changes in traffic demand in the corridor, as additional trips are attracted to transit.

6.2.3.1 Regional Roadways

Figure 6.2-6 shows the forecast 2030 Build and No-Build ADT counts for the regional highways within the Central Corridor. Planned improvements to the regional facilities within the Central Corridor assumed in the 2030 forecasts include the addition of a fourth lane in each direction to I-35E from I-94 to I-694.

The 2030 Metropolitan Council Regional Travel Demand model does not include the fourth lane that was added on I-94 between I-35W and TH 280 to mitigate the traffic impacts of the collapse of the I-35W bridge. To add the lane, the shoulder bus lane had to be removed. It was expected that once the I-35W bridge reopened that I-94 would be restriped to convert it back to its previous configuration with three through lanes in each direction and a shoulder bus lane. MnDOT and the Metropolitan Council finalized an agreement in September 2008 that leaves the temporary fourth lane in place while the conversion of the temporary lane into a “managed lane” is studied

The 2030 Preferred Alternative and No-Build Alternative ADT values are very similar and therefore the LOS on the regional highways is expected to be similar for both alternatives. The regional highways within the Central Corridor are all forecast to have a high mobility deficiency by 2030.

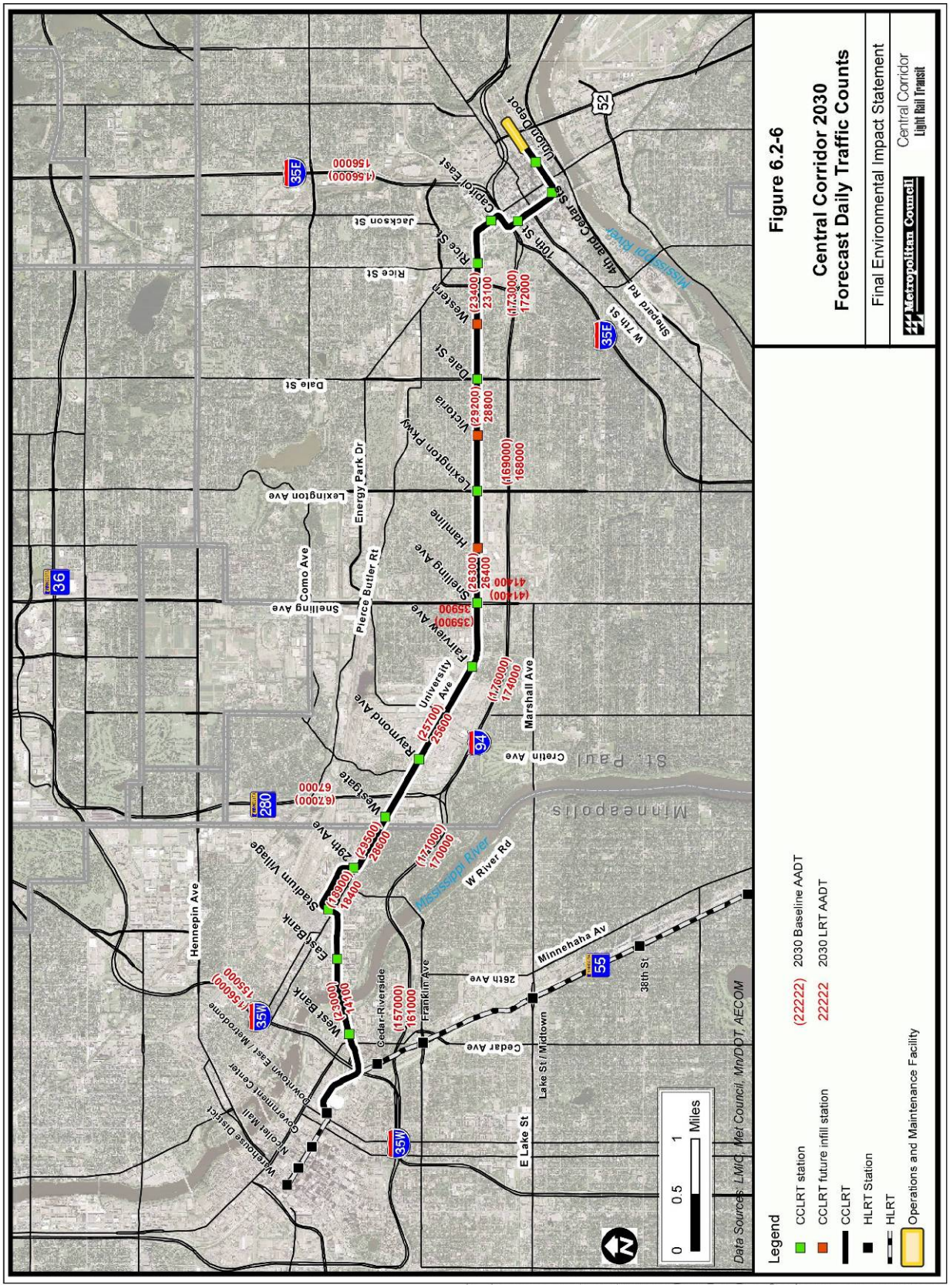


Figure 6.2-6
Central Corridor 2030
Forecast Daily Traffic Counts
Final Environmental Impact Statement
Metropolitan Council
Central Corridor
Light Rail Transit
Legend
CCLRT station
CCLRT future infill station
CCLRT
HLRT Station
HLRT
Operations and Maintenance Facility
(22222) 2030 Baseline AADT
22222 2030 LRT AADT
0 0.5 1 Miles
Data Sources: LMIC, Met Council, Mn/DOT, AECOM
Minneapolis
St. Paul
Mississippi River
Union Depot
4th and Cedar Sts
10th St
Capitol East
Jackson St
Rice St
Rice St
Western
Dale St
Dale St
Victoria
Lexington Pkwy
Lexington Ave
Energy Park Dr
Hamline
Snelling Ave
Como Ave
Pierce Butler Rt
Snelling Ave
Fairview Ave
University Ave
Raymond Ave
Westgate
29th Ave
Stadium Village
East Bank
West Bank
Hennepin Ave
Cedar-Riverside
Franklin Ave
Cedar Ave
Lake St / Midtown
E Lake St
26th Ave
38th St
Minnehaha Av
W River Rd
Mississippi River
Marshall Ave
Cretin Ave
Shepard Rd
W 7th St
Mississippi River
Warehouse District
Nicollet Mall
Government Center
Downtown East / Metrodome
(156000) 156000
(156000) 156000
(23000) 24100
(157000) 161000
(138900) 18400
(235000) 28600
(174000) 170000
(67000) 67000
(257000) 25600
(176000) 174000
(35900) 35900
(41400) 41400
(263000) 26400
(292000) 28800
(169000) 168000
(234000) 23100
(173000) 172000
(156000) 156000
35W
35W
35W
35E
35E
35F
35F
94
280
36
55
52

6.2.3.2 Local Traffic Operations

Projected LOS and vehicle delays at key intersections in the corridor were assessed for 2030 for the Preferred Alternative and the No-Build Alternative. The analyses focused on the same intersections that were analyzed and documented in the existing conditions section. The results of the analyses are presented by the same geographic areas used to document the existing conditions. At numerous locations, the Synchro results show a better LOS for the 2030 Preferred Alternative and the 2030 No-Build Alternative than the existing conditions. This is largely due to the fact that the existing conditions analysis assumes existing traffic signal timing and in the 2014 and 2030 analysis, the Synchro program optimizes the signal timing. While optimization of the signal timing can account for some level of service improvements, it is unlikely that timing alone will account for significant level of service improvements under actual conditions.

6.2.3.3 Downtown St. Paul

Future traffic operations in downtown St. Paul were evaluated for on-corridor and off-corridor intersections.

Cedar Street: The Preferred Alternative will result in Cedar Street being reconfigured to one southbound traffic lane. As a result, Cedar Street will primarily be used for local access with some of the existing traffic being carried by other local streets. . As seen in Table 6-7, forecast LOS at intersections on Cedar Street would generally be maintained; however, the street would carry fewer vehicles.

Other Downtown Streets: The results of the operations analysis for both on-corridor and off-corridor intersections is presented in Table 6-7 and Table 6-8 below. In general, the downtown intersections are expected to operate primarily at LOS “A” and “B” with very little change in the LOS in the off-corridor intersections between the No-Build and Preferred Alternative. The worst LOS expected for the No-Build Alternative in 2030 is LOS “B.” There are three intersections that are expected to operate at LOS “D” in 2030 with the Preferred Alternative; Cedar Street and East 7th Street, Cedar Street and 5th Street, and 4th Street and Minnesota Street. LOS “D” is considered an acceptable LOS in an urban area.

Table 6-7 Forecast On-Corridor LOS in Downtown St. Paul

Intersection		2014 No-Build		2014 Preferred Alternative		2030 No-Build		2030 Preferred Alternative	
		AM	PM	AM	PM	AM	PM	AM	PM
Robert Street	12th Street	B	B	B	B	B	B	B	C
12th Street	Minnesota Street	A	A	A	A	A	A	A	A
12th Street	Cedar Street	A	B	B	C	A	B	B	C
Cedar Street	11th Street	A	B	B	B	B	B	B	B
Cedar Street	E 7th Street	A	A	B	C	A	A	C	D
Cedar Street	E 6th Street	A	A	A	B	A	A	A	B
Cedar Street	5th Street	A	A	B	C	A	A	B	D
Cedar Street	4th Street	A	A	A	A	A	A	A	A
4th Street	Minnesota Street	B	B	B	C	B	B	D	C
4th Street	Robert Street	B	B	B	B	B	B	C	B
4th Street	Jackson Street	A	B	A	C	A	B	B	C
4th Street	Sibley Street	B	B	B	B	B	B	B	B

Source: Synchro Analysis Summary, Metropolitan Council, September 2008

Table 6-8 Forecast Off-Corridor LOS in Downtown St. Paul

Intersection		2014 No-Build		2014 Preferred Alternative		2030 No-Build		2030 Preferred Alternative	
		AM	PM	AM	PM	AM	PM	AM	PM
12th Street	Wabasha Street	A	B	A	B	A	B	A	C
11th Street	Wabasha Street	B	B	B	B	B	B	B	B
11th Street	Minnesota Street	A	B	A	B	A	B	A	B
11th Street	Robert Street	A	B	B	B	A	B	B	B
7th Street	Wabasha Street	B	B	B	B	B	B	B	B
7th Street	Minnesota Street	B	B	B	B	B	B	B	B
6th Street	Minnesota Street	A	A	A	A	A	A	A	A
5th Street	Wabasha Street	A	B	B	B	B	B	B	B
5th Street	Minnesota Street	A	B	A	B	A	B	A	B
5th Street	Robert Street	A	A	A	A	A	A	A	A
5th Street	Jackson Street	A	B	A	B	A	B	A	B
5th Street	Sibley Street	A	A	A	B	A	A	A	B

Source: Synchro Analysis Summary, Metropolitan Council, September 2008

6.2.3.4 Capitol Area and Midway Segments

There are numerous signalized intersections in the Capitol Area and Midway Area that could be affected by the Preferred Alternative. Table 6-9 provides the 2014 and 2030 AM and PM peak hour LOS for these intersections for both the No-Build Alternative and the Preferred Alternative. In the Midway and Capitol area planning segments of the corridor, the effects of the Preferred Alternative on local roadways are a result of changes in signal timing and lane geometry needed to accommodate LRT at the identified intersections.

Left-Turn Movements: Currently most left-turn movements from University Avenue are controlled with traffic signals – either a protected (arrow) or permissive (green circle) phase. Under the Preferred Alternative, protected-only signals will control all left-turn movements from University Avenue.

Right-Turn Movements: Most intersections currently have either separate right-turn lanes or (if possible) drivers make right turns from the parking lane. Under the Preferred Alternative, all right turns from University Avenue will be made from the right through lane. Buses will also be required to make stops in the right through lane on University Avenue.

Traffic Signal Prioritization: The analysis of future traffic operations assumes that LRT trains are given priority treatment at the signalized intersections to minimize the LRT travel times. Signal priority for LRT trains relies on communication between the train detection systems and the signal controllers, which may extend a green phase or bring up a green phase early to promote efficient movement. It is important to note that signal priority is not the same as signal preemption, which is an ability granted to emergency vehicles, allowing them to interrupt a signal phase anywhere in the cycle.

Table 6-9 Summary of Forecast LOS in Midway Segment of Central Corridor

Intersection		2014 No-Build		2014 Preferred Alternative		2030 No-Build		2030 Preferred Alternative	
		AM	PM	AM	PM	AM	PM	AM	PM
University Avenue	Malcolm Avenue	A	B	B	D	A	B	B	D
University Avenue	Bedford Street	A	A	C	C	A	B	C	**C**
University Avenue	Eustis Street	A	B	B	C	A	B	B	C
University Avenue	Cromwell Avenue	B	C	D	**C**	B	B	D	**C**
University Avenue	Franklin Avenue	A	A	B	B	A	B	B	B
University Avenue	Raymond Street	A	C	B	D	A	C	B	D
University Avenue	Hampden Avenue	B	B	B	C	B	B	B	C
University Avenue	Vandalia Street	B	C	C	D	B	D	B	**E**
University Avenue	Cleveland/Transfer	B	B	B	C	B	B	B	C
University Avenue	Prior Avenue	B	B	C	C	B	C	C	C
University Avenue	Fairview Avenue	B	B	C	C	B	C	C	D
University Avenue	Aldine Street	A	B	B	B	A	A	B	B
University Avenue	Fry Street	A	A	A	B	A	A	A	B
University Avenue	Snelling Avenue	C	C	C	D	C	D	C	**E**
University Avenue	Pascal Street	A	B	B	C	A	B	B	C

Intersection		2014 No-Build		2014 Preferred Alternative		2030 No-Build		2030 Preferred Alternative	
		AM	PM	AM	PM	AM	PM	AM	PM
University Avenue	Hamline Avenue	C	D	C	D	B	D	C	**E**
University Avenue	Lexington Parkway	C	D	C	**F**	C	D	C	**F**
University Avenue	Victoria Street	A	A	B	C	B	B	B	B
University Avenue	Dale Street	B	C	C	D	B	C	C	D
University Avenue	Western Avenue	B	B	B	C	B	B	B	C
University Avenue	Marion Street	B	B	B	D	B	C	B	**E**
University Avenue	Rice Street	C	C	C	C	C	C	D	**D**
University Avenue	Park/ML King	B	B	B	B	B	B	B	C
University Avenue	Robert Street	B	B	A	B	B	B	B	B

Source: Synchro Analysis Summary, Metropolitan Council, September 2008

There are five intersections on University Avenue that are forecast to have traffic operations in 2030 that are worse than LOS “D” with the Preferred Alternative. These intersections include: Vandalia Street, Snelling Avenue, Hamline Avenue, Lexington Parkway, and Marion Street. The unacceptable traffic operations only occur in the PM peak hour. In 2014 only Lexington Parkway and University Avenue will operate at worse than LOS “D.” Lexington Parkway and University Avenue is the only intersection that will operate at LOS “F” in both 2014 and 2030 during the PM peak hour. There are no intersections operating worse than LOS D in the AM peak hour for the Preferred Alternative or No-Build Alternative. All of the intersections are expected to operate at an acceptable LOS (LOS “D” or better) in both the AM and PM peak hour with the No-Build Alternative. Individual movements at many of the intersections will experience a LOS “E” or “F” in the PM peak hour for both the No-Build Alternative and the Preferred Alternative. In many cases, these are low-volume movements that have little impact on the overall intersection LOS.

A peak hour traffic operations analysis was also completed for off-corridor intersections at the major cross-streets on University Avenue (Table 6-10). There are two major cross streets where the existing LOS at the intersections off of University Avenue are less than LOS “D,” Snelling Avenue and Dale Street. At numerous locations, the Synchro results show a better LOS for the 2030 Preferred Alternative and the 2030 No-Build Alternative than the existing conditions. This is largely due to the fact that the existing conditions analysis assumes existing traffic signal timing and in the 2014 and 2030 analysis, the Synchro program optimizes the signal timing. While optimization of the signal timing can account for some level of service improvements, it is unlikely that timing alone will account for significant level of service improvements under actual conditions.

Table 6-10 Summary of Forecast LOS in Midway & Capitol Area Segments, Off-corridor

Intersection		2007 Existing		2014 No-Build		2014 Preferred Alternative		2030 No-Build		2030 Preferred Alternative	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Eustis Street	Territorial Road	C	C	C	C	B	C	C	C	B	C
Eustis Street	Franklin Avenue	C	B	C	B	B	C	D	B	B	C
Cromwell Avenue	Franklin Avenue	B	B	B	B	C	C	B	B	C	C
Raymond Avenue	Territorial Road	B	C	B	C	B	C	B	C	B	D
Franklin Avenue	Pelham Boulevard	B	C	A	B	A	B	A	B	B	B
I-94 WB Ramps	Vandalia Street	B	C	B	C	B	D	B	D	B	C
I-94EB Ramps	Cretin Avenue	B	C	B	C	B	D	B	C	B	D
Snelling Avenue	Minnehaha Avenue	B	C	B	C	B	D	B	D	B	D
Snelling Avenue	Thomas Avenue	B	B	A	B	A	B	A	B	A	C
Snelling Avenue	Spruce Tree Avenue	A	B	A	B	A	B	A	B	A	B
Snelling Avenue	St Anthony Avenue	C	**E**	C	C	C	C	C	D	C	C
Snelling Avenue	Concordia Avenue	C	**F**	B	D	B	**F**	B	D	B	D
Snelling Avenue	Marshall Avenue	**E**	**E**	C	C	C	C	D	C	D	C
Snelling Avenue	Selby Avenue	**E**	C	D	D	D	D	D	D	D	C
Pascal Street	St Anthony Avenue	B	B	B	C	B	B	B	C	B	C
Hamline Avenue	Thomas Avenue	A	B	A	B	B	B	B	B	B	B
Hamline Avenue	Target/Borders	B	C	A	B	A	B	A	B	A	A
Hamline Avenue	St Anthony Avenue	B	B	B	B	B	C	B	B	B	C
Hamline Avenue	Concordia Avenue	A	B	A	B	A	C	A	C	A	C
Lexington Parkway	Thomas Avenue	B	B	A	B	A	A	A	B	A	B
Lexington Parkway	St Anthony Avenue	B	C	B	C	B	B	B	C	B	C
Lexington Parkway	Concordia Avenue	B	C	B	C	B	C	B	C	C	C
Dale Street	Thomas Avenue	A	B	A	B	A	B	A	B	B	B

Intersection		2007 Existing		2014 No-Build		2014 Preferred Alternative		2030 No-Build		2030 Preferred Alternative	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Dale Street	St Anthony Avenue	C	C	B	D	B	C	B	D	B	C
Dale Street	Concordia Avenue	B	**E**	B	**E**	B	C	B	**E**	B	C
Como Avenue	Marion Street	B	C	B	C	B	D	B	D	C	D
Marion Street	St Anthony Avenue	C	D	C	D	B	C	C	D	B	C
Marion/Kellogg	Concordia Avenue	C	C	C	C	B	C	C	C	B	C
Como Avenue	Rice Street	B	B	B	C	B	B	B	C	B	B
Rice Street	John Ireland Boulevard	A	A	A	A	B	B	A	A	B	B
Kellogg Boulevard	John Ireland Boulevard	C	D	C	D	C	D	C	E	C	D
University Avenue	Jackson Street	B	D	B	B	B	B	B	C	B	B

Source: Synchro Analysis Summary, Metropolitan Council, September 2008

6.2.3.5 University of Minnesota/Prospect Park

The Preferred Alternative will close a section of Washington Avenue to automobile traffic between Pleasant Street SE and Walnut Street SE. Due to this closure, the access and circulation for the U of M will change along with the traffic flows on other streets within the U of M campus area.

A detailed traffic operations study was undertaken at the U of M to evaluate the Washington Avenue Transit/Pedestrian Mall alternative. This traffic study evaluated the impacts of the closure of Washington Avenue to automobile traffic on more than 60 intersections around the U of M. The impacts that were identified in this study included capacity or congestion impacts, loss of access, and changes in circulation on campus. The impacts of the Preferred Alternative at the U of M are primarily associated with the change in traffic flows that result from the closure of Washington Avenue. The results of that analysis are summarized in Table 6-11 and Table 6-12. Table 6-11 shows the results for the intersections on Washington Avenue where the LRT would be located. These intersections show an acceptable LOS for both the No-Build and Preferred Alternative. Table 6-12 shows the results for the off-corridor intersections. Several of these intersections are expected to have more congestion with the closure of Washington Avenue to automobile traffic. Intersections that were forecast to experience additional delay and unacceptable LOS as a result of the Preferred Alternative include the following:

- East River Parkway and Arlington St.
- Arlington Street and Pleasant Street
- East River Parkway and Harvard Street
- Riverside Avenue and 20th Avenue

- Riverside Avenue and 19th Avenue
- Riverside Avenue and Cedar Avenue
- Franklin Avenue and Cromwell Avenue
- University Avenue at Huron Avenue/23rd Avenue

In addition to the LOS impacts, the Preferred Alternative will eliminate the access from Washington Avenue to several properties served by Church Street south of Washington Avenue. Access from Washington Avenue to parking and buildings on the north side of Washington Avenue between Union and Walnut Street will also be eliminated. The proposed changes in the local road system to accommodate local circulation and access at the U of M with Washington Avenue closed to automobile traffic are shown on Figure 6.2-7 and are documented in the mitigation section.

Table 6-11 Summary of Forecast On-Corridor LOS at U of M

Intersection		2014 No-Build	2014 Preferred Alternative	2030 No-Build	2030 Preferred Alternative
		PM Peak LOS	PM Peak LOS	PM Peak LOS	PM Peak LOS
Washington Avenue	Church	C	B	B	A
Washington Avenue	Union	B	A	B	A
Washington Avenue	Harvard Street	B	B	C	A
Washington Avenue	Walnut Street	No Signal	B	B	C
Washington Avenue	Oak Street	B	B	C	D
Washington Avenue	Ontario Street	B	B	B	B
Washington Avenue	Huron Boulevard	C	D	B	B

Source: University of Minnesota Traffic Study, Metropolitan Council, April 2008

Table 6-12 Summary of Forecast Off-Corridor LOS at U of M

Intersection		2030 No-Build	2030 Preferred Alternative
		PM Peak LOS[1]	PM Peak LOS
Washington Avenue	I-35W NB Ramp	**F**	**F**
Washington Avenue	I-35W SB Ramp	**F**	**F**
Washington Avenue	19th Avenue S /10th Avenue SE	C	C
University Avenue	I-35W NB Ramp	B	B
University Avenue	I-35W SB Ramp	C	C
University Avenue	10th Avenue SE	**F**	**F**
University Avenue	E River Road/14th Avenue	B	C
University Avenue	Pleasant/15th	B	C
University Avenue	Church St/17th Avenue	B	C
University Avenue	Walnut Street	B	C
University Avenue	Huron Blvd	D	**E**

Intersection		2030 No-Build	2030 Preferred Alternative
		PM Peak LOS[1]	PM Peak LOS
University Avenue	Washington Ave	B	A
University Avenue	27th Avenue	C	B
4th Street SE	I-35W SB Ramp	B	B
4th Street SE	I-35W NB Ramp	C	C
4th Street SE	10th Avenue SE	**F**	**F**
4th Street SE	14th Avenue SE	B	C
4th Street SE	15th Avenue SE	B	B
4th Street SE	17th Avenue SE	C	C
4th Street SE	Oak Street	B	B
East River Road	Washington Avenue EB Ramp	A	C
East River Parkway	Arlington Street		**F**
Arlington Street	Pleasant Avenue		**F**
E River Parkway	Delaware Street		C
Pleasant Avenue	Delaware Street		A
E River Parkway	Harvard Street		**F**
E River Parkway	Fulton Street		A
E River Parkway	Oak Street		A
Franklin Avenue	Eustis Street	B	C
Franklin Avenue	Cromwell Avenue	C	**F**
Franklin Avenue	East River Road/27th Avenue	**F**	**F**
Riverside Avenue	9th Street/I-94 EB Ramp	C	C
Riverside Avenue	Butler Place/I-94 WB Ramp	D	D
Riverside Avenue	25th Avenue	D	C
Riverside Avenue	20th Avenue	D	**F**
Riverside Avenue	19th Avenue	D	**E**
Riverside Avenue	Cedar Avenue	D	**F**
25th Avenue	9th Street/I-94 EB Ramp	B	C
25th Avenue	Butler Place/I-94 WB Ramp	B	C
Cedar Avenue	Washington Avenue EB Ramp	B	C
Cedar Avenue	Washington Avenue WB Ramp	C	B
Cedar Avenue	Washington Ave/15th Avenue S	**F**	**E**
15th Avenue SE	Rollins	C	C
15th Avenue SE	Como Avenue SE	D	D
15th Avenue SE	5th Street	C	C
Harvard Street	Delaware St		B

Intersection		2030 No-Build	2030 Preferred Alternative
		PM Peak LOS[1]	PM Peak LOS
Oak Street	Delaware Street		C
Fulton Street	Oak Street		C
Fulton Street	Huron Boulevard	B	B
Harvard Street	Beacon Street		A
Walnut Street	Beacon Street		A
Pillsbury Dr	Church Street		B
4th Street SE	17th Avenue SE	C	C
University Avenue	Oak Street	C	C
4th Street SE	Oak Street	B	B

Source: University of Minnesota Traffic Study, Metropolitan Council, April 2008, December 2008

[1] A blank cell indicates no analysis was performed for the 2030 No-Build Alternative for that intersection

East of the Downtown East/Metrodome Station, the LRT tracks will transition from their exclusive right-of-way to center running on Washington Avenue. To accommodate this transition, the ramps from Washington Avenue to Cedar Avenue will be modified. These modifications were made as a result of incorporating community input during the SDEIS comment period. A traffic analysis of this area indicates that the proposed intersections on Washington Avenue will all operate at LOS "C" or better in the PM peak hour in 2030. These intersections do not exist under the No-Build Alternative.

6.2.3.6 Downtown Minneapolis

As part of *Access Minneapolis*, the City of Minneapolis's Ten Year Action Plan, the City of Minneapolis, in partnership with MnDOT and Hennepin County will be implementing several significant changes in downtown Minneapolis over the next several years that will significantly reconfigure local circulation in downtown Minneapolis. These changes are part of both the No-Build and Preferred Alternative. The key changes are shown on Figure 6.2-5. The only difference between the Preferred Alternative and the No-Build Alternative in downtown Minneapolis is the number of trains that will be operating on the existing LRT tracks on 5th Street. With only the Hiawatha LRT line operating (No-Build), the average time between trains crossing an intersection during peak operation periods on 5th Street is 3.75 minutes. With the Preferred Alternative, the average time between trains crossing an intersection on 5th Street will be 1.88 minutes or about one train every signal cycle.

Table 6-13 and Table 6-14 summarize the results of the Synchro analysis of the PM peak hour traffic operations for the 2014 and 2030 No-Build Alternative and Preferred Alternative based on the proposed future downtown street system. Table 6-13 shows the results for the 5th Street Corridor and Table 6-14 shows the results for off-corridor intersections. The only intersection on the 5th Street Corridor that will be affected by the Preferred Alternative is the intersection of 5th Street and 2nd Avenue North, which goes from an acceptable LOS under 2014 and 2030 No Build conditions to LOS "F" in 2014 and 2030 under Preferred Alternative conditions. The analysis indicates that the Preferred Alternative will not adversely affect other downtown intersections located off the 5th Street Corridor.

Table 6-13 Key Intersection Analysis for Downtown Minneapolis PM Peak Hour Synchro Analysis On-Corridor

Intersection	2014 Analysis		2030 Analysis	
	No-Build LOS	LRT LOS	No-Build LOS	LRT LOS
N 5th Street and 3rd Avenue N	A	A	A	A
N 5th Street and 2nd Avenue N	B	**F**	C	**F**
N 5th Street and 1st Avenue	B	D	B	D
N 5th Street and Hennepin	A	A	A	A
S 5th Street and Nicollet Mall	C	B	C	B
S 5th Street and Marquette Avenue	C	C	C	C
S 5th Street and 2nd Avenue	B	A	B	A
S 5th Street and 3rd Avenue S	A	B	B	A
S 5th Street and 4th Avenue S	A	A	A	A
S 5th Street and 5th Avenue S	A	A	B	A
S 5th Street and Portland Avenue S	A	A	B	A
S 5th Street and Park Avenue S	A	C	B	C
S 4th Street and Chicago Avenue	B	B	B	B

Source: CCPO Memorandum November 21, 2008 “Downtown Minneapolis Traffic Analysis”

Table 6-14 Key Intersection Analysis for Downtown Minneapolis PM Peak Hour Synchro Analysis Off-Corridor

Intersection	2014 Analysis		2030 Analysis	
	No-Build LOS	LRT LOS	No-Build LOS	LRT LOS
Washington Avenue and 5th Avenue N	A	A	A	A
Washington Avenue and 3rd Avenue N	C	C	C	C
Washington Avenue and 2nd Avenue N	B	B	B	B
Washington Avenue and 1st Avenue N	A	A	A	A
Washington Avenue and Hennepin Avenue	C	C	C	C
N 3rd Street and 2nd Avenue N	**E**	**E**	**F**	**E**
N 3rd Street and 1st Avenue N	B	B	C	B
N 3rd Street and Hennepin Ave	C	B	C	C
S 3rd Street and Nicollet Mall	A	A	A	A
S 3rd Street and Marquette Avenue S	C	C	C	C
S 3rd Street and 2nd Avenue S	B	B	B	B
S 3rd Street and 3rd Avenue S	B	B	B	C
S 3rd Street and 4th Avenue S	B	A	B	B
S 3rd Street and 5th Avenue S	B	B	A	A
S 3rd Street and Portland Avenue S	B	B	B	A

Intersection	2014 Analysis		2030 Analysis	
	No-Build LOS	LRT LOS	No-Build LOS	LRT LOS
S 3rd Street and Park Avenue S	B	B	B	B
S 3rd Street and Chicago Avenue	B	B	B	B
N 4th Street and 2nd Avenue N	D	**E**	**E**	**E**
N 4th Street and 1st Avenue N	B	B	B	C
N 4th Street and Hennepin Ave	B	B	B	B
S 4th Street and Nicollet Mall	A	A	A	A
S 4th Street and Marquette Avenue	A	B	A	B
S 4th Street and 2nd Avenue S	B	B	B	B
S 4th Street and 3rd Avenue S	B	B	B	B
S 4th Street and 4th Avenue S	A	A	A	A
S 4th Street and 5th Avenue S	A	A	C	C
S 4th Street and Portland Avenue S	B	B	B	B
S 4th Street and Park Avenue S	B	A	B	A
S 5th Street and 5th Avenue N	B	C	B	C
S 5th Street and Chicago Avenue	A	A	A	A
S 5th Street and 11th Avenue S	D	D	D	D
N 6th Street and 2nd Avenue N	B	B	B	B
N 6th Street and 1st Avenue N	B	A	A	A
N 6th Street and Hennepin Avenue	B	B	B	B
S 6th Street and Nicollet Mall	C	C	C	C
S 6th Street and Marquette Avenue S	B	B	B	B
S 6th Street and 2nd Avenue S	B	B	B	B
S 6th Street and 3rd Avenue S	B	B	B	B
S 6th Street and 4th Avenue S	A	A	B	B
S 6th Street and 5th Avenue S	B	B	B	B
S 6th Street and Portland Avenue S	A	A	A	A
S 6th Street and Park Avenue S	A	A	A	A
S 6th Street and Chicago Avenue	A	A	A	A
S 6th Street and 10th Avenue S	A	A	A	A
S 6th Street and 11th Avenue S	B	B	C	C
N 7th Street and 3rd Avenue N	A	A	A	A
N 7th Street and 2nd Avenue N	**F**	**F**	**F**	**F**
N 7th Street and 1st Avenue N	B	B	B	B
N 7th Street and Hennepin Avenue	B	B	B	B
S 7th Street and Nicollet Mall	C	B	B	C
S 7th Street and Marquette Avenue S	B	C	C	C

Intersection	2014 Analysis		2030 Analysis	
	No-Build LOS	LRT LOS	No-Build LOS	LRT LOS
S 7th Street and 2nd Avenue S	B	B	B	B
S 7th Street and 3rd Avenue S	B	B	B	B
S 7th Street and 4th Avenue S	B	B	B	B
S 7th Street and 5th Avenue S	C	C	C	C
S 7th Street and Portland Avenue S	B	B	B	A
S 7th Street and Park Avenue S	B	B	B	A
S 7th Street and Chicago Avenue	B	A	B	B
S 7th Street and 10th Avenue S	A	A	A	A
S 7th Street and 11th Avenue S	B	B	B	B

Source: CCPO Memorandum November 21, 2008 “Downtown Minneapolis Traffic Analysis”

6.2.4 Short-Term Effects

Construction of the Central Corridor Preferred Alternative will involve significant subsurface and at-grade construction along the project route. Construction of the Preferred Alternative will be accomplished through construction phases that can be generally outlined as follows:

- Relocation of existing utilities
- Removal of all existing surface features within the right-of-way or between the curbs
- Excavation and construction of new subsurface features required for both the LRT system and the adjacent roadway including drainage conduits and various electrical duct banks
- Construction of new LRT track, stations, LRT traction power and roadway facilities
- Installation of all above ground LRT system facilities

Significant construction activities are required to construct a project of this magnitude. Heavy construction will begin in 2010 and end in 2014. Since Central Corridor LRT will be constructed within a densely developed urban environment, greater construction sequencing detail will be required to reduce these impacts throughout the duration of the construction of the project.

For example, the construction of the Central Corridor LRT will require partial closures of existing streets where the LRT line will be located to establish the working area for the contractor’s forces to conduct its construction operations. This will include University Avenue between the U of M and Robert Street by the Capitol. In some very specific locations (downtown Saint Paul and Washington Avenue within the U of M) full street closures will be required and the duration of those street closures will extend longer than six months or longer than one construction season. Project outreach coordinators began surveying business and property owners in the spring of 2008 for details on their points of access to help engineers design the line and plan construction. Additional sequencing, along with close coordination with all of the project stakeholders, community groups, and local businesses, will be implemented to effectively deal with and minimize the impacts that may occur.

There will be additional congestion and delays in areas of street closures including adjacent parallel streets and cross-streets. Access to local businesses and to off-street parking will be maintained.

6.2.4.1 Washington Avenue Bridge Rehabilitation

To accommodate the proposed CCLRT project, improvements must be made to the Washington Avenue Bridge. The bridge was opened in 1965 and, in its current configuration, carries two lanes of vehicular traffic in each direction on a lower deck, and pedestrian traffic on an upper deck. With Central Corridor LRT, the inside lane in each direction on the lower deck would be converted to exclusive LRT use, while one lane of vehicular traffic would remain in each direction on the outside lanes. The pedestrian deck would remain unchanged (see Chapter 9 for a discussion of a project led by Hennepin County to make improvements to the pedestrian deck).

During the AA/DEIS phase, preliminary evaluation of the bridge indicated that minimal changes to the structure would be required to accommodate light rail transit. However, during Preliminary Engineering, a more rigorous and detailed analysis of the bridge uncovered some existing conditions that do not meet current design requirements. These conditions are not related to light rail, but to design codes that have been changed since the bridge was originally constructed. In addition, portions of the Washington Avenue Bridge employ a design (non-redundant) that makes the structure more vulnerable to potential catastrophic failure. Therefore, in order to correct the design code conditions and to furnish a structure that would be structurally redundant and provide years of remaining service life for both LRT and the vehicular and pedestrian traffic that would remain on the bridge, the Preferred Alternative includes a major rehabilitation of the bridge. Elements of this rehabilitation include the following:

- Strengthening of existing bridge girders to correct the current design code requirements. This would generally involve adding steel plates to the existing girder flanges.
- Adding new longitudinal structural elements to the structure to provide additional load-carrying capacity and a redundant structure. These elements would be placed underneath the existing bridge deck, located inside the existing girders, and run the length of the bridge.
- Replacing the existing bridge deck. In order to provide additional load carrying capacity and as part of increasing the bridge's structural redundancy, the design will integrate the concrete deck with the steel structural members.
- Modifying and strengthening the bridge substructures to carry the additional structural elements. This would involve adding concrete to the bridge piers as needed to support the new members.

All of the improvements proposed for the bridge superstructure would take place within the envelope of the existing structure and no changes would be visible or apparent to the bridge's appearance from motorists or observers at the roadway or pedestrian levels. An observer standing directly under the bridge would see the new structural elements and the bridge piers would have additional concrete to support the new structural members.

No changes to the bridge clearance, spans, or waterway openings are proposed.

6.2.4.2 Maintenance of Traffic and Construction Methods

Maintenance of Traffic details will be finalized during final design and may be modified by the contractor with permission from the CCPO and project partners. The CCPO anticipates that for most of the construction period, one lane of traffic in each direction will be maintained. Portions of the pedestrian bridge are also expected to remain open during most of the construction. At this point in the project development process, it is assumed that the Washington Avenue Bridge will be open to traffic during the entirety of construction. In the event that unforeseen circumstances result in the need for a temporary closure, plans for a temporary traffic detour will be put in place by the contractor and temporary detour measures will be implemented, directing traffic to alternative routes.

The means and methods of construction would be the responsibility of the contractor selected to perform the work. However, all of the work proposed by the CCPO could be constructed from the lower bridge deck with the exception of the bridge pier work which would likely require short term water access. The contractor will be required to obtain permits for working in the waterway and appropriate protection during construction will be required to prevent any demolition materials from falling into the river.

The bridge was cleaned to bare metal and repainted recently, no lead-based coatings remain on the bridge, and no lead contamination is expected during construction.

6.2.5 Mitigation

6.2.5.1 General Mitigation for At-Grade Intersections

The following mitigation measures will be implemented to address impacts on signalized intersections throughout the corridor:

- Optimized signal timing splits at each intersection.
- Interconnected coordinated traffic signal system along each section will be constructed as part of the Central Corridor LRT project and maintained by the City of Minneapolis and City of St. Paul.
- Detection of the light rail vehicle (LRV) will be provided at every signalized intersection with priority treatment at the signals for LRVs.
- Signals will be added on University Avenue to provide local traffic additional opportunities to turn across the fixed guideway other than at the existing signalized cross streets, many of which already carry significant traffic volumes.
- New traffic signal controllers, pedestrian controls, and signage at signalized intersections.
- Protected left- and right-turn lanes at specific intersections for traffic turning across the fixed guideway from parallel lanes.

6.2.5.2 Midway

The intersections of University Avenue at Vandalia, Snelling, Hamline, Lexington, and Marion are predicted to operate at level of service E or F in the PM peak hour in 2030 under the Preferred Alternative. Typical mitigation measures include widening to construct additional right- or left-turn lanes, widening of the approaches on the cross streets or adding additional capacity to parallel routes to University Avenue. In each of these cases, it was decided that the impacts caused by the proposed mitigation measures was greater than the

impact resulting from the future level of service forecast at the respective intersection during the PM peak hour.

Mitigation measures that can be implemented to address impacts at intersections forecast to operate at LOS "E" or "F" in the future include:

- Optimization of signal timing splits.
- Integration into the coordinated traffic signal systems maintained by the City of St. Paul.
- Protected left- and right-turn lanes.
- Expansion of turn lanes and/or extension of turning bay lengths.
- New signal phasing on some of the University Avenue cross-streets.

(Refer to Section 3.8, Environmental Justice, for additional discussion pertaining to community concerns with respect to right-of-way needs and potential traffic impacts)

6.2.5.3 University of Minnesota/Prospect Park

The conversion of Washington Avenue into a Transit/Pedestrian Mall between Pleasant Street and Walnut Street will significantly alter travel patterns and circulation in and around the U of M. In recognition of the potential for adverse traffic impacts caused by this conversion, the Metropolitan Council worked closely with the U of M to determine required mitigation. All mitigation was identified through traffic analyses conducted with input from the U of M, the City of Minneapolis, and Hennepin County and is being committed to in this FEIS. These mitigation commitments are summarized below. Figure 6.2-7 illustrates the proposed plan for restoring circulation and access at the East Bank Campus that would be required as mitigation for identified traffic impacts caused by the Preferred Alternative.

Eight intersections would operate at an LOS below an acceptable level due to implementation of the Preferred Alternative in 2030 (adverse impact).

- Cedar Avenue/Riverside Avenue
- Riverside Avenue/19th Avenue
- Riverside Avenue/20th Avenue
- Arlington Street/Pleasant Street
- East River Parkway/Arlington Street
- East River Parkway/Harvard Street
- University Avenue/Huron Boulevard
- Franklin Avenue/Cromwell Avenue

The Metropolitan Council has worked with the U of M, the City of Minneapolis, and Hennepin County to determine mitigation commitments to ensure intersections in the U of M area operate with an acceptable LOS.

In addition, the intersection of University Avenue at Huron Avenue/23rd Avenue is expected to operate at LOS E in the PM peak hour with implementation of the Preferred Alternative. Mitigation for this impact includes the following improvements:

- Lengthen the eastbound right turn lane on University Avenue at Huron Avenue
- Convert the westbound double left turn lane on University Avenue at Huron Avenue to a single left turn lane

- Lengthen the westbound left turn lane from University Avenue to 25th Avenue
- Sign the University Avenue at 25th Avenue intersection with a trailblazer sign to I-94 to encourage left turns at this intersection
- Convert Delaware Street between Huron Avenue and 25th Avenue from one-way to two-way operation
- Install a traffic signal at the intersection of Huron Avenue and Delaware Street.

West Bank Area

Three intersections in this area operate at LOS "E" or "F." The following improvements will be made:

- Reconfigure the lane geometrics at the intersection of Cedar Avenue and Riverside Avenue
- Reconstruct, modify phasing and re-time the traffic signal at the intersection of Cedar Avenue and Riverside Avenue

The LOS issues at Cedar Avenue/Riverside Avenue spill back to Riverside Avenue at 19th Avenue and 20th Avenue. Improvements to the Cedar Avenue/Riverside Avenue intersection should improve operations in the area. Additional mitigation measures under consideration include the removal of parking on the east side of 20th Avenue, adjacent to the intersection, to provide an additional lane.

East Bank Area

East River Parkway and other roadways in the area will experience increased levels of traffic as a result of closing Washington Avenue to automobile traffic to create the U of M Transit/Pedestrian Mall. The Synchro analysis shows several intersections will operate at an unacceptable LOS due to implementation of the Preferred Alternative.

With construction of the project, U of M East Bank Campus street connections will require improvements to achieve an acceptable LOS. Mitigation improvements that have been committed to or are under consideration include:

- Construct an eastbound left turn lane on East River Parkway at Harvard Street
- Construct a southbound right turn lane on Harvard Street at East River Parkway
- Install an all-way stop sign on East River Parkway/Harvard Street
- Stripe a southbound left turn lane on East River Parkway (to access Delaware St SE)
- Construct Delaware Street to three full lanes
- Construct an eastbound right turn at Arlington Street/Pleasant Street and install a traffic signal
- Construct a southbound left turn lane on East River Parkway at Arlington Street
- Construct a northbound right turn lane on East River Parkway at Arlington Street
- Install a traffic signal at Pleasant Street/Delaware Street and stripe for a southbound left turn lane
- Stripe a northbound left turn late on 17th Avenue SE at 4th Street

- Modify the traffic signal at 4th Street SE/17th Avenue SE to add protected left turn phase
- Consider the removal of parking on the north side of Franklin Avenue (to allow for two lanes westbound in the PM peak hour) and modify traffic signals

Several of the mitigation commitments are aimed at providing additional circulation options in and around the U of M East Bank Campus, including:

- Construct Beacon Street between Walnut Street and Harvard Street
- Mill and overlay Beacon Street between Union and Harvard; stripe as a two-way roadway
- Construct Harvard Street between Beacon Street and Pillsbury Street
- Mill and overlay Harvard Street between Washington Avenue and Beacon Street; stripe as a two-way roadway

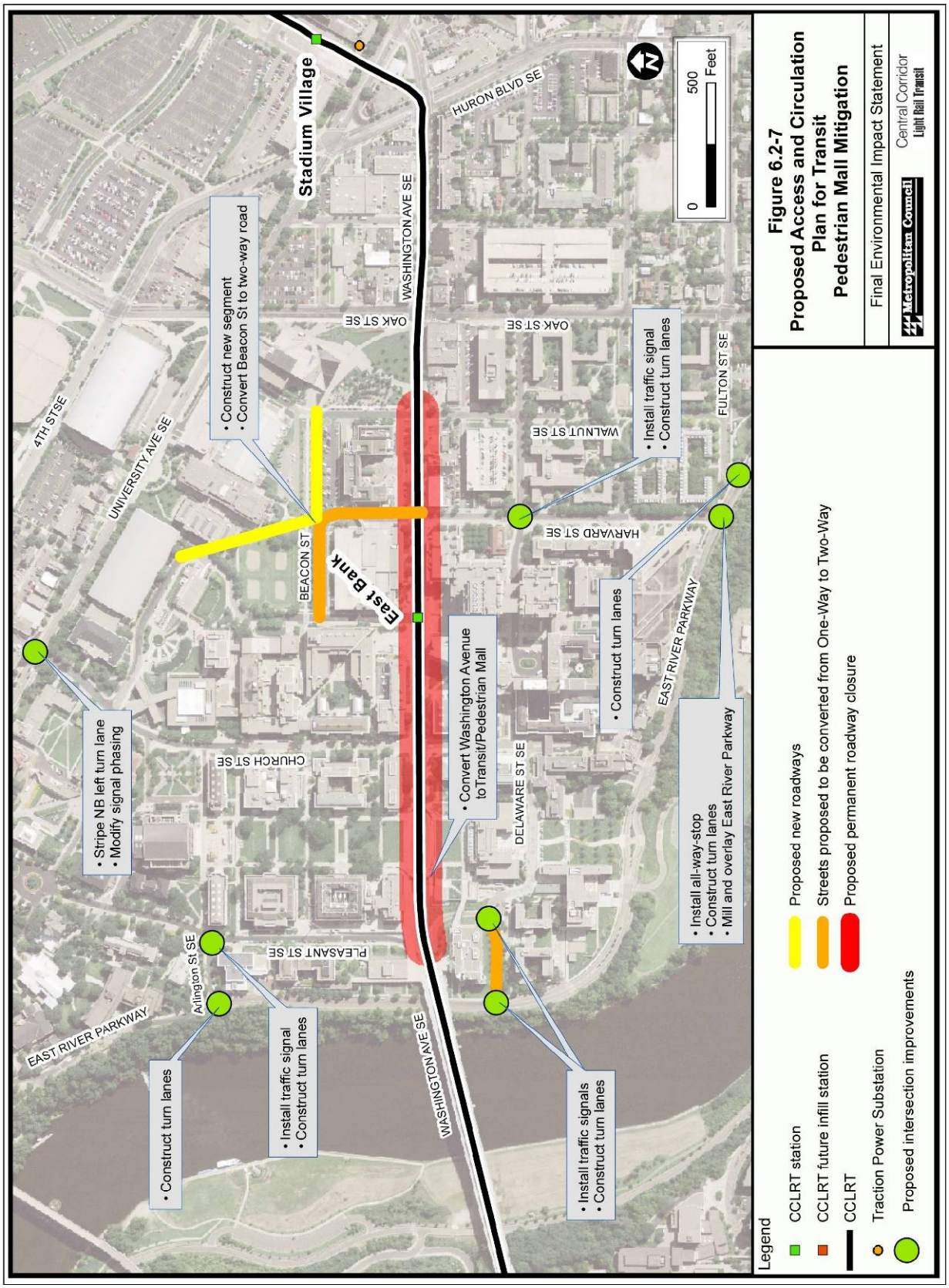
6.2.5.4 Downtown Minneapolis

The intersection of North 5th Street and 2nd Avenue North is expected to operate at LOS "F" during the PM peak in 2014 and 2030 under the Preferred Alternative (adverse impact). The City of Minneapolis is continuing to develop the final configuration of the downtown street system that will be in place by 2014. The City of Minneapolis is also planning to upgrade the traffic signal central control system and retime the downtown area by 2011. The Metropolitan Council will work with the City to develop traffic signal timing to accommodate joint operations of the Central Corridor LRT and the Hiawatha LRT in downtown Minneapolis.

6.2.6 Construction Mitigation

Project outreach coordinators began surveying business and property owners in the spring of 2008 for details on their points of access to help engineers design the line and plan construction. Specific mitigation will be developed during final design to determine maximum number of lanes closed during peak traffic hours, maintenance and removal of traffic control devices, efficient traffic rerouting measures, and scheduling of construction activities within the roadways for times other then peak traffic periods. Access for delivery vehicles will be maintained throughout the construction of the Preferred Alternative including access for businesses without alleyway access.

The mitigation measures required by the city/county for roadway access and traffic control will also apply to disruption of area businesses, schools, day care centers, and other community facilities. Permits will be acquired by project contractors from the appropriate city offices for roadway disruptions and blockages. Notification of roadway disruptions will be provided to neighboring property owners/operators. In cases of roadway blockages, neighboring property owners/operators will be notified and provided with descriptions of alternative routes. The Central Corridor Partnership, an alliance of St. Paul and Midway area business leaders, will be providing assistance to help businesses with marketing strategies and business planning to thrive during the construction process and communicate to their customers any changes to access and that they are still open. The partnership is developing a business management plan and seeking funding sources.


Stadium Village
HURON BLVD SE
WASHINGTON AVE SE
OAK ST SE
4TH ST SE
UNIVERSITY AVE SE
BEACON ST
East Bank
CHURCH ST SE
DELAWARE ST SE
WALNUT ST SE
HARVARD ST SE
FULTON ST SE
EAST RIVER PARKWAY
PLEASANT ST SE
Arlington St SE
• Construct new segment
• Convert Beacon St to two-way road
• Stripe NB left turn lane
• Modify signal phasing
• Convert Washington Avenue to Transit/Pedestrian Mall
• Install traffic signal
• Construct turn lanes
• Construct turn lanes
• Install all-way-stop
• Construct turn lanes
• Mill and overlay East River Parkway
• Construct turn lanes
• Install traffic signal
• Construct turn lanes
• Install traffic signals
• Construct turn lanes
0
500
Feet
Legend
CCLRT station
CCLRT future infill station
CCLRT
Traction Power Substation
Proposed intersection improvements
Proposed new roadways
Streets proposed to be converted from One-Way to Two-Way
Proposed permanent roadway closure
Figure 6.2-7
Proposed Access and Circulation Plan for Transit Pedestrian Mall Mitigation
Final Environmental Impact Statement
Metropolitan Council
Central Corridor
Light Rail Transit

6.3 Effects on Parking

6.3.1 Methodology

An updated inventory of on-street parking at the U of M between Church Street and Huron Boulevard and on University Avenue between 29th Avenue and Rice Street was conducted between October and November 2007. The following criteria were used in updating the on-street parking spaces:

- Spaces were calculated at 22 feet in length
- No space is counted closer than 5 feet to a curb cut or driveway
- No space is counted closer than 30 feet from the corner of a signalized intersection
- No space is counted closer than 20 feet from the corner of a non-signalized intersection
- No space is counted within bus stop areas, adjacent to fire hydrants, or where posted “no parking”

The updated on-street parking inventory was used to determine the parking impacts of the Preferred Alternative. The potential impacts to parking for the Preferred Alternative were determined based on the Municipal Consent Plans.

6.3.2 Existing Parking

6.3.2.1 Downtown St. Paul

There are nearly 30,000 parking spaces in downtown St. Paul. Over 90 percent of these spaces are off-street parking. There are approximately 121 parking spaces on Cedar Street and 4th Street in downtown St. Paul. On-street parking will remain on side streets and intersecting streets; and off-street parking will not be affected by the Preferred Alternative. It is presumed that an adequate parking supply in downtown St. Paul will remain to meet parking demand under Preferred Alternative conditions.

6.3.2.2 Capitol Area

There are an estimated 50 on-street parking spaces along University Avenue, Robert Street, and Columbus Street in the State Capitol area. Again the majority of parking in the State Capitol area is provided in off-street parking lots and parking structures.

6.3.2.3 Midway Area

A parking inventory on University Avenue was completed between October and November 2007. The parking inventory limits were between 29th Avenue in Minneapolis and Rice Street in St. Paul on University Avenue. The updated inventory on University Avenue determined that there are currently 1,150 on-street parking spaces between 29th Avenue and Rice Street. In many areas these on-street spaces serve the businesses and residences abutting University Avenue. On-street parking on the first block north and south of University Avenue cross-streets can provide approximately 560 spaces if managed for business and client uses. Some businesses on University Avenue have access to privately-owned off-street parking in surface lots, garages, or ramps for their employees and clients.

6.3.2.4 University of Minnesota

There are over 13,000 parking spaces in the East Bank campus. A parking inventory of on-street parking was also conducted on Washington Avenue between Church Street and Huron Boulevard. Along this segment, 79 short-term parking spaces are available. Parking is allowed on both sides of Washington Avenue between Harvard Street and Oak Street during off-peak hours. No parking is allowed on this segment of Washington Avenue during peak hours.

6.3.3 Long-Term Effects

6.3.3.1 No-Build Alternative

No significant change in parking is expected for the No-Build Alternative. The potential parking impacts of the Preferred Alternative are discussed below by area.

6.3.3.2 Preferred Alternative

Downtown St. Paul

Approximately 121 on-street parking spaces would be removed in downtown St. Paul. Access to off-street parking lots and structures would be reconfigured but maintained.

State Capitol

Approximately 28 on-street parking spaces would be removed. The loss of these spaces will not substantially change the parking availability in this area.

Midway East and Midway West

The Metropolitan Council's Engineering Services Consultant (ESC) determined that 625 of the 1,150 parking spaces on University Avenue between 29th Avenue and Rice Street would be eliminated to accommodate mandatory design features for the Preferred Alternative. An element was considered mandatory if it was required as part of maintaining optimal rail operations and traffic flow. Mandatory design features include: retention of two driving lanes in each direction along University Avenue, additional traffic signals, longer left-turn lanes, station platform lengths, and station locations. After mandatory design features were in place as part of Central Corridor LRT, a total of 525 parking spaces on University Avenue would remain.

Desirable design elements were also incorporated into the overall Central Corridor LRT design. Desirable elements were those that were developed in response to concerns expressed by the community and included non-signalized pedestrian crossings to maintain community cohesion. If all of the desirable Central Corridor LRT design elements are incorporated, an additional 360 parking spaces would be lost on University Avenue between 29th Avenue and Rice Street. Implementing desirable design elements, in addition to the mandatory design elements would result in a total of 165 parking spaces remaining on University Avenue between 29th Avenue and Rice Street.

In addition to on-street parking on University Avenue, the inventory identified 560 on-street parking spaces within the first block of University Avenue cross-streets. These parking spaces could be utilized to offset the loss of on-street parking on University Avenue.

University of Minnesota/Prospect Park

The Metropolitan Council's ESC determined that all 79 spaces along Washington Avenue would be removed with the Preferred Alternative.

Downtown Minneapolis

No parking impacts are anticipated under the Preferred Alternative.

6.3.4 Short-Term Effects

Construction of the Preferred Alternative would result in several short-term construction impacts to parking facilities. These impacts include temporarily making some on-street parking facilities unavailable to allow for construction equipment and vehicles to park or be located near construction sites.

6.3.5 Parking Mitigation

The Metropolitan Council is working collaboratively with the City of St. Paul on a Parking Solutions Team to identify parking mitigation strategies that will address impacts on a block-by-block basis for parking lost along University Avenue due to implementation of the Preferred Alternative. Elements of this program on a corridor-wide basis may include:

- Install parking meters for the remaining parking on University and some side streets.
- Establish permit parking zones nearby for residents and employees.
- Use computerized license plate recognition technology to enforce parking more effectively.
- Develop comprehensive and consistent signage to clarify parking resources.
- Establish a competitive grant program to improve shared parking lots.
- Create Parking Improvement Districts to manage shared public parking lots.
- Reduce parking requirements for new development in the Central Corridor.
- Secure new grants and other revenue to fund parking solutions.

The Metropolitan Council and the City of St. Paul will work with the affected property owners and tenants to maximize parking on and near University Avenue. Several site specific areas were identified as being especially affected by the loss of parking on University Avenue, and potential solutions were identified. These will be explored more fully in a series of workshops with the business and property owners of the specific sites that will start in the spring of 2009.

6.4 Other Transportation Facilities

This section describes the potential impacts to pedestrians, bicycle facilities, and other transportation facilities as a result of changes in the transportation system with implementation of the Preferred Alternative. The discussion focuses on the impact of changes that have been made to the alignment since completion of the AA/DEIS and SDEIS.

6.4.1 Planning and Public Policy Context

6.4.1.1 City of Minneapolis

Access Minneapolis (Citywide Action Plan, Guidelines for Streets and Sidewalks, and the Downtown Action Plan)

The Downtown Action Plan (2008), part of the *Access Minneapolis* plan set, specifies the importance of bicycling and walking in downtown Minneapolis. As stated in the plan, a series of on-street bicycle lanes are striped on several downtown streets, many of which cross the current Hiawatha LRT alignment and provide access throughout downtown. Streets with bicycle accommodations crossing the proposed alignment include Portland, 2nd Avenue South, Marquette, Nicollet, and Hennepin Avenues, with one-way directional bicycle lanes on 3rd and 4th Streets. Off-road bicycle trails in the downtown area follow the Mississippi River, with off-road bicycle lanes on the Washington Avenue bridge and throughout the U of M campus. The city plans to extend the Cedar Lake Trail under the new Target Field (the Minnesota Twins baseball stadium) currently under construction. This trail would cross the Central Corridor LRT alignment at the Downtown Minneapolis Ballpark Station currently under construction with the new Twins Stadium.

Regarding the pedestrian environment in downtown, the plan defines a series of “Primary Pedestrian Corridors” in the downtown core. One of these corridors is 5th Street North, along which the current Hiawatha LRT runs and on which the Central Corridor LRT will also run.

In addition to the current bicycle network and plans, Minneapolis was awarded federal funds under the Urban Partnership Agreement (UPA). The reconstruction of 2nd and Marquette avenues was one of several projects to receive funding through the UPA program. The 2nd Avenue and Marquette Avenue project involves the creation of a dual, contra-flow bus transit loop in downtown Minneapolis. As a result of this project, the current bicycle accommodations on 2nd Avenue and Marquette Avenue would be relocated, and buses currently using Nicollet Avenue will be relocated to these streets, allowing bicyclists to use Nicollet Avenue.

City of Minneapolis Bikeways Master Plan

Prepared in 2001, the City of Minneapolis Bikeways Master Plan sets the planning context for bicycle accommodations in the Central Corridor LRT Downtown Minneapolis planning segment. Off-street trails are shown going over the Washington Avenue bridge and through other portions of the U of M. Proposed on-street lanes include Washington Avenue over Interstate 35W (I-35W), 19th Avenue, Riverside Avenue, and University Avenue from the St. Paul city limit into the University. Although north-south bike connections exist on campus, no east-west bike connection exists between University Avenue and the Washington Avenue bridge.

City of Minneapolis Pedestrian Master Plan

Minneapolis is currently in the planning stages for the creation of a pedestrian master plan. The plan has several components and objectives, including the assessment of the current pedestrian environment, identification of impediments to pedestrian movement, considering street façade and landscaping improvements, policy recommendations for design guidelines, further establishing the connection between the pedestrian environment and mass transit, and ensuring that the future pedestrian environment is compliant with all ADA requirements.

6.4.1.2 University of Minnesota

The University of Minnesota is currently updating their Master Plan in anticipation of the changes taking place on the Twin Cities campus. One of the goals of the U of M Master Plan is focused on giving pedestrians priority on campus.

6.4.1.3 City of Saint Paul

Saint Paul Bicycle Planning

The City of St. Paul's draft 2030 comprehensive plan update includes proposed enhancements to the current bicycle network as a component of the transportation and parks chapters. Current facilities exist on Raymond, Pelham, Prior, Pascal, Park/Rev. Martin Luther King Jr., and at Central Village Park. The plan indicates that new priorities include the creation of north-south routes in the western half of the City that connect across I-94 and railways to Central Corridor light rail stations. These should include but not be limited to:

- A facility on Hamline Avenue that traverses Pierce Butler Route, the Burlington Northern Santa Fe railroad and Energy Park Drive
- Routes on roadways defined in the Transportation Plan as minor arterials/collectors
- "Quiet routes" such as Aldine, Griggs, Chatsworth, Grotto, and Mackubin
- Completion of the route on Prior Avenue south to Summit Avenue
- Completion of the route on Jackson street north to Larpenteur and south to downtown

The draft plan, adopted by the City in February 2009, also includes provisions for the integration of east-west bicycle routes on or parallel to University Avenue that will accommodate connections to destinations along the light rail route. It notes that the City will strive to accommodate bicycles on University Avenue, but in places where other modes take priority in the right of way, will provide accessible alternatives on parallel routes, extending east to Lafayette.

Currently, no designated east-west connection exists in the corridor; bicyclists can use Marshall Avenue to the south or Minnehaha Avenue to the north. Many bicyclists choose to ride on University Avenue despite its lack of formal designation because of its width and time-savings as a direct connection between the core cities. Detailed proposed bicycle connections to stations and along University Avenue can be found in the *Central Corridor Development Strategy* (CCDS) and Station Area Plans summarized in Section 3.1.

Additionally, the City of Saint Paul is currently reviewing the *Central Corridor Development Strategy, Station Area Plans*, and the *Saint Paul Downtown Bicycle Transportation Master Plan* for incorporation into a *Central Corridor Bike Walk Action Plan*. This plan, expected for adoption in March 2009, emphasizes mode shift and will prioritize bicycle projects that

connect to LRT stations, run east-west through the corridor, and link to the regional parks and trails system. The scope of this plan extends from the western city border to Lafayette Bridge (including all of downtown), and from Selby Avenue to Pierce Butler Route.

6.4.1.4 Metropolitan Council

2030 Transportation Policy Plan Update

The Metropolitan Council's 2030 Transportation Policy Plan (2004) identifies bikeways and walking paths as key components of the region's transportation network, and encourages local communities to establish interconnected networks of bike paths and pedestrians walkways while making connections with public transportation systems. In an update to the current TPP prepared in 2008, the plan stresses the importance that bicycle and pedestrian infrastructure play as part of the overall transportation system, and that the potential for more people to bicycle or walk to destinations is significant. The plan cites U.S. Census Bureau data on employer and household dynamics, which indicate that 20 percent of all employees who work in one of the major employment clusters of the Twin Cities region live less than three miles from their place of employment. According to the Metropolitan Council's 2000 Travel Behavior Inventory, approximately 14 percent of all trips in the region are less than one mile. Based on these and other statistics, the Metropolitan Council plans stress the importance of removing barriers to non-motorized transportation in the region, and enhancing connections to mass transit to complete the "last leg of the trip."

Contained with the 2030 TPP is the 2030 Pedestrian Walkway and Bikeway Plan, which prioritizes investments and outlines requirements to support the regions non-motorized transportation systems. As discussed in the plan, improving multi-modal connections to mass transit not only supports transit ridership, but can contribute to development potential around transit stations, improve safety and mobility, and reduce automobile trips. A policy outlined as part of the plan is that all transit modes and LRT vehicles be equipped to handle bicycles on board.

6.4.2 Methodology

6.4.2.1 Bicycle and Pedestrian Analysis

Impacts to pedestrian and bicycle facilities were evaluated through an analysis of preliminary engineering plans, along with an analysis of existing bicycle and pedestrian facilities, plans, and public policies established by the Cities of Minneapolis and St. Paul. Furthermore, the analysis considered sidewalk and bicycle facility inventories and data available from the cities, counties, and Metropolitan Council.

The evaluation addresses the potential for the Central Corridor LRT project to affect these facilities during construction and operation. The following criteria were used to determine potential impacts of each alternative on community facilities:

- Construction or operation of the Preferred Alternative would displace bicycle or pedestrian facilities or alter the facility's property
- Construction or operation of the Preferred Alternative would restrict access or use of the facility
- The evaluation considers impacts of the No-Build Alternative and the Preferred Alternative on bicycle and pedestrian facilities adjacent to the alignment.

6.4.3 Existing Conditions

6.4.3.1 Existing Bicycle Environment

The Twin Cities metropolitan region, particularly the City of Minneapolis, has one of the highest rates of bicycle commuting and recreational cycling nationally as compared with other major metropolitan areas. Contributing to the culture of bicycling in the region are the investments made by the region in one of the most extensive on-street and off-road bicycle networks nationally. According to the Metropolitan Council's Year 2000 Travel Behavior Inventory survey results, 1.5 percent of all trips made in the seven county metropolitan area were by bicycle. Existing on-street and off-road bicycle facilities are present throughout the Central Corridor study area; however, certain portions of the study area contain more bicycle facilities and services than other areas. Striped bicycle lanes are provided on many downtown streets in Minneapolis and some streets in downtown St. Paul. The downtown central business districts of both cities are equipped with bicycle racks or storage lockers. These facilities are especially important to commuting cyclists. The foundation of the bicycle networks in both downtowns are the designated bicycle lanes provided on many one-way street pairs. These lanes, which operate within the flow of traffic, are relatively safe due to the slower speeds of vehicles in the downtown area and the increased visibility of bicyclists on the street.

Networks of off-road bicycle trails connect with or cross the proposed alignment and study area. The Grand Rounds National Scenic Byway is an expanding network of on- and off-road trails connecting public parks and lakes in the Minneapolis area, as well as paralleling the Mississippi River. Connections with off-road trail systems in St. Paul have also been established, such as the Gateway State Trail, and future planning supports the connection of bicycle facilities between the two cities. Plans to extend this network would include an at-grade crossing of the Central Corridor LRT tracks at 27th Avenue and the U of M's Transitway.

In support of the street infrastructure and bicycle facilities, Metro Transit buses serving the study area are equipped with bicycle racks so that bicyclists can travel to their destinations by bus with their bicycles. LRT vehicles for the Hiawatha LRT line are equipped to handle bicycles onboard trains. At Hiawatha LRT stations, bicycle racks and lockers have been provided by Metro Transit and are frequently used by travelers. These facilities help to encourage alternative modes of travel and intermodal connections and have been shown to help support transit ridership.

The following are detailed descriptions of bicycle environments for specific points along the corridor.

Downtown St. Paul and Capitol Area

In downtown St. Paul, portions of Jackson, Sibley, and Broadway Streets have striped bicycle lanes. On Jackson Street, a bicycle lane is provided from Kellogg Boulevard to 7th Street, and on Broadway Street, a dedicated bicycle lane is provided from Kellogg Boulevard to 5th Street. On Sibley, a facility exists only between Kellogg and Shepard Road. Following the Mississippi River, the Samuel Morgan Trail, a paved off-street bicycle trail, follows Warner Road between the river and roadway, and connects along the river to regional parks and trails. In the Capitol Area planning segment, facilities exist on John Ireland Boulevard, Park Street, and Rev. Martin Luther King, Jr. Boulevard.

As described in Section 6.4.1.2, The City of St. Paul is in adoption phase for the draft 2030 Comprehensive Plan, including bicycle policies and projects as a part of the

Transportation Chapter. The plan promotes bicycling as a part of daily life and an important component of transportation for many residents of St. Paul, and notes that several accommodations for bicyclists must be made to further enhance the bicycle network of St. Paul. The ten-year goal of the plan is to increase bicycle use in St. Paul increasing bicycle mode share for all trips from 2 percent to 5 percent. The plan is intended to be fully compatible with the City's strategic plan. Among the chief priorities of the plan are the establishment of north-south connections with the Central Corridor LRT, and integrating at least one east-west bicycle route parallel to University Avenue to accommodate bicyclists making connections between the Central Corridor LRT route and destinations along the corridor.

In addition, the Ramsey County Regional Railroad Authority plans to incorporate bicycle facilities into its Union Depot Multimodal Transit Hub that will be served by light rail.

Midway East and Midway West

While University Avenue does not have striped bicycle lanes, bicyclists frequently travel along the road as part of their daily commute. Many streets in residential areas adjacent to University Avenue also do not have dedicated bicycle lanes striped on the roadway; however, cyclists use these streets for mobility and access from their homes to destinations or other bicycle facilities. Along the Midway East and Midway West portions of the Preferred Alternative, current city plans identify a striped perpendicular bicycle lane on Pascal Avenue. South of University Avenue between Western Avenue and Dale Street is an off-road bicycle trail known as the Central Village Trail, with access points along Aurora and Central avenues, and at the Unidale Mall at the corner of University Avenue and Dale Street. Publicly available storage racks and lockers are extremely limited, especially facilities that serve businesses and transit riders in the corridor. The corridor serves a high volume of automobile traffic, which creates an environment generally perceived to be unsafe for many cyclists. Curb cuts for access to both public and private driveways, along with the intersections along University Avenue, create a high number of potential conflict points between vehicles and bicycles. The presence of on-street parking also creates additional safety concerns for bicyclists.

A Central Corridor Bike-Walk action plan is currently being developed by the City of St. Paul for the area from Marshall Ave. to the south to Pierce Butler to the North as well as all of Downtown. The plan is being developed using a grant from Transit for Livable Communities and is called the Central Corridor Bike-Walk Action Plan. It is anticipated that the plan will be completed by March of 2009. The plan will incorporate the components of the Bicycle Advisory Board Bicycle Plan and the Downtown Bicycle Plan, a review of the existing conditions for bikes and pedestrians along the corridor, a review of existing facilities that access the corridor and an action plan for implementation of possible pedestrian and bike improvements.

University of Minnesota

Many of the 60,000 students at the U of M are dependent on alternative means of transportation, with bicycles being a popular choice. Students, faculty and staff, as well as the general public regularly utilize the bicycle facilities and services provided by the U of M throughout the calendar year. Above the Washington Avenue Bridge, a bikeway and pedestrian walkway is provided for students to cross the Mississippi River from one side of campus to the other. The campus has an extensive network of dedicated bikeways and off-road pathways for cyclists to use. The U of M also has bicycle storage facilities, and provides free compressed air stations for the public to inflate bicycle tires.

Downtown Minneapolis

In downtown Minneapolis, streets with bicycle lanes that would cross or connect with the alignment include the north-south streets of Portland and Park avenues, and 4th Street South. Hennepin Avenue, which bisects the Hiawatha LRT alignment, has a two-way bicycle lane running parallel to northbound vehicular traffic and southbound bus and taxi traffic. In 2003, a bicycle/pedestrian trail that runs parallel to the HLRT tracks was completed on the north side, between 15th Avenue and 11th Avenue. This facility shares right-of-way (ROW) with Hiawatha LRT and was planned during the planning and design phase of the Hiawatha LRT. The trail is maintained on Metro Transit inventory and is used primarily as a transportation facility. Current surveys show extensive use by bike commuters into downtown Minneapolis. The City of Minneapolis is planning to extend the facility further west into downtown. Beyond these facilities, dedicated bicycle lanes are provided on many other streets in the downtown area. In support of the *Access Minneapolis: Downtown Action Plan,* the City is developing an updated version of the *Bikeways Master Plan,* slated for adoption and publication later in 2009.

6.4.3.2 Existing Pedestrian Environment

The current pedestrian environment extends from one end of the project area to the other, with a mixture of old and new sidewalks running parallel and perpendicularly to the Preferred Alternative alignment. Pedestrian facilities are mostly restricted to sidewalks along streets in the corridor; however pedestrians may also use shared bicycle and pedestrian off-road trail systems that connect with on-street networks at points along the corridor. Side streets connected with University and Washington avenues along with streets in the commercial downtown central business districts are lined with sidewalks allowing for pedestrian circulation to destinations within the project area and movement through the corridor. Pedestrian movements are accommodated at all signalized intersections with "Walk/Don't Walk" indications and marked crosswalks. Pedestrian movements are also allowed at many unsignalized intersections; however, marked pedestrian cross walks are generally limited to crossings for the side streets connecting with University or Washington avenues.

Although sidewalks are present throughout the corridor, the character of existing development sometimes discourages or limits walking in certain areas. Sidewalk widths vary throughout the corridor, with wider sidewalks in the downtown commercial districts and around the U of M, where pedestrian circulation is greater, especially during daytime hours. Conversely, sidewalk widths are narrow in other areas where industrial or warehousing activities take place, particularly along stretches of roadway in the Midway West planning segment, or in residential areas. Finally, sidewalk widths can also differ from one side of the street to the other. Both Minneapolis and St. Paul have established minimum design guidelines for sidewalk construction. In each case, the type of road, carrying capacity, and location of the roadway facility dictate the appropriate type of pedestrian facilities along the road. Sidewalks in the project area are outfitted with curb ramps, however not all intersections are outfitted with the latest ADA-compliant technologies. As part of this project, all pedestrian crossings will be designed in accordance with current design standards and ADA requirements to ensure access and mobility for all.

In select areas, intermittent landscape buffers (belonging to adjacent developments) have been developed along the sidewalk. Where permitted, commercial establishments may use the sidewalks for outdoor commercial activities, particularly during the summer months. However, the majority of sidewalks in the study area run directly between buildings and the streets and are without any landscaped features or street furniture. These features

contribute to creating a walkable environment and a safe separation between traffic and pedestrians.

The following are detailed descriptions of pedestrian environments for specific areas along the corridor.

Downtown St. Paul and Capitol Area

The downtown district of St. Paul is home to high-density office buildings and major activity centers such as the Xcel Energy Center and the RiverCentre. The city center is a major destination for vehicle, transit, bicycle, and pedestrian trips. In addition to large office towers, major local, county, and state government office buildings are located in downtown St. Paul. The area includes a network of sidewalks, skyways, underground tunnels, and pedestrian amenities with connections to existing transit services helping to promote transit ridership. Transit facilities that encourage ridership and walking include sheltered bus stations and minimal curb cuts or private access points, both of which improve pedestrian safety by reducing the conflict points between vehicles and pedestrians. An important component of downtown St. Paul and the Capitol area are the historical landmarks of both the City and the State of Minnesota. Significant efforts have been made by the City and the Capitol Area Architectural and Planning Board (CAAPB) to ensure that pedestrian access to these landmarks is maintained.

Midway East and Midway West

University Avenue supplies a relatively low amount of pedestrian traffic compared to other parts of the project area, although it has higher rates of pedestrians walking for transportation purposes than other urban neighborhoods due to low automobile ownership rates and high transit dependency. The auto-centric nature of the corridor, with extensive side street connections, private driveway entrances, and parking contribute to less desirable pedestrian conditions as compared to the downtown and U of M areas. Although an extensive sidewalk network is in place, pedestrian amenities such as landscaping, street furniture, or wayfinding systems are minimal or non-existent. Marked pedestrian crossings exist at most intersections throughout these portions of the corridor however some T and offset T intersections or angled intersections exist where striped pedestrian crosswalks are not provided, and paved median barriers discourage pedestrian crossings at certain locations. A paved median barrier separates opposing traffic along most of University Avenue, which limits the number of mid-block crossings by pedestrians, although some illegal crossings are made. Typically these streets provide parallel crossings to University Avenue, and perpendicular crosswalks are located in close proximity. The intersection of Snelling and University Avenue, the most significant area for pedestrian activity, is also one of the highest volume intersections in the Twin Cities metropolitan area. Further frustrating pedestrian activity are the large swaths of parking areas for major retail centers. As a result of development patterns and traffic conditions in the area, pedestrian activities are minimal.

University of Minnesota

The pedestrian environment at the U of M is extensive. Similar to many other large campuses around the country, the campus core functions as a pedestrian mall, with the U of M only permitting authorized or emergency vehicles to travel on campus walkways. The minimal amount of traffic on side streets running through campus reduces the number of potential conflicts between automobiles and pedestrians. Painted crosswalks, walk signals, and pedestrian bridges allow for pedestrians to safely cross streets running through the campus, particularly Washington Avenue, a major thruway separating the campus into two sides, inhibiting the safe flow of traffic and pedestrians in the area. In addition to on street

networks, an extensive network of underground tunnels connecting buildings throughout the campus is provided. The "Gopher Way" network of underground tunnels is especially important to pedestrian mobility during inclement weather.

Downtown Minneapolis

Approximately 140,000 jobs are located in the Minneapolis central business district, resulting in a substantial amount of pedestrian-oriented traffic and amenities to promote walking. The downtown core district has established wide sidewalks and high quality streetscapes making conditions favorable for pedestrians. Sidewalks in the downtown area allow for connections to major office buildings, sports and convention centers, retail centers and public parks. Anchoring the downtown sidewalk network is the Nicollet Mall, the core retail and office activity center of downtown Minneapolis. Nicollet Mall functions as a pedestrian and transit mall; motorized traffic is restricted to buses and taxis. The city's long-term transportation plan, *Access Minneapolis: The Downtown Action* (2007), calls for further enhancement of pedestrian facilities (by location and opportunity), including improvements to street facades by public and private property owners, lower cost "greening" activities, safety improvements to crosswalk areas, and installation of wayfinding systems. The city also hopes to improve or add new transit waiting area facilities to encourage transit ridership.

In addition to exterior sidewalks, Minneapolis has maintained an extensive skyway walking network between buildings to enhance pedestrian movement throughout much of downtown. Skyway facilities are primarily privately owned and operated, yet allow the public to access major office buildings, hotels, retail establishments, and parking facilities. Presently, the city is in the process of preparing a pedestrian master plan.

6.4.4 Long-Term Effects

6.4.4.1 No-Build Alternative

The No-Build Alternative is not expected to have any negative impacts on the existing bicycle, or pedestrian environment in place within the study area. The No-Build Alternative would result in maintaining the existing parking, bicycle and pedestrian facilities, travel patterns, and access within the study area, with the exception of those facilities or improvements currently being constructed or planned for future construction. Under the No-Build Alternative, frequency enhancements to the existing transit service within the corridor would be made that would provide pedestrians and bicyclists with greater schedule flexibility and may improve general mobility. However, enhanced flexibility and general mobility for bicyclists or pedestrians beyond the currently operating transit network does not improve non-motorized transportation networks, nor improve peripheral concerns of non-motorized travelers, such as safety. No displacement or disruption of facility operations or services would occur as a result of the No-Build Alternative. No construction effects are anticipated for parking, bicycle and pedestrian facilities associated with the No-Build Alternative. Minor impacts might occur with planned expansion of existing transit service in the corridor. These impacts would be short in duration.

6.4.4.2 Preferred Alternative

Bicycle Impacts

The operation of the Preferred Alternative would not result in adverse long-term impacts to existing or planned bicycle lanes or facilities in the project area. However, although University Avenue is not a designated bikeway, the community has expressed that it is

widely used by local bicyclists because of its excess width and because it is the only direct east-west street connection between the two downtowns north of Marshall Avenue. This makes it a critical thoroughfare for commuters, and for people making non-work trips in the corridor. Providing alternative east-west connections will become necessary during construction, and for bicyclists who prefer an alternative to riding in heavy mixed traffic that will be present on University Avenue under Preferred Alternative conditions. Streetscape improvements coinciding with construction of the Preferred Alternative are expected to help create a safe, pleasing, and commuter friendly bicycle environment through enhanced visibility between bicyclists and automotive traffic and increased access to transit and destinations throughout the metropolitan region. Bicycle lanes that perpendicularly cross the alignment would not be adversely impacted.

The operation of the corridor along the Preferred Alternative will require a portion of the current bicycle trail at the Hiawatha LRT connection to be relocated just north of the current configuration. The reconstruction of this trail will be concurrent with construction of the Preferred Alternative. At this junction, a paved crossing would be installed to allow bicyclists to cross the tracks, providing users with a direct connection to downtown Minneapolis and the planned expansion of this trail (Figure 6.4-1). At the U of M, current plans for the Transit/Pedestrian Mall involve the addition of bicycle lanes on the north and south sides of Washington Avenue.

Track designs on the streets for the LRT are paved with only the top of the embedded rail exposed. Current design standards require traffic signals with pedestrian indicators at all locations, which will also serve bicyclists. All Central Corridor LRT vehicles would be capable of accommodating travelers with bicycles.

Pedestrian Impacts

Operation of the Preferred Alternative would result in two permanent impacts to pedestrian walkways along the corridor. On the east side of Cedar Street, a retaining wall and railing would be installed on the front side of the Minnesota Public Radio (MPR) building to protect pedestrians from LRT vehicles. This retaining wall would be approximately 16 to 18 inches in height and 140 feet in length, extending from the center of the MPR building to the south end of the building.

Near the Minnesota State Capitol building, the LRT would operate in a shallow-cut trench behind the Capitol building on University Avenue. The trench is being constructed to allow for the maximum grade possible for LRT operations. The sidewalk on the south side of University Avenue between Robert Street and the Capitol Building would be removed permanently. The sidewalk on the north side of the street would be retained, with a short barrier constructed to protect pedestrians from LRT vehicles.

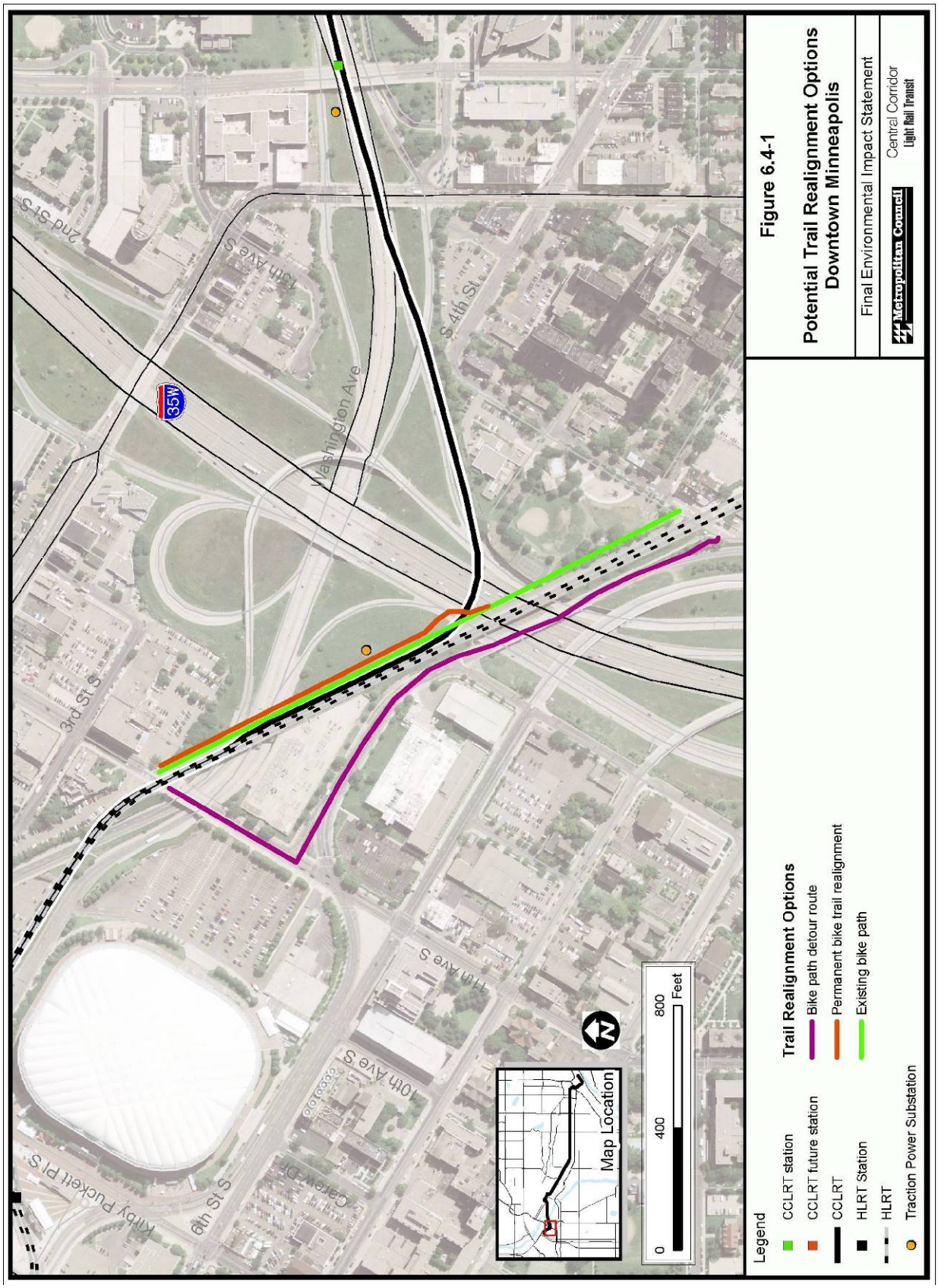


Figure 6.4-1
Potential Trail Realignment Options
Downtown Minneapolis
Final Environmental Impact Statement
Metropolitan Council
Central Corridor
Light Rail Transit
Legend
CCLRT station
CCLRT future station
CCLRT
HLRT Station
HLRT
Traction Power Substation
Trail Realignment Options
Bike path detour route
Permanent bike trail realignment
Existing bike path
Map Location
0
400
800
Feet
N
35W
Washington Ave
2nd St S
3rd St S
4th St S
6th St S
10th Ave S
11th Ave S
Kirby Puckett Pl S
Carlson Dr

The Central Corridor LRT uses a fixed-guideway with semi-exclusive rights-of-way allowing vehicular cross street traffic at signalized intersections only. The current configuration of University Avenue poses a barrier to pedestrian movements. Adding LRT would not degrade street conditions further. Incorporating desired system elements such as non-signalized pedestrian crossings and secondary station platform access would provide clearly defined crossing areas and connections along the corridor, enhancing the overall pedestrian environment and promoting community cohesion. Additionally, various safety treatments and/or landscaping may be installed to hinder pedestrian movement outside of legal crossing areas. Each of these design elements would improve pedestrian safety. All pedestrian crossings will be designed in accordance with current ADA design standards and requirements to ensure access and mobility for all.

6.4.5 Other Long-Term Transportation Impacts

6.4.5.1 Access to Properties and Businesses

The implementation of the Central Corridor LRT would impact access to adjacent properties and businesses in the corridor. In most cases, access would remain, but would be restricted to right-in and right-out. For many areas on University Avenue, this is the existing condition.

Downtown St. Paul

In downtown St. Paul, the construction of Central Corridor LRT on Cedar Street will remove the travel lane adjacent to four parking ramp access driveways. Access to these four parking ramps (UBS Plaza, Hilton Garden Inn, Town Square Parking, and Fifth Street Center) will be maintained, allowing vehicles to cross over the LRT tracks at these points. Signals will be added to give motorists indication of when it is safe to enter and leave the ramp.

The Preferred Alternative would remove parking the front of the St. Louis King of France Church. The Metropolitan Council will install a mountable curb on Cedar Street to enable wedding and funeral vehicles to park in front of the church as they do today.

The Preferred Alternative would limit ADA access and alter access for specific church functions including vehicles for weddings and funerals at the Central Presbyterian Church on Cedar Street in downtown St. Paul. The Metropolitan Council is working with the church to develop an agreement that would provide everyday access to the south church entrance, and special, but limited, access to the north church entrance for weddings, funerals, and similar special needs. This may include relocating trash receptacles, leasing close-in parking spaces, and improving church security systems. A detailed description and mitigation is provided in Section 3.2.

Capitol Area

In the Capitol Area, the Preferred Alternative will result in the removal of two access driveways for Lot “M,” a surface parking facility located to the northwest of the State Capitol building. The access to Lot “M” from Dr. Martin Luther King Jr. Boulevard will remain open. One access driveway will be removed for Lot “N,” another surface parking facility located northeast of the Capitol. The access to Lot “N” from Cedar Street will remain open. The driveway access to the Maintenance Building from Robert Street will be removed and replaced with a new driveway with access to Dr. Martin Luther King Jr. Boulevard. Access to Robert Street from Dr. Martin Luther King Jr. Boulevard will be closed. Access to 12th Street from Minnesota Street will be closed. Between Rice Street and Marion Street, the access driveways from University Avenue to the Greyhound Bus Station and a furniture store and insurance office will be closed.

University of Minnesota

The Transit/Pedestrian Mall will alter existing access to properties and businesses along Washington Avenue between Pleasant Street and Walnut Street. Automobile access to these properties will no longer be possible via Washington Avenue. The proposed plan for restoring circulation and access at the East Bank Campus is illustrated in Figure 6.2-7.

6.4.5.2 Railroad Facilities and Services

The AA/DEIS mentioned the interface that is being planned between commuter rail and LRT in downtown Minneapolis and the interface between buses, taxis, inter-city buses, commuter rail, passenger rail, and potentially high speed rail at the Union Depot in St. Paul. The Preferred Alternative would not change the interface between these other transportation modes and is not anticipated to impact freight rail operations or other rail transportation services in the project area.

6.4.6 Short-term Effects

Temporary closures or detours for bike and pedestrian facilities will be required during the construction phase of the project. Impacts to bicycle and pedestrian facilities would be temporary and generally limited to perpendicular crossings at existing roadway intersections, and the temporary relocation of the Hiawatha LRT trail between 15th and 11th Avenues.

Bicycles - During construction of the alignment connection with the Hiawatha LRT tracks, the current bicycle trail paralleling the Hiawatha alignment would be temporarily relocated to 5th Street to allow trail users to cross I-35W into downtown Minneapolis. Construction of the alignment connection would also involve the reconstruction of this bicycle path just northwest of its current location, along with a paved crossing point. Once construction is complete, the temporary trail on 5th Street will be removed.

Pedestrians - One skyway bridge in downtown St. Paul will be removed to allow for construction of the diagonal alignment between 4th and Cedar Streets and the 4th and Cedar Streets Station platform. A temporary skyway bridge will be constructed concurrently with construction of the Preferred Alternative. The structure will be built to current design and safety standards. The temporary skyway bridge will be in a similar location to the removed structure, and will maintain existing pedestrian access. Connections to the existing skyway system at this location will require temporary closure before transitioning to the new facility.

6.4.7 Mitigation

Construction and operation of the Preferred Alternative is not anticipated to incur any long-term impacts to bicycle facilities. While the relocation of the Hiawatha LRT bicycle trail immediately north of the current trail would constitute a permanent change to the current trail configuration, the overall impact will be temporary, and the proposed mitigation includes temporarily striping a bicycle lane on 5th Street. While no bicycle lanes will be provided along University Avenue, overall streetscape improvements, particularly at intersections, will help to improve general conditions for bicyclists such as shielded crosswalks and enhanced visibility.

Permanent impacts to pedestrian facilities as a result of the Preferred Alternative's implementation include the retaining wall and railing on Cedar Street and the closure of one sidewalk near the Minnesota State Capitol building. While both of these changes constitute permanent impacts to pedestrian facilities, they are also the necessary engineering and

safety mitigation measures required to protect pedestrians and LRT vehicles from potential conflicts.

The Locally Preferred Alternative includes mitigation for short-term impacts associated with the skyway bridge and HLRT bicycle path facilities. Both facilities will be reconstructed concurrently with the Preferred Alternative's construction. Notifications would be managed according to the traffic management plan developed during final design. Both the temporary skyway bridge and reconstructed bicycle path will be in similar locations to their current configurations. Bicyclists would be notified through signage and public notice that bike lanes are detoured. Other temporary disruption to bicycle facilities will be managed according to the traffic management plan developed during final design. Some bus stops may need to be closed temporarily; however, Americans with Disabilities Act (ADA) access and signage for bus stops would be maintained throughout construction. All temporary maintenance of pedestrian and bicycle traffic is governed by the Manual on Uniform Traffic Control Devices (MUTCD).

Current planning for the Preferred Alternative supports the enhancement of pedestrian facilities and sidewalk landscaping. These enhancements are intended to act as both a beautification effort and as a natural separation to protect pedestrians, bicyclists, and transit vehicles. Furthermore, all pedestrian crossings will be designed in accordance with current ADA design requirements and standards to ensure access and mobility for all users.

Measures would be taken to discourage pedestrians from illegally crossing the tracks and to enhance safety at permitted crossing locations. Pedestrian signals and well-marked crosswalks would be provided at crossing locations. At crossing points along University Avenue, the enhancements made to intersections would help to improve the safety of bicyclists crossing the street. Directional signage or signalized access would be provided where the Central Corridor LRT alignment crosses community facilities such as the proposed U of M Transit/Pedestrian Mall to alleviate impacts associated with the altered traffic patterns along the alignment. The U of M Transit/Pedestrian Mall area from Church Street to Walnut Street would provide a separated delineated bicycle lanes helping to improve bicycle facilities at the U of M. Connections from the Transit/Pedestrian Mall bicycle lanes to other existing bicycle lanes in the area will be developed during final design.

Depending on whether construction activities impact sidewalk areas, special facilities, such as temporary handrails, fences, ramps, barriers, walkways and bridges may be provided for the safety of pedestrians. If crosswalks are temporarily closed, pedestrians would be directed to use alternative crossings that are in close proximity to the crosswalk being temporarily closed. Every effort would be made not to close adjacent crosswalks at the same time to allow for pedestrian movement across streets, or to close the adjacent crosswalks during non-peak times. All sidewalk and crosswalk surfaces will be required to meet minimum standards for accessibility and free of slipping and tripping hazards.