

S.0 SUMMARY

Graphics for the Summary Chapter are included at the end of the chapter.

S.1 PROJECT DESCRIPTION (SECTION 1.1)

The proposed action is either a Light Rail Transit (LRT) facility or a Busway/Bus Rapid Transit (BRT) facility for the Central Corridor, a transportation corridor that extends approximately 11-miles between downtown Minneapolis and downtown St. Paul, Minnesota. The proposed action considers two build alternatives, as shown on Figure S.1-1: University Avenue LRT Alternative and Figure S.1-2: University Avenue Busway/BRT Alternative. As indicated on the figures, the proposed alternatives include the 11-mile transit guideway with stations and modifications to an existing yard and shop facility. The alternatives and station locations were developed during a collaborative effort among the residents, local governments, the business community and the Central Corridor Coordinating Committee (CCCC). The proposed transit project also includes the improvements of the Baseline Alternative.

S.1.1 Project Background

The 11-mile Central Corridor serves the heart of the Twin Cities Metropolitan Area and connects some of the largest traffic generators in the Twin Cities. In addition, the neighborhoods located in the Study Area are some of the most cohesive in the Twin Cities Metropolitan Area. Since 1981, the Central Corridor has been a priority focus for bus transit service and transportation investments.

Several planning efforts have been undertaken for the Central Corridor since 1981. These include the *Regional Blueprint*, the *Twin Cities Metropolitan Long Range Transportation Plan* (the 2020 Transportation Policy Plan), the Comprehensive Plans for Minneapolis and St. Paul; and the *St. Paul on the Mississippi Development Framework*. Those plans describe the importance of transit in the region's core. Two previous studies, the *Midway Corridor Light Rail Transit Draft Environmental Impact Statement* and the *Central Corridor Alternatives Analysis/Draft Environmental Impact Statement* specifically identified LRT as the preferred transportation improvement for the Central Corridor.

In each document, part or the entire Central Corridor, as it is known today, is recognized as a priority corridor and recommended for further evaluation. Given the importance of the corridor and the number of transit modes and alignment options, the Ramsey County Regional Railroad Authority (RCRRA) initiated the Central Corridor Transit Study to determine the preferred transit option for the corridor.

S.1.2 Organization for the Central Corridor Transit Study

Committees were organized at the start of the Central Corridor Transit Study to provide advisory, policy and technical direction to the Project Team during decision-making and analyses. The membership of the committees is defined by state statute and its members are appointed by the agencies identified in the statute. Figure S.1-3: Organization Chart, summarizes the committee organization and functional relationships. A complete directory of the project participants is provided in the *Central Corridor Transit Study Contact Book*.

S.1.3 Completed Planning Activities

To date, completed planning activities include review and evaluation of previous studies, definition of Central Corridor goals and objectives, definition of alternatives and a screening process to refine the alternatives to be advanced to through the EIS Process. The tiered screening process provided the mechanism to differentiate among possible alternatives, eliminating alternatives that would not serve the Transit Study goals. As shown on Figure S.1-4: Screening Process, the screening process initially reduced the universe of transit alternatives to seven potential build alternatives, then further reduced to the following three build alternatives for advancement to the EIS Scoping Process. The No-Build and Transportation Systems Management (TSM) alternatives were included as required by the Federal Transit Administration (FTA) under the National Environmental Policy Act (NEPA). The five alternatives are:

- No-Build Alternative
- Transportation Systems Management (TSM) Alternative
- University Avenue LRT Alternative
- University Avenue Busway/BRT Alternative
- I-94 LRT Alternative

Although the I-94 LRT Alternative did not score well during screening, it was retained through the Scoping Process in the event it was determined that University Avenue was not a viable fixed guideway transit location and because it had previously been the Locally Preferred Alternative (LPA). Based on the evaluation and comments received during the Scoping Process, the CCCC scoping decision on October 11, 2001 eliminated the I-94 LRT Alternative, advancing the four remaining alternatives for consideration in the EIS Process.

Consistent with Section 5309 New Start requirements, RCRRRA requested and the FTA approved the evaluation of the proposed project against a single Baseline Alternative. This Draft EIS evaluation therefore considers the following alternatives.

- Baseline Alternative
- University Avenue LRT Alternative
- University Avenue Busway/BRT Alternative

Early in the screening process, two commuter rail options were considered and separated into a feasibility study due to the different travel markets they serve in the Central Corridor. Commuter rail is considered to have independent utility and will therefore undergo separate and the appropriate level environmental evaluation by Mn/DOT.

S.1.4 Decision-Making Process (Sections 1.6 and 1.7)

The five major steps in the decision-making process for New Start transit projects are shown on Figure S.1-5: Planning Process. In brief, the five steps are:

1. System Planning and Long Range Transportation Plan (LRTP): This step included the *Twin Cities Metropolitan Long Range Transportation Plan* (the 2020 Transportation Policy Plan), The Regional Blueprint, and the *2001-2004 Transportation Improvement Program* (2001-2004 TIP).

2. Major Investment Study (MIS): This step encompasses regional studies, MIS and the Alternatives Analysis. Completion of the *Central Corridor Transit Study*, together with inclusion of the recommended program in the most recently adopted *Twin Cities Metropolitan Long Range Transportation Plan* and the *2001-2004 Transportation Improvement Program*, constitutes completion of this step. The following steps are required if a build alternative is selected.
3. Draft EIS/Preliminary Engineering (PE)/Final EIS: This step encompasses development of PE design, preparation of this Draft EIS as required under NEPA, a proposed financing plan and preparation of the Final EIS.
4. Final Design: This step will be commenced upon completion of the requirements under NEPA and FTA requirements under Section 5309 New Starts Criteria.
5. Construction: The construction steps will be commenced upon completion of the requirements under the NEPA and the FTA requirements under Section 5309 New Starts Criteria.

The Draft EIS/PE/Final EIS Process formally began with the initiation of "Scoping," which is the first step of the EIS Process, and includes public agency and community outreach to further define the scope of potential issues and the alternatives to be analyzed in the EIS. The alternatives presented or defined in the Scoping Process are then advanced to the analysis phase of the EIS and evaluated in light of public, agency and technical support. These alternatives and their potential social, economic, environmental and transportation effects are the subjects of this Draft EIS.

The Metropolitan Council operates almost all of the transit service in the corridor. If a build alternative is selected as the LPA, it will be the operator. The Council will be the Federal grantee for the project. A Corridor Management Committee made up of policy level representatives of agencies along the corridor will advise the project. A staff level Project Management Team will also provide direction. Memoranda of Understanding will be developed with MN/DOT and local jurisdictions to implement a Project Management Plan that will be developed for the project.

S.1.5 Decision at Hand (Sections 1.6 and 1.7)

In accordance with federal regulations, full consideration of environmental effects as disclosed during the NEPA process is required before the proposed project can be advanced to the funding stage for final design, right-of-way acquisition, equipment and facilities and system construction. This Draft EIS will be circulated for review by interested parties, including private citizens, community groups, the business community, elected officials and public agencies in accordance with federal and state requirements. A public hearing will be held to provide a forum for agency and citizen participation and comment.

After consideration of the comments received during circulation of the Draft EIS and the public hearing, more detailed engineering design will be completed to resolve outstanding issues and concerns. This more detailed design will be used by the CCCC to make a final decision on the selection of a locally preferred alternative. The result of these decisions will then be documented in the Final EIS, which will also include responses to comments received during circulation of the Draft EIS. Following the filing of the Final EIS by FTA, in conformance with NEPA, if a build alternative is selected as the LPA, a grant application would be submitted by the Twin Cities Metropolitan Council to FTA under Section 5309 New Starts Criteria.

The FTA will not grant approval for the project to enter into final design and construction phases of the project until PE is considered complete and the FTA has issued a Record of Decision (ROD), as required by NEPA.

S.2 PURPOSE AND NEED FOR ACTION (SECTION 1.0)

Five concerns justify the need for transportation improvements in the Central Corridor:

- Traffic congestion
- Increased traffic demand
- Increased travel times
- Decreased safety and
- Lack of available and affordable parking

Based on the need for transportation improvements in the Central Corridor Study Area, the CCCC has determined the following goals and objectives for the proposed action.

GOAL #1: ECONOMIC OPPORTUNITY AND INVESTMENT

Objective: Support investments in infrastructure, business, and community that sustain the heart of the region.

Objective: Promote a reliable transit system that allows an efficient, effective land use development pattern in major activity centers which minimizes parking demand, facilitates the highest and best use of adjacent properties, and gives employers confidence that employees can travel to and from work.

GOAL #2: COMMUNITIES AND ENVIRONMENT

Objective: Facilitate the preservation and enhancement of neighborhoods in the Central Corridor.

Objective: Acknowledge the individual character and aspirations of each place served, and of the region as a whole.

Objective: Support regional goals for cleaner air and water, more efficient energy use and a safer and healthier environment.

GOAL #3: TRANSPORTATION AND MOBILITY

Objective: Create transportation improvements that add people carrying capacity, minimize operating costs, improve operating efficiency, provide high quality modal alternatives and reinforce the region's transportation system.

Objective: Expand opportunities for all users to move freely to, through, and within the Central Corridor.

Objective: Enhance the existing transportation infrastructure to serve the high number of transit dependent persons in the Central Corridor.

S.3 ALTERNATIVES CONSIDERED (SECTION 2.0)

The alternatives evaluated in the Central Corridor EIS include: the Baseline Alternative which includes programmed and planned improvements and projected growth in population, employment, and traffic through 2020; the University Avenue LRT Alternative which includes the addition of the LRT alignment, the baseline improvements, and projected growth in population, employment, and traffic through 2020, and the University Avenue Busway/BRT Alternative which includes the addition of the BRT alignment, the baseline improvements, and projected growth in population, employment, and traffic through 2020.

S.3.1 Baseline Alternative (Sections 2.3.1, 6.2.1 and 6.2.3)

The Central Corridor is one of the busiest transit corridors in the Twin Cities. Many improvements have been made to the corridor over the years in an effort to effectively serve that demand. High frequency local, express, and limited stop services are already in operation. Articulated buses are used on the local service. Diamond lanes and reverse flow bus lanes are in place in both downtowns. Freeway ramp meter bypasses and shoulder lanes have been implemented on I-94. Several transit hubs have been built on the corridor. Bus congestion is already creating reliability and efficiency problems in the downtown areas and at the University of Minnesota. Future service changes will be aimed at increasing the number of buses in operation to compensate for increasing delays due to traffic congestion and to respond to population and employment growth in the corridor.

The service aspects of the Baseline Alternative are more fully described in Section 6.2.1 to 6.2.3. The Baseline Alternative includes all aspects of existing transit service in the Study Area. Baseline Alternative improvements include the creation of a new route, extension of others, and frequency improvements on many of the remaining routes.

The transportation projects within the Central Corridor are identified in the Twin Cities and State 2001-2004 TIP. Many of these improvements are minor, i.e. do not involve expansion of existing facilities to increase capacity extensively. A list of projects completed or funded through year 2004, including the Hiawatha LRT system, is included in Section 2.3.1 of the DEIS.

S.3.2 University Avenue Light Rail Transit (LRT) Alternative (Section 2.3.2)

As shown on Figure S.1-1, the proposed LRT alignment would run between downtown Minneapolis, through the University of Minnesota, on University Avenue to downtown St. Paul. Table S.1-1 illustrates the characteristics of the proposed alignment:

Table S.1-1: Characteristics of the University LRT Alignment

Corridor Segment	Characteristics
Downtown Minneapolis	<p>The LRT would connect with the Hiawatha LRT at-grade just east of the Downtown East/Metrodome Station.</p> <p><i>Stations:</i></p> <ul style="list-style-type: none"> • Shared stations with Hiawatha Corridor stations in downtown Minneapolis
University of Minnesota and Prospect Park	<p>The LRT would run in the median of Third Street and Fourth Street. It would connect to Washington Avenue and run in a tunnel under Washington Avenue through the East Bank campus. It would then connect with University of Minnesota Transitway at-grade and proceed to University Avenue through 29th Avenue SE in Prospect Park.</p> <p><i>Stations:</i></p> <ul style="list-style-type: none"> • West Bank Station – Depressed center platform near existing bus stop on Washington Avenue • East Bank Station – Depressed center platform in front of Coffman Union on Washington Avenue • Stadium Village Station – Depressed center platform • 29th Avenue SE Station – Two side platforms on northwest quadrant of 29th Avenue SE and University Avenue
University Avenue	<p>The LRT would run at-grade in the median between 29th Avenue SE and Robert Street near the State Capitol.</p> <p><i>Stations:</i></p> <ul style="list-style-type: none"> • Westgate Station – Split side platforms • Raymond Avenue Station – Center platform between Carleton and LaSalle Streets • Fairview Avenue Station – Two side platforms on west side of intersection • Snelling Avenue Station – Split side platforms • Lexington Parkway Station – Split side platforms • Dale Street Station – Split side platforms • Rice Street Station – Center platform on west side of intersection
State Capitol Area and Downtown St. Paul	<p>The alternative would run at-grade on Robert Street, Columbus Street, Cedar Street and 4th Street and terminate at the Union Depot.</p> <p><i>Stations:</i></p> <ul style="list-style-type: none"> • Capitol East Station – Two side platforms on Columbus Street west of Robert Street • 10th Street Station – Two side platforms in median between 11th and 10th Streets at Cedar Street • 6th Street Station – Two side platforms between 7th and 6th Streets at Cedar Street • 4th Street Station – Two side platforms on 4th Street between Robert and Minnesota Streets • Union Depot Station – Center platform with potential expansion at 4th Street in front of the Union Depot

S.3.3 University Avenue Busway/Bus Rapid Transit (BRT) Alternative (2.3.3)

As shown on Figure S.1-2, the proposed Busway/BRT alignment would run between downtown Minneapolis, through the University of Minnesota, on University Avenue to downtown St. Paul. Table S.3-1 illustrates the characteristics of the proposed alignment:

Table S.3-1: Characteristics of the University Avenue Busway/BRT Alignment

Corridor Segment	Characteristics
Downtown Minneapolis	<p>This alternative would follow the existing Routes 16 and 50 on Fourth Street South, with a western terminus at Metro Transit's Fifth Street Garage. Eastbound Busway/BRT vehicles would operate in mixed traffic. Westbound vehicles would operate on an existing contraflow bus lane on the north side of Fourth Street South.</p> <p>Stations: In downtown Minneapolis, the proposed Central Corridor Busway/BRT would operate within mixed traffic with stops at the following locations:</p> <ul style="list-style-type: none"> • Fifth Street Garage – Metro Transit Garage on Fifth Street South • Warehouse District – Fourth Street South/First Avenue North • Nicollet Mall – at Fourth Street South • Downtown East/Metrodome – Fourth Street South/Chicago Avenue
University of Minnesota and Prospect Park	<p>The alternative would run on Washington Avenue in mixed traffic through Prospect Park on University Avenue.</p> <p>Stations:</p> <ul style="list-style-type: none"> • Cedar Avenue – Buses would exit the roadway and stop at the top of the off-ramps at Cedar Avenue (near side). • West Bank – Buses would stop at the existing major bus station in the area of the West Bank Skyway. The skyway connects Willey Hall to the north to Blegen Hall to the south. • East Bank – Buses would not stop in front of Coffman Union on Washington Avenue. • Stadium Village – Buses would stop at the east side of the intersection of Washington Avenue and Oak Street. • 27th Avenue SE – Washington Avenue and 27th Avenue SE
University Avenue	<p>East of Bedford Avenue, the exclusive guideway for the Busway/BRT would begin. It would run in the median of University Avenue through Rice Street near the State Capitol.</p> <p>Stations: All stations along the Busway/BRT guideway would be designed as split side platforms with a far side stop.</p> <ul style="list-style-type: none"> • Westgate • Raymond Avenue • Fairview Avenue • Snelling Avenue • Lexington Parkway • Dale Street • Rice Street

Table S.3-1: Characteristics of the University Avenue Busway/BRT Alignment (Cont.)

Corridor Segment	Characteristics
Capitol Area and Downtown St. Paul	<p>Similar to downtown Minneapolis, the University Avenue Busway/BRT Alternative would operate following the existing Route 16. Buses would run on Constitution Avenue, Cedar Street, Minnesota Street, and Kellogg Boulevard. This alternative would also cross to River Park Plaza south of the Mississippi River using the Robert Street Bridge to serve a large office development.</p> <p><i>Stations:</i> At the State Capitol area and in downtown St. Paul, the proposed Central Corridor Busway/BRT would follow the existing bus Route 16. Stations would be sited at the following locations, with northbound buses operating on Minnesota Street and southbound buses operating on Cedar Street. To facilitate transfers and minimize confusion for passengers, this analysis assumes that Busway/BRT stations would be sited at existing locations of the Route 16 and 50.</p> <ul style="list-style-type: none"> • Constitution Avenue – at the State Capitol • 10th Street (Cedar/Minnesota Streets) • 7th Street (Cedar/Minnesota Streets) • 6th Street (Cedar/Minnesota Streets) • 5th Street (Cedar/Minnesota Streets) • River Park Plaza

S.4 SUMMARY OF ENVIRONMENTAL EFFECTS

Each of the alternatives has the potential to affect the residents, the economy and the environment of the Central Corridor. The following is a summary of the analysis of these effects categorized into four areas: social, economic, environmental, and transportation. Environmental Justice effects were analyzed for each of these factors.

S.4.1 Social Effects

Social effects of the alternatives include an analysis and evaluation of potential adverse effects and benefits related to land use, neighborhoods, visual quality, historic and archeological resources, parklands, safety and Environmental Justice.

LAND USE, LOCAL PLANS, AND ZONING (SECTION 3.2)

Land Use and Local Plans

The analysis included a review of Comprehensive Plans and Small Area Plans for the purpose of determining the compatibility of the proposed transit alternatives. Each of the planning documents for the municipalities and jurisdictional bodies studied generally or specifically supports transit improvements as a positive contribution to economic and development goals for the Central Corridor Study Area and adjacent communities.

Zoning

Zoning codes for the City of Minneapolis and the City of St. Paul were reviewed to determine which alternatives were consistent with the existing plans and zoning regulations. The analysis determined that current configuration of land uses and related zoning codes along University Avenue are very conducive to transit-oriented development (TOD).

Major Activity Centers

Other land use information, such as the location of major activity centers was also reviewed. It was determined that the proposed transit project would link major trip generating land uses located in the five major activity centers in the Central Corridor Study Area: downtown Minneapolis, University of Minnesota, Midway, and State Capitol and downtown St. Paul. The major activity centers that would be served by the proposed transit facility include: employment centers and commercial and industrial areas; cultural, entertainment and sports venues; regional and local shopping districts; hospitals and medical centers; state and local government; high-density and medium-density residential neighborhoods; libraries and other community facilities.

Baseline Alternative

The Baseline Alternative is not consistent with *The Minneapolis Plan*, the *City of St. Paul Comprehensive Plan* or the *University of Minnesota Twin Cities Campus Master Plan*, which recommend LRT or busway transit improvements.

University Avenue LRT Alternative

The University Avenue LRT Alternative is fully consistent with *The Minneapolis Plan*, the *City of St. Paul Comprehensive Plan* and the *University of Minnesota Twin Cities Campus Master Plan*, which support transit investment in the Central Corridor.

University Avenue Busway/BRT Alternative

The University Avenue Busway/BRT Alternative is consistent with *The Minneapolis Plan*, the *City of St. Paul Comprehensive Plan* and the *University of Minnesota Twin Cities Campus Master Plan*, which call for improved bus transit. However, bus congestion is already a problem along University Avenue. The ability to add additional bus service is limited and would not serve year 2020 transit demand.

NEIGHBORHOODS, COMMUNITY SERVICES, COMMUNITY COHESION AND DISPLACEMENTS (SECTIONS 3.3 AND 3.5)

The analysis included a review of neighborhoods, community services and community cohesion for the purpose of determining the compatibility of the proposed transit alternatives. Community facilities include schools, parks, libraries, fire stations, police stations, hospitals, and churches. The Central Corridor Study Area includes 14 recognized neighborhoods.

Baseline Alternative

The projected increase in traffic over the next 20 years would have an effect on the existing quality of life in Central Corridor neighborhoods. Higher employment levels in major activity centers will cause an increase in the number of vehicles operating in the Central Corridor, resulting in more congestion. The Baseline Alternative does not include implementation of any projects in the Central Corridor that would provide new options for travel, while an increase in congestion on I-94 and University Avenue could result in an increase in the use of local neighborhood streets for trips within the Study Area. While there would be no additional displacements or visual obstructions, increasing traffic, parking demand and the need for additional parking structures would place pressure on displacing existing community facilities.

The positive impacts offered by the two build alternatives, such as improved mobility, new transportation options, and the increased accessibility that would act as a catalyst for redevelopment projects, would not be provided with the Baseline Alternative.

University Avenue LRT Alternative

The University Avenue LRT Alternative offers benefits such as improved mobility, station area enhancements and redevelopment opportunities. The negative neighborhood and community effects for the alternative include limited displacement of structures, loss of on-street parking spaces, and potential effects on traffic patterns. The proposed median alignment within the existing University Avenue right-of-way would minimize direct impacts to existing land use.

Proposed changes in traffic patterns along University Avenue would impact neighborhoods because of the limiting of turn movements to right-in and right-out only, and the potential increase in U-turns at signalized intersections. These impacts may cause drivers to increase the use of local streets, especially to the north of University Avenue, as a cut-through route. Preliminary design of the LRT system just west of Vandalia Street should ensure continued turning movements at St. Paul Fire Station No. 20.

The construction of the proposed LRT transit stations in downtown St. Paul would offer an opportunity to improve the environment for pedestrians and the visual quality of the streetscape. During construction, the temporary closing of streets in the downtown would need to be mitigated by an examination of the overall pattern of pedestrian and vehicular movement and a plan developed to assist drivers and pedestrians to find new routes around the closed blocks and through the downtown.

University Avenue Busway/BRT Alternative

The University Avenue Busway/BRT Alternative offers benefits such as improved mobility, station area enhancements and redevelopment opportunities but would not meet 2020 capacity needs. There would not be any displacement of structures under this alternative, nor would there be any closing of streets. The potential negative neighborhood and community effects for the University Avenue Busway/BRT Alternative would include loss of on-street parking spaces, and potential effects on traffic patterns. The proposed median alignment within the existing University Avenue right-of-way would minimize direct impacts to existing land use.

Changes in traffic patterns along University Avenue would impact neighborhoods because of the limiting of turn movements to right-in and right-out only and the potential increase in U-turns at signalized intersections. These impacts may cause drivers to increase the use of local streets, especially to the north of University Avenue, as a cut-through route.

PARKLANDS (SECTION 3.4)

There are a number of proposed or existing parks or recreation lands within the Study Area and ten are located within 300-feet of the proposed build alternatives. None of these alternatives would require a direct taking of parkland. Additionally, parklands within the Study Area are expected to retain their current activities, features and attributes without adverse impacts, regardless of the alternative. A Section 4(f) Evaluation, under the Department of Transportation (DOT) Act of 1966, would not be required for any of the parks.

VISUAL AND AESTHETIC CONDITIONS (SECTION 3.6)

Baseline Alternative

The Baseline Alternative would have no additional visual/aesthetic effect, nor would it improve existing conditions or benefit from the improvements related to the proposed build alternatives.

University Avenue LRT and Busway/BRT Alternatives

For the build alternatives, LRT would introduce guideway, overhead contact system (OCS) and electrical substations, while BRT would not have any OCS or substations. Both systems would create impacts at station sites. The BRT platform would be approximately 120-feet long and the LRT platform would be approximately 200-feet long. Canopies for either system would have some visual effect at the proposed station sites, however BRT would have fewer stations with full platform and canopy. LRT would require the reconstruction of University Avenue, thereby creating a major opportunity to improve the environment for pedestrians and visual quality of the streetscape.

Construction impacts for the build alternatives could result in temporary visual impacts. Construction equipment and materials stored for the project may be visually displeasing to local residents, however this would be a temporary situation and would result in no lasting adverse effects.

CULTURAL RESOURCES (SECTION 3.7)

Section 106 of the National Historic Preservation Act (NHPA) of 1966, requires federal agencies or designees to consider the effects of their actions on historic properties before undertaking a project. The Section 106 process consists of steps for 1) identifying and evaluating historic properties; 2) assessing the effects of an undertaking on historic properties; and 3) consultation for methods to avoid, minimize, or mitigate any adverse effects.

In Subpart 800.4 Identification of Historic Properties, the Section 106 regulations state that an agency official may phase the identification and evaluation of historic properties if the alternatives consist of corridors or large land areas (Subpart 800.14[b][2]). The current proposed alignments for the corridor are shown in Figures S.1-1 and S.1-2. The portions of the corridor west of 29th Avenue SE and south of Columbus Street were the subject of a Section 106 Phase I and Phase II investigation completed in 1995 as part of a previous DEIS. In 2003 a Phase I architectural history investigation including the current alignment was conducted to determine whether any architectural history properties in the area may be *potentially* eligible for listing on the National Register of Historic Places. The Minnesota State Historic Preservation Office concurred with the identification of properties to be included in a Phase II evaluation with the addition of five additional properties. A Phase II evaluation will be conducted on the properties and potential historic districts as described in Chapter 3.7.

SAFETY AND SECURITY (SECTION 3.8)

This section describes existing safety and security conditions, identifies perceived or potential areas of concern for residents and transit users, and describes the proposed facility security measures and pedestrian safety design features being considered for each of the alternatives.

Baseline Alternative

Under this scenario, the service currently provided by the City of Minneapolis and the City of St. Paul would continue without any changes.

University Avenue LRT and Busway/BRT Alternatives

As with all new public facilities, moderate potential for increases in theft, vandalism and other emergency services could develop at station locations. Metro Transit Police would assign officers along the line and at stations for fare enforcement during rush hours. Regular police presence as part of patrol coverage should deter crime.

- The safety and security measures that would be considered in the design and construction of the build alternatives are detailed in Section 3.8 of the DEIS. Pedestrian safety would be provided through the use of sidewalks, traffic signals and signage. Pedestrian, bicycle and vehicular crossings would be allowed only at designated signalized intersections.
- All proposed at-grade crossings would be protected with warning signs and crossing protection, and may include automatic roadway crossing warning systems. Pedestrian, bicycle and vehicular protection at transit right-of-way may include any combination of warning signs, striping, and physical barriers (e.g., fencing).
- The proposed LRV design would be based on Hiawatha design specifications and include features that provide for the safety of LRV passengers, pedestrians, bicyclists and vehicles.
- All applicable federal, state and municipal laws regulating passenger rail system design and operating procedures would be followed to ensure pedestrian, bicycle and vehicular safety.

S.4.2 Environmental Effects

Table S.4-1 provides a summary of the potential environmental effects for the Baseline, University Avenue LRT and University Avenue Busway/BRT Alternatives. Details regarding specific environmental impacts are included in the following section.

Table S.4-1: Potential Environmental Effects

Environmental Element	Baseline Alternative	University Avenue LRT Alternative	University Avenue Busway/BRT Alternative
Hazardous Contaminated Sites (High/Medium)	0	10	7
Air Quality CO emissions (vs. Baseline)	352,853	350,787 (-2,066)	350,577 (-2,276)
Noise Impacted Sites (Federal Land Use Criteria) Category 2 <i>impact</i> /Category 3 <i>impact</i>	N/A	11/1	94/19
Vibration Impacted Sites	None	None	None
Vegetation and Wildlife	None	Minimal	Minimal
Aquatic Habitat	None	None	None
Wetlands	None	None	None
Rare, Threatened or Endangered Species	None	None	None
Surface Water Quality	None	None	None
Floodplains and Floodways	None	None Permit Required	None Permit Required
Groundwater Resources	None	Possibly during construction	Possibly during construction
Energy Consumed vs. Baseline (M-BTU/Year)	0	24,353	4,569

1 Contaminated Sites included are those that have a "high" or "medium" impact rating.

2 CO emissions measured in tons per year in 2008

SOILS, GEOLOGY AND TOPOGRAPHY (SECTION 4.1)

Baseline Alternative

The Baseline Alternative is not expected to have an effect on the existing soils, geology or topography.

University Avenue LRT and Busway/BRT Alternatives

Anticipated modifications related to soils under the build alternatives would include cut and fill associated with new rail bed construction and development of station areas. Proposed construction would not be expected to affect existing structural foundations in and around project corridors. Soil erosion and the pollution of surface water during construction caused by stormwater runoff would be addressed in the facility design and permitting phase. Mitigation measures would include bank stabilization near the Mississippi River and erosion control including ground cover and tree conservation throughout the corridor.

HAZARDOUS MATERIALS CONTAMINATION (SECTION 4.2)

The analysis searched within 1000-feet of the proposed alternatives and identified a total of 316 sites with potential contamination, primarily hazardous materials or petroleum. Of these sites, four have been ranked as having a "High" potential for contamination, and six were ranked "Medium" potential. The analysis determined if these medium and high ranked sites would be affected by the alternatives.

Baseline Alternative

The Baseline Alternative requires no excavation near identified hazardous material contamination sites and would require no additional remedial action.

University Avenue LRT Alternative

The University Avenue LRT alternative would require excavation at station sites, tunnel and along the LRT tracks, which increases the potential to affect the ten "High" and "Medium" ranked sites. Mitigation measures and their magnitude would be determined following the selection of the LPA and additional site investigations.

University Avenue Busway/BRT Alternative

The University Avenue Busway/BRT Alternative would require somewhat less excavation, but does have the potential to affect seven of the "High" and "Medium" ranked sites. Mitigation measures and their magnitude would be determined following the selection of the LPA and additional site investigations.

AIR QUALITY (SECTION 4.3)

The analysis determined that for the Baseline, University Avenue LRT and Busway/BRT Alternatives, all CO concentrations would not exceed the allowable emissions outlined in the NAAQS of 35 ppm or the Minnesota Ambient Air Quality Standards (MAAQS) of 30 ppm for one-hour and the NAAQS and MAAQS of 9 ppm for eight-hours.

The results of the emissions inventory for this proposed project are shown in Table S.4-2: Air Quality Impacts (Tons per Year). The table demonstrates that reductions in CO and volatile organic compounds (VOC) emissions would occur for the University Avenue LRT and

Busway/BRT Alternatives when compared to the Baseline for the 2008 year of operation and 2020 forecast year. Small changes in the distribution of VMT and average travel speeds on various roadways in the region combine to increase NO_x emissions slightly even as CO and VOC emissions decrease slightly.

Table S.4-2: Air Quality Impacts (Tons per Year)

Emission	2008			2020		
	Baseline	LRT	BRT	Baseline	LRT	BRT
CO	352,853	350,787 (-2,066)	350,577 (-2,276)	414,038	411,572 (-2,466)	411,324 (-2,714)
VOC	41,580	41,402 (-178)	41,397 (-183)	46,829	46,629 (-200)	46,622 (-207)
NO _x	56,745	56,752 (+7)	56,760 (+15)	66,958	66,968 (+10)	66,972 (+14)

Numbers in (parenthesis) indicate emissions change relative to the Baseline in the same year.

NOISE AND VIBRATION (SECTION 4.4)

Noise effects were analyzed in accordance with the Federal Transit Administration's *Transit Noise and Vibration Impact Assessment* guidance manual (DOT-95-16, April 1995).

The vibration analysis was performed in accordance with FTA *Transit Noise and Vibration Impact Assessment* guidelines general assessment approach.

Baseline Alternative

The FTA noise analysis methodology establishes project criteria noise limits based on existing measured noise levels along the proposed project corridor. Exceedances of the FTA noise criteria limits under the build alternatives are considered impacts of the proposed project. Therefore, FTA guidelines do not require a noise assessment for the Baseline Alternative.

Future vibration levels for the Baseline Alternative would be due to local construction and existing activities. In accordance with FTA guidelines, because no new sources of vibration are expected under the Baseline Alternative, a vibration impact assessment is not required.

University Avenue LRT Alternative

This alternative would exceed the FTA Land Use Category 2 (buildings used for sleeping) *impact* criteria at 11 locations and the Land Use Category 3 (institutional land uses) *impact* criteria at one location. Predicted vibration levels would be well below the FTA impact criteria for frequent events measured by the FTA Land Use Categories and from LRT passbys.

University Avenue Busway/BRT Alternative

This alternative would exceed the FTA Land Use Category 2 *impact* criteria at 94 locations and the *severe impact* criteria at 11 additional locations. The predicted noise level would exceed the Land Use Category 3 *impact* criteria at 19 locations. The University Avenue Busway/BRT Alternative is not expected to exceed the FTA vibration impact criteria anywhere along the proposed project corridor.

Vibration impacts are not expected to occur for this alternative.

Potential Noise Mitigation

If a build alternative is selected as the LPA, mitigation measures would be evaluated. Potential mitigation actions could include techniques such as vehicle skirts, undercar absorption, wheel treatments, or ballast for LRT. Potential mitigation for buses would include operational limitations and after-market noise silencers applied to the inside of the BRT vehicle engine compartment.

Potential Vibration Mitigation

If a build alternative were selected as the LPA, ambient vibration levels would be measured at sensitive sites prior to the preparation of final engineering plans. If necessary, mitigation measures would be determined following the selection of the LPA and more detailed investigations. Potential mitigation actions that could be employed in sensitive areas include ballast mats, high resilience rail fasteners and supported ties, and floating slab trackbed.

ECOLOGY AND HABITAT (SECTION 4.5)

This section presents a summary of potential effects to vegetation and wildlife, aquatic habitat, wetlands and rare, threatened and endangered (RTE) species.

Vegetation and Wildlife

Baseline Alternative

No effects to vegetation and wildlife would occur under the Baseline Alternative. No mitigation is proposed or required.

University Avenue LRT Alternative

For the University Avenue LRT Alternative, the existing right-of-way may need to be expanded in some areas to accommodate transit stations. Potential effects to vegetation and wildlife would be due to clearing and grading, however this would only affect the edge of a vegetated area. This type of effect would be negligible to urban wildlife since the vegetation that may be impacted is common within the Study Area and surrounding area (i.e., maintained bluegrass). No mitigation is proposed or required for impacts to vegetation or wildlife.

University Avenue Busway/BRT Alternative

For the University Avenue Busway/BRT Alternative, the existing right-of-way may need to be expanded in some areas to accommodate bus pullouts, although the expansion would be entirely within public right-of-way, however minimal effects to vegetation are expected. Potential effects would be associated with clearing and grading, however this would only affect the edge of a vegetated area. This type of effect would be negligible to urban wildlife since the vegetation that may be impacted is common within the Study Area and surrounding area (i.e., maintained bluegrass). No mitigation is proposed or required for the potential effects to vegetation or wildlife.

Aquatic Habitat

The proposed build alternatives would cross the Mississippi River, however aquatic habitat within the river has been degraded due to the surrounding urban setting. Habitat for aquatic threatened and endangered species is not present within the Study Area.

Baseline Alternative

The Baseline Alternative would have no effect on aquatic habitat. No mitigation is proposed or required.

University Avenue LRT Alternative

There would be minor bridge construction under this alternative, including bridge surfacing to accommodate tracks and OCS installation. No effects to aquatic habitat are expected.

University Avenue Busway/BRT Alternative

There would be no bridge construction under this alternative. Therefore, no effect on aquatic habitat would occur. No mitigation is proposed or required.

Wetlands

Field review indicates that there are no wetlands located in the Study Area that would be affected or require mitigation for the Baseline Alternative, University Avenue LRT Alternative, or University Avenue Busway/BRT Alternative. No mitigation is proposed or required for any of the alternatives under consideration.

Rare, Threatened and Endangered (RTE) Flora and Fauna Species

There are no known occurrences of any federally (proposed) listed threatened and/or endangered species within the Study Area. There are 11 known occurrences of state-designated rare species or natural communities in the area. All occurrences are either historical (dating back to over 20 years) or are associated with the Mississippi River corridor. Species with historical occurrences are not expected to inhabit the area today, but species associated with the river corridor may be present. These may include bats and/or falcon that use the wooded community on the banks of the river for roosting or foraging.

Baseline Alternative

There would be no bridge construction associated with this alternative, and the alternative will have no effect on documented RTE species. No mitigation is proposed or required.

University Avenue LRT Alternative

Although there may be potential for bats and/or falcon to utilize the wooded community on the banks of the river near the Washington Avenue Bridge for roosting or foraging, the proposed minor construction activities would not affect either species. No mitigation is proposed or required.

University Avenue Busway/BRT Alternative

There would be no bridge construction associated with this alternative and therefore no effects on documented RTE species is anticipated. No mitigation is proposed or required.

WATER QUALITY AND FLOODPLAINS (SECTION 4.6)

Baseline Alternative

The Baseline Alternative would have no effect on existing water quality or floodplains.

University Avenue LRT and Busway/BRT Alternatives

Both of the proposed build alternatives are located within existing roadway or transitway right-of-way, which are primarily impervious surfaces. The proposed Mississippi River crossing for the

alternatives would occur at the existing Washington Avenue Bridge. Construction activities are not expected to alter the current drainage patterns of the watersheds, however permits would be required prior to construction from the appropriate agencies.

The build alternatives would utilize the existing Washington Avenue Bridge and no new structures would be placed in the river. The build alternatives would have no effect on the existing floodway/floodplain.

ENERGY (SECTION 4.7)

Energy consumption factors used for the analysis are based on estimates of average energy consumption, as listed in the *Oak Ridge National Laboratory, Transportation Energy Book: Edition 16, 1996*, and as used for federal new starts criteria. Energy consumption was calculated for the Baseline, University Avenue LRT and University Avenue Busway/BRT Alternatives, then the consumption for the build alternatives was compared to the Baseline Alternative. Table S.4-3: Change in Regional Energy Consumption, shows the change in regional energy consumption over the Baseline Alternative.

Table S.4-3: Change in Regional Energy Consumption (Millions of BTU^{1/}/Year)

Modal Technology	BUILD ALTERNATIVES VS. BASELINE	
	LRT	BRT
Passenger Vehicles: <i>Auto, van, truck</i>	-15,193	-10,012
Light Rail Transit	64,135	0
Bus Transit, all vehicle types	-24,589	14,581
Total Change	24,353	4,569

^{1/}BTU stands for British Thermal Unit

S.4.3 Economic Effects

Economic effects of the proposed alternatives include an analysis of potential adverse impacts and benefits related to station sites, station planning areas and development effects.

ECONOMIC CONDITIONS (SECTION 5.1)

Baseline Alternative

The Baseline Alternative would provide no impact on the current economic conditions, including employment and demographic elements. Further, the alternative would not provide the benefits derived from the from the mobility improvements related to the proposed build alternatives.

University Avenue LRT and Busway/BRT Alternatives

The existing intermodal transportation system has been instrumental in establishing the economic dominance of the entire Twin Cities Metropolitan Area. Given the projected employment increase and the high number of persons with mobility limitations, the University Avenue LRT and Busway/BRT Alternatives would have positive impact on the economic conditions and provide opportunity for sustained growth in the Study Area.

STATION AREA DEVELOPMENT (SECTION 5.2)

The station area development analysis included a determination of the Transit-Oriented Development (TOD) potential for each proposed station location. Each station location was

analyzed in terms of land use pattern, urban form, infill potential, redevelopment potential, planned development and potential major trip generators.

Baseline Alternative

The Baseline Alternative would provide no additional station area development potential.

University Avenue LRT and Busway/BRT Alternatives

Table S.4-4: University Avenue LRT and Busway/BRT Alternatives Proposed Station Area TOD Rating/Infill and Development Potential, indicates the TOD potential of the existing station area development to support and benefit from improved transit service for each proposed new LRT or BRT station and the opportunity for future development.

Table S.4-4: University Avenue LRT and Busway/BRT Alternatives Proposed Station Area TOD Rating/Infill and Redevelopment Potential

Proposed Station Area	Proposed Station Area TOD Rating	Infill/Redevelopment Potential
West Bank	Excellent	High/Low
East Bank	Excellent	Low/Moderate
Stadium Village	Excellent	High/Moderate
29th Avenue Southeast	Fair	Moderate/Moderate
Westgate	Good	Low/High
Raymond Avenue	Good	Low/Moderate
Fairview Avenue	Good	High/High
Snelling Avenue	Good	Moderate/High
Lexington Parkway	Poor	High/High
Dale Street	Fair - Good	Moderate/High
Rice Street	Good	High/High
Capitol East	Excellent	High/High
10th Street	Good	Moderate/Moderate
6th Street	Excellent	Low/Moderate
4th Street	Excellent	Low/Moderate
Union Depot	Excellent	Moderate/Moderate

S.4.4 Transportation Effects

ROADWAY OPERATIONS (SECTION 6.1)

Baseline Alternative

Two of the roadway segments are forecasted to be operating below the acceptable LOS D for the Baseline Alternative. Fifth Street in downtown Minneapolis would only provide one travel lane due to the Hiawatha LRT and operate at LOS E. The segment of University Avenue between

Dale Street and Rice Street is also expected to operate at LOS E. All other roadway segments analyzed in the corridor are expected to operate at an acceptable LOS for the Baseline Alternative.

Table S.4-5 summarizes the intersections that would operate at an unacceptable LOS (below LOS D) during the PM peak hour.

University Avenue LRT Alternative

None of the locations considered in the grade separation analysis attained a threshold Level 4, which would have required grade separation for the University Avenue LRT Alternative. The analysis indicates four locations that could reach a threshold Level 3, which has been defined as LRT being possible without grade separation, but increased train and vehicular delays would be expected. Two of these locations are along Fifth Street in downtown Minneapolis and result from the combination of the proposed Central Corridor LRT and the Hiawatha LRT system. Between the two LRT systems, a one and three-quarter minute headway is expected during the peak hour, essentially making Fifth Street function similar to a typical dedicated transitway. The extensive amount of transit vehicles is expected to dominate the roadway operations. The other two areas that reached a threshold Level 3 were at Cromwell Avenue (part of the Highway 280 Interchange) and at Snelling Avenue.

Table S.4-5: Intersections Operating below LOS D by Alternative

Intersection	Baseline Alternative	University Avenue LRT Alternative	University Avenue Busway/BRT Alternative
Hennepin Avenue/Fifth Street	X	X	X
Marquette Avenue/Fifth Street	X		X
Malcolm Avenue/University Avenue		X	
Eustis Street/University Avenue		X	X
Raymond Avenue/University Avenue	X	X	X
Fairview Avenue/University Avenue		X	X
Aldine Street/University Avenue		X	X
Fry Street/University Avenue		X	X
Snelling Avenue/University Avenue		X	X
Hamline Avenue/University Avenue		X	X
Lexington Parkway/University Avenue	X	X	X
Dale Street/University Avenue	X		X
Marion Street/University Avenue	X	X	X
Rice Street/University Avenue	X	X	X
Constitution Avenue/University Avenue		X	X
Robert Street/University Avenue		X	
7th Street/Cedar Street		X	
5th Street/Cedar Street		X	

The University Avenue LRT Alternative roadway segment analysis indicated five roadway segments that would operate below LOS D. In addition to the two segments that would operate below LOS D for the Baseline Alternative, the Washington Avenue Bridge, University Avenue between Rice Street and Robert Street, and Cedar Street in downtown St. Paul would also be expected to have operational issues. In these three locations, the roadway would require

modifications to the geometry due to the LRT alignment, whereas the University Avenue Busway/BRT Alternative would operate within the mix of vehicular traffic. The Washington Avenue Bridge, which would operate with four-lanes of bi-directional traffic under the Baseline Alternative, would need to be reduced to one-lane in each direction. University Avenue between Rice Street and Robert Street would operate below LOS D because the roadway can not be expanded without expensive reconstruction and right-of-way acquisition for the Cedar Street Bridge over University Avenue.

University Avenue Busway/BRT Alternative

None of the locations considered in the grade separation analysis attained a threshold Level 4, which would have required grade separation for the University Avenue Busway/BRT Alternative, although eight locations did attain a threshold Level 3 and these are attributed to the increased number of crossings with the proposed six-minute headway. Two of the threshold Level 3 locations are expected in downtown Minneapolis along Fifth Street at Hennepin Avenue and Fifth Avenue. Five of the threshold Level 3 locations are along University Avenue at Cromwell Avenue, Raymond Avenue, Snelling Avenue, Lexington Parkway and Dale Street; and one of the threshold Level 3 location is in downtown St. Paul along Cedar Street at 12th Street. Four of the locations that attained threshold Level 3 in the LRT analysis were found to have the same results for the University Avenue Busway/BRT Alternative.

The two roadway segments that were found to be expected to operate below the acceptable LOS D for the University Avenue Busway/BRT Alternative were the same segments found in the Baseline Alternative: Fifth Street in downtown Minneapolis and University Avenue between Dale Street and Rice Street.

The University Avenue Busway/BRT Alternative would be expected to have two fewer intersections operating below the acceptable LOS when compared to the LRT intersection analysis, although most are the same intersections. The University Avenue Busway/BRT Alternative is proposed to operate in the vehicular mix of traffic and would be expected to have fewer impacts in comparison to the University Avenue LRT Alternative, especially in downtown St. Paul.

Station Area Traffic Impacts

The proposed station areas along the Central Corridor for both University Avenue LRT and Busway/BRT Alternatives are expected to produce a minimal amount of new traffic since no parking facilities are proposed. In addition, because the station platforms would be aligned in the center of the roadway there are limited opportunities for drop-and-ride facilities. Most riders on the system would be expected to primarily access the Central Corridor BRT or LRT system by way of transfer from other transit modes. Overall, traffic generated by the station areas is expected to be negligible.

BUS TRANSIT OPERATIONS (SECTION 6.2)

Baseline Alternative

The Central Corridor has a strong nucleus of bus transit services and minimal changes to the existing bus system are expected for the 2020 Baseline Alternative. Overall, the Baseline Alternative bus transit operations plan is forecasted to need 34 additional bus vehicles to serve weekday trips, resulting in an increase in the annual operating cost of approximately \$4.3 million (in Year 2002 dollars).

University Avenue LRT Alternative

The LRT bus transit operations plan would require substantial changes to the Baseline Alternative bus services. The University Avenue LRT Alternative would add 31 new LRT vehicles and 47 bus vehicles would be removed from service in the corridor. The reduced bus services and lower operating costs of bus services associated with the University Avenue LRT Alternative result in a projected annual reduction in bus transit operations costs of over \$10 million (in Year 2002 dollars) over the Baseline Alternative.

University Avenue Busway/BRT Alternative

The University Avenue Busway/BRT Alternative would provide new service frequencies during the peak and midday periods, minimizing the need for some existing services and eliminating one route. The University Avenue Busway/BRT Alternative is forecasted to add 55 low-floor articulated bus vehicles during the weekday, but conventional busses would be eliminated and the net change in number of bus vehicles needed to serve the corridor would be reduced by a total of six vehicles. The total changes in annual operating costs are expected to increase the net costs by \$700,000 (in Year 2002 dollars) over the Baseline Alternative, including the operations of the new BRT low-floor articulated vehicles.

TRANSIT RIDERSHIP AND OPERATING COSTS (SECTION 6.3)

Table S.4-6: 2008/2020 Ridership Forecast, provides the estimated transit ridership for the Baseline, LRT and Busway/BRT Alternatives.

Table S.4-6: 2008/2020 Ridership Forecast (Linked Transit Trips)

Alternative	Weekday Rides (2008/2020)		
	Alternative ¹	Remaining Bus Service	Corridor Total ²
Baseline Alternative	28,400/33,700	--	28,400/33,700
LRT Alternative	32,100/38,100	6,000/6,700	38,100/44,800
BRT Alternative	26,500/31,200	9,200/12,400	35,700/43,600

¹Number of rides per mode

² For the 2008/2020 Corridor Total ridership, it is estimated that the LRT would divert 3300/3800 new riders from autos. Likewise, the BRT Alternative would divert 2300/3100 new riders in 2008/2020.

A summary of the operating and maintenance (O&M) costs is included in Table S.4-7: Central Corridor Annual O&M Costs.

Table S.4-7: Central Corridor Annual O&M Costs^{1/}

	2002	2008	2020
Existing	\$40,500,000	—	—
Baseline	44,800,000	\$56,700,000	\$90,800,000
LRT	48,000,000	60,700,000	97,200,000
BRT	46,500,000	58,700,000	94,000,000

^{1/} Year 2002 costs are inflated at 4 percent per year to derive 2008 and 2020 costs.

REGIONAL TRAVEL DEMAND (SECTION 6.4)

Table S.4-8 compares the regional travel demand within the corridor for the Baseline, LRT and BRT Alternatives for forecast year 2020. The analysis used the Metropolitan Council's travel demand model.

Table S.4-8: Forecast Regional Travel Demand

Alternative	Total Daily Transit Boarding Trips	Daily Automobile Person Trips	Daily Vehicle Miles of Travel
Baseline Alternative	382,000	544,050	23,815,800
LRT Alternative (Change from Baseline)	390,300 (+8,300)	542,050 (-2,000)	23,813,600 (-2,200)
BRT Alternative (Change from Baseline)	386,200 (+4,200)	543,350 (-700)	23,814,600 (-1,200)

Table S.4-9 presents the forecast peak hour transit travel times between downtown Minneapolis and downtown St. Paul under each alternative.

Table S.4-9: Forecast Peak Hour Travel Times Between Downtowns

Alternative	Peak Hour Travel Time (minutes)		
	Baseline	LRT Alternative	BRT Alternative
Transit Route:			
Route 16	73	73	73
Route 50	49	N/A	N/A
Route 94 B/D	31/41	31/N/A	31/N/A
LRT Alternative	N/A	35	N/A
BRT Alternative	N/A	N/A	42

PARKING (SECTION 6.5)

Table S.4-10 summarizes the parking impacts by alternative under build conditions.

Table S.4-10: Parking Impacts by Alternative

Project Segment	Baseline Alternative	University Avenue LRT Alternative ¹	University Avenue Busway/BRT Alternative ¹
Downtown Minneapolis	No additional parking impacts are expected	No additional impacts are anticipated.	No additional impacts are anticipated.
University of Minnesota	No additional parking impacts are expected	<i>During construction of the tunnel, there would be no on-street parking on Washington Avenue and access to parking lots and structures from Washington Avenue could be limited.</i>	No additional impacts are anticipated.
University Avenue	No additional parking impacts are expected	Between Washington Avenue and Rice Street, approximately 660 on-street parking spaces would be removed.	Between Washington Avenue and Rice Street, approximately 660 on-street parking spaces would be removed.
State Capitol	No additional parking impacts are expected	Approximately 28 on-street parking spaces would be removed.	No additional parking impacts are expected
Downtown St. Paul	No additional parking impacts are expected	Approximately 121 on-street parking spaces would be eliminated. Additionally, 10 driveways to/from parking structures and lots could be affected (closed or right-in/right-out access only).	No additional parking impacts are expected

¹Mitigation for the loss of parking in both the LRT and BRT Alternatives may include creation of small off-street parking facilities proximate to retail businesses.

RAILROAD FACILITIES AND SERVICES (SECTION 6.6)

None of the alternatives would impact the operation of freight, commuter or inter-city railroad service in the Central Corridor Study Area.

PEDESTRIANS AND BICYCLE ENVIRONMENT (SECTION 6.7)

Baseline Alternative

The Baseline Alternative is not expected to have any impacts on the pedestrian or bicycle environment in the Study Area. Enhancements to the bus shelters on University Avenue may have a positive influence on the pedestrian-oriented activities.

University Avenue LRT Alternative and University Avenue Busway/BRT Alternative

In downtown Minneapolis, LRT would be combined with the Hiawatha LRT on Fifth Street, which has become a transit parkway, with only one lane of automobile traffic. The block between Third Avenue and Fourth Avenue in front of City Hall has become a pedestrian-only plaza, closing the street to all automobile traffic. In the University of Minnesota campus, the LRT is proposed to operate in a tunnel and no effects are expected at the street level. The LRT would operate in the University Avenue median with center station platforms, and provide pedestrian crossings. In downtown St. Paul, no sidewalks or crossings would be taken, and two roadways would be closed to enhance pedestrian connections to the LRT facilities. Overall, no physical pedestrian or bicycle amenities existing today would be removed.

University Avenue Busway/BRT Alternative

In downtown Minneapolis, the BRT would operate within the mix of vehicular traffic similar to the existing bus system. The increased frequency of buses may affect pedestrian and bicycle activities, but the safety hazards would not be substantially different than the existing conditions. The BRT would operate within the mix of vehicular traffic on Washington Avenue, and limited effects may occur. At the University of Minnesota, no crossings or facilities would be taken, and many of the pedestrian and bicycle facilities would be improved to create more efficient connections to the BRT, especially at station locations. BRT on University Avenue, between the University of Minnesota campus and downtown St. Paul, would take no crossings, and would have minimal effects. In downtown St. Paul, the BRT would be operating in the vehicular mix of traffic, like the existing bus operations. As noted for downtown Minneapolis, the safety hazards projected are no worse than those caused by the existing automobile traffic.

UTILITIES (SECTION 6.8)

Baseline Alternative

The roadway projects included in the Baseline Alternative would not affect existing utilities.

University Avenue LRT Alternative

The proposed University Avenue LRT Alternative may affect a 46-inch subsurface water main near the West Bank Station and a 96-inch sanitary sewer near the Stadium Village Station. Storm sewers would be impacted throughout the alignment during street reconstruction and catch basins and manholes may have to be adjusted or relocated. Natural gas transmission lines located at

Nineteenth Avenue South and Oak Street Southeast may be affected. A final determination of utility impacts for the LRT Alternative will be determined during the subsequent design phase.

University Avenue Busway/BRT Alternative

Potential impacts to water and wastewater manholes, valves, vaults or hydrants may occur near the planned reconstruction of a railroad bridge along University Avenue, east of Transfer Road. A final determination of utility impacts for the University Avenue Busway/BRT Alternative will be determined during the subsequent design phase.

The meetings with major utilities are listed in Table 8.6-1: Stakeholder Meetings.

EFFECTS DUE TO CONSTRUCTION (SECTION 6.9)

Construction of the proposed University Avenue LRT Alternative or the University Avenue Busway/BRT Alternative would include guideway (e.g., tracks), stations, structures, maintenance facility and/or other facilities that would result in various construction-related effects.

Construction related impacts may include noise, vibration, traffic distribution and access, and generation of debris and spoil. Any effects related to construction would be limited to the construction period. All applicable local, state and federal permitting requirements would be met.

S.4.5 Environmental Justice (Sections 3.9, 4.8, 5.3, 6.10)

Benefits offered by the build alternatives would include increased access to transit, opportunities for transit-related redevelopment, potential for increased pedestrian and bicycle connections and potential for enhanced visual quality through station area improvements. These benefits are frequently accompanied with possible adverse impacts such as potential traffic impacts; displacements of residential, commercial and community facilities; and noise and vibration effects. These effects are evaluated to determine whether or not negative effects can be minimized and benefits can be maximized, with special regard to minority, low-income, and transit dependent populations.

Baseline Alternative

Negative effects of the Baseline Alternative are defined in terms of the benefits foregone. While minority and low-income populations would be free from direct physical impacts, opportunities for enhancements to the quality of life, supportive land use development patterns and mobility choices would be lost with the Baseline Alternative. Minority, low-income, and transit dependent populations would not be served to the greatest extent through this alternative.

University Avenue LRT and Busway/BRT Alternatives

The build alternatives offer the opportunity to enhance the quality of life in affected neighborhoods and communities through a major infrastructure investment and related policy changes designed to support transit. For the build alternatives, benefits and adverse impacts to protected populations and the general population are representative of the areas within and adjacent to the proposed project corridor. Opportunities for design option choices that minimize adverse effects to minority and low-income populations are low due to the substantial number of those populations within the proposed project corridor.

The build alternatives serve high concentrations of minority and low-income populations for the entire length of the corridor. Offsetting benefits such as increased mobility provided by transit improvements and the siting of proposed stations may act as a catalyst to significant new investment in the proposed corridor. Proposed stations would also be new community facilities

that would add to the stature of the adjacent neighborhood and serve as focal points to daily activity. With the University Avenue LRT Alternative, the displacement of non-residential buildings would be a negative impact, but there would be no displacement of residential structures. No residential or non-residential displacements would occur with the University Avenue Busway/BRT Alternative. Due to the number of minority and low-income populations, potential traffic, noise and vibration impacts (vibration impacts with LRT Alternative only) would have the potential to be borne disproportionately to minority and low-income populations. All impacts identified in this document would be mitigated, if possible, to avoid adverse impacts, with special concern and emphasis with regard to minority, low-income, elderly, mobility limitation and no vehicle populations. Active public involvement in the corridor would continue to be a goal through design and implementation.

S.5 EVALUATION OF ALTERNATIVES (SECTION 7.0)

The purpose of the evaluation process is to summarize benefits, costs, and environmental consequences for each alternative against the stated goals and objectives for the proposed Central Corridor project (see Section S.2: Purpose and Need for Action). The purpose of the comparative analysis, summarized below, is to facilitate the decision-making process for the CCCC, public officials, interested residents, institutions, businesses, and other organizations.

S.5.1 Evaluation Against the Goals and Objectives of the Central Corridor Transit Study

For each goal outlined in Section S.2 Purpose and Need for Action, a set of objectives and evaluation measures was developed. Specific evaluation measures (outlined in Section 7.1.2: Evaluation Measures) were reviewed and approved by the CCCC and the advisory, policy and technical committees indicated in Section S.1.2: Organization for the Central Corridor Transit Study. All measures were used to compare the Baseline Alternative, University Avenue LRT Alternative and University Avenue Busway/BRT Alternative. Table S.5-1: Comparison of Alternatives Against the Project Goals and Objectives, outlines the goals and objectives of the proposed Central Corridor project, and illustrates the degree to which each alternative supports the goals and objectives.

On June 13, 2002, the Central Corridor Coordinating Committee selected light rail transit on University Avenue as the preliminary locally favored alternative for the corridor. This determination was based on the results of the study. The mode choice is consistent with the conclusions of three prior planning efforts on this corridor.

S.5.2 Section 5309 New Starts Criteria

The United States Department of Transportation (U.S. DOT)/FTA's *Annual Report on New Starts* documents the U.S. DOT's recommendations for the allocation of Section 5309 New Starts funds for proposed major transit capital investments (New Starts), as part of the Section 5309 New Starts Program. The FTA reviews, evaluates and rates the locally generated Section 5309 New Starts criteria for projects in either the preliminary engineering or final design phases of development.

The U.S. DOT/FTA's New Starts program reviews and evaluates each proposed project with regard to the following New Starts criteria:

Project Justification

Mobility improvements;

Environmental benefits;

Operating efficiencies;

Cost Effectiveness (transportation system user benefits);

Existing land use, transit-supportive land use policies and future patterns; and

Other factors

Local Financial Commitment

The proposed share of total project costs from sources other than the Section 5309 New Starts program, including Federal formula and flexible funds, the local match required by Federal law, and any additional [non-New Starts] capital funding (“overmatch”);

The stability and reliability of the proposed capital financing plan;

The ability of the sponsoring agency(ies) to fund operation and maintenance of the entire system as planned, including existing service, once the proposed guideway project is built.

Table S.5-1: Comparison of Alternatives Against the Project Goals and Objectives

Transit Study Goals and Objectives	Baseline Alternative	University Avenue LRT Alternative	University Avenue Busway/BRT Alternative
Goal 1: Economic Opportunity and Investment			
Objective A			
Previous Investment - Transportation	X	●	●
Previous Investment - Development	X	●	●
Proximity to Developable and Redevelopable Land	X	●	●
Average	X	●	●
Objective B			
Proven Technology	●	●	●
Consistency with Land Use Patterns	X	●	●
Service to Major Travel Markets	X	●	●
Proximity to Planned Development	X	●	●
Parking	X	●	●
Major Employment Centers Served	●	●	●
Business Community Sentiment	●	●	●
Average	X	●	●
Goal 2: Communities and Environment			
Objective A			
Residential Population Served	●	●	●
Consistency with Local Plans	X	●	●
Community Sentiment	X	●	●
Noise and Vibration	N/A	●	●
Average	X	●	●
Objective B			
Compatibility with Community Character	X	●	●
Potential to Support Smart Growth and Livable Communities	X	●	●
Average	X	●	●
Objective C			
Environmental Impacts	X	●	●
Existing Right-of-Way Utilization	●	●	●
Average	X	●	●

Goal 3 Transportation and Mobility			
Objective A			
Capacity	○	●	○
Operating Costs	◐	◐	○
Efficiency	X	●	◐
Consistency with Regional Plans	X	●	◐
Intermodal Connectivity	○	●	○
Average	○	●	○
Objective B			
Regional Connectivity	X	●	◐
Average	X	●	◐
Objective C			
Diversity of Population Served	X	●	◐
Travel Time Savings	X	●	◐
Average	X	●	◐

- X The Alternative "does not support" the objective
- The Alternative "somewhat supports" the objective
- ◐ The Alternative "supports" the objective
- The Alternative "strongly supports" the objective

The Central Corridor project will require a comprehensive New Start evaluation prior to FTA proceeding with Preliminary Engineering (PE). The initial submittal of New Start criteria to FTA will be submitted as part of a Request to Enter PE. Updated calculations will be submitted to FTA as more detailed and refined engineering design is completed and financial and development plans are developed.

S.5.3 Financial Analysis (Section 7.5)

The capital cost estimates are based on concept designs determined during the Central Corridor Transit Study. The financial analysis for each build alternative includes the component costs of the build alternative, the required bus improvements and the estimated costs of the Baseline Alternative. The cost estimates include contingencies and "add-on" costs for engineering and design, construction management, insurance, project administration, start-up, etc. Table S.5-2: Central Corridor LRT and BRT Capital Cost Estimate Summary, shows estimated capital costs expressed separately in 2002 dollars and year-of-construction 2008 dollars.

Table S.5-2: LRT and BRT Capital Cost Estimate Summary¹

Description	Cost (\$ million)			
	LRT		Busway/BRT	
	2002	2008	2002	2008
Infrastructure Subtotal	\$ 383	\$ 438	\$ 122	\$ 139
Right-of-way allowance	\$ 30	\$ 34	\$ 1	\$ 1
Vehicle allowance	\$ 99	\$ 113	\$ 20	\$ 23
Miscellaneous Subtotal	\$ 129	\$ 147	\$ 21	\$ 24
Engineering and Administration ²	\$ 120	\$ 137	\$ 37	\$ 43
Contingencies ³	\$ 103	\$ 118	\$ 31	\$ 35
Soft Costs Subtotal	\$ 223	\$ 255	\$ 68	\$ 78
Preliminary Estimated Project Cost	\$ 735	\$ 840	\$ 211	\$ 241

¹ 2008 cost based on 2.7 percent annual rate applied to 2002 cost.

² Includes 30 percent for infrastructure improvements and 5 percent for vehicles (LRT only).

³ Includes 100 percent for utilities, 20 percent for infrastructure improvements and 5 percent for vehicles.

Table S.4-7 shows projected operating costs for each alternative. These costs are based on operating year service plans and ridership forecasts. They do not include the annual cost of operating Travel Demand Management (TDM) and Intelligent Transportation Systems (ITS) programs in the region. Costs estimates were based on 2002 dollars and inflated 4 percent annually, as calculated by Metro Transit, to the anticipated start of operations in 2008. O&M cost estimates will be refined during PE and final design.

S.6 PUBLIC AND AGENCY INVOLVEMENT PROGRAM (SECTION 8.0)

As part of the Central Corridor Transit Study, the Public and Agency Involvement Program was developed and implemented. The purpose of the program is to support decision-making efforts and encourage an open, collaborative approach to the project. The program was initiated early in the Central Corridor Transit Study and utilized a proactive approach, designed to engage individuals, groups, agencies, and public officials who would be affected by or are interested in

the transportation improvements associated with the proposed project. The program is consistent with the federal guidelines for public participation required under NEPA.

The Notice of Intent (NOI) to prepare an EIS on the proposed project was published in the *Federal Register* on June 5, 2001. In addition, the Notice of Availability (NOA) of the *Central Corridor Scoping Booklet* and announcements of the Scoping Meetings were published in the *Minnesota EQB Monitor* on June 11, 2001. The formal scoping comment period extended from June 11 to July 20, 2001. The Coordinating Committee distributed over 800 scoping booklets to federal, state and local agencies having jurisdiction in the project, all interested parties on the Coordinating Committee mailing list, elected officials, neighborhood organizations and civic groups. The scoping booklet included descriptions of the project, alternatives, and issues identified for consideration in the EIS.

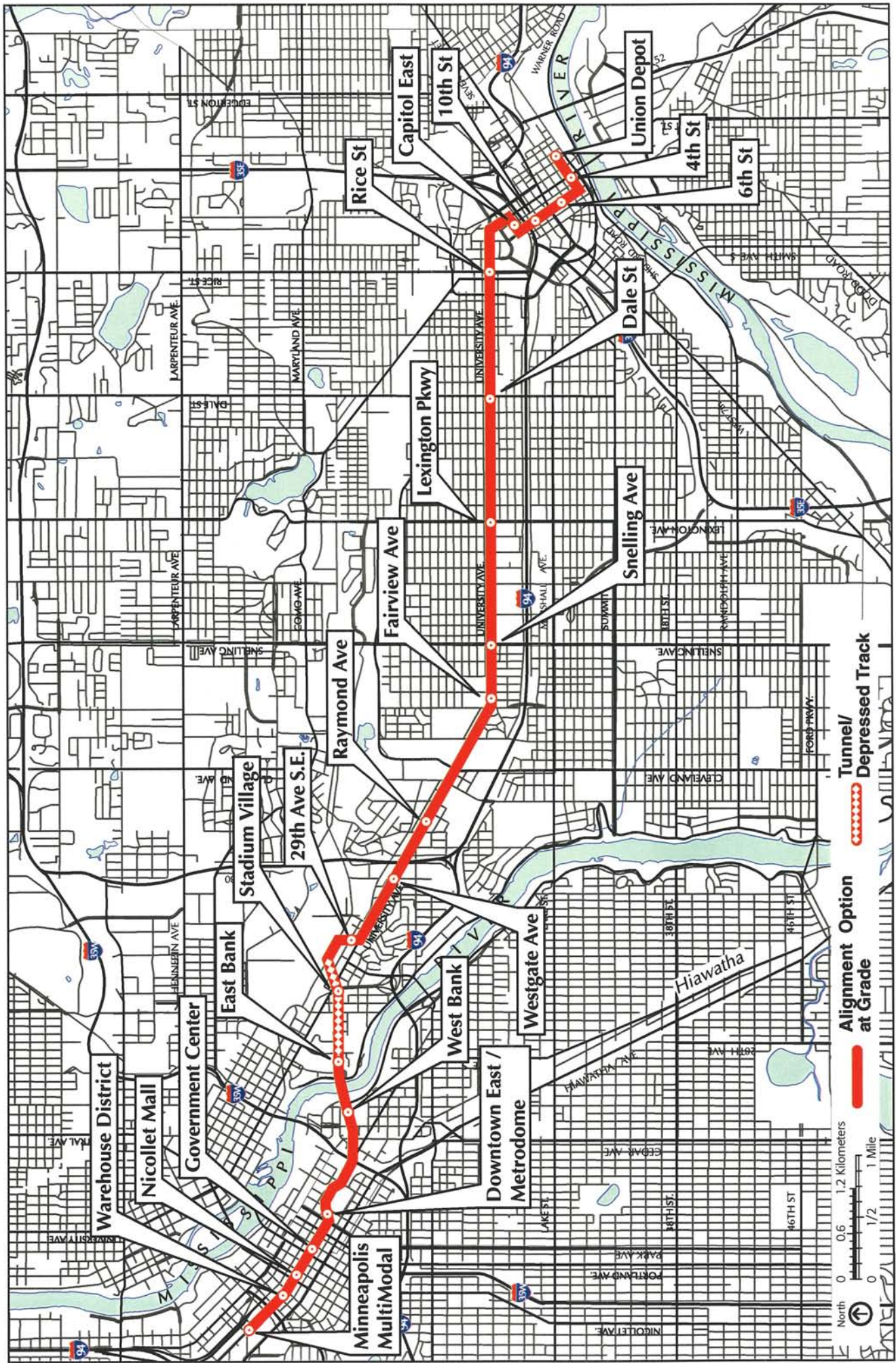


Figure S.1-1

University Avenue LRT Alternative
April 2002



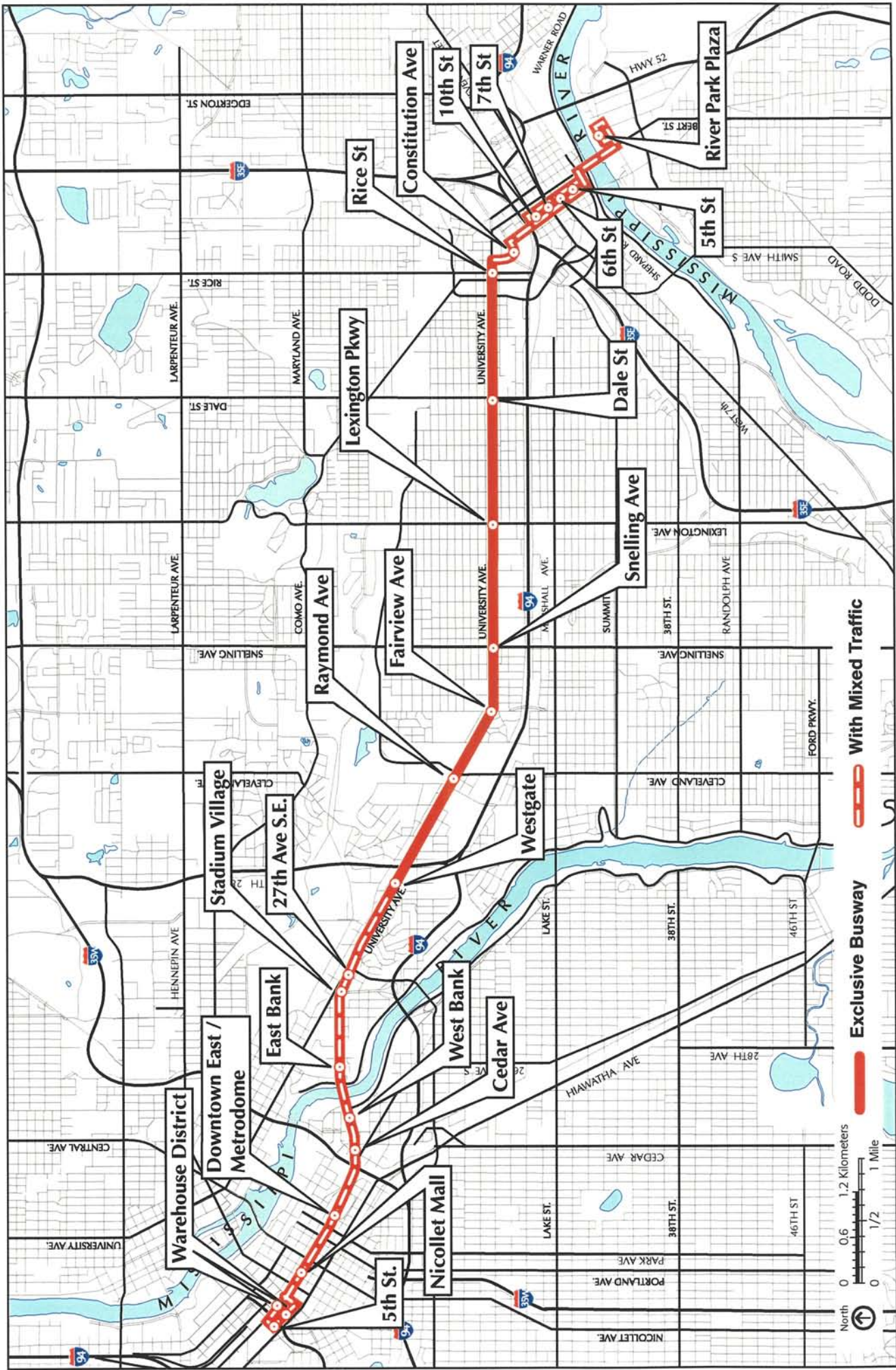


Figure S.1-2

THE CENTRAL CORRIDOR University Avenue Busway/BRT Alternative

April 2002



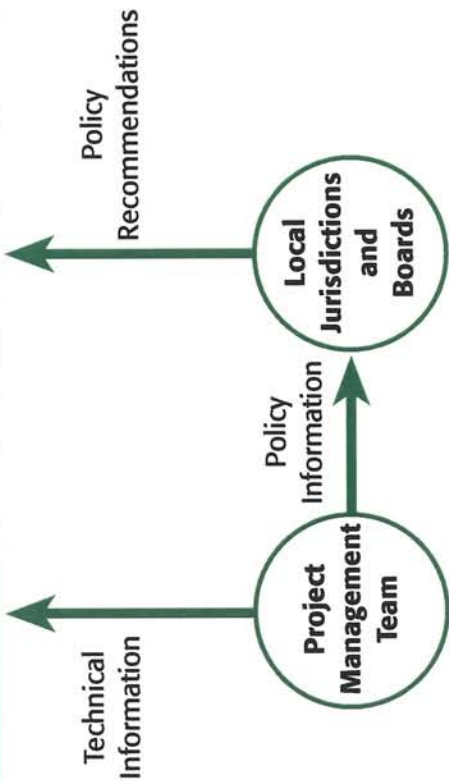
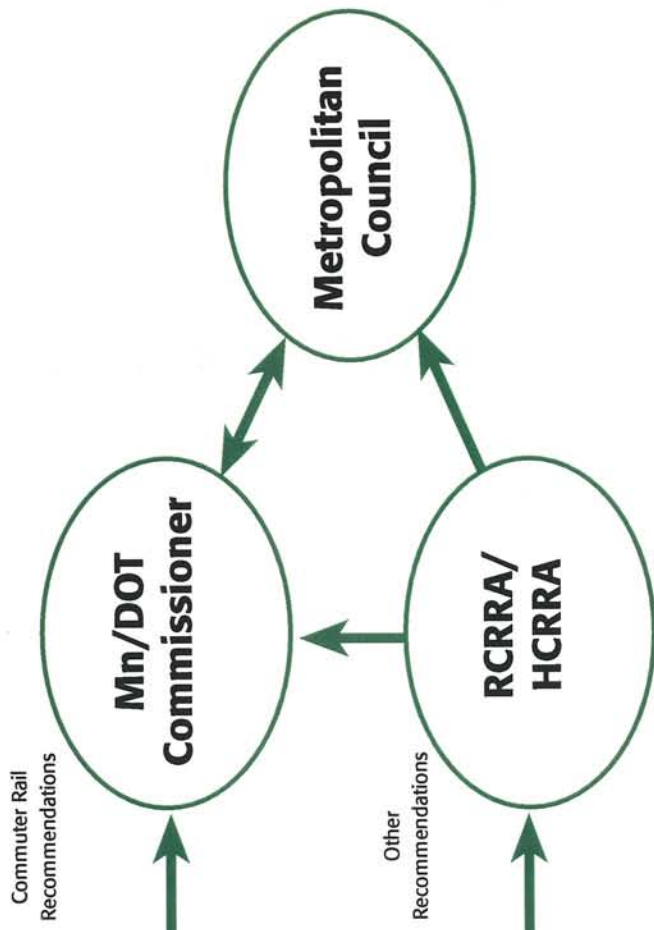
Overall Organization for the Central Corridor Transit Study

COORDINATING COMMITTEE

- Mn/DOT (2)
- City of St. Paul
- City of Minneapolis
- Hennepin County
- Ramsey County (2)
- Metropolitan Council (2)
- University of Minnesota
- Red Rock Corridor
- Northstar Corridor

-voting on commuter rail elements
-non-voting

Coordinating Committee membership is dictated by statute.



*Public Input is Provided Throughout the Process

Screening Process

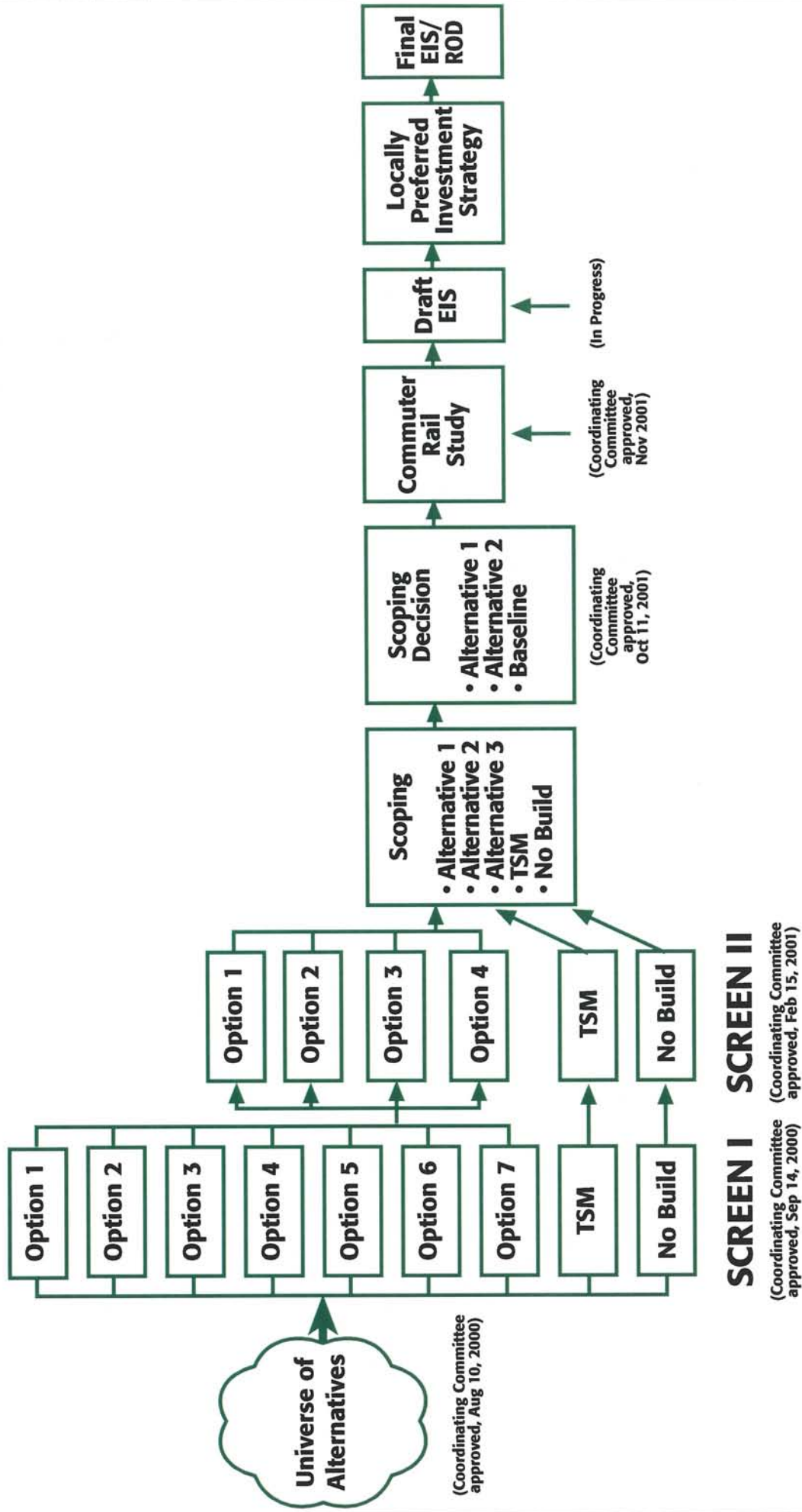


Figure S.1-4

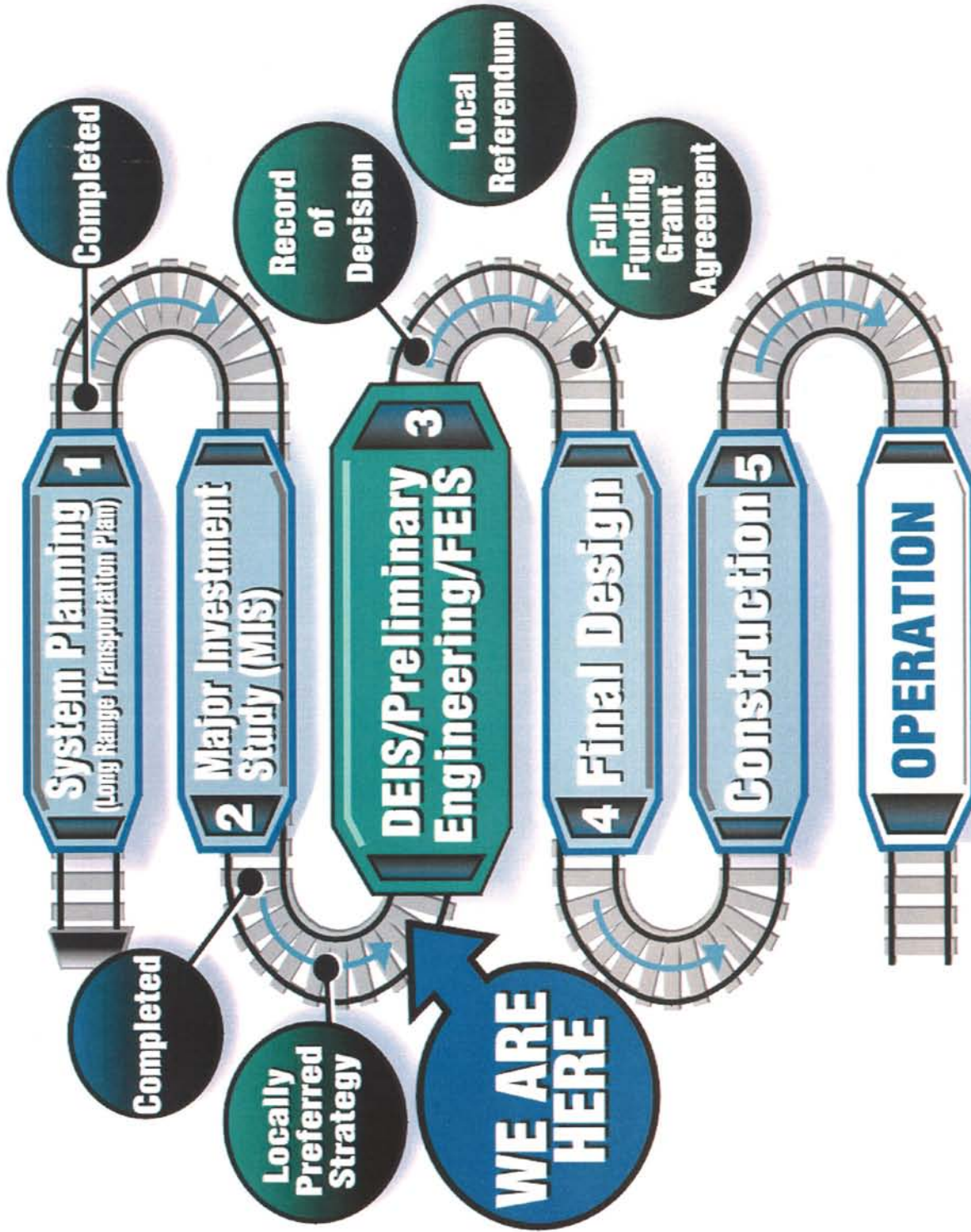


Figure S.1-5