

# TABLE OF CONTENTS

## LIST OF ACRONYMS

<b>S.0</b>	<b>EXECUTIVE SUMMARY .....</b>	<b>S-1</b>
S.1	INTRODUCTION .....	S-1
S.2	OVERVIEW .....	S-3
S.2.1	Project History and Context.....	S-3
S.2.2	Alternatives Evaluated in the AA/DEIS.....	S-4
S.2.3	Revisions to the AA/DEIS LPA evaluated in the Central Corridor Supplemental Draft Environmental Impact Statement .....	S-6
S.2.4	Final Environmental Impact Statement (FEIS) .....	S-16
S.2.5	Public Involvement .....	S-23
S.2.6	Agency Coordination.....	S-24
S.3	ENVIRONMENTAL MILESTONES AND ACTIONS .....	S-25
<b>1.0</b>	<b>PURPOSE AND NEED FOR THE PROPOSED ACTION.....</b>	<b>1-1</b>
1.1	PROJECT HISTORY AND OVERVIEW .....	1-2
1.2	BASIS FOR THE FEIS .....	1-4
1.3	PURPOSE AND NEED.....	1-5
1.3.1	Corridor Description .....	1-5
1.3.2	Travel Patterns.....	1-15
1.3.3	Roadway System .....	1-19
1.3.4	Transit .....	1-20
1.4	PLANNING CONTEXT .....	1-23
1.4.1	Environmental Review and Project Development Process .....	1-25
1.4.2	Public Involvement and Agency Coordination.....	1-29
<b>2.0</b>	<b>ALTERNATIVES CONSIDERED .....</b>	<b>2-1</b>
2.1	ALTERNATIVES PREVIOUSLY CONSIDERED .....	2-1
2.1.1	Alternatives Analysis Process .....	2-1
2.1.2	Alternatives Evaluated in the AA/DEIS.....	2-2
2.1.3	Selection of the AA/DEIS Locally Preferred Alternative .....	2-3
2.1.4	Alternatives Evaluated in the Supplemental Draft Environmental Impact Statement .....	2-8
2.2	ALTERNATIVES EVALUATED IN THE FINAL ENVIRONMENTAL IMPACT STATEMENT.....	2-18
2.2.1	No-Build Alternative.....	2-18
2.2.2	Baseline Alternative.....	2-18
2.2.3	Preferred Alternative .....	2-18
<b>3.0</b>	<b>SOCIAL EFFECTS .....</b>	<b>3-1</b>
3.1	LAND USE AND SOCIOECONOMICS .....	3-1-2
3.1.1	Methodology .....	3-1-3
3.1.2	Existing Conditions and Future Projections .....	3-1-19
3.1.3	Socioeconomics .....	3-1-38
3.1.4	Long-Term Effects .....	3-1-44
3.1.5	Short-Term Construction Effects .....	3-1-48
3.1.6	Mitigation .....	3-1-48
3.2	NEIGHBORHOODS, COMMUNITY SERVICES, AND COMMUNITY COHESION .....	3-2-1
3.2.1	Methodology.....	3-2-3

3.2.2	Existing Conditions .....	3.2-3
3.2.3	Long-Term Effects .....	3.2-32
3.2.4	Short-Term Construction Effects .....	3.2-37
3.2.5	Mitigation .....	3.2-38
3.3	ACQUISITIONS AND DISPLACEMENTS/RELOCATIONS.....	3.3-1
3.3.1	Legal and Regulatory Overview .....	3.3-3
3.3.2	Methodology .....	3.3-3
3.3.3	Existing Conditions .....	3.3-3
3.3.4	Long-Term Effects .....	3.3-3
3.3.5	Short-Term Construction Effects .....	3.3-6
3.3.6	Mitigation .....	3.3-7
3.4	CULTURAL RESOURCES .....	3.4-1
3.4.1	Legal and Regulatory Context .....	3.4-6
3.4.2	Methodology .....	3.4-6
3.4.3	Existing Conditions .....	3.4-9
3.4.4	Long-Term Effects .....	3.4-20
3.4.5	Short-Term Construction Effects .....	3.4-25
3.4.6	Mitigation .....	3.4-26
3.5	PARKLANDS AND RECREATION AREAS .....	3.5-1
3.5.1	Legal and Regulatory Requirements .....	3.5-2
3.5.2	Methodology .....	3.5-2
3.5.3	Existing Conditions .....	3.5-2
3.5.4	Long-Term Effects .....	3.5-9
3.5.5	Short-Term Construction Effects .....	3.5-10
3.5.6	Mitigation .....	3.5-10
3.6	VISUAL QUALITY AND AESTHETICS.....	3.6-1
3.6.1	Methodology .....	3.6-1
3.6.2	Existing Conditions .....	3.6-2
3.6.3	Downtown St. Paul .....	3.6-3
3.6.4	Long Term Effects .....	3.6-12
3.6.5	Short Term Construction Effects .....	3.6-25
3.6.6	Mitigation .....	3.6-25
3.7	SAFETY AND SECURITY .....	3.7-1
3.7.1	Legal and Regulatory Context .....	3.7-1
3.7.2	Existing Conditions .....	3.7-1
3.7.3	Long-Term Impacts .....	3.7-2
3.7.4	Short-Term Construction Impacts.....	3.7-4
3.7.5	Mitigation .....	3.7-4
3.8	ENVIRONMENTAL JUSTICE .....	3.8-1
3.8.1	Introduction and Summary .....	3.8-1
3.8.2	Legal and Regulatory Context .....	3.8-1
3.8.3	Identifying Protected Populations in the Study Area.....	3.8-3
3.8.4	Existing Conditions .....	3.8-3
3.8.5	Conclusions Regarding the Presence of Protected Populations .....	3.8-12
3.8.6	Long-Term Effects .....	3.8-13
3.8.7	Offsetting Project Benefits .....	3.8-20
3.8.8	Short-Term Effects .....	3.8-22
3.8.9	Mitigation .....	3.8-22
3.8.10	Environmental Justice Conclusions.....	3.8-23

<b>4.0</b>	<b>ENVIRONMENTAL EFFECTS .....</b>	<b>4.1-1</b>
4.1	GEOLOGY, GROUNDWATER RESOURCES, AND SOILS .....	4.1-2
4.1.1	Methodology.....	4.1-3
4.1.2	Existing Conditions.....	4.1-3
4.1.3	Long-Term Effects.....	4.1-11
4.1.4	Short-Term Construction Effects .....	4.1-13
4.1.5	Mitigation.....	4.1-14
4.2	WATER RESOURCES.....	4.2-1
4.2.1	Legal and Regulatory Context.....	4.2-1
4.2.2	Methodology.....	4.2-3
4.2.3	Existing Conditions.....	4.2-4
4.2.4	Long-Term Effects.....	4.2-7
4.2.5	Short-Term Construction Effects .....	4.2-7
4.2.6	Mitigation.....	4.2-8
4.3	BIOTA AND HABITAT .....	4.3-1
4.3.1	Legal and Regulatory Context.....	4.3-1
4.3.2	Methodology.....	4.3-1
4.3.3	Existing Conditions.....	4.3-1
4.3.4	Long-Term Effects.....	4.3-3
4.3.5	Short-Term Construction Effects .....	4.3-4
4.3.6	Mitigation.....	4.3-4
4.4	THREATENED AND ENDANGERED SPECIES.....	4.4-1
4.4.1	Legal and Regulatory Context.....	4.4-1
4.4.2	Methodology.....	4.4-1
4.4.3	Existing Conditions.....	4.4-1
4.4.4	Long-Term Effects.....	4.4-2
4.4.5	Short-Term Construction Effects .....	4.4-2
4.4.6	Mitigation.....	4.4-2
4.5	AIR QUALITY .....	4.5-1
4.5.1	Legal and Regulatory Context.....	4.5-1
4.5.2	Methodology.....	4.5-3
4.5.3	Background conditions .....	4.5-6
4.5.4	Long-Term Effects.....	4.5-7
4.5.5	Short-Term Construction Effects .....	4.5-12
4.5.6	Mitigation.....	4.5-12
4.6	NOISE ANALYSIS.....	4.6-1
4.6.1	Human Perception Levels .....	4.6-1
4.6.2	Noise Evaluation Criteria.....	4.6-3
4.6.3	Methodology.....	4.6-4
4.6.4	Existing Conditions.....	4.6-7
4.6.5	Existing Conditions on Cedar Street in Downtown St. Paul .....	4.6-10
4.6.6	Long-Term Effects.....	4.6-15
4.6.7	Short-Term Construction Noise Effects .....	4.6-29
4.6.8	Mitigation.....	4.6-35
4.6.9	Construction Noise Mitigation.....	4.6-42
4.7	VIBRATION .....	4.7-1
4.7.1	Introduction.....	4.7-1
4.7.2	Human Response and Perception of Vibration Levels .....	4.7-1
4.7.3	FTA Vibration Criteria.....	4.7-2
4.7.4	Methodology.....	4.7-5

4.7.5	Vibration Mitigation Options.....	4.7-7
4.7.6	General Vibration Impact Assessment .....	4.7-8
4.7.7	Detailed Vibration Impact Assessment.....	4.7-12
4.7.8	Construction Vibration Impact Assessment.....	4.7-21
4.8	HAZARDOUS/REGULATED MATERIALS .....	4.8-1
4.8.1	Preliminary Site Identification .....	4.8-3
4.8.2	Impact Assessment Methodology.....	4.8-7
4.8.3	Long-Term Impacts .....	4.8-8
4.8.4	Short-Term Construction Effects .....	4.8-8
4.8.5	Mitigation .....	4.8-10
4.9	ELECTROMAGNETIC INTERFERENCE AND UTILITIES.....	4.9-1
4.9.1	Legal and Regulatory Context.....	4.9-2
4.9.2	Methodology.....	4.9-2
4.9.3	Existing Conditions.....	4.9-2
4.9.4	Long-Term Effects.....	4.9-7
4.9.5	Short-Term Construction Effects .....	4.9-8
4.9.6	Mitigation .....	4.9-10
4.10	ENERGY .....	4.10-1
4.10.1	Methodology.....	4.10-1
4.10.2	Long-term Operation Effects .....	4.10-1
4.10.3	Short-Term Construction Effects .....	4.10-2
4.10.4	Mitigation .....	4.10-2
<b>5.0</b>	<b>ECONOMIC EFFECTS.....</b>	<b>5-1</b>
5.1	ECONOMIC CONDITIONS.....	5-2
5.1.1	Output, Earnings, and Employment Effects from Capital Expenditures.....	5-3
5.1.2	Output, Earnings, and Employment Effects from Operations and Maintenance Expenditures .....	5-7
5.1.3	Tax Revenue Effects .....	5-8
5.2	STATION AREA DEVELOPMENT .....	5-11
5.2.1	Station Area Planning and Design Guidelines.....	5-11
5.2.2	Station Area Characteristics and Development Potential .....	5-18
5.2.3	Long-Term Effects.....	5-53
5.2.4	Short-Term Effects .....	5-53
5.2.5	Mitigation .....	5-53
5.3	DEVELOPMENT EFFECTS .....	5-54
5.3.1	No-Build Alternative.....	5-54
5.3.2	Build Alternative .....	5-54
5.3.3	Joint Development Opportunities .....	5-55
5.3.4	Long-Term Effects.....	5-56
5.3.5	Short-Term Effects .....	5-56
5.3.6	Mitigation .....	5-56
<b>6.0</b>	<b>TRANSPORTATION .....</b>	<b>6-1</b>
6.1	TRANSIT EFFECTS.....	6-2
6.1.1	Methodology.....	6-2
6.1.2	Major Changes in Technical Assumptions.....	6-2
6.1.3	Description of Transit Service Plan .....	6-2
6.1.4	Long-Term Effects.....	6-6
6.1.5	Mitigation.....	6-13
6.2	EFFECTS ON ROADWAYS.....	6-14

6.2.1	Methodology.....	6-14
6.2.2	Existing and Planned Roadway System.....	6-15
6.2.3	Long-Term Effects.....	6-25
6.2.4	Short-Term Effects.....	6-38
6.2.5	Mitigation.....	6-40
6.2.6	Construction Mitigation.....	6-43
6.3	EFFECTS ON PARKING.....	6-45
6.3.1	Methodology.....	6-45
6.3.2	Existing Parking.....	6-45
6.3.3	Long-Term Effects.....	6-46
6.3.4	Short-Term Effects.....	6-47
6.3.5	Parking Mitigation.....	6-47
6.4	OTHER TRANSPORTATION FACILITIES.....	6-48
6.4.1	Planning and Public Policy Context.....	6-48
6.4.2	Methodology.....	6-50
6.4.3	Existing Conditions.....	6-51
6.4.4	Long-Term Effects.....	6-55
6.4.5	Other Long-Term Transportation Impacts.....	6-58
6.4.6	Short-term Effects.....	6-59
6.4.7	Mitigation.....	6-59
<b>7.0</b>	<b>SECTION 4(F) EVALUATION.....</b>	<b>7-1</b>
7.1	BACKGROUND INFORMATION AND REGULATORY REQUIREMENTS.....	7-1
7.2	METHODOLOGY.....	7-10
7.3	PROPOSED ACTION.....	7-11
7.3.1	Project Location and Description.....	7-11
7.4	PURPOSE AND NEED.....	7-12
7.5	PROPERTIES PROTECTED BY SECTION 4(F).....	7-13
7.5.1	Properties Not Used.....	7-13
7.5.2	Properties Used.....	7-27
7.6	AVOIDANCE ALTERNATIVES.....	7-33
7.6.1	No-Build Alternative.....	7-33
7.6.2	Baseline Alternative.....	7-33
7.6.3	Build Alternatives Considered.....	7-33
7.6.4	Potential for Avoiding Properties Protected by Section 4(f).....	7-34
7.7	MEASURES TO MINIMIZE HARM.....	7-53
7.8	COORDINATION.....	7-56
7.8.1	Public Involvement and Agency Coordination.....	7-56
7.9	CONCLUSIONS.....	7-59
<b>8.0</b>	<b>FINANCIAL ANALYSIS.....</b>	<b>8-1</b>
8.1	SUMMARY OF FINANCIAL PLAN CHANGES AND IMPROVEMENTS.....	8-2
8.1.1	Revised Assumptions and New Initiatives.....	8-2
8.1.2	Assumptions Retained from Previous Plan.....	8-3
8.2	PROJECT SPONSORS AND FUNDING PARTNERS.....	8-5
8.2.1	Project Sponsor.....	8-5
8.2.2	Local Funding Project Partners.....	8-7
8.3	CAPACITY OF PARTNERS TO FUND THE PROPOSED PROJECT.....	8-9
8.4	FINANCIAL PLAN SUMMARY: CAPITAL FUNDING PLAN, INTEREST, AND OPERATION AND MAINTENANCE (O&M) COSTS.....	8-10
8.4.1	Central Corridor Capital Funding Plan.....	8-10

8.4.2	Interest Expense .....	8-10
8.4.3	Plan for Funding CCLRT Capital, Operating and Maintenance Revenues, Sources, and Costs .....	8-11
8.5	CAPITAL PLAN .....	8-13
8.5.1	Sources of Funds for Capital .....	8-13
8.5.2	Uses of Funds for Capital .....	8-15
8.5.3	Agency-Wide Capital Plan .....	8-16
8.5.4	Potential Responses to Capital Funding Shortfalls .....	8-17
8.6	OPERATING PLAN .....	8-18
8.6.1	Sources of Funds for Operations .....	8-18
8.6.2	Uses of Funds for Operations .....	8-19
8.7	CENTRAL CORRIDOR LRT PROJECT OPERATING COSTS .....	8-20
8.8	AGENCY-WIDE OPERATING PLAN .....	8-21
8.8.1	Potential Responses to Operating Shortfalls .....	8-23
8.9	CASH FLOW ANALYSIS .....	8-24
8.9.1	Introduction .....	8-24
8.9.2	Underlying Assumptions .....	8-24
8.9.3	Projections .....	8-37
8.10	RISK ANALYSIS .....	8-38
8.11	FINANCIAL EVALUATION AND CONCLUSIONS .....	8-39
8.11.1	Limitations of this Report .....	8-39
<b>9.0</b>	<b>INDIRECT AND CUMULATIVE IMPACTS .....</b>	<b>9-1</b>
9.1	INTRODUCTION .....	9-2
9.2	METHODOLOGY .....	9-3
9.2.1	Study Area Definition .....	9-3
9.2.2	Time Frame .....	9-3
9.2.3	Factors Considered .....	9-3
9.2.4	Existing Conditions and Development Trends .....	9-3
9.2.5	Anticipated (Reasonable Foreseeable Future) Actions .....	9-5
9.2.6	Resource Identification .....	9-12
9.3	POTENTIAL FOR INDIRECT IMPACTS AND CUMULATIVE EFFECTS .....	9-13
9.4	LONG-TERM EFFECTS .....	9-27
9.4.1	Indirect and Cumulative Effects .....	9-27
9.4.2	Mitigation .....	9-28
9.5	GREENHOUSE GAS EMISSIONS .....	9-29
9.5.1	Legal and Regulatory Context .....	9-29
9.5.2	Methodology .....	9-29
9.5.3	Existing Conditions .....	9-31
9.5.4	Long-Term Effects .....	9-32
9.5.5	Short-Term Construction Effects .....	9-32
9.5.6	Mitigation .....	9-32
<b>10.0</b>	<b>EVALUATION OF ALTERNATIVES .....</b>	<b>10-1</b>
10.1	EVALUATION RELATIVE TO PROJECT GOALS AND OBJECTIVES .....	10-2
10.1.1	No-Build Alternative .....	10-6
10.1.2	AA/DEIS LPA .....	10-6
10.1.3	Preferred Alternative .....	10-7
10.2	NEW STARTS EVALUATION PROCESS .....	10-8
10.2.1	Current Ratings for Central Corridor Light Rail .....	10-8
10.2.2	Conclusion .....	10-12

10.3 ISSUES TO BE RESOLVED .....	10-13
<b>11.0 PUBLIC AND AGENCY COORDINATION AND COMMENTS .....</b>	<b>11-1</b>
11.1 PUBLIC INVOLVEMENT .....	11-2
11.1.1 Current Public Involvement Program.....	11-2
11.1.2 Public and Agency Involvement during the AA/DEIS .....	11-7
11.1.3 Outreach during SDEIS/Preliminary Engineering.....	11-8
11.1.4 Outreach after Publication of the SDEIS .....	11-9
11.2 AGENCY COORDINATION.....	11-10
11.2.1 Additional Agency Coordination .....	11-12
11.2.2 Municipal Consent Process.....	11-14
11.2.3 Section 106 Coordination.....	11-15
11.3 SUMMARY OF COMMENTS AND RESPONSES ON THE AA/DEIS.....	11-17
11.3.1 Alternatives Considered (Alignments, Modes, Design Options).....	11-17
11.3.2 Impacts to Businesses .....	11-17
11.3.3 Impacts to Existing Bus Service .....	11-18
11.3.4 Number and Location of Stations .....	11-19
11.3.5 Impacts to Property Value .....	11-19
11.3.6 Traffic Impacts.....	11-19
11.3.7 Environmental Justice .....	11-20
11.3.8 Public Involvement Process .....	11-21
11.3.9 Neighborhood Impacts .....	11-21
11.3.10 Visual Aesthetics .....	11-22
11.4 COMMENTS AND RESPONSES ON THE SDEIS.....	11-23
11.4.1 Alternatives Considered (Alignments, Modes, Design Options).....	11-23
11.4.2 Impacts to Businesses .....	11-23
11.4.3 Impacts to Property Value .....	11-24

## LIST OF FIGURES

Figure S-1 Project Description.....	S-2
Figure S-2 Key Project Elements.....	S-8
Figure 1-1 Study Area.....	1-7
Figure 1-2 CCLRT Planning Segments .....	1-8
Figure 1-3 Population Density by Transportation Analysis Zone Year 2000.....	1-10
Figure 1-4 Population Density by Transportation Analysis Zone Year 2010.....	1-11
Figure 1-5 Population Density by Transportation Analysis Zone Year 2030.....	1-12
Figure 1-6 Employment Density by Transportation Analysis Zone Year 2000.....	1-16
Figure 1-7 Employment Density by Transportation Analysis Zone Year 2010.....	1-17
Figure 1-8 Employment Density by Transportation Analysis Zone Year 2030.....	1-18
Figure 1-9 Districts in the Study Area .....	1-19
Figure 1-10 Historic and Projected Traffic on University Avenue, I-94, and Washington Avenue.....	1-21
Figure 1-11 Existing Bus Routes .....	1-22
Figure 1-12 Planned Transitways .....	1-26
Figure 2-1. AA/DEIS Locally Preferred Alternative .....	2-4
Figure 2-2 SDEIS Project Description.....	2-9
Figure 2-3 Revised Locally Preferred Alternative.....	2-20
Figure 2-4 Preferred Alternative – Alignment Detail, Downtown St. Paul and Capitol Area.....	2-21
Figure 2-5 Preferred Alternative – Alignment Detail, Dale and Lexington Station Area .....	2-22
Figure 2-6 Preferred Alternative – Alignment Detail, Snelling to Raymond Station Area .....	2-23
Figure 2-7 Preferred Alternative – Alignment Detail, U of M \ Prospect Park Area .....	2-24
Figure 2-8 Preferred Alternative – Alignment Detail, Downtown Minneapolis.....	2-25
Figure 2-9 University Avenue Typical Cross Section.....	2-26
Figure 2-10 Washington Avenue Transit/Pedestrian Mall Typical Cross Section .....	2-26
Figure 3.1-1 Traffic Analysis Zones .....	3.1-5
Figure 3.1-2 Land Use – Entire Corridor.....	3.1-21
Figure 3.1-3 Land Use – Downtown St. Paul and Capitol Area .....	3.1-22
Figure 3.1-4 Land Use – Midway East.....	3.1-23
Figure 3.1-5 Land Use – Midway West.....	3.1-24
Figure 3.1-6 Land Use – University and Prospect Park .....	3.1-25
Figure 3.1-7 Land Use – Downtown Minneapolis .....	3.1-26
Figure 3.1-8 Zoning: St. Paul – East.....	3.1-27
Figure 3.1-9 Zoning: St. Paul – West.....	3.1-28
Figure 3.1-10 Zoning: Minneapolis .....	3.1-29
Figure 3.2-1 Neighborhood and Community District Boundaries.....	3.2-4
Figure 3.2-2 Landmarks and Community Facilities – Downtown St. Paul.....	3.2-5
Figure 3.2-3 Landmarks and Community Facilities – Capitol Area .....	3.2-8
Figure 3.2-4 Landmarks and Community Facilities – Midway East, Section 1.....	3.2-9
Figure 3.2-5 Landmarks and Community Facilities – Midway East, Section 2.....	3.2-10
Figure 3.2-6 Landmarks and Community Facilities – Midway East, Section 3.....	3.2-12



Figure 3.2-7 Landmarks and Community Facilities – Midway West, Section 1 ..... 3.2-13

Figure 3.2-8 Landmarks and Community Facilities – Midway West, Section 2 ..... 3.2-15

Figure 3.2-9 Landmarks and Community Facilities – Midway West, Section 3 ..... 3.2-16

Figure 3.2-10 Landmarks and Community Facilities – Prospect Park ..... 3.2-17

Figure 3.2-11 Landmarks and Community Facilities – University of Minnesota ..... 3.2-20

Figure 3.2-12 Landmarks and Community Facilities – Downtown East/West Bank ..... 3.2-21

Figure 3.2-13 Landmarks and Community Facilities – Downtown Minneapolis ..... 3.2-22

Figure 3.2-14 Schools ..... 3.2-25

Figure 3.2-15 Places of Worship ..... 3.2-30

Figure 3.2-16 Public and Subsidized Housing ..... 3.2-33

Figure 3.4-1 Cultural Resources: Downtown St. Paul ..... 3.4-10

Figure 3.4-2 Cultural Resources: Capitol Area ..... 3.4-11

Figure 3.4-3 Cultural Resources: Midway East ..... 3.4-12

Figure 3.4-4 Cultural Resources: Midway West ..... 3.4-13

Figure 3.4-5 Cultural Resources: U of M/Prospect Park ..... 3.4-14

Figure 3.5-1 Parks and Open Space, St. Paul ..... 3.5-3

Figure 3.5-2 Parks and Open Space, Minneapolis/St. Paul ..... 3.5-4

Figure 3.6-1 ..... 3.6-3

Figure 3.6-2 and Figure 3.6-3 ..... 3.6-4

Figure 3.6-4 and Figure 3.6-5 ..... 3.6-4

Figure 3.6-6 ..... 3.6-5

Figure 3.6-7 ..... 3.6-11

Figure 3.6-8 ..... 3.6-13

Figure 3.6-9 ..... 3.6-14

Figure 3.6-10 and Figure 3.6-11 ..... 3.6-15

Figure 3.6-12 and Figure 3.6-13 ..... 3.6-15

Figure 3.6-14 ..... 3.6-17

Figure 3.6-15 and Figure 3.6-16 ..... 3.6-17

Figure 3.6-17 ..... 3.6-18

Figure 3.6-18 and Figure 3.6-19 ..... 3.6-20

Figure 3.6-20 ..... 3.6-20

Figure 3.6-21 ..... 3.6-21

Figure 3.6-22 ..... 3.6-22

Figure 3.6-23 ..... 3.6-23

Figure 3.6-24 ..... 3.6-23

Figure 3.8-1 Locations of Minority Population ..... 3.8-6

Figure 3.8-2 Median Household Incomes ..... 3.8-8

Figure 3.8-3 Persons Below Poverty Level ..... 3.8-9

  

Figure 4.1-1 Surficial Geology ..... 4.1-4

Figure 4.1-2 Bedrock Geology ..... 4.1-6

Figure 4.1-3 Groundwater Pollution Sensitivity ..... 4.1-10

Figure 4.1-4 Soils ..... 4.1-12

Figure 4.2-1 Water Resources ..... 4.2-5

Figure 4.2-2 Floodplains and NWI ..... 4.2-6

Figure 4.5-1 Roadway Intersections Modeled for Air Quality Analysis ..... 4.5-5

Figure 4.6-1 Typical A-Weighted Sound Levels ..... 4.6-2

Figure 4.6-2 FTA Noise Impact Criteria .....	4.6-5
Figure 4.6-3 Noise Monitoring Locations .....	4.6-8
Figure 4.6-4 Noise Analysis – Cedar Street, St. Paul .....	4.6-11
Figure 4.6-5 FTA Detailed Noise Assessment Based on SEL =84 dBA – St. Paul .....	4.6-17
Figure 4.6-6 FTA Detailed Noise Assessment Based on SEL = 84 dBA – Midway Area .....	4.6-18
Figure 4.6-7 FTA Detailed Noise Assessment Based on SEL = 84 dBA – Minneapolis Area .....	4.6-19
Figure 4.6-8 LRT Horn and Bell Simulation Vehicle.....	4.6-27
Figure 4.7-1 FTA Vibration Criteria for Detailed Assessment .....	4.7-4
Figure 4.7-2 Schematic of Vibration Test Procedure .....	4.7-7
Figure 4.7-3 Ambient Vibration Measurement and Vibration Propagation Test Sites on U of M Campus .....	4.7-17
Figure 4.7-4 Ambient Vibration Measurement Sites on U of M Campus.....	4.7-17
Figure 4.7-5 Predicted Vibration Impact on U of M Campus and Location of Vibration Mitigation.	4.7-19
Figure 4.8-1 Hazardous and Regulated Materials Preliminary Phase II ESA Sites .....	4.8-6
Figure 5.2-1 Union Depot Station Area Development Potential .....	5-19
Figure 5.2-2 4 <sup>th</sup> Street Station Area Development Potential .....	5-23
Figure 5.2-3 10 <sup>th</sup> Street Station Area Development Potential .....	5-24
Figure 5.2-4 Capitol East Station Area Development Potential.....	5-26
Figure 5.2-5 Rice Street Station Area Development Potential .....	5-28
Figure 5.2-6 Dale Street Station Area Development Potential.....	5-30
Figure 5.2-7 Lexington Parkway Station Area Development Potential.....	5-32
Figure 5.2-8 Snelling Avenue Station Area Development Potential .....	5-34
Figure 5.2-9 Fairview Avenue Station Area Development Potential .....	5-37
Figure 5.2-10 Raymond Avenue Station Area Development Potential .....	5-39
Figure 5.2-11 Westgate Station Area Development Potential.....	5-41
Figure 5.2-12 29 <sup>th</sup> Avenue Station Area Development Potential.....	5-43
Figure 5.2-13 Stadium Village Station Area Development Potential .....	5-46
Figure 5.2-14 East Bank Station Area Development Potential .....	5-48
Figure 5.2-15 West Bank Area Development Potential.....	5-50
Figure 5.2-16 Downtown East Station Area Development Potential .....	5-52
Figure 6.1-1 Proposed Central Corridor Bus Route Network.....	6-5
Figure 6.1-2 Distribution of User Benefits (for Trips Attractions).....	6-11
Figure 6.1-3 Distribution of Daily User Benefits (for Trips Productions).....	6-12
Figure 6.2-1 Central Corridor 2005 Daily Traffic Counts.....	6-17
Figure 6.2-2 Downtown St. Paul 2005 Daily Traffic Counts .....	6-18
Figure 6.2-3 U of M Stadium Roadway Changes – East Bank University of Minnesota .....	6-21
Figure 6.2-4 Downtown Minneapolis 2005 Daily Traffic Counts.....	6-23
Figure 6.2-5 Proposed Street & Transit Changes in Downtown Minneapolis.....	6-24
Figure 6.2-6 Central Corridor 2030 Forecast Daily Traffic Counts .....	6-26
Figure 6.2-7 Proposed Access and Circulation Plan for Transit Pedestrian Mall Mitigation.....	6-44
Figure 6.4-1. Potential Trail Realignment Options, Downtown Minneapolis.....	6-57
Figure 7-1 Section 4(f) Evaluation – Downtown St. Paul .....	7-4
Figure 7-2 Section 4(f) Evaluation – Capitol Area.....	7-5
Figure 7-3 Section 4(f) Evaluation – Midway Area.....	7-6

Figure 7-4 Section 4(f) Evaluation – Prospect Park ..... 7-7

Figure 7-5 Section 4(f) Evaluation – University of Minnesota, Mississippi River ..... 7-8

Figure 7-6 Section 4(f) Evaluation – Minneapolis, Currie Park ..... 7-9

Figure 7-7 Section 4(f) Evaluation, East River Parkway..... 7-24

Figure 7-8 4(f) Evaluation – Leif Erikson Lawn at Rice Street Station ..... 7-31

Figure 7-9 Section 4(f) Evaluation – Elevated Railyard ..... 7-35

Figure 7-10 Section 4(f) Evaluation – Union Depot ..... 7-38

Figure 7-11 Section 4(f) Evaluation – 4th and Cedar Streets Station ..... 7-44

  

Figure 8-1 Taxable Sales in Five Counties..... 8-14

Figure 8-2 Historical State MVST Revenues Fiscal Years 1973-2007 ..... 8-18

  

Figure 11-1 CCPO Community and Public Involvement and  
 Communications Units’ Organization Chart ..... 11-6

Figure 11-2 Committee Organization Chart..... 11-10

## LIST OF TABLES

Table S.2-1 Summary and Comparison of the Physical and Operating Characteristics of the  
 Preferred Alternative and the AA/DEIS LPA ..... S-12

Table S.2-2 Summary and Comparative Evaluation of the AA/DEIS LPA and the  
 Preferred Alternative..... S-13

Table S.2-3 Summary of Anticipated Impacts and Proposed Mitigation for the  
 Preferred Alternative..... S-19

Table S.3-1 Project Milestones ..... S-25

Table S.3-2 Permit Table ..... S-26

  

Table 1-1 Year 2000 Central Corridor Demographic Characteristics ..... 1-6

Table 1-2 Central Corridor Population by Segment..... 1-9

Table 1-3 Central Corridor Households by Segment..... 1-13

Table 1-4 Central Corridor Employment by Segment..... 1-14

Table 1-5 Project Milestones..... 1-27

  

Table 2-1 SDEIS Project Description Summary ..... 2-12

Table 2-2 Central Corridor LRT Station Characteristics ..... 2-28

Table 2-3 LRT Service Operating Requirements ..... 2-32

  

Table 3.1-1 Summary of Impacts ..... 3.1-2

Table 3.1-2 Existing Land Use for Central Corridor..... 3.1-20

Table 3.1-3 Existing Land Use for Downtown St. Paul ..... 3.1-30

Table 3.1-4 Existing Land Use for the Capitol Area ..... 3.1-32

Table 3.1-5 Existing Land Use for Midway East..... 3.1-33

Table 3.1-6 Existing Land Use for Midway West..... 3.1-34

Table 3.1-7 Existing Land Use for University/Prospect Park..... 3.1-36

Table 3.1-8 Existing Land Use for Downtown Minneapolis ..... 3.1-37

Table 3.1-9 Building Permits 2004-2008 by Segment ..... 3.1-38

Table 3.1-10 Study Area Population by Age .....	3.1-39
Table 3.1-11 Population by Race and Ethnicity .....	3.1-40
Table 3.1-12 Housing by Occupancy and Tenure.....	3.1-41
Table 3.1-13 Central Corridor Employment by Segment .....	3.1-42
Table 3.1-14 Year 2000 Race or Ethnicity Composition by Neighborhood .....	3.1-43
Table 3.1-15 2000 Census Population Characteristics .....	3.1-44
Table 3.2-1 Summary of Impacts.....	3.2-1
Table 3.2-2 Schools in Central Corridor.....	3.2-23
Table 3.2-3 Community Facilities in Central Corridor .....	3.2-26
Table 3.2-4 Places of Worship in Central Corridor.....	3.2-28
Table 3.2-5 Public and Subsidized Housing in Central Corridor .....	3.2-31
Table 3.3-1 Acquisitions, Displacements, and Relocations by Planning Segment.....	3.3-2
Table 3.3-2 Downtown St. Paul .....	3.3-4
Table 3.3-3 Capitol Area.....	3.3-5
Table 3.3-4 Midway East .....	3.3-5
Table 3.3-5 Midway West .....	3.3-5
Table 3.3-6 University/Prospect Park .....	3.3-6
Table 3.3-7 Downtown Minneapolis.....	3.3-6
Table 3.4-1 Summary of Potential Effects to Cultural Resources .....	3.4-2
Table 3.4-2 Properties Determined Eligible for or Listed on the National Register of Historic Places .....	3.4-15
Table 3.5-1 Summary of Parklands and Recreational Area Impacts .....	3.5-1
Table 3.5-2 Park and Recreation Resources Present within the Study Area.....	3.5-5
Table 3.5-3 Parks, Recreation Areas, and Open Space Located Within 350 Feet of the Central Corridor LRT Project .....	3.5-10
Table 3.6-1 Summary of Potential Visual/Aesthetic Effects for the Preferred Alternative .....	3.6-1
Table 3.8-1. Population and Percent of Total Population by Identified Racial or Ethnic Heritage ....	3.8-4
Table 3.8-2 2000 Income Characteristics .....	3.8-5
Table 3.8-3 Age and Percentage of Population .....	3.8-7
Table 3.8-4 English Language Proficiency by Population 5 Years and Over of Study Area LEP Populations.....	3.8-11
Table 3.8-5 No Vehicle Households .....	3.8-12
Table 3.8-6 Comparison of Effects to Protected Populations .....	3.8-14
Table 4.1-1 Groundwater Resource Sensitivity to Construction Activity .....	4.1-2
Table 4.1-2 Bedrock Aquifers .....	4.1-8
Table 4.4-1 State-Listed T&E Species within the Study Area .....	4.4-2
Table 4.5-1 National and Minnesota Ambient Air Quality Standards for Criteria Pollutants.....	4.5-2
Table 4.5-2 Intersections Modeled for Air Quality Impacts .....	4.5-3
Table 4.5-3 MOBILE 6.2.03 CO Emission Rates.....	4.5-4
Table 4.5-4 Monitored Carbon Monoxide (CO) in Ramsey County, MN <sup>a</sup> .....	4.5-7
Table 4.5-5 Maximum Predicted 1-Hour CO Concentrations (in ppm) for No-Build Alternative at Modeled Intersections.....	4.5-8
Table 4.5-6 Maximum Predicted 8-Hour CO Concentrations (in ppm) for No Build Alternative at Modeled Intersections .....	4.5-9
Table 4.5-7 Maximum Predicted 1-Hour CO Concentrations (in ppm) for Preferred Alternative at Modeled Intersections.....	4.5-10

Table 4.5-8 Maximum Predicted 8-Hour CO Concentrations (in ppm) for Preferred Alternative at Modeled Intersections .....	4.5-11
Table 4.6-1 Land-Use Categories and Metrics for Transit Noise Impact Criteria .....	4.6-4
Table 4.6-2 Sound Exposure Levels used in the Detailed Noise Assessment .....	4.6-5
Table 4.6-3 Summary of 24-Hour Noise Measurements .....	4.6-9
Table 4.6-4 Summary of 24-Hour Noise Measurements on Cedar Street in Downtown St. Paul ...	4.6-12
Table 4.6-5 Room Suitability Based on Reverberation Times .....	4.6-13
Table 4.6-6 Recommended Noise Criteria for Specific Areas .....	4.6-15
Table 4.6-7 Noise Analysis Summary .....	4.6-16
Table 4.6-8 Downtown St. Paul – Noise Analysis summary.....	4.6-20
Table 4.6-9 Capitol Area Noise Analysis Summary.....	4.6-23
Table 4.6-10 Midway East - Noise Analysis Summary .....	4.6-23
Table 4.6-11 Midway West - Noise Analysis Summary .....	4.6-24
Table 4.6-12 University/Prospect Park - Noise Analysis Summary .....	4.6-25
Table 4.6-13 Downtown Minneapolis - Noise Analysis Summary .....	4.6-26
Table 4.6-14 Noise Area Classification .....	4.6-29
Table 4.6-15 Daytime Construction Noise Impacts at Receptors .....	4.6-31
Table 4.6-16 Nighttime Construction Noise Impacts at Receptors .....	4.6-33
Table 4.6-17 Noise Mitigation Analysis Summary .....	4.6-36
Table 4.6-18 Downtown St. Paul – Noise Analysis Summary .....	4.6-36
Table 4.6-19 Capitol Area- Noise Analysis Summary .....	4.6-38
Table 4.6-20 Midway East - Noise Analysis Summary .....	4.6-38
Table 4.6-21 Midway West - Noise Analysis Summary .....	4.6-40
Table 4.6-22 University/Prospect Park - Noise Analysis Summary .....	4.6-41
Table 4.7-1 Ground-Borne Vibration Impact Criteria for General Assessment.....	4.7-3
Table 4.7-2 Ground-Borne Vibration and Noise Impact Criteria for Special Buildings.....	4.7-3
Table 4.7-3 Interpretation of Vibration Criteria for Detailed Analysis.....	4.7-5
Table 4.7-4 General Vibration Assessment Results.....	4.7-9
Table 4.7-5 Vibration Impacts at Category 1 Special Buildings.....	4.7-10
Table 4.7-6 Land Use Category 2 Vibration Impacts.....	4.7-10
Table 4.7-7 Land Use Category 3 Vibration Impacts.....	4.7-11
Table 4.7-8 Summary of Vibration Measurements for Category 1 Land Uses .....	4.7-13
Table 4.7-9 Summary of University of Minnesota Vibration Measurements.....	4.7-14
Table 4.7-10 Summary of Detailed Vibration Assessment Mitigation for Category 1 Land Uses ....	4.7-21
Table 4.7-11 Impact Thresholds Used to Evaluate Construction Vibration .....	4.7-22
Table 4.7-12 Vibration Source Levels for Construction Equipment .....	4.7-23
Table 4.7-13 Impact Distances for Construction Vibration .....	4.7-24
Table 4.8-1 Contaminated Sites (CS)1 Potentially Affecting Project Feature.....	4.8-2
Table 4.8-2 List of Hazardous/Regulated Material Sites Recommended for Phase II Assessment ..	4.8-4
Table 4.9-1 Summary of EMI Concerns and Major Utility Impacts.....	4.9-1
Table 4.10-1 Estimated Energy Use of Alternatives for Year 2030 .....	4.10-1
Table 5-1 Summary of Preferred Alternative Capital Costs (in YOE dollars).....	5-3
Table 5-2 Summary of Funding Sources.....	5-5
Table 5-3 Capital Costs Representing New Resources (in YOE dollars) .....	5-5
Table 5-4 RIMS II Multipliers by Industry .....	5-6

Table 5-5 Net Effects of Construction (Short-Term) Activity .....	5-6
Table 5-6 Net Earnings Impacts from O&M Activities (in 2008 dollars) .....	5-8
Table 5-7 Right-of-Way Acquisition and Associated Loss of Tax Revenues (in 2007 dollars) .....	5-9
Table 6-1 Transit Service Plan Headways (Minutes) .....	6-3
Table 6-2 Summary of Transit Ridership Forecasts for 2030 .....	6-7
Table 6-3 2030 Central Corridor LRT Daily Volumes by Station .....	6-9
Table 6-4 Existing (2007) Traffic Operations in Downtown St. Paul .....	6-19
Table 6-5 Existing (2007) Traffic Operations in Midway Segment of Central Corridor .....	6-19
Table 6-6 Summary of Existing (2007) Traffic Operations at U of M .....	6-22
Table 6-7 Forecast On-Corridor LOS in Downtown St. Paul .....	6-28
Table 6-8 Forecast Off-Corridor LOS in Downtown St. Paul .....	6-28
Table 6-9 Summary of Forecast LOS in Midway Segment of Central Corridor .....	6-29
Table 6-10 Summary of Forecast LOS in Midway & Capitol Area Segments, Off-corridor .....	6-31
Table 6-11 Summary of Forecast On-Corridor LOS at U of M .....	6-33
Table 6-12 Summary of Forecast Off-Corridor LOS at U of M .....	6-33
Table 6-13 Key Intersection Analysis for Downtown Minneapolis PM Peak Hour Synchro Analysis On-Corridor .....	6-36
Table 6-14 Key Intersection Analysis for Downtown Minneapolis PM Peak Hour Synchro Analysis Off-Corridor .....	6-36
Table 7-1 Section 4(f) Properties Not Used in Project Vicinity .....	7-14
Table 7-2 Use of Section 4(f) Property .....	7-27
Table 7-3 Alternative Alignments between State Capitol and Downtown St Paul .....	7-47
Table 8-1 Central Corridor LRT Capital Plan Summary .....	8-10
Table 8-2 Transportation Division Financial Plan Summary Capital Sources of Funds .....	8-11
Table 8-3 Transportation Division Financial Plan Summary Operating Sources of Funds .....	8-12
Table 8-4 Project Capital Expenditure Summary .....	8-16
Table 8-5 Transportation Division Capital Program .....	8-16
Table 8-6 Annual Operating and Maintenance (O&M) Cost Estimates (2008 dollars) .....	8-20
Table 8-7 Metropolitan Council Transportation Division Operating Cash Flow 2008-2030 .....	8-22
Table 8-8 Transportation Division & CCLRT Project Cash Flows: 20 Year - FY2007 through FY 2030 .....	8-25
Table 8-9 Transportation Division & CCLRT Project Cash Flows: 20 Year – FY2007 through FY2030 .....	8-26
Table 8-10 Transportation Division & CCLRT Project Cash Flows: 20 Year – FY2007 through FY2030 .....	8-27
Table 8-11 Transportation Division & CCLRT Project Cash Flows: 20 Year – FY2007 through FY2030 .....	8-28
Table 8-12 Transportation Division & CCLRT Project Cash Flows: 20 Year – FY2007 through FY2030 .....	8-29
Table 8-13 Transportation Division & CCLRT Project Cash Flows: 20 Year – FY2007 through FY2030 .....	8-30
Table 8-14 Transportation Division & CCLRT Project Cash Flows: 20 Year – FY2007 through FY2030 .....	8-31

Table 8-15 Transportation Division & CCLRT Project Cash Flows:  
 20 Year – FY2007 through FY2030 ..... 8-32

Table 8-16 Transportation Division & CCLRT Project Cash Flows: 2  
 0 Year – FY2007 through FY2030 ..... 8-33

Table 8-17 Transportation Division & CCLRT Project Cash Flows:  
 20 Year – FY2007 through FY2030 ..... 8-34

Table 8-18 Transportation Division & CCLRT Project Cash Flows:  
 20 Year – FY2007 through FY2030 ..... 8-35

Table 8-19 Transportation Division & CCLRT Project Cash Flows:  
 20 Year – FY2007 through FY2030 ..... 8-36

  

Table 9-1 Past and Future Population Growth by Project Segment ..... 9-5

Table 9-2 Reasonably Foreseeable Future Actions ..... 9-6

Table 9-3 Potential for Indirect Impacts and Cumulative Effects ..... 9-15

  

Table 10-1 Summary of Effects Relative to Project Goals and Objectives ..... 10-2

Table 10-2 Mobility Improvement Measures ..... 10-9

Table 10-3 **Central Corridor Light Rail Cost Effectiveness** ..... 10-10

Table 10-4 **Capital Financial Plan** ..... 10-12

  

Table 11-1 Permitting ..... 11-13