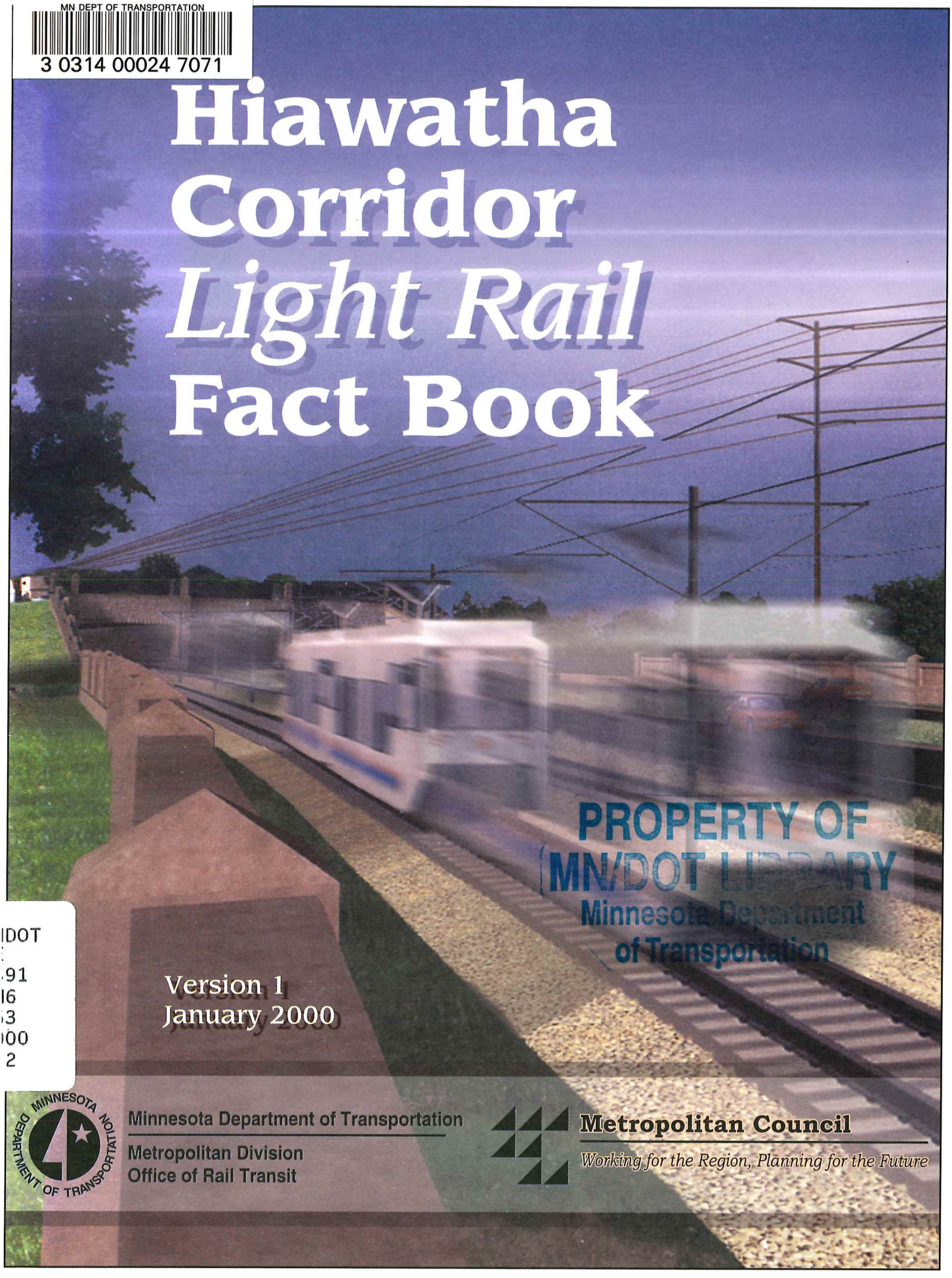
Hiawatha Corridor *Light Rail* Fact Book



Version 1
January 2000

Minnesota Department of Transportation
Metropolitan Division
Office of Rail Transit

Metropolitan Council
Working for the Region, Planning for the Future

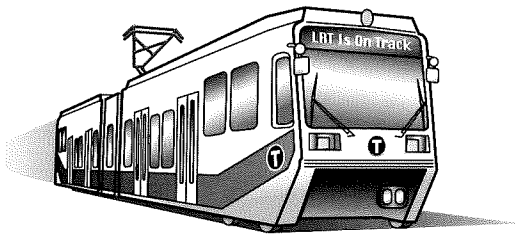
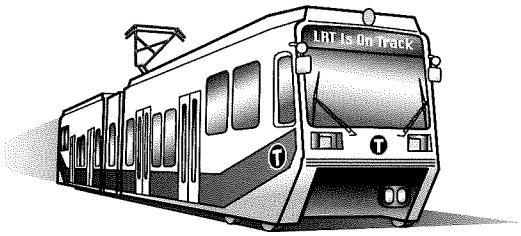


Table of Contents



Fact Book Purpose

The purpose of the Hiawatha Light Rail Transit Fact Book is to provide a comprehensive, centrally controlled and current source of information on the LRT project.

Audience/Distribution

The audience is any person with an interest in the corridor. This includes the general public, adjacent property owners, public officials and staff, the media, contractors and suppliers, the transit industry, students, planners and developers, the business community, and at some point in the future, historians. A distribution list will be kept by the Hiawatha Project Office Information Office (see below).

Format

The Hiawatha LRT Fact Book is arranged by "chapters," each describing a specific corridor topic. The topics range from design, management, schedule, financial, and operational issues.

Update Procedure

The Hiawatha LRT Fact Book information will be updated continuously in response to new information or requests for new chapters. Each chapter will be dated.

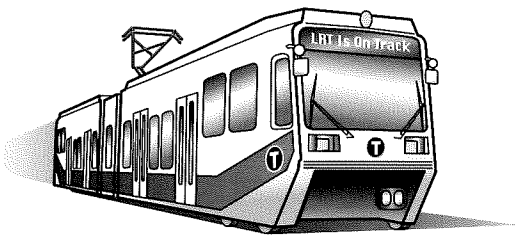
Control

All changes to the master document must be approved by Andy Brown and Bill Stead. The master copy is maintained by Editor Morgan MacBain.

Requests

To request copies of the Fact Book (or individual chapters), or to be added to the distribution mailing list, please contact Andy Brown, Communications Project Manager for the Hiawatha Project Office.

Telephone	651.582.1406
Fax	651.582.1302
Email	andrew.brown@dot.state.mn.us
Address	Mn/DOT Metropolitan Division Waters Edge 1500 West County Road B-2 Roseville, MN 55113
Web Page	www.dot.state.mn.us/metro/LRT



Facts and Figures Overview

Metropolitan Council	Owner and FTA Grantee; Vehicle Procurement
Mn/DOT	Design and Construction, Core Facilities and Systems
Metropolitan Airports Commission	Design and Construction of Tunnel, Underground Facilities and Two Stations
Metro Transit	Operator
January 1999	Begin Preliminary Engineering
October 2000	Full Funding in Place (Federal and Local)
October 2000	Begin Construction
Late 2003	Revenue Service, Downtown to Ft. Snelling/GSA
Late 2004	Revenue Service, Complete
$548.6 million	Estimated Cost (escalated)
19,300	Estimated Ridership (Year 2004)
24,800	Estimated Ridership (Year 2020)
11.4 miles	Length
15	Stations
2	Tunnels (Minnehaha, Airport)
2	Major Aerial Structures (TH 55, TH 62)
22	Light Rail Vehicles
750 Volts DC	Traction Power
Auto Train Protection ATP W/TWC	Signals
Full ADA Compliance	Accessibility
Design Build	Construction Approach
55 mph	Top Speed
22 mph	Average Service Speed
Self-Service/ Proof of Payment	Fare Collection

Data Card

The data card illustrated on this page is available in pocket size format. (See 'Request' in Purpose Chapter.)

Hiawatha LRT Facts Continued

Owner and Federal (FTA) Grantee.....Metro Council..Ted Mondale

Designer & Builder....Mn/DOT .....Elwyn Tinklenberg

Operator.....Metro Transit...Art Leahy

Construction Approach .....Design Build, (separate Light Rail Vehicle procurement)

Yard & Shop.....20 Acres at Franklin Ave., Mpls.

Tunnels:
Airport.....8,300 feet (1.6 miles) incl. station Constructed by MAC
Minnehaha Park.....660 feet

Major Structures.....LRT over TH55, 28th St. & Lake
LRT over TH62

Signals .....Train detection signal lights

Grade Crossings.....Gated.....15
Traffic Lights w/ Pre-emption..10
Traffic Lights w/o Pre-emption..8

As of December 6, 1999

For more information call (651) 582-1252,
Mary McFarland, LRT Communication Coordinator,
LRT@dot.state.mn.us

Minnesota Department of Transportation
Office of Rail Transit

Metropolitan Council
Working for the Region, Planning for the Future

FACTS & FIGURES

Description of the Hiawatha Light Rail Transit (LRT) Project

Start Preliminary Engineering.....January 1999

Full Funding in Place .....October 2000

Award Design Build & Light Rail Vehicle (LRV) Contracts .....October 2000

First Vehicle Test Run.....Fall 2002

Service, Downtown to Ft. Snelling.....Summer 2003

Service to Airport & Mall of America..Winter 2004

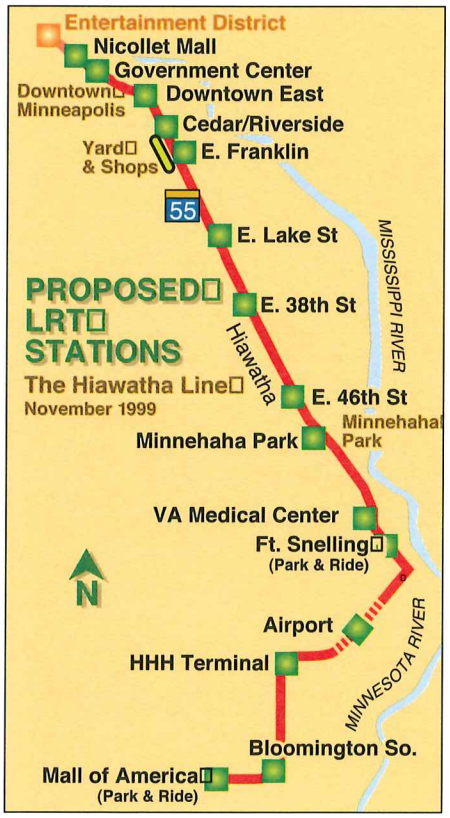
Budget in Year of Expenditure Dollars.....$548.6 million

Length of Alignment.....11.4 miles

Number of Stations.....15

Est. Daily Ridership (Yr.2004/2020) ..19,300/24,800

Funding – Federal Request.....$ 274m.....50%
State of Minnesota.....$ 100m.....18%
Hennepin County .....$ 87m.....16%
Metropolitan Airports Comm .....$ 70m.....13%
Mn/DOT.....$ 17m.....3%
TOTAL.....$ 548m....100%



Hiawatha LRT Facts Continued

Light Rail Vehicles (LRV's) ....22 with 70 seats each car, 160 passenger load, 90 feet long, 4 doors / side, articulated

Power.....750 volt DC from overhead wire

Top Speed.....55mph

Rush Hr Passengers per LRV, Yr. 2004 / 2020.....93 / 123

Rush Hr Service.....2 car trains, 8 per hr, 7-1/2 min intervals between trains

Base Service.....9:30 AM to 3:30 PM
6 trains per hr, 10 min intervals

Early Evening.....6:00 PM to 9:00 PM
4 trains per hr, 15 min intervals

Early AM / Late PM...2 trains per hr, 30 min intervals

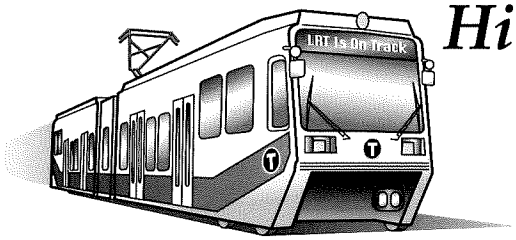
Major Patron Generators .....Downtown Minneapolis
University of Minnesota
Mpls/St. Paul International Airport
Mall of America

Connections.....46 bus lines at 13 stations

Accessibility .....Fully ADA compliant
low floor LRV

Fare Collection.....Barrier Free, proof of payment

Fare Price .....Comparable to Metro Transit Bus Fare



Hiawatha LRT Project Basics

What is Hiawatha LRT?

It is Light Rail Transit (LRT) that will serve the Hiawatha Avenue corridor from downtown Minneapolis, through the Minneapolis/St. Paul International Airport to the Mall of America in Bloomington. It will be the first leg of a planned network of light rail, commuter rail and transit corridors to serve the future growth of the Twin Cities. The 11.4 mile line will have 15 stations serving 24,800 daily passengers by the year 2020. Trains will run every 7.5-10 minutes during rush hours and every 10 to 30 minutes in non-peak periods. The downtown to Fort Snelling segment will open in summer 2003 with the remainder opening in fall 2004.

What is the cost and who is funding it?

The total cost is estimated to be $548 million in escalated dollars. The Federal Transit Administration is anticipated to provide a minimum of 50% or $274 million. The State of Minnesota authorized the sale of $100 million in general obligation funds for the state share. Hennepin County will provide $70 million in funding. The State and the County have provided in-kind contributions of $17 million each, primarily in the form of land for right of way. The Metropolitan Airports Commission will provide $70 million.

Who is responsible for the project?

The Minnesota Department of Transportation is responsible for design and construction of LRT as mandated by the state legislature. Mn/DOT selected the firm of Parsons Brinckerhoff Quade & Douglas, Inc. for project management. A contractor team for final design and construction will be selected in the summer of 2000. Metro Transit, the operator of the existing bus system, will operate LRT. The Metropolitan Council is the owner and FTA grantee.

What benefits will it provide?

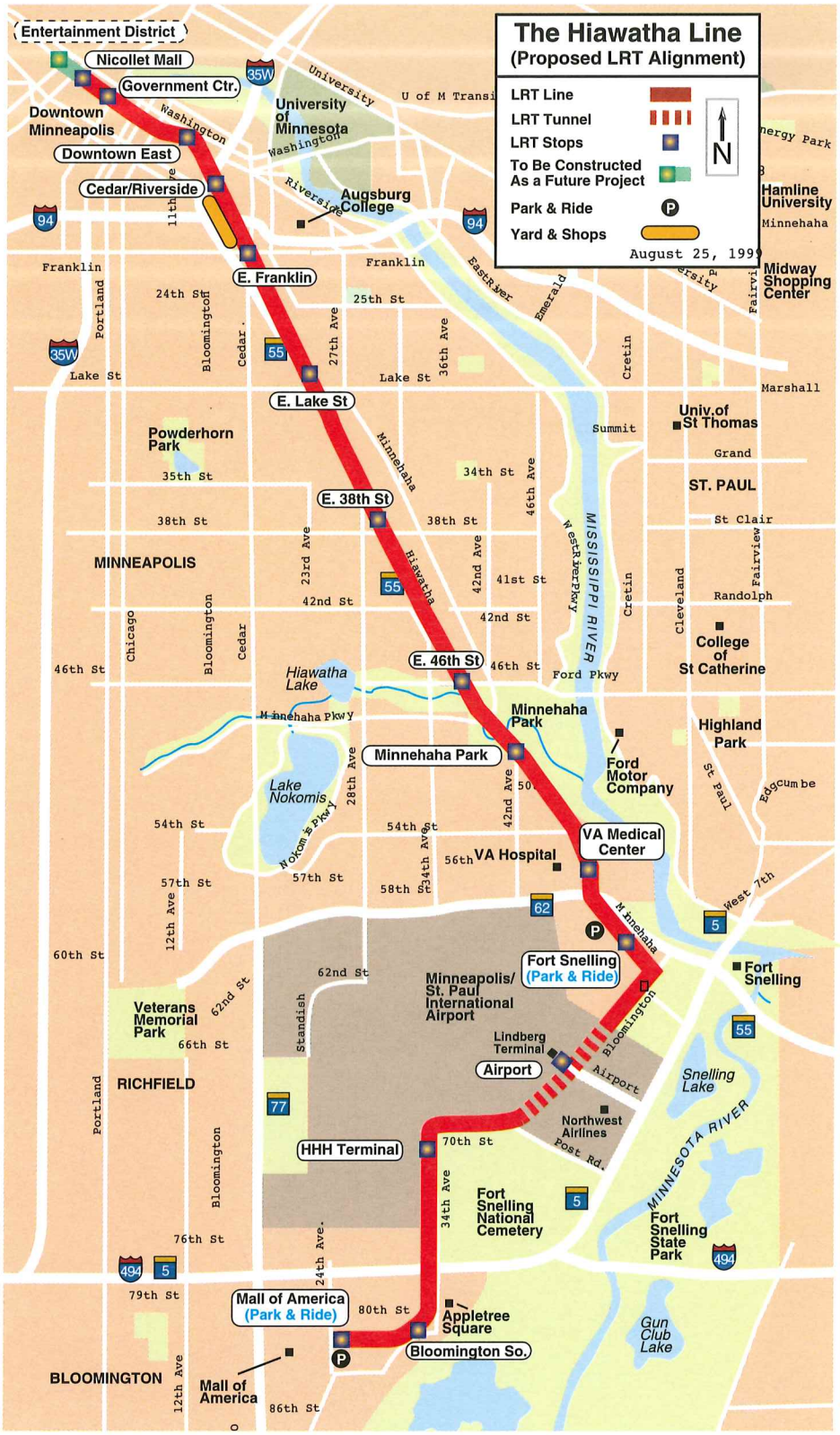
Hiawatha LRT will provide:

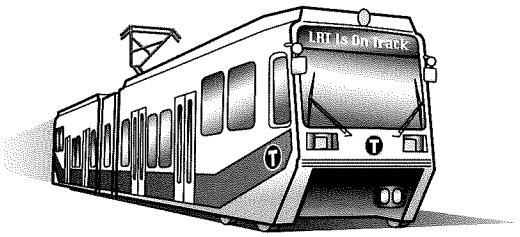
- Clean, efficient, convenient, accessible, quiet and affordable transportation
- A connection to jobs, parks, shopping and entertainment
- An outlet for congestion that does not take roadway space away from other modes
- A corridor well served by transit and other infrastructure for channeling future growth in jobs and housing

Where can you call for more information?

Contact the public relations team of the Hiawatha Project Office at (651) 582-1406.

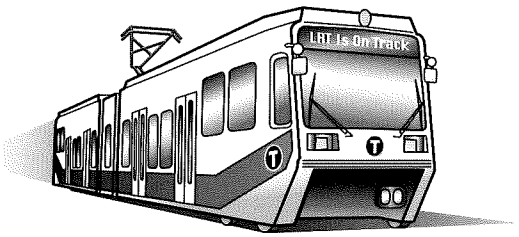
Map of Hiawatha LRT Line





Alignment

Total Length	60,000 feet (11.4 miles)
Airport Tunnel Length	8,300 feet (1.6 miles) (Subject to Final Design)
Bridges	Under I-494 (Modify Existing) Over TH 62 and TH 55 (New) Over Minnehaha Creek (Separate Contract - Highway) Under Godfrey Parkway (Separate Contract - Highway) Over East Lake Street (New) Over 28th Street (New) Over TH 55 (New) Over Cedar Avenue (Modify Existing) Over Franklin Avenue (Modify Existing) Under 6th Street Ramp Under I-94 Under 5th Street Ramp Over I-35W (Modify Existing) Over TH 122 (Modify Existing) Over 3rd Street South (Replace Existing)
Roadway Grade Crossings	15 Gated 10 Traffic Lights with Pre-emption 8 Traffic Lights without Pre-emption
Maximum Gradient	4.25%
Minimum Radius	200 feet (Hiawatha Corridor) 100 feet (Downtown Minneapolis)
Maximum Superelevation	3.5 inches
Design Speed	15-45 mph (Bloomington/34th Avenue S) 55 mph (Airport Tunnel) 30-55 mph (Hiawatha Corridor) 10-30 mph (Downtown Minneapolis)
Pocket Tracks	Mall of America/24th Avenue Station Fort Snelling Station



Project Milestones

Key Schedule Milestones
(Extracted from Project Master Schedule)

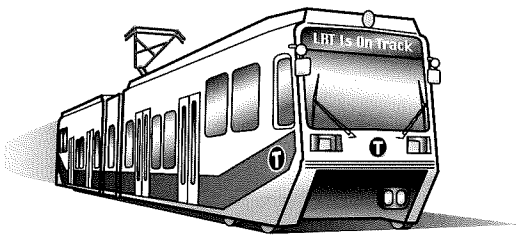
Pre Full Funding Grant Agreement (FFGA) and Award Of Construction and Vehicle Contracts

16 August 1999	Submittal of Reevaluation of Environmental Impact Statement (EIS) and Draft Environmental Assessment (EA) to Federal Transit Administration (FTA)
3 September 1999	➢ Submittal to FTA of Draft Preliminary Engineering Package (PE) ➢ Request to FTA to begin Final Design
14 September 1999	Issue Request for Letters of Interest (LOI) to Design/Build (DB) Industry (LOI Advertised in Local Newspapers on September 12, 1999)
29 September 1999	Submittal to FTA of Final PE and EA Package
4 October 1999	Receive LOI's from DB Industry
11 October 1999	Issue RFP Phase 1
12 October 1999	➢ Workshop for DB firms that submit a LOI ➢ Issue RFP - Phase I which requests a Statement of Qualifications (SOQ)
1 November 1999	Issue Request for Proposal (RFP) for Light Rail Vehicles (LRVs)
6 December 1999	Phase 1 Proposals Due from Potential DB Teams
21 December 1999	Announce Design – Build Roster
31 January 2000	Issue Draft Phase 2 RFP for Industry and Stakeholder Comment
18 February 2000	Light Rail Vehicles (LRV) Proposal Due Date

17 March 2000	➢ Station Architecture and Public Art Program ➢ Aesthetic Design Manual ➢ Utilities Design
7 April 2000	Issue DB RFP – Phase II
30 June 2000	DB Proposal Due Date
17 August 2000	Selection of DB Team and LRV Supplier. Issuance of Limited Notice to Proceed (NTP) for DB and LRV Design Activities.
2 October 2000	Anticipated Signing of Full Funding Grant Agreement (FFGA)
6 October 2000	➢ Full DB NTP ➢ Full NTP for Light Rail Vehicles (LRVs)

Procure, Install, Construct, Commission Phase

Fall 2001	Complete Utility Relocation and Protection
Fall 2002	First Vehicle Test Run
Spring 2003	System Testing, Nicollet to Fort Snelling
Summer 2003	Revenue Service, Downtown Minneapolis to Fort Snelling
Winter 2004	Revenue Service, Full System



Funding & Cashflows of Project

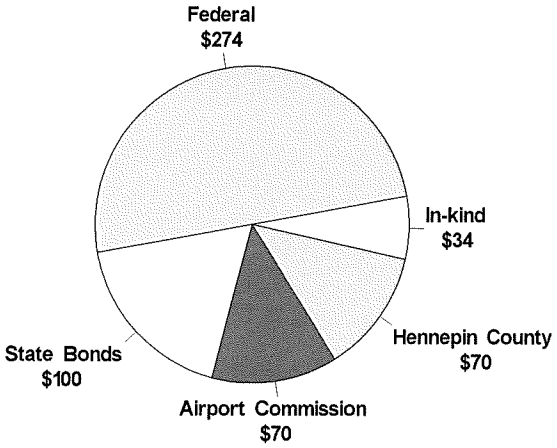
PROJECT COST BY ELEMENT

	Through 1999	2000	2001	2002	2003	2004	Beyond 2004	Total
ROW	26.6	16.8	0	0	0	0	0	43.4
Facilities/Systems	0	6.6	69	146.9	96	24.8	4.5	347.8
Vehicles	0	4	8.9	26.9	37.2	6.9	0.4	84.3
Soft Costs	16	14.4	13.5	13.3	10.6	3.9	1.4	73.1
Total Annual	42.6	41.8	91.4	187.1	143.8	35.6	6.3	548.6
Total Cumulative	42.6	84.4	175.8	362.9	506.7	542.3	548.6	548.6

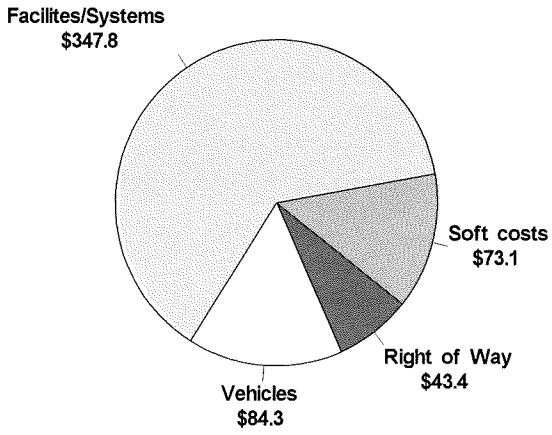
FUNDS BY SOURCE

	Through 1999	2000	2001	2002	2003	2004	Beyond 2004	Total
FTA	10.3	28.2	73.1	84.2	78.5	0	0	274.3
Cumulative FTA	10.3	38.5	111.6	195.8	274.3	274.3	274.3	274.3
State & Local								
Cash/Bonds	4.5	7.1	18.3	102.9	65.3	35.6	6.3	240
In-kind	34.3	0	0	0	0	0	0	34.3
Cumulative State/Local	38.8	45.9	64.2	167.1	232.4	268	274.3	274.3
Total Annual	49.1	35.3	91.4	187.1	143.8	35.6	6.3	548.6
Total Cumulative	49.1	84.4	175.8	362.9	506.7	542.3	548.6	548.6

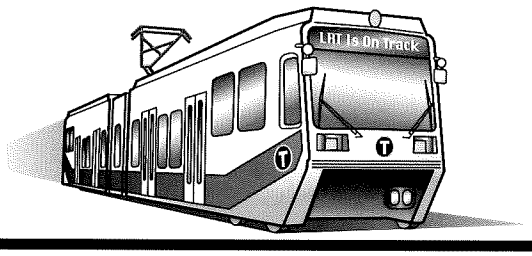
Revenue



Expenditures



Schedule of Funds Under Development



Organizational Approach

The initial organizational framework for the Hiawatha Project Office (HPO) was established by a Memorandum of Understanding (MOU follows) dated 11 August 1999 and signed by Elwyn Tinklenberg, Mn/DOT Commissioner, and Ted Mondale, executive director of Metropolitan Council. This approach, combining the strengths of public and private sector resources, continued with the selection of a permanent project manager in October 1999. Specific personnel and resources from Mn/DOT, Metropolitan Council and Metro Transit (MC/MT) are assigned full time to the HPO. The Program Manager plans, organizes, directs and manages the HPO in the performance of its mission.

The HPO has established interagency work orders with Mn/DOT, MC/MT and other public agencies where they can provide proven, competent support in specific areas. It is less productive and more expensive for the HPO to staff itself to perform those functions.

The HPO plans to operate out of one central office with space for all long and short term HPO staff.

The HPO organizational approach is defined by the following documents:

1) Organization Chart
2) Staffing Table
3) Organizational Unit Charters
4) Position Descriptions
5) Standard Operating Procedures

The HPO Project Director reports to the Hiawatha LRT Board through its chairman. The Board consists of six members appointed by the Commissioner of Transportation and representing Mn/DOT, Metropolitan Council/Metro Transit, Hennepin County, Metropolitan Airports Commission and the Cities of Minneapolis and Bloomington. The Board is advisory to the Commissioner and implements policy.

Memorandum of Understanding Between Mn/DOT and Met Council/Metro Transit

As preliminary engineering for the Hiawatha light rail transit project nears completion, the project is entering a critical stage of development including completion of environmental work and preliminary engineering, update of the 3j Report, the FFGA application and the development of the design build documents. It is imperative that these critical activities by a number of diverse groups in Mn/DOT and the Met Council be closely managed to ensure that products are successfully completed under the very tight time schedule.

In order to facilitate this coordination, Mn/DOT has amended the current PE contract with BRW/PB to provide interim project manager services until a selection process can be completed for permanent Project Management Consultant Services. Mn/DOT staff in the Metro Office of Rail Transit will be directed by the interim project manager. (See Table 1) Met Council and Metro Transit project staff currently managed by Art Leahy, Nacho Diaz, and Craig Rapp and assigned to the LRT project will also be directed by the consultant project manager.
(See Table 1)

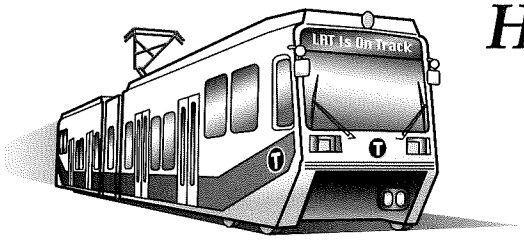
I concur

Elywn Tinklenberg, Commissioner
Minnesota Department of Transportation

Date: 8/11/99

Ted Mondale, Chairman
Metropolitan Council

Date: 8/11/99



Hiawatha LRT Project Board and Key Staff

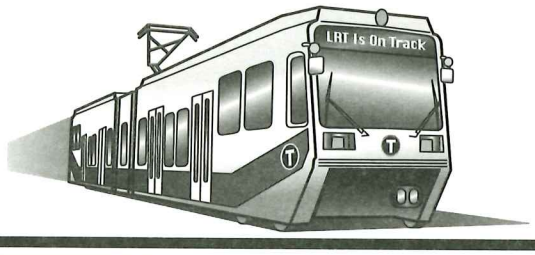
INDIVIDUAL	SOURCE	TITLE
Policy Leadership		
Elwyn Tinklenberg	Mn/DOT	Mn/DOT Commissioner
Ted Mondale	MC	Metropolitan Council Executive Director
Hiawatha LRT Board		
Dick Stehr	Mn/DOT	Board Chairman (Mn/DOT)
Art Leahy	MT	Board Vice Chair (MC/MT)
Vern Genzlinger	Hennepin Co.	Board Director (Hennepin Co.)
Nigel Finney	MAC	Board Director (MAC)
Dave Sonnenberg	Minneapolis	Board Director (Minneapolis)
Mark Bernhardson	Bloomington	Board Director (Bloomington)
Agency Representatives		
Bill Stead	PB	Project Director, Hiawatha Project Office
Mukhtar Thakur	Mn/DOT	Director, Mn/DOT Metro Rail Office
John Byrd	MT	Asst - General Manager - Rail Transit (MT)
Nacho Diaz	MC	Senior Advisor, Planning & Finance (MC)
Frank Loetterle	MC	Senior HPO Representative (MC)
Judy Melander	Mn/DOT	Metro Communications Director
Key Staff - Admin		
Sharon Klumpp	BRW	Chief Administrative Officer
Mark Fuhrmann	MT	Director of Finance
Jim O'Sullivan	PB	Director of Policy & Organization Development
Ted Axt	PB	Chief of Staff, HPO
Ann-Therese Schmid	Mn/DOT	Chief of Staff, Metro Rail Office or Mn/DOT
Todd Morrison	MT	Grants Administrator
Andy Brown	Mn/DOT	Communications Project Manager
Mary McFarland	Mn/DOT	Communications Specialist

Mn/DOT...Minnesota Department of Transportation
MC .....Metropolitan Council
PB .....Parsons Brinckerhoff Quade & Douglas, Inc.
LMA.....Linda Meadow Associates
MT .....Metro Transit
BRW.....BRW, Inc.
LTK.....LTK Engineering Services

(Continued on next page)

INDIVIDUAL	SOURCE	TITLE
Key Staff - Project		
John Harrison	PB	Project Manager, Design Build
Jack Caroon	Mn/DOT	Deputy Project Manager, Design Build
Roy Pratt	BRW	QA/QC Manager
Lisa Maurath	PB	Project Controls Manager
Paul McCauley	PB	Chief Engineer
Mike Schadauer	Mn/DOT	Director - Planning & Environmental Services
John Gustafson	LTK	Director of Systems Engineering
Peter Fedun	PB	Director of Civil & Facilities Engineering
Paul Swanson	BRW	Manager Civil Design
Ted Zealley	PB	Director - Design Build Contract
Vicki Barron	Mn/DOT	Utilities Coordination Engineer
Steve Morris	MT	Director of Transit Development
Linda Meadow	LMA	Director of Rail and Bus Safety
Jeanne Witzig	BRW	Planning and Environmental Services
Joe Gladke	Mn/DOT	Design Coordination and Permits Engineer
Cheri Olson	Mn/DOT	Design Compliance

Mn/DOT...Minnesota Department of Transportation
MC .....Metropolitan Council
PB.....Parsons Brinckerhoff Quade & Douglas, Inc.
LMA.....Linda Meadow Associates
MT .....Metro Transit
BRW.....BRW, Inc.
LTK.....LTK Engineering Services



Hiawatha LRT Project Organization Chart

Hiawatha Project Office
eff. 07 Dec 99, rev 7

FTA Grantee
Metropolitan Council

Commissioner
E. Tinklenberg

Corridor Management Committee
T. Mondale, Chair

LRT Board (100)
R. A. Stehr, Chair
A. Leahy, Vice-chair

To Be Determined (800)

Project Manager - MAC (800)
D. Probst (800.01)

Project Director – HPO (200)
W. G. Stead (200.01)

Project Office (200)
M. Thakur (200.02)
F. Loetterle (200.08)
J. O'Sullivan (200.04)
E. W. Axt (200.05)

Finance & Administration (300)
M. Fuhrmann (310.03)
S. Klumpp (320.01)
Finance Committee
Land Use Committee

Design Build Program Management (400)
J. Harrison (400.01)
J. Caroon (400.02)
P. McCauley (400.03)
A. Schmid (400.04)
Design & Constr. Comm.

Public Relations (500)
A. Brown (500.04)
M. McFarland (500.01)
Communications Committee

Operations & Maintenance (600)
J. Byrd (600.01)
S. Morris (600.03)
Rail Operations Committee
Fire/Life Safety Committee
Vehicle Procurment

Planning & Environment (700)
M. Schadauer (700.01)
J. Witzig (700.02)
D. Emerson (700.03)

Quality Assurance Oversight (410)
R. Pratt (410.01)

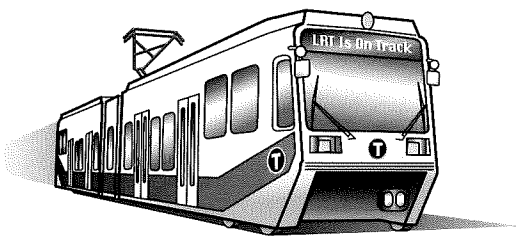
Project Controls (420)
L. Maurath (420.01)

Facilities & Civil Engineering (431)
P. Fedun (431.01)

Systems Engineering (432)
J.S. Gustafson (432.01)

Contract Administration (440)
T. Zealley (440.01)
K. Stevenson (.02)

Construction Compliance (450)
(450.01)



Hiawatha LRT Committee Structure

The Hiawatha LRT Corridor project relies on the involvement, cooperation, and participation of a number of agencies and jurisdictions in order to plan, design, construct, and operate a light rail system. A committee structure that promotes communication and decision making is therefore critical to the success of the Hiawatha LRT project.

Corridor Management Committee

A Corridor Management Committee (CMC) has been established, by law, to advise the Mn/DOT Commissioner on the design and construction of light rail transit in the Hiawatha Corridor. The Corridor Management Committee consists of the following members:

- One member each from the City of Minneapolis (Joan Campbell), City of Bloomington (Coral Houle), Hennepin County (Peter McLaughlin), and Dakota County (Paul Krause)
- The Mn/DOT Commissioner or a designee of the Commissioner (Doug Weiszhaar)
- Two members appointed by the Metropolitan Council, one of whom will be designated as chair of the Committee (Ted Mondale-Chair, Mary H. Smith)
- One member appointed by the Metropolitan Airports Commission (John Himle)
- One member appointed by the University of Minnesota (Mark Cox)

A representative of the LRT Joint Powers Board (Rafael Ortega) has since been added by the Committee.

Community Advisory Committee

The Corridor Management Committee, by law, has established a Community Advisory Committee, consisting of the following types of members:

- Individuals who reside in each neighborhood near the proposed corridor
- Representatives of businesses located within one mile on either side of the corridor
- Elected officials, including legislators, who represent the area in which the Hiawatha Corridor is located

The Community Advisory Committee advises the Corridor Management Committee on issues relating to preliminary engineering, final design, and construction of light rail facilities, including the proposed alignment of the corridor. The membership is identified in the Fact Book Chapter titled "Community Involvement Process".

Hiawatha LRT Board

The Hiawatha LRT Board provides oversight to the Hiawatha Project Office, Project

Manager, and technical committees. The Board, acting on behalf of Mn/DOT, is responsible for the project implementation through oversight of the project scope, budget, and staffing.

Members of the Board are:

- Department of Transportation (Richard Stehr – Chair)
- Metropolitan Council (Metro Transit) (Art Leahy – Vice Chair)
- Hennepin County (Hennepin County Regional Railroad Authority) (Vern Genzlinger)
- City of Bloomington (Mark Bernhardson)
- City of Minneapolis (David Sonnenberg)
- Metropolitan Airport Commission (Nigel Finney)

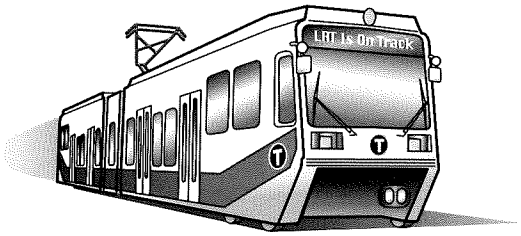
Mn/DOT chairs the Hiawatha LRT Board during the design and construction phase of the project. Metro Transit will assume the chair of the Hiawatha LRT Board at the time that Mn/DOT and Metro Transit take beneficial occupancy of the project. All actions taken by the Board are forwarded to the Commissioner of Transportation for final approval.

Technical Committee Structure

The Hiawatha project is guided through a committee structure that represents the funding and participating entities involved in the Hiawatha LRT project, and covers the key technical, financial, land use, design, construction, and operations issues.

The committees include:

- Design and Construction Committee (DCC)
- Rail Operations Advisory Committee
- Transportation Access Advisory Committee
- Fire/Life/Safety Committee
- Finance Committee
- Land Use & Community Impacts Committee
- Communications Committee



Contracting Approach

It was determined in mid-1999 following a series of workshops, a peer review, LRT project visits to other cities, recommendations by a select panel of program management consultants and consideration of the urgency for inclusion of Hiawatha LRT in the Federal Transportation Equity Act for the 21st Century (TEA-21) that design build (DB) is the preferred approach for the Hiawatha LRT project. State legislation is in place to support the DB approach.

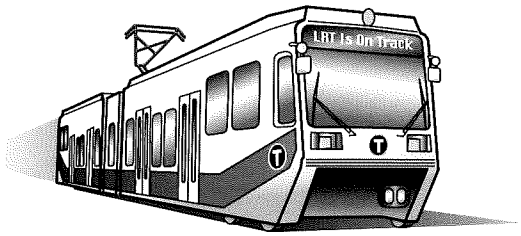
Light rail vehicles will be procured under a separate procurement. This strategy will allow greater competition for the DB contract and will also accelerate the delivery of the vehicles – the critical item in the project schedule – by initiating LRV procurement activity six months in advance of DB procurement.

The tunnel, two stations and other underground facilities at the airport will be designed and constructed by MAC. This decision is based on the concern for security and safety of airport operations.

The DB Contractor is responsible for all work (except for the LRV and airport works) which includes design, procurement and construction of the roadbed and track, structures, stations, traction power supply and overhead wire, signal, communication, fare collection, yard and shops and systems installation in the tunnel.

Given that Hiawatha is the first LRT experience in Minnesota, DB offers the following advantages to Mn/DOT and Metropolitan Council/Metro Transit:

- DB contractor and LRV supplier are the only points of responsibility for project delivery.
- Reduced owner management and coordination; motivate private sector project management to optimize value for cost.
- Early cost determination.
- DB contractor responsible for technological and system interface risks.
- Avoid adversarial interface between design and construction.
- Reduce design and construction time by overlapping design, procurement and construction.
- Improved quality by encouraging innovation and creativity and maximizing strengths of contractor.
- Improved risk allocation and management.



Enabling Legislation

The Hiawatha Light Rail Transit (LRT) project was named in the 1998 Federal Transportation Act (TEA 21 - Transportation Equity Act for the 21st. Century) as a recommended project (Pub. L. No. 105-178, Section 3030(a)(91)). A federal share of $27.5 million has been appropriated for engineering and project development of the Hiawatha LRT project. The federal share for the entire project is expected to be $274 million.

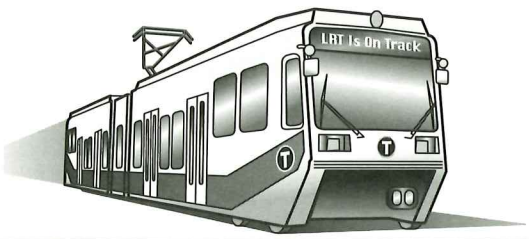
Prior to the federal acknowledgment of the Hiawatha LRT project, the Minnesota Legislature had authorized the Commissioner of Transportation to plan, design, acquire, construct, and equip LRT facilities in the Minneapolis/St. Paul metropolitan area (Minn. Stat.174.35). The Legislature also directed that Metro Transit, which is the transit operational division of the Metropolitan Council, be the operator of the Hiawatha LRT. The Metropolitan Council, the regional planning organization for the Twin Cities metropolitan area, will operate the Hiawatha LRT project through its Metro Transit division.

The legislature has also created several specific statutory guidelines for the Hiawatha LRT project. The Metropolitan Council is required to adopt a specific LRT plan as part of its coordinated transportation plan under Minnesota Statutes Section 473.399. The preliminary design plan, preliminary engineering plan, and final design plan and their contents are clearly defined in Minnesota Statutes Section 473.3993. The preparation of applications for federal assistance are addressed in Minnesota Statutes Section 473.3997.

The bulk of the Hiawatha LRT statutory authority falls under Minnesota Statutes Section 473.3994. This statute covers the public hearing and approval processes for the preliminary design plan and final design plan, involving the counties and cities that are affected by the Hiawatha LRT project. The Corridor Management Committee was created under this statute. This committee consists of local community members and leaders whose purpose is to advise the Commissioner of Transportation on the design and construction of the Hiawatha LRT. This statute also identifies a need for a dispute resolution procedure that will be used by the stakeholders during the design and construction of the Hiawatha LRT project.

Further, in May of 1999, the legislature amended Minnesota Statutes Section 473.3994, subdivision 3(2) to give the Commissioner of Transportation direct authority to utilize the design build process to construct the Hiawatha LRT project and to use a qualification-based selection process in the award of the design build contract. The design build process is a method that compresses the design and construction of the project into one contract and that can potentially save time and money on the Hiawatha LRT project.

In 1998, the Minnesota Legislature also authorized the sale of $40 million in General Obligation Bonds as a portion of the state's $100 million share. (1998 Session Laws, Chapter 404, Sec. 17, subd. 3.(b)) This law also created the Community Advisory Committee, which reports to the Corridor Management Committee on preliminary engineering, final design, and construction and issues related thereto. In May of 1999, the legislature appropriated the remaining $60 million of the state share to the Hiawatha LRT project (1999 Session Laws, Chapter 240 Art. I, Sec. 9, subd. 5). This was the final state appropriation for the total construction of the Hiawatha LRT project.

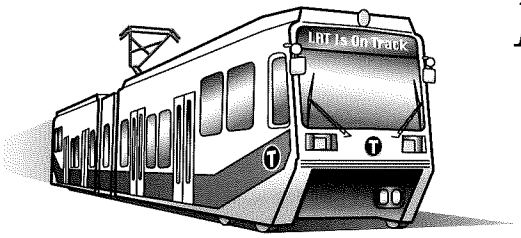


Legislatively Mandated Milestones

When the Minnesota Legislature appropriated the remaining $60 million of the state's $100 million share of the Hiawatha Light Rail Transit (LRT) project, it did so with several stipulations written directly into the bill, the first of which stating that the $60 million is the final state appropriation for the Hiawatha LRT project (1999 Session Laws, Chapter 240, Art. I, Sec. 9, subd. 5).

The Minnesota Legislature defined two critical events which must occur prior to the Commissioner of Transportation spending the appropriation. The two events are the approval to enter final design from the Federal Transit Administration (FTA) and the execution of a Full Funding Grant Agreement (FFGA) with the FTA for not less than $223 million. If the FTA does not issue final design designation for the Hiawatha LRT project prior to May 1, 2000, or the FFGA is not executed by January 31, 2001, the $60 million appropriation, any remaining portion of the $40 million appropriation, and the state bond sales that have been authorized for these appropriations for the Hiawatha LRT project will be canceled.

The Minnesota Legislature also made two additional requests of the Commissioner of Transportation. The first request is for a determination by the Commissioner that no part of the construction costs of the Hiawatha LRT project will be paid by any property tax revenues other than the property tax revenue earned by the Hennepin County Regional Railroad Authority. The second request is for a joint submission by the Commissioner and the Chair of the Metropolitan Council of a financial plan that identifies the operating costs, and how those costs will be met, for at least the first five years of operation of the Hiawatha LRT line. This report is due to the legislature by February 1, 2000.



Public Information Program

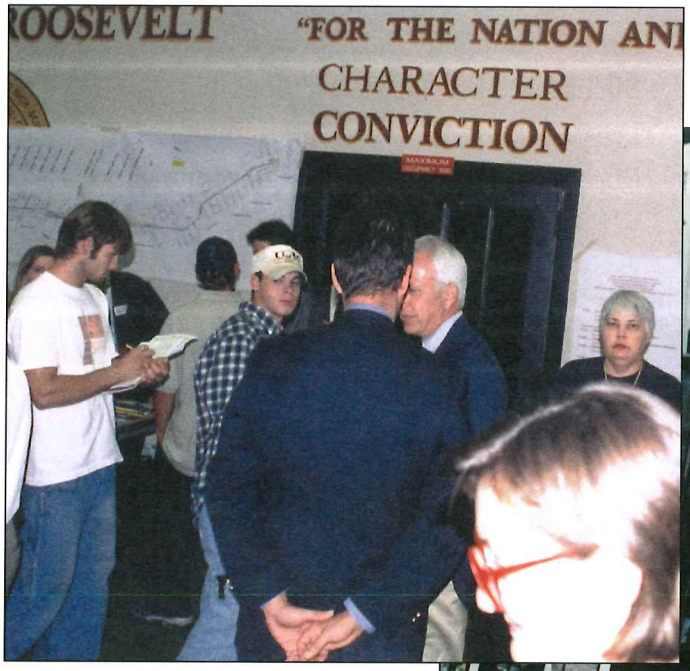
The goal of the public information program is to build support for the project by promoting understanding and use of the regional transit system, including light rail in the Twin Cities region. A further aim of the public information program is to maintain statewide support for the Hiawatha project by emphasizing how light rail makes the region and the state more vital and competitive.

Program Activities Completed to Date

The following list of communications, community involvement and marketing activities have been completed to date. This list will be updated on an ongoing basis throughout the three phases of the Hiawatha LRT Corridor project. In addition, a packet of media clips and copies of printed materials is available for review at the Metropolitan Council's Regional Data Center.

- Media event planned in conjunction with Pre-Bidders Construction Workshop on October 12, 1999.
- Hiawatha LRT Corridor Fact Book published. The Fact Book is a living document that will reflect the evolution of the project.
- Commissioner Tinklenberg interviewed on Newsnight Television.
- Hosted/co-hosted three formal public hearings for LRT Preliminary Design Plans (Hennepin County, September 1, 1999; City of Bloomington, September 8, 1999 and City of Minnepolis, September 16.)
- Prepared news release regarding announcement of William G. Stead, Hiawatha Corridor LRT Project Manager.
- News releases distributed for all open houses and land use planning workshops.
- Post cards mailed to announce the public hearings
- Flyers direct-delivered to corridor residents to invite participation in land use planning workshops October/November, 1998.
- Two general public open houses held – September/October, 1998.
- Fact sheets distributed at the open houses and workshops (updated monthly).
- Extensive large and small market media coverage received as a result of the community involvement process.
- LRT programming broadcast on cable television.
- Advertisement inserts prepared for September 1999 formal public hearings.
- Speakers bureau developed, publicized and booked at various venues.
- *Making Tracks* newsletter mailed to residents along corridor.
- Exhibit featuring LRT model and video displayed at 1999 State Fair. Presentations given at Minnesota Public Transit Association conference and Metro Commuter Services Commuter Choice conference.
- Interviews conducted for both radio and print media
- LRT information made available through the Mn/DOT web site and Email.
- Public comment telephone line established and publicized.
- LRT component developed as part of business-to-business congestion education program conducted by Minneapolis Transportation Maintenance Organization (TMO).
- Media relations seminars scheduled for project managers.
- Annual public opinion polls, pertinent program surveys and regular focus groups with key audiences have helped to shape an effective action plan. Periodic updates of the action plan will present key strategies, budget and research findings to lead to a successful start-up in 2003.
- "LRT is on Track" signage placed on LRT corridor.
- Lapel buttons and pins with LRT logo and "LRT is on Track" message distributed to media, local units of government and at public meetings.

Community Involvement Process



The Community Advisory Committee was created by statute to: (1) advise the Hiawatha Corridor Management Committee on the full range of issues that have a direct community impact, including land use around stations, design of stations, feeder bus routings, and impacts on both residential and business communities in the corridor; (2) provide the lead on citizen participation; and (3) advise the Corridor Management Committee on how to structure its communications efforts. The 40-member committee includes appointed community and business representatives as well as elected officials from Minneapolis and Bloomington. The Community Advisory Committee meets approximately once a month. Audience members generally outnumber committee members and they have equal opportunity to speak and raise issues. The Community Advisory Committee works closely with technical staff on the Land Use Committee to insure that there is public participation in making land use decisions around stations. The Federal Transportation Administration has sent a clear message that attainment of a funding agreement will depend partially on supportive land use policies and plans around stations.

The Community Advisory Committee operates with the goal of developing a project that is beneficial to adjacent communities and can be delivered on time and within budget. In order to move the project forward to implementation, the committee has clearly advised the public about which decisions have already been made, and which items are open for discussion and change.

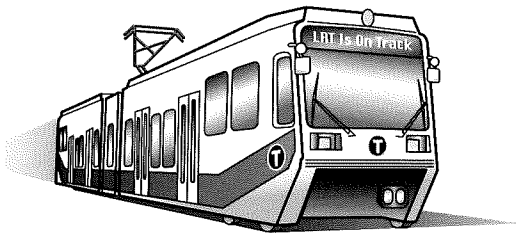
Community Advisory Committee, November 1999:

Paul Barber .....Downtown Minneapolis
Connie Barry.....Bloomington
Sen. Linda Berglin.....District 61
Richard Bjork.....Bloomington
John Bochek .....Veterans Administration
Tom Butler .....Dakota County
Rep. Karen Clark.....District 61A
Tom Daniel.....Standish Ericsson
Jim Davnie .....Seward
John DeWitt .....Transit for Livable Communities
David Dillon .....Hennepin County
Sen. Carol Flynn.....District 62
Jullonne Glad.....Corcoran
Sam Grabarski .....Downtown Council
Rep. Lee Greenfield .....District 62A
Michael Guest.....Powderhorn
Shirley Hughes.....Ceridian Corporation
Dan Hunt .....Hennepin County
Margot Imdieke Cross....Cedar Riverside
Sen. David Johnson .....District 40
Carol Kummer.....CAC Chair & Metropolitan Council Member
Lollie Lijewski .....Transit Accessibility Advisory Committee
Dick Long.....Metropolitan Airports Commissioner
Rebecca Mathern.....U of M Student
Marv McNeff.....Ramsey County
James Nestingen .....Longfellow
Michael O'Neal .....Phillips
Lee Olander .....Bloomington
Michael Rainville .....Greater Minneapolis Convention & Visitors Association
Sen. Jane Ranum .....District 63
Millie Schafer.....Elliot Park
Dave Schmidt .....Nokomis East
Margaret Schreiner .....Dakota County
Rep. Wes Skoglund.....District 62B
Marcy Tollefson.....Standish Ericsson
Rep. Jean Wagenius .....District 63A
John Wheeler .....Mall of America
Lt. Col. Lew Wolf.....MN Air National Guard

Hiawatha Corridor Land Use and Community Impacts Committee, November 1999:

Chair: Eli Cooper .....Metropolitan Council Director of Planning & Growth Management

Geoff Batzel.....Minneapolis Planning Department
Larry Blackstad .....Hennepin County Community Works
John Bochek .....Veterans Administration Medical Center
Kurt Chatfield .....Dakota County
Caren Dewar.....Midtown Community Works
Mark Garner .....MCDA
Clint Hewitt.....University of Minnesota
John Kari .....Metropolitan Council
Carol Lezotte .....Hennepin County Works
Jennifer Lovaasen .....Metropolitan Council
Karen Lyons.....Metropolitan Council
Monique MacKenzie .....Minneapolis Planning Department
Jim Moore.....MCDA
Bob Morgan .....Minneapolis Public Works
Steve Morris.....Metro Transit
Glenn Olson.....Downtown Minneapolis Transit Management Organization
Mike Schadauer .....Mn/DOT Metro Rail Office
Katie Walker .....Hennepin County Transit & Environmental Services
Sandy Welsh .....Minneapolis Park Board



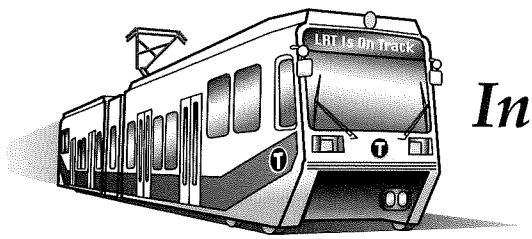
Public Art and Aesthetics

Public art and landscaping will be developed to enhance stations and reflect the unique character and needs of the individual communities. Certain station components will be designed to allow for customization by integrating unique public art and aesthetic enhancements. Examples of these components include benches, windscreens, finishes, light fixture housing, landscaping, bicycle racks, trash receptacles, and canopies.

Stakeholders along the Hiawatha Corridor will offer their input to the public art program via station design workshops. A total of three workshops will be held in November 1999, January 1999 and March 1999.

An arts administrator will be hired by Metro Transit to work as part of the architecture/design team. The conceptual design plans produced by this team will include specifications for art locations and types. The implementation plan will present a schedule for soliciting artists and incorporating community input into the art pieces. The arts administrator will be responsible for implementation.

The art program has a $500,000 budget. In addition, items comprising approximately 20 percent of the cost of the station and electrical substation architectural elements must be influenced or designed by artists (this equates to $2.5 to $3 million).



Land Use and Development Integration Around Hiawatha LRT Stations

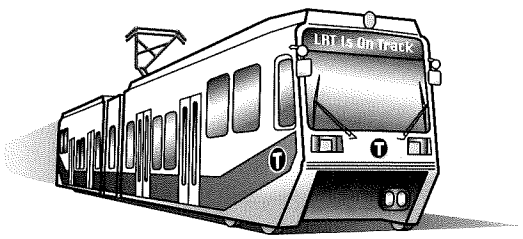
A Hiawatha Land Use and Community Impacts Committee (LUCI) is responsible for land use planning, community involvement, station design and aesthetics. The committee is composed of members from Minneapolis and Bloomington city planning, the Minneapolis Community Development Association (MCDA), Hennepin County, the Metropolitan Council, and other agencies involved with the Hiawatha LRT project.

LUCI has been actively working towards promoting additional growth and development around LRT stations. "Station area profiles" have been prepared that generally describe existing development and the future potential development vision for each of the station areas.

Other LUCI initiatives include a "Transit-Oriented Development (TOD) Market Study" (see following page) for the corridor, longer-term station area land use master planning, creation of development agreements and necessary legislative changes to enable TOD, and enactment of two new transit-oriented development funding programs, $4 million for TOD funding by MCDA, and $5 million by Metropolitan Council for TOD land assembly. A more thorough description of land use initiatives is available, entitled "Supplemental Information on Transit Supportive Land Use: Existing and Future Patterns, for the Hiawatha LRT Corridor (September 3, 1999)".

A working group of MCDA, Bloomington, Metropolitan Council, Hennepin County and Mn/DOT staff will prepare specifications to be included in the Design Build RFP for incorporation of development as part of LRT construction, where appropriate, along the LRT line. Potential bidders who are prepared to function as equity partners or development partners as part of a public/private joint development at stations are encouraged.

Locations along the LRT alignment where joint development are especially encouraged are the yards & shops area attached to the Franklin Avenue Station, and the Metrodome (or Downtown East) Station.



Hiawatha LRT Transit-Oriented Development Market Study

Preliminary results of a federally-funded market study show that light-rail transit along the Hiawatha Corridor could be a boon to the local and regional economy. Consultants say the time is now to seize the opportunity to shape development around planned transit stations in a way that promotes and enhances transit, integrates land uses and encourages more compact development.

According to preliminary findings, the corridor-wide development potential to 2020 includes nearly 7,000 new housing units, more than 19 million square feet of new commercial development and up to 68,000 new jobs. According to the study, transit-oriented development opportunities are especially significant around four "catalyst" stations, including the Downtown East station by the Metrodome, Lake Street, 46th Street and stations in Bloomington. These could be used as models for planning development around other transit stations.

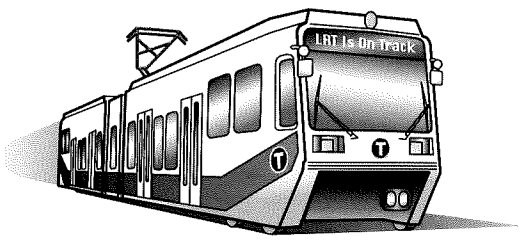
The market study assesses transit-oriented development opportunities and strategic public initiatives for the areas within 1/2 mile of Hiawatha LRT stations from downtown Minneapolis to the VA Hospital and for the stations in Bloomington, analyzing anticipated market demand for commercial and residential development around the stations between 2000 and 2020.

The Federal Transit Administration provided $100,000 to fund the corridor-wide study. The study was initiated by the Hiawatha LRT Land Use and Community Impacts Committee, chaired by Metropolitan Council staff. It was managed by the Minneapolis Community Development Agency.

The consultant team presented their preliminary findings Nov. 8, 1999 to Minneapolis and Bloomington city council members, Hennepin County commissioners, Metropolitan Council members, the multi-agency Hiawatha LRT project staff and the Corridor Management Committee. A summary of the findings are presented below. Please contact the City of Minneapolis Planning Department at (612) 673-2597 to obtain copies of full report.

Corridor Wide Development Potential: 2000 – 2020

	Net New Occupied Dwelling Units	Net New Commercial Development	Net New Employment
Minneapolis – CBD	2,000	9,481,000	37,924
Downtown East	1,500	2,722,500	10,890
Total Downtown Mpls.	3,500	12,203,500	48,814
Middle Segments	3,470	204,600 – 331,400	(1,612) – (1,100)
Bloomington	(150)	6,681,000	20,013
Corridor Total	6,820	19,089,100 – 19,215,900	67,215 – 67,726



Light Rail Vehicles (LRV's)

GENERAL INFORMATION

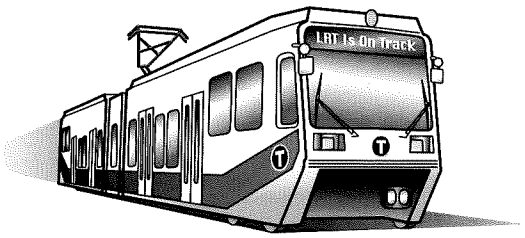
Fleet Size	22 (with options)
Doorways per Car	4 per Side
Train Capacity	≈ 70 Seats
	≈ 155 (4 Passengers/m2)
	≈ 250 (8 Passengers/m2) Crush Load
Features	Heating, Ventilation, and Air Conditioning
	Automated Announcements
Type	Articulated with Three Trucks

TECHNICAL FEATURES

Train Length	88-94 ft.
Car Width	8′ 8 3/4″
Car Height	12′ 5″
Interior Headroom	6′ 7″
Train Weight	105,000 lbs. empty
Gauge	4′8 1/2″
Operating Voltage	750 vdc
Traction Motors	4 AC motors per car
Traction Controls	AC Drive
Braking	Regenerative-Dynamic/Friction/TrackBrake
Average Acceleration	3 mphps
Average Deceleration	(Normal) 3 mphps
	(Emergency) 5 mphps
Maximum Speed	55 mph
Carbody Construction	Corten Steel

COMMERCIAL INFORMATION

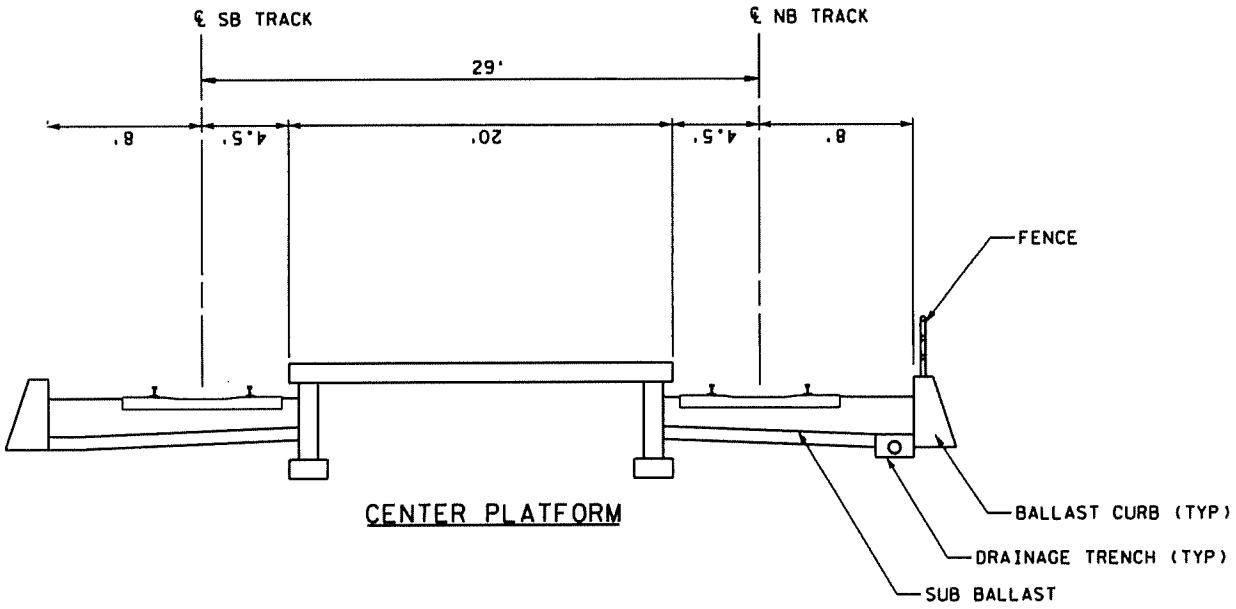
(TBD)



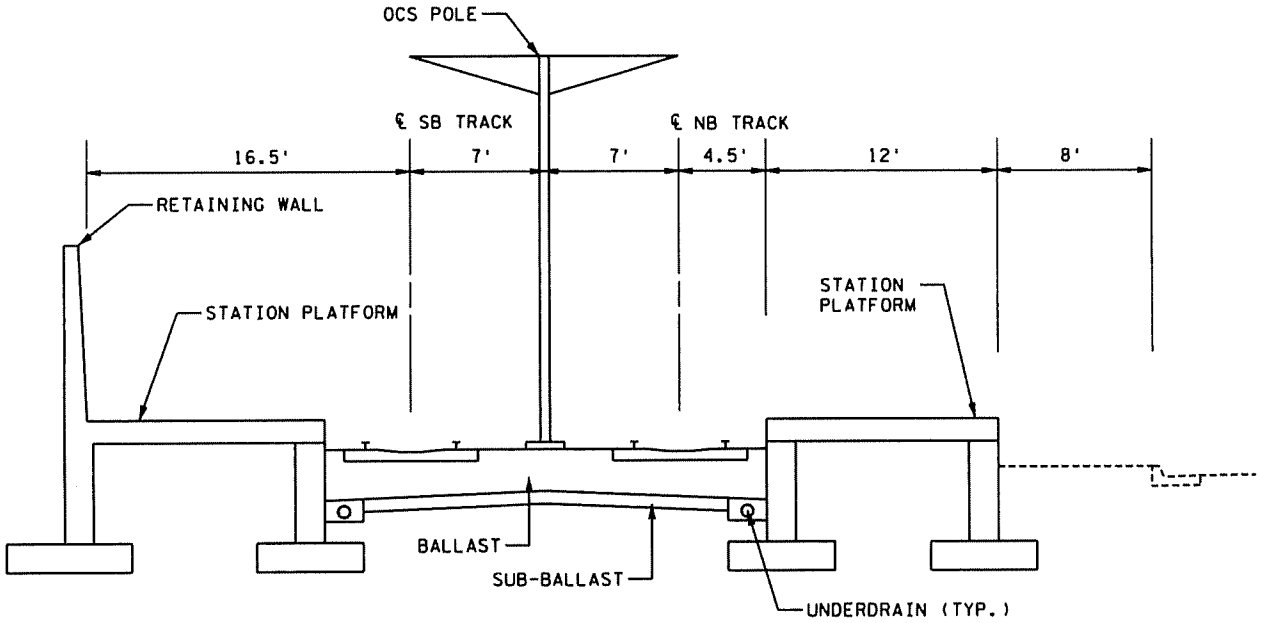
Station Features

Number of Stations	15 Stations
Type of Stations	12 At-Grade Stations 2 Elevated Station (Franklin Avenue and Lake Street) 1 Underground Station (Airport Main Terminal)
Station Configuration	11 Center Platform Stations 3 Side Platform Stations (50th Street/Minnehaha Park; 46th Street; Downtown East) 1 Binocular Station (Airport Main Terminal)
Platform Height	14 inches above Top of Rail
Platform Length	200 feet (Expandable to 300 feet)except for 300 feet for both Airport Terminal Stations and Lake Street.
Vertical Circulation	Elevators and Stairs (Franklin Avenue and Lake Street) Elevators, Escalators and Stairs (Airport Main Terminal) Elevators, Escalators, Stairs and Overhead Pedestrian Connector (Mall of America/24th Avenue)
Fare Collection	Barrier-Free Proof of Payment System Self-Service Ticket Vending Machines and Validators Compatible with Existing Bus Fare Collection System
Passenger Amenities	Canopies and Windscreens Overhead Radiant Heaters Map and Information Kiosks Bicycle Racks and Lockers Benches and Leaning Rails Litter Receptacles Platform Lighting Signing and Graphics Public Art
Station Supervision	Metro Transit Police Patrol Closed-Circuit Television (CCTV) Monitoring Public Address and Readerboard Systems

Typical Station Section



CENTER PLATFORM



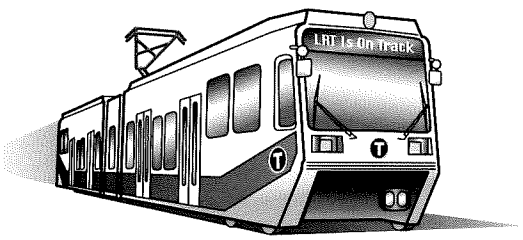
SIDE PLATFORM

Facilities for Persons with Special Needs

Passenger stations and related facilities are planned and designed to be fully compliant with the requirements of the Americans with Disabilities Act (ADA). The following station elements are specifically designed to be ADA compliant:

Benches	Public Address Equipment
Elevators	Public and Emergency Telephones
Escalators	Railings
Kiosks	Ramps
Landings	Signing and Graphics
Lighting	Stairs
Parking	Ticket Vending and Validation Equipment
Platform	Track Crossings
Platform Edge	Walkways

In addition, the Light Rail vehicles are designed to comply with ADA, including low-floor/level boarding access, designated seating, wheelchair restraints, audible door close warning, and station annunciation.



Fare Collection

GENERAL INFORMATION

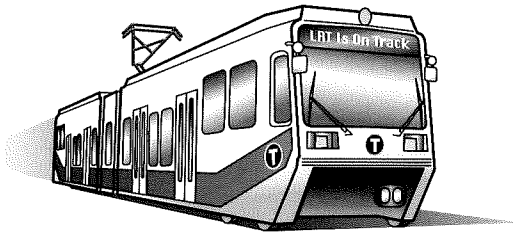
Fare Structure	Zone or Flat Fare Fully Integrated with Metro Transit Bus Machine Readable Transfers
Fare Collection Method	Self-Service, Proof-of-Payment Special Events Mobile Random Inspection
Fare Media	Single Fare Tickets Magnetically-encoded Media Monthly Passes

TECHNICAL FEATURES

Ticket Vending Machines	Single Tickets Changemaking with Recirculation 8 Coin Values with Escrow 14 Bill Types with Escrow Provisions for Future Credit/Debit
Ticket Validator	Print Validation
Audit Control, Monitoring, Security & Fault Indication	All Devices Networked to Central Control

COMMERCIAL INFORMATION

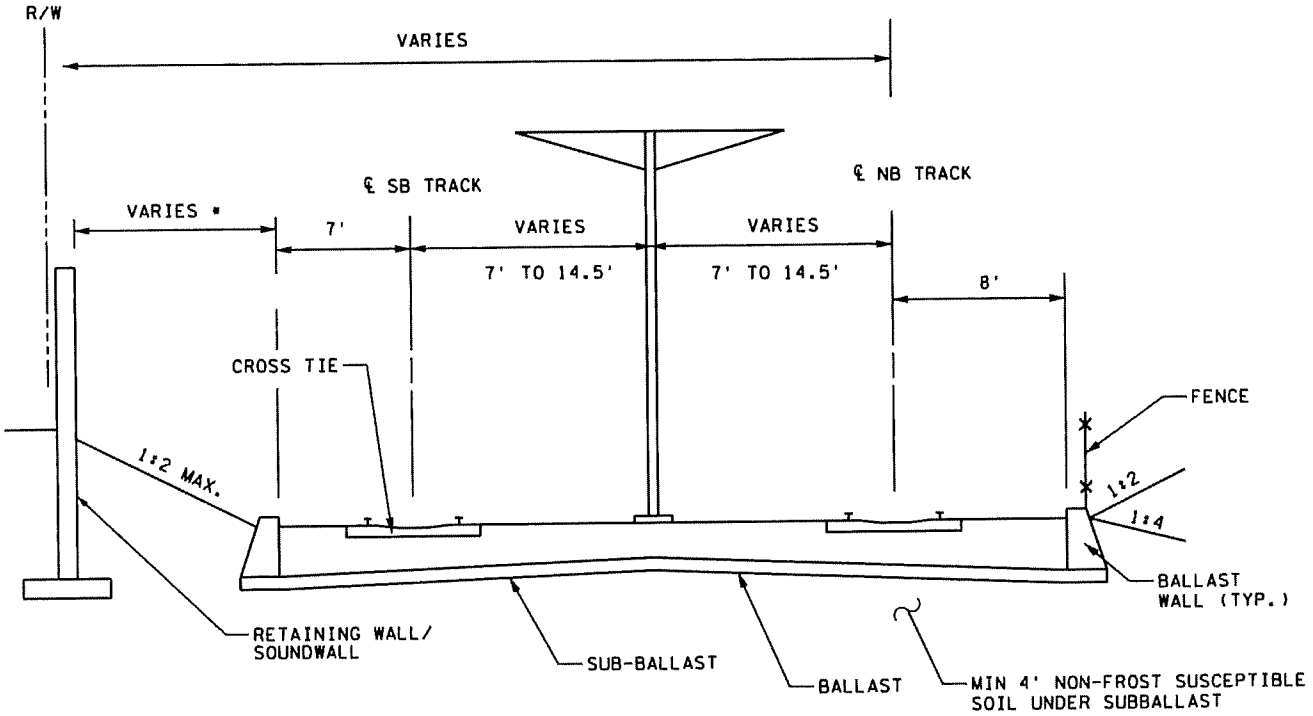
(TBD)

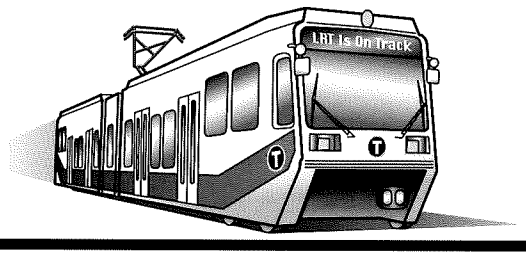


Track System

Number of Tracks	2 (1 Northbound + 1 Southbound)
Track Gauge	4' 8 1/2"
Rail Type	115 RE Tee Rail (Open Track) RI 59 Girder Rail (Embedded Track)
Rail Fastener	Resilient Clip (Open Track) Resilient Clip with Rail Boot (Embedded Track)
Rail Support	Ballast and Concrete Tie (Ballasted Track) Concrete Plinth (Direct Fixation Track) Concrete Track Slab and Embedded Steel Tie (Embedded Track)
Roadway Grade Crossings	Precast Concrete Panels
Special Trackwork	8 No. 8 Crossovers 1 No. 8 Double Crossover 10 No. 8 Turnouts 2 No. 5 Equilateral Turnouts 28 No. 5 Turnouts (Yard & Shop) 1 50-Meter Crossover 1 50-Meter Double Crossover

Typical Track Section





Traction Electrification System

MEDIUM VOLTAGE POWER SUPPLY

Source	Northern States Power (NSP)
Supply Voltage	13.8 KW, Three-Phase AC

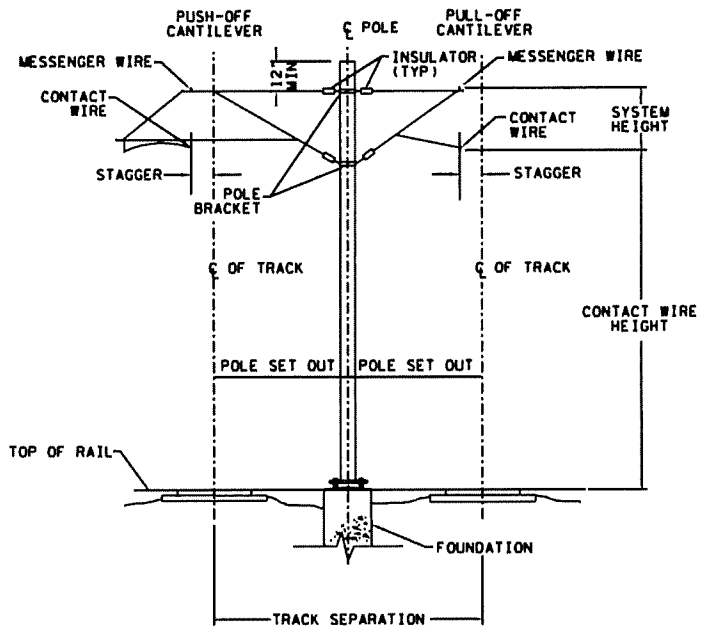
DC POWER SUPPLY (RECTIFIER SUBSTATIONS)

Type	Prepackaged/Silicon Diode Rectifier	
Number	14 Main Line	
	1 Yard	
	1 Shop	
Average Spacing	.8 mile	
Rating	1 mw	
Overload Rating	150%, 2 Hours	
	300%, 1 Minute	
Supply Voltage	Nominal Voltage	750 vdc
	Minimum Voltage	525 vdc
	Maximum Voltage	900 vdc
Overhead Contact System	Autotensioned Simple Catenary	
	Autotensioned Trolley Wire (single wire)	
	Fixed Termination Trolley Wire (single wire)	
	Fixed Termination Simple Catenary	
	Contact Wire	350 Kcmil
	Messenger Wire	500 Kcmil
	Underground Feeder	500 Kcmil

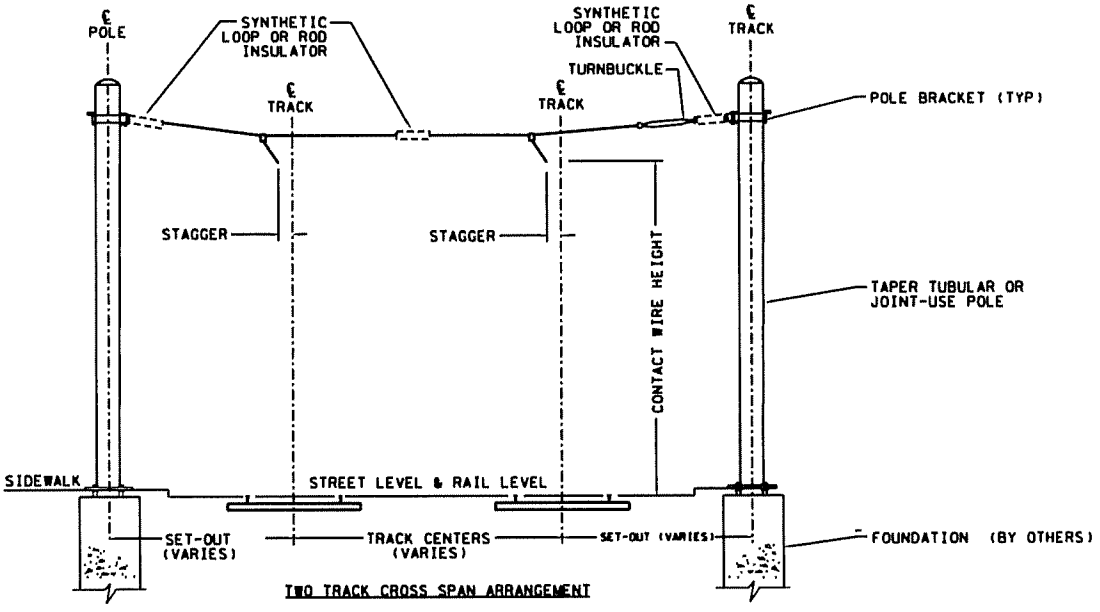
OTHER FEATURES

Design Capacity	3-Car Trains, 5 min. Headways
Operation	Automatic
	Remote Control (from Central Control)
COMMERCIAL INFORMATION	(TBD)

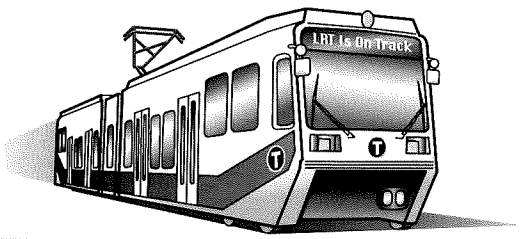
Typical Overhead Contact System



OPEN TRACK



TWO TRACK CROSS SPAN ARRANGEMENT



Communication Systems/ Central Control

GENERAL INFORMATION

Communications

Technical Features

Telephone	PABX Emergency (Blue Light Station)
Radio	Regional 800 MHz Trunked Radio System On Board Train Radio Central Control Dispatch Supervisors Maintenance Radiax Cable in Tunnel
SCADA	All Systems
Closed Circuit Television	Cameras in All Stations, Platform & Cash Handling Areas Cameras at Airport Station on Concourse, Station Level, Elevators, Entrance and Exit
Public Address and Variable Message Signs	Meet ADA Requirements All Stations
Distribution System	Synchronous Optical Network Fiber-optic Backbone Cable

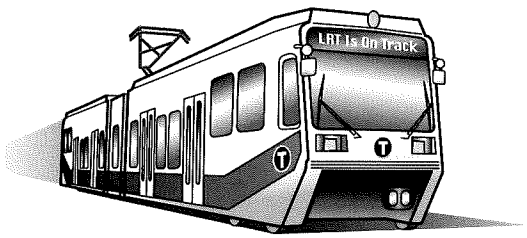
Central Control

Location	Operation and Maintenance Facility at Franklin Ave., Mpls.

Technical Features

Overview Display	Train Location Track Status Systems Status and Alarms

Consoles	CRT Remote Control Radio Telephone PA/Variable Message Signs CCTV Reporting
COMMERCIAL INFORMATION	(TBD)



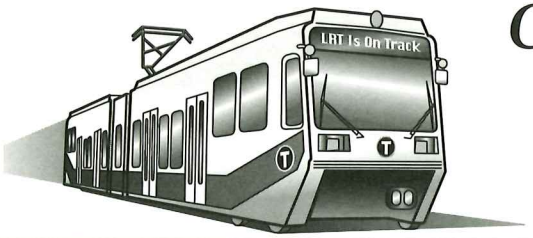
Signal System

GENERAL INFORMATION

Automatic Train Protection (ATP)	3 Aspect Wayside Colored Light
Train to Wayside Communication (TWC)	Pre-emption Route Selection Train Identification
Highway Grade Crossing Warning Equipment	15 Locations

TECHNICAL FEATURES

Design	180-Second Design Headway 55 mph Maximum Speed Bi-Directional Signaling in Tunnel
Track Circuits	Power Frequency, 60 Hz and 100 Hz Audio Frequency Overlay Circuits for Highway Grade Crossing Remote Fed Power
Switch Machines	Electric Remote Controlled Manual Hand Operated Point Indicators for Manual Operations
Wayside Signals	3 Aspect
Interlocking Logic	Vital Relay or Vital Microprocessor
COMMERCIAL INFORMATION	(TBD)



Operations and Maintenance Facility

Portland Shop

LOCATION A Site Bordered by Hiawatha Ave. I-94, Franklin Ave. and Old Cedar Ave. (See attached site plan)

SIZE ≈ 20 Acres

FUNCTION
Operations Headquarters
Central Control
Vehicle Maintenance
Vehicle Running Repairs
Vehicle Overhauls
Component Overhauls
Vehicle Storage
Training
Maintenance of Way
Materials Storage
Train Crew Facilities
Train Crew Dispatch

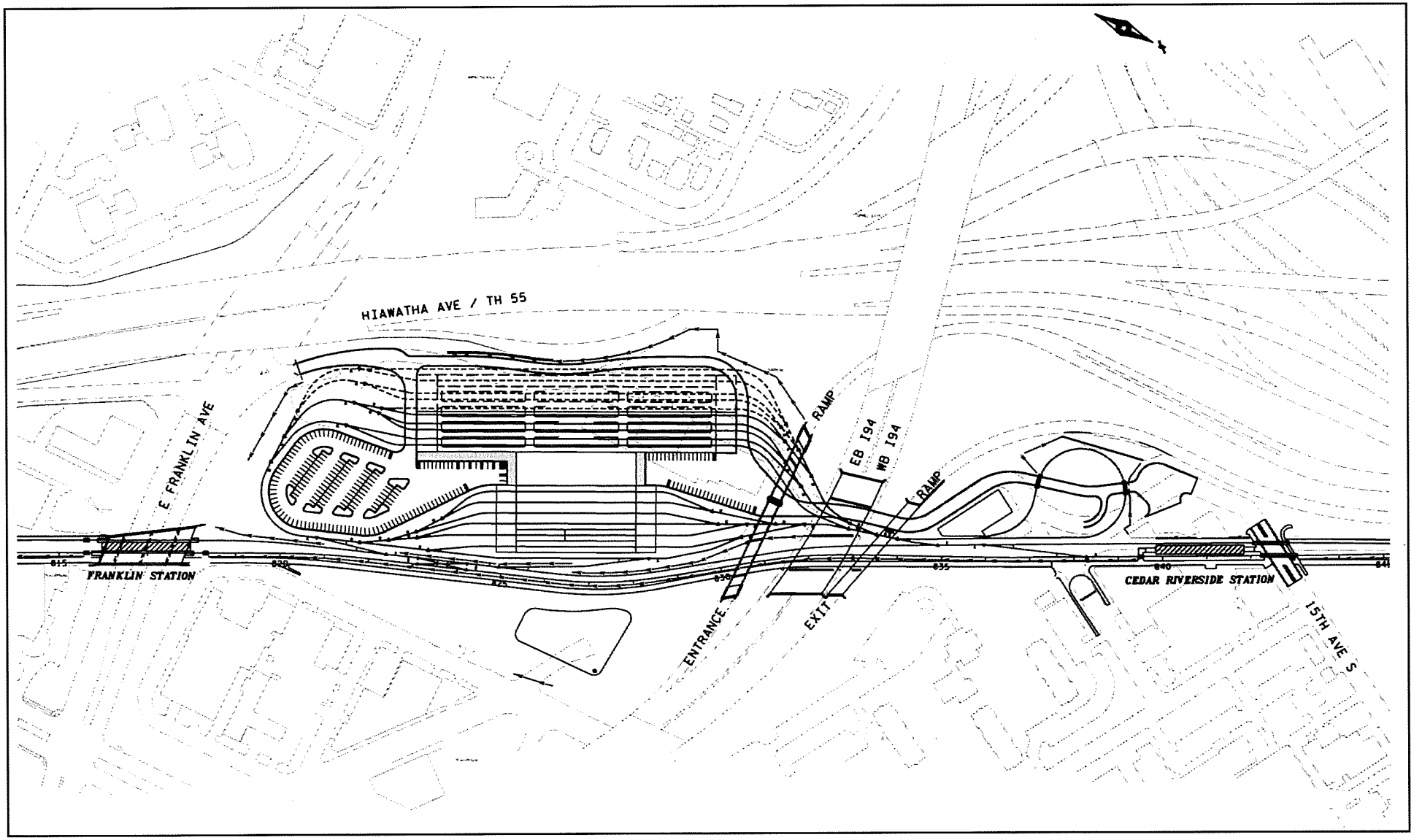
CAPACITY
Covered Vehicle Yard Storage - 24 Car Positions
Maintenance/Repairs/Overhauls - 10 Car Positions

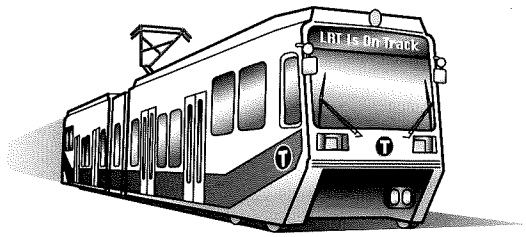
BUILDINGS

O&M Building	113,000 sq. ft.
Maintenance of Way	7,500 sq. ft.

OTHER FEATURES
Yard Substation (1 mw)
Shop Substation
Car Wash
Wheel Lathe
Run Around Track

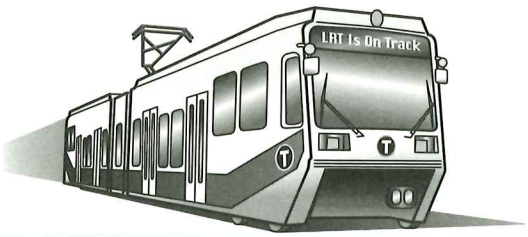
COMMERCIAL INFORMATION (TBD)


HIAWATHA AVE / TH 55
E FRANKLIN AVE
RAMP
EB I94
WB I94
RAMP
FRANKLIN STATION
CEDAR RIVERSIDE STATION
ENTRANCE
EXIT
15TH AVE S

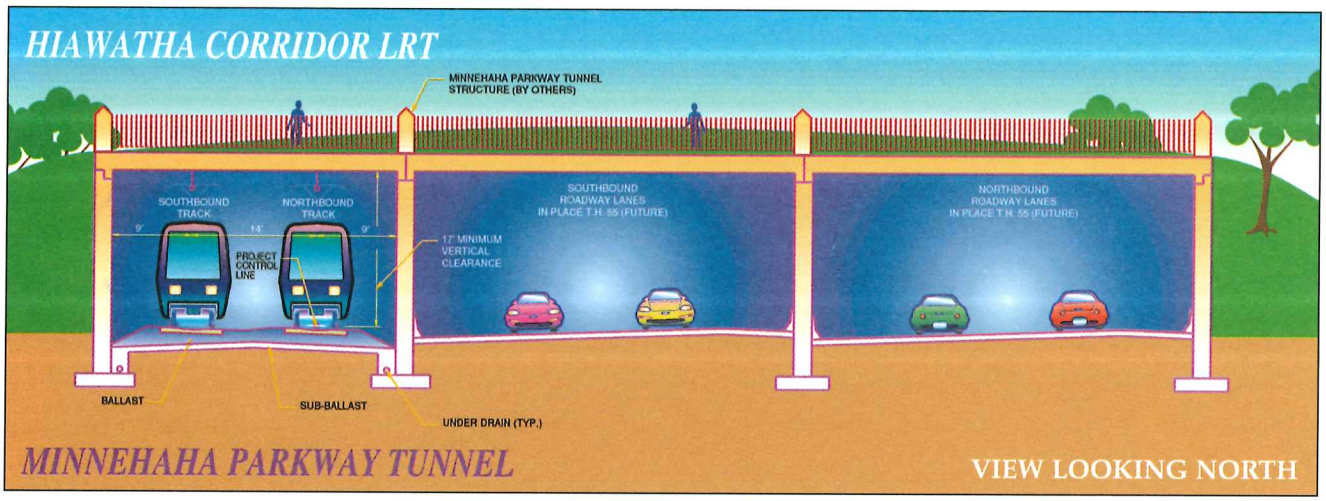


Grade Crossing Locations and Protection

STATION	GRADE CROSSING LOCATION	CROSSING PROTECTION /TRAFFIC LIGHT INTERACTION
Nicollet Mall	Marquette Avenue 2nd Avenue South 3rd Avenue South	Traffic Light, No Pre-emption Traffic Light, No Pre-emption Traffic Light, No Pre-emption
Government	4th Avenue South 5th Avenue South Portland Avenue South Park Avenue South	Traffic Light, No Pre-emption Traffic Light, No Pre-emption Traffic Light, No Pre-emption Traffic Light, No Pre-emption
Downtown East	Chicago Avenue South Norm McGrew Pl. 11th Avenue South 15th Avenue South	Traffic Light, No Pre-emption Gated, No Adjacent Traffic Light Interaction Gated, No Adjacent Traffic Light Interaction Gated, No Adjacent Traffic Light Interaction
Cedar-Riverside		
Franklin	East 26th Street	Gated, Adjacent Traffic Light Pre-empted
Lake Street	East Lake Street East 32nd Street East 35th Street	Elevated Gated, Adjacent Traffic Light Pre-empted Gated, Adjacent Traffic Light Pre-empted
38th Street / Mill City	East 38th Street East 42nd Street	Gated, Adjacent Traffic Light Pre-empted Gated, Adjacent Traffic Light Pre-empted
46th Street / Minnehaha Creek	East 46th Street East 50th Street	Gated, Adjacent Traffic Light Pre-empted Gated, Adjacent Traffic Light Pre-empted
50th Street / Minnehaha Park	East 52nd Street East 54th Street	Gated, Adjacent Traffic Light Pre-empted Gated, Adjacent Traffic Light Pre-empted
VA Medical Center	VA Medical Center Drive TH62	Gated, Adjacent Traffic Light Pre-empted Aerial Structure
Fort Snelling	Militia Drive	Gated, No Adjacent Traffic Light Interaction
Airport	34th Avenue South	Gated, Adjacent Traffic Light Pre-empted
Humphrey Terminal	East 72nd Street NW Cargo Center NW Airlines Drive Airport Lane/Cemetery Entrance I-494 entrance ramp I-494 exit ramp East 80th Street 34th Avenue South	Traffic Light, with Pre-emption Traffic Light, with Pre-emption Traffic Light, with Pre-emption Traffic Light, with Pre-emption Traffic Light, with Pre-emption Traffic Light, with Pre-emption Traffic Light, with Pre-emption Traffic Light, with Pre-emption
Bloomington South	Ceridian Drive 28th Avenue South	Traffic Light, with Pre-emption Traffic Light, with Pre-emption
Mall of America / 24th Avenue	**Note:** Crossing protection south of I-494 reflects center - running on 34th Ave. S. Changes resulting from decision to locate along east side of 34th Ave. will be reflected in next Fact Book.	



Tunnel Construction



There are two LRT tunnel sections along the corridor. The 660 foot long Minnehaha Parkway Tunnel is being constructed as part of the Trunk Highway 55 project. This joint highway/LRT tunnel is being built to connect the two sides of the park now separated by "Old" TH55. LRT will occupy one of three "box" tunnels being provided (see above drawing).

The Airport tunnel is being designed and constructed by MAC under the airport terminal and runways.

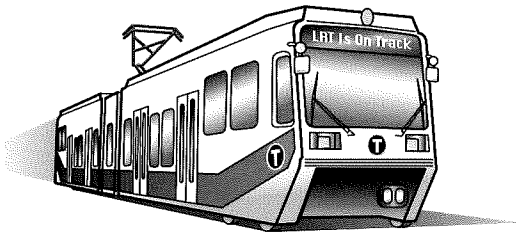
Several approaches were considered during the preliminary engineering (PE) phase for the design and construction of the Airport tunnel, station and other underground works such as ventilation shafts. These approaches included tunnel boring machines, mining and cut-and-cover. Different approaches were examined during PE to compare and bracket the range of costs and schedules. At the completion of PE there was no clear preferred alternative for the mined tunnels.

The 29 September 1999 PE package is based on the following scope:

Total length	8,300 feet
Incline, north end	963 feet
Cut & cover tunnel, north	705 feet
Mined tunnel, incl. station	4,855 feet
Cut & cover tunnel, south	977 feet
Incline, south	800 feet

It is likely that both the lengths of all sections and the construction approach for the mined section will change in the future when design is finalized.

The tunnel design and construction approach will be determined through an interactive process involving MAC and their designers and contractors. The tunnel and underground works represent approximately 20% of the cost of the project and every effort will be made to optimize cost and schedule through consideration of different construction techniques.



Geology

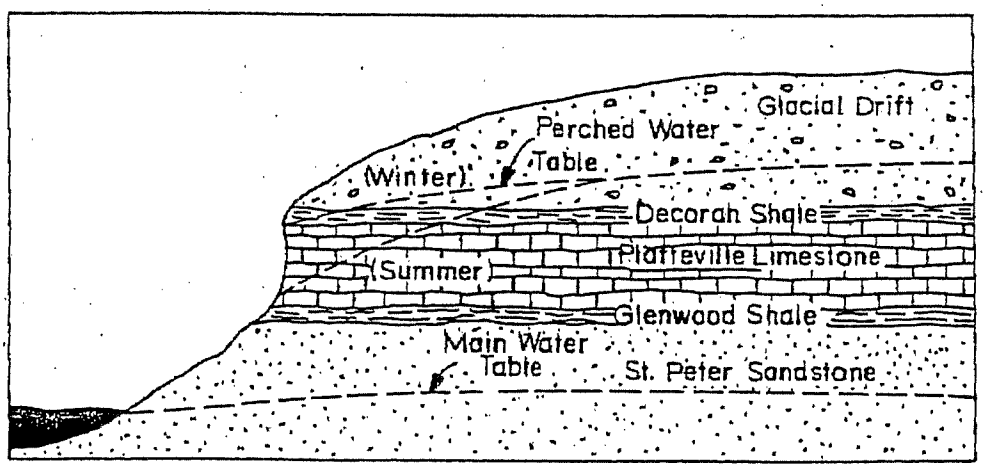
Geology is only of particular significance for the 14% (8,300 feet) of the alignment that is in tunnel and underground structures at the Minneapolis-St. Paul Airport. The rest of the LRT alignment is embedded in existing streets, occupies abandoned railroad right of way (ROW) or cuts across previously modified landscapes and, except at bridge locations, geology is not a significant design factor.

The geology at the airport is a significant factor in the design, construction and operation of the LRT system. The four components of the underground works are each influenced by geology - the retained cut inclines, the cut-and-cover tunnel sections, the mined tunnels and the station structure. The goal of the design is to place the mined tunnels and station structure underneath the Platteville limestone cap. This offers the maximum support to the safety critical airport runways and facilities above. The ease of mining and excavating the St. Peter sandstone is also a factor in excavating below the much harder limestone cap. At the center of the airport station, the top of rail is approximately 75 feet below surface and the Platteville limestone cap is approximately 30 feet thick.

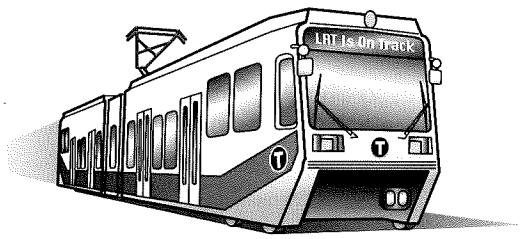
One engineering and construction challenge is the absence of the limestone cap on the south side of the airport where an ancient river eroded the limestone and the river valley was later filled with glacial drift. MAC has provided the data from a number of boreholes relevant to the LRT alignment. In addition, MAC and Mn/DOT cooperated to bore several additional holes on the south side of the terminal to define better the area of the eroded limestone cap.

The geology at the airport is very well known and understood from extensive tunneling work throughout the region. Engineering specialists consider the geology to be excellent for tunneling.

A typical section in the area of the airport is shown in the figure below.



Stratigraphic Column of Minneapolis – St. Paul Area



Hiawatha LRT and NEPA

Hiawatha LRT compliance with the National Environmental Policy Act of 1969 (NEPA) began in the early 1980s when a Draft Environmental Impact Statement (DEIS) was prepared describing proposed transportation improvements to the Hiawatha Corridor. The proposed improvements included 120 alternative combinations of roadway and transit improvements for the redesigned Trunk Highway (TH) 55 (Hiawatha Avenue) from Interstate 94 near downtown Minneapolis to what is now TH 62, or the Crosstown Highway. One alternative included LRT running from downtown Minneapolis to a south endpoint near Fort Snelling, Minneapolis/St. Paul International Airport or the Metropolitan Stadium site in Bloomington. (Twins baseball and Vikings football moved from Metropolitan to the Hubert H. Humphrey Metrodome in 1982. The Metropolitan Stadium site is now the Mall of America.)

In 1985 the Hiawatha Corridor Final Environmental Impact Statement (FEIS) was issued with the preferred alternative being a combination of highway improvements and LRT from downtown Minneapolis to the airport with an extension to the Metropolitan Stadium site requiring further study. The Federal Highway Administration issued a Record of Decision (ROD) approving this on April 10, 1985.

Staged construction of the highway improvement component of the preferred alternative has been underway since the ROD determination. In 1989, the Hennepin County Regional Rail Authority (HCRRA) prepared a state Draft EIS for the Hennepin County LRT System, which included the Hiawatha Corridor. Due to funding constraints, a state Final EIS was not completed on the Hennepin County LRT System. In 1993, the Minnesota Legislature authorized Mn/DOT to be the agency responsible for LRT design and construction. In 1998, the Legislature appropriated $40 million for LRT in the Hiawatha Corridor.

Based on discussions with the Federal Transit Administration (FTA) in 1999, the lead federal agency, a strategy for fulfilling NEPA requirements for the Hiawatha LRT Corridor from downtown Minneapolis at 5th Street North and 3rd Avenue North to the Mall of America in Bloomington was developed. This strategy included the preparation of two environmental documents:

- An FEIS Reevaluation for the Hiawatha LRT Corridor from 5th Street North and 3rd Avenue North to approximately 400 feet north of I-494 on 34th Avenue.

  The FEIS Reevaluation was prepared in accordance with Federal regulations to investigate if any changes have occurred to the proposed action which would result in a significant environmental impact not evaluated in the 1985 FEIS, and if any new information or circumstances result in signficant impacts not evaluated in the EIS.

- A Federal Environmental Assessment/State Environmental Assessment Worksheet for the Hiawatha

LRT Corridor from approximately 400 feet north of I-494 on 34th Avenue to the Mall of America station.

- The Federal EA/State EAW was prepared as the document to further study the LRT segment between the Airport and former Met Stadium site, as indicated in the 1985 Record of Decision.

Draft versions of both of these documents were submitted to the FTA on August 16, 1999. The Environmental Assessment was distributed and made available for review as required by state and federal regulations and was presented at a public hearing in the City of Bloomington on September 8, 1999. The EIS Reevaluation, while not having any formal public review requirements, was available for review at the Bloomington public hearing as well as two Preliminary Design Plan public hearings: one held jointly by Mn/DOT and Hennepin County and the other held by the City of Minneapolis.

Based on comments from other agencies, the public and FTA, both documents were revised and submitted to FTA on September 29, 1999. Copies of these revised documents are on file and available for review by the public at the following locations during business hours:

- **Mn/DOT Central Office Library**
  395 John Ireland Blvd
  St. Paul, MN

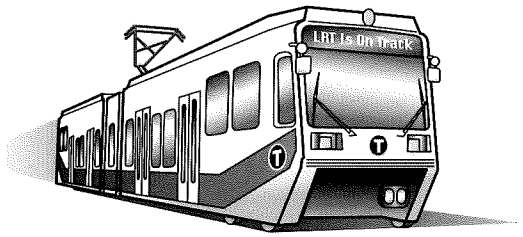
- **Metropolitan Council Library**
  Mears Park Centre
  230 East 5th Street
  St. Paul, MN

- **Legislative Reference Library**
  645 State Office Building
  St. Paul, MN

- **Mn/DOT Metro Rail Office**
  1500 West County Road B2
  Roseville, MN

The Hiawatha LRT line, which crosses and serves the Minneapolis-St. Paul International Airport, will require a revision to the Airport Layout Plan, an action that is overseen by the Federal Aviation Administration (FAA). The crossing of airport land and revision to the Airport Layout Plan requires the preparation of environmental documentation that meets NEPA and FAA environmental regulations. FAA intends to use the Hiawatha LRT FEIS Reevaluation and Environmental Assessment documents as the basis for their final environmental determination. Currently, a Memorandum of Understanding between Mn/DOT, FTA and FAA is being prepared that identifies FAA as a cooperating agency to the FTA environmental documents.

The Hiawatha LRT Reevaluation and the Environmental Assessment documents have been reviewed by the FTA to determine if any additional work (such as a supplemental EIS) is needed or if an environmental finding (Record of Decision) can be issued, as the project will not result in impacts significantly different from those previously evaluated. Based on FTA's review of both documents, they have requested that Mn/DOT initiate the preparation of a draft Record of Decision for the entire Hiawatha LRT Corridor. A draft Record of Decision was submitted to FTA on November 16, 1999.



Public Utility Relocations

As with any major urban civil works project, cooperation with the many utilities providing basic services is essential to project success, cost and schedule control and for relations with the general public. In the process of diverting utilities for LRT construction, the infrastructure is being modernized as new material replaces the old. The utilities listed below exist along the Hiawatha LRT Corridor, and may/will be affected by LRT construction.

CONSTRUCTION AFFECTING PUBLIC UTILITIES

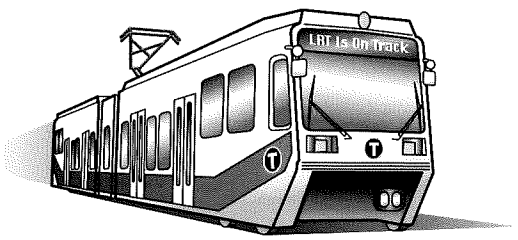
Stations 15
Length of LRT Line.....11.4 miles
Tunnels/Cut-and-cover Sections.....1.7 miles

UTILITIES WITHIN THE AFFECTED CORRIDOR

Mn/DOT	Traffic Signals, Lighting, Traffic Management Center
Hennepin County	Traffic Signals and Lighting
City of Minneapolis	City Water, Sewer, Traffic Signals, Lighting
City of Bloomington	City Water, Sewer
NSP	Electrical
US West	Telecommunications
Minnegasco	Gas
MCI/Worldcom	Telecommunications
MCI (National Fiber Security)	Telecommunications
MCI Long Distance	Telecommunications
McLeod USA	Telecommunications
M & P Utilities	Telecommunications
Brooks Fiber Properties	Telecommunications
Metro Fiber Systems	Telecommunications
Williams Communications Systems	Telecommunications
AT & T	Telecommunications
AT & T Local (TCG)	Telecommunications
AT & T Wireless	Telecommunications
Paragon Cable	Cable TV
General Services Administration	Various Facilities
Veterans Administration	Various Facilities

(continued on following page)

US Air Force	Various Facilities
US Army	Various Facilities
Minnesota Air National Guard	Various Facilities
US Naval Air Reserve	Various Facilities
Metropolitan Airports Commission	Various Facilities
Metropolitan Council Env. Services	Various Facilities
Minneapolis Energy Center	Steam Heating
American Express	Telecommunications
WCCO	Telecommunications
Group W Network Services	Telecommunications
Bayport Properties	Telecommunications
General Dynamics	Telecommunications
KMC Telecom	Telecommunications
Ledcor Industries Limited (Sprint Canada)	Telecommunications
Mall of America	Various Facilities
Minnesota Equal Access	Telecommunications
MN DNR – State Parks	Various Facilities
OCI Communications (Ovation)	Telecommunications
Sterling Technologies	Telecommunications
Sprint	Telecommunications
Transtop	Bus Shelters
US Link	Telecommunications

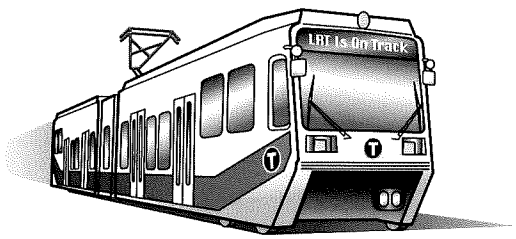


Acquisition of Property for Right of Way

As with the construction of any major urban transportation project in an area as densely developed as Bloomington and Minneapolis, the acquisition of public and private property is unavoidable. In the process of developing the system alignments and siting of stations, the designers have, as a prime consideration, optimized the alignment to minimize the acquisition of property.

Requirements for aquisition of public and private property for LRT Right of Way as of 2 December 1999.

Location	**Parcels** (as of 2 Dec. 99)
Bloomington	6
MAC	1
Federal	7
Minneapolis	18
	32 Parcels



Operations in 2004

GENERAL INFORMATION

19,300	trips/day	Total daily trips (passenger boardings)
9,650	trips/day	Total one way daily trips
1500	passengers/hr	Peak hour maximum passenger load point, one way (plp)
21.9	mph	Average service speed
31:02	minutes:sec	One way trip time
75:00	minutes:sec	Train cycle time (T)
7.5	min	Headway (interval between trains) (h), rush hour
8	trains/hour	Frequency of service (f), rush hour
2	LRV's/train	Train consists (LRV's per train), rush hour
16	LRV's/hour	LRV's/rush hour (n)
94	psgrs/LRV	Average rush hour maximum passenger loading (plp/n)
10	trains	Trains in service, rush hour (N=T/h)
20	LRV's	LRV's in service, rush hour

Cost Parameters

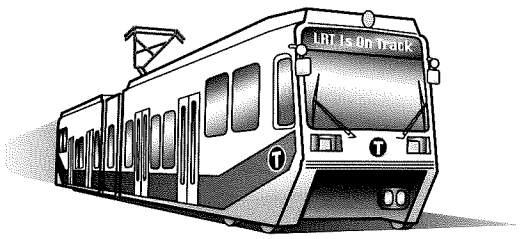
1,344,000	Car miles	Annual revenue car-miles
44,140	Train hours	Annual revenue train hours
$13,060,000	$/year	Annual operations & maintenance cost (in $1999)
$296	$/train hour	Average cost per train hour (in $1999)
$9.72	$/car mile	Average cost per car mile (in $1999)

Staffing Levels

138	Staff	Staffing table - total
60	Staff	Staff - rail transportation
38	Staff	Staff - LRV maintenance
30	Staff	Staff - facilities maintenance
10	Staff	Staff - rail administration

Hours of Operation - Level of Service

	Weekday Hours	Headway	Trains/ Hour	Weekend Hours	Headway	Trains/ Hour
Early Morning	4:30 to 6:00 am	30	2	4:30 to 9:00 am	15	4
AM Peak	6:30 to 9:00 am	7.5	8	-		
Base	6:00 to 6:30 am 9:30 am to 3:30 pm	10	6	9:00 am to 6:00 pm	10	6
PM Peak	3:30 to 6:00 pm	7.5	8	-		
Early Evening	6:00 to 9:00 pm	15	4	6:00 to 9:00 pm	15	4
Late Evening	9:00 to 12:30 am	30	2	9:00 pm to 12:30 am	30	2



Operations in 2020

GENERAL INFORMATION

24,800	trips/day	Total daily trips (passenger boardings)
12,400	trips/day	Total one way daily trips
1975	passengers/hr	Peak hour maximum passenger load point, one way (plp)
21.9	mph	Average service speed
31:02	minutes:sec	One way trip time
75:00	minutes:sec	Train cycle time (T)
7.5	min	Headway (interval between trains) (h), rush hour
8	trains/hour	Frequency of service (f), rush hour
2	LRV's/train	Train consists (LRV's per train), rush hour
16	LRV's/hour	LRV's/rush hour (n)
123	psgrs/LRV	Average rush hour maximum passenger loading (plp/n)
10	trains	Trains in service, rush hour (N=T/h)
20	LRV's	LRV's in service, rush hour

Cost Parameters

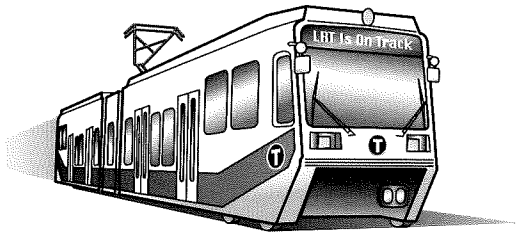
1,531,000	Car miles	Annual revenue car-miles
46,700	Train hours	Annual revenue train hours
$13,800,000	$/year	Annual operations & maintenance cost (in $1999)
$296	$/train hour	Average cost per train hour (in $1999)
$9.02	$/car mile	Average cost per car mile (in $1999)

Staffing Levels

144	Staff	Staffing table - total
63	Staff	Staff - rail transportation
41	Staff	Staff - LRV maintenance
30	Staff	Staff - facilities maintenance
10	Staff	Staff - rail administration

Hours of Operation - Level of Service

	Weekday Hours	Headway	Trains/ Hour	Weekend Hours	Headway	Trains/ Hour
Early Morning	4:30 to 6:00 am	30	2	4:30 to 9:00 am	15	4
AM Peak	6:30 to 9:00 am	7.5	8	-		
Base	6:00 to 6:30 am 9:30 am to 3:30 pm	10	6	9:00 am to 6:00 pm	10	6
PM Peak	3:30 to 6:00 pm	7.5	8	-		
Early Evening	6:00 to 9:00 pm	15	4	6:00 to 9:00 pm	15	4
Late Evening	9:00 to 12:30 am	30	2	9:00 pm to 12:30 am	30	2



LRT System Sizing for 2020

Quality of Service

2020	Year
24,800	# Riders/day
12,400	One-way boardings/day
1,975	Peak load point (riders/hour/direction)
16%	Peak load %
7.5	Headway (interval between trains) minutes
8	Frequency, trains per hour
2	Train consists (cars/train)
16	Cars/hour
123	Peak loading (plp ÷ 16) psgrs/car

Capacity of Car

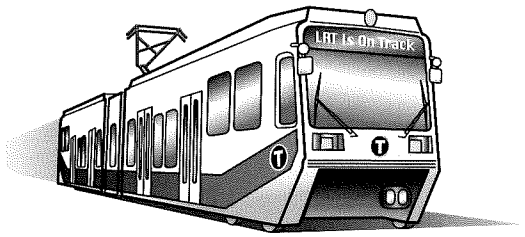
70	Seated
125	Design load, slightly uncomfortable during rush
160	Design load, normal rush hour (4 persons/square meter)
200	Crush load, (8 persons/square meter)

Fleet Sizing - Rush Hour

31	Trip time, one way, minutes, each direction
6.5	Recovery time, minutes @ each end
75	Cycle time, minutes (T)
7.5	Headway, minutes (h)
10	Trains in service N = T/h
20	Cars in service, rush hour only
2	Spare vehicles
22	Fleet

Train Length

2 LRV's	180 feet = 3 x 60 foot articulated buses
3 LRV's	270 feet = 4 X 60 foot articulated buses + 1 30 foot bus

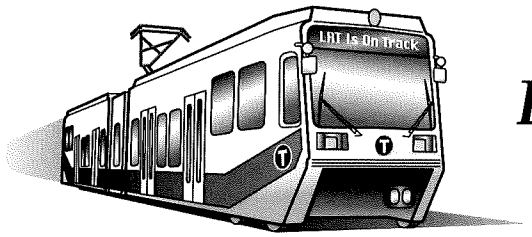


Travel Times Between Stations (Minutes)

Travel Time Between Stations

(Minutes)

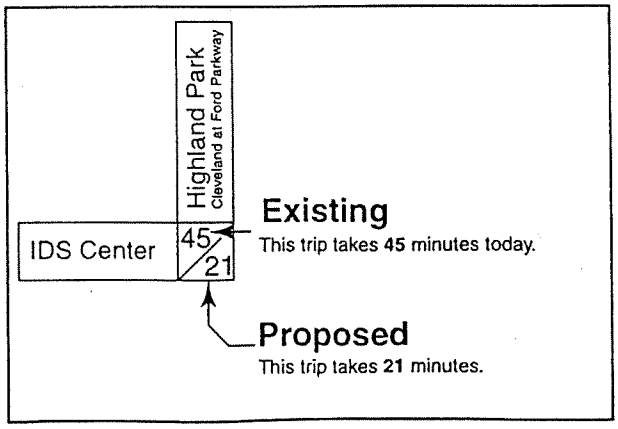
	Nicollet Mall	Government Center	Metrodome	Cedar/Riverside	E. Franklin	E. Lake Street	E. 38th Street	E. 46th Street	Minnehaha Park	VA Medical Center	Fort Snelling	Airport	HHH Terminal	Bloomington South	Mall of America
Nicollet Mall		2	6	8	9	12	14	16	18	19	21	23	25	29	31
Government Center			4	6	7	10	12	14	16	17	19	21	23	27	29
Metrodome				2	3	6	8	10	12	13	15	17	19	23	25
Cedar/Riverside					1	4	6	8	10	11	13	15	17	21	23
E. Franklin						3	5	7	9	10	12	14	16	20	22
E. Lake Street							2	4	6	7	9	11	13	17	19
E. 38th Street								2	4	5	7	9	11	15	17
E. 46th Street									2	3	5	7	9	13	15
Minnehaha Park										1	3	5	7	11	13
VA Medical Center											2	4	6	10	12
Fort Snelling												2	4	8	10
Airport													2	6	8
HHH Terminal														4	6
Bloomington South															2
Mall of America															



Travel Times Between Key Destinations to be Served by Hiawatha LRT

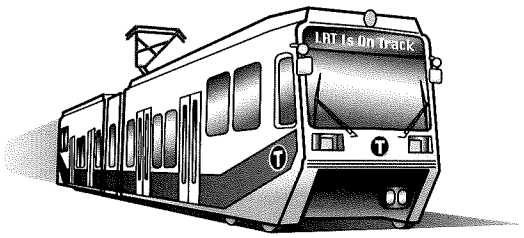
Typical Travel Times
Between selected places under the existing service and the proposed Hiawatha Light Rail Transit Service

	University of Minnesota (Coffman Union)	Cedar Ave at Lake St	34th Ave at 52nd St	Bossen Park Apts (34th Ave near 58th St)	Highland Park (Cleveland at Ford Parkway)	VA Hospital	Airport	Mall of America
IDS Center	10/10	25/15	43/21	49/27	45/20	46/16	47/20	30/32
University of Minnesota (Coffman Union)		16/16	40/25	33/31	28/24	39/20	51/24	52/34
Cedar Ave at Lake St			16/20	28/26	29/23	24/15	36/19	28/28
34th Ave at 52nd St				6/6	34/12	10/10	29/17	20/13
Bossen Park Apts (34th Ave near 58th St)					38/15	14/14	28/17	10/11
Highland Park (Cleveland at Ford Parkway)						10/11	11/14	23/25
VA Hospital							12/5	26/14
Airport								12/9



July, 1998 estimates

Metro Transit

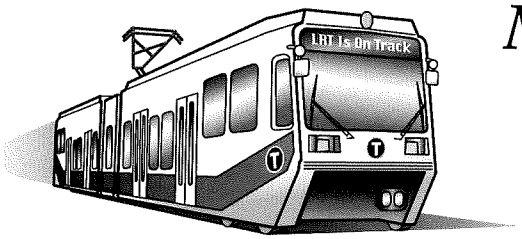


Proposed 2003 Bus Route Connections at Rail Stations

Rail Station	Rte #	Route Name	Headway Peak	Headway Base	Type of Stop	Bus Bays Req.	Other Notes
Downtown East	13	U of M Campus Connector	5	5	Mid Rte.	Streetside	Stop and go Streetside Stop
	16A	University Ave.	8	10	Mid Rte.		
	50	University Ave. Ltd.	3	30	Mid Rte.		
Cedar-Riverside	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Franklin	2	Franklin Ave.-U of M	15	15	Mid Rte.	Streetside	Stop and go Streetside transit stop (one bay each direction) located on E. Franklin Ave.
	8	Franklin Ave.-11th	15	30	Mid Rte.	Streetside	
Lake Street	7	M'haha-27 Ave-Riverside	15	15	Mid Rte.	2	One streetside bus bay on both north side and south side of E. Lake Street required.
	21	St. P-Selby Ave-Lake St	10	7.5	Mid Rte.	2	
	22	Lake St.-Bloomtn Av-24	15	30	Mid Rte.	2	
	94L	Dwtn.-S.Mpls.,Lake St.	10	n/a	Mid Rte.	2	
38th St./ Mill City	19	28 Ave-Cedar Ave	10	15	EOL	1	Four off-street bus bays are required.
	23	Highland Pk-38St-Uptwn.	15	15	Mid Rte.	2	
	28	28th Av-38th Ave	10	15	EOL	1	
46th St./ Minnehaha Creek	S4	Roseville-Snelling Ave-Highland	30	30	EOL	0.5	A Bus Transfer Facility is planned for this station. Eight bus bays are required.
	S9	Mplwd-St.P-Fort Rd	30	30	EOL	0.5	
	S14	Maryld-St.P-Rand Ave	10	15	EOL	1	
	7	M'haha-27 Ave-Riverside	15	15	Mid Rte.	2	
	20	46 St-42 Av-36 Av-25 St	15	30	EOL	1	
	22	Lake St.-Bloomtn Av-24 St.	15	30	EOL	1	
	34	MOA-Cedar-58th-34th Ave	20	30	EOL	1.5	
	46	Edina - 50 St –46 St / I-35W	30	30	EOL	0.5	
50th St. / Minnehaha Park	7	M'haha-27 Ave-Riverside	15	15	Mid Rte.	2	One streetside bus bay located in each direction

Rail Station	Rte #	Route Name	Headway Peak	Headway Base	Type of Stop	Bus Bays Req.	Other Notes
VA Medical Center	7	M'haha-27 Ave-Riverside	15	15	Mid Rte.	2	Three bus stops internal to the VA and one streetside bus bay in each direction (Rte. 7)
	42B	Burnsville,MOA,Airport	30	45	EOL	1	
	48	46th St.-Cedar-57th-54th	30	30	EOL	1	
	77Z	MOA, Minn Zoo, Burnsville	60	60	EOL	1	
Fort Snelling	42B	Burnsville,MOA,Airport	30	45	Mid Rte.	1	Four bus bays are required.
	45	West 7th Street	15	15	EOL	1	
	77Z	MOA,Minn Zoo, Burnsville	60	60	Mid Rte.	1	
	557	Dodd-Yankee Doodle-	20	n/a	EOL	0.5	
	558	Egan Oakdale- Marie-Hwy 110	20	n/a	EOL	0.5	
Airport	42B	Burnsville,MOA,Airport	30	45	Mid Rte.	0.5	Transit Station currently being built, bus bays TBD.
	53M	MOA,Radison S.,Airport	30	30	EOL	0.5	
	54	MOA,Airport,St. Paul	15	30	EOL	1	
	77Z	MOA,Minn Zoo, Burnsville	60	60	Mid Rte.	1	
Humphrey Terminal	42B	Burnsville,MOA,Airport	30	45	Mid Rte.	1	Two Streetside bus bays required
	77Z	MOA,Minn Zoo, Burnsville	60	60	Mid Rte.	1	
Bloomington So.	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Mall of America/ 24th Avenue	5	Chicago Ave-MOA	15	30	EOL	2	A minimum of fifteen (15) Bus Bays (current facility) are required at this station location.
	28	MOA-Longfell-28th Ave	20	30	EOL	2	
	34	MOA-Cedar-58th-34th Ave	20	30	EOL	2	
	42B	Burnsville,MOA,Airport	30	45	EOL	1	
	52A	MOA-Cedar Ave-U of M	30	n/a	EOL	1	
	53M	MOA,Radison S.,Airport	30	30	EOL	1	
	54	MOA,Airport,St. Paul	15	30	EOL	2	
	77Z	MOA,Minn Zoo, Burnsville	60	60	EOL	1	
	80	Dwnt-MOA-E 80th St.	20	20	EOL	2	
	415	MOA-Brown Inst.-Mendota Heights	30	60	EOL	1	
	515	MOA-Richfield-66th St	30	60	EOL	1	

Note: *EOL denotes the "end of the line" location for the identified route and indicates the possibility of scheduled layover time assigned to this location.*



Metro Transit Profile in 2000

Metro Transit (MT) is the 13th largest bus system in America. Customers boarded its 928 buses 66 million times in 1998. The agency operates 120 local, express and contract routes with buses traveling about 100,000 miles each weekday.

STAFF

Metro Transit employs a staff of about 2,500, with some 1,500 driver/operators and 450 mechanics. MT projects an operating budget of $168.7 million for the Year 2000. That budget supports a 1.8 percent service increase from which Metro Transit expects to deliver 4.5 percent ridership growth. In 2000, Metro Transit plans to operate 32.2 million miles of service and 2.3 million hours of service.

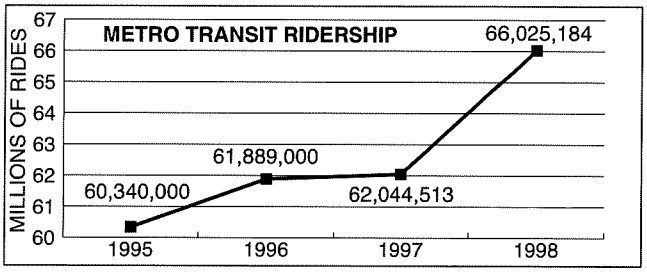
REVENUES AND EXPENSES

In 2000, 40 percent of agency revenues will come from property taxes, 30 percent from customer fares, 19 percent from state appropriations and the balance from other sources. About 77 percent of Metro Transit expenses will be invested in salaries and benefits and another 10 percent for supplies and materials.

RIDERSHIP

Metro Transit has enjoyed a recent series of ridership and operational successes. The agency's attention to customer service, operations quality and marketing has led not only to the highest ridership in five years and the fastest growing ridership in 21 years but also has raised the stature of public transit in the eyes of citizens and policymakers.

The fundamental measure of any transit system is ridership. In 1998, Metro Transit recorded 66 million rides, a 6.4 percent increase over 1997. Continuing the growth trend, ridership for the first 10 months of 1999 is nearly 10 percent higher than the same period in 1998. During the second quarter of 1999, Metro Transit had the fifth fastest growing ridership among large bus systems in America. During that period, transit ridership increased 6.1 percent nationally while Metro Transit ridership was up 10.1 percent.



In 1997, the state legislature provided Metro Transit with $4.7 million in bonus funding and charged the agency to deliver 125 million rides during the two-year funding cycle that ended June 30, 1999. Metro Transit reached that goal on May 24 – five weeks ahead of the deadline – and ended the biennium 7.3 million rides ahead of the legislative goal.

Because of the strong ridership results, legislators increased the metro area's transit appropriation from $89.9 million to nearly $114 million.

Metropolitan Council Chair Ted Mondale informed the legislature that Metro Transit would deliver 138 million rides during the current biennium that ends June 30, 2001.

ACCOMPLISHMENTS

Customer Satisfaction. Overall customer satisfaction with Metro Transit service increased 10 percent in just two years.

Transitworks. Between November 1998 and February 1999, Metro Transit doubled to 500 the number of businesses selling bus passes in the workplace. Metro Transit offered employers half-price passes for their employees for six months as an incentive to enroll in the Transitworks program. The half-price sale was underwritten by a federal grant.

Metropass. By November 1999, 20 employers, with nearly 34,000 employees, had enrolled in Metropass, a program under which businesses can purchase deeply discounted annual passes. Transit usage among employees of Metropass companies has increased 40 percent.

Alternative Fuel Buses. Metro Transit has ordered five hybrid electric buses as the next step in its alternative fuels program. These buses promise improved fuel economy and lower emissions. The buses use a small diesel engine operating at a highly efficient constant speed. Power from the engine (and captured energy from braking) is stored in batteries and used during acceleration, a time of higher pollution for standard buses.

Alternatively Sized Vehicles. Metro Transit is engaged in an analysis of small buses and over-the-road coach buses for possible additions to its fleet of standard coaches and articulated buses. Two Greyhound-style coach buses are currently in service as part of one-year demonstration program. The agency expects to order about 25 small buses by the end of 1999.

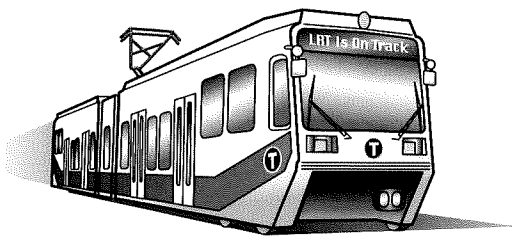
Low-Floor Buses. Metro Transit took delivery of 20 low-floor buses in 1998 and 1999 to measure their effectiveness in serving the region. Ten low-floor Gillig coaches are in service principally along University Avenue. Ten low-floor articulated buses from New Flyer are being used on express routes. Metro Transit expects to complete its evaluation of the low-floor 40-foot buses by yearend and to make a purchase recommendation to the Metropolitan Council thereafter.

Anti-graffiti Initiatives. Metro Transit is engaged in a sustained campaign against graffiti on buses and at bus stops. Clean-up costs Metro Transit more than $1 million a year. Graffiti-resistant materials are used on buses, and graffiti is removed from vehicles overnight.

Bus Rehabilitation. In 1998 Metro Transit began a mid-life painting program to improve the attractiveness of the fleet. Each bus is stripped, primed and receives two coats of a high gloss, anti-graffiti exterior finish. The result is a bus whose age is indistinguishable from the newest buses in the fleet. About 200 buses have received the rehabilitation thus far.

Transit Ambassador. In 1998, Metro Transit began its first-ever mandatory customer service training program. The agency embraced the Transit Ambassador program developed in Canada and now in use throughout the United States and overseas. The practical training focuses on real-life, on-bus scenarios. Drivers meet in small groups to discuss communication tactics to deal with these incidents. More than 500 employees have completed Transit Ambassador training. As a result, customer commendations are up and customer complaints have dropped.

State Fair. Metro Transit ridership to the 1999 Minnesota State Fair increased 54 percent. One of four people attending the Fair arrived on a Metro Transit bus. Since two-thirds of State Fair ridership are not regular customers, the State Fair service gives Metro Transit a chance to convince taxpayers that transit in the region is an effective infrastructure investment.



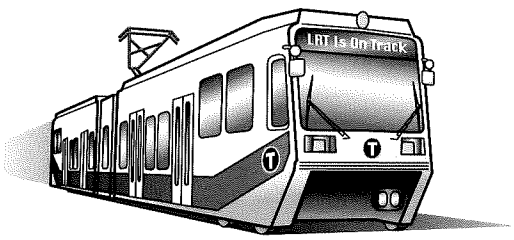
Mn/DOT and Light Rail Transit

The forerunner of the current Minnesota Department of Transportation was the Minnesota Department of Highways. In 1932 the state Legislature created the Minnesota Department of Highways with the specific charge of "Getting Minnesota out of the mud." The Department's highest level of employment came in the late 1960's and 1970's – the era of freeway construction – with a staffing level of 5,900 full time employees.

In 1976, the Legislature moved to create the Department of Transportation by combining the Department of Highways with the State Office of Freight and Railroads, the State Department of Aeronautics, and motor-carrier-related functions of the Public Utilities Commission. The Minnesota Department of Transportation (Mn/DOT) was officially established in 1977.

Light rail transit planning has been an active element of the Department since 1985 when the Environmental Impact Statement for Trunk Highway 55 identified light rail as the prefered transit alternative for the Hiawatha corridor. Another LRT line was proposed in 1991 for the Central Corridor. The proposed line would have run a total of 12.5 miles from downtown Saint Paul to downtown Minneapolis. Much of the planned route would have followed the alignment of Interstate 94, connecting five population and activity centers, including both downtowns, the University of Minnesota, the Capitol, and the Midway area. Political and monetary difficulties, however, prevented this corridor from being developed.

The 1998 Legislature directed Mn/DOT to design and build the Light Rail Transit system in the Hiawatha Corridor. The Metro Office of Rail Transit was created within the Metro Division of Mn/DOT to oversee the engineering, planning, public involvement, day-to-day actions, etc. of the diverse activities involved in the project. In November of 1999 the Metro Office of Rail Transit was renamed the Metro Rail Office. To date the Metro Rail Office is staffed with a complement of approximately 20 persons.



Metropolitan Council and Light Rail Transit

The Metropolitan Council will own the Hiawatha Corridor light rail system, and will operate and maintain the system through Metro Transit, now the 13th largest bus system in the United States.

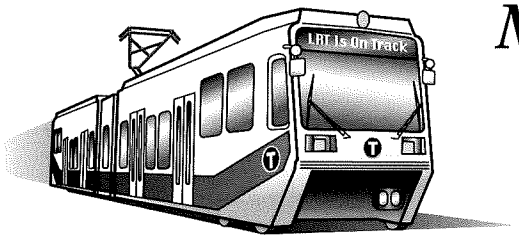
The Metropolitan Council is also the Federal Transit Administration grantee for the project. Coordination of funding will be the Metropolitan Council's primary responsibility in relation to the planning and construction phases of this project. It will be responsible for all costs incurred pursuant to agreements with cooperating agencies and all other parties working on the Hiawatha Corridor project.

In addition, the Metropolitan Council coordinates community involvement in the planning process and is responsible for chairing and staffing the Community Advisory Committee.

The Metropolitan Council is the regional planning organization in the seven-county area comprised of Anoka, Carver, Dakota, Hennepin, Ramsey, Scott and Washington counties. It is a unique governmental body that thinks and acts in the best interests of the entire Twin Cities metropolitan area. It oversees development, runs the regional transit system, collects and treats wastewater, oversees surface and groundwater management, plans regional parks and administers funds that provide housing for low- and moderate-income families.

By the year 2020, the Council forecasts an increase of 330,000 households and 650,000 people, bringing the total population of the region from 2.4 million to 3.1 million. After forecasting growth, the Council's job is to devise a plan to shape growth and make decisions about how to develop transportation to support it. Part of the Council's mission is to create a network of light rail, commuter rail and transit corridors to advance the region's Smart Growth Initiative by making more efficient use of land and public infrastructure, reducing traffic congestion, expanding green space and improving air quality.

Accountability for regional decision making is focused on the 17-member council that serves at the pleasure of the governor of Minnesota. Members of the 1999 Council include: Chairman Ted Mondale, Saundra Spigner, Todd Paulson, Mary Hill Smith, Julius Smith, Phil Riveness, Caren Dewar, Matthew Ramadan, Carol Kummer, Natalie Haas Steffen, James Nelson, Roger Williams, Marc Hugunin, Fred Perez, Lee Pao Xiong, Carolyn Rodriguez and John Conzemius.

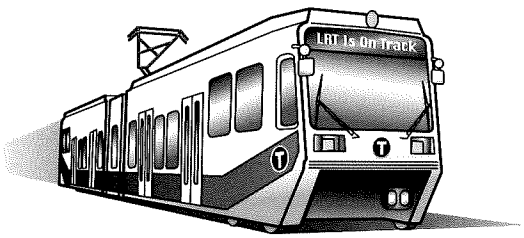


Metro Transit and Light Rail Transit

Metro Transit, the transit operating arm of the Metropolitan Council, is designated by state law as the operator of the Hiawatha light rail project. Metro Transit is responsible for rail activation, integrated testing, start-up, revenue operations, and feeder bus services.

Metro Transit, in order to facilitate its input into the design and construction processes and fulfil its ultimate responsibility to operate and maintain the LRT system, has created the Rail Operations Department with additional support positions added in facilities engineering, grants management, and rail and bus safety.

This department is led by the Assistant General Manager – Rail Operations, who is assisted by the Director of Transit Development. The purpose of the expanded organization of the Rail Operations Department is to support the final design and construction phases, and to ultimately operate and maintain the light rail system.



Hennepin County and Light Rail Transit

In 1980 the Minnesota Legislature passed a bill authorizing individual counties to form regional railroad authorities to "plan, establish, acquire, develop, construct, purchase, enlarge, extend, improve, maintain, equip, operate, regulate, and protect railroads and railroad facilities." This legislation also gave county regional railroad authorities the power to levy a property tax to fund rail activities. Within a few months Hennepin County created the first county regional railroad authority in the state, the Hennepin County Regional Railroad Authority (HCRRA).

The HCRRA purchased its first rail corridor between Hopkins and Victoria from the Chicago and Northwestern Railroad in 1981. By 1984 it extended the purchase to downtown Minneapolis, creating a potential rail transit corridor. Today, the HCRRA owns 45 miles of rail corridor that has the potential for a double track LRT system.

In 1984, the HCRRA sponsored the development of the "LRT Implementation Planning Program" with the City of Minneapolis. The project was conducted in participation with the Metropolitan Council and representatives of 16 other public and private business organizations. It analyzed the University Avenue, Southwest, and Hiawatha corridors, assuming LRT as the preferred alternative in all three corridors. The analysis was completed in 1985 with estimates of construction costs and operations and maintenance costs.

However, in 1985 Minnesota State Legislature placed a ban on the expenditure of public money for light rail transit. This ban was partially removed in 1987, allowing county regional railroad authorities to continue LRT planning and preliminary engineering. In July of 1988 HCRRA prepared a Comprehensive LRT System Plan for development of LRT, which included a Stage 1 plan for the first eight years of development, along with a longer-term 20 year plan.

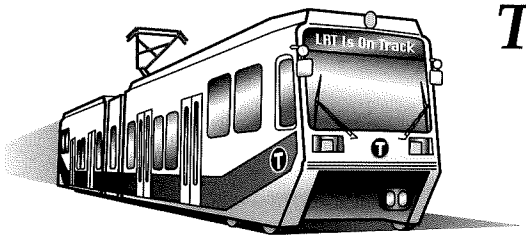
The HCRRA began aggressive development of its Stage 1 LRT system plan with the conceptual engineering of four separate LRT corridors radiating out of the Minneapolis downtown area plus a downtown line. The Stage 1 Hiawatha corridor plan included the Hiawatha corridor between Lake Street and 46th St. The 20 year plan extended the route to the Mall of America via the airport.

The alignment for the Hiawatha line between downtown Minneapolis and Lake St. was along 3rd Ave. South and the 29th St. rail corridor. The alignment between the Hubert H. Humphrey Metrodome and the 29th St. corridor was only a single service track to the yard and shops. Preliminary engineering for the Stage 1 Plan to 46th St. was completed in 1991.

Over the following years, substantial changes occurred in the governance structure of LRT implementation and general transit in the Twin Cities area, with Mn/DOT assigned the responsibility for LRT final design and construction. The rail authorities and Mn/DOT were jointly given the responsibility for system planning, preliminary engineering, community participation and system standards.

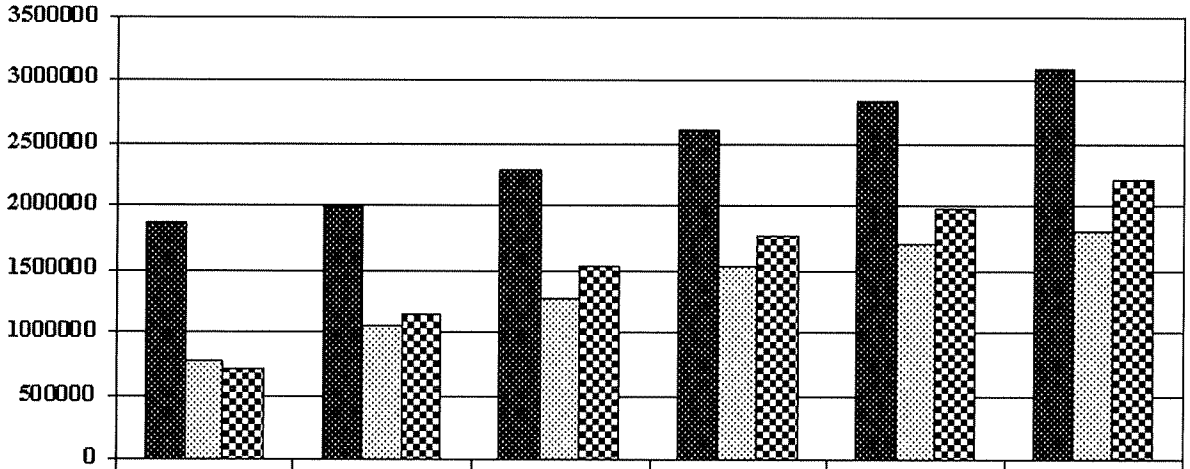
Support for LRT waned in the region in the mid-1990's. For a time, a busway was planned for the Hiawatha corridor. The situation changed in 1998 when the HCRRA, together with the Metropolitan Joint Powers Board, successfully obtained $40 million dollars from the 1998 Legislature and $38 million in federal funds by the end of the 1999 federal fiscal year. The support of the Metropolitan Council and the Minnesota Department of Transportation helped to obtain an additional $60 million from the 1999 Legislature and $42 million from the federal government.

To date, the HCRRA has provided the Hiawatha project with approximately $17 million in property and other in-kind services and has appropriated $2.25 million in project development funds for the activity in 1999. HCRRA has also authorized the expenditure of up to a total of $70 million dollars toward the final design and construction of the Hiawatha project. HCRRA and other County Staff are involved in the project implementation process with membership on the Project Control Board, the Design/Construction, Finance and Land Use committees and several other subcommittees and task forces. Commissioner Peter McLaughlin is Vice Chair of the Corridor Management Committee.



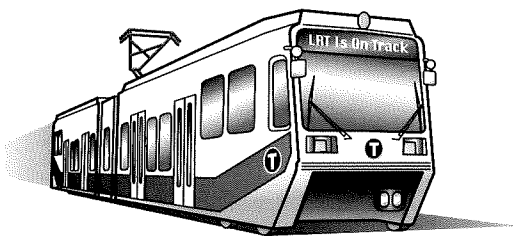
Twin Cities Area Population, Employment and Transportation Trends

Demographic & Transportation Trends
Minneapolis-St.Paul Metropolitan Area



	1970	1980	1990	2000	2010	2020
Population	1874612	1985873	2288729	2608990	2838730	3091390
Employment	779000	1040000	1273000	1527000	1710000	1809000
Auto Ownership	717043	1139744	1520600	1759227	1980329	2208617

Population **Employment** **Auto Ownership**



Transit in the Twin Cities - An Historical Perspective

Transit in the Twin Cities has amassed a storied history since the first horsecars ran on rails in the early 1870's. In fact, by 1889, Minneapolis and St. Paul had a combined 120 miles of horsecar lines.

After experiments with cable cars and steam power, the Twin Cities quickly embraced electrically powered streetcars in the early 1890's. Ownership was consolidated in Twin Cities Rapid Transit (TCRT), a private company, which survived until public ownership of the transit network in 1970.

At its peak in the late 1920's, TCRT operated 524 miles of track stretching from Stillwater and Bayport in the east to Deephaven, Excelsior and Tonka Bay in the west. Holdings included two amusement parks and a hotel.

Bus service first appeared in 1921, focusing on a short shuttle service at the end of streetcar lines and on lightly used crosstown routes. In 1940 buses carried nine percent of transit trips. That increased to 23 percent by the end of the decade.

Transit usage was strongest in 1920 with 238 million trips, slumping to 100 million in 1933 and rebounding during the war years to about 200 million. Suburbanization and the ascendancy of the auto cut ridership to 165 million trips by the end of the 1940's.

The beginning of the demise of streetcar operations can be traced to 1949, when outside interests gained control of the company and trimmed infrastructure investments with an eye toward all-bus operations.

By 1954, streetcars were out of service, and ridership dropped to 86 million trips.

Over the next decade public transit in the Twin Cities - following a national trend - became unprofitable. In the late 1960's steps were taken to convert Twin Cities Rapid Transit from private to public ownership. The task was completed in 1970 with the creation of the Metropolitan Transit Commission.

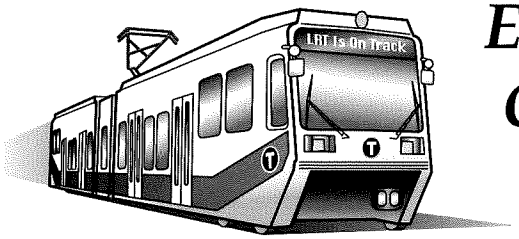
During nearly 30 years of public operation, ridership peaked in 1979, 1980 and 1981, topping 90 million each year due in large measure to an energy crisis which pushed up the price of gasoline. Throughout the 1990's ridership has been below 70 million, bottoming out at 60.3 million in 1995, a year that saw a three-week transit strike.

The 1990's also brought a change in governance. In 1994 the legislature disbanded the Metropolitan Transit Commission and the Regional Transit Board, assigning transit operations to the Metropolitan Council.

Under new transit leadership, the ridership picture improved in 1998 when boardings grew 6.4 percent to 66 million - the highest ridership in five years and the fastest growing ridership in 21 years. Ridership was stimulated by bonus funding of $4.7 million from the state legislature.

Ridership in 1999 continues to climb. Through August, ridership is 10.2 percent higher than in the first eight months of 1998.

Bus routes and schedules along the Hiawatha corridor will be restructured to provide faster trips to major destinations. Service will include feeder bus routes that provide convenient access to the light rail line. These services will have timed transfers at several stations that allow for convenient transfers between bus routes and between buses and light rail. This will provide more convenient travel between neighborhoods than is available today and reduce the need for auto trips to access the LRT. Some of the feeder routes will allow the use of smaller buses. The 38th Street, 46th Street, and Mall of America stations will be particularly important transfer locations.



Evolution of LRT in the Twin Cities - Detailed Chronology

Planning for new transit technologies for the Twin Cities started in the late 1960's when LRT and other rail systems were studied. Some of the major past and current events relating to LRT planning in the Twin Cities are:

1967: Metropolitan (Met) Council and the Metropolitan Transit Commission (MTC) conduct analysis of alternate transit technologies.

1970: MTC continues study of various transit technologies.

1974: Metropolitan Council develops summary report of travel in the Twin Cities metro area.

1975: Minnesota Legislature prohibits rail transit planning.

1980: Minnesota Legislature lifts prohibition of rail transit planning.

LRT is selected as preferred alternative in Hiawatha Avenue Draft Environmental Impact Statement (DEIS).

State legislation enables counties to establish regional railroad authorities.

Hennepin County establishes first regional railroad authority.

1981: Metropolitan Council, Mn/DOT and MTC conduct "Light Rail Transit Feasibility Study".

1982: Hiawatha DEIS circulated for public comment and submitted to the Federal Highway Administration (FHWA) for approval.

1984: Mn/DOT and the city of Minneapolis complete Hiawatha Avenue location and design study (includes LRT).

Minnesota Legislature creates Regional Transit Board (RTB).

1985: Metropolitan Council, Hennepin County Regional Railroad Authority (HCRRA), the cities of Minneapolis and St. Paul, et al., complete "LRT Implementation Planning Program, Twin Cities Metropolitan Area".

Minnesota Legislature prohibits expenditures of public funds on LRT.

FHWA approves Final Environmental Impact Statement for Hiawatha Corridor.

1986: Metropolitan Council completes "A Study of Potential Transit Capital Investments in Twin Cities Corridors – Long Range Transit Analysis" (includes Hiawatha Avenue LRT).

1987: Minnesota Legislature removes 1985 prohibition, gives regional railroad authorities authority to conduct rail transit planning, and sets maximum levy limit for railroad authorities.

Minnesota Legislature directs HCRRA to prepare "Comprehensive LRT System Plan" for Hennepin County – Reduces levy authority from 4 mils to 2 mils.

1988: "Comprehensive LRT System Plan" for Hennepin County (Hennepin County Regional Railroad Authority) completed.

Legislature appropriates funds for railroad authorities for engineering design and construction of LRT (includes Hiawatha).

Hennepin County "Comprehensive LRT System Plan" completed and submitted to Legislature, June 21, 1988.

HCRRA begins Environmental Impact Statement for Stage 1 LRT System in Hennepin County per Comprehensive Plan.

HCRRA begins preliminary design of Hiawatha Avenue LRT.

1989: Minnesota Legislature clarifies roles of Regional Transit Board, Metropolitan Council and regional railroad authorities concerning planning, implementation and financing of LRT.

HCRRA completes Draft Environmental Impact Statement for Stage 1 LRT System in Hennepin County.

1990: Preliminary Engineering and EIS for Stage 1 LRT (included Hiawatha to 46th Street) in Hennepin County (Hennepin County Regional Railroad Authority).

Regional LRT Development and Financial Plan prepared (Regional Transit Board).

HCRRA begins to acquire Coach Yard site for yard and shops.

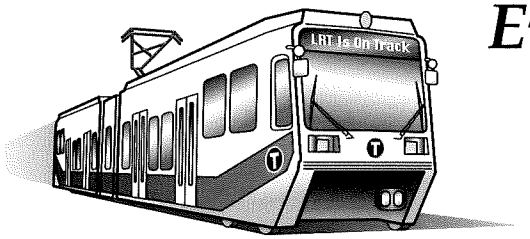
1991: HCRRA completes work on preliminary design, preliminary engineering and system design criteria for HCRRA LRT system (includes Hiawatha Avenue LRT).

HCRRA acquires Dome Spur.

Regional LRT Coordination Plan (Regional Transit Board).

1992: Regional Transit Facilities Plan (Metropolitan Council).

Metropolitan LRT Joint Powers Board formed.



Evolution of LRT in the Twin Cities - Continued

1993: Legislature approves LRT Governance bill making Mn/DOT the agency responsible for LRT final design and construction. Rail authorities are responsible jointly with Mn/DOT for system planning, preliminary engineering, community participation and system standards.

1994: Legislature reforms regional transportation governance folding Regional Transit Board and Metropolitan Transit Commission into Metropolitan Council.

1998: Legislature approves $40 million for design and construction of Hiawatha Avenue LRT.

Mn/DOT begins Preliminary Engineering for Hiawatha LRT, reevaluation of Hiawatha EIS and Environmental Assessment for LRT in Bloomington.

Hiawatha governance structure established per statute to include Corridor Management Committee and Community Advisory Committee as advisors to the Commissioner of Transportation.

1999: Preliminary engineering and environmental documentation completed for the Hiawatha LRT line.

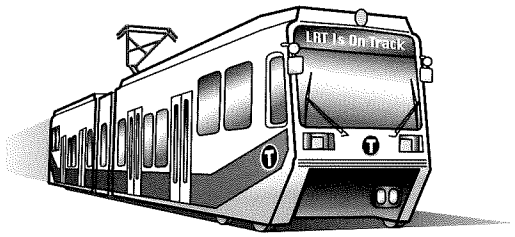
Legislature approves additional $60 million for design and construction of Hiawatha Avenue LRT.

Legislature eliminates Metropolitan LRT Joint Powers Board and redefines role of Counties in LRT planning and construction.

City of Minneapolis conducts study to determine location of downtown alignment and selects 5th Street.

HCRRA approves expenditure of up to $70 million for construction of Hiawatha LRT.

Metropolitan Airports Commission approves expenditure for up to $70 million for construction of Hiawatha LRT within confines of airport property.



The Twin Cities Region

ECONOMY

The seven-county Twin Cities Metropolitan Area (TCMA) enjoys a diversified economy. Major industries include: computers and electronics, food products, transportation services, medical technology, precision instruments, fabricated metals and machinery, education and professional services, business, retail trade and financial services. The service industry contributes the largest share of earnings in the in the region, with manufacturing second. The region's manufacturing, finance (including real estate and insurance) and wholesale trade exceeded the national averages.

Twenty-eight Fortune 1000 industrial and service companies and three Forbes 100 companies have their headquarters located here, according to 1995 figures. The area is also home to the headquarters of seven Fortune 500 companies; only five other U. S. metropolitan regions have as many or more.

The TCMA has 1,300 technology-intensive firms. Wages for all industries in the TCMA were $47.3 billion in 1996. Also in 1996, retail sales were almost $30 billion, an increase of 31 percent since 1990, compared to an increase of 10.8 percent nationally.

The per capital income for the larger 13-county Twin Cities Metropolitan Statistical Area (MSA) was $27,436 in 1995, up 4.7 percent from 1994. The poverty rate of the area was 7.6 percent, compared to 14.6 percent for the entire nation. The unemployment rate of the TCMA was only 2.4 percent in 1997, compared to 5 percent nationally.

One hundred companies located in the TCMA contribute two to five percent of their pre-tax earnings to charity annually.

APPEAL – QUALITY OF LIFE.

Air travel: Minneapolis-St. Paul International Airport is a hub for a major airline (Northwest), and is served by 10 commercial U. S. carriers and 9 regional carriers. The airport sees 1,100 arrivals and departures daily, including 13 non-stop flights to destinations in Europe and Asia.

Education/Research: The Twin Cities Campus of the University of Minnesota is a research institution with an international reputation. In addition, the TCMA is home to many private universities and colleges, technical colleges and community colleges.

Professional Sports: The Minnesota Vikings (football) and the Minnesota Twins (baseball) are headquartered in the TCMA, as well as the Minnesota Timberwolves (basketball) and the Minnesota Lynx (women's basketball). The city of St. Paul is home to the St. Paul Saints, a minor-league baseball team.

Theater/Music: The TCMA is home to the Tyrone Guthrie Theater and many others. Music offerings include the Minnesota Symphony Orchestra, the Minnesota Opera, the St. Paul Chamber Orchestra and the Ordway Music Theater.

** Dates reflect the most recent figures available.*

(continued on following page)

Arts/Museums: Museums in the Twin Cities include the Minneapolis Institute of Art, the Walker Art Center, the Frederick R. Weisman Art Museum on the University of Minnesota Campus, the Minnesota History Center, the Science Museum of Minnesota

Parks: The Minnesota Zoo, Como Park, and historic Fort Snelling are only a few of the parks and recreational areas in the TCMA. Minnesota's commitment to parks and natural areas is evident in the extensive regional park and trail system, offering ample opportunities for hiking, biking, fishing, and water recreation.

Retail: The Mall of America, located in Bloomington, is the largest indoor shopping and entertainment center in the U. S. In addition, the TCMA offers two major downtowns and regional shopping centers.

Festivals: The Minnesota State Fair, held annually at the state fairgrounds in St. Paul, draws visitors from all over the state. Other nearby annual festivals include the Minneapolis Aquatennial, the St. Paul Winter Carnival, the Taste of Minnesota Festival, and the Minnesota Renaissance Festival.

In 1997 Places Rated Almanac rated the Twin Cities and the 6th best place to live among 351 metropolitan areas in the U. S. and Canada. The ranking is a composite of ratings for cost-of-living, transportation, jobs, education, climate, arts, crime, health care and recreation.

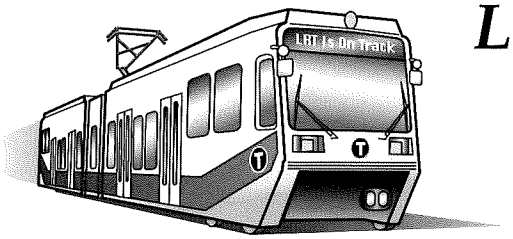
POPULATION, HOUSEHOLDS, JOBS

Nationally, the TCMA ranks 15th in population. It is the fastest-growing metropolitan area in the northeast quarter of the U.S. Among the 25 largest metropolitan areas in the nation in 1990, the TCMA had the fifth highest homeownership rate (69%).

GEOGRAPHY

The Twin Cities Metropolitan Area covers about 3,000 square miles. The first large metropolitan area on the Mississippi River, and site of the convergence of the Mississippi, Minnesota, and St. Croix Rivers, the TCMA is an important center for shipping and river traffic.

The TCMA has a rolling topography, with numerous lakes, streams and wooded areas. Just to the north lie the beginnings of the vast North Woods. Just to the west of the TCMA the transition begins between the hardwood forests of the eastern half of the country and the Great Plains of the West.



Light Rail Transit Systems in the U.S.

Light rail transit (LRT) serves 17 U.S. cities today, with more on the way. This includes 10 cities with completely new systems, all completed since 1980, and 7 other places where surviving trolley lines have been renovated and modernized. Projects range in size and scope from a few miles to metropolitan systems. Here's a synopsis.

City	First Opened	Weekday Passengers	Present Miles	Vehicle Fleet	Capital ($mil)	Future Plans
Dallas	1996	35,000	20	40	$843	23 miles under construction
Denver	1994	15,000	5	17	$117	9 miles under construction
St. Louis	1993	45,000	17	41	$351	17 miles under construction
Baltimore	1992	30,000	27	53	$360	Double tracking under way
Los Angeles	1990	70,000	42	69	$1,630	14 miles in final design
San Jose	1987	25,000	20	50	$537	15 miles under construction
Sacramento	1987	30,000	21	36	$176	16 miles in final design
Portland	1986	60,000	33	72	$1,178	7 miles under construction
Buffalo	1985	25,000	6	27	$535	Extend line to 12 miles
San Diego	1981	60,000	46	123	$121	6 miles in final design

Modernized systems provide essential transit service in Boston, Newark (NJ), Philadelphia, Pittsburgh, Cleveland, San Francisco, and New Orleans. Most use modern light rail vehicles (LRV's) similar to the new LRT projects, but New Orleans cherishes its historic 1920-vintage streetcars.

City	First Opened	Weekday Passengers	Present Miles	Vehicle Fleet	Future Plans
Boston	Pre-1900	206,000	28	173	100 low floor LRV's being delivered
San Francisco	Pre-1900	120,000	25	136	99 low floor LRV's being delivered
Philadelphia	Pre-1900	76,000	35	147	Planning to restore 3 more lines
Pittsburgh	Pre-1900	25,000	19	59	Phase 2 rehabilitation in progress
Cleveland	1920	17,000	15	47	Downtown & suburban extensions planned
Newark	Pre-1900	15,000	4	22	Low floor LRV's ordered, extensions built
New Orleans	Pre-1900	16,000	8	36	Extensions planned

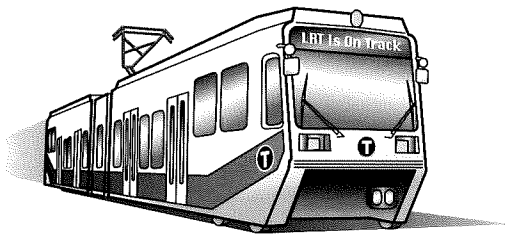
Future systems. Salt Lake City's 15-mile line will be the next opening, in December 1999. The first 9 miles of New Jersey's Hudson-Bergen line will follow a year or so later. In the next decade, new LRT lines should be built in Minneapolis, Seattle, and Cincinnati. Several cities operating LRT will expand their systems.

Current Technical Developments. In recent years, several innovations have come into common use that change some aspects of LRT system design and operation. Low floor cars, introduced in Europe starting in the mid-1980's, offer rapid transit-style level boarding (no steps) from low platforms readily integrated into urban streetscapes. Electrically, solid state electronics have enabled LRV's to use AC propulsion equipment that needs less maintenance than older DC systems, and to reduce on-board wiring requirements by multiplexing trainline circuits. Structurally, the inclusion of energy absorption zones now offers a way to achieve a high degree of passenger safety while reducing car weight. On the fixed facility side of projects are parallel innovations in track and electrification systems design to reduce impacts and/or costs.

Costs per mile vary widely among LRT projects, depending on the extent or complexity of construction. A few projects located on old railroad or similar available alignments have been built for less than $20 million per mile. Conversely, a few projects with extensive tunneling or other major civil works have exceeded $50 million per mile. For a mostly at-grade LRT line with some street and some private right-of-way, costs are likely to be in the range of $20-to-$50 million per mile.

Carrying capacity of LRT can vary over a large range, depending on anticipated passenger volumes. Train lengths on U.S. light rail systems range from one to four cars, and trains typically run every quarter hour or more frequently. Here are some examples of peak hour, peak direction (PHPD) passenger capacities:

- **Sacramento:** 15-minute intervals, 4-car trains, 2,000 PHPD passengers
- **Portland:** 5-minute intervals, 2-car trains, 3,000 PHPD passengers
- **Dallas:** 5-minute intervals, 3-car trains, 4,500 PHPD passengers
- **Seattle (future):** 4-minute intervals, 4-car trains, 7,500 PHPD passengers



Light Rail Transit Systems in the U.S. - Continued

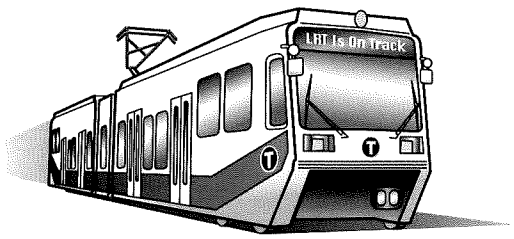
LIGHT RAIL - COMMUTER RAIL - HEAVY RAIL RAPID TRANSIT: HOW THEY DIFFER

Numerous variations in rail technologies have been developed since the dawn of railways in the nineteenth century. For any transportation corridor, available rail technologies must be matched appropriately to transit markets and alignment alternatives, and their suitability assessed with regard to meeting service parameters and system development policies. In addition to how a system operates and fits a community are issues related to procurement and costs - initial capital as well as ongoing operations and maintenance.

Light Rail Transit. Technology offering a broad range of passenger capacities. Modern electric rail cars operate singly or in short trains. Locational flexibility is a primary attribute separating LRT from other rail modes. Powered from an overhead wire, LRV's can run on exclusive, semi-exclusive or shared alignments, with or without grade crossings, or even in traffic lanes on city streets. Stations typically are 0.5-1.5 miles apart. Maximum speeds are in the range of 50-to-65 miles/hour. Lines usually are 10-20 miles long.

Heavy Rail (Rapid Transit). A specialized electric railway for carrying large numbers of riders within urban areas, or between urban areas and suburbs. Rapid transit operations are carried out by public transit agencies using exclusive tracks that are fully grade-separated from all other rail lines and roadways. High capacity trains 6-to-10 cars long serve complex, multi-level stations that typically are spaced from one to five miles apart. Maximum service speeds range up to 80 miles/hour. Lines usually are 10-20 miles long.

Commuter Rail. The portion of railroad operations carrying passengers within urban areas, or between urban areas and suburbs, but differs from rail rapid transit in that passenger cars generally are heavier, average trip lengths are longer, and operations share tracks that are part of the general freight railroad system in the area. Simply put, commuter rail builds on existing railroad lines and resources to provide longer-distance express service as part of a metropolitan region's overall multi-modal transit system.



Program Management Approach

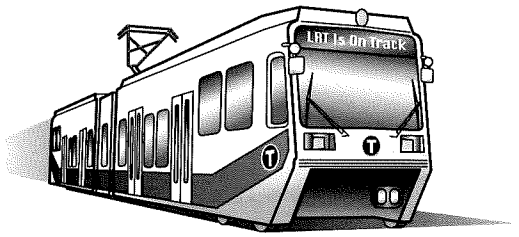
It was determined in mid-1999 following a series of workshops, a peer review, LRT project visits to other cities, and recommendations by a select panel of program management consultants that a design build (DB) approach is the preferred for the Hiawatha LRT project.

A design build approach encourages private sector innovation by allowing creativity in organizing, designing, and scheduling the project. This type of approach has been used successfully by the private sector for both buildings and transportation projects. For example, the Mall of America in Bloomington is a local project built using a design build approach.

The Minnesota Department of Transportation has retained the services of a Program Manager to ensure that the organizational structure is in place to 1) protect the financial interest of the state, 2) develop construction contracts, 3) ensure the project is completed with a high level of quality, 4) provide project management, policy, and administration, and 5) provide technology and management transfer to agency partners.

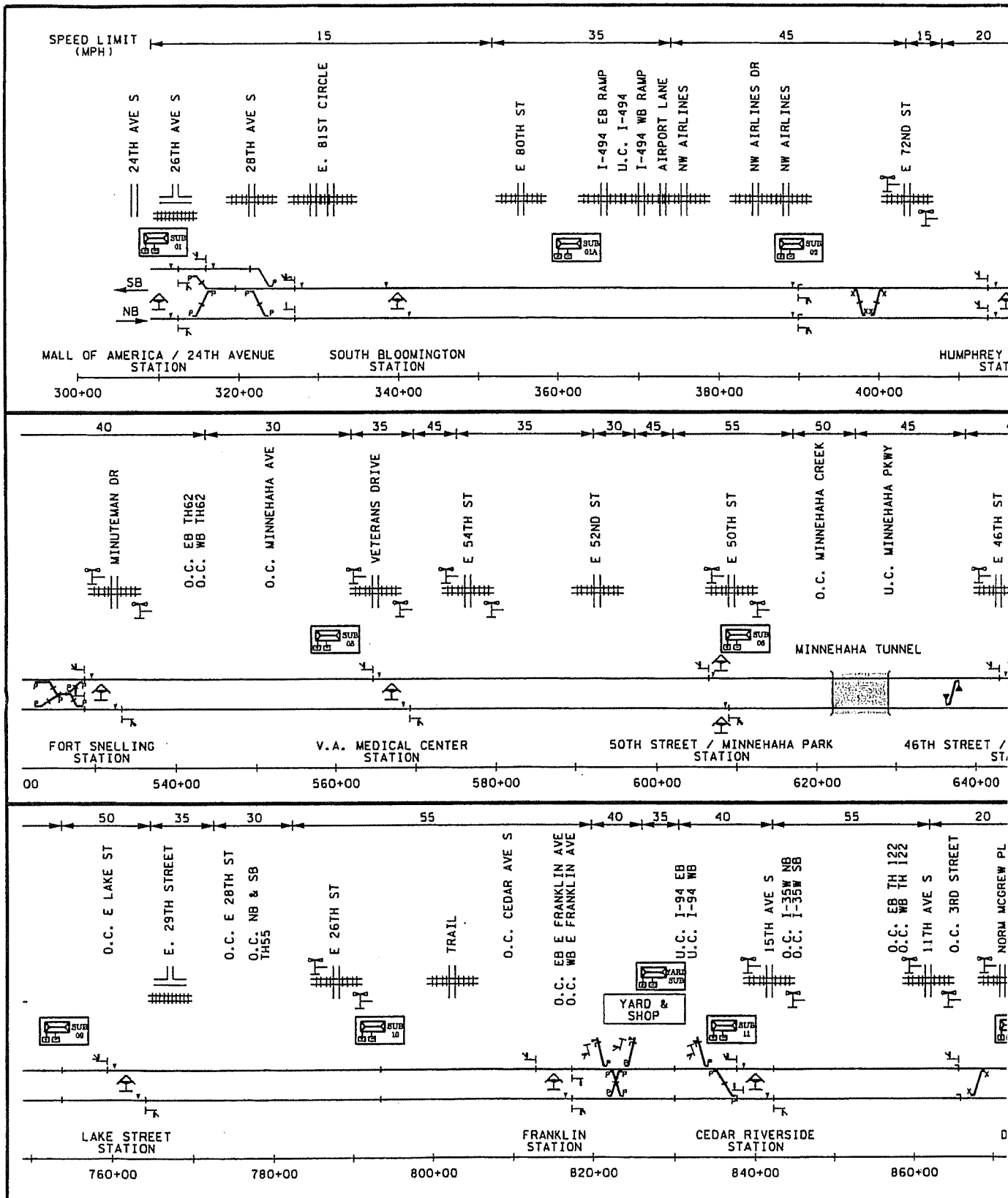
After a competitive bid process, the firm of Parsons Brinckerhoff Quade & Douglas, Inc., was selected as the Hiawatha LRT Program Manager, with support from the firms of LTK Engineering Services and BRW, Inc. The average number of full-time consultant staff in key positions, over the four-year duration of the project, is approximately 14 individuals.

A Hiawatha Project Office (HPO) organization has been established that combines the consultant firms' personnel with employees of the Minnesota Department of Transportation, the Metropolitan Council, and Metro Transit.



Single Line Diagram

See the following pages for a single line diagram of the entire alignment.



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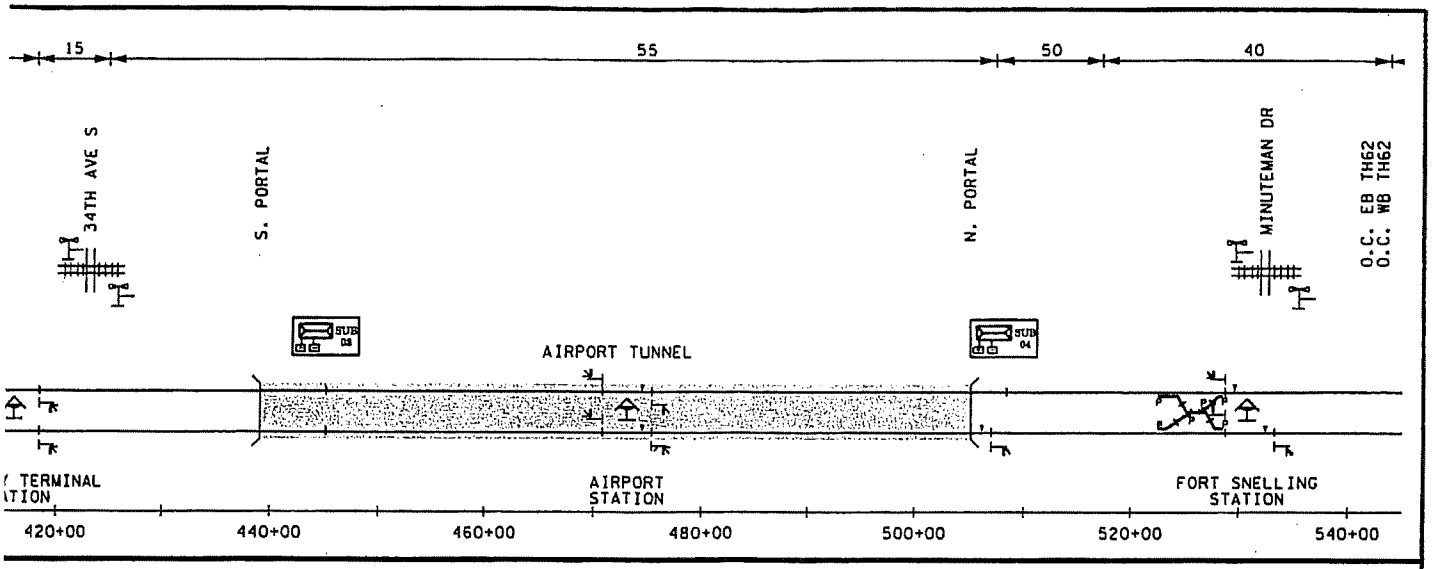

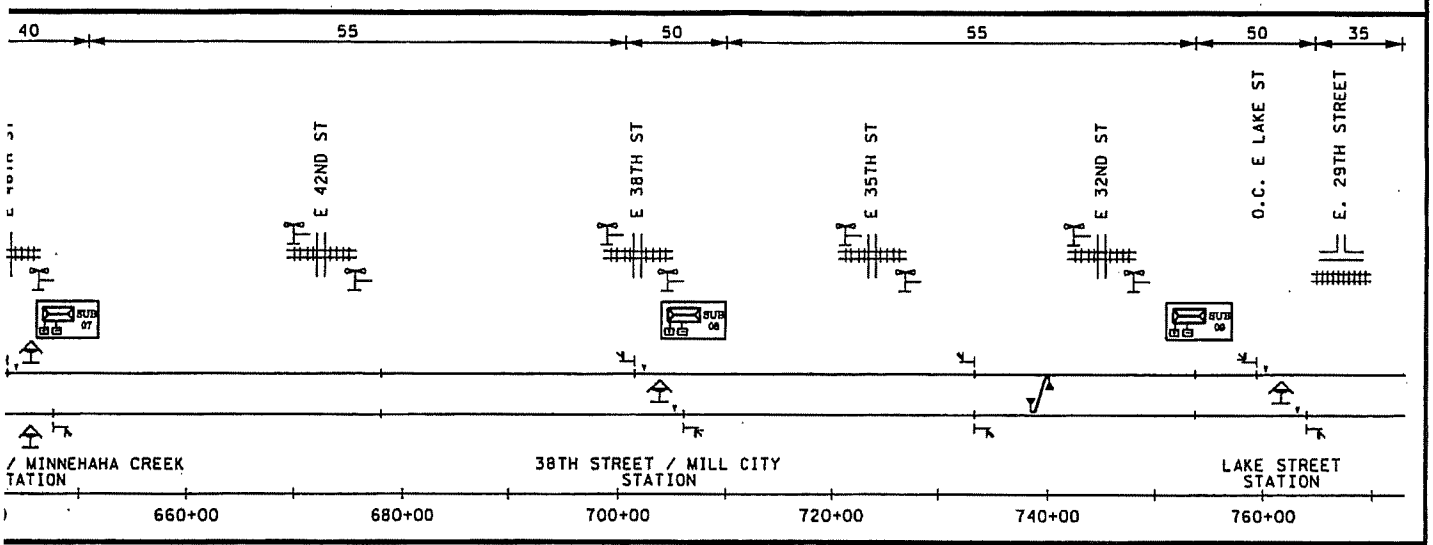

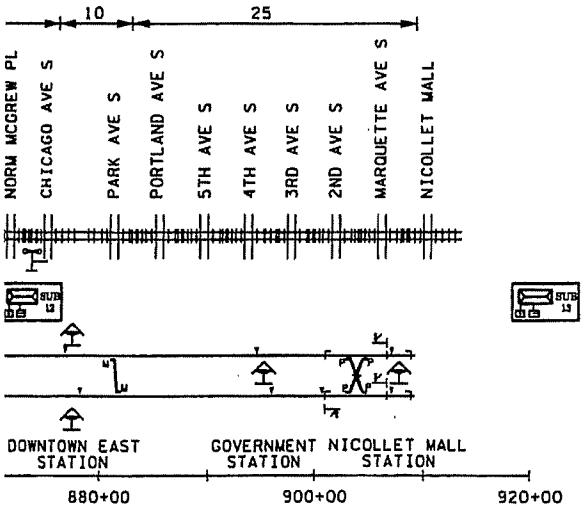

LEGEND

	COLOR LIGHT SIGNAL: DISPLAYS RED, YELLOW, AND GREEN; NORMALLY RED		INSULATED JOINTS BETWEEN TRACK CIRCUITS
	COLOR LIGHT SIGNAL: DISPLAYS RED, AND YELLOW; NORMALLY YELLOW		INSULATED JOINTS TRACK CIRCUIT ONLY ON THE LHS
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	COLOR LIGHT SIGNAL: DISPLAYS RED, YELLOW, AND GREEN; NORMALLY GREEN	x	SWITCH CIRCUIT CONTROLLER OR MANUAL SWITCH
	COLOR LIGHT SIGNAL: DISPLAYS RED		TUNNEL PORTAL
	COLOR LIGHT SIGNAL: DISPLAYS RED, YELLOW (H) BAR AND LUNAR (V) BAR; NORMALLY RED	Y	TWC LOOP
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	COLOR LIGHT SIGNAL: DISPLAYS RED, YELLOW, GREEN; RED/YELLOW; YELLOW/GREEN; NORMALLY RED		PASSENGER STATION
	COLOR LIGHT SIGNAL: DISPLAYS RED, YELLOW, AND RED/YELLOW; NORMALLY RED		TES SUBSTATION
	COLOR LIGHT SIGNAL: DISPLAYS RED AND LUNAR; NORMALLY RED		GRADE CROSSING WARNING EQUIPMENT
	COLOR LIGHT SIGNAL: DISPLAYS RED, RED /YELLOW, GREEN AND YELLOW; NORMALLY RED		AT-GRADE HIGHWAY CROSSING
	COLOR LIGHT SIGNAL: DISPLAYS RED, LUNAR, AND FLASHING LUNAR; NORMALLY RED	u.c.	LRT UNDERCROSSING
	COLOR LIGHT SIGNAL: DISPLAYS RED, YELLOW, AND FLASHING YELLOW; NORMALLY RED	o.c.	LRT OVERCROSSING
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			INTERLOCKING SWITCH
	COLOR LIGHT SIGNAL: DISPLAYS RED, YELLOW, GREEN & GREEN/FLASHING LUNAR; NORMALLY RED	S	SPRING SWITCH
	COLOR LIGHT SIGNAL: DISPLAYS RED, YELLOW, FLASHING YELLOW AND FLASHING LUNAR/YELLOW		SWITCH INDICATOR

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BRW
A DAMES & MOORE GROUP COMPANY

LTK Engineering Services

MINNESOTA DEPT. OF TRANSPORTATION

HIAWATHA CORRIDOR LRT, S.P.2724-111
SINGLE LINE DIAGRAM

SYSTEMS

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