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TH 55 (HIAWATHA AVENUE) DRAFT ENVIRONMENTAL IMPACT STATEMENT / 4(f) EVALUATION AND ALTERNATIVES ANALYSIS

CITY OF MINNEAPOLIS AND
MINNESOTA DEPARTMENT OF TRANSPORTATION

NOVEMBER 1982

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FHWA-MN-EIS-83-01-D
Federal Highway Administration
Region 5

TH 55 (Hiawatha Avenue)
From 59th Street South to Franklin Avenue
S.P. 2724-87 (TH 55) and S.P. 2725-43 (TH 55)

CSAH 62 (Crosstown Highway)
From TH 55 to 46th Avenue South
S.P. 27-662-41 and Hennepin County
Project 8115

In Minneapolis, Minnesota
Hennepin County

DRAFT ENVIRONMENTAL IMPACT STATEMENT/4(f) EVALUATION AND ALTERNATIVES ANALYSIS

Submitted pursuant to:
42 U.S.C. 4332(2)(c) and 49 U.S.C. 1653(f)
and pursuant to:
Minnesota Statutes, Section 116D.01 et seq.

Submitted by:

U.S. Department of Transportation
Federal Highway Administration

and

The State of Minnesota
Department of Transportation

and

The City of Minneapolis

Cooperating Agencies:

U. S. Fish and Wildlife Service
U. S. Army Corps of Engineers
Urban Mass Transportation Administration

Minnesota Pollution Control Agency

Metropolitan Council
Metropolitan Transit Commission
Metropolitan Airports Commission
Hennepin County

City of Bloomington

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ABSTRACT: This Draft EIS documents the impacts associated with the reconstruction of TH 55 and construction of the CSAH 62 extension in Minneapolis. The proposed project is intended to provide a major roadway in south Minneapolis to alleviate longstanding and projected problems of congestion, accessibility and socio-economic vitality. The environmental consequences of the roadway and transit alternatives proposed for construction and the no-build alternative are documented such that a preferred alternative may be selected.

Comments on this Draft EIS are due within 45 days of publication of the Public Availability Notice in the Federal Register and should be sent to:

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1.0 SUMMARY

1.0 SUMMARY

1.1 DESCRIPTION OF PROPOSED ACTION

The proposed action consists of roadway and transit service improvements in the TH 55 corridor in Minneapolis, Minnesota, located southeast of the Minneapolis CBD. The proposed roadway improvement is the reconstruction of TH 55 (Hiawatha Avenue) between Franklin Avenue and E. 59th Street (5.3 miles) to a four-lane divided at-grade roadway, and the reconstruction of Hennepin CSAH 62 (Crosstown Highway) between 46th Avenue South and TH 55 (0.4 miles) to a four-lane divided access-controlled roadway. The reconstruction of this segment of CSAH 62 has been delayed for many years pending a decision regarding reconstruction of TH 55.

The proposed transit improvement is the upgrading of transit service in the TH 55 corridor area. The affected area includes south Minneapolis between Cedar Avenue and the Mississippi River, southwest St. Paul (Highland Park), the Minneapolis-St. Paul International Airport, Bloomington east of Cedar Avenue, and northern parts of Eagan, Mendota and Mendota Heights in Dakota County.

1.2 MAJOR ALTERNATIVES CONSIDERED

Five alternatives, including a no-build alternative, are analyzed in this document. They were selected for detailed analysis in a Scoping Process which considered 120 possible actions. The proposed roadway improvement, described above, is the same for the four build alternatives.

The four build alternatives differ in the type of transit improvement proposed. Alternative 1 proposes construction of a high-occupancy vehicle (HOV) roadway parallel to TH 55 between 24th Street and 58th Street. The HOV roadway would have at-grade intersections at four major cross-streets between 32nd and 42nd Streets, but would otherwise be grade-separated from cross traffic. Additional access to the HOV roadway would be provided via access roadways.

The transit improvement proposed under Alternative 2 is an HOV roadway similar to Alternative 1, except that it would be grade separated from all cross traffic. Special access roadways would be provided at about one-half mile intervals.

Alternative 3 proposes that construction of TH 55 include bus pull-outs, transit passenger shelters and other transit-related street construction designed to facilitate the flow of buses along TH 55.

Alternative 4 proposes that the corridor transit system be reconstructed to focus on a light rail transit (LRT) line located adjacent to TH 55 and connecting the corridor to the Minneapolis CBD. The south terminus would be located at either the GSA Building, the airport terminal, or the old Metropolitan Stadium site in Bloomington.

Alternative 5, the no-build alternative, assumes that TH 55 would remain as is, and that transit service be improved only to the extent necessary to carry forecasted patronage.

1.3 ACTION PROPOSED BY OTHER GOVERNMENT AGENCIES

Two significant actions are currently proposed in the Hiawatha Avenue Corridor area by other government agencies.

The Veterans Administration currently maintains the VA Medical Center, located in the northwest corner of the existing intersection of TH 55 and CSAH 62. The VA has proposed replacement of most of the existing facilities with new construction at the southern end of the site. Implementation of the proposal depends on the availability of funding.

The City of Bloomington is considering a proposal to redevelop the site of the Metropolitan Stadium, which has been replaced by the HHH Metrodome in downtown Minneapolis. The site is located east of Cedar Avenue in Bloomington. Preliminary plans suggest that the site and adjoining areas could contain over seven million square feet of office, commercial and industrial space at full development.

1.4 SIGNIFICANT ENVIRONMENTAL IMPACTS

Implementation of the proposed roadway and transit improvements in the Hiawatha Corridor would result in significant impacts in four areas: transportation, land use, noise and parklands.

1.4.1 Transportation

All of the build alternatives would have a significant beneficial impact on transportation within and through the corridor. The proposed improvement of TH 55 and CSAH 62 would alleviate current, serious congestion and delay in the corridor. The increased traffic-carrying capacity will allow use of TH 55 by a large number of trips which would otherwise have greater travel distances. The improved facility would also probably result in a significant reduction in the traffic accident rate. The proposed transit improvements, particularly Alternative 4 (LRT), would provide increased transit accessibility in the corridor.

1.4.2 Land Use

Resolution of the problem of what should be done in the Hiawatha Avenue Corridor will result in the orderly redevelopment of land left vacant by right-of-way acquisition for previously planned roadway improvements, and will allow corridor residents and businesses to plan their future actions with the knowledge that transportation improvements will be made.

1.4.3 Noise

Because the proposed roadway would have at-grade intersections, it will be impossible to satisfy State nighttime noise standards in all cases. All residences for which mitigation cannot be provided are located very near the proposed at-grade intersections. Many more residences would be subject to noise levels greater than State standards under the no-build alternative than under any of the build alternatives (with mitigation).

1.4.4 Parklands

Implementation of any of the build alternatives would require acquisition of portions of Minnehaha Park. All of the build alternatives would, however, result in a net increase in the amount of usable parkland available to the public. In addition, the build alternatives would: (1) provide a very wide (at least 470 feet) grassy connection between the main body of Minnehaha Park on the east side of TH 55 and the Longfellow Gardens part of the park on the west side of TH 55, (2) result in the shielding of the park from noise generated by TH 55 traffic, and (3) result in the removal of an unused railroad track in the park.

1.5 AREAS OF CONTROVERSY

The proposed action has generated controversy in one area: the effect on Minnehaha Park of upgrading TH 55. TH 55 currently passes through the Park, and must be located on parkland at some point. Three subalternatives for TH 55 in Minnehaha Park are currently under consideration. Two more alternatives were considered and dropped during the Scoping Process. The City of Minneapolis and the Minnesota Department of Transportation have worked with the Minneapolis Park and Recreation Board throughout the study to develop appropriate design solutions. While the Minneapolis Park and Recreation Board may prefer one subalternative over the others, all subalternatives represent prudent and feasible means of providing for transportation needs in the corridor while preserving and enhancing the integrity of Minnehaha Park.

1.6 4(f) AND 6(f) INVOLVEMENT

This proposed action involves land which is covered under Section 4(f) of the Department of Transportation Act and under Section 6(f) of the Land and Water Conservation Act. The involvement arises in the south end of the corridor, and concerns Minnehaha Park. A Preliminary 4(f) Statement is included as Section 6 of this document.

1.7 OTHER FEDERAL ACTIONS REQUIRED

Federal funding will be requested for implementation of this action. The United States Army, Corps of Engineers may require permits under Section 404 of the Clean Water Act and under Section 10 of the River and Harbor Act.

2.0 PURPOSE OF AND NEED FOR ACTION

2.0 PURPOSE OF AND NEED FOR ACTION

2.1 INTRODUCTION

The City of Minneapolis and the Minnesota Department of Transportation propose to make transportation system improvements in the Trunk Highway (TH) 55 (Hiawatha Avenue) corridor area of south Minneapolis. The proposal includes both roadway improvements and transit service improvements.

The proposed action includes reconstruction of TH 55 between Franklin Avenue and West 59th Street (5.3 miles), the reconstruction of County State Aid Highway (CSAH) 62 (Crosstown Highway) between 46th Avenue South and reconstructed TH 55 (0.4 miles), and improvement of Hiawatha Avenue Corridor transit service.

The purpose of and need for this action have been established through: consideration of regional and local transportation policies, goals and objectives; the relationship of Hiawatha Avenue Corridor transportation system elements to the regional transportation system; existing traffic operation and transit service conditions; and forecasted travel demand.

2.1.1 Project Location

The proposed transportation system improvements will take place in south Minneapolis, which is the central part of the seven-county Minneapolis-St. Paul metropolitan area (Figure 2-1).

The Study Area is shown in Figure 2-2. The proposed roadway improvements would occur almost entirely within the City of Minneapolis. The proposed transit service improvements may affect transit service in a larger area which includes parts of Minneapolis, St. Paul, the Minneapolis-St. Paul International Airport and adjacent government properties, Bloomington, Mendota, Mendota Heights and Eagan.

2.1.2 Project Background

Planning for the reconstruction of TH 55 in the study area has been going on for over 20 years. Major events which have occurred are listed in Table 2-1. The current analysis began with the appropriation of $2.25 million through the 1978 Federal Appropriations Act for preliminary engineering studies for reconstruction of TH 55. The City of Minneapolis and the Minnesota Department of Transportation (MnDOT) are jointly managing this study.

One of the goals of the project managers was to involve affected communities in project decision-making. To that end, the Minneapolis City Council passed a resolution in 1978 which created the Hiawatha Avenue Task Force (HATF).[1/] The membership of the HATF includes residents of each affected neighborhood, representatives of local businesses, and labor representatives. The charge given to the HATF was to:

1/ Minneapolis City Council Resolution 78R-348, September 29, 1978.

FIGURE 2-1

TH 55
REGIONAL LOCATION

HIAWATHA AVENUE
Location and Design Study

0 4 8 MILES

NORTH

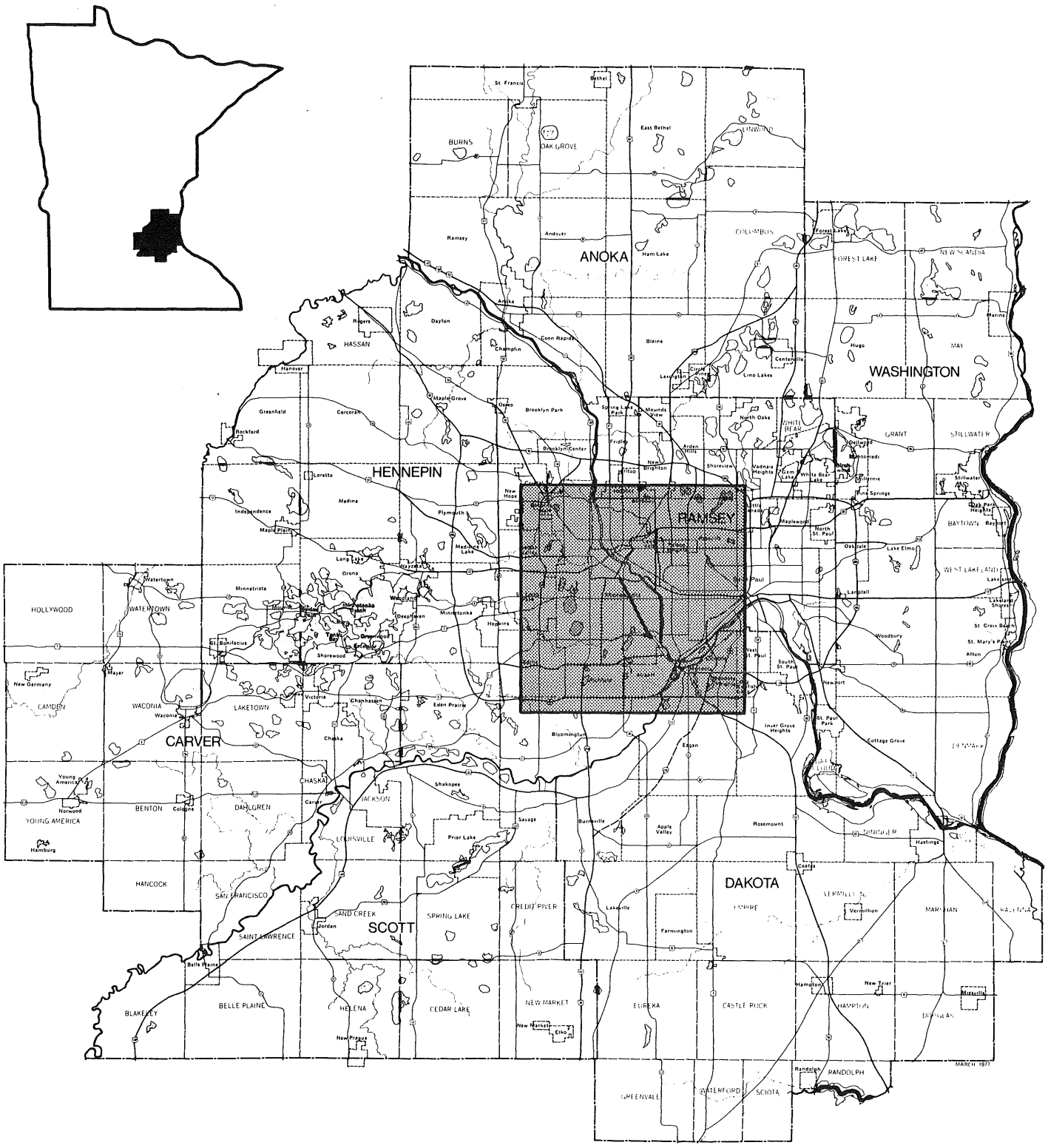


FIGURE 2-2

TH 55
STUDY AREA LOCATION

HIAWATHA AVENUE
Location and Design Study

0 1 2 MILES

NORTH

STUDY AREA FOR TRANSIT IMPROVEMENTS

STUDY AREA FOR ROADWAY AND TRANSIT IMPROVEMENTS

TH 55

CROSSTOWN HIGHWAY (CSAH 62)

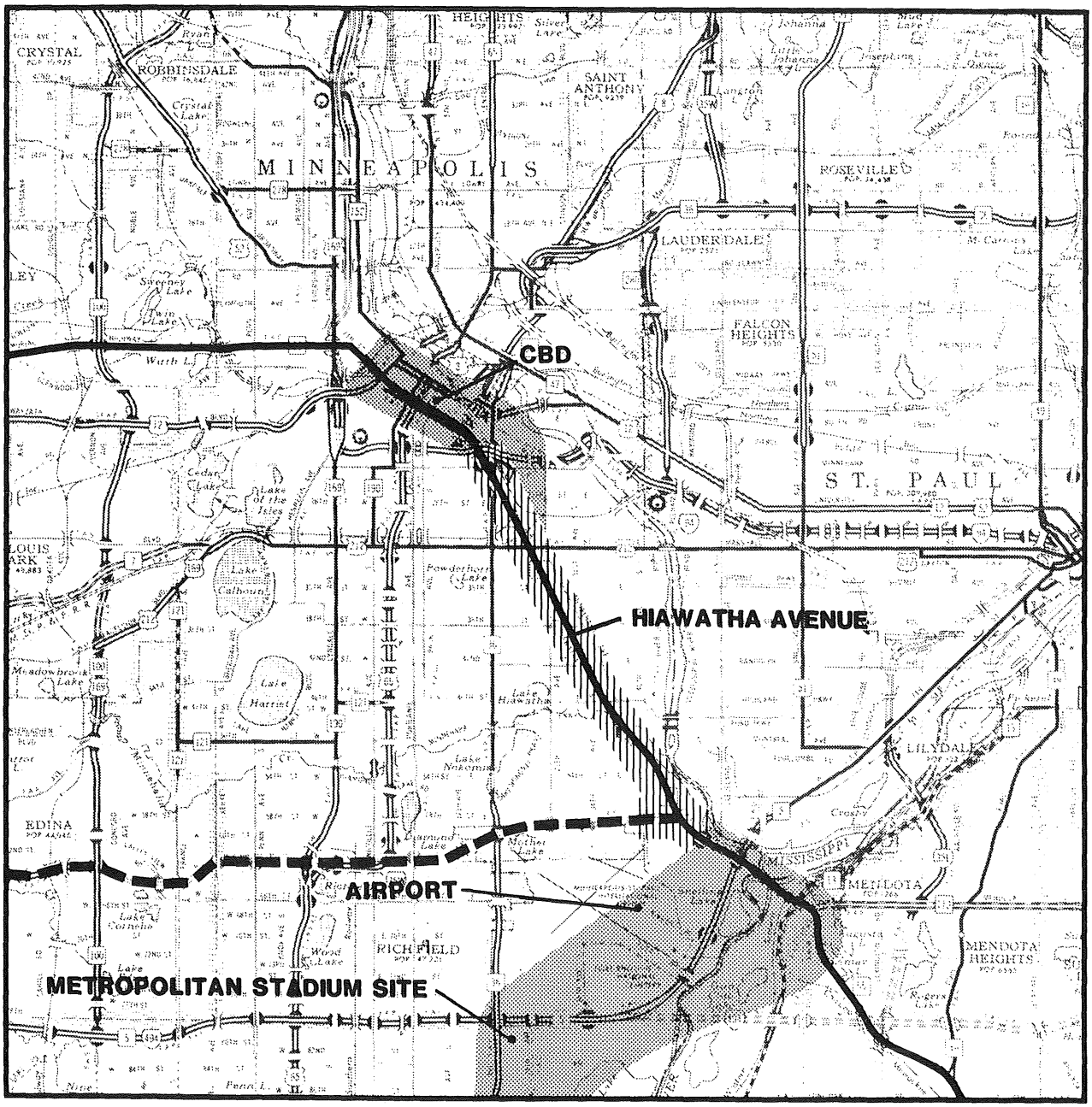


TABLE 2-1

MAJOR EVENTS IN RECONSTRUCTION
PLANNING FOR TH 55 (HIAWATHA AVENUE)

Date	Event
Prior to 1960	18 studies performed on various locations and design alternatives for a major roadway in south Minneapolis.
Early 1960's	Roadway layout studies performed by City of Minneapolis and State of Minnesota.
1963	State legislation passed enabling city to issue bonds and to advance $10 million to the State for the purpose of acquiring right-of-way and construction of TH 55 in Hiawatha Corridor.
1962-1964	City approved state's plans for reconstructing Hiawatha Avenue from Franklin Avenue to 54th Street.
1965	Public hearing held on state plan to reconstruct Hiawatha Avenue as a freeway type facility.
1966	Park Board passed a policy that parklands would not be available for upgrading of TH 55. New layout developed that shifted TH 55 to the west, entirely out of Minnehaha Park, and required acquisition of 282 homes and 16 businesses.
1967	State prepared Alternate Route Study Report that addressed three alternatives: route through Minnehaha Park, route west of the park, and route through the park with a tunnel between Crosby Place and 42nd Avenue. Minnesota Highway Commissioner's right of eminent domain over lands of the Park Board was upheld by the State Supreme Court.
1967-1968	Consultants to the Park Board recommended removal of TH 55 from parkland and construction of route through the neighborhood to the west.
1969-1971	Consultant to the state developed four alternate designs for TH 55 in the vicinity of Minnehaha Park. After a public hearing, State Highway Commissioner decided on an alternate that would utilize a tunnel under the creek and lagoon area of the park.
1971-1973	Minneapolis City Council approved the tunnel layout and layouts for other portions of Hiawatha Avenue.
1972	Environmental Impact Statement for TH 55 rejected by Federal Highway Administration (FHWA) because it did not adequately satisfy several federal requirements.
1974	Minneapolis City Council rescinded all previous plan approvals for the Hiawatha Avenue project. U.S. Public Law 93-643 was enacted which authorized $53 million in federal funding to be appropriated for the reconstruction of Highway 55 from Franklin Avenue to CSAH 62 (Crosstown Highway) as a demonstration project. The federal share of the total project cost was specified to be 90 percent.
1975	Minneapolis City Council appointed Hiawatha Design Advisory Committee. After numerous meetings and considerations this committee made majority and minority reports to the City Council.
1977	Based on the reports submitted by the Hiawatha Design Advisory Committee and work completed by the Minneapolis Department of Public Works, the Minneapolis City Council established guidelines for the reconstruction of Hiawatha Avenue. A total of $2.25 million was appropriated in the 1978 Federal Appropriations Act for preliminary engineering studies for reconstruction of TH 55 between Franklin Avenue and 59th Street.
1978	Minneapolis City Council disbanded Hiawatha Design Advisory Committee and established the Hiawatha Avenue Task Force with the charge of formulating recommendations and providing advice and assistance to the City of Minneapolis in its role as lead agency for the project.

- "... make recommendations and offer advice to the Mayor, the City Council, and the consultant regarding all elements of the reconstruction of Hiawatha Avenue..."

- "... ensure a full exploration of all alternatives for transportation facilities in this corridor..."

- "... assume primary responsibility for the dissemination of information to interested persons in the community."

To fulfill this charge, the HATF has met regularly since November, 1979 to discuss issues and alternatives relevant to the current Hiawatha Avenue study.

A second committee, the Hiawatha Avenue Technical Committee (HATC), was also formed. This committee is composed of staff representatives of federal, state, metropolitan, and local agencies responsible for reviewing or approving actions proposed for the corridor. This committee was formed to give input to the HATF regarding concerns of the represented agencies and to review all HATF actions as they are made for consistency with agency policies and regulations.

2.2 TRANSPORTATION POLICIES, GOALS AND OBJECTIVES

Transportation planning for the study area is carried out at the regional level by the Metropolitan Council, and at the local level by the City of Minneapolis. In addition, the HATF identified goals and objectives for this study.

2.2.1 Regional Transportation Planning

The Metropolitan Council, as the agency responsible for regional planning in the Minneapolis-St. Paul metropolitan area, has established regional goals to guide the development of the metropolitan area. These goals are the basis for regional policies and plans adopted by the council and officially documented in the Metropolitan Development Guide.[2/]

The Transportation Section of the Metropolitan Development Guide contains policies concerning provision of transportation services to the metropolitan area which will help to attain the regional goals of the area. Transportation policies considered most significant to the proposed action on Hiawatha Avenue are as follows:

1. The major transit and highway investments should be concentrated within the Urban Service Area (as defined in the Development Framework chapter of the Metropolitan Development Guide).

3. Emphasize better utilization of the metropolitan transportation system by providing preferential treatment in major traffic corridors for multi-passenger vehicles during peak hours and for special major events.

2/ Metropolitan Council, Metropolitan Development Guide, July, 1976.

4. Emphasize better management of the area's transportation resources by encouraging public institutions, agencies and governments, and the private sector (developers, employers, consultants) to provide preferential parking (location and cost) for car pools and van pools.

7. In the planning and design of transportation facilities, multiple use of the right-of-way should be utilized.

13. Transportation facilities should be planned and designed in a scale or perspective compatible with the area through which they pass.

14. Transportation facilities should be planned and designed to be architecturally and esthetically compatible with the surrounding environment.

15. Neighborhoods should be planned and designed to limit or discourage through traffic.

18. Agencies and local governments engaged in transportation planning and implementation projects should provide for early and continuing citizen and public involvement, especially in the formulation and ranking of objectives, evaluation criteria, and alternative solutions.

21. Promote shorter trips and the reduction of auto driving by:

    a) orienting subregional, multi-passenger and shared-ride service towards major activity centers;

    b) providing quality, convenient multi-passenger and shared-ride transit, commensurate with the demand, to the major activity centers from their subregional area.

22. Provide all-day express transit service to the Metro Centers from the subregional major activity centers with priority access and movement along the freeways, expressways, and other major traffic corridors.

33. Provide safe bicycle access to major activity centers and provide storage facilities.

37. Provide for safe access to the Metro Centers by bicycle and provide storage facilities.

In order to implement the transportation policies of the metropolitan area, the Transportation Section of the Metropolitan Development Guide includes three major elements:

- 1990 Metropolitan Transit System Plan;
- 1990 Metropolitan Highway System Plan;
- Bicycle and Pedestrian Facilities Amendment.

The "1990 Metropolitan Transit System Plan," shown in Figure 2-3, is made up of two distinct parts: service within subregions and service to the Metropolitan Centers. Transit service within subregions will be oriented toward activities and opportunities within the subregion. This responds to surveys which found that more than one-half of all trips made stayed within

the subregional boundaries. The second part of the Transit Plan provides express transit service between identified Metropolitan Centers in the metropolitan area.

The "1990 Metropolitan Highway System Plan," shown in Figure 2-4, illustrates the system of major roadways needed to support the transportation plan adopted by the Metropolitan Council. The Highway System Plan is designed to provide accessibility standards adopted by the Metropolitan Council, to provide the means for through travel to pass through the metropolitan area, and to provide corridors for the transit routes described in the Transit System Plan (with preferential treatment when appropriate).

The Transit System Plan and the Highway System Plan are two parts of the overall Transportation System Plan. The plans were developed as a unit, and the needs of one are directly related to the performance of the other. For example, in 1970, average vehicle occupancy in the Minneapolis-St. Paul area was measured at 1.4 persons (including the driver) per car during peak hours.3/ By the encouragement of ride sharing (car pools and van pools) under the Transit System Plan, it is projected that average vehicle occupancy during peak hours will rise about 15 percent (to 1.6 persons per car) by 2000. The increase in vehicle occupancy has the immediate result of a decrease in the number of vehicles on the road and could result in a need for fewer traffic lanes on a particular facility.

Another example of the interdependence of the transit element and the highway element of the Transportation System Plan relates to the assumptions made concerning transit ridership. In 1970, survey results indicated that 3.2 percent of all trips and 5.4 percent of all work trips used public buses. In estimating transit and highway needs in the future, the Metropolitan Council has assumed that 5.4 percent of all trips and 10.7 percent of all work trips will be using public transportation.

Clearly, the Metropolitan Council has assumed that public transportation and shared rides will assume a much more important role in the future. The expanded role of public transportation and shared rides under the "1990 Metropolitan Transit System Plan" is one of the major considerations in the formulation of the "1990 Metropolitan Highway System Plan."

The "1990 Metropolitan Highway System Plan" identifies TH 55 in the study area as an intermediate arterial. An intermediate arterial should complement the primary arterial system, provide a high level of mobility within and between subregions, and serve medium and long trips as well as express transit trips within the urban area.

3/ A Summary Report of Travel in the Twin Cities Metropolitan Area, 1970 Travel Behavior Inventory, Metropolitan Council, April, 1974.

FIGURE 2-3

1990 METROPOLITAN TRANSIT SYSTEM PLAN

HIAWATHA AVENUE
Location and Design Study

0 1 2 4 MILES

NORTH

RESERVED LANE FOR EXPRESS TRANSIT, CAR / VAN POOLS, METERED FREEWAY WITH SPECIAL ACCESS RAMPS

EXPRESS TRANSIT ON EITHER METERED FREEWAY WITH SPECIAL ACCESS RAMPS OR EXPRESSWAY WITH PREFERENTIAL TREATMENT

EXPRESS TRANSIT IN MIXED TRAFFIC

SUBREGIONS

METRO CENTERS

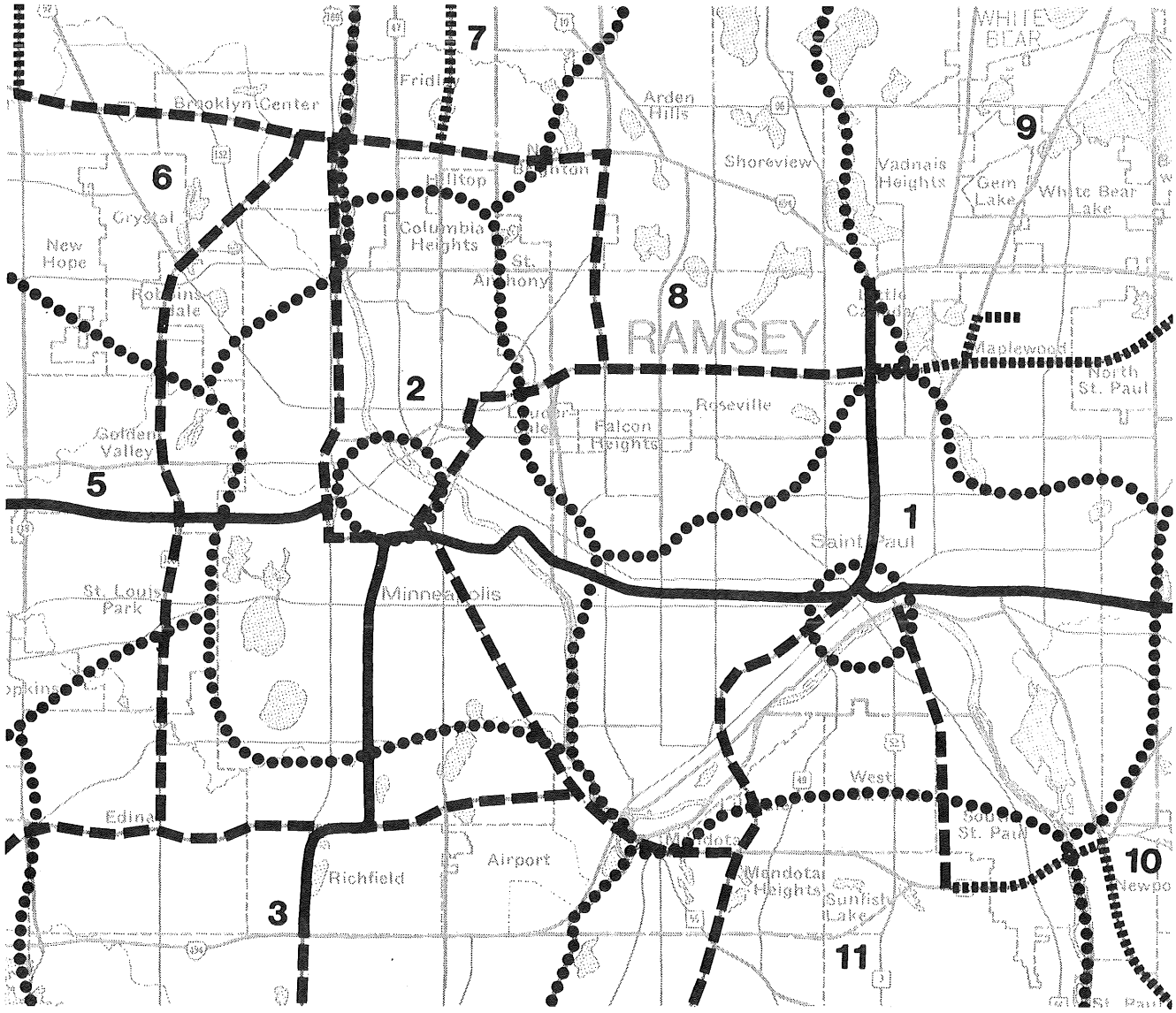


FIGURE 2-4

1990 METROPOLITAN HIGHWAY SYSTEM PLAN

HIAWATHA AVENUE
Location and Design Study

0 1 2 4 MILES

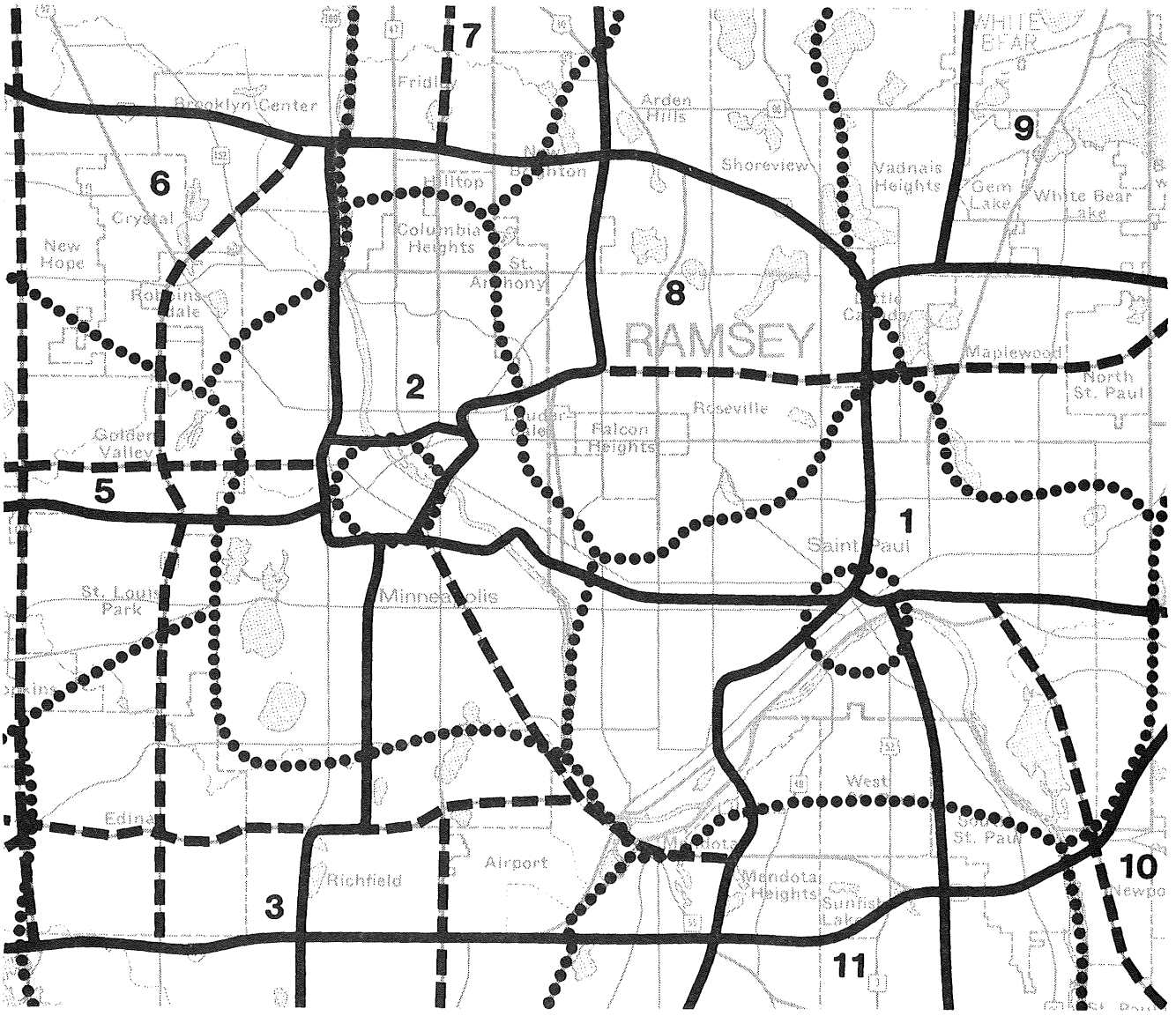
NORTH

PRINCIPAL ARTERIAL

INTERMEDIATE ARTERIAL

SUBREGIONS

METRO CENTERS



TH 55 in the study area is well suited to serve the intermediate arterial function. TH 55 provides a route to the Minneapolis CBD for trips from the eastern part of south Minneapolis and from northern Dakota County which would otherwise use either I-35W or the local street system. It provides access to activity concentrations such as the Lake Street commercial area, the University of Minnesota, the Minneapolis-St. Paul International Airport, and government and private employment concentrations near the airport.

The "1990 Metropolitan Transit System Plan" identifies TH 55 in the corridor as an express transit corridor. At the present time, the Metropolitan Transit Commission (MTC) provides some peak period transit service along TH 55 which serves the south Minneapolis area. The express bus runs have attracted full or nearly-full loads of passengers.

TH 55 is now serving its intended role in the metropolitan transportation system plan, but the degree to which it is able to serve that role is limited by its narrow pavement width, by poor pavement condition, by numerous traffic flow interruptions, and by an excessive number of cross street intersections. The ability of TH 55 to serve its intended function in the future depends on resolution of these problems.

The third element of the Transportation Section of the Metropolitan Development Guide is the "Bicycle and Pedestrian Facilities Amendment." This amendment stresses the need for development of bicycle and pedestrian facilities as an important element of the region's overall transportation system. In the study area, that need can be identified in relation to the TH 55 project. Pedestrian movements must be safely accommodated across the proposed roadway facilities, either through grade separations or signalized crosswalks. The Metropolitan Bicycle System Plan identifies Hiawatha Avenue (TH 55) as a bicycle corridor. This designation implies that a continuous, safe bicycle corridor should be provided in the vicinity of Hiawatha Avenue.

2.2.2 City of Minneapolis Transportation Planning

The Minneapolis Comprehensive Transportation Plan contains the goals, objectives and policies of the City of Minneapolis concerning the city transportation system. The plan evaluates the existing street system with respect to the stated policies and makes recommendations for the future street and transit systems.

Within the plan, existing TH 55 is considered:

- Congested between 24th Street South and 38th Street South with the potential for congestion throughout the remainder of the corridor;
- A "second priority target area" for accident reduction between 24th Street South and 46th Street South;
- A "general traffic movement" link in the "essential street system" which the city considers "absolutely necessary for the conduct of city business and personal livelihood."

References to TH 55 are made in the policies designed to obtain the objectives of "removal of nonlocal, through traffic from the city's neighborhood streets to make residential areas more attractive to family residents."

The city found that the "improvement of TH 55 (Olson Highway, Seventh and Eighth Streets, Hiawatha Avenue) through the city is mandatory to relieve pressure on local streets." The plan states that to encourage greater use of transit and shared ride options, the city should plan a transitway in the Hiawatha Avenue Corridor and encourage the MTC to study light rail transit applications. The plan also concurs with MTC-proposed changes in transit services, including investigation of the Hiawatha Avenue Corridor for possible transit improvements and extension of four express bus routes onto TH 55.

The City of Minneapolis recognizes the need to accomodate bicycle commuter travel, as evidenced in the bicycle amendment to its Plan for the 1980's. The city-appointed Commuter Bicycle Task Force in 1981 issued a report in which a special bicycle path along Hiawatha Avenue is among recommended Phase II (post-1986) elements of a city-wide commuter bicycle system.4/

2.2.3 Hiawatha Avenue Task Force (HATF) Goals and Objectives

One of the first tasks of the HATF was to formulate and adopt goals and objectives for the project. These goals and objectives were developed with consideration for existing comprehensive plans at the regional, city and neighborhood level. The goals and objectives adopted by the HATF are shown in Table 2-2. This list was used throughout the project to assess the effects of the proposed action.

2.3 ROLE IN REGIONAL TRANSPORTATION SYSTEM

TH 55 in the Hiawatha Avenue Corridor is a portion of a continuous route through the metropolitan area. Originating at the western edge of the state, TH 55 enters the Twin Cities metropolitan area from the northwest. Within the City of Minneapolis, TH 55 follows Olson Memorial Highway, and the Seventh and Eighth streets one-way pair through the CBD. TH 55 then follows Hiawatha Avenue southeasterly to the vicinity of the Minneapolis-St. Paul International Airport. East of the airport, TH 55 crosses the Minnesota River on the Mendota Bridge, then continues southeasterly to the eastern border of Minnesota.

The major functions served by Hiawatha Avenue are:

- To provide local access from the residential and industrial areas of the corridor to the CBD, the airport, and the rest of the regional highway system;
- To link the Minneapolis CBD with the residential areas south of the Minnesota River;

4/ Commuter Bicycling in the 1980's: A Citizen Proposal, Minneapolis City Planning Department, November, 1981.

TABLE 2-2

HIAWATHA AVENUE LOCATION AND DESIGN STUDY GOALS AND OBJECTIVES

Transportation

1a. Improve the current level of service in the corridor.

1b. Provide a higher level of service for transit users than single occupant vehicles.

1c. Design transportation facilities to encourage all forms of ride sharing.

1d. Encourage center city development and discourage suburban sprawl through the expenditures for transportation facilities.

1e. Design the transportation facilities to be cost effective.

1f. Coordinate planning and development of all transportation elements in the corridor, e.g. transit, roadway, bicycle, pedestrian, parking, etc.

1g. Coordinate the planning and development of the transportation elements in the corridor with land use plans.

1h. Provide local access to and across the transportation facilities; if trade offs are to be made between local access and regional travel, local access shall take priority.

1i. Minimize negative community impacts; if trade offs are to be made between level of service and community impacts, the community impacts shall take priority.

1j. Provide adequate facilities for trucks in the corridor in order to minimize neighborhood impacts.

1k. Provide transportation facilities that are totally accessible to young, elderly, physically and economically handicapped.

1l. Provide transportation facilities that are safe for the users.

1m. Design and size regional transportation facilities within the City to accommodate regional travel demands and needs.

Land Use

2a. Support city, neighborhood and land use policies within the corridor.

2b. Upgrade neighborhood integrity.

2c. Maintain the existing residential environment and encourage residential development where appropriate.

2d. Support the development of commercial nodes as designated in city and neighborhood land use plans.

2e. Maintain and promote industrial activity within areas designated in local plans.

2f. Preserve and enhance the inherent qualities of area parks and historic sites.

2g. Provide good Central Business District accessibility.

2h. Use transportation to strengthen Metropolitan Centers as the major areas of employment, financial, institutional, etc.

Energy

3a. Reduce net transportation energy consumption.

3b. Decrease reliance on petroleum products; encourage use of other energy sources.

3c. Improve mass transit to increase vehicle occupancy.

3d. Provide convenient mass transit.

3e. Provide multiple use of right-ofway to encourage nonmotorized travel.

3f. Promote land use patterns which encourage energy conservation.

Environment

4a. Preserve and enhance the natural and man-made environment.

4b. Protect and enhance open space within the corridor.

4c. Minimize noise levels.

4d. Maintain/improve air quality.

4e. Design improvements to be architecturally and aesthetically compatible with the surrounding environment.

4f. Minimize water quality impacts.

NOTE: Goals and objectives adopted by the Hiawatha Avenue Task Force on February 27, 1980.

- To link the Minneapolis CBD with the Minneapolis-St. Paul International Airport;

- To serve through trips on TH 55.

Major roadways in the Hiawatha Avenue Corridor part of the region and their functional classifications are shown in Figure 2-5.

2.3.1 Use By Corridor Residents and Businesses

TH 55 is the only north-south through route available to trips beginning or ending in the corridor. It is the only corridor-length roadway with direct access to the Minneapolis CBD and to the airport. Interchanges and intersections at the ends of the corridor are the only convenient access points to the rest of the regional highway system. At the north end, access is provided to I-94 and I-35W. At the south end, access is provided to CSAH 62, TH 5 and I-494. The only alternative north-south route is I-35W. At Lake Street, which is the northernmost interchange on I-35W in south Minneapolis, I-35W is 1.75 miles west of TH 55; at CSAH 62, at the south end of the corridor, I-35 is 3.75 miles west of TH 55.

Because of its diagonal orientation in the street system, TH 55 is also the logical route for project area bicycle commuters seeking the shortest travel distance to and from major activity centers, including the University of Minnesota, the CBD, the Veterans Administration medical center, Minnehaha Park, and the Lake Street commercial area.

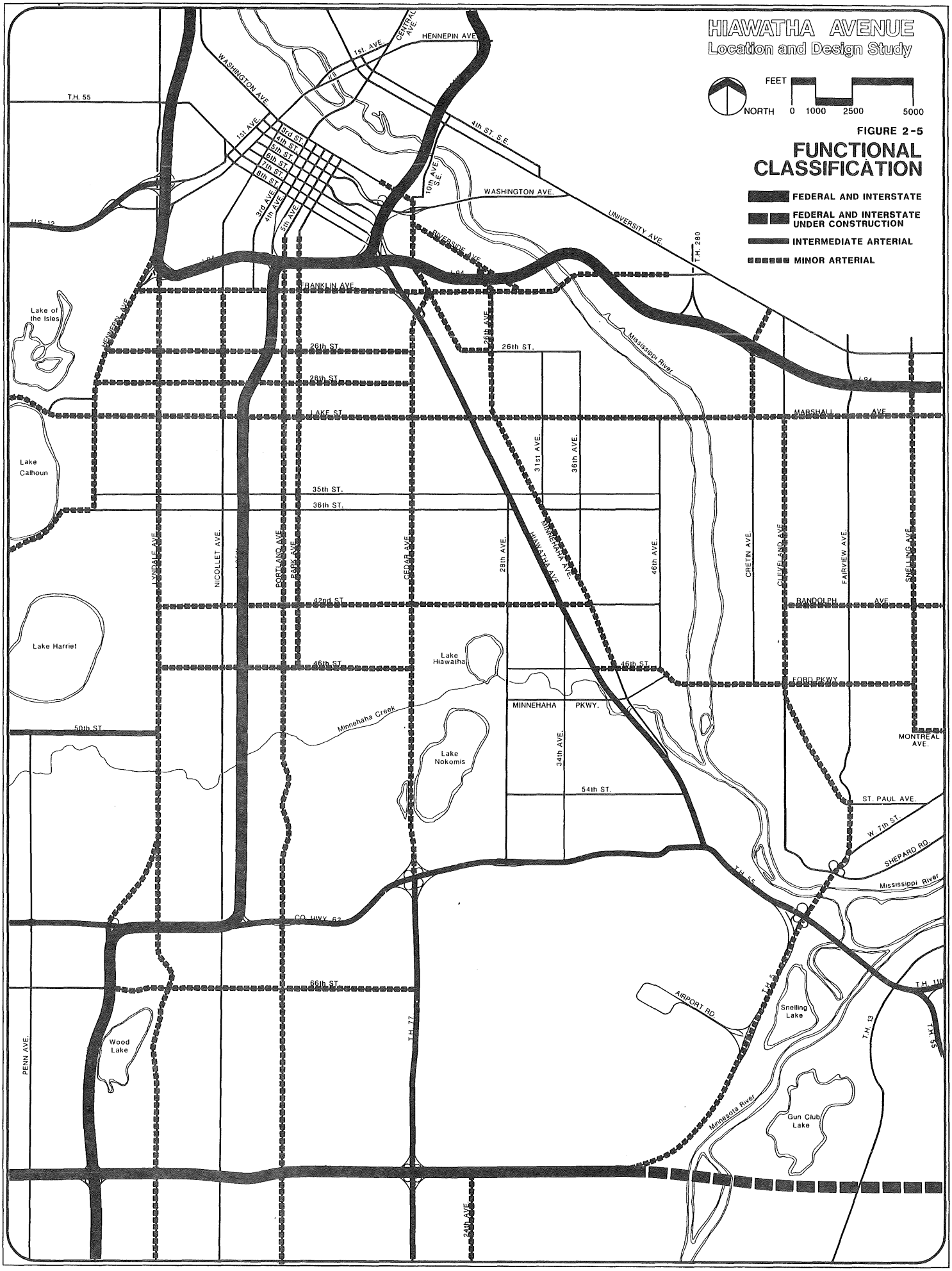
TH 55 serves a vital role in providing transportation service to corridor residents and businesses. In order for TH 55 to continue to serve this role, the proposed roadway improvement must be implemented to provide needed traffic carrying capacity and eliminate traffic safety hazards.

2.3.2 Access to Minneapolis CBD for Dakota County Trips

As shown by Figure 2-5, there is an area in northern Dakota County (Mendota, Mendota Heights and Eagan) which has no direct route to the Minneapolis CBD other than TH 55. Many of these trips now avoid TH 55 because of roadway conditions (including congestion on the Mendota Bridge over the Minnesota River, which is outside of the study area). Alternative routes result in the addition of three to five miles to one-way trip lengths.

2.3.3 Link Between Minneapolis CBD and Airport

The most used route between the airport and the Minneapolis CBD is the combination of CSAH 62 and I-35W. The distance between the airport and the CBD via TH 55 is approximately nine miles. Via CSAH 62 and I-35W, the distance is approximately 12.5 miles. In spite of the difference in distance between the two routes, peak period travel times are approximately the same. Many drivers choose to use I-35W and CSAH 62 to avoid the congestion and roadway conditions present on TH 55. Currently, the express bus service and a large proportion of the limousine and taxi service between the airport and the CBD use the CSAH 62/I-35W route. A 1979 survey found that the Minneapolis CBD was the origin or destination of ten percent


HIAWATHA AVENUE
Location and Design Study
FEET
NORTH
0 1000 2500 5000
FIGURE 2-5
FUNCTIONAL CLASSIFICATION
FEDERAL AND INTERSTATE
FEDERAL AND INTERSTATE UNDER CONSTRUCTION
INTERMEDIATE ARTERIAL
MINOR ARTERIAL
T.H. 55
WASHINGTON AVE.
1st AVE.
CENTRAL AVE.
HENNEPIN AVE.
3rd ST.
4th ST.
5th ST.
6th ST.
7th ST.
8th ST.
3rd AVE.
4th AVE.
5th AVE.
10th AVE. S.E.
4th ST. S.E.
WASHINGTON AVE.
UNIVERSITY AVE.
T.H. 280
RIVERSIDE AVE.
I-94
FRANKLIN AVE.
HENNEPIN AVE.
Lake of the Isles
26th ST.
28th ST.
LAKE ST.
MARSHALL AVE.
Lake Calhoun
35th ST.
36th ST.
31st AVE.
36th AVE.
Mississippi River
LYNDALE AVE.
NICOLLET AVE.
PORTLAND AVE.
BLAISDELL AVE.
CEDAR AVE.
28th AVE.
HIAWATHA AVE.
46th AVE.
CRETIN AVE.
CLEVELAND AVE.
FAIRVIEW AVE.
SNELLING AVE.
42nd ST.
RANDOLPH AVE.
Lake Harriet
Lake Hiawatha
46th ST.
FORD PKWY.
MINNEHAHA PKWY.
Minnehaha Creek
50th ST.
34th AVE.
MONTREAL AVE.
Lake Nokomis
54th ST.
ST. PAUL AVE.
W. 7th ST.
SHEPARD RD.
Mississippi River
CO. HWY. 62
66th ST.
AIRPORT RD.
Snelling Lake
T.H. 13
T.H. 55
T.H. 77
PENN AVE.
Wood Lake
Minnesota River
Gun Club Lake
24th AVE.

of airport-oriented trips. The Minneapolis CBD is the largest single generator of airport-oriented trips.

2.3.4 Through Travel on TH 55

Through travel does not represent a large portion of existing travel on TH 55 for two reasons. Trips with neither origin nor destination in the metropolitan area would normally use the circumferential interstate routes (I-494 and I-694) to avoid passing directly through the urbanized area. Longer trips which could use TH 55 in the Hiawatha Avenue Corridor as part of a shortest-distance route tend to avoid the corridor, particularly during peak traffic flow periods, because of the congestion that occurs there.

2.4 EXISTING CONDITIONS

The analysis of the existing roadway and traffic operating conditions, current traffic accident statistics and existing transit service points out the present need to upgrade transportation facilities in the Hiawatha Avenue Corridor.

2.4.1 Roadway Conditions

Hiawatha Avenue (TH 55) is a State Trunk Highway; is designated as a truck route by the Minneapolis Department of Public Works; and is classified as an intermediate arterial.

The typical roadway width is approximately 40 feet; there are two through lanes in each direction. The width per lane of ten feet is two feet narrower than the standard twelve-foot width. No parking is permitted on TH 55 in the project area.

Because reconstruction of TH 55 in the corridor has been planned for twenty years but never accomplished, the roadway has received little more than minimal maintenance. As a result, the roadway pavement is in poor condition, and nothing has been done to eliminate some of the many at-grade intersections created by Hiawatha Avenue cutting diagonally across the grid pattern of local streets.

The traffic on TH 55 is directed and controlled by 16 traffic signals spaced at approximately every one-quarter mile. The traffic signals north of and including Minnehaha Parkway are a part of the Minneapolis signal system. This interconnection allows the timing of the traffic signals to be adjusted as a function of traffic demand. Twelve signals in the project area have this capability.

TH 55 has two at-grade rail crossings in the proposed improvement section. Both are located between East 26th Street and Lake Street. These crossings are part of the mainline track of the Chicago, Milwaukee, St. Paul and Pacific (CMStP&P) Railroad (Milwaukee Road).

As a part of previous efforts to reconstruct TH 55, MnDOT has acquired and cleared a significant amount of right-of-way, mainly along the west side of the corridor. Table 2-3 lists the existing rights-of-way for segments of TH 55.

TABLE 2-3

EXISTING TH 55 RIGHTS-OF-WAY

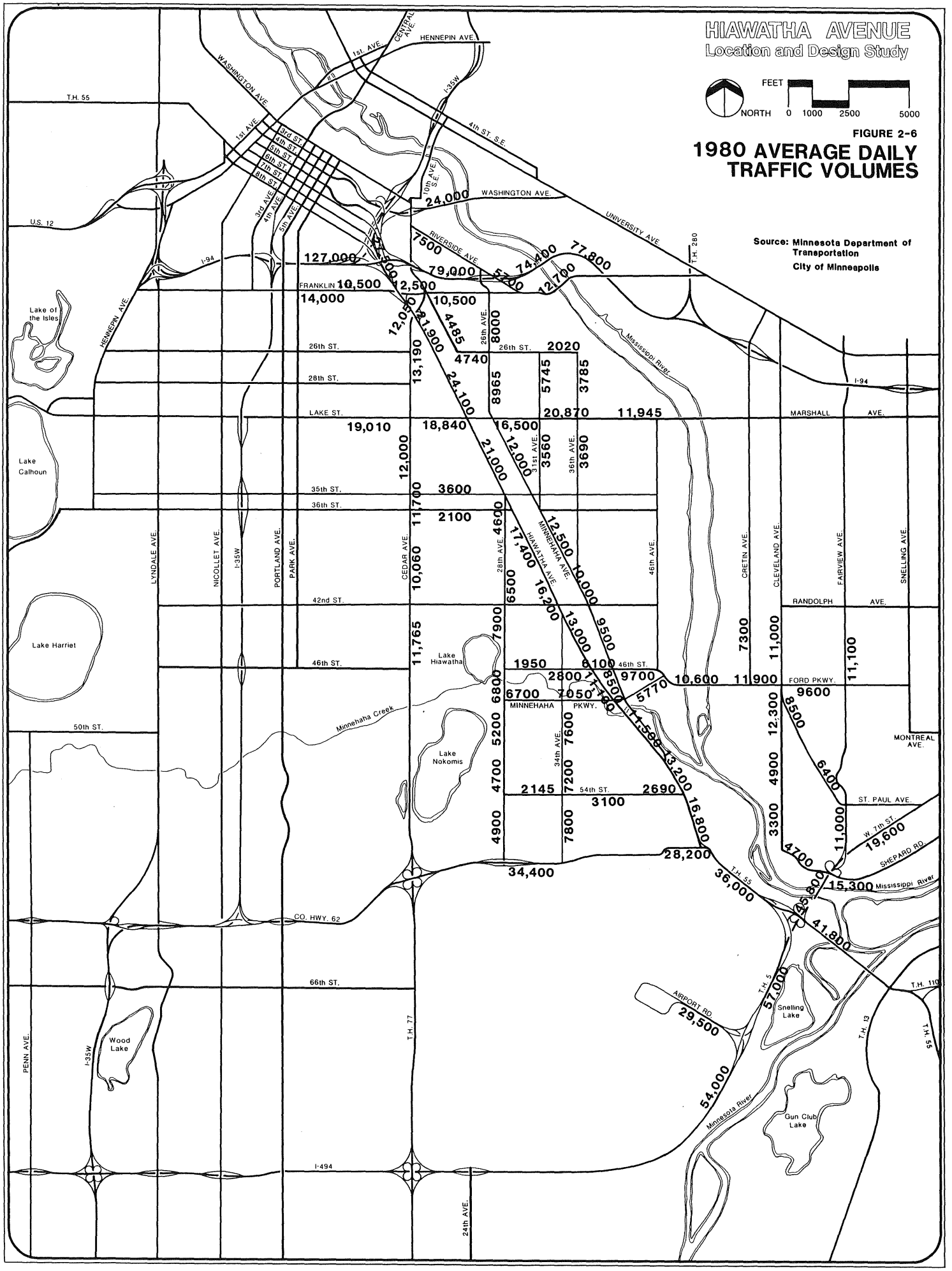
Segment	Approximate Right-of-Way in Feet
From Franklin Avenue to 26th Street	300 - 500
From 26th Street to 28th Street	80
From 28th Street to 29th Street	200
From 29th Street to 32nd Street	300 - 900
From 32nd Street to 46th Street	300
From 46th Street to Godfrey Parkway	200
From Godfrey Parkway to 54th Street	60
From 54th Street to 62nd Street Crosstown*	60*

* A four to eight hundred foot-wide strip of right-of-way has been acquired in this segment for future improvements. This right-of-way is located east of Minnehaha Avenue and the Veterans Administration auxiliary buildings and west of the U.S. Bureau of Mines property.

2.4.2 Traffic Operating Conditions

TH 55 is the key north-south route in the eastern part of south Minneapolis. At the present time, average daily traffic volumes range from 20,000 vehicles per day at both the north end and the south end of the corridor to 12,000 vehicles per day near the middle of the corridor (Figure 2-6). This is approximately the same level of traffic which was present in the early and mid-1960's. At that time, two things happened which caused traffic volumes to decrease. First, the then Minnesota Highway Department began purchasing right-of-way for the planned freeway, removing many traffic generators from the corridor. Second, I-35W in south Minneapolis was opened to traffic, drawing traffic away from TH 55. From a low point in the 1969-1972 period, traffic volumes on TH 55 have grown to their present level at an average rate of about three to four percent per year.

Drivers perceive TH 55 to be congested during peak traffic flow periods. The congestion is caused by interruption of traffic flow at signalized intersections with high-volume cross streets (24th Street, Lake Street, 38th Street, 46th Street and CSAH 62) and at the two at-grade railroad crossings between 26th Street and 29th Street. The narrowness of the driving surface and the lack of a median and turning lanes contribute to a general discomfort in driving on TH 55.


HIAWATHA AVENUE
Location and Design Study
FEET
NORTH 0 1000 2500 5000
FIGURE 2-6
1980 AVERAGE DAILY TRAFFIC VOLUMES
Source: Minnesota Department of Transportation
City of Minneapolis
HENNEPIN AVE.
WASHINGTON AVE.
1st AVE.
CENTRAL AVE.
I-35W
T.H. 55
4th ST. S.E.
10th AVE. S.E.
U.S. 12
I-94
3rd ST.
4th ST.
5th ST.
6th ST.
7th ST.
8th ST.
3rd AVE.
4th AVE.
5th AVE.
24,000
UNIVERSITY AVE.
T.H. 280
RIVERSIDE AVE.
7500
127,000
79,000
5200
74,400
77,800
12700
FRANKLIN
10,500
12,500
14,000
10,500
Lake of the Isles
HEMEPIN AVE.
12,050
11,900
4485
8000
26th AVE.
26th ST.
2020
4740
13,190
24,100
8965
5745
3785
28th ST.
Mississippi River
I-94
LAKE ST.
20,870
11,945
MARSHALL AVE.
19,010
18,840
16,500
12,000
21,000
12,000
31st AVE.
3560
36th AVE.
3690
Lake Calhoun
35th ST.
3600
36th ST.
11,700
2100
4600
17,400
12,500
10,000
9500
16,200
13,000
6500
LYNDALE AVE.
NICOLLET AVE.
I-35W
PORTLAND AVE.
PARK AVE.
CEDAR AVE.
10,060
28th AVE.
HIAWATHA AVE.
MINNEHAHA AVE.
46th AVE.
CRETIN AVE.
CLEVELAND AVE.
FAIRVIEW AVE.
SNELLING AVE.
42nd ST.
RANDOLPH AVE.
7300
11,000
11,100
Lake Harriet
11,765
Lake Hiawatha
7900
1950
6100
46th ST.
2800
1100
9700
10,600
11,900
FORD PKWY.
9600
46th ST.
6700
7050
MINNEHAHA PKWY.
5770
8500
6800
5200
4700
4900
Minnehaha Creek
50th ST.
Lake Nokomis
34th AVE.
7600
7200
7800
2145
54th ST.
2690
3100
12,300
4900
3300
8500
6400
MONTREAL AVE.
ST. PAUL AVE.
W. 7th ST.
19,600
11,000
SHEPARD RD.
16,800
13,200
28,200
34,400
36,000
4700
15,300
Mississippi River
CO. HWY. 62
41,800
66th ST.
AIRPORT RD.
29,500
T.H. 5
57,000
Snelling Lake
T.H. 110
PENN AVE.
Wood Lake
I-35W
T.H. 77
T.H. 13
T.H. 55
54,000
Minnesota River
Gun Club Lake
I-494
24th AVE.

Capacity analysis at key intersections along TH 55 confirms the drivers' perceptions. The capacity analysis indicates that the three busiest intersections in the corridor (24th Street, Lake Street and CSAH 62) operate at or over capacity during the PM peak hour. The intersections in the central part of the corridor, between 38th Street and 54th Street, operate at a high level of service. The number of signalized intersections, however, causes frequent interruptions in the traffic flow.

2.4.3 Traffic Safety

TH 55 in the study area has experienced an accident rate which is considerably higher than other roadways of similar type in the metropolitan area. During the period from 1976 to 1980, four-lane undivided roadways similar to TH 55, carrying average daily traffic volumes in the 20,000 vehicles per day range, have reported about 6.6 accidents per million vehicle miles traveled (VMT) with a severity rate of 13.0.* TH 55, within the study area, has reported accident rates of 10.6, 9.2 and 8.7 accidents per million VMT for 1978, 1979 and 1980 respectively. Severity rates were 20.2, 18.4 and 17.4 for 1978, 1979 and 1980 respectively.

While the accident rate on TH 55 declined during the three years, both the 1980 accident rate and the 1980 severity rate are still over 30 percent higher than average. The roadway conditions present in the case of TH 55 in the study area (narrow driving surface, poor pavement condition, lack of median and turning lanes, and the presence of many at-grade intersections) generally contribute to higher than average accident rates, such as are occurring on this section of TH 55.

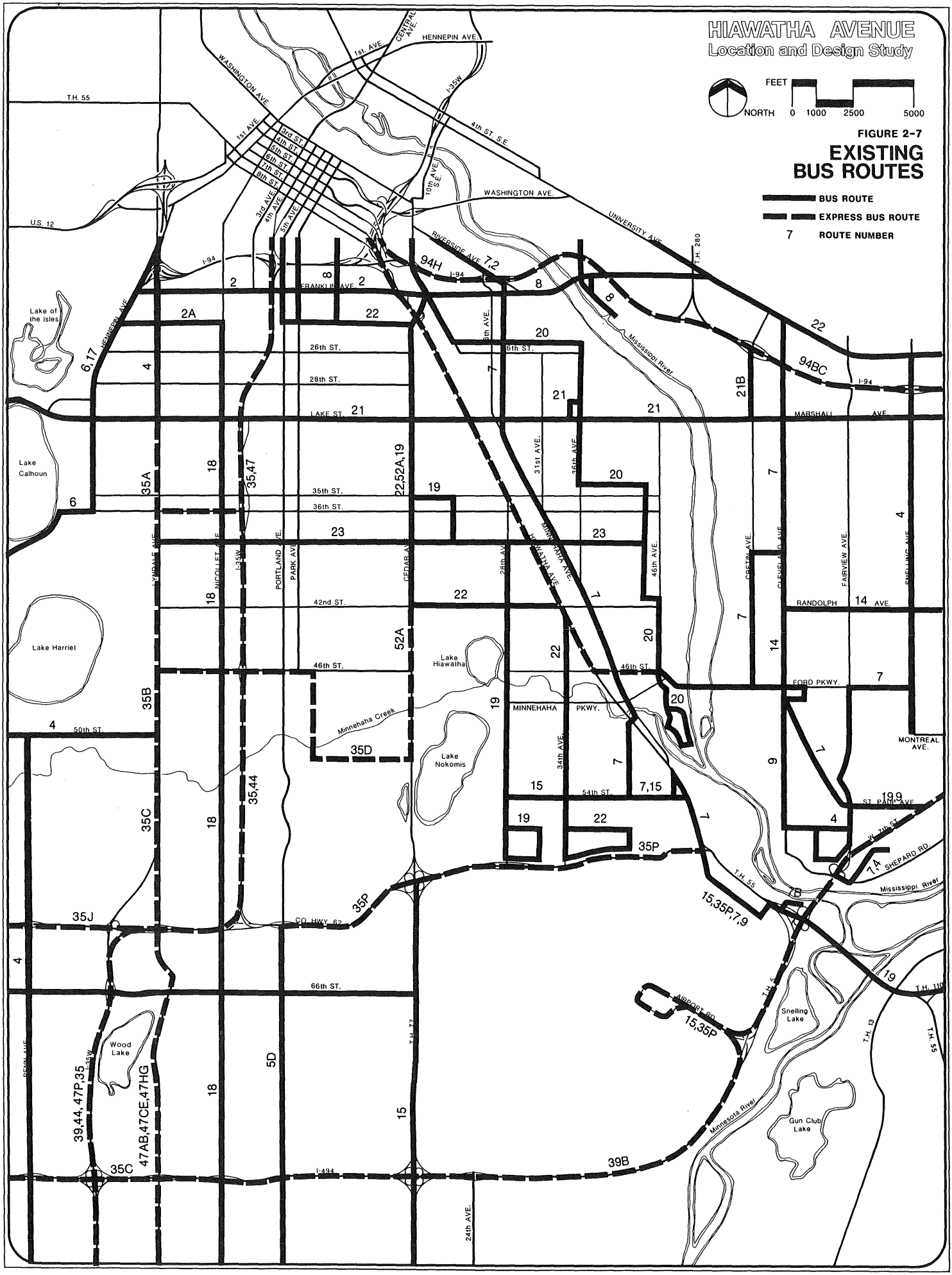
2.4.4 Transit Service

The Hiawatha Avenue area, defined here as the area between Cedar Avenue and the Mississippi River south of Franklin Avenue, is served by thirteen MTC bus routes. These routes include four north-south routes serving the Minneapolis CBD (Routes 19, 22, 7 and 20), one east-west route serving the Minneapolis CBD (Route 8), and four crosstown routes (Routes 2, 21, 23 and 15). Figure 2-7 shows the location of these and other routes in the area.

The use of transit has increased dramatically during recent years, both for all metropolitan area routes, and for routes serving the Hiawatha Avenue area directly. For the year 1975, the MTC reported a total of just over 60 million passengers (about 154,000 per average weekday). By 1979, total annual ridership had risen to over 90 million passengers (about 238,000 per average weekday).

---

* Severity rates are recalculations of accident rates which give heavier weight to fatal accidents and personal injury accidents than to accidents which result in only property damage.


HIAWATHA AVENUE
Location and Design Study
NORTH
FEET
0 1000 2500 5000
FIGURE 2-7
EXISTING BUS ROUTES
BUS ROUTE
EXPRESS BUS ROUTE
7 ROUTE NUMBER
T.H. 55
U.S. 12
I-94
WASHINGTON AVE.
HENNEPIN AVE.
1st AVE.
CENTRAL AVE.
I-35W
4th ST. S.E.
10th AVE. S.E.
UNIVERSITY AVE.
T.H. 280
RIVERSIDE AVE.
FRANKLIN AVE.
Lake of the Isles
HENNEPIN AVE.
Mississippi River
LAKE ST.
MARSHALL AVE.
Lake Calhoun
26th ST.
28th ST.
35th ST.
36th ST.
42nd ST.
46th ST.
50th ST.
54th ST.
Lake Harriet
Lake Hiawatha
Minnehaha Creek
Lake Nokomis
MINNEHAHA PKWY.
FORD PKWY.
RANDOLPH AVE.
MONTREAL AVE.
ST. PAUL AVE.
W. 7th ST.
SHEPARD RD.
CO. HWY. 62
66th ST.
AIRPORT RD.
Snelling Lake
Wood Lake
Gun Club Lake
Minnesota River
I-494
24th AVE.
T.H. 77
T.H. 13
T.H. 110
PENN AVE.
HIAWATHA AVE.
CEDAR AVE.
PORTLAND AVE.
PARK AVE.
NICOLLET AVE.
LYNDALE AVE.
CLEVELAND AVE.
FAIRVIEW AVE.
SNELLING AVE.
31st AVE.
34th AVE.
36th AVE.
46th AVE.
CRETIN AVE.
6,17
2
2A
22
8
20
7
21
18
35A
35,47
22,52A,19
19
23
52A
35B
35D
35C
35,44
35J
35P
5D
39,44,47P,35
47AB,47CE,47HG
39B
15,35P
15,35P,7,9
7,15
7,2
94H
94BC
21B
14
9
4
6

Ridership on routes in the Hiawatha Avenue area has also risen significantly. Routes 7, 19, 20 and 22 provide the best indication of bus use in the area. After adjusting for estimated ridership generated at the north Minneapolis end of Routes 7 and 19, it is estimated that Hiawatha Avenue area ridership rose by about 10 percent between 1976 and 1979. The ridership level on Route 8 has also increased significantly in that period.

The Hiawatha Avenue area and all of south Minneapolis have historically experienced a very high level of transit ridership. Surveys conducted in 1970 indicated that the South Minneapolis subregion (which includes most of the Hiawatha Avenue area) contained:

- 5.8 percent of the region's population
- 5.7 percent of the region's automobiles
- 5.1 percent of the region's person trips
- 11.6 percent of the region's transit trips

Even though residents of this area own the same number of automobiles per person as the rest of the metropolitan area, and make slightly fewer trips per person than the rest of the region, they make transit trips at a rate which is double the metropolitan area average. Historically, the area has had very good transit service, and has used it.

2.5 FUTURE TRAVEL DEMAND

Traffic volumes on TH 55 in the study area are expected to increase through the year 2000. The need for the proposed reconstruction of TH 55 is, in part, the need to provide traffic carrying capacity and safe operating conditions to accommodate the increased traffic volumes.

The estimate of future travel demand on TH 55 in the corridor is based on the computerized "Travel Model" developed and maintained by the Metropolitan Council. For year 2000 traffic volume forecasts, the 2000R Trip Table was assigned to both a "no-build" highway network and a "build" highway network representing the two basic alternatives for the proposed roadway upgrading. The 2000R Trip Table is described as an energy constrained forecast in which trip making was set at 3.0 trips per person per day, compared to the prior forecast of 3.3 trips per person per day.

2.5.1 No-Build Traffic Forecast

If the reconstruction of TH 55 does not take place, daily traffic volumes will increase about 25 percent between 1980 and 2000. That increase represents a growth rate of about 1.1 percent per year, which is considerably less than the 3 to 4 percent annual growth observed in the 1972-1980 period. The growth in traffic volumes would be constrained by the traffic carrying capacity of the existing roadway facility.

2.5.2 Build Traffic Forecast

If the proposed reconstruction of TH 55 is implemented, the traffic carrying capacity of the roadway would be greatly increased, and peak period travel times along TH 55 would decrease. The improved facility would attract, and would be capable of accommodating, the true demand for travel in that corridor. By the year 2000, daily traffic volumes would be about 100 percent higher than 1980 volumes. That increase represents a growth rate of about 3.7 percent per year.

TABLE 2-4

AVERAGE DAILY TRAFFIC VOLUMES
TH 55 (Hiawatha Avenue)

Location	1980 Count	2000 Forecast No-Build	2000 Forecast Build
South of Franklin Avenue	21,000	25,000	42,500
South of Lake Street	21,000	21,700	36,000
South of 46th Street	12,000	16,000	25,500
North of CSAH 62	19,500	22,000	30,000

3.0 ALTERNATIVES

3.0 ALTERNATIVES

The proposed action is the reconstruction of an existing roadway facility. There are four reasons why no location alternatives were considered:

- Hiawatha Avenue (TH 55) is an established transportation corridor which serves the area southeast of the Minneapolis CBD, Minneapolis-St. Paul International Airport and northern Dakota County.

- TH 55 is a State Trunk Highway which should maintain relatively direct routing as it passes through the metropolitan area.

- The existing alignment of TH 55 is centrally located in an area not served by any other major north-south roadways. The area is defined by the I-35W travelshed on the west and the Mississippi River on the east.

- The area of south Minneapolis through which TH 55 passes is fully developed. Any deviation from the existing alignment would require acquisition of hundreds of homes and businesses and would result in severe disruption of long-established and vital neighborhoods.

The alternative actions selected for analysis in the EIS/AA were determined by first identifying a wide range of possible actions, then eliminating those actions considered infeasible, inconsistent with project goals, or clearly inferior to a retained alternative. This section first describes the process of and basis for selecting alternatives, and then discusses, in detail, those alternatives retained for analysis in this Draft EIS/AA.

3.1 ALTERNATIVES CONSIDERED

The HATF was charged with ensuring "a full exploration of all alternatives for transportation facilities in the corridor."

To identify alternatives for the Hiawatha Avenue Corridor, the HATF and project staff formed a "long list" of possible actions. The long list was formed by listing possible improvements to the transit system and listing possible improvements to the roadway system. Each combination of a transit option and a roadway option was considered a distinct alternative. The specific roadway and transit options are listed below:

Transit Improvement Options

- Preferential Bus Access to TH 55
- Preferential High Occupany Vehicle (HOV) access to TH 55
- Exclusive HOV Lanes At Grade
- Busway At Grade
- Busway Grade Separated
- Light Rail Transit (LRT) At Grade
- LRT Partially Grade Separated

- LRT Totally Grade Separated
- Automated Guideway Transit
- Street-Related Transit Improvements
- No Transit Improvement

Roadway Improvement Options

- Six-Lane Freeway
- Four-Lane Freeway
- Six-Lane At-Grade Divided Roadway
- Four-Lane At-Grade Divided Roadway
- Six-Lane At-Grade Divided Parkway (no trucks)
- Four-Lane At-Grade Divided Parkway (no trucks)
- Four-Lane At-Grade Undivided Roadway
- One-Way Streets (in combination with Minnehaha Avenue)
- Combinations (of two or more of the above in different sections of the corridor)
- No Roadway Improvement

Each of the 120 combinations of a transit improvement option and a roadway improvement option was given consideration during the Hiawatha Avenue Location and Design Study.

3.2 SCOPING OF ALTERNATIVES

To identify the most feasible and prudent alternatives for analysis in the EIS, a four-step screening of the 120 alternatives was conducted. Each of the screening steps addressed specific alternatives which could be compared at a particular level of detail. This process was carried out by the HATF with guidance and information from a series of technical analyses. The screening process is fully documented in a Scoping Report prepared for this project.[1/] The alternatives considered and evaluation criteria used in each screen are summarized in this section. Figure 3-1 shows the entire 120-alternative matrix and the results of the Scoping process.

3.2.1 Screen 1: Overview Analysis

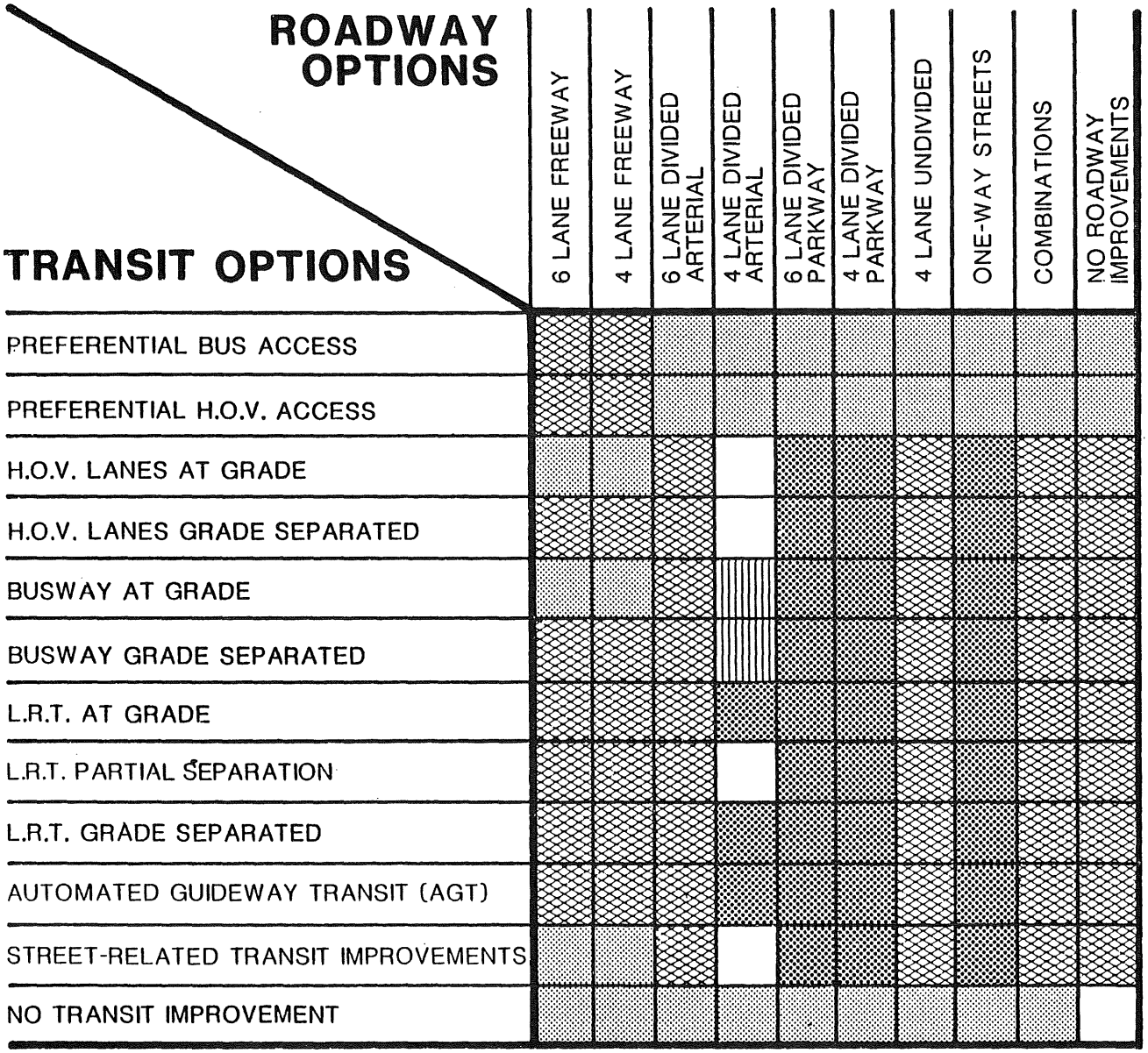
This screen eliminated illogical transit/roadway option combinations and those alternatives which were clearly in conflict with the goals and objectives of the HATF. An example of an illogical alternative is preferential access with a non-access controlled roadway. This screen also eliminated alternatives which provided a higher level of service for private vehicles than for ride sharers and transit vehicles.

1/ Reference No. 9. Information on this and other Hiawatha Avenue Location and Design Study technical reports referenced in this document appears in Section 11.1, References.

FIGURE 3-1

RESULTS OF SCOPING TRANSIT / ROADWAY ALTERNATIVES

HIAWATHA AVENUE
Location and Design Study



3.2.2 Screen 2: Traffic Impact Analysis

The second screen considered future traffic demand in the Hiawatha Avenue Corridor and how various roadway options would serve that travel demand (Technical Report No. 3). [2/] The major findings of the traffic analysis were:

- Future traffic volumes which occur on Hiawatha Avenue (TH 55) are directly related to the level of service provided on the roadway;
- If a freeway facility level of service is provided, a four-lane facility will adequately accommodate the expected traffic volume;
- If an at-grade divided roadway facility is provided, a four-lane facility will adequately accommodate the expected volume;
- Traffic diverted from TH 55 if a freeway is not constructed can be adequately served by other roadways in the regional system;
- A four-lane undivided roadway will not provide adequate capacity for expected future traffic;

Based on these findings, the HATF eliminated the four- and six-lane freeway options, the six-lane divided roadway option, the four-lane undivided roadway option, and the combinations option. The no roadway improvements option was also eliminated except as part of the no-build alternative.

3.2.3 Screen 3: Bus and Ridesharing

This screen evaluated the remaining non-LRT transit options. Technical Report No. 6 was prepared to aid in this evaluation.[3/]

The HATF felt that both at-grade and grade-separated transit lanes should be analyzed further. It was decided, however, to eliminate the busway concept in favor of the HOV lanes concept because exclusive transit lanes would have ample capacity to serve both buses and carpools; over time, allowing use by carpools may attract even more use by people currently driving alone.

3.2.4 Screen 4: Special Studies

Screen 4 addressed more narrowly defined topics, each of which was the subject of a technical report.

2/ Reference No. 3.

3/ Reference No. 6.

3.2.4.1 Truck Use of Hiawatha Avenue

Technical Report No. 2 evaluated removal of the truck route designation from TH 55 to allow designation as a parkway.[4] Two alternative truck routing scenarios, as well as the maintaining of the existing situation, were evaluated.

The HATF felt that the negative impacts of implementing these alternative truck routing scenarios outweighed the potential benefits of banning trucks on Hiawatha Avenue, and that through landscaping treatment, designation of TH 55 as a truck route could be maintained with an aesthetically compatible, nonintrusive effect on corridor park elements. The HATF voted to retain the truck route designation on Hiawatha Avenue, thus eliminating alternatives involving parkway designation of TH 55.

3.2.4.2 One-Way Streets

Under this option, Hiawatha and Minnehaha Avenues would be designated one-way streets (Hiawatha southbound, Minnehaha northbound). The option was developed as a way to minimize the need for any additional right-of-way and to minimize the impacts in the Hiawatha Avenue Corridor. Technical Report No. 4 analyzes the feasibility of the one-way streets option and presents the results of the analysis.[5]

The HATF decided that the at-grade arterial option was clearly superior to the one-way streets option based on the analysis. The HATF voted unanimously to recommend that the one-way streets option be dropped from further consideration.

3.2.4.3 Automated Guideway Transit (AGT)

Technical Report No. 5 examined the history and current situation regarding AGT as it might apply to the corridor.[6] Based on the conclusions of previous transit planning in the Twin Cities, the Office of Technology Assessment's (OTA) Technology Assessment of AGT, and the development of AGT since the OTA report, the HATF concluded that ICRT and AGT systems are not candidates to serve the transit needs of the corridor. The systems offer more capacity than is required, at a very high cost. For these reasons, the HATF eliminated the AGT transit option.

3.2.4.4 Light Rail Transit (LRT)

The application of LRT in the Hiawatha Avenue Corridor was the subject of two technical reports during the scoping process. Technical Report No. 7, and Technical Report No. 8 provided an overview of LRT characteristics and a comparison of types of LRT service.[7]

4/ Reference No. 2.

5/ Reference No. 4.

6/ Reference No. 5.

7/ Reference No. 7.

These analyses led to the HATF decision to conduct detailed studies (in the EIS) of a partially separated LRT line with a north terminus in the CBD on either a one-way loop or transit mall, and a south terminus at the GSA Building, the airport, or the Metropolitan Stadium site.

3.3 ADDITIONAL STUDIES

Two evaluations were undertaken to further refine the characteristics of the selected alternatives. The first of these evaluations considered construction options in Minnehaha Park and access to Minnehaha Parkway. The second evaluation considered LRT service to the Cedar-Riverside area.

3.3.1 Minnehaha Park

The portion of TH 55 which passes through Minnehaha Park was of particular concern to the HATF. Significant concerns regarding the park area included:

- Local and regional park access
- Impacts on Minnehaha Creek
- Continuity of parklands
- Maintenance or increase of parkland area
- Access to local businesses

In response to these concerns, four design alternatives were developed for consideration in Minnehaha Park:

1. Tunnel under Minnehaha Creek from north of Minnehaha Parkway to just south of the creek.

2. Covered roadway section extending from just south of Minnehaha Parkway to just north of Minnehaha Creek. The road would cross the creek on a new bridge and would have an at-grade intersection with Minnehaha Parkway.

3. Covered roadway section extending from north of Minnehaha Parkway to just north of the creek. A new bridge would cross the creek and no access would be provided at Minnehaha Parkway.

4. At-grade roadway through the park.

These options were reviewed by the HATF with consideration for both the established study goals and objectives and the concerns of the Minneapolis Park and Recreation Board (MPRB). The tunnel and the at-grade and grade-separated covered roadway options were retained for analysis in the EIS/AA.

3.3.2 LRT Service to Cedar-Riverside

The presence of several major traffic generators led to an evaluation of alternative LRT alignments in the Cedar-Riverside area. [8] Five distinct LRT alignments were studied. The alternatives were evaluated on the basis of a number of measures including speed, travel time, service to major generators, ridership, and costs.

The HATF concluded that providing direct LRT service to the Cedar-Riverside area detracted from the overall effectiveness of the line. For this reason, the HATF recommended that the LRT line go directly to the Minneapolis CBD from the corridor, with a stopping point just west of the Cedar Square area.

3.4 DESCRIPTION OF ALTERNATIVES

The five alternatives and associated subalternatives selected for detailed analysis are listed in Table 3-1. All of these alternatives are currently under active consideration. Selection of the preferred alternative will be made only after the public involvement and agency review processes have been completed.

In this section, each of the alternatives is described in detail. A description is presented of the proposed roadway improvement, the proposed transit improvement, and the forecasted traffic volumes. Following the description of alternatives, cost estimates and an assessment of cost effectiveness is presented.

3.4.1 Alternative 1 - Four-Lane Roadway with HOV Roadway At Grade

Alternative 1 has the following characteristics:

Roadway: Four-lane at-grade roadway
Transit: High-occupancy vehicle roadway - at grade

Subalternatives - Minnehaha Park

1a. Covered roadway, grade separated at Minnehaha Parkway
1b. Covered roadway, at grade at Minnehaha Parkway
1c. Tunnel

3.4.1.1 Roadway Improvement

The roadway improvement proposed under Alternative 1 is the same as the roadway improvement proposed under Alternatives 2, 3 and 4. The proposal includes improvement to both TH 55 (Hiawatha Avenue) and to CSAH 62 (Crosstown Highway). TH 55 would be reconstructed between Franklin Avenue and 59th Street. CSAH 62 would be reconstructed between 46th Avenue South and TH 55. This section of CSAH 62 has always been considered temporary construction which would be rebuilt when TH 55 was upgraded.

---

[8] Reference No. 13.

TABLE 3-1

HIAWATHA AVENUE LOCATION AND DESIGN STUDY
ENVIRONMENTAL IMPACT STATEMENT
AND ALTERNATIVES ANALYSIS
ALTERNATIVES CONSIDERED

ALTERNATIVE	
1	Roadway: Four-lane at-grade roadway Transit: High-occupancy vehicle roadway - at grade Subalternatives - Minnehaha Park 1a. Covered roadway, grade separated at Minnehaha Parkway 1b. Covered roadway, at grade at Minnehaha Parkway 1c. Tunnel
2	Roadway: Four-lane at-grade roadway Transit: High-occupancy vehicle roadway - grade-separated Subalternatives - Minnehaha Park 2a. Covered roadway, grade separated at Minnehaha Parkway 2b. Covered roadway, at grade at Minnehaha Parkway 2c. Tunnel
3	Roadway: Four-lane at-grade roadway Transit: Improved bus service and facilities Subalternatives - Minnehaha Park 3a. Covered roadway, grade separated at Minnehaha Parkway 3b. Covered roadway, at grade at Minnehaha Parkway 3c. Tunnel
4	Roadway: Four-lane at-grade roadway Transit: Light rail transit system Subalternatives - Minnehaha Park 4a. Covered roadway, grade separated at Minnehaha Parkway 4b. Covered roadway, at grade at Minnehaha Parkway 4c. Tunnel Subalternatives - Minneapolis CBD 4d. LRT on one-way loop, Fifth and Sixth Streets 4e. LRT on transit mall, Sixth Street Subalternatives - South terminus 4f. LRT South terminus at GSA Building 4g. LRT South terminus at Airport Terminal 4h. LRT South terminus at Metropolitan Stadium site
5	Roadway: No improvement Transit: No improvement

Cross Section. TH 55 would be rebuilt to modern arterial standards (Figure 3-2). Two through lanes will be provided in each direction. Northbound and southbound lanes will be separated by a raised median. The northbound roadway will include a right-turn lane to serve businesses requiring access along the east side of TH 55. Due to the number and location of these businesses, the right-turn lane will be essentially continuous between 46th Street and Lake Street. Left-turn and right-turn lanes will be constructed where turns are permitted. The location of access points is discussed below.

The right-of-way would include a linear open space buffer along the western edge of the roadway to provide a safe route for bicyclists commuting to major activity centers served by TH 55, such as the University of Minnesota, the CBD, the Veterans Administration medical center, Minnehaha Park, and the Lake Street commercial area.

CSAH 62 would be constructed as a four-lane freeway, which is the same cross-section which is in-place to the west of 46th Avenue South.

Alignment. TH 55 would be reconstructed on its present alignment between Franklin Avenue and about 52nd Street. At 52nd Street, TH 55 would turn east and follow the CMStP&P railroad right-of-way to about 54th Street. At that point, TH 55 would turn to south and rejoin the existing TH 55 alignment at about 59th Street.

CSAH 62 would be reconstructed on an alignment which is about 300 feet south of the existing temporary alignment and which is an extension of the alignment of the permanent construction to the west of 46th Avenue South.

Profile. TH 55 will be constructed as an at-grade roadway for most of its length. An interchange will be constructed with CSAH 62. TH 55 will also pass under the CMStP&P railroad tracks at about 28th Street.

The other exception to at-grade construction occurs as TH 55 passes through the Minnehaha Park area. In this area, three subalternatives, shown in Figures 3-3 through 3-5, are being considered.

1a. Covered roadway, grade separated at Minnehaha Parkway
1b. Covered roadway, at grade at Minnehaha Parkway
1c. Tunnel

The covered roadway involves construction of TH 55 essentially at grade, crossing Minnehaha Creek on a new bridge. For some distance north of Minnehaha Creek, TH 55 would be enclosed and covered with soil. The result would be a continuous park, probably grass-covered and treed, passing over the new roadway.

The difference between Subalternatives 1a and 1b is the location of the north portal of the covered roadway. Under Subalternative 1a, the roadway profile would drop below existing grade, pass under Minnehaha Parkway (with no direct connection between TH 55 and Minnehaha Parkway) and return to existing grade at about 46th Street (Figure 3-3). This section would be approximately 650 feet long.

FIGURE 3-2

ALTERNATIVE 1 CONCEPTS
4-LANE ROADWAY WITH HOV LANE AT GRADE

HIAWATHA AVENUE
Location and Design Study

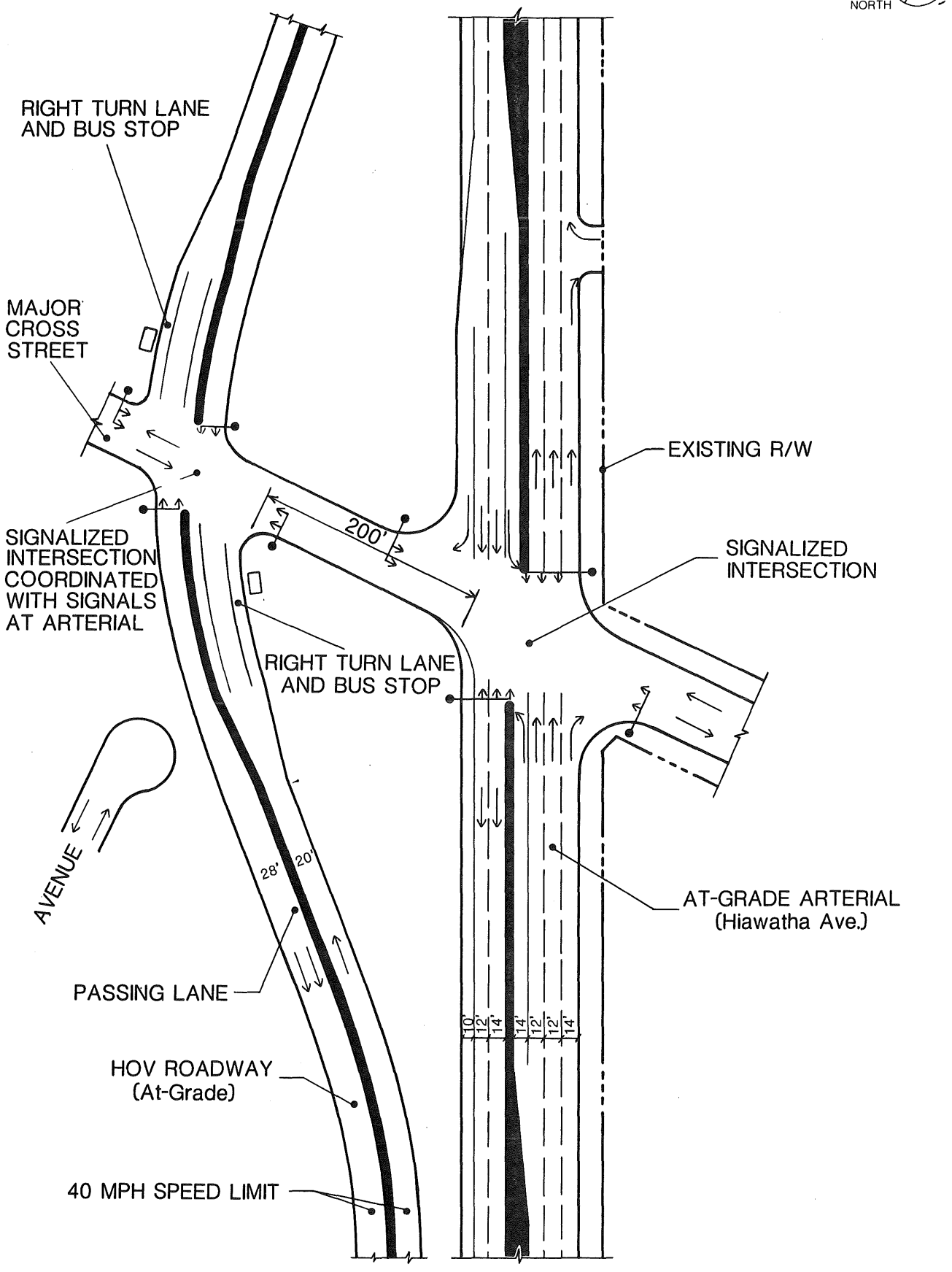


FIGURE 3-3

SUBALTERNATIVE a

COVERED ROADWAY-MINNEHAHA PARKWAY GRADE SEPARATED

HIAWATHA AVENUE
Location and Design Study

0 50 100 200 FEET

NORTH

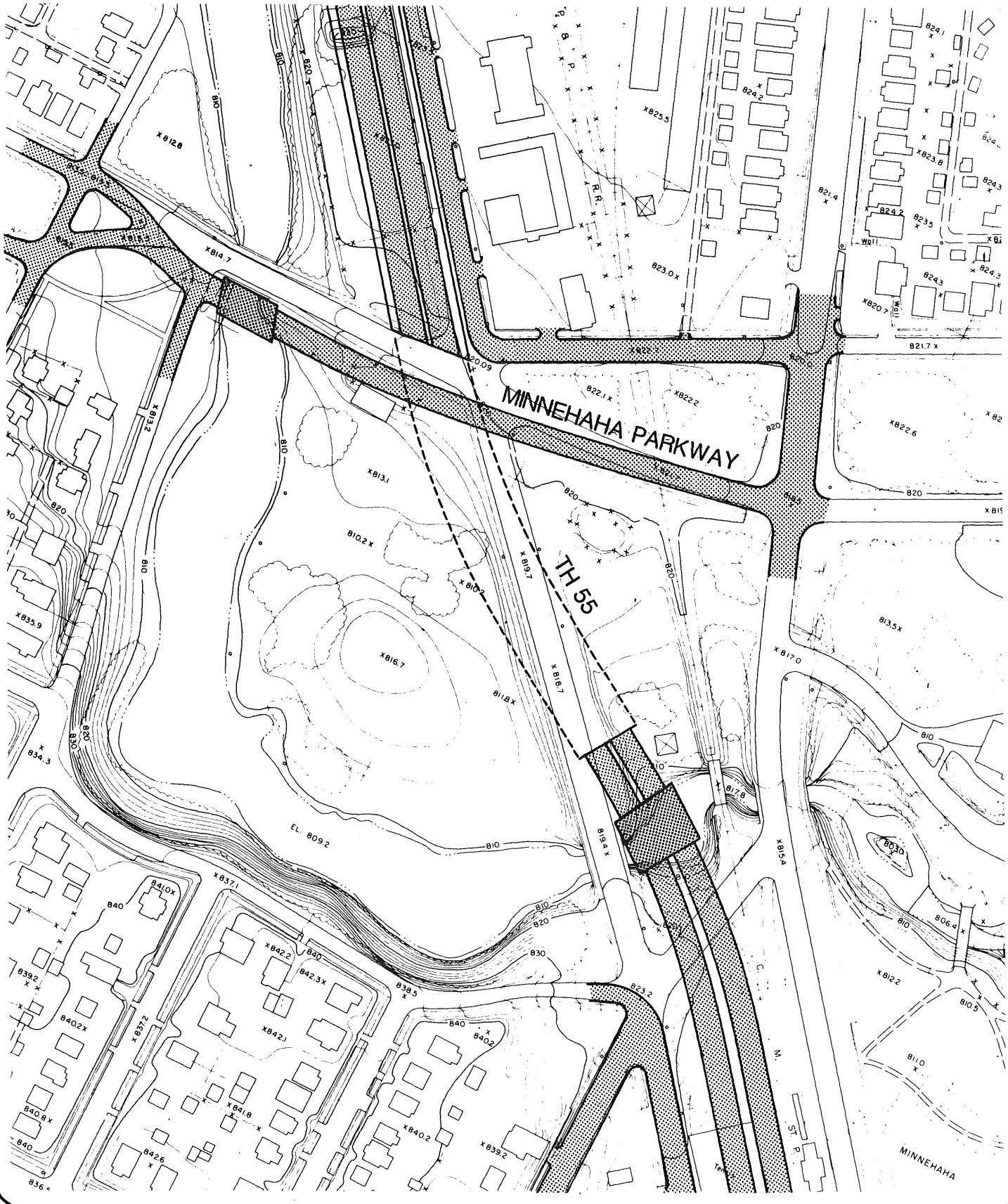


FIGURE 3-4

SUBALTERNATIVE b

COVERED ROADWAY-MINNEHAHA PARKWAY AT GRADE

HIAWATHA AVENUE
Location and Design Study

0 50 100 200 FEET

NORTH

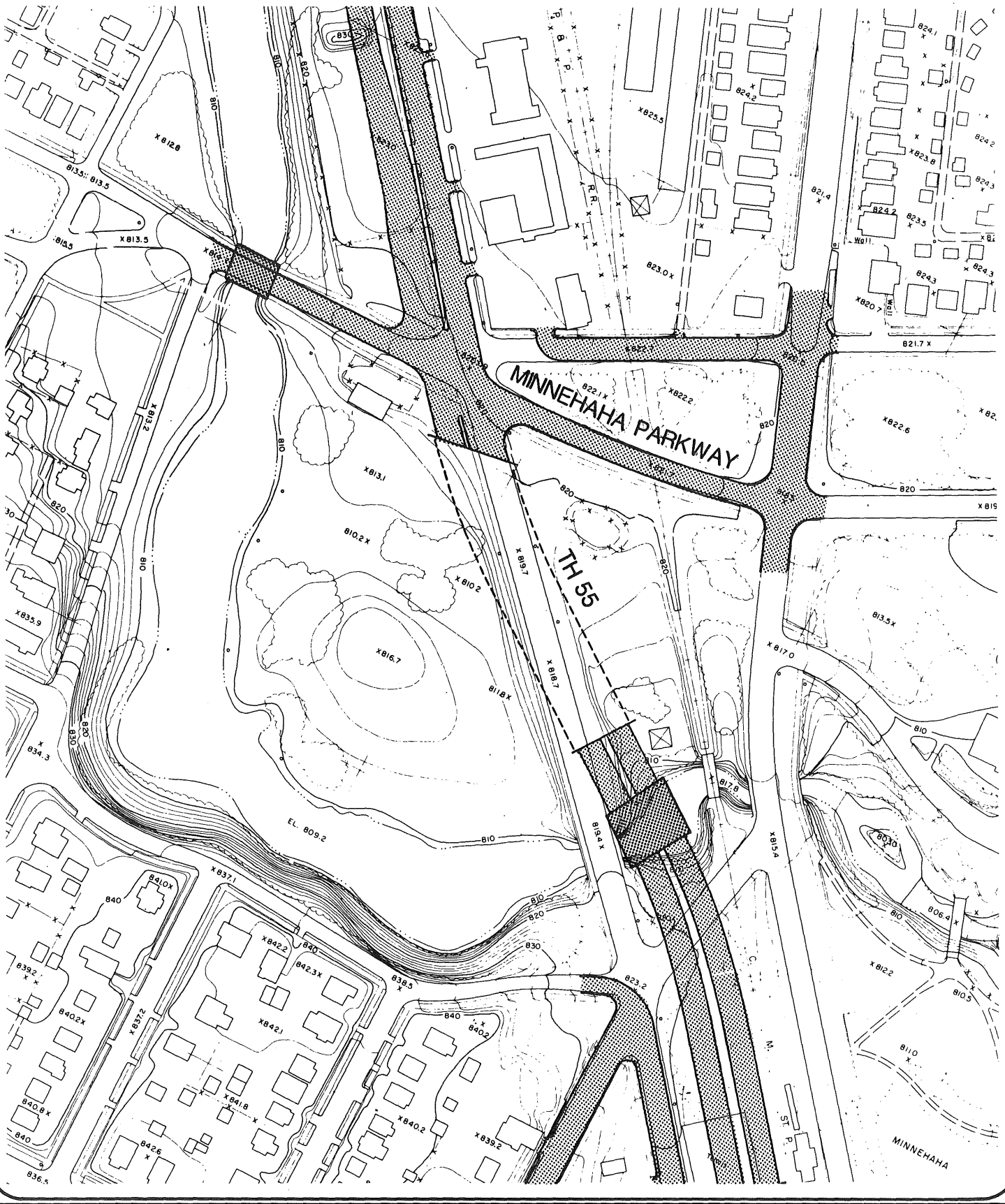


FIGURE 3-5

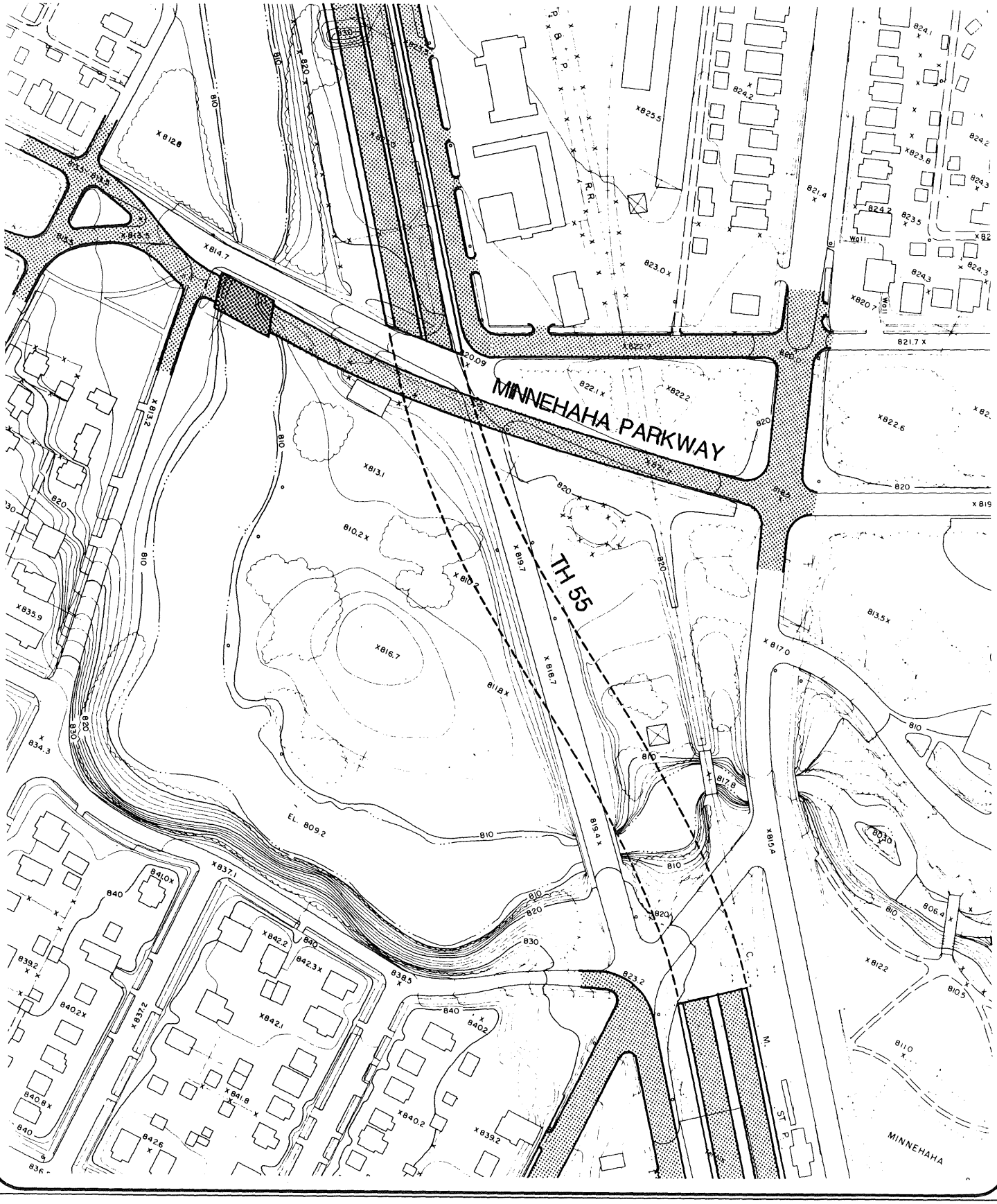
SUBALTERNATIVE c

TUNNEL

HIAWATHA AVENUE
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0 50 100 200 FEET

NORTH



Under Subalternative 1b, TH 55 would remain at existing grade; the covered roadway portal would be located at a point south of Minnehaha Parkway, and there would be an at-grade, signalized intersection at Minnehaha Parkway (Figure 3-4). The covered roadway section would be about 470 feet long.

Subalternative 1c involves placement of TH 55 in a cut-and-cover tunnel under Minnehaha Creek (Figure 3-5). The south tunnel portal would be located at about 50th Street. The north tunnel portal would be just north of Minnehaha Parkway, with TH 55 returning to grade just south of 46th Street. The tunnel would be about 1,100 feet long. Minnehaha Parkway would pass over the tunnel, and there would be no direct connection between TH 55 and Minnehaha Parkway.

Access. Access to and from TH 55 will be provided as follows:

• Crosstown Highway (CSAH 62)	Directional interchange with all but the west to north and north to west movement provided.
• Bureau of Mines Road • 52nd Street • 50th Street • 46th Street • 42nd Street • 38th Street • 35th Street • 32nd Street • Lake Street • 28th Street • 26th Street • 24th Street	At-grade signalized intersection with all turns allowed. Turn lanes provided as required.
• Franklin Avenue	Maintain grade separation with TH 55. Provide access to Franklin Avenue via northbound off-ramp and southbound on-ramp.
• Minnehaha Parkway	Grade separated with no direct access to TH 55 or at-grade signalized intersection. See discussion of Minnehaha Park options above.
• 45th Street • 44th Street • 43rd Street • 41st Street • 40th Street • 37th Street • 33rd Street	These streets will intersect with Hiawatha Avenue from the east. Right-turns in and right-turns out, only, will be allowed at these intersections.

There would be no new access allowed to or from TH 55. If and when redevelopment of any property along TH 55 occurs, efforts would be made to reduce the number of points of direct access to TH 55 by encouraging designs which use cross streets for entrances.

Design Speed. Where design speed becomes critical, a minimum of about 40 to 45 MPH will be maintained. It is expected that the posted speed limit will be 40 MPH.

3.4.1.2 Transit Improvement

The transit improvement proposed under Alternative 1 is the construction of an at-grade high occupancy vehicle (HOV) roadway adjacent to TH 55 (Figure 3-2). Use of the HOV roadway would be restricted to buses and taxis, and to private automobiles carrying two or more persons (including the driver).

Cross Section. The HOV roadway consists of one traffic lane in each direction with a median dividing the opposing lanes. The width of the roadway is 20 feet for each traffic lane, which allows passing a stalled vehicle. Passing lanes will be provided occasionally to permit passing of slow moving vehicles. The width of the roadway with a passing lane is 28 feet. Turn lanes will be provided at intersections.

Alignment. The HOV roadway would be located adjacent to the arterial roadway described above. The distance between the HOV and arterial would be about 30 feet, with appropriate barriers to insure user safety. Where the HOV roadway intersects with an east-west street, the HOV roadway would curve to the west so that there is a minimum of 200 feet between the cross street intersection with the HOV roadway and the cross street intersection with TH 55. The separation of 200 feet provides storage for vehicles between the two intersections and a distinction between the two separate roadways.

At the south end, the HOV roadway would terminate in a park-and-ride lot located between TH 55 and Minnehaha Avenue just north of CSAH 62. At the north end, the HOV roadway would merge into the arterial roadway between Lake Street and 24th Street. All vehicles would continue in mixed flow from that point to downtown.

Profile. The HOV roadway would operate at-grade from north of 46th Street to south of Lake Street. South of 46th Street, the HOV roadway would be grade separated at all major cross streets. In Minnehaha Park, the HOV roadway would receive the same treatment as the arterial roadway. The HOV roadway is grade separated at Lake Street. The northbound HOV roadway would also be grade separated as it crosses TH 55 before merging with the northbound arterial roadway.

Access. In addition to the access from the park-and-ride lot at the south end, and from the arterial roadway at the north end, two types of access would be provided. Direct access is provided at major cross streets at:

- 35th Street
- 38th Street
- 42nd Street
- Bureau of Mines Road

In the grade-separated portion of the HOV roadway, at-grade access would be provided via local streets:

- 35th Avenue
- 42nd Avenue
- 54th Street

Traffic Control. Signalization would be provided at the intersections of the HOV roadway with cross streets. The signal system would be coordinated so that total traffic delay would be minimized and a high level of service would be provided for the high occupancy vehicles.

Design Speed. Minimum design speed would be about 40 to 45 mph north of 46th Street and 55 to 60 mph south of 46th Street. The posted speed limit would be the same for the arterial roadway and the HOV roadway north of 46th Street, and 50 to 55 mph in the grade-separated section.

Transit Operations. Transit routes in the Hiawatha Avenue Corridor area would be essentially the same as they now exist. The routes would have sufficient capacity to carry the expected increase in patronage. The only change in bus routes would be in the Mendota Heights area, from which peak period express bus routes would use TH 55 to reach downtown Minneapolis, rather than Cedar Avenue and I-35W. There would be a slight increase in peak period bus service along TH 55 (using the HOV roadway) to serve the development expected in the corridor.

Transit patronage in the year 2000 is expected to be about 48,500 person trips per average weekday.9/

3.4.1.3 Traffic Forecast

The traffic volume forecast for Alternative 1 (Figure 3-6) is based on the build traffic forecast as described in Section 2.5.2 and modified to account for HOV usage. This modification is described below.

The HOV roadway would provide a travel time advantage to potential users as an incentive both to existing car-poolers and to non-car-poolers to form new car pools. In addition to a real time savings, the HOV roadway would also appear to have a higher level of traffic service.

These potential savings would be counterbalanced by some inconvenience in access. For example, the driver of a car pool northbound on TH 55 who wants to use the HOV roadway to drive downtown would make a left turn at the Bureau of Mines Road and a right turn onto the HOV roadway. Making these turns through two signalized intersections would add about one minute to the driver's travel time. This is more than 20 percent of the savings provided by the HOV roadway.

9/ Reference No. 21.

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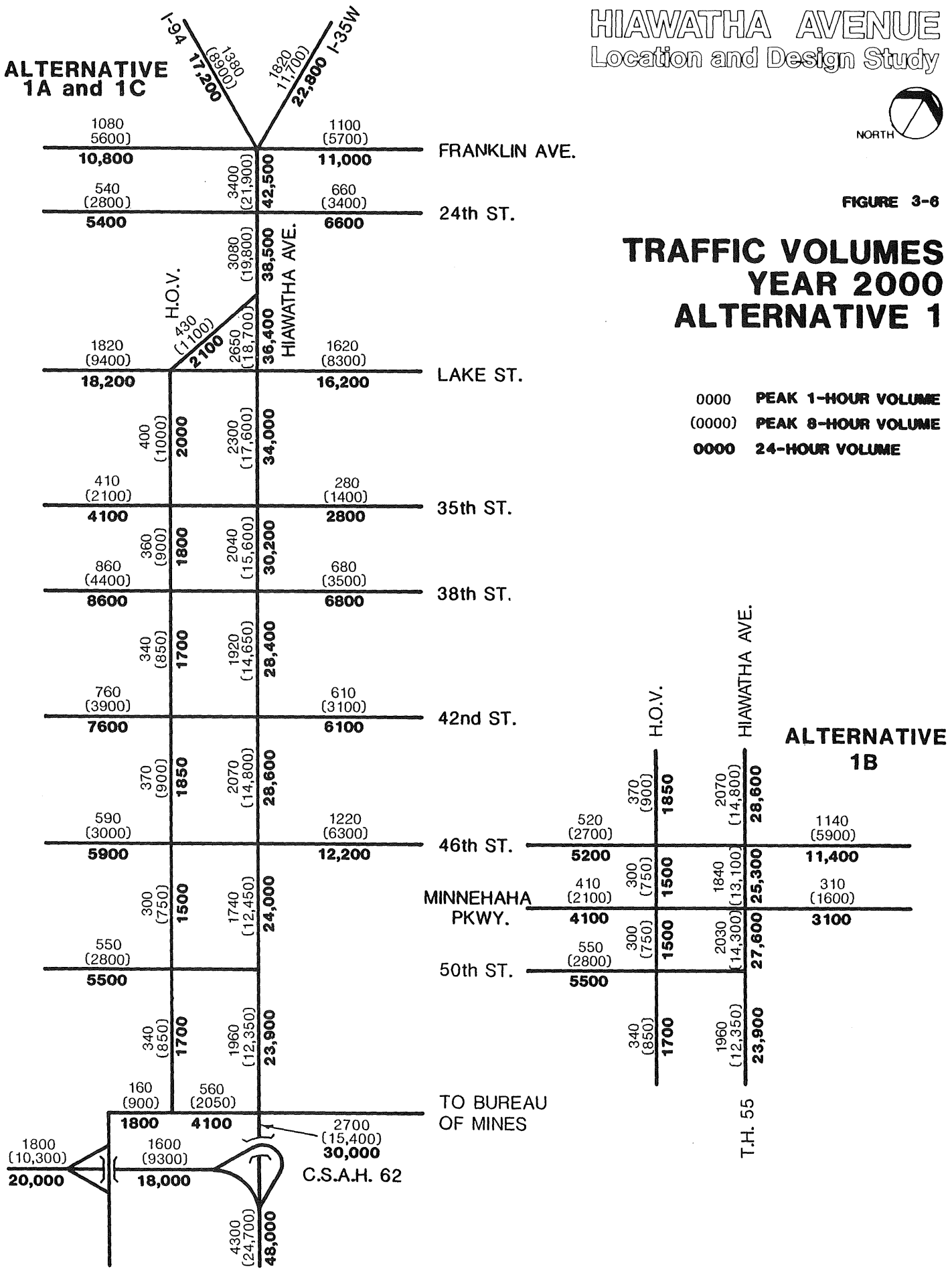


FIGURE 3-6

TRAFFIC VOLUMES YEAR 2000 ALTERNATIVE 1

0000 **PEAK 1-HOUR VOLUME**

(0000) **PEAK 8-HOUR VOLUME**

0000 24-HOUR VOLUME

Due to the opposing effects of travel time saving on the HOV roadway versus the travel time cost of obtaining access to the HOV roadway, it is expected that provision of an HOV roadway at grade will be a positive influence which encourages ridesharing, but not to the extent that it will result in a measureable change in ridesharing.

Figure 3-6 shows the traffic volumes expected to use the mainline and HOV roadways if Alternative 1 is selected. The process used to estimate these volumes is documented in Technical Report 14. 10/

3.4.2 Alternative 2 - Four-Lane Roadway with HOV Roadway Grade Separated

Alternative 2 has the following elements:

Roadway: Four-lane at-grade roadway
Transit: High-occupancy vehicle roadway - grade separated

Subalternatives - Minnehaha Park

2a. Covered roadway, grade separated at Minnehaha Parkway
2b. Covered roadway, at grade at Minnehaha Parkway
2c. Tunnel

3.4.2.1 Roadway Improvement

The roadway improvement proposed under Alternative 2 is the same as the roadway improvement proposed and described under Alternative 1. Figure 3-7 shows the major components of the roadway and its relationship to the proposed transit improvement.

3.4.2.2 Transit Improvement

Under Alternative 2, an HOV roadway would be constructed. It is similar to the Alternative 1 proposal, except that under this alternative, the entire length of the HOV roadway would be grade separated from cross streets (Figure 3-7).

Cross Section. The HOV roadway will have one traffic lane in each direction with a median dividing the opposing lanes. Passing lanes will be provided occasionally to permit passing of slower vehicles.

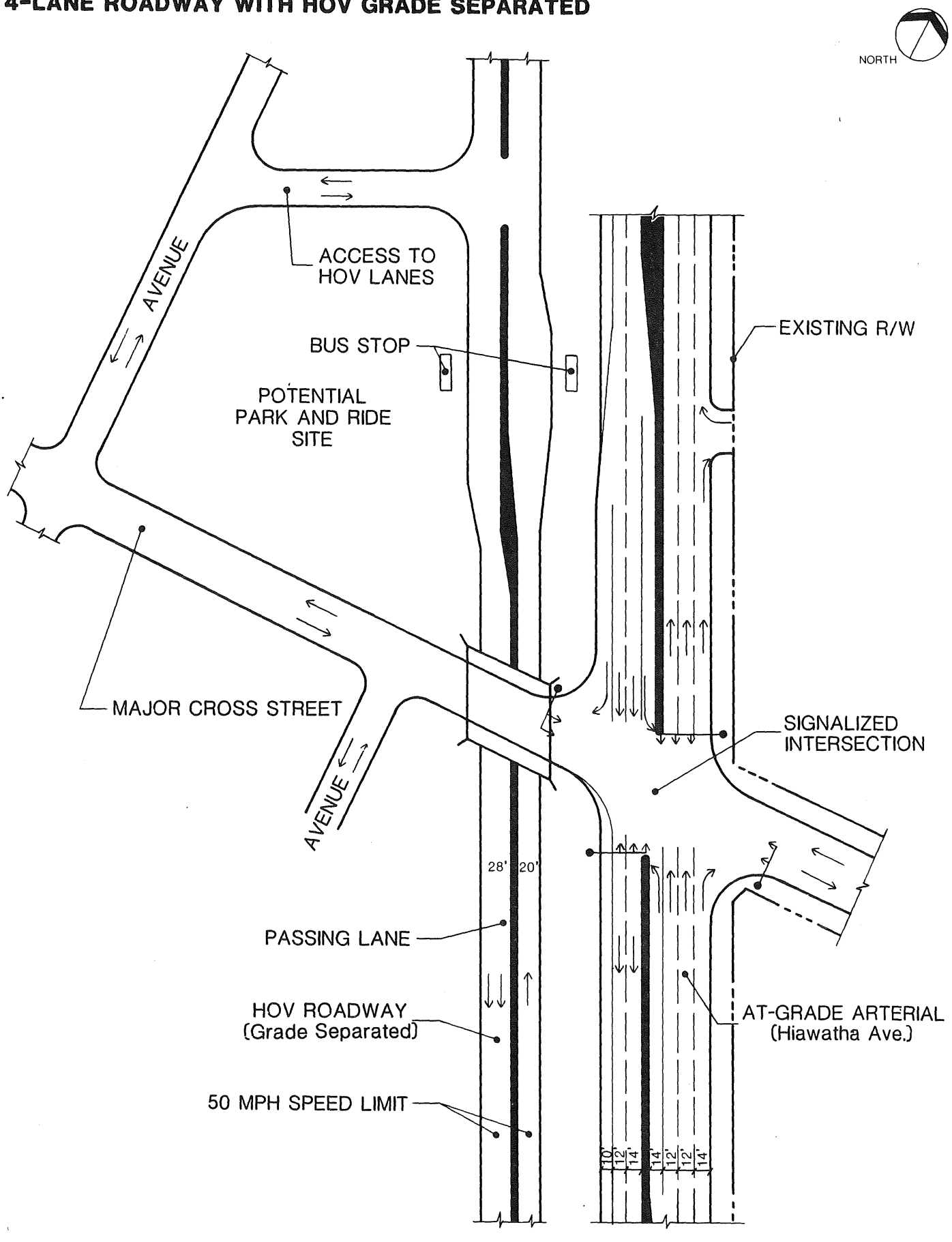
Alignment. The HOV roadway would be located adjacent to the arterial roadway, with about 40 to 50 feet separating the two roadways. At the south end, the HOV roadway would terminate in a park-and-ride lot located between TH 55 and Minnehaha Avenue north of the Crosstown Highway. At the north end, the HOV roadway would merge with the arterial roadway between Lake Street and 24th Street. North of the merge point, high-occupancy vehicles would travel in mixed flow.

10/ Reference No. 14.

FIGURE 3-7

ALTERNATIVE 2 CONCEPTS
4-LANE ROADWAY WITH HOV GRADE SEPARATED

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Profile. Under Alternative 2, the HOV roadway would be grade separated from all the east-west streets which intersect with TH 55. In Minnehaha Park, the HOV roadway would have the same treatment as the arterial roadway.

Access. Access to the HOV roadway will be via at-grade intersections with HOV access connectors to low-volume local streets. These access connectors would be provided near each of the east-west streets crossing TH 55. Turn lanes would be provided at all access points to ensure smooth traffic flow.

Design Speed. Minimum design speed for the HOV roadway would be 55 mph. The posted speed limit would be 50 mph.

Transit Operations. As under Alternative 1, transit operations under Alternative 2 would be essentially the same as they now exist. Frequency would be increased to provide sufficient capacity to serve the expected increase in patronage. As described under Alternative 1, peak period express service from Mendota Heights would use TH 55 rather than Cedar Avenue/I-35W to reach downtown Minneapolis. There would be a slight increase in peak period bus service along TH 55 (using the HOV roadway) to serve the development expected in the corridor.

Transit patronage in the year 2000 is expected to be about 48,500 person trips per average workday.[11/]

3.4.2.3 Traffic Forecast

The traffic volume forecast for Alternative 2 (Figure 3-8) is based on the build traffic forecast as described previously but has been modified to account for HOV usage. This modification is described below.

With no stops required on the HOV roadway, there would be a noticeable time savings for trips on the HOV roadway. With no interruptions in flow, a higher operating speed can be safely maintained. With higher operating speeds and "nonstop" service, the grade-separated HOV roadway provides a more significant travel time advantage and the appearance of a more significant improvement in traffic service compared to the mainline roadway. These improvements are expected to encourage people to form car pools and van pools and to ride the bus.

The shift of tripmakers to higher-occupancy vehicles would result in a slight reduction in total vehicular traffic volumes.

Figure 3-8 shows the traffic volumes expected to use the mainline and HOV roadways if Alternative 2 is implemented. The process used to document those volumes is documented in Technical Report 14.[12/]

11/ Reference No. 21.

12/ Reference No. 14.

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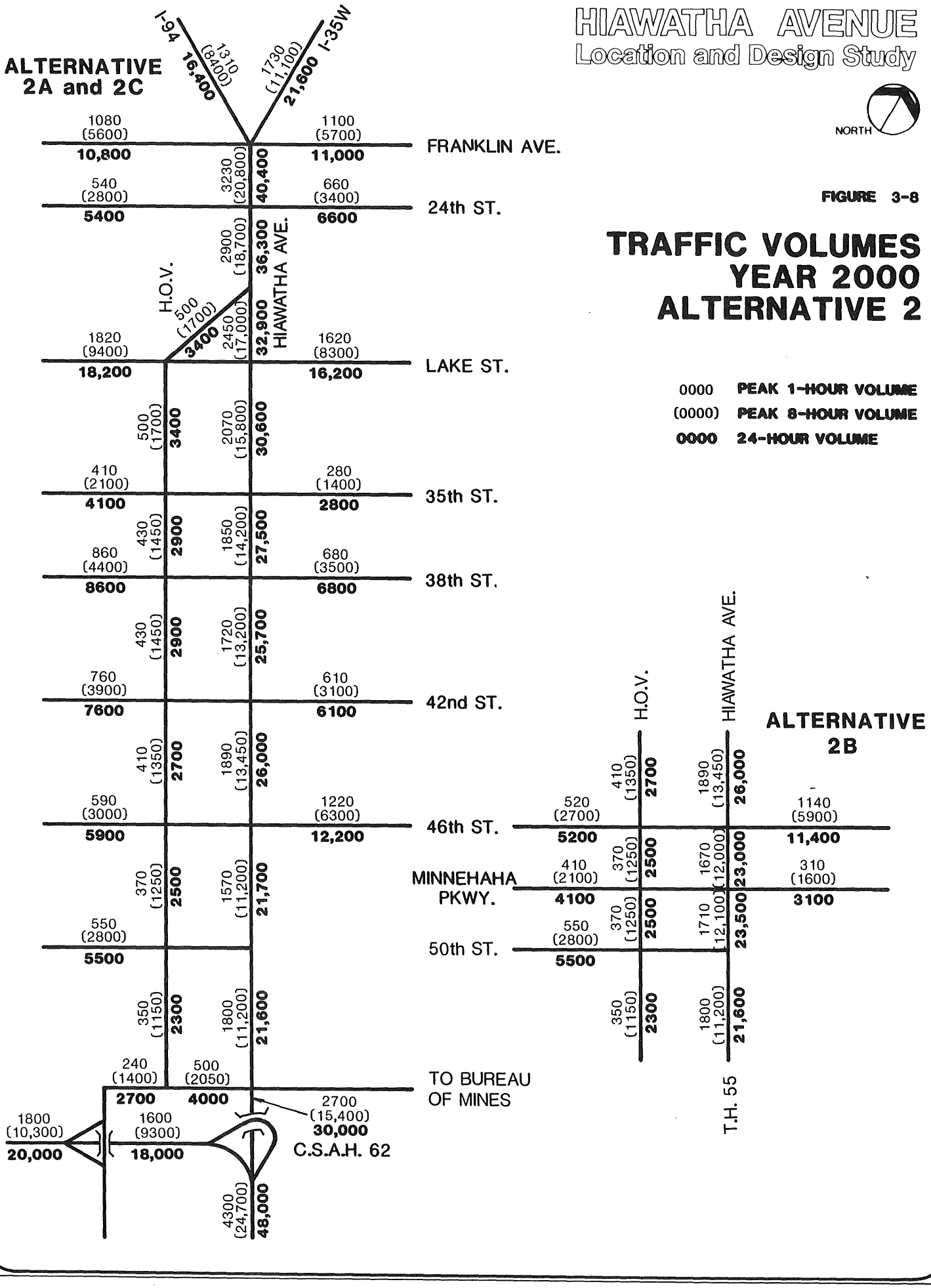


FIGURE 3-8

TRAFFIC VOLUMES YEAR 2000 ALTERNATIVE 2

0000 PEAK 1-HOUR VOLUME
(0000) PEAK 8-HOUR VOLUME
0000 24-HOUR VOLUME

3.4.3 Alternative 3 - Four-Lane Roadway

Alternative 3 has the following elements:

Roadway: Four-lane at-grade roadway
Transit: Improved bus service and facilities

Subalternatives - Minnehaha Park

3a. Covered roadway, grade separated at Minnehaha Parkway
3b. Covered roadway, at grade at Minnehaha Parkway
3c. Tunnel

3.4.3.1 Roadway Improvement

The roadway improvement proposed under Alternative 3 is the same as the roadway improvement proposed and described under Alternative 1 (Figure 3-9).

3.4.3.2 Transit Improvement

Under Alternative 3, transit routes would be the same as they now exist. Improvements would be made along TH 55, which would facilitate the movement of buses. The improvements might include bus pull-outs, pavement rehabilitation, turn radius improvements, traffic signal priority systems, and passenger shelters. Bus frequency would be increased to provide sufficient capacity to serve the expected increase in patronage.

Transit patronage in the year 2000 is expected to be about 44,100 person trips per average workday.[13/]

3.4.3.3 Traffic Forecast

The traffic volume forecast for Alternative 3 is the build traffic forecast as described previously. The street-related transit improvements will not cause a change in transit patronage from that predicted by the Sketch Planning Model. The forecasted volumes are shown in Figure 3-10.

3.4.4 Alternative 4 - Four-Lane Roadway with Light Rail Transit

Alternative 4 has the following elements:

Roadway: Four-lane at-grade roadway
Transit: Light rail transit line

Subalternatives - Minnehaha Park

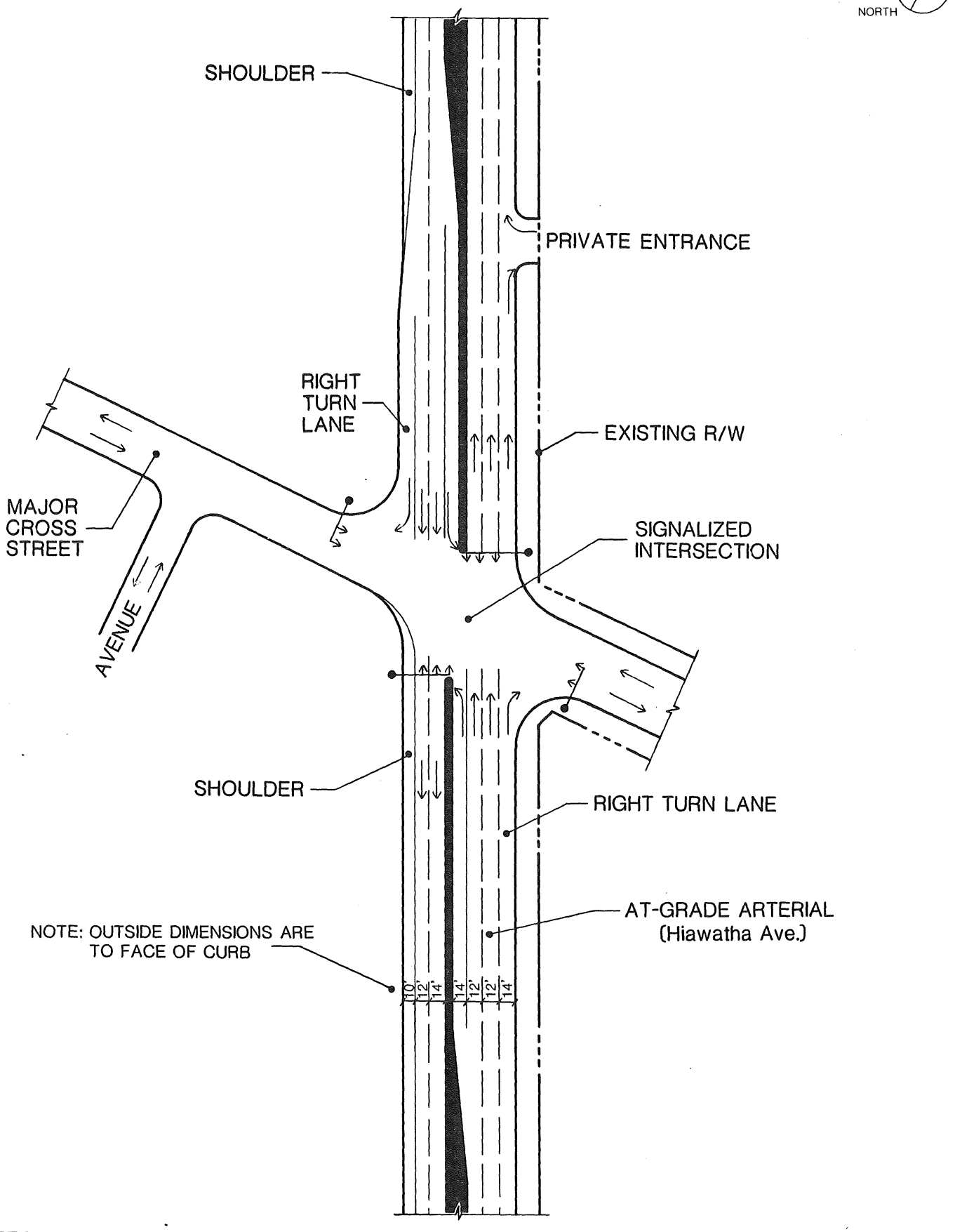
4a. Covered roadway, grade separated at Minnehaha Parkway
4b. Covered roadway, at grade at Minnehaha Parkway
4c. Tunnel

13/ Reference No. 21.

FIGURE 3-9

ALTERNATIVE 3 CONCEPTS
4-LANE ROADWAY

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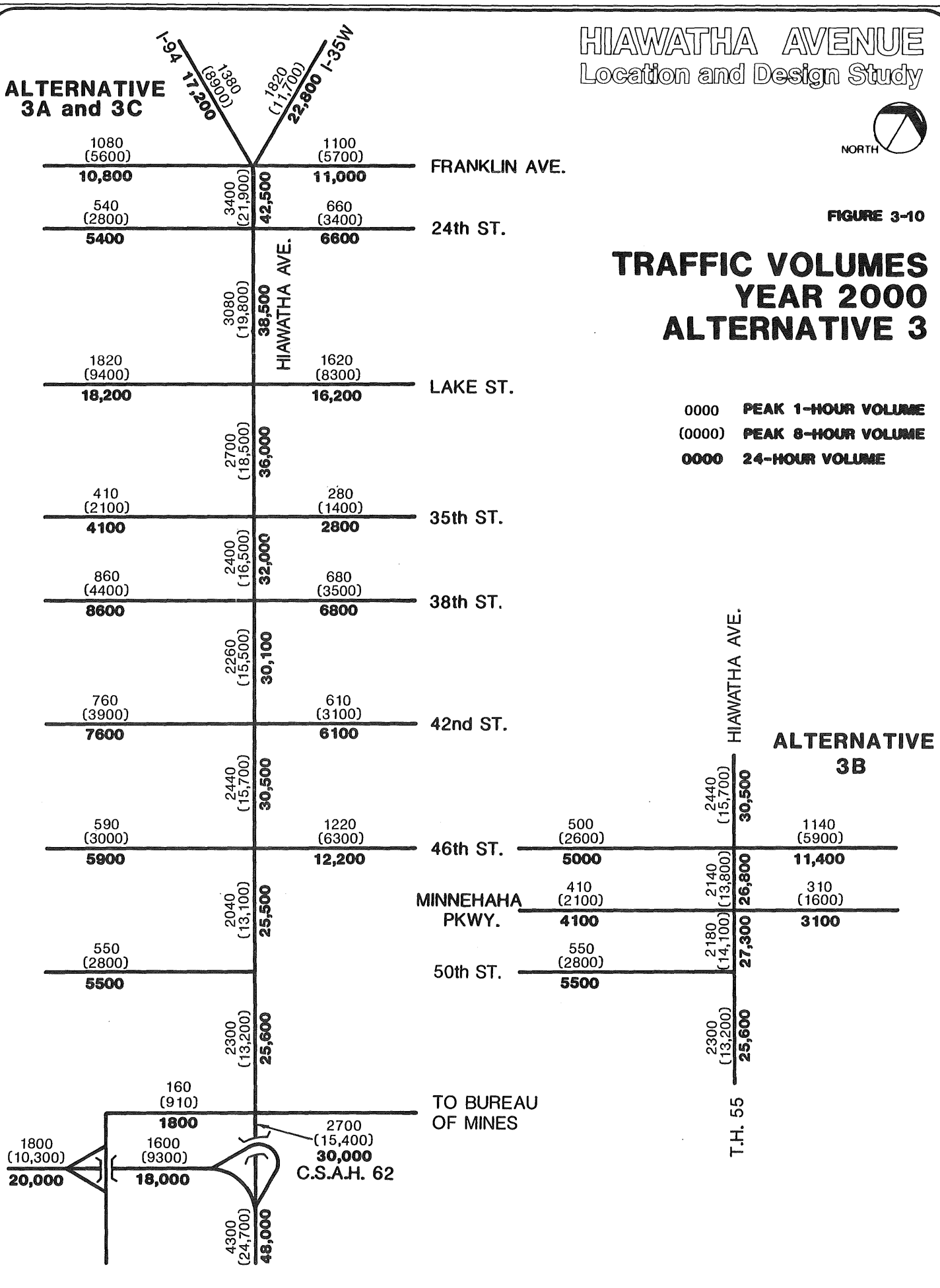


FIGURE 3-10

TRAFFIC VOLUMES YEAR 2000 ALTERNATIVE 3

0000 PEAK 1-HOUR VOLUME
(0000) PEAK 8-HOUR VOLUME
0000 24-HOUR VOLUME

Subalternatives - Minneapolis CBD

4d. LRT on one-way loop, Fifth and Sixth Streets
4e. LRT on transit mall, Sixth Street

Subalternatives - South terminus

4f. LRT South terminus at GSA Building
4g. LRT South terminus at Airport Terminal
4h. LRT South terminus at Metropolitan Stadium site

3.4.4.1 Roadway Improvement

The roadway improvement proposed under Alternative 4 is the same as the roadway improvement proposed and described under Alternative 1 (Figure 3-11).

3.4.4.2 Transit Improvement

Alternative 4 proposes an LRT line serving the Hiawatha Avenue Corridor area. The LRT would provide line-haul transit service along TH 55, with stops located about one-half mile apart. Feeder-bus routes would be established to collect and distribute LRT patrons in portions of Minneapolis, southwestern St. Paul and northern Dakota County. Although LRT and the feeder-bus system would provide the major portion of corridor transit service, some bus service would be needed in areas not served by the LRT and feeder-bus combination.

Cross Section. The LRT line will consist of two parallel tracks. The catenary may be mounted on either a center pole or on two side poles. The right-of-way required between stops for the two tracks is about 30 feet wide.

Alignment. The LRT line will have its north end in the Minneapolis CBD. In the CBD, two alternative alignment options are under consideration (Figure 3-12). In one subalternative the LRT will pass through the CBD on a one-way loop using Fifth and Sixth Streets and turning and laying over on property adjacent to First Avenue North. The second CBD distribution system subalternative calls for two-way LRT flow in a transit mall along Sixth Street. The transit mall would be similar in concept to the Nicollet Mall in Minneapolis. A very limited amount of use of the Sixth Street Mall by nontransit vehicles would be permitted to maintain access to parking facilities and to businesses (for delivery) where no alternative access can be provided. Both of these CBD subalternatives consist of 1.59 miles of at-grade double track.

The LRT will exit from the CBD at a point along Fourth Street near the HHH Metrodome, follow the CMStP&P Railroad to a point just north of Lake Street, cut diagonally across the intersection of Hiawatha Avenue and Lake Street (in tunnel), and then parallel Hiawatha Avenue on the west side. The LRT will be located adjacent to Hiawatha Avenue and then adjacent to Minnehaha Avenue (after those two streets join at about 52nd Street). The LRT will continue adjacent to Minnehaha Avenue to a point near the General

FIGURE 3-11

ALTERNATIVE 4 CONCEPTS
4-LANE ROADWAY WITH LRT PARTIALLY AT GRADE

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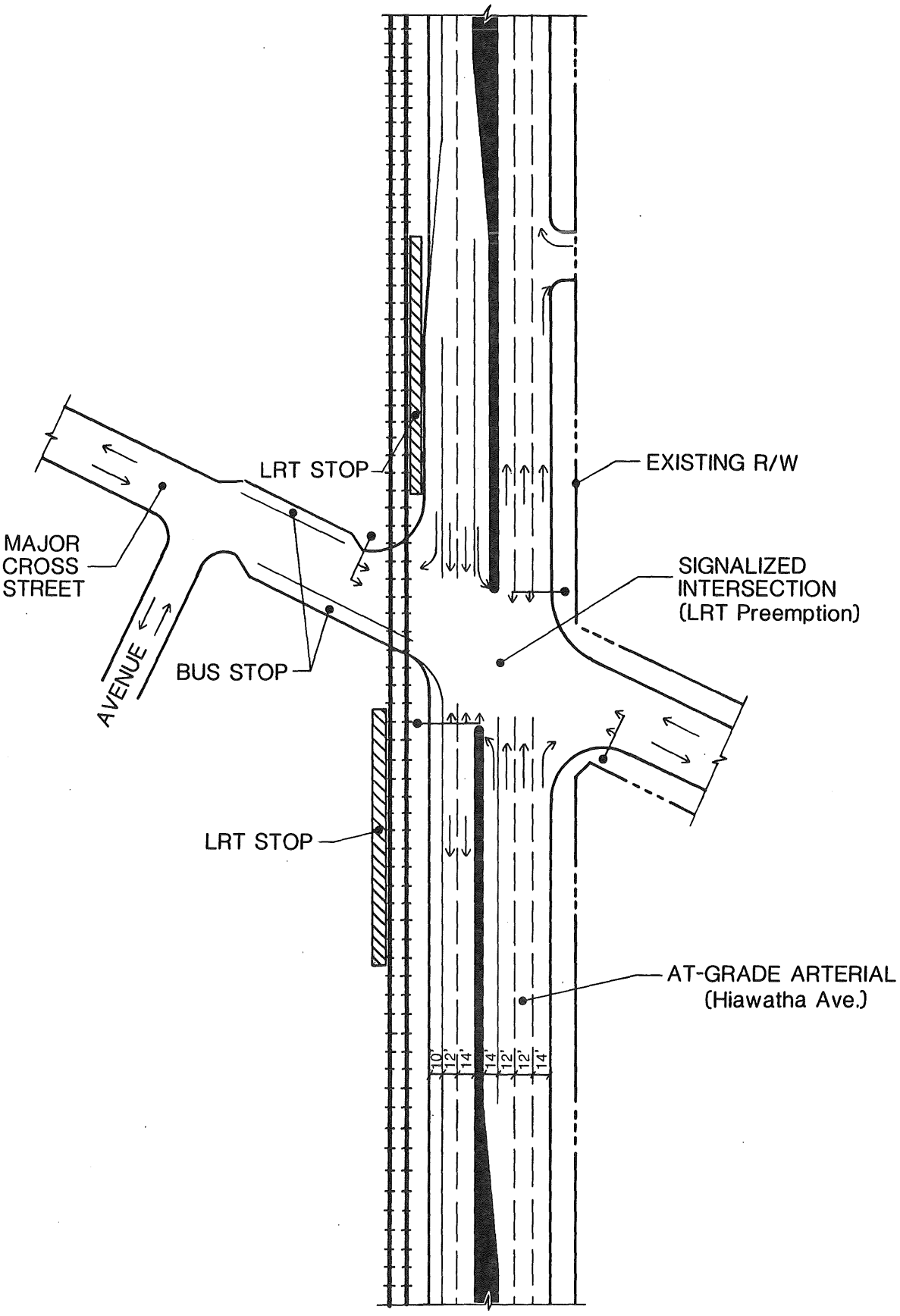


FIGURE 3-12

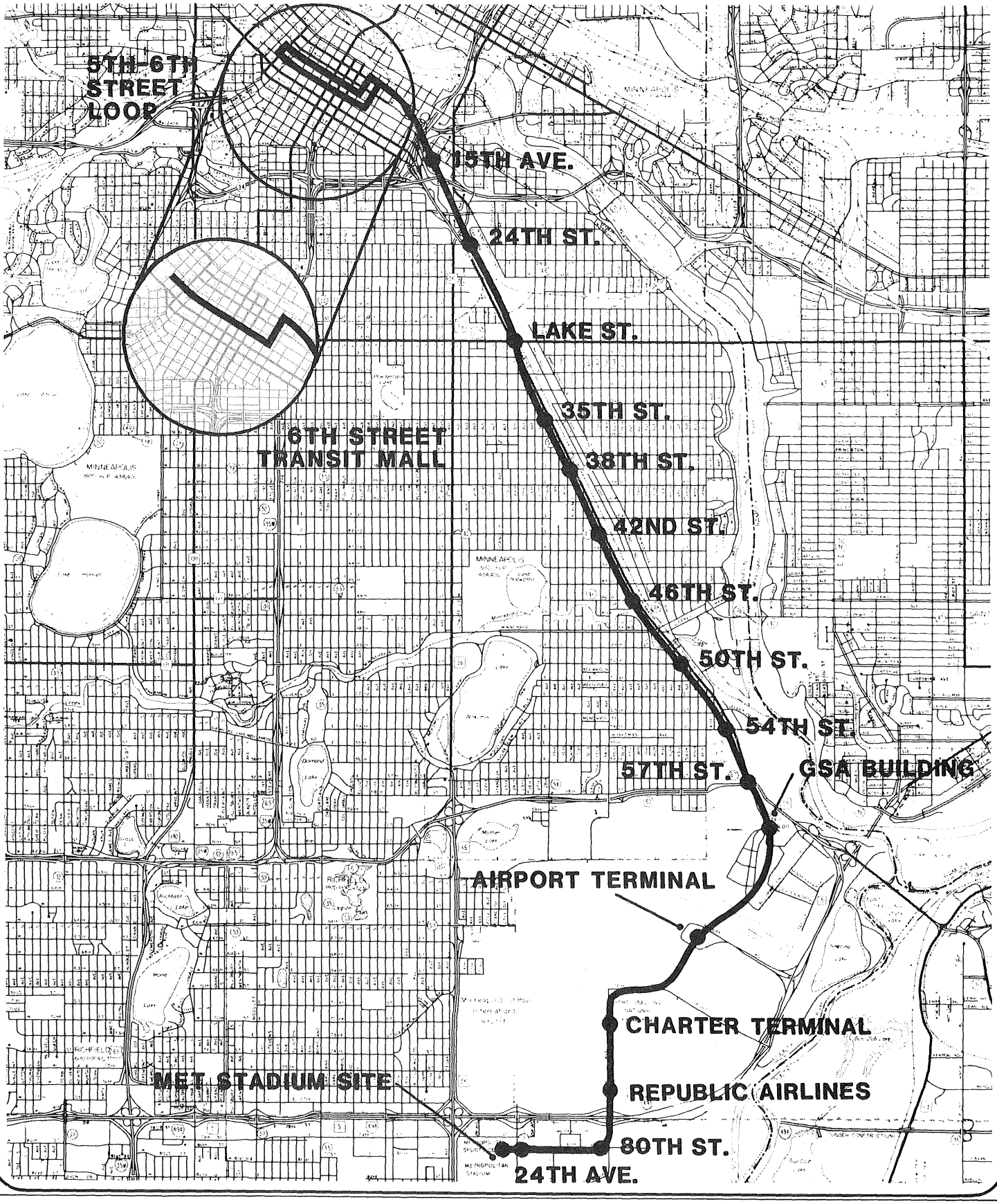
NORTH & SOUTH TERMINUS LRT SUBALTERNATIVES

HIAWATHA AVENUE
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● LRT STATION LOCATION

0 1/2 1 MILE

NORTH



Services Administration (GSA) Building. Between the CBD and the GSA Building, the LRT line is 5.78 miles long. Of this total length, approximately 500 feet will be below grade at Lake Street. Through Minnehaha Park, the LRT will be in either a covered roadway or tunnel depending on the subalternative chosen. The remainder of the line will operate at grade.

Three south terminus subalternatives are under consideration (Figure 3-12). The shortest LRT line would terminate at the north edge of the GSA Building parking lot. The second subalternative would extend the LRT line from the GSA Building into the adjacent National Guard property, then into a cut section and tunnel to pass under the runways and taxiways to a terminus in a basement-level station at the airport terminal building. Between the GSA Building and the airport, the line length is 1.0 miles with approximately 0.55 miles below grade in tunnel. The third subalternative would further extend the LRT line in tunnel, passing under runways and taxiways, returning to the surface at 76th Street. The LRT would follow 76th Street, 34th Avenue and 80th Street to a terminus at the Metropolitan Stadium site. This extension is 2.95 miles long, of which 0.36 miles is in tunnel.

Profile. The LRT would be essentially an at-grade facility. The track profile would follow existing grade with some exceptions:

- The LRT would pass over I-35W using an existing railroad bridge and then under I-94 under an existing highway bridge.
- The LRT would pass under the CMStP&P Railroad mainline (about 29th Street).
- The LRT would cut diagonally across the intersection of Hiawatha Avenue and Lake Street in tunnel.
- The LRT would pass under an existing bridge at 46th Street.
- The LRT would have the same treatment through Minnehaha Park as the reconstructed roadway.
- The LRT would pass over the reconstructed Crosstown Highway on a new bridge carrying Minnehaha Avenue and the LRT.
- The LRT would pass under airport runways and taxiways.
- The LRT would pass under I-494, under a bridge which will have adequate clear space to accommodate both 34th Avenue and the LRT.

Access. Stops would be provided at approximately one-half mile intervals. A feeder bus system would serve most of the LRT stops, circulating in the residential areas and providing a short ride to a nearby stop.

Traffic Control. The LRT line would cross several East-West streets in the corridor at-grade. Crossing protection would be installed at each of the crossings, and would be coordinated with the traffic signal system at Hiawatha Avenue intersections. The LRT vehicles would be able to pre-empt signals in order to minimize delays at the at-grade crossings.

Transit Operations. LRT service would be provided throughout the day, each day of the year. On weekdays, headways would vary between 5 minutes (during peak periods) and 12 minutes (during other times). On Saturdays, headways would vary between 12 minutes (during the midday) and 20 minutes (during other times). On Sundays and holidays, 30 minute headway would be maintained throughout the day.

The light rail vehicle will operate on double track for the entire length of the system, with a loop or a turnback at each end. Some of the key operating characteristics of the LRT alternatives are shown in Table 3-2. A full description of the LRT operations is included in Technical Report 23.[14/]

TABLE 3-2

LRT ALTERNATIVES - OPERATING CHARACTERISTICS

South Terminus Alternative	Total Length	Number of Stops	One-Way Peak Period Travel Time	Average Speed	Fleet Size (incl. spares)	Annual Vehicle Mileage
GSA Building	7.4 mi.	16	23.4 min.	18.9 mph	15	561,500
Airport	8.5 mi.	17	25.4 min.	20.0 mph	16	645,500
Bloomington	11.4 mi.	22	33.7 min.	20.3 mph	22	939,000

Bus operations under this alternative would be significantly different from current bus operations in the corridor. The LRT line would connect the corridor with the Minneapolis CBD. Most bus service in the corridor would be oriented toward the LRT stops, and would serve a collection and distribution function for LRT patrons. The feeder bus system would serve an area which includes south Minneapolis between Cedar Avenue and the Mississippi River, south of I-94; the Highland Park area of southwestern St. Paul; and Mendota and Mendota Heights in northern Dakota County. In the area north of I-94 in Minneapolis, bus service would not be changed, because it serves travel demand which cannot be served by the LRT and feeder bus system.

Bus operations would be as described whether the LRT south terminus is at the GSA Building or the Airport Terminal. If the south terminus is at the Metropolitan Stadium site in Bloomington, there would be one difference in bus operations. Under the first two subalternatives, parts of Burnsville and Eagan would have bus service to the Minneapolis CBD via Cedar Avenue and I-35W. If the LRT line ends in Bloomington, that bus service would feed the Bloomington stop.

14/ Reference No. 23.

Transit Patronage

The transit patronage expected under this alternative depends on the subalternative selected. As described in Technical Report No. 21, [15/] estimates of year 2000 transit patronage are based on a computer model which the Metropolitan Council maintains. As with other alternatives, the computer model output was adjusted to account for induced development in the corridor. Transit patronage estimates for Alternative 4 are shown in Table 3-3.

TABLE 3-3

YEAR 2000 TRANSIT PATRONAGE - ALTERNATIVE 4
(Person Trips via Transit per Workday)

South Terminus Subalternative	LRT Trips	Bus Only Trips
GSA Building	32,000	24,500
Airport Terminal	34,000	24,500
Bloomington	37,000	24,500

3.4.4.3 Traffic Forecast

Vehicular traffic forecasts for Alternative 4 considered the output of both the Regional Travel Model and the Metropolitan Council's Sketch Planning Model. These models suggest that, for an average workday, about 7,500 persons would use the LRT system who would have used a private automobile. This would result in slightly lower volumes along TH 55 than under other alternatives. Year 2000 traffic volume forecasts are shown in Figure 3-13.

3.4.5 Alternative 5: No-Build

With this alternative, the Metropolitan Council's 1990 Highway System Plan and the 1990 Transit System Plan would be implemented, except that TH 55 would be maintained in its present geometric configuration. The no-build alternative serves as the basis of comparison for the build alternatives and also illustrates the consequences of no action in the Hiawatha Avenue Corridor.

3.4.5.1 Traffic Forecast

The adjusted assignment to the no-build network is the traffic forecast for Alternative 5, the no-build alternative, in which TH 55 is left in its present configuration and in which transit service is provided by buses, using a system built upon the present patterns of transit service. The forecasted traffic volumes for Alternative 5 are shown in Figure 3-14.

15/ Reference No. 21.

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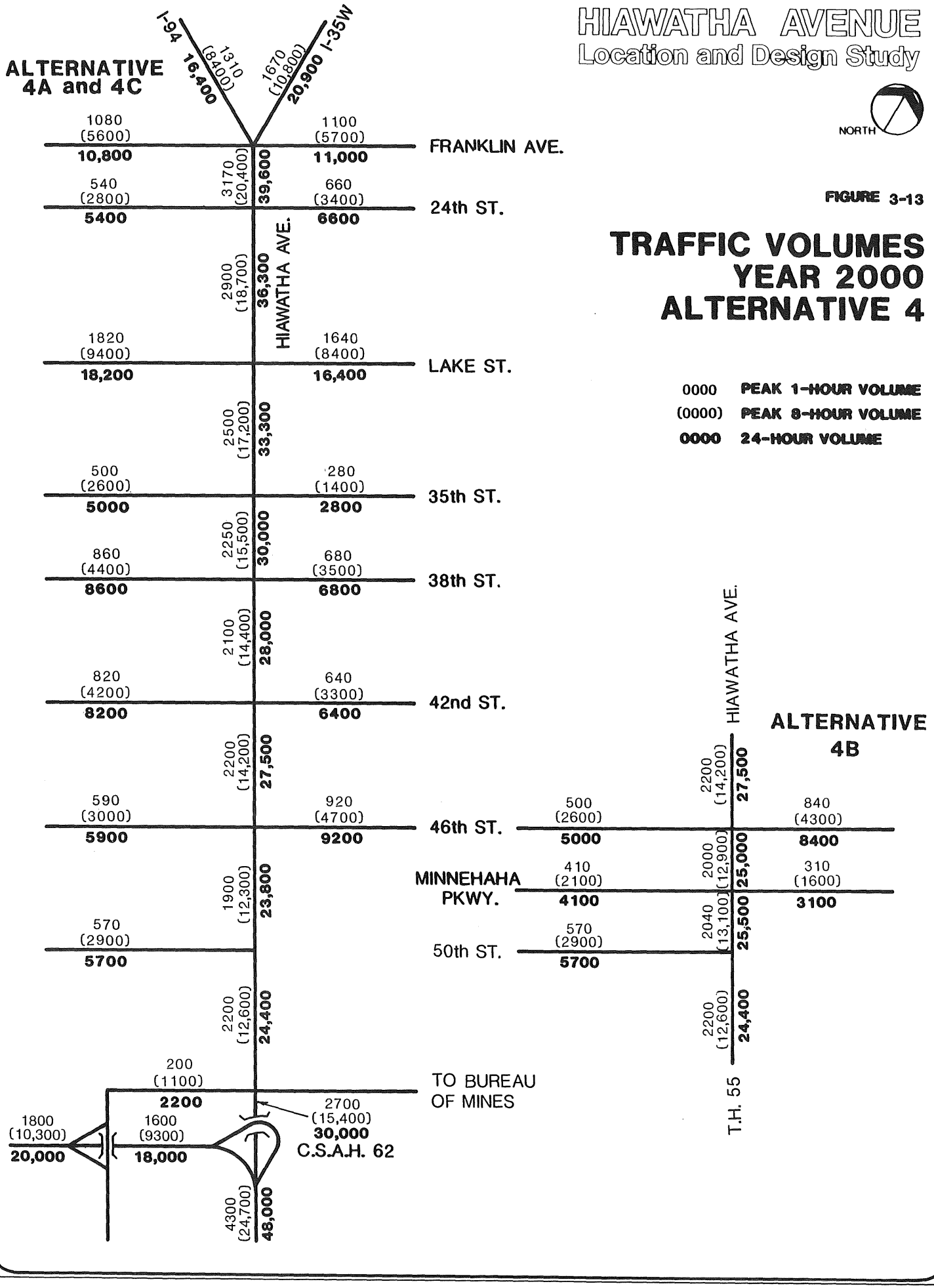


FIGURE 3-13

TRAFFIC VOLUMES YEAR 2000 ALTERNATIVE 4

0000 PEAK 1-HOUR VOLUME
(0000) PEAK 8-HOUR VOLUME
0000 24-HOUR VOLUME

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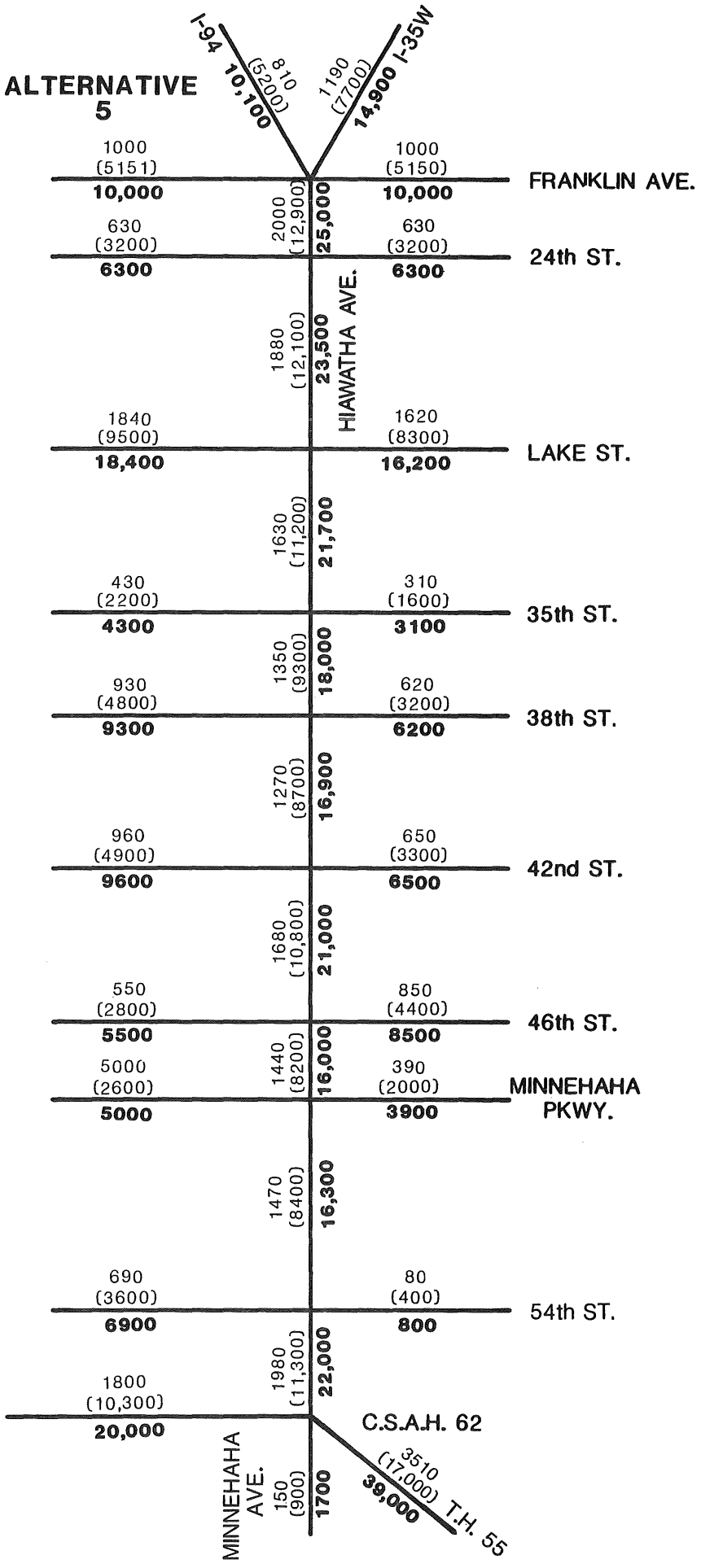


FIGURE 3-14

TRAFFIC VOLUMES YEAR 2000 ALTERNATIVE 5

0000 **PEAK 1-HOUR VOLUME**

(0000) **PEAK 8-HOUR VOLUME**

0000 **24-HOUR VOLUME**

3.5 TRANSPORTATION SYSTEM MANAGEMENT ALTERNATIVES

Transportation System Management (TSM) strategies and Resurfacing, Reconstruction and Rehabilitation (RRR) activities were considered as part of many of the alternatives examined during the Scoping Process. TSM strategies and RRR activities are a part of all four build alternatives selected for analysis in the EIS.

The roadway improvement proposed under Alternatives 1, 2, 3 and 4 would be reconstructed on the same alignment as TH 55 presently uses between Franklin Avenue and 52nd Street.

The transit proposals under Alternatives 1 and 2 include TSM strategies such as high-occupancy vehicle (HOV) facilities, park-and-ride lots and improved bus service which are designed to facilitate ridesharing and transit use. The transit proposal under Alternative 4 includes improved transit service using an LRT line and a feeder bus network and park-and-ride lots.

3.6 COSTS

Capital cost estimates have been prepared for each alternative and subalternative under consideration in the Hiawatha Avenue corridor. These estimates are fully documented in Technical Report 18 [16/] and are summarized in Table 3-4.

Transit operating and maintenance cost estimates were also prepared for each alternative and subalternative. These estimates are documented in Technical Report 21 [17/] and summarized in Table 3-4.

One measure of cost effectiveness of the transit component is the operating surplus (deficit) or total surplus (deficit) per passenger. This analysis is presented for one of the subalternatives in Table 3-5.

16/ Reference No. 18,

17/ Reference No. 21.

TABLE 3-4

COST SUMMARY

ITEM	A - Parkway Grade Separated			B - Parkway At-Grade			C - Tunnel		
	Capital Cost	Annual Cost		Capital Cost	Annual Cost		Capital Cost	Annual Cost	
		Capital	Operating and Maintenance		Capital	Operating and Maintenance		Capital	Operating and Maintenance
ALTERNATIVE 1 - FOUR LANE ROADWAY AND HOV ROADWAY AT GRADE									
Roadway	$ 39,446,000	$ 3,703,000		$ 34,336,000	$ 3,224,000		$ 54,870,000	$ 5,152,000	
Transit	37,168,000	4,183,000	9,210,000	40,129,000	4,461,000	9,210,000	43,281,000	4,757,000	9,210,000
TOTAL	$ 75,614,000	$ 7,886,000	$ 9,210,000	$ 74,465,000	$ 7,685,000	$ 9,210,000	$ 98,151,000	$ 9,909,000	$ 9,210,000
ALTERNATIVE 2 - FOUR LANE ROADWAY AND HOV ROADWAY GRADE SEPARATED									
Roadway	$ 39,446,000	$ 3,703,000		$ 34,336,000	$ 3,224,000		$ 54,870,000	$ 5,152,000	
Transit	41,581,000	4,597,000	$ 9,210,000	44,542,000	4,875,000	9,210,000	47,695,000	5,171,000	9,210,000
TOTAL	$ 81,027,000	$ 8,300,000	$ 9,210,000	$ 78,878,000	$ 8,099,000	$ 9,210,000	$102,565,000	$ 10,323,000	$ 9,210,000
ALTERNATIVE 3 - FOUR LANE ROADWAY									
Roadway	$ 39,850,000	$ 3,741,000		$ 34,205,000	$ 3,211,000		$ 54,739,000	$ 5,139,000	
Transit	16,211,000	2,144,000	$ 8,564,000	16,211,000	2,144,000	$ 8,564,000	16,211,000	2,144,000	$ 8,564,000
TOTAL	$ 56,061,000	$ 5,885,000	$ 8,564,000	$ 50,416,000	$ 5,355,000	$ 8,564,000	$ 70,950,000	$ 7,283,000	$ 8,565,000
ALTERNATIVE 4 - FOUR LANE ROADWAY AND LIGHT RAIL TRANSIT									
Roadway	$ 39,850,000	$ 3,741,000		$ 34,205,000	$ 3,211,000		$ 54,739,000	$ 5,139,000	
Transit									
CBD*/GSA	84,528,000	8,525,000	$ 6,755,000	82,632,000	8,347,000	$ 6,755,000	88,054,000	8,856,000	$ 6,755,000
GSA/Airport	22,303,000	2,094,000	18,000	22,303,000	2,094,000	18,000	22,303,000	2,094,000	18,000
Arpt/Bloomington	31,133,000	2,938,000	207,000	31,133,000	2,938,000	207,000	31,133,000	2,938,000	207,000
TOTAL - GSA	$124,378,000	$ 12,266,000	$ 6,755,000	$116,837,000	$ 11,558,000	$ 6,755,000	$142,793,000	$ 13,995,000	$ 6,755,000
TOTAL - Airport	$146,681,000	$ 14,360,000	$ 6,773,000	$139,140,000	$ 13,652,000	$ 6,773,000	$165,096,000	$ 16,089,000	$ 6,773,000
TOTAL - Bloomington	$177,814,000	$ 17,298,000	$ 6,980,000	$170,273,000	$ 16,590,000	$ 6,980,000	$196,229,000	$ 19,027,000	$ 6,980,000
ALTERNATIVE 5 - NO BUILD									
Roadway	- No Roadway Construction -								
Transit	$ 15,800,000	$ 2,090,000	$ 8,467,000						
TOTAL	$ 15,800,000	$ 2,090,000	$ 8,467,000						

* Assumes 5th/6th Street Loop CBD Distribution Subalternative. Comparative CBD distribution system costs are:
5th/6th Street Loop: Capital Cost - $13,756,000; Annual Capital Cost - $1,291,000
6th Street Mall: Capital Cost - $12,212,000; Annual Capital Cost - $1,146,000

TABLE 3-5

REVENUE - COST COMPARISON - TRANSIT COMPONENTS
(1981 Dollars)

		ALTERNATIVE				
		1-HOV Lanes At-Grade	2-HOV Lanes Grade Separated	3-Upgrade Existing Transit	4-LRT	5-No Build
TRANSIT RIDERSHIP (Average Week Day)	LRT/Feeder Bus	-	-	-	32,000	-
	Local Bus	48,500	48,500	45,000	24,500	44,100
	Total	48,500	48,500	45,000	56,500	44,100
COST						
Capital Cost		$ 37,168,000	$ 41,581,000	$ 16,211,000	$ 84,528,000	$ 15,800,000
Annual Revenue		8,570,000	8,570,000	7,952,000	9,984,000	7,792,000
Annual Operating and Maintenance Cost		9,210,000	9,210,000	8,564,000	6,755,000	8,467,000
Operating Surplus (Deficit)		(640,000)	(640,000)	(612,000)	3,229,000	(675,000)
Annualized Capital Cost		4,183,000	4,597,000	2,144,000	8,525,000	2,090,000
Annual Surplus (Deficit)		(4,823,000)	(5,237,000)	(2,756,000)	(5,296,000)	(2,765,000)
PERFORMANCE MEASURES						
Operating Surplus (Deficit) per Passenger		$ (0.045)	$ (0.045)	$ (0.046)	$ 0.194	$ (0.052)
Surplus (Deficit) per Passenger		$ (0.338)	$ (0.367)	$ (0.208)	$ (0.318)	$ (0.213)

Assumptions:
1. Year 2000 Transit Patronage
2. In Park, Covered Roadway with Parkway Grade Separated
3. LRT South Terminus at GSA Building
4. 5th & 6th Street Loop in Minneapolis CBD
5. Average Transit Fare $0.60

4.0 AFFECTED ENVIRONMENT

4.0 AFFECTED ENVIRONMENT

4.1 SOCIAL AND ECONOMIC CONDITIONS

4.1.1 Demographics

4.1.1.1 Population

The Minneapolis-St. Paul Standard Metropolitan Statistical Area (SMSA) population grew from 1,813,647 persons in 1970 to 1,985,705 persons in 1980 (9.5 percent increase).

Cities in the Hiawatha Avenue Corridor study area did not experience growth comparable to the SMSA average. Minneapolis' population declined from 434,400 to 370,951 (14.6 percent). Bloomington's population was stable over the decade; the 1970 population was 81,970, and the 1980 population was 81,831. Both Minneapolis, a central city, and Bloomington, a first ring suburb, exhibited population trends similar to those found in other "Frost Belt" metropolitan areas. These communities have been affected by outmigration, decreases in the average household size and lack of new residential construction. The growth in the Minneapolis-St. Paul SMSA population came from large increases in second and third ring suburban areas.

The Metropolitan Council made population projections in 1978 for all Twin Cities communities. The projections indicated that Minneapolis' population decline would end by 1980 with modest growth by the year 2000. The Council projected that the number of households in Minneapolis would show slow but steady growth through the year 2000, from 164,000 to 174,000. The stability in population and increase in the number of households is explained by a projected continued decline in average size of households. The projections for Bloomington are similar.

The projected increase in the number of households has a significant impact on regional transportation. The statistic implies that while population growth for the two cities is expected to be negligible, the need for transportation will increase. This is based upon the assumption that most households will contain at least one wage earner.

Minorities constitute a small but growing percentage of the regional population. In 1980, 6.6 percent of the regional population was nonwhite. In Minneapolis nonwhites comprise 13.0 percent while in Bloomington nonwhites comprise only 3.0 percent of the population.

Statistics for the Hiawatha Avenue Corridor study area are difficult to obtain. The two available sources, the U.S Census and the Metropolitan Council, offer data that is either incomplete, obsolete, or does not relate directly to the corridor boundaries.

The Metropolitan Council has made population forecasts to assist in transportation planning throughout the region. The council has established a system of Transportation Analysis Zones (TAZ's) in the region. While the TAZ's do not exactly conform to TH 55 study area boundaries, they provide

the only available population projections for the area. The Council estimated population, households and employment by TAZ and made projections for the years 1990 and 2000.

Within the corridor (those TAZ's within one quarter-mile area of TH 55), projections by the Metropolitan Council show growth in employment and number of households, and a decrease in population and average household size (Table 4-1).

TABLE 4-1

POPULATION/HOUSEHOLDS/EMPLOYMENT

PROJECTIONS FOR THE HIAWATHA AVENUE CORRIDOR

	Population	Households	Employment
1970	67,227	25,839	45,685
1980	69,128	30,041	49,935
1990	58,759	28,680	50,337
2000	58,692	28,577	54,486

NOTE: Based on Metropolitan Council TAZ projections.

4.1.1.2 Housing

Minneapolis Central Business District. Population in the CBD was 4,877[1/] in 1970. By 1980, an estimated 5,300 persons were living in the CBD, a 9 percent increase. This growth was primarily the result of the development of a large number of condominiums and apartments in the CBD in the 1970's. Of the estimated 3,530 housing units in the CBD in 1980, 1,200, or 34 percent, were built since 1971. Housing committed for development will add over 2,800 households to the CBD by 1985.

Hiawatha Corridor. The Hiawatha Corridor contained approximately 33,450 households in 1970. Single family homes account for the majority of the housing stock. Even though population has declined, the number of Corridor households has remained fairly stable (33,380).

Population is projected to decline further during the 1980-1990 period, but, with smaller household size, households are projected to increase to 34,400.

Housing in the corridor varies greatly in both condition and density. High-rise apartment buildings are clustered on the CBD fringe, in the Cedar-Riverside area, along Franklin Avenue and in scattered locations between Lake Street and Minnehaha Park and east of Hiawatha Avenue. The

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1/ Metropolitan Council Zone Level Socio-Economic Land Use File.

balance of the residential areas consists primarily of single family and duplex dwellings which are largely owner-occupied and some three-story apartments. The housing is generally in good to excellent condition south of Lake Street. Pockets of housing in poor condition are located adjacent to the TH 55 right-of-way and near the industrial strip located along the east side of the corridor.

Data provided by the City of Minneapolis indicate that, north of Lake Street, the corridor contains substantial numbers of substandard housing units.2/ The Elliot Park, Phillips, Cedar-Riverside and Seward neighborhoods are identified as having sub-standard conditions in more than 40 percent of the one- and two-unit structures. The city has designated portions of these neighborhoods as Neighborhood Strategy Areas (NSA's). The NSA designation allows the city to allocate substantial amounts of federal funds to reduce the number of substandard housing units.

The City of Minneapolis has also provided data on the housing vacancy rate. In 1979 the average city-wide vacancy rate was 3.7 percent for all types of housing. Portions of the corridor located south of Lake Street had vacancy rates lower than the city average. Areas north of Lake Street experienced vacancy rates ranging from average to well above average.

Terminus Service Area. Baseline forecasts show the number of households in the area increasing from 14,147 in 1970 to 38,866 in 1990 and 45,908 in the year 2000. Increases of 24,719 households are indicated between 1970 and 1990 and 7,042 between 1990 and 2000.

4.1.2 Neighborhoods

The City of Minneapolis has been divided into planning districts to facilitate comprehensive planning and to encourage local input in the planning process. Known as Neighborhood Planning Districts, most districts are further divided into neighborhoods. The four major planning districts through which TH 55 passes are the Phillips, Powderhorn, Longfellow and Nokomis districts. The neighborhoods generally conform to the boundaries as perceived by local residents. Figure 4-1 illustrates the districts and neighborhoods in the Hiawatha Avenue Corridor study area.

Existing TH 55 constitutes a ragged edge for those neighborhoods which border it. With its high traffic levels, noise, poor visual image, lack of identifiable pedestrian corridors and many industrial uses, TH 55 represents both the perceived and real division between neighborhoods. In many areas, this division was reinforced by the clearing of homes along TH 55 for planned highway construction. The land is still vacant. The problems attributable to existing TH 55 penetrate adjoining neighborhoods for several blocks, making the city's goal of neighborhood preservation difficult to attain. The local environment serves as a disincentive to investment in redevelopment.

2/ State of the City, 1980, City of Minneapolis Planning Department, 1981.

Two neighborhoods located north of Interstate 94 may be affected. Both the Cedar-Riverside/West Bank and the Elliot Park neighborhoods are currently attempting rehabilitation on varying scales.

4.1.3 Community Services

4.1.3.1 Police Protection

Police protection for the Minneapolis portion of the study area is provided by the First and Third Precincts. The Third Precinct (located on 27th Avenue South, north of Lake Street) serves most of the corridor south of Interstate 94. At the present time, access to the south and west parts of the corridor is hampered by the poor condition of TH 55 and the lack of streets through the Milwaukee Road Railyard. Response time from the First Precinct to the TH 55 corridor is likewise hampered on occasion. However, due to the area serviced, this problem is not as severe as that posed for the Third Precinct. Rather, problems are related to more difficult inter-precinct response.

4.1.3.2 Public Libraries

The four public libraries located in the study area are shown in Figure 4-2. It is not expected that the project will have any significant effect on this service.

4.1.3.3 Religious Institutions

As shown in Figure 4-2, a large number of religious institutions are located within the study area. It is not expected that the project will have any significant effect on this service.

4.1.3.4 Health Services

The Hiawatha Avenue Corridor contains a number of large medical facilities, smaller hospitals and clinics (Figure 4-2).

Emergency ambulance services are operated out of the Hennepin County Medical Center and by several private services.

Virtually all of the emergency medical services are located at the northern end of the project area. TH 55 is the only direct route between the emergency facilities and the corridor. The airport and surrounding highways have the potential of producing accidents which could result in a large demand for emergency medical services. Ambulance response time to the airport and other locations within the corridor is affected by peak period congestion on TH 55.

4.1.3.5 Educational Institutions

The TH 55 corridor contains many public and private educational institutions as shown in Figure 4-3. The figure also indicates the 1980 attendance areas for all affected public elementary, junior and senior high schools. The attendance areas are revised periodically to accommodate declining enrollments and school closings.

HIAWATHA AVENUE
Location and Design Study

NORTH

FEET
0 500 1000 2000 3000

MATCH LINE "A"

POWDERHORN
HOWE
STANDISH
LONGFELLOW
CENTRAL
ERICSSON
HIAWATHA
UNIVERSITY
ELLIOT PARK
UNIVERSITY
CEDAR RIVERSIDE / WEST BANK
MINNEHAHA
NOKOMIS
SEWARD
MORRIS PARK
PHILLIPS
LONGFELLOW
LONGFELLOW
CORCORAN
POWDERHORN
HOWE
STANDISH
MATCH LINE "A"

FIGURE 4-1

COMMUNITY PLANNING DISTRICTS / NEIGHBORHOODS

COMMUNITY PLANNING DISTRICTS

NEIGHBORHOODS

HIAWATHA AVENUE
Location and Design Study

NORTH

FEET
0 500 1000 2000 3000

MATCH LINE "A"

FIRE STATION #21

ROOSEVELT LIBRARY

MPLS. CITY HALL
FIRST PRECINCT
POLICE STATION

FIRE STATION #1

HENNEPIN COUNTY
MEDICAL CENTER

METROPOLITAN
MEDICAL CENTER

FAIRVIEW HOSPITAL

ST. MARYS
HOSPITAL

NOKOMIS
COMMUNITY
LIBRARY

MINNESOTA SOLDIERS HOME

FIGURE 4-2

COMMUNITY SERVICES

* CHURCH

▲ PUBLIC FACILITIES

● HOSPITAL OR CLINIC

FRANKLIN
COMMUNITY
LIBRARY

MPLS. REGIONAL
NATIVE AMERICAN
CENTER

FAIRVIEW
DEACONESS
HOSPITAL

FIRE STATION #7

VETERANS ADMINISTRATION
MEDICAL CENTER

CHRISTMAS
COMMUNITY
CENTER

LITTLE EARTH OF
UNITED TRIBES
COMMUNITY BLDG.

THIRD PRECINCT
POLICE STATION

EAST LAKE LIBRARY

TRINITY CHURCH CLINIC

POST OFFICE

MATCH LINE "A"

HIAWATHA AVENUE
Location and Design Study

NORTH

FEET 0 500 1000 2000 3000

HALL (K-12)
BETHUNE (K-2)
NORTHEAST (7&8)
NORTH (9-12)
HARRISON OPEN (K-8)
JEFFERSON (K-5)
KENWOOD (K-5)
ANWATIN (5-8)
WEST (9-12)
CENTRAL (9-12)
NORTH CENTRAL BIBLE COLLEGE
PHILLIPS (7-9)
ANDERSEN (K-6)
HOLY ROSARY SCHOOL PRIVATE (K-12)
SOUTH (9-12)
TUTTLE/MARCY (K-6)
UNIVERSITY OF MINNESOTA
WEST BANK SCHOOL OF MUSIC PRIVATE
PRATT (K-6)
ST. MARYS JR. COLLEGE
AUGSBURG COLLEGE
SEWARD (K-6)
BROWN INSTITUTE PRIVATE
LONGFELLOW (PRESCHOOL)
FOLWELL (7-9)
ROOSEVELT (10-12)
BANCROFT (3-6)
NORTHRUP OPEN
ERICSSON (K-2)
SOUTH PARKS CONSOLIDATED CATHOLIC SCHOOL (K-8)
KEEWAYDIN (K-6)
NORTHWESTERN ELECTRONICS INSTITUTE PRIVATE
HOWE (K-6)
SANFORD (7-9)
HIAWATHA (K-6)
MORRIS PARK (K-6)

MATCH LINE "A"

MATCH LINE "A"

FIGURE 4-3

EDUCATIONAL INSTITUTIONS

- POSTSECONDARY
- SENIOR HIGH SCHOOL
- JUNIOR HIGH SCHOOL
- ELEMENTARY SCHOOL
- SENIOR HIGH SCHOOL BOUNDARY (PUBLIC)
- JUNIOR HIGH SCHOOL BOUNDARY (PUBLIC)
- ELEMENTARY SCHOOL BOUNDARY (PUBLIC)

4.1.4 Regional Economy

Location of the Twin Cities Metropolitan Area at the navigational head of the Mississippi River determined its early development as a trading center. Regional agricultural products were the primary export utilizing available river and rail transportation. Agricultural products still represent the state's primary exports. Agribusiness has matured over the years and had resulted in location of five major national firms in the Twin Cities including: Cargill, General Mills, International Multifoods, Peavy, and Pillsbury.

In recent decades, a large number of firms have located and prospered in the metropolitan area, including railroad companies, high technology electronics industries, banking and insurance corporations, transportation and management services, a diversity of wholesale firms, and two major airlines. Numerous other major companies and smaller buinesses are present, and in combination provide a strong regional economic base. Minneapolis-St. Paul has a dynamic and diversified economy. Local unemployment rates are traditionally below the national average.

4.1.5 Land Use and Zoning

The Hiawatha Avenue Corridor study area includes about five square miles of diverse, urbanized land. Although the corridor is extensively developed from one end to the other, portions of it have distinct identities. For analysis purposes, the corridor has been divided into six segments.

4.1.5.1 Segment 1: Minneapolis CBD to I-35

The Minneapolis CBD has traditionally been confined to a relatively limited area centered along Nicollet and Marquette Avenues. The CBD has more recently undergone a significant amount of development which has expanded its perceived boundary. Figure 4-4 illustrates the location of the CBD core, fringe development areas and significant projects. Major areas within the CBD segment include:

CBD Core. This is the traditional center of commercial and financial activity in Minneapolis. Marquette and Nicollet Avenues are major focal points. Signs of development and intensification include the IDS Building, Nicollet Mall, and the City Center Complex, which is presently under construction. City Center is a major development which incorporates the 52-story Multi-Foods Tower, a major hotel, and office and commercial space.

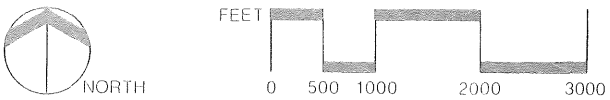
Warehouse Development District. This area, lying northwest of the CBD, has not yet benefited from revitalization of the CBD. The district contains a large number of warehouses, most of which are underutilized. Butler Square - an historic structure renovated for office and commercial space, and an influx of restaurants and art galleries, are signs of a bright future.

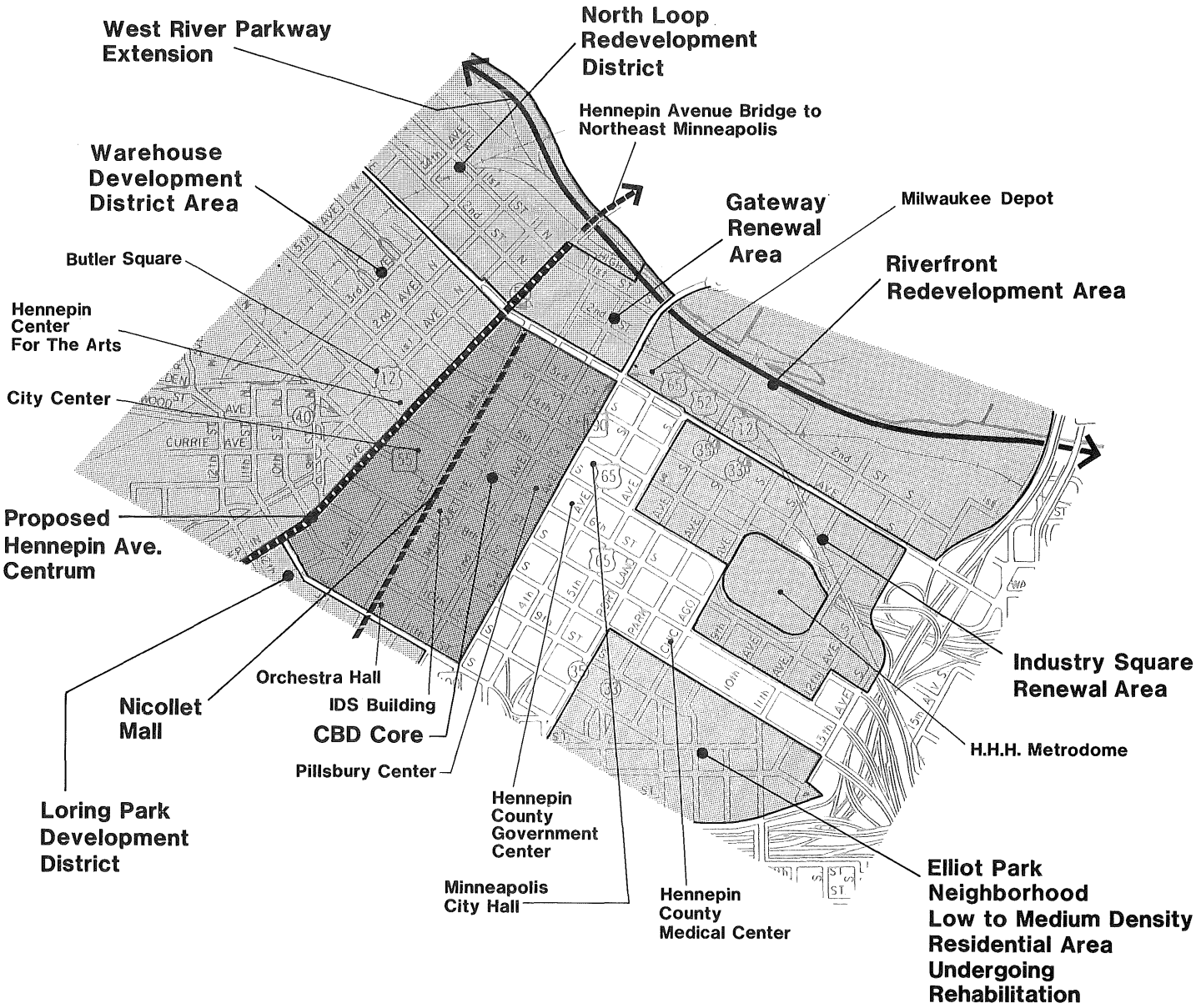
North Loop Redevelopment District. Proposed development in this district includes a riverfront park, 3,200 dwelling units and considerable commercial space. Redevelopment of the district is part of a major effort to redevelop the riverfront while re-establishing housing around the CBD.

FIGURE 4-4

SEGMENT 1
EXISTING LAND USE AND CITY PLANS

HIAWATHA AVENUE
Location and Design Study





Gateway Renewal Area. A product of 1960's era urban renewal, this area remained vacant for many years, but today is nearly totally redeveloped.

Riverfront Redevelopment Area. Proposed development in this area includes a park, and approximately 4,200 dwelling units, with a mix of commercial and office uses. Recent activity appears to signal the beginning of district-wide redevelopment. Presently, the area contains a mix of industrial uses and unused railroad property.

Industry Square Redevelopment Area. The 63,000 seat Hubert H. Humphrey Metrodome, home of the Minnesota Twins, Vikings, and the University of Minnesota Football Gophers, opened in April, 1982. The stadium, coupled with pressure to expand the CBD, will contribute to extensive redevelopment during the 1980's.

West River Parkway. Presently in the planning and concept design stage, the proposed West River Parkway project will enhance the Mississippi riverfront by providing public open space on the river and an attractive focal point for private riverfront development.

4.1.5.2 Segment 2: I-35 to I-94

Segment 2 (Figure 4-5) contains the University of Minnesota West Bank Campus, Augsburg College, the Fairview/St. Mary's hospital complex, and a concentration of retail uses, restaurants and theaters.

Located in this segments is the Cedar-Riverside New-Town-In-Town. A product of the federal new town program, this project was never completed, largely due to neighborhood opposition. However, the first phase of the project was constructed and contains a large concentration of residential units and office space.

Current neighborhood plans indicate that the remaining area south of Fifth Street will undergo rehabilitation of existing low to moderate density housing units. A proposal for a theater/commercial project at the intersection of Washington and Cedar Avenues appears to be firm. The project would include the two existing repertory theaters, a 210-room hotel, 250 dwelling units and commercial space.

4.1.5.3 Segment 3: I-94 to Lake Street

Segment 3 contains a variety of land uses (Figure 4-6). The northern edge, both east and west of TH 55, contains concentrations of medium/high density housing. The residents include a high percentage of poor and elderly.

This segment is dominated by the Milwaukee Railroad's switching yard and adjacent industrial development. The yard covers over one hundred acres, a portion of which has been acquired by the City of Minneapolis and resold for industrial use. The City of Minneapolis is actively pursuing further acquisition and conversion of land for industrial use in order to meet the demand for industrial acreage within Minneapolis.

FIGURE 4-5

SEGMENT 2
EXISTING LAND USE AND CITY PLANS

HIAWATHA AVENUE
Location and Design Study

NORTH

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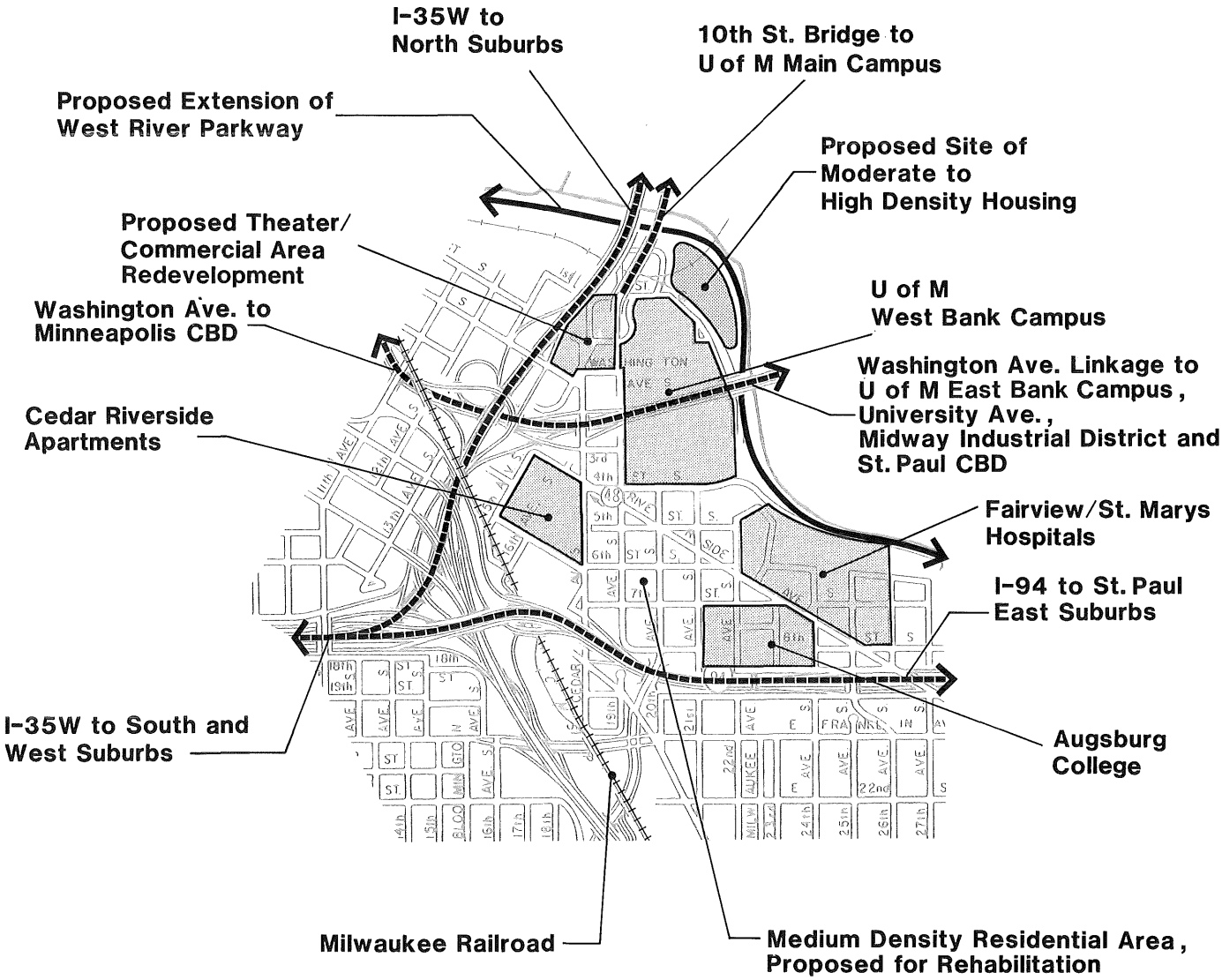


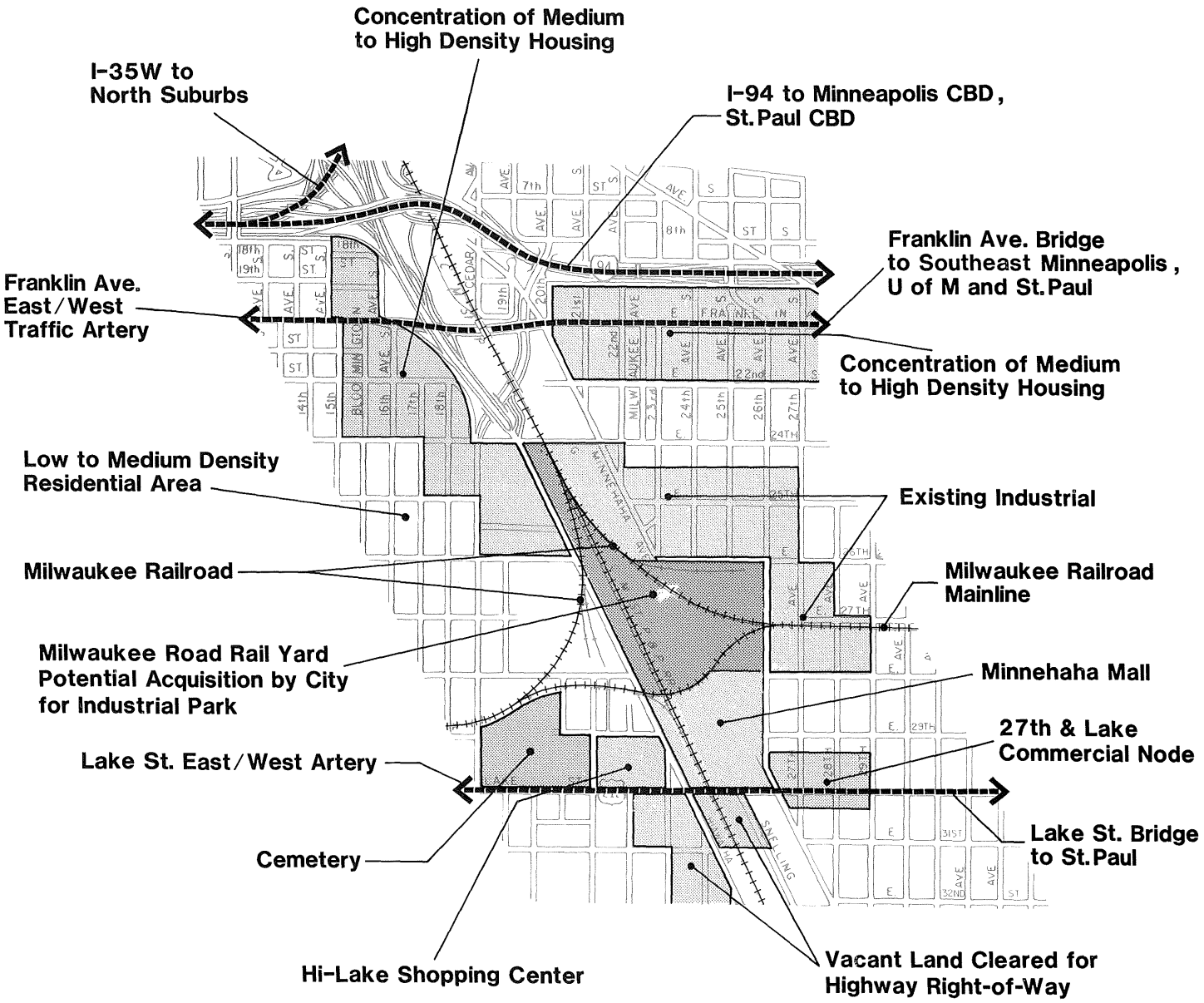
FIGURE 4-6

SEGMENT 3
EXISTING LAND USE AND CITY PLANS

HIAWATHA AVENUE
Location and Design Study

NORTH

FEET
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The rail yard precludes east/west roads between 24th Street and Lake Street. This has contributed to traffic congestion and a poor residential and commercial environment in the surrounding neighborhoods. The rail yard contains a main line track running east/west at about 27th Street. Whatever the ultimate status of this yard is, this line will remain in place. The rail line has presented a major traffic problem due to at grade crossings at Hiawatha Avenue and 26th Avenue.

The commercial strip along Lake Street is the primary shopping district for large portions of southwest Minneapolis and western St. Paul. Within the strip, commercial activity is focused at three locations:

- Hi-Lake Center is an older shopping center which has maintained its economic viability and has low vacancy rates.

- Minnehaha Mall is relatively new and represents the first inner city project by the Target division of Dayton-Hudson. The mall is generally considered to be successful and has some growth potential.

- The shopping area centered at 27th Avenue and Lake Street is the oldest of the three. Comprised primarily of small, street-level retail uses with office space above, the area has recently been the site of new commercial and public (library) construction. Neighborhood plans call for a strengthening of commercial activity along Lake Street and at 27th Avenue in particular.

4.1.5.4 Segment 4: Lake Street to Minnehaha Park

South of Lake Street, the corridor is very different. Land use for this segment is shown in Figure 4-7. Between Hiawatha and Minnehaha Avenues, there is a mix of industrial uses - primarily along a rail spur line, and residential uses. The industrial uses vary in quality and condition. The area contains a number of apparently vacant or under-utilized structures. The residential uses are also of mixed quality, and density varies greatly from block to block.

Solid, stable and healthy low density residential neighborhoods are located just outside the immediate corridor area.

A small neighborhood shopping area is located at 38th Street and Minnehaha Avenue. The area is in poor condition; it has a number of vacant and underutilized stores. City-adopted neighborhood plans call for a strengthening of commercial activity at this location.

Vacant land is a significant feature of this segment. The land was originally cleared to allow construction of a limited access highway.

4.1.5.5 Segment 5: Minnehaha Park to CSAH 62 (Crosstown Highway)

Two features dominate the land use of this segment (Figure 4-8). Minnehaha Park is a large, historically significant recreational area containing Minnehaha Falls. The park is also a major regional attraction on the city-wide parkway system.

FIGURE 4-7

SEGMENT 4 EXISTING LAND USE AND CITY PLANS

HIAWATHA AVENUE
Location and Design Study

NORTH

FEET
0 500 1000 2000 3000

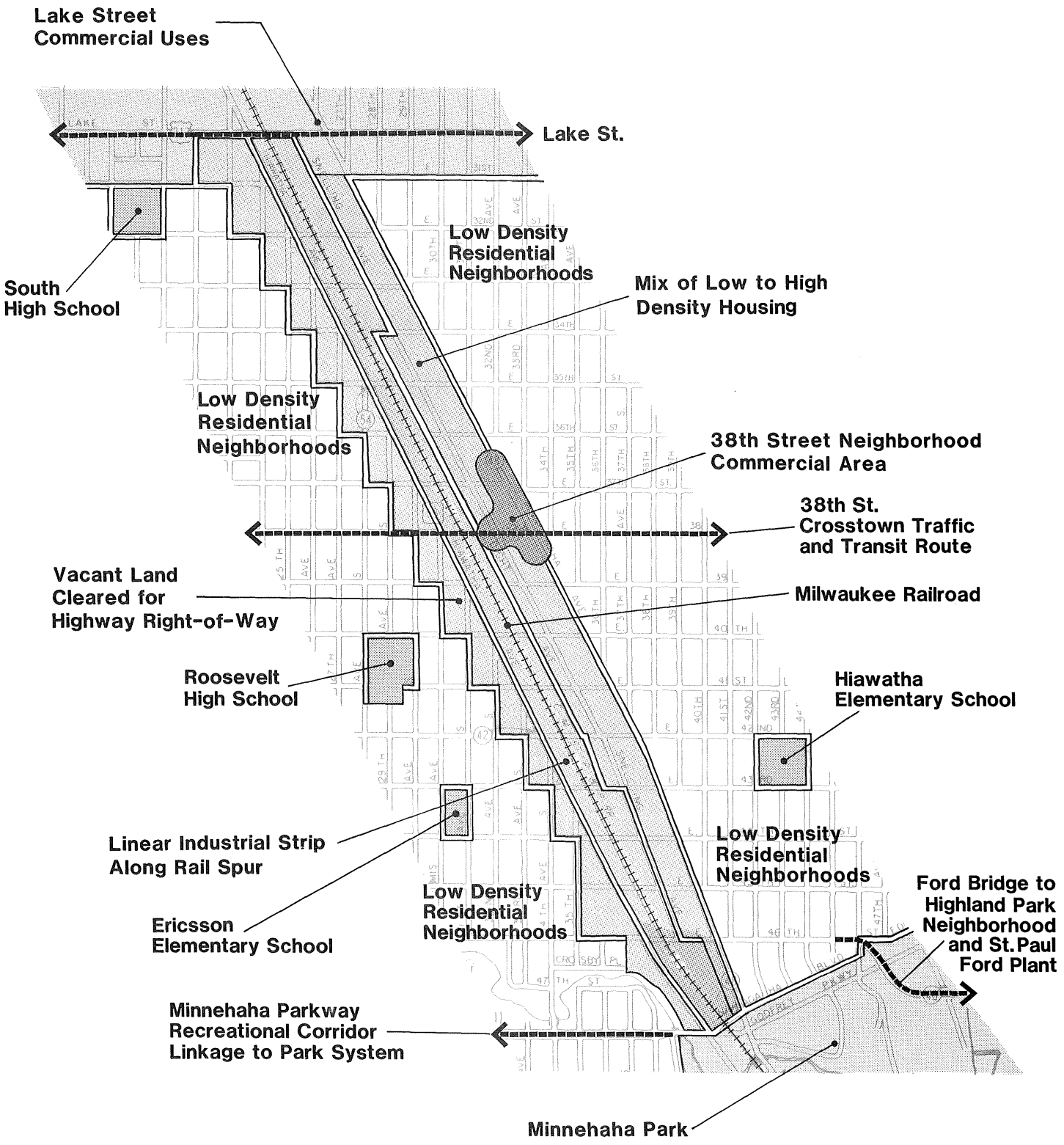


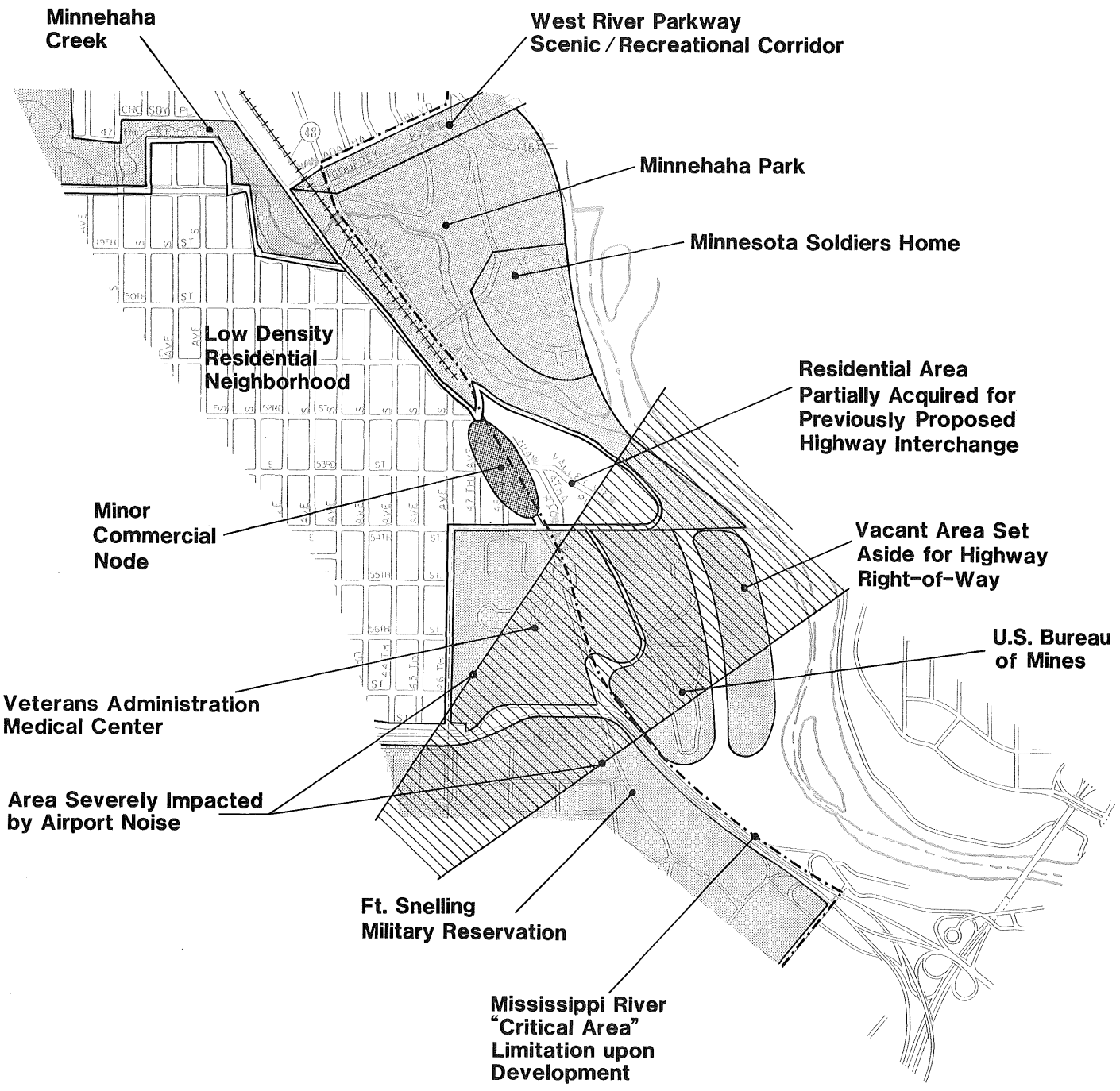
FIGURE 4-8

SEGMENT 5
EXISTING LAND USE AND CITY PLANS

HIAWATHA AVENUE
Location and Design Study

NORTH

FEET
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The second significant land use is the U.S. Government Reservation at Fort Snelling and the Veterans Administration Medical Center. The complex of government users is situated on what was the Fort Snelling Military Reservation. The hospital is a large facility offering a full range of medical services. The hospital is a major employer and is also extensively utilized for outpatient services. Plans to rebuild the hospital have been temporarily shelved due to budgeting constraints. The Minnesota Soldiers Home, a long-term care facility, is located east of TH 55 and Minnehaha Park. Access to the Soldiers Home is from Minnehaha Avenue by a bridge across the Minnehaha Creek gorge, and from the north off Godfrey Parkway. One other federal agency is located within this corridor segment. The U.S. Bureau of Mines maintains its research laboratories east of the Veterans Administration Medical Center. Access to the Bureau of Mines laboratories exists on Minnehaha Avenue at about 57th Street and also from the north off 54th Street.

Residential land uses are located in two distinct areas. The area west of TH 55 is a stable residential neighborhood. The second residential concentration is found east of Minnehaha Avenue at 54th Street. Much of this area was slated for acquisition which, while not yet completed, has been in process for a number of years. As a result the neighborhood contains a large number of vacant lots.

There is a small commercial node located at Minnehaha Avenue and 53rd Street. This neighborhood-scale node is not intensively developed.

4.1.5.6 Segment 6: CSAH 62 to the Metropolitan Stadium Site

The sixth segment (Figure 4-9) contains the Minneapolis-St. Paul International Airport, the Metropolitan Stadium and Sports Center, and office and hotel developments.

The Minneapolis-St. Paul International Airport contains five major concentrations of activity. The airport is the only commercial airport in the metropolitan area. Annual passenger traffic is expected to grow from 7.3 million in 1976 to about 20 million in the year 2000. The main passenger terminal constitutes the primary focal point. Current plans for the airport call for expansion on-site.

Other major centers of activity in the area are the Hubert H. Humphrey Charter Terminal, which is being expanded, the headquarters and maintenance facilities of both Republic and Northwest Orient Airlines, and the large office complex operated by the General Services Administration.

Additional major developments are located south of the airport. These include Appletree Square, a multi-building office complex; Control Data Corporation world headquarters; a portion of the "I-494 Bloomington Strip" with its mix of offices, hotels and commercial uses. Metropolitan Stadium, Metropolitan Sports Center, and associated parking lots occupy about 147 acres in the Airport South District. Metropolitan Stadium and associated parking lots have been replaced by the downtown domed stadium. The property (100 acres) has been sold for redevelopment. While plans are not yet

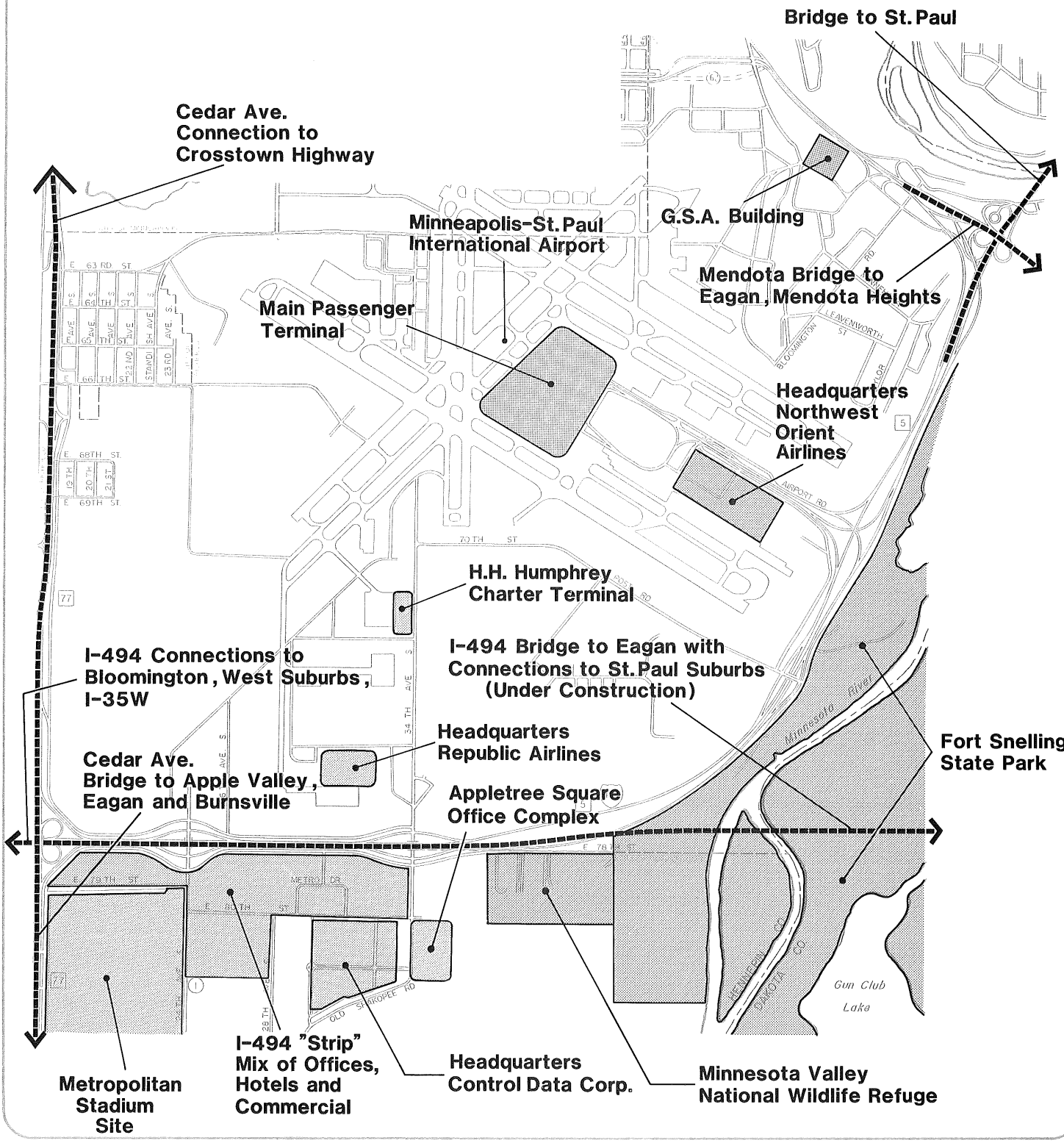
FIGURE 4-9

SEGMENT 6
EXISTING LAND USE AND CITY PLANS

HIAWATHA AVENUE
Location and Design Study

NORTH

FEET
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firm, it appears that the stadium redevelopment project will include a high density mix of offices, residential and commercial uses. The Metropolitan Sports Center and its parking lots will remain in place.

4.1.5.7 Existing Zoning

The existing zoning within the corridor is generally consistent with the prevailing land use pattern. Table 4-2 provides a brief description of the zoning districts and permitted uses. A close inspection of Figure 4-10 reveals the location of numerous land use conflicts along the east side of Hiawatha south of Lake Street. Many of the industrial districts contain housing or are in close proximity to residential districts.

TABLE 4-2

MINNEAPOLIS ZONING DISTRICTS

Designation	Description
R1	Single Family Residence District
R2	Single, Two-Family, Townhouse Residence District
R3, R4, R5, R6	Single and Multiple Family Residence District
B1	Office, Educational, Cultural, Medical, Religious District
B2	Neighborhood Retail and Service District
B3	Community Retail, Service and Commercial District
B4	Central Retail, Service and Commercial District
M1, M2, M3	Manufacturing District

4.1.6 Established Business Districts

4.1.6.1 Minneapolis Central Business District

While many downtown areas in larger cities throughout the country have languished and stagnated, the Minneapolis CBD exhibits an aura of growth and vitality. Through the efforts of local merchants, businessmen, the Downtown Council and many others, the Minneapolis CBD has been strengthened with physical improvements such as the Nicollet Mall and the skyway system, and by the retention of large corporate headquarters and other businesses which form the employment base. These activities have generated a high level of confidence in downtown Minneapolis and continued expansion of downtown employment.

Office Space Demand. The vitality of the Minneapolis CBD is readily apparent in the growth of downtown office space in the 1970's and early 1980's. Downtown Minneapolis contained about 13.1 million square feet of office space in 1980.[3/] More than one-third (37 percent -- 4.8 million square feet) of this space was constructed between 1971 and 1980. Office space in the CBD is expected to total about 16.8 million square feet by 1985. An additional 5.2 to 5.6 million square feet are planned, committed or proposed by 1988.

The demand for new office space in the Minneapolis CBD is dependent on the growth of employment in the downtown area. Employment in Minneapolis has been increasing in recent years and the city is now entering a period when downtown employment will grow at a rapid rate. Total employment in the CBD was estimated at 95,000 in 1975. By 1980, total employment had increased to 100,000. Downtown employment is projected to increase to approximately 110,000 by 1990 and 115,000 by the year 2000.[4/] These projections are based on estimates by the Metropolitan Council and are considered to be conservative.

Retail Activity. Total retail sales (excluding sales for automobile dealers and gasoline service stations) in the Minneapolis CBD have been estimated at $350 million in 1980. When measured in constant dollars, CBD sales have shown little change since 1972. This indicates that downtown Minneapolis, unlike many CBD's in large cities, has been able to maintain a viable retail community in the face of increasing competition from new suburban shopping facilities. Growth of the downtown working population has been a significant factor. Retail sales data indicate that some changes are occurring in the relative importance of major retail categories. General merchandise and apparel store sales have declined as a percentage of total retail sales in the CBD. Sales of eating and drinking places and miscellaneous stores (specialty stores) have increased.

Retail sales in downtown Minneapolis are derived from three primary market sources: downtown workers, trade area residents, and downtown visitors. An estimated 100,000 workers in downtown Minneapolis in 1980 produced approximately $140 million in CBD retail sales, or an average of $1,400 per worker. Trade area residents spent an estimated $158 million in retail stores in the Minneapolis Central Business District in 1980.

3/ Based on data supplied by the Minneapolis Building Owners and Managers Association and survey conducted by James B. McComb and Associates.

4/ Metropolitan Council Zone Level Socio-Economic Land Use File. Analysis conducted by Robert J. Harmon and Associates and James B. McComb and Associates, as discussed in Technical Report No. 10 (Reference No. 10), projected that CBD employment would increase to 135,000 in 1990 and 145,000 in 2000. These projections were not accepted by the Metropolitan Council for purposes of the corridor analysis due to conflict with the regional growth allocations.

FIGURE 4-10

CORRIDOR ZONING

RESIDENCE DISTRICTS
- R1
- R2

GENERAL RESIDENCE DISTRICTS
- RA
- R3
- R4
- R5
- R6

OFFICE-RESIDENCE DISTRICTS
- B1

NEIGHBORHOOD BUSINESS DISTRICTS
- B2

COMMUNITY BUSINESS DISTRICTS
- B3

CENTRAL BUSINESS DISTRICTS
- B4

LIGHT MANUFACTURING DISTRICTS
- M1

LIMITED MANUFACTURING DISTRICTS
- M2

HEAVY MANUFACTURING DISTRICTS
- M3



Downtown visitors generated approximately 15 percent of total downtown retail sales dollars in 1980. Downtown visitors are persons who live outside the defined trade area and do not work in downtown Minneapolis; they come to downtown Minneapolis for shopping, business, conventions or meetings, medical appointments and dining.

4.1.6.2 Lake Street Commercial Area

The commercial area around Hiawatha Avenue, Lake Street and 27th Avenue is the only commercial area outside of the Central Business District which would be measurably affected by improvements in the Hiawatha Corridor. Retail establishments in this commercial area are located principally along Lake Street and in the Minnehaha Mall. Establishments located along Lake Street are part of the older shopping district. Minnehaha Mall, including a Target discount department store, opened in 1976 and greatly expanded the attraction of this shopping area.

Estimates of total retail sales for this commercial area in 1972, 1977 and 1980, in current and constant dollars, are shown in Table 4-3. The substantial sales increase between 1972 and 1977 is largely attributable to the opening of Minnehaha Mall and the Target store.

The Lake Street commercial area serves a trade area with a 1980 residential population of 123,600 people. The trade area has suffered a population decline from 144,800 in 1970, a decrease of 14.6 percent. The population of the trade area is expected to stabilize in the 1980's. 1990 population is projected at 124,000 and 2000 population at 125,000.

TABLE 4-3

LAKE STREET COMMERCIAL AREA RETAIL SALES
(Thousands of Dollars)

	Current Dollars	Constant 1980 Dollars*
1972	$11,008	$15,726
1977	46,387	53,318
1980	50,000**	50,000**

* 1972 and 1977 sales adjusted to 1980 dollars using annually adjusted department store deflator index.

** Estimated using confidential sales data.

NOTE: Retail sales less automobile dealers and gasoline service station sales.

SOURCE: U.S. Census of Retail Trade and James B. McComb and Associates.

Total retail purchasing power generated within the trade area is derived from per capita retail expenditures and trade population. Total retail purchasing power for the Lake Street trade area is estimated at $312.6 million in 1980. Sales in the Lake Street area were approximately tely $50 million in 1980. Of this total, $45 million was derived from the trade area.

4.1.6.3 Terminus Service Area

The day-to-day (convenience goods) retail needs of Terminus Service Area residents are currently served by convenience stores and shopping centers located within and near the area. Larger purchase requirements (shoppers goods) are satisfied by major shopping centers and stores mostly located outside the terminus area, such as Burnsville Center, Southdale, Southtown Center, Target and K-Mart.

4.2 PHYSICAL ENVIRONMENT

4.2.1 Air Quality

TH 55 falls within Air Quality Control Region 131 which includes the entire seven-county metropolitan area. This region has been designated nonattainment for sulfur dioxide, particulates, and carbon monoxide. The region is unclassified for photochemical oxidants pending the results of additional ozone monitoring. Of these pollutants, carbon monoxide and ozone can be primarily attributed to transportation sources. Transportation sources have also been found to make a significant contribution to particulate concentrations mainly as a result of reentrained road dust.

The nonattainment status for carbon monoxide stems from monitored violations of the eight-hour state and federal carbon monoxide standard at the intersections of Seventh Street and Hennepin Avenue in Minneapolis and Snelling and University Avenues in St. Paul. The state and federal eight-hour standard is 9.0 parts per million (PPM). Transportation control measures have reduced both the frequency and severity of violations at these intersections in recent years. Carbon monoxide was monitored at three sites along Hiawatha Avenue Corridor for the purpose of determining background concentrations. Monitoring was done at the Northwestern Bell building at the corner of East 33rd Street and 24th Avenue South, at the Native American Indian Center at the corner of 15th Avenue South and Franklin Avenue, and at the Veterans Administration Hospital near Minnehaha Avenue and CSAH 62. The results of the monitoring are summarized in Table 4-4.

TABLE 4-4

HIAWATHA AVENUE CARBON MONOXIDE MONITORING

SITE	1-HOUR CONCENTRATIONS (PPM) Percentile* 50%	90%	99%	Maximum	8-HOUR CONCENTRATIONS Maximum
Northwestern Bell	0.6	1.8	5.5	8.1	6.4
Native American Center	0.9	2.2	4.8	8.8	4.7
Veterans Administration Hospital	0.7	1.6	4.0	4.5	3.6

*This is the percentage of measured concentrations below the specified concentration.

Ozone and other photochemical oxidants are formed through a series of photochemical reactions in the atmosphere. Five violations of the federal ozone standard of 0.120 PPM were monitored in the metropolitan area in 1980 after having no monitored violations in 1979. The ozone monitoring site nearest the project is located in Roseville. This site monitored two violations of the federal standard in 1980; 0.148 PPM on July 15 and 0.135 PPM on July 29.

Particulate concentrations have been monitored near the north and south ends of the corridor. Minnesota Pollution Control Agency (MPCA) site 914 is located at 200 East Franklin Avenue and has been in operation since 1974. Monitored concentrations at this site were within the federal primary standards in 1977, 1978, and 1979. In 1979, the concentration monitored at this site was 56.8 micrograms per cubic meter (ug/m^3) as compared to the federal primary standard of 75 ug/m^3. The 24-hour maximum was 197 ug/m^3 which is below the federal primary standard of 260 ug/m^3 but above the secondary standard of 150 ug/m^3. MPCA site 938 is located at 5401 33rd Avenue South. The concentration monitored for 1979 a this site was 44.7 ug/m^3, and the maximum 24-hour concentration was 172 ug/m^3.

Lead is another transportation related pollutant. Lead concentrations were analyzed from samples taken at MPCA site 914 in both 1977 and 1978. During 1977, the maximum quarterly lead concentration was 1.28 ug/m^3. During 1978, the maximum quarterly concentration was 1.05 ug/m^3. These concentrations are below the federal standard of 1.50 ug/m^3.

4.2.2 Noise

The existing noise environment is dominated by traffic noise sources. A large number of medium and heavy trucks use Hiawatha Avenue both to access industries in the corridor and because Hiawatha Avenue is a designated truck route. This traffic noise impacts the noise sensitive residential land uses found along almost the entire west side of the corridor. The only abatement to existing traffic noise is the buffer of vacant land on the west side of TH 55 which was purchased and cleared for proposed highway construction.

Another source of noise in the area is the Minneapolis-St. Paul International Airport located at the south end of the corridor. Noise from aircraft operations has an impact on most residential areas of south Minneapolis. However, abatement measures including quieter aircraft, modified takeoff and landing procedures, and preferential runway use to avoid residential areas have reduced this impact in recent years.

Existing noise levels have been established both through monitoring and modeling of traffic noise sources. The modeling results for the existing situation are presented in Section 5.1.10 for comparison with predicted future noise levels. Noise monitoring was conducted at ten sites in the corridor using a statistical sound level analyzer. The results of the monitoring are shown in Table 4-5. Site numbers 8 and 10 exceeded the state daytime standards of L_{50} 60 and L_{10} 65. Site number 3 exceeded the state nighttime standard of L_{10} 55 but was within the L_{50} 50 nighttime standard. The remainer of the sites were at or below the applicable state standards.

4.2.3 Parklands and Recreation Areas

4.2.3.1 Minneapolis Parks

Within the City of Minneapolis, there are 145 designated parks and open spaces including golf courses and city-owned recreational fields. The park system, under the control of the Minneapolis Park and Recreation Board (MPRB), consists of 5,553 acres. Also within the city are 20 regional trails and local parkways which have a total length of 55.1 miles.

The Minneapolis park system provides facilities and services at two levels. At the local level are community and neighborhood recreational facilities which primarily serve city residents. These facilities include city parks and parkways, community parks and recreation centers, mini-parks, squares, triangles and special recreational facilities. Regional level parks and parkways are based on natural resources such as lakes, creeks or rivers. These facilities are used not only by city residents but by persons from throughout the metropolitan area. Some funding for acquisition and development is provided by the Metropolitan Council and the Federal Land and Water Conservation Fund. Operation and maintenance is the responsibility of the MPRB.

Figure 4-11 shows the locations of the recreational sites in the project study area, and Table 4-6 summarizes the recreational opportunities available.

Six parks of local significance are within the study area: Wenonah Triangle, Adams Triangle, Rollins Triangle, Cedar Avenue Field, East Phillips Park and Normanna Triangle. A special local park under the jurisdiction of the Little Earth of United Tribes, Inc. serves the recreational needs of this community. This park has an outdoor powwow area, the only one of its kind in the Twin Cities area.

TABLE 4-5
SOUND MONITORING RESULTS

Site	Measurement Location	Distance to Center of Near Lane (Feet)	Time	Date	Monitored Sound Level - dBA[1] L_{50}	L_{10}	Comment
1	E. of Minnehaha Ave. & 130' S. of old Train Depot	42' - Minnehaha Ave.	4 PM-5 PM	5/13/80	61	66	
2	E. of S. 38th Ave. & N. of Minnehaha Pkwy.	32' - S. 38th Ave.	3 PM-4 PM	5/12/80	54	61	Aircraft Flyover
3	E. of Dight Ave. & N. of E. 43rd St.	12' - Dight Ave. 60' - E. 43rd St.	4 PM-5 PM[2] 6 AM-7 AM[2]	6/19/80 6/20/80	50 48	60 56	
4	W. of Hiawatha Ave. & S. of E. 37th St.	192' - Hiawatha Ave.	4:30 PM-5:30 PM	5/14/80	59	62	Train Whistle and Fire Truck Siren
5	W. of Hiawatha Ave. & S. of E. 32nd St.	90' - Hiawatha Ave. 110' - E. 32nd St.	4:30 PM-5:30 PM	5/22/80	58	63	
6	E. of Dight Ave. & S. of E. 36th St.	14' - Dight Ave. 110' - E. 36th St.	4:30 PM-5:30 PM	6/3/80	56	62	
7	W. of Hiawatha Ave. & N. of E. 29th St.	50' - Hiawatha Ave. 170' - E. 29th St.	4:30 PM-5:30 PM	5/21/80	59	65	Train
8	W. of Hiawatha Ave. & N. of E.25-1/2 St.	90' - Hiawatha Ave. 70' - E. 25-1/2 St.	3:30 PM-4:30 PM	5/20/80	60	66	Train
9	W. of Riverview & N. of 54th St.	25' - Riverview	3 PM-4 PM- 6 AM-7 AM	5/5/81 5/6/81	50 49	55 53	
10	W. of 46th Ave. & N. of 58th St. [3]	20' - 46th	4 PM-5 PM	5/27/81	65	71	

[1] The values shown represent the highest hourly sound levels that were monitored. In most cases, monitoring was conducted for a 2-hour period. Twenty-four hour monitoring was conducted at Site 3.

[2] These time periods represent the noisiest daytime and nighttime hours out of 24 hours of monitoring at this site.

[3] This site is located just outside of the study area.

Minnehaha Park, Longfellow Gardens and Minnehaha Parkway are part of the Minneapolis regional park and parkway system. Local funding is used for operating Longfellow Gardens but its relationship to Minnehaha Park and the parkway make it part of the regional parkway system.

Minnehaha Park is the most important recreational facility in the study area. Use of the park amounts annually to 476,000 user visits, 257,000 of which occur between Memorial Day and Labor Day. Length of stay in the park depends upon the activity. Minnehaha Park is also the location of Minnehaha Falls, a 60-foot high falls on Minnehaha Creek that is a major regional scenic attraction; tourists and residents alike visit the park to view and photograph this natural feature.

In addition to its natural features and recreational amenities, Minnehaha Park provides a location for group activities and celebrations by civic and cultural organizations. Minnehaha Park is part of a city-wide parkway system which provides scenic linkages for vehicles, pedestrians, and bicyclists with other recreational facilities.

TH 55 parallels the western boundary of Minnehaha Park and then crosses through it at Minnehaha/Godfrey Parkways, separating the Longfellow Gardens area from the balance of the park. Northern States Power Company holds a 75-foot wide power transmission line easement through the park. This 115 kv line parallels TH 55 to its junction with 52nd Street, then continues parallel to the river at the top of the bluff.

The utility of Minnehaha Park has been negatively affected by factors connected with TH 55. The poor image and traffic problems of TH 55 diminish the real and perceived ability of corridor residents to gain safe and attractive access to the park. TH 55 and assorted access roads constitute physical barriers to efficient utilization of large areas within the park. The current road system fragments a portion of the park to such a great degree that several areas become virtually useless.

Minnehaha Avenue, which passes through the park parallel to TH 55, is closed to truck traffic but is used heavily by cars. The park's main entrance is located on Minnehaha Avenue at the northwest corner of the park near Minnehaha Falls.

4.2.3.2 State and National Parks/Recreation Areas

Fort Snelling State Park lies near TH 55 south of Minnehaha Park. Funds for operation of Fort Snelling State Park are provided by the Minnesota State Legislature. The park lies on the west side of the Mississippi River, and includes both sides of the Minnesota River from its junction with the Mississippi River upstream to just above I-494 on the west side and to Cedar Avenue on the east. Over two million people reside within a 70-mile radius of the park. An estimated 600,000 persons visited the park in 1975.

HIAWATHA AVENUE
Location and Design Study

NORTH

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FIGURE 4-11A

HISTORIC, RECREATIONAL & OPEN SPACE PROPERTIES

- HISTORIC DISTRICT
- HISTORIC SITE
- POTENTIAL HISTORIC SITE
- RECREATION AND OPEN SPACE
- PROPOSED ROADWAY ALIGNMENT ALTERNATIVE
- PROPOSED LRT ALIGNMENT ALTERNATIVE
- PROPOSED LRT TRANSIT MALL ALTERNATIVE

HISTORIC SITES

1 F.C. HAYER COMPANY
2 BUTLER BROTHERS BUILDING
3 MASONIC TEMPLE/MERCHANDISE BUILDING
4 LUMBER EXCHANGE
5 FOSHAY TOWER
6 DAIN TOWER
7 FARMERS AND MECHANICS BUILDING
8 MINNEAPOLIS CITY HALL
9 THE FLOUR EXCHANGE
10 MILWAUKEE ROAD R.R. DEPOT & TRAIN SHED
11 THE GRAIN EXCHANGE
12 PITTSBURGH PLATE GLASS COMPANY
13 ADVANCE THRESHER/EMERSON-NEWTON PLOW CO. BLDGS.
14 DANIA HALL
15 FARMERS and MECHANICS BANK
16 MINNEAPOLIS ARMORY
17 GLUEK BUILDING
18 R.F. JONES HOUSE
19 MINNEHAHA FALLS
20 MINNEHAHA DEPOT
21 JOHN H. STEVENS HOUSE
22 WHISKEY'S GRAVE

ST. ANTHONY FALLS HISTORIC DISTRICT
WAREHOUSE PRESERVATION DISTRICT
GOVERNMENT CENTER
ELLIOT PARK
PARK
WEST RIVER PARKWAY
RIVERSIDE PARK
MURPHY SQUARE
PARK
NATIVE AMERICAN PARK
EAST PHILLIPS PARK
MILWAUKEE AVE. HISTORIC DISTRICT
MATTHEWS PARK
NORMANNA TRIANGLE
CEDAR AVE. FIELD
ROLLINS TRIANGLE
MATCH LINE "A"
MATCH LINE "A"
ADAMS TRIANGLE
HIAWATHA PLAYGROUND
MINNEHAHA PARKWAY
MINNEHAHA PARK
MINNEHAHA HISTORIC DISTRICT
LONGFELLOW GARDENS
MINNESOTA SOLDIERS HOME HISTORIC DISTRICT
WENONAH TRIANGLE
HIDDEN FALLS PARK
(AREA OF OVERLAP)
HIDDEN FALLS PARK
FORT SNELLING HISTORIC DISTRICT
MATCH LINE "B"
FORT SNELLING STATE PARK

FIGURE 4-11B

HISTORIC, RECREATIONAL & OPEN SPACE PROPERTIES

HIAWATHA AVENUE
Location and Design Study

NORTH

FEET
0 500 1000 2000 3000

HISTORIC DISTRICT

RECREATION AND OPEN SPACES

PROPOSED LRT ALIGNMENT ALTERNATIVE

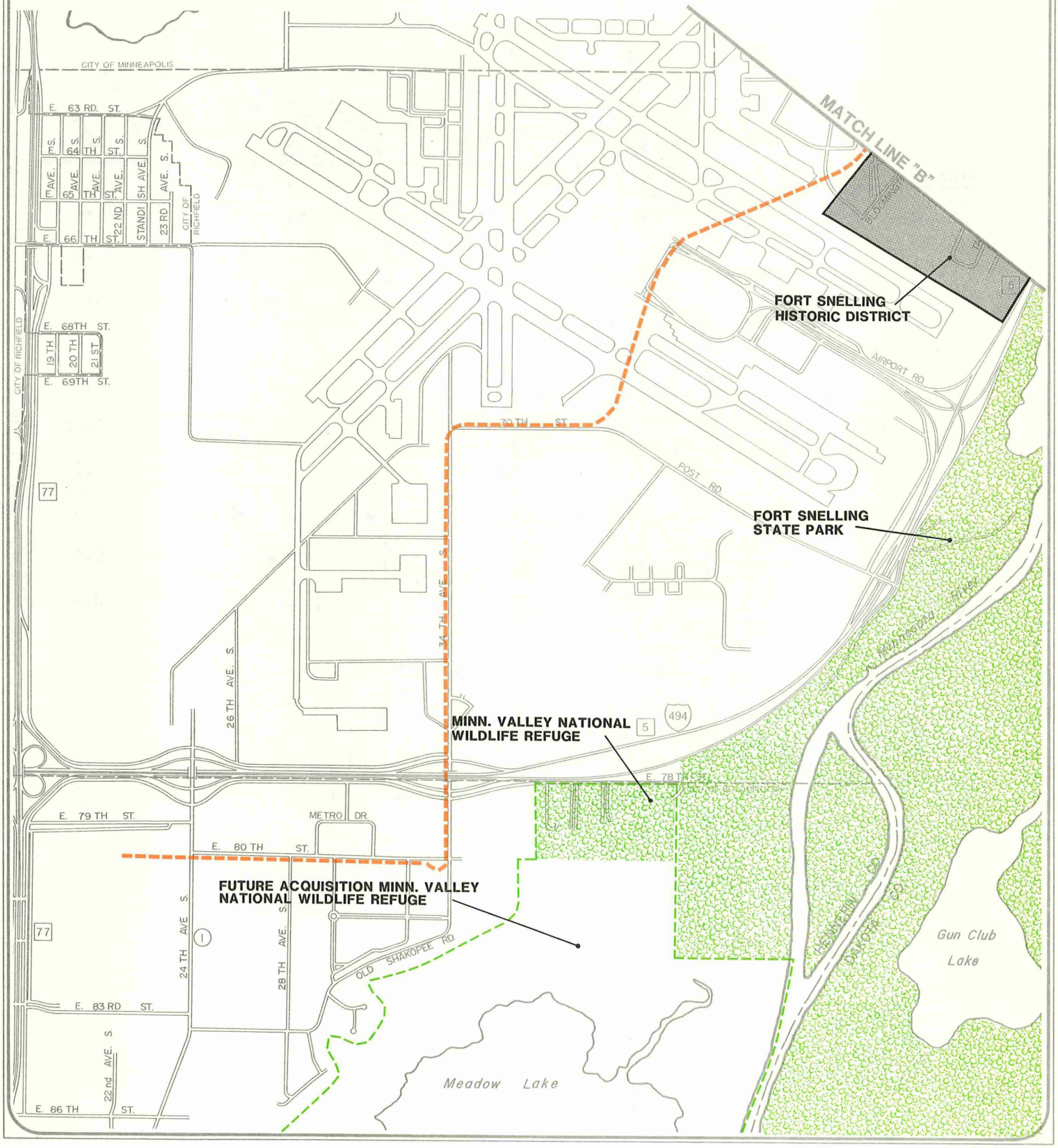


TABLE 4-6

PARK AND RECREATIONAL FACILITIES

	Level	Restrooms	Swimming Pool-Beaches	Hiking/Walking	Tennis Courts	Drinking Water	Athletic Field	Playground	Picnic Shelter	Picnic Tables	Recreational Building	Nature/Wildlife	Special Facilities	Benches	Other	Acres
Minneapolis Parks																
Minnehaha Park	R	●		●	●	●	●	●	●	●		●	●		FL	171.2
Minnehaha Parkway	R			●												235.2
Wenonah Triangle	L													●		0.1
Longfellow Gardens	R														G	4.6
Adams Triangle	L													●		0.3
Rollins Triangle	L													●		0.05
Cedar Ave. Playground	L						●	●						●	BDG	1.7
East Phillips	L	●	WP		●	●	●	●		●	●				BDFGH	6.9
Normanna Triangle	L													●		0.1
Native American Center Park	L														BC	2.0
Elliot Park	L	●	WP		●	●	●	●		●	●				BDFGH	6.9
State and National Parks/Recreation Areas																
Fort Snelling State Park	S	●	●	●		●				●		●			IJ	3,265
Minnesota Valley National Wildlife Refuge/Recreation Area	N	●		●		●			●	●		●	●		CIJ	15,800

KEY

L - Local
R - Regional
S - State
N - National
B - Baseball/Softball
C - Outdoor Crafts/Lore
D - Basketball
E - Sliding Hill
F - Horseshoes
G - Skating
H - Hockey
I - Interpretive Programs/ Center
J - Boat Launch
WP- Wading Pool

The Minnesota Valley National Wildlife Refuge/Recreation Area, a recreation feature of national significance, is located on both sides of the Minnesota River from Fort Snelling State Park to Jordan, Minnesota. It combines federal, state and local recreational facilities into a single coordinated recreational planning and management effort. This represents the first time that the U.S. Fish and Wildlife Service used this approach anywhere in the nation. When all parcels are acquired, the system will include 15,800 acres. Refuge headquarters are located south of I-494 and east of Old Shakopee Road. This is to be the location of a major visitor/interpretive center for the Minnesota Valley.

4.2.4 Historic and Archeological Sites

Numerous historic sites (Figure 4-11) are located in the Hiawatha Avenue project area. Historic and archeological features of the area are discussed in greater detail in Sections 6 and 7 of this document.

The Minnehaha Historic District is a particularly significant site; within the district are preserved several historic sites which represent commercial, transportation, architectural and pioneering themes. Included are the Minnehaha Falls and Glen, Minnehaha (Princess) Station, Minnehaha Park, Stevens House, and R. F. Jones (Longfellow) House.

Historic Fort Snelling, established as a strategic military command post overlooking the confluence of the Minnesota and Mississippi Rivers, was constructed in the early 1800's. The area was used extensively for military purposes until after World War II. Following the war, use of the Fort Snelling complex declined until today only a few military reserve units are based there. The historic fort has been restored by the Minnesota Historical Society and is used for the interpretation of military history in Minnesota during the 1800's. The field area near the junction of CSAH 62 and TH 55 was likely used for a variety of military purposes including pasture for horses and mules, gardens, military training grounds and space for Indian encampments. It is possible that archeological artifacts are present in the field area.

4.2.5 Water Quality

There are two major surface water bodies which would be affected by construction along the Hiawatha Avenue Corridor: Minnehaha Creek, near the southern boundary of the study, and the Mississippi River, which receives all of the area's stormwater runoff.[5/] Minnehaha Creek is classified as a recreational use stream, and its water quality is generally acceptable for this classification. The Mississippi River in this vicinity is classified as an industrial class stream, and its water quality often does not conform to applicable state standards. Hardness, copper, turbidity, and fecal coliforms often exceeded the standards during the September 1976 to September 1977 sampling period.

5/ Reference No. 17.

There is a history of flooding of Minnehaha Creek near the project area, and the Federal Emergency Management Agency estimates that the 100-year flood inundates about seven acres of residential land just upstream of the Minnehaha Parkway bridge. No portion of the study area is in the floodplain of the Mississippi River.

Groundwater drawn from the study area is primarily stored in the Prairie Du Chien-Jordan formation. Groundwater quality tends to be very hard and high in iron and manganese. Well water is used for institutional, commercial and industrial purposes.

From March 1972 to April 1973 the Minnesota Highway Department performed exploratory drilling near the Hiawatha Avenue-Minnehaha Creek intersection to study the geohydrology in the Minnehaha Park area. Consulting Hydrologist Bruce A. Liesch studied logs from these wells and prepared a report of his findings.6/ The study includes a description of the geohydrologic setting of the site and recommends a dewatering system design and operation.

4.2.6 Visual Environment

TH 55 functions as a major gateway into the Minneapolis CBD. Travelers enter the CBD from the Minneapolis-St. Paul International Airport and Highway 52 (providing direct connections to Rochester and Wisconsin via I-90). Thus TH 55, in addition to being a major commuting route through a number of residential neighborhoods, represents the first exposure to the city that many visitors experience. Unobstructed views of the Minneapolis CBD exist at several locations along the corridor.

TH 55 generally presents a dismal visual image. This image is not representative of a city with a highly developed park system, desirable neighborhoods, and a vital CBD.

For most of its length, the Hiawatha Avenue Corridor could be described as a wasteland of industrial structures (grain elevators, lumber yards, transmission lines, and the Milwaukee Road rail yard) vacant lots filled with scrub vegetation (MnDOT right-of-way previously acquired) and uncoordinated "strip" commercial development (Lake Street). Much of the housing is visible from the roadway is in poor condition, which serves to reinforce the dismal visual image. Landscaping along most of the corridor is in poor condition or simply nonexistent.

The only areas which offer an aesthetically pleasing visual image are the VA Medical Center grounds and the segment through Minnehaha Park. Even in these areas, Minnehaha Park suffers from an excess of roadways, and intrusion by a high voltage power line.

The photographs in Figure 4-12 are representative of the visual environment along the Hiawatha Avenue Corridor. Views of the road vary depending upon distance, sight lines and screening.

6/ Groundwater Investigation for Minnesota Highway Department at Minnehaha Park Tunnel, 1973.

A large percentage of the corridor is visually protected from sensitive receptors to the east such as homes, public buildings, parks, and shopping areas by a linear pattern of heavy industrial and warehouse uses. Most of these uses are visually unappealing themselves, but they effectively block sight lines.

Major areas of visual exposure are located on the western edge of the corridor where the right-of-way cuts through several residential neighborhoods. Other sensitive receptors include Minnehaha Park, major bisecting thoroughfares, high-rise structures, and the residential area at 54th Street.

4.2.7 Climate

The Minneapolis area has a temperate, continental climate with a mean annual temperature of 45° F. Temperatures range from a minimum monthly average of 13° F in January to a maximum monthly average of 75° F in July. The average minimum and maximum temperatures for January are 3° F. and 21° F. For July, the average minimum and maximum temperatures are 61° F and 82° F.

Precipitation ranges from an average of 0.8 inches in February to an average of 3.9 inches in June. The mean annual precipitation is 25.44 inches which includes an average annual snowfall of 40.3 inches. Approximately 65 percent of the average annual precipitation occurs from May to September.

The average wind speed in the area is 10.5 miles per hour. Prevailing winds are from the northwest in winter and from the southeast in summer. Winds are generally strongest in the spring and weakest in the summer. The area is subject to tornadoes at infrequent intervals.

The months of April through October have a mean relative humidity of 60 to 76 percent.

4.3 LAND USE PLANNING

4.3.1 Planning Responsibilities

The Twin Cities Metropolitan Area includes the seven counties of Anoka, Carver, Dakota, Ramsey, Scott, Washington and Hennepin, as shown on Figure 1-1. The Twin Cities of Minneapolis and St. Paul form the hub of the area with St. Paul serving as the Capitol of Minnesota. In 1973, a ten-county SMSA (Standard Metropolitan Statistical Area) was created by adding Chisago and Wright counties in Minnesota, and St. Croix County in Wisconsin.

In 1967, the Minnesota Legislature established the Metropolitan Council and designated it as the Metropolitan Planning Agency with responsibility for a continuous, comprehensive and cooperative planning process resulting in coordination of planning and metropolitan area development.

The state legislature has also created other agencies that have responsibility for the planning and management of regional systems. Agencies having direct and indirect authority over any portion of the Hiawatha Avenue corridor or potential transportation improvement are listed below.

City of Minneapolis. The major portion of proposed transportation improvements lies within the City of Minneapolis. The city has the responsibility for developing analysis of transportation alternatives and preparation of environmental impact statement. The city developed the City Comprehensive Plan and individual neighborhood plans to guide development. The city will provide input through the Hiawatha Avenue Task Force, Public Works Department, Community Development Agency and City Council.

Minneapolis Park and Recreation Board. This semi-autonomous authority has direct responsibility over city parks and recreation facilities.

City of Bloomington. One of the LRT options under consideration extends into the City of Bloomington. The City is currently engaged in promoting redevelopment of the Metropolitan Stadium site, which would be the LRT terminus under one subalternative.

Minnesota Department of Transportation (MnDOT). Planning and design input for the analysis of transportation alternatives is provided by MnDOT. Because the project involves a State Highway (TH 55), MnDOT will have responsibility for implementing the chosen roadway alternative. MnDOT has ownership over large portions of land extending beyond the potential highway right-of-way. While several portions remain to be acquired, most of the right-of-way is currently controlled by MnDOT and has been cleared.

Hennepin County Department of Transportation. Hennepin County has direct authority over CSAH 62 (Crosstown Highway), which will be redesigned at the southern terminus of Hiawatha roadway improvements.

Metropolitan Airports Commission (MAC). MAC is the regional airport authority and manages the Twin Cities International Airport.

U.S. Veterans Administration. The VA Medical Center occupies a site near the southern terminus of the Hiawatha Avenue Corridor. The facility would be affected by any variation of roadway, HOV and LRT improvements under consideration.

U.S. Department of Interior, Bureau of Mines. The Bureau of Mines maintains a large research facility at the southern end of the Hiawatha Avenue Corridor. The facility would be directly affected by proposed roadway and HOV alternatives.

U.S. General Services Administration (GSA). The GSA maintains an office complex at Fort Snelling. The complex would be affected by all transportation alternatives.

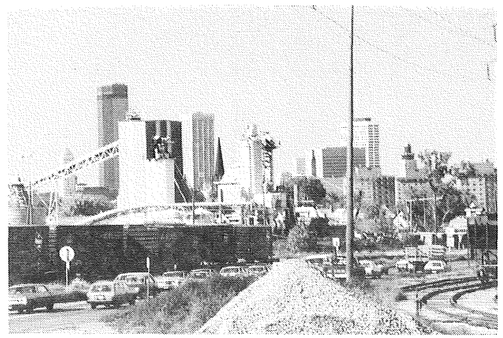
Minnesota Air National Guard. This agency operates facilities within the Fort Snelling/Minneapolis St. Paul International Airport complex.

Air Force Reserve. The Air Force Reserve operates facilities within the Fort Snelling/Minneapolis-St. Paul International Airport complex.

U.S. Army. The army operates facilities within the Fort Snelling/Minneapolis-St. Paul International Airport complex.

FIGURE 4-12

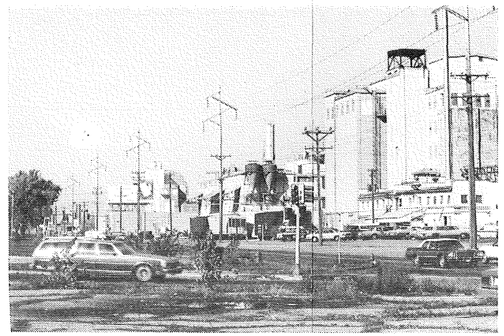
VISUAL ENVIRONMENT



Milwaukee Road Rail Yard Looking Northwest Towards CBD



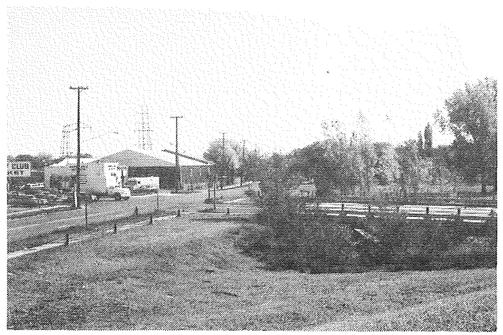
Milwaukee Road Rail Yard Looking Northeast Towards Cedar-Riverside



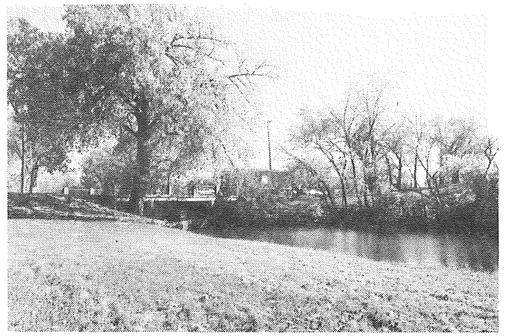
36th Street Area Looking North Towards Industrial Strip



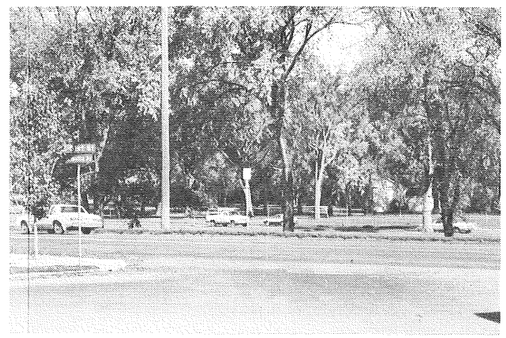
43rd Street Area Looking North Towards Industrial Strip



46th Street Area Looking Southeast Towards Commercial Node



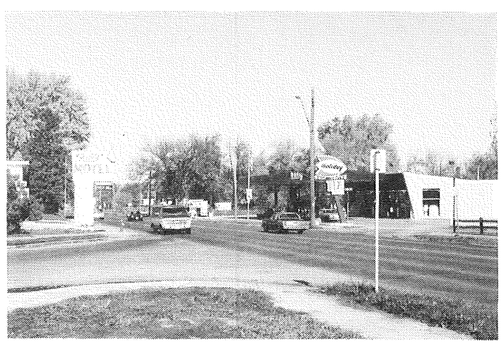
Minnehaha Park Looking East Towards Minnehaha Creek Bridge



51st Street Area Looking Northeast Towards Minnehaha Avenue



52nd Street Area Looking North Towards Minor Commercial Node



53rd Street Area Looking North Towards Commercial Node



Veterans Administration Medical Center Area Looking Southwest

U.S. Naval Reserve. The Naval Reserve operates facilities within the Fort Snelling/Minneapolis-St. Paul International Airport complex.

Minnesota Department of Natural Resources, Division of Parks and Recreation. The Division of Parks and Recreation is responsible for the planning and management of Fort Snelling State Park. A portion of the State Park lies adjacent to TH 55.

Minnesota Historical Society. The Minnesota Historical Society is responsible for the administration and management of historic Fort Snelling.

4.3.2 Land Use Plans

Facilities such as TH 55 and the CSAH 62 extension have been anticipated by the Metropolitan Council, Hennepin County and the Cities of Minneapolis and Bloomington for some time. Identification and discussion of various project alternatives continue to occur at the local level. The current status of planning is summarized below.

4.3.2.1 Regional

The entire primary and secondary impact areas of the TH 55 project are located within the "Metropolitan Urban Service Area" as defined by the Metropolitan Council's Development Framework Plan. This designation allows governmental agencies to provide support for development and redevelopment.

The need for improved subregional and regional access links between the Minneapolis-St. Paul International Airport and downtown Minneapolis has been identified in the Metropolitan Council's Transportation Policy Plan. The Council has based its regional plans and projections upon the completion of TH 55 and CSAH 62. The projects are a part of the Metropolitan Development Guide adopted by the Metropolitan Council in 1976.

The Great River Road Master Plan has designated Godfrey Road, part of Minnehaha Avenue south from Godfrey Road to Park Drive, Park Drive, and East 54th Street from Park Drive to TH 55 as part of the Great River Road System. Both are within the Hiawatha Avenue Corridor. The purpose of this alignment is to emphasize the scenic aspects of the Mississippi River Gorge and to provide direct accessibility to Minnehaha Park and Falls. A multi-use corridor trail is proposed which will utilize the abandoned Chicago, Milwaukee St. Paul and Pacific railroad right of way. The trail will be used for hiking, biking and cross-country skiing and would provide a trail link between Minneapolis Park Board trails with Fort Snelling State Park and the Minnesota Valley Trail. No acquisition is recommended in this area which would require the use of Great River Road funds.

4.3.2.2 Hennepin County

Hennepin County is in the process of preparing a comprehensive plan as required by the Metropolitan Land Planning Act; no plans are yet available for review. The County, however, is coordinating planning efforts with those of MnDOT and the City of Minneapolis, especially with regard to the construction of the proposed CSAH 62 extension.

4.3.2.3 City of Minneapolis

The majority of land in Minneapolis will remain in the same use with the implementation of Minneapolis' land use plan. Each Minneapolis planning district (Figure 4-1) is responsible for submitting an overall development plan to the city which defines its socioeconomic and physical development needs. The following paragraphs summarize the land use plans of the districts and neighborhoods which comprise the Hiawatha Avenue Corridor.

The plan for the corridor segment located within the Cedar-Riverside/West Bank Neighborhood of the University Planning District notes that, primarily due to the large college age population, there is a relatively low percentage of owner occupied and family housing in the area. A planning goal is to increase population stability by attracting more families having long-term commitments to the neighborhood. The area has a concentration of poorly maintained housing stock requiring rehabilitation or replacement. Citizen groups have been extremely active in this neighborhood and plan an active role in formulating long-range plans.

Within the Phillips Planning District west of TH 55, the land use plan indicates a significant change in that the rail yards will convert to light industrial uses. The City of Minneapolis has a severe shortage of land available for industrial growth. The rail yard conversion has already begun to occur along Minnehaha Avenue in the northeast section of the yard where the city has managed to acquire, clear and resell some acreage. The city is actively pursuing the acquisition of other land in the yard. In other respects the plan advocates the maintenance of the status quo.

City plans do not indicate that any changes in land use are proposed for the Longfellow and Nokomis Planning Districts (which contain corridor segments 4 and 5 and parts of segment 3, described in Section 4.1.5).

4.3.2.4 City of Bloomington

The Metropolitan Stadium will be dismantled in 1982 to make way for a large development. The City of Bloomington has developed the Airport South District Plan[7/] for the area, which suggests that ultimate development of the area may include a mixture of offices, manufacturing and warehouse space, housing and hospitality services. The Metropolitan Sports Center (home of the Minnesota Northstars), also located on this site, will remain in the foreseeable future.

7/ Airport South District Plan, City of Bloomington, 1980.

5.0 ENVIRONMENTAL CONSEQUENCES

5.0 ENVIRONMENTAL CONSEQUENCES

5.1 ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

5.1.1 Neighborhood Cohesion

Some benefits to neighborhood cohesion would occur under the build alternatives for the Hiawatha Avenue Corridor.

- Residential development, coupled with the improved image of the corridor, would induce revitalization of neighborhoods and neighborhood commercial nodes. Industrial uses along the east side of the roadway which presently underscore the barrier effect of TH 55 would, to a certain extent, be replaced through development pressures by medium density housing, especially near the LRT station areas under Alternative 4. Development pressures would also bring about the productive use of currently vacant land, thus further reducing the barrier effect.

- Improved access under Alternatives 3 or 4 would facilitate inter-neighborhood travel.

- Increased recreational opportunities associated with the linear open-space buffer along TH 55 would, under all build alternatives, result in a positive effect on neighborhood cohesion.

Noise walls required as a mitigative measure under all build alternatives would reinforce the barrier effect of TH 55, and so result in a negative impact on neighborhood cohesion. The barrier effect would also be underscored under Alternatives 1 or 2; inter-neighborhood travel would be impeded by these alternatives, since they require a wider right-of-way and fewer intersections than do the other alternatives under consideration.

5.1.2 Transportation Impacts

Transportation impacts of the TH 55 alternatives can be considered in four categories:

- Satisfaction of local and regional transportation goals.

- Level of service provided to motorists.

- Level of service provided to transit users and other ridesharers.

- User benefits

5.1.2.1 Local and Regional Transportation Plans

The role of the Hiawatha Avenue Corridor portion of TH 55 in the transportation plans of the City of Minneapolis and the Metropolitan Council is

fully described in Sections 2.2 and 2.3 of this document. All current transportation plans call for the upgrading of this portion of TH 55 and completion of CSAH 62 in order to provide good access to other parts of the region for residents and businesses located in the corridor, and to provide a safe and efficient route between points north and south of the corridor (in particular, the Minneapolis CBD and Minneapolis-St. Paul International Airport).

The role of transit in regional and local transportation planning is also described in Sections 2.2 and 2.3. Increased use of public transportation and ridesharing are vital parts of the overall strategy of encouraging efficient use of the transportation system.

The roadway improvement proposed under each of the four build alternatives would meet the need for (a) local access, with at-grade intersections, and (b) safe and efficient through travel, with properly placed signals, grade-separation at critical locations (CSAH 62 and the railroad tracks), and provision of a new roadway to replace one with substantial physical defects which affect vehicle safety and operation.

The selection of Alternative 5, no-build, would retain a narrow, deteriorating roadway which is wholly inadequate to serve even the lower level of traffic demand expected under that alternative, which currently has, and will likely continue to have a higher than average accident rate, and which therefore, does not support regional and city goals of accessibility and safety in this corridor.

As described in Section 2.2, many of the region's and the city's goals relate to more efficient use of transportation resources through increased use of public transit, and by increased ridesharing. The build alternatives would have varying degrees of success in supporting these goals.

The base against which the degree of success of other alternatives is measured is the no-build situation, Alternative 5. As shown in Table 5-1, about 44,100 transit person-trips are expected in the base case. In that case, it is assumed that no specific improvements are made to corridor transit service other than to provide the number of buses required to carry that level of patronage.

The first level of transit improvements considered in this analysis is represented by Alternative 3, in which the transit system would remain essentially as is (except for increased frequency to serve increased ridership), but street improvements would be made to improve bus operations. No increase in transit ridership is expected as a result of the street related transit improvements. The two percent increase in transit ridership shown in Table 5-1 represents transit trips generated by development which would not occur under the no-build alternative.

TABLE 5-1

YEAR 2000 TRANSIT PATRONAGE - HIAWATHA CORRIDOR

Alternative	Transit Person-Trips per Average Weekday	Change From No-Build
1 - Roadway and HOV Roadway At Grade	48,500	+ 10%
2 - Roadway and HOV Roadway Grade Separated	48,500	+ 10%
3 - Roadway and Bus System Improvements	45,000	+ 2%
4 - Roadway and LRT		
• GSA Building Terminus	56,500	+ 28%
• Airport Terminus	58,500	+ 33%
• Bloomington Terminus	61,500	+ 39%
5 - No-Build	44,100	-

Alternatives 1 and 2, the HOV roadway alternatives, represent the next level of transit related improvement. The HOV roadway presents an opportunity to provide transit service along Hiawatha Avenue and to use the HOV roadway for express transit service to and from southern parts of the corridor and areas beyond the corridor. The analysis showed that while the Hiawatha Avenue Corridor may provide a shorter route length for the longer express bus routes now using I-35W, there was no noticeable travel time savings which would induce higher transit ridership. As with Alternative 3, the increase in transit ridership expected under Alternatives 1 and 2 represents travel generated by development in the corridor which would not occur there under the no-build alternative.

The shorter travel times on Hiawatha Avenue under Alternative 2 is also expected to increase ridesharing in the corridor. Vehicular volumes are expected to be about six percent lower under Alternative 2 than under Alternative 3.

Implementation of Alternative 4, which includes construction of a light rail transit line in the corridor, would have a significant impact on corridor transit patronage. As shown in Table 5-1, depending on which south terminus subalternative is selected, transit ridership would be between 28 percent and 39 percent higher than under the no-build alternative.

In terms of roadway improvements, all build alternatives support the goals of the region and the city, while the no-build alternative does not support these goals. Bicycle and pedestrian paths included in the linear open space buffer under the build alternatives will provide a safe, efficient means of bicycle and pedestrian travel to and from major activity centers

associated with the corridor. In terms of transit improvements, if transit patronage and vehicular traffic volumes are used for evaluation, Alternative 4 best supports goals of increasing transit patronage and ridesharing, followed by Alternative 2, Alternative 1 and Alternative 3, with Alternative 5 providing the least support for these goals.

5.1.2.2 Level of Service Provided to Motorists

In making a trip, a driver has three basic needs for which the roadway system should provide:

- There should be a more-or-less direct route between origin and destination.
- The route should have sufficient capacity to serve the combined demand of all drivers using the route.
- The physical condition of the roadway should allow a comfortable and secure ride.

The performance of the TH 55 alternatives relative to these three criteria is described below:

Route Availability. Although there is a route available under each of the alternatives, availability is an issue in this analysis because of the perceived difference in availability between the no-build alternative and the build alternatives. Traffic volume forecasts indicate that approximately 60 percent of the trips which would use TH 55 under any of the build alternatives would not use TH 55 under the no-build alternative. These trips would have longer trip lengths and travel time via the alternate route than would be available via TH 55 under the build alternatives. A typical diverted trip is one between the Minneapolis CBD and the airport. At the present time and under the no-build alternative, many of these trips use I-35W and CSAH 62. The trip via TH 55 is about three miles shorter, but people do not and probably would not use it in its present condition. Due to its physical condition, drivers do not consider it an available route. Under the build alternatives, however, the travel time via TH 55 would be competetive with other routes, and drivers would have a shorter route available to them for their trips.

Volume to Capacity Ratio (V/C). For a roadway facility with at-grade signalized intersections, the capacity of the roadway as a whole is normally controlled by the capacity of the signalized intersections. The critical intersections are those for which cross street traffic demand is the highest. In the TH 55 corridor, the critical intersections are 24th Street, Lake Street, 46th Street and CSAH 62. The calculated volume to capacity ratios at these intersections for each alternative are given in Table 5-2.

TABLE 5-2
YEAR 2000 VOLUME TO CAPACITY RATIOS 1/
(P.M. Peak Hour)

Intersection of TH 55 with:	Alternative 1	2	3	4	5 (No-Build) 2/
24th Street	0.70 3/	0.68 3/	0.87	0.84	0.76
Lake Street	0.91	0.88	1.00	0.96	1.00
46th Street	0.72	0.68	0.80	0.75	0.73
CSAH 62	4/	4/	4/	4/	1.25

1/ Capacity at Level of Service "D".

2/ No-build traffic volumes are about 60 percent of build traffic volumes.

3/ An additional traffic lane in each direction is provided as part of HOV facility.

4/ Interchange.

The analysis shows that all alternatives provide what is generally considered to be an acceptable peak hour level of service for the expected level of traffic with the exception of the no-build alternative at the intersection of CSAH 62. Without the interchange proposed under the build alternatives, the intersection of TH 55 and CSAH 62 would experience demand well over its capacity, resulting in severe congestion and long delays for drivers using that intersection during peak hour traffic periods each day.

Alternatives 1 and 2 provide slightly higher levels of service (lower V/C ratios) on TH 55 than other build alternatives, because a portion of the travel takes place on the separate HOV roadway. Alternative 4 provides a slightly higher level of service than Alternative 3 due to the higher level of transit patronage expected under Alternative 4.

Driving Conditions. One aspect of level of service to motorists is the condition of the roadway facility. A roadway on which a driver feels comfortable is one which provides at least minimum physical dimensions and characteristics.

As it now exists, TH 55 in the study area lacks many of the minimum physical dimensions and characteristics needed for basic driver comfort. For most of its length, TH 55 has ten-foot wide driving lanes, two feet less than the current standard. The pavement is badly deteriorated, resulting in a very rough ride, and additional maintenance for both the roadway and the vehicles which use it. There are many erratic movements by some drivers.

There are very few turn lanes on TH 55, and turning vehicles frequently interrupt traffic flow. The at-grade railroad crossing near 29th Street

regularly stops traffic, including during peak traffic periods. Truck movements into and out of the commercial development along the east side of TH 55 also interrupt traffic flow, and are sometimes hazardous.

The TH 55 build alternatives would mitigate or eliminate the conditions described above. The roadway which would be constructed under these alternatives would have full-width lanes, a median, turn lanes, many fewer intersections, a grade separation of the railroad tracks, and a continuous, northbound right-turn lane to better accomodate vehicles turning into and out of commercial and industrial sites located on the east side of Hiawatha Avenue between Godfrey Boulevard and Lake Street. These alternatives would provide nearly ideal driving conditions for drivers in the corridor.

5.1.2.3 Level of Service Provided to Transit Users and Ridesharers

An important goal of this study has been the provision of incentives and opportunities for transit users and ridesharers. As a measure of support of this goal by each alternative, estimates were made of the number of vehicle trips removed from corridor roadways because of diversion to ridesharing and transit (Table 5-3). Alternative 5 (no-build) was used as a base.

TABLE 5-3

REDUCTION IN DAILY TRAFFIC VOLUMES
DUE TO TRANSIT USE AND RIDESHARING

Alternative	Number of Vehicle Trips per Day Eliminated		
	Ridesharing	Transit Ridership 1/	Total
1. Roadway and At-Grade HOV Roadway	0	2,750	2,750
2. Roadway and Grade Separated HOV Roadway	2,600	2,750	5,350
3. Roadway	0	560	560
4. Roadway and LRT			
• GSA Building Terminus	0	7,750	7,750
• Airport Terminus	0	9,000	9,000
• Bloomington Terminus	0	10,875	10,875
5. No-Build	0	0	0

1/ Assumes average of 1.6 passengers per vehicle.

The amount of reduction in traffic volumes depends on the type of incentive offered and the level of traffic congestion in the corridor. As discussed above, very little traffic congestion is expected in the corridor through the year 2000.

Alternative 3 offers no specific incentives, and would result in very little diversion to ridesharing and transit. Although Alternative 1 includes an at-grade HOV roadway, only a small travel time saving is provided. Therefore, only a small diversion to transit is expected. Only under Alternative 2 is a diversion to ridesharing expected. This is due to a larger travel time saving provided by the grade-separated HOV roadway. Alternative 4 would result in the largest reduction in traffic volumes in the TH 55 study area, as a result of diversion to transit.

5.1.2.4 User Benefits

The implementation of transportation improvements in the Hiawatha Avenue Corridor generates user benefits for three basic reasons:

- There may be a reduction in travel time and distance due to shorter trip length and reduced traffic congestion.
- There may be a cost savings in the diversion of trips to public transit.
- There may be a time savings for "constant" transit users.

The user benefit assessment focuses on those impacts of the proposed action which are comparable and quantifiable in dollar terms. The user benefit calculation was performed for the target years of 1990 and 2000 and is stated in 1981 dollars. The stated benefits represent net regional benefits. Major impacts of the implementation of the proposed actions will occur within the cities of Minneapolis and Bloomington, particularly within the Hiawatha corridor and the Minneapolis CBD. However, benefits which are only intraregional transfers were excluded from the analysis.

In all cases, the input values used in benefit formulas have been selected from the low end of the range of accepted values or documented values. As a result, stated benefits are considered to be at the conservative (low) end of the expected range of benefits. (A summary of user benefits is presented in Table 5-5.)

Benefits to Highway Users. Individuals who travel by auto will receive benefits attributable to the proposed transportation improvements in terms of travel time savings and in terms of vehicle operating cost savings.

Travel Time Savings. Drivers who use the HOV roadway proposed under Alternatives 1 and 2 benefit due to a savings in travel time offered by the HOV roadway under Alternatives 1 and 2. Travel time is valued at $3.00 per hour for this analysis.

Under Alternative 1, users of the at-grade HOV roadway would save about 1,700 and 2,300 minutes of travel time per day during the peak hour in 1990 and 2000, respectively. This would result in a annual savings of $72,000 in 1990 and $96,000 in 2000.

Operating Cost Savings. Motorists who use the corridor for commuting or general purpose trips or who share rides may also experience a reduction in the variable costs of operating an automobile, such as gasoline and oil. Savings in operating costs are primarily a function of shorter trip lengths.

TH 55 build alternatives would provide significant operational cost savings compared to the no-build alternative. A comparison of the regional build and no-build alternatives traffic assignments reveals that implementation of a build alternative would result in a reduction of daily regional VMT of 17,500 VMT/day. At a cost of $0.174/VMT (fuel, maintenance and mileage based depreciation), implementation of a build alternative would result in a benefit to users of $1,111,000 annually (year 2000).

Benefits to Drivers and Passengers Diverted to Public Transit. Drivers and passengers who switch from their private automobiles to public transit may realize benefits in five ways:

- Time savings
- Auto operating cost savings (drivers only)
- Auto parking cost savings (drivers only)
- Auto insurance cost savings (drivers only)
- Auto ownership cost savings (drivers only)

The benefit is calculated as the difference between the savings listed alone and the cost of transit use.

Time Savings. It was determined that, in this case, only those individuals residing within walking distance of the LRT stations would realize significant travel time savings. These savings would be offset by travel time increases for bus passengers who would divert from automobile use to save commuting expense, but not to save time. Therefore, no significant net difference in travel time is expected for drivers or passengers switching to transit.

Operating Cost Savings. Motorists who use public transit for commuting or general purpose trip making avoid the variable (i.e., non-ownership) costs of operating an automobile, such as gasoline and oil. Savings in operating costs are primarily a function of either shorter trip lengths and decreased fare per passenger mile achieved on express bus or rail transit. In the case of the Hiawatha Avenue Corridor alternatives, operational cost savings was only quantified for diverted motorists and passengers. The estimated number of trips diverted to public transit is given in Table 5-4.

TABLE 5-4

PEAK HOUR PERSON TRIPS DIVERTED TO TRANSIT

	1990	2000
Alternative 1	820	1,630
Alternative 2	820	1,630
Alternative 3	180	360
Alternative 4	2,480	4,960
Alternative 5	0	0

The analysis shows that the savings in auto operating costs is not sufficient to offset the cost of transit fares (Table 5-5).

Parking Cost Savings. Commuters who use public transit rather than autos realize a savings by avoiding all-day parking charges. It is generally true that employees working downtown who divert to public transit are the only ones who will benefit significantly from parking costs savings; the suburban-bound employee generally experiences lower daily parking rates than CDB employees. The estimate of parking savings is offset by the costs incurred for parking at the future light rail transit stations or express bus parking lots.

The computation of these savings to the incremental Minneapolis CBD commuter who is diverted to transit or carpools because of the Hiawatha Avenue Corridor improvements assumes an average cost difference between CBD parking and transit stop parking of $3.83 per day (Table 5-5).

Insurance Cost Savings. Commuters who use public transit rather than auto realize savings in reduced automobile insurance premiums. The magnitude of these savings is a function of the regional insurance surcharge for work-trip use of automobiles and the number of autos which need not be used for commuting purposes. Those additional motorists who are diverted to public transit for commuting purposes because of the Hiawatha Avenue Corridor's improved service will not pay this annual premium.

The auto insurance cost savings is estimated to be $55 per vehicle per year. The total annual savings by alternative is given in Table 5-5.

Vehicle Ownership Savings. A significant benefit brought about by the increased utilization of transit will be the reduced need for second or third cars. As automobile drivers are diverted to transit for commuting, the need for additional vehicles beyond the primary family car is reduced. Attesting to this reduced need is the evidence that a marked contrast in second or third car ownership exists between cities with and without rail/rapid transit.

TABLE 5-5

ANNUAL USER BENEFITS
(1981 DOLLARS)

BENEFIT CATEGORY	ALTERNATIVES							
	1		2		3		4	
	1990	2000	1990	2000	1990	2000	1990	2000
Highway User								
Time Savings	$ 72,000	$ 96,000	$ 78,000	$ 104,000	$ ---	$ ---	$ ---	$ ---
Operating Cost Savings	833,000	1,111,000	833,000	1,111,000	833,000	1,111,000	833,000	1,111,000
Persons Diverted to Transit								
Time Savings			(Insignificant)					
Operational Cost Savings	-33,000	-67,000	-33,000	-67,000	-7,000	-15,000	-99,000	-205,000
Parking Cost Savings	608,000	1,216,000	608,000	1,216,000	136,000	273,000	1,850,000	3,700,000
Insurance Cost Savings	35,000	69,000	35,000	69,000	8,000	15,000	105,000	210,000
Auto Ownership Savings	115,000	230,000	115,000	230,000	26,000	52,000	349,000	699,000
Constant Transit User								
Time Savings			(Insignificant)					
TOTAL	$1,630,000	$2,655,000	$1,636,000	$2,663,000	$996,000	$1,436,000	$3,038,000	$5,515,000

SOURCE: Robert J. Harmon & Associates, Inc.

Assuming, however, that the major factor necessitating the ownership of additional vehicles is commuting needs, the key variable in the estimate becomes the percentage of auto commuters diverted to transit. It is estimated that the need for additional vehicles can be deferred for only 60 percent of those auto commuters diverted to transit. Therefore, to the extent the corridor improvements divert additional motorists to public transit, only 60 percent of these individuals will defer ownership of a second or third automobile. The calculated benefits are shown in Table 5-5.

Benefits to "Constant" Transit Users. "Constant" transit users are those individuals who, due to age, income, physical handicap or personal preference, do not own or have access to an automobile. The implementation of improved transit in the Hiawatha Corridor will not significantly reduce the portal-to-portal travel time for their transit trips. The evaluation of time savings benefits to "constant" transit commuters indicated that minor savings for those located within walking distance of express bus or LRT stations would be offset by increased transfer times for those who reach the transit stop by bus.

Summary. The overall results (Table 5-5) of the user benefit assessment indicate that Alternative 4, the light rail alternative, would produce a greater level of annual 1990 and year 2000 user benefits than any other alternative. Alternative 4 would result in nearly three times the user benefits of Alternatives 1 and 2 and over thirteen times the user benefits of Alternative 3.

The primary benefit recipients are diverted motorists and passengers who would utilize the improved transit service. These individuals could realize out-of-pocket savings of between $1500 and $2000 per year. Even in the case of the major highway improvements, there are relatively minor travel time savings. Since all improvements parallel or are contained in existing roadway corridors, there is little travel time gain by diversion from a more circuitous travel route. The segment of the commuter trip that is affected is relatively short (approximately five miles).

The negative operational cost savings (item 3 in Table 5-5) are a function of the variable (non-car ownership) cost effectiveness of car pools versus the individual per mile fare costs.

5.1.3 Impacts on Service Areas

5.1.3.1 Police Protection

Alternatives 1 through 4. The upgrading of TH 55 proposed under all of the build alternatives offers substantial benefits for police protection by allowing reductions in response times. These benefits would occur both along TH 55 and through the Milwaukee Road rail yard, where road construction is projected to occur in conjunction with TH 55 upgrading and the city's plans to redevelop the area for industry.

Alternative 5. This alternative would leave unchanged the existing problems in the provision of police protection as described in Section 4.1.2.

In addition, projected increases in traffic volumes along TH 55, particularly during peak traffic periods, will result in more severe traffic congestion in future years. It is likely that response times for calls which require use of TH 55 during peak periods will increase under this alternative.

5.1.3.2 Public Libraries

Corridor-based library facilities would experience no significant adverse or positive impacts under any transportation alternative currently under consideration for TH 55. It is reasonable to assume that any vehicular, pedestrian or mass transit transportation improvements would increase the use of the facilities. However, such an increase cannot be documented with any degree of certainty.

5.1.3.3 Religious Institutions

No significant impact to any facilities related to religious institutions is expected under any of the transportation alternatives under consideration.

5.1.3.4 Health Services

Alternatives 1 through 4. Each build alternative offers significant improvements in the level of service on TH 55. To the extent that travel time within and through the corridor would be reduced, emergency medical services would benefit.

Alternative 5. This alternative would do nothing to affect access and response times to emergency medical facilities.

5.1.3.5 Educational Institutions

Alternatives 1 and 2. The impacts of these alternatives on area educational institutions are expected to be virtually identical to those projected for the Alternative 3. Access to postsecondary institutions would be improved in a similar manner. Mass transit service would not be significantly improved over Alternative 3.

The Urban Design Framework report projects a somewhat greater level of secondary redevelopment activity in conjunction with this option. It is projected that up to 3,200 new households would be established within the corridor. At 0.3 school-age children projected per household, there is a potential of adding 960 students to area schools.

Alternative 3. Corridor-based educational institutions, particularly postsecondary institutions with a commuting student body, would benefit from any improvement to the local road network and mass transit. Modest improvements, in the form of reduced commuting time and bus system convenience, are projected under this alternative. Mass transit improvements are of particular importance to these commuters.

Primary and secondary schools in Minneapolis are experiencing declining enrollments. Technical Report No. 19, Urban Development Framework, projects that improvements under Alternative 3 could result in a population growth of up to 950 households from new development. 1/ Assuming that each household would generate 0.3 school-age children, area schools could gain 285 students. These students could be accommodated in existing schools and mitigate some of the problems associated with declining enrollment (i.e., staff lay-offs, school closings, etc.).

Alternative 4. The basic impacts of this alternative on area educational institutions would be similar to those projected for the Alternative 3. However, the Alternative 4 represents the greatest improvements in mass transit levels of service in the TH 55 corridor. This factor would be of particular benefit to institutions like the University of Minnesota which have a large percentage of commuting students coupled with an extreme shortage of available parking.

Alternative 4 represents the greatest opportunity for redevelopment. The Urban Development Framework report projects that up to 7,350 new households would be established in the corridor. Many of these housing units would be classified as moderate to high density. Assuming that each household generates 0.2 school-age children (as opposed to 0.3 for the other alternatives, which incorporate lower housing densities), up to 1,470 new students would be generated for local schools.

Alternative 5. Although the existing situation on TH 55 does not appear to have direct adverse impacts on these facilities in terms of noise, traffic or access, adoption of the no-build alternative would result in diminished accessibility for trips using Hiawatha Avenue.

5.1.4 Highway and Traffic Safety

As described in Section 4, TH 55 in the study area is currently experiencing an accident rate which is considerably higher than the average for roadways of the same type in the metropolitan area. For the period 1978 to 1980, accident rates on TH 55 ranged from 8.7 to 10.6 accidents per million vehicle miles, while the average rate for similar roadway types was 6.6 accidents per million vehicle miles.

If the no-build alternative (Alternative 5) is selected, it would be reasonable to expect that accidents will continue to occur at the higher than average rate.

If one of the build alternatives is selected, it is expected that the accident rate would be about 2.4 accidents per million vehicle miles of travel, which is an average rate for four-lane divided arterials in the metropolitan area.

These rates suggest that on Hiawatha Avenue in the year 2000, about 415 accidents would occur under Alternative 5, and about 180 accidents would occur under Alternative 1, 2, 3 or 4.

1/ Reference No. 19.

5.1.5 Regional Economic Impacts

The implementation of any of the build alternatives in the Hiawatha Corridor would have regional economic impacts. The assumption was made that there would be no change in regional employment, population or number of households as a result of action in the corridor. Therefore, any development attracted to the corridor as a result of the proposed transportation improvement implies a reduced level of growth in some other part of the region.

The level of induced development expected in the corridor is shown, by alternative and by type of development, in Table 5-6, Section 5.1.6.

5.1.5.1 Retail Development Impact

New retail development expected as a result of TH 55 transportation improvements is forecasted to occur in the Minneapolis CBD, the corridor, and the terminus service area.

CBD retail development will be primarily induced by new CBD employment resulting from TH 55 improvements. Since the correlation between retail shopping areas and office employment is comparatively minimal outside the CBD, retail sales transfer is more closely related to workers' places of residence than to places of work. The Minneapolis CBD draws its work force from the entire metropolitan area, with the western and southern suburban areas predominating. The impact on the regional retail economy will follow a similar pattern. No one area is expected to be significantly affected.

Additional retail development in the walkshed corridor will be based on new residential development in the corridor. The amount of new retail development forecasted is relatively small and would not have a measurable impact on the region.

New retail development in the terminus service area (under Alternative 4, Bloomington LRT terminus only) will be the result of added residential development. If the added residential development were not to occur in the terminus service area, it would probably occur elsewhere in the southern sector of the metropolitan area, and would require new retail development in corresponding locations.

5.1.5.2 Office Development Impact

Projections of Minneapolis CBD, corridor and terminus service area employment were used to determine future office space needs in these locations.[2/] The Minneapolis CBD office sector has two principal competitive areas, the I-494 corridor and the west Highway 12 corridor. Additional office space induced in the CBD as a result of TH 55 improvements would impact the I-494 corridor primarily and the Highway 12 corridor to a lesser extent.

2/ Reference No. 25.

Metropolitan Council forecasts indicate a growth of 20,300,000 square feet of office space in the region between 1980 and 2000. The highest level of Hiawatha Avenue Corridor improvements are forecasted to induce the development of about 2,200,000 square feet of office space in the CBD during the same period - about 15 percent of forecasted regional growth by the year 2000.

Additional office space forecasted for the terminus service area (Alternative 4, Bloomington terminus only) will primarily impact the I-494 corridor. The 500,000 square feet forecasted for the 1986-2000 period represents about 4 percent of forecasted regional growth. Much of the impact would be relocation of the development within the I-494 corridor.

5.1.5.3 Residential Development Impact

Residential development resulting from Hiawatha Avenue improvements would occur in the Minneapolis CBD, the corridor and the terminus service area. Induced residential development was calculated from projected population increases. Induced residential growth in the CBD and the walkshed corridor would primarily attract households now living in the city and nearby western and southern suburban areas. New development in the terminus service area (Alternative 4, Bloomington terminus only) would be relocated primarily from the southern suburban sector of the metropolitan area.

The Metropolitan Council forecasts a growth of 217,700 households between 1980 and 2000. Added residential unit demand forecasted in the CBD and corridor is 9,051 - 4.2 percent of the regional forecast for the year 2000. Forecasted housing unit demand in the terminus service area is 7,891 by the year 2000 - 3.6 percent of regional household growth.

5.1.6 Corridor Economic Impact

The economic impact of the proposed transportation improvements in the Hiawatha study area is mainly a function of the development induced in the corridor by those improvements. This analysis considered induced development in these distinct areas: the Minneapolis CBD, the Hiawatha corridor, and the terminus service area. This section first describes the type and amount of development induced in each of the three sub-areas, and then assesses the fiscal impact of that induced development.

5.1.6.1 Induced Development

Induced development will vary by alternative. Measurable impacts will be on retail, office, industrial/office and residential activity. The economic impacts resulting from corridor transportation improvements are expected to include: (a) increases in retail sales activity levels which will induce expansion of the physical retail base; (b) increases in downtown and terminus service area employment and office space; (c) increases in corridor employment and office/industrial space; (d) increases in population and demand for housing. The amount of each of these increases is summarized in Table 5-6 and described below.

TABLE 5-6

INDUCED DEVELOPMENT

INCREMENT ABOVE BASELINE FORECAST

	CBD			CORRIDOR			TERMINUS SERVICE AREA
	Alternative			Alternative			Alternative 4
	1 and 2 Roadway & HOV	3 Roadway	4 Roadway & LRT	1 and 2 Roadway & HOV	3 Roadway	4 Roadway & LRT	Bloomington Terminus Roadway & LRT
Retail - Sq. Ft. (000)							
1986-1990	23	-0-	91	8	2	17	260
1991-2000	63	-0-	171	11	3	27	543
Office - Sq. Ft. (000)							
1986-1990	400	-0-	1,600	-0-	-0-	-0-	400
1991-2000	800	-0-	2,200	-0-	-0-	-0-	500
Office/Industrial - Sq. Ft. (000)							
1986-1990	-0-	-0-	-0-	669	277	1,208	-0-
1991-2000	-0-	-0-	-0-	1,010	437	1,383	-0-
Residential - Units							
1986-1990	239	-0-	705	2,493	318	4,795	2,621
1991-2000	427	-0-	1,094	2,735	360	6,828	7,891

SOURCE: James B. McComb & Associates

5.1.6.2 Retail Activity Impacts

Increases in retail activity would occur in the Minneapolis CBD, in the Hiawatha corridor and, under the Bloomington Terminus subalternative of Alternative 4, in the Terminus Service area. In addition to the increase in sales (Table 5-7), the sales activity would generate demand for retail sales space and employment.

TABLE 5-7

RETAIL SALES INCREASE
(Millions of Dollars)

	ALTERNATIVE							
	1 and 2		3		4		5	
LOCATION	1990	2000	1990	2000	1990	2000	1990	2000
CBD								
Employees	$ 3.0	$ 9.0	$ 0	$ 0	$13.0	$24.0	$ 0	$ 0
Residents	1.5	2.0	0	0	2.7	6.4	0	0
Visitors	0.0	0.0	0	0	0.0	0.0	0	0
Total	$ 4.5	$11.0	$ 0	$ 0	$15.7	$30.4	$ 0	$ 0
Corridor								
Residents	1.4	2.0	0.4	0.5	3.0	4.8	0	0
Terminus Service Area								
Residents	-	-	-	-	91.3	189.8	-	-

NOTE: Terminus Service Area: Reflects total increase in retail purchasing power, of which 50 percent would be absorbed by existing retail stores and 50 percent would generate demand for new retail space. Forecasts apply only to LRT subalternative with Bloomington terminus.

SOURCE: James B. McComb and Associates

Minneapolis CBD. Minneapolis CBD retail sales are generated by three major groups: downtown workers, trade area residents, and downtown visitors. The expected growth of these groups varies by alternative. Forecasts of retail sales and square footage requirements as a result of alternative corridor improvements are discussed below.

Alternatives 1 and 2 - Roadway and HOV. These alternatives are expected to increase employment in the Minneapolis CBD by 2,000 in 1990 and 4,000 in the year 2000 over baseline forecasts. This would result in additional retail sales of about $3 million over baseline forecasts in 1990 and $9 million in the year 2000.

Improvements under Alternatives 1 or 2 are forecasted to increase the population in downtown Minneapolis and the corridor by 4,400 persons over 1990

baseline forecasts and 4,900 persons over the year 2000 baseline forecasts. This will result in an increase of 1.2 percent in the primary trade area population in 1990 and increased CBD sales of about $1.5 million over baseline forecasts. Forecasted year 2000 population would result in an increase of 1.3 percent in the primary trade area population and an increase of $2 million in CBD retail sales over baseline forecasts. No increase in downtown visitors is projected under these alternatives.

An increase of $4.5 million in CBD retail sales over 1990 baseline forecasts and $11.0 million over the year 2000 forecasts are projected from all sources. Assuming a productivity factor of $175 per square foot, the need for an additional 23,000 square feet in 1990 and 63,000 square feet of new retail space in the year 2000 is forecasted over baseline forecasts.

Alternatives 3 and 5 - Roadway and Bus Improvements and No-Build. Alternatives 3 and 5 would not cause an increase in CBD retail sales over the baseline forecast.

Alternative 4 - Roadway and LRT. Alternative 4 would result in an estimated increase in downtown Minneapolis employment of 8,000 over baseline projections by 1990 and a total of 11,000 by the year 2000. Employment increases of this magnitude would result in retail sales increases amounting to approximately $13 million in 1990 and $24 million in the year 2000, over baseline forecasts.

Improvements under this alternative are also expected to increase the population of the CBD retail trade area by 9,458 by 1990, and 14,041 by the year 2000. An increase of 9,458 persons in the CBD trade area over the 1990 baseline forecasts would amount to an increase of 2.3 percent of primary trade area population. This would translate to approximately $2.7 million in increased CBD retail sales. A forecasted increase of 14,041 persons by the year 2000 would mean a 3.3 percent increase in the primary trade area population, resulting in an increase of about $6.4 million in downtown retail sales above baseline forecasts. It is not anticipated that improvements under this alternative would result in any measurable increase in visitors to the Minneapolis CBD.

In summary, Alternative 4 would result in a projected increase of $15.7 million in CBD retail sales over baseline forecasts in 1990, and $30.4 million in the year 2000. Assuming that new retail space development would require a productivity factor of about $175 per square foot, 91,000 square feet of retail space is forecasted for the CBD over baseline forecasts in 1990, and 171,000 square feet over baseline forecasts in the year 2000.

Hiawatha Corridor. The Lake Street commercial area would be the primary beneficiary of increased retail sales activity in the Hiawatha Corridor. Forecasts of increased sales assume that retail expenditures of new residents would be distributed in a manner similar to that of existing residents. Additional employment forecasted for the corridor will generally occur in scattered locations. The impact of this employment on specific retail facilities is too small to be measurable.

Alternatives 1 and 2 - Roadway and HOV. These alternatives would result in a corridor population increase of 4,400 persons by 1990 and a total of 4,900 by the year 2000. This would result in an increase of 2.6 percent in trade area population in 1990 and in increased sales potential of about $1.4 million. The forecasted year 2000 population results in an increase of 3 percent in the trade area population, and an increase of about $2 million in retail sales potential in the year 2000. The forecasted retail sales potential increases over baseline forecasts would result in a need for an additional 8,000 square feet of retail space in the Lake Street commercial area in 1990 and 11,000 square feet by the year 2000.

Alternative 3 - Roadway and Bus Improvements. Alternative 3 would increase corridor population within the trade area by 900 persons by 1990 and 1,000 persons by the year 2000, over baseline forecasts. This would be an increase of 0.7 percent over baseline forecasts in 1990 and 0.8 percent in the year 2000. This would result in an increase of about $0.4 million in retail sales over baseline forecasts in 1990 and $0.5 million in the year 2000. The indicated sales increases over baseline forecasts would support an additional 2,000 square feet of retail space in 1990 and a total of 3,000 square feet by the year 2000.

Alternative 4 - Roadway and LRT. Alternative 4 would increase corridor population within the trade area by 8,400 persons by 1990 and 12,000 persons by the year 2000. This would amount, in 1990, to an increase of 5.6 percent of the trade area population and approximately $3 million in increased retail sales. A forecasted increase of 12,000 persons by the year 2000 would mean a 7.1 percent increase in trade area population, resulting in an increase of about $4.8 million in retail sales.

Assuming a productivity factor of $175 per square foot, an additional 17,000 square feet of retail space is forecasted for the Lake Street commercial area over baseline forecasts in 1990, and 27,000 square feet in the year 2000.

Alternative 5 - No-Build. Under Alternative 5, retail activity in the corridor would not be affected.

Terminus Service Area. Implementation of LRT (Alternative 4) with the Bloomington Terminus subalternative is expected to increase the terminus service area population by 6,941 over baseline forecasts in 1990 and 14,440 over baseline forecasts in the year 2000. These increases would raise retail purchasing power in the terminus service area by about $91.3 million over baseline forecasts in 1990 and $189.8 million in the year 2000.

It has been estimated that the ability of existing retail stores and centers to absorb some of this increase and the probability of new retail space being developed outside the area will limit the amount of retail development within the terminus service area as a result of LRT development to about 50 percent of indicated potential. Thus, a need for about 260,000 square feet of new retail space over baseline forecasts is forecast within the terminus service area for 1986-1990 and 543,000 square feet between 1991 and 2000.

5.1.6.3 Office Space Demand

Minneapolis CBD - Implementation of the proposed TH 55 transit/roadway improvements would reinforce the existing concentration of commercial office space in the Minneapolis CBD. It is expected that improved travel facilities between the CBD and the airport and the I-494 office/commercial concentration would enhance the desirability of CBD office space. The net result would be to increase the capture rate of the CBD of regional growth in office space.

Alternatives 1 and 2 - Roadway and HOV. Approximately 2,000 employees over the baseline forecast are projected for downtown in 1990. This additional employment will create a demand for an additional 400,000 square feet of office space; 2.3 percent over the baseline forecast demand for the 1986-1990 period. A demand for 800,000 square feet (over the baseline forecast) of office space is projected during the 1991-2000 period as a result of improvements to TH 55 under either of these alternatives. This is the result of 4,000 additional employees being added to downtown.

Alternatives 3 and 5 - Roadway and Bus Improvements and No-Build. Alternatives 3 and 5 will not cause an increase in CBD office space demand over the baseline forecast.

Alternative 4 - Roadway and LRT. Demand for CBD office space would be increased by Alternative 4 improvements. Projections for the 1986-1990 period show a demand for 1,600,000 square feet of office space over the baseline 1990 forecast. This demand would result from 8,000 additional workers added to the downtown workforce. A demand for 2,200,000 square feet (over the baseline forecast) of office space is projected for the 1991-2000 period. This demand is a result of 11,000 employees being added to the downtown workforce.

Hiawatha Corridor. Demand for office space in the corridor created by transit/roadway improvements would be primarily for office space associated with warehouse/industrial functions. These impacts are discussed in Section 5.1.6.4.

Terminus Service Area. Alternative 4, with the Bloomington LRT terminus subalternative, is forecasted to increase employment in the terminus service area by 3,399 workers over 1990 baseline forecasts and by 5,287 workers over the year 2000 baseline forecasts. The largest single concentration of employment would be at the Metropolitan Stadium site, where employment over baseline forecasts is forecasted at 2,000 in 1990 and 2,500 in the year 2000. The remainder of the expected increases would be scattered throughout the terminus service area. The Metropolitan Stadium development employment forecast is expected to be office employment. Other employment in the terminus service area is expected to be largely office/industrial or population based retail and services.

The impact of 2,000 additional workers in 1990 and a total of 2,500 by the year 2000 will create a demand for about 400,000 square feet of office space over baseline forecasts for 1986-1990 and 500,000 square feet for 1991-2000.

5.1.6.4 Office/Industrial Space Demand

Hiawatha Corridor. Improvements proposed under the build alternative would enhance the expansion of the office/industrial warehouse functions in the Hiawatha Corridor, attracting additional employment to the corridor, and causing a demand for more office/industrial space.

Alternatives 1 and 2 - Roadway and HOV. Improvements under these alternatives would induce corridor office/industrial development at a moderate level over the baseline forecast. Induced office/industrial space demand is estimated at 669,000 square feet over 1990 baseline forecasts, based on corridor employment of 1,488 over baseline forecasts for 1990.

Office/industrial space demands would continue to occur through the year 2000. Induced development of office/industrial space of 1,010,000 square feet over baseline forecasts is expected during the 1991-2000 period. These projections are based on corridor employment increases of 2,200 over year 2000 baseline forecasts.

Alternative 3 - Roadway and Bus Improvements. Improvements under this alternative would have the least impact of all build alternatives on corridor office/industrial space development. Office/industrial space demand would increase by 277,000 square feet over the baseline during this period. This projected development is due to an expected employment increase of 643 over baseline 1990 forecasts.

Office/industrial space demands would continue during the 1991-2000 period. Induced office/industrial space development would total 437,000 square feet over baseline forecasts. This demand would result from corridor employment increases of 1,024 over year 2000 baseline forecasts.

Alternative 4 - Roadway and LRT. Under this alternative, office/industrial space demand would increase by 1,208,000 square feet during the 1986-1990 period due to an increase in corridor employment of 4,316 employees over the baseline forecasts.

During the 1991-2000 period, additional office/industrial development is expected in the corridor. Office/industrial space demands are estimated to reach 1,383,000 square feet by 2000. Office/industrial employment is expected to increase by 4,998 over baseline forecasts during 1991-2000.

Alternative 5 - No-Build. No office/industrial development would be induced in the corridor under this alternative.

5.1.6.5 Residential Development Impacts

Implementation of any of the build alternatives would increase the demand for housing in the CBD, the corridor, and, if the Bloomington Terminus subalternatives is selected, in the terminus service area.

Minneapolis CBD. Demand for CBD housing would be increased by improvements under the build alternatives due to improved access and an enhanced image and activity level. Transportation improvements would induce additional office and retail space and open additional job and shopping opportunities.

Alternatives 1 and 2 - Roadway and HOV. Housing demand in the CBD would increase only marginally as a result of improvements under either of these alternatives. Population growth induced by this development is projected to be 358 persons over baseline 1990 forecasts, resulting in a demand for 239 housing units more than the baseline forecast.

Population is forecasted to increase by 641 over baseline forecasts by the year 2000. This would create a demand for an additional 427 housing units over baseline 2000 forecasts.

Alternatives 3 and 5 - Roadway and Bus Improvements, and No-Build. Alternatives 3 and 5 will not increase the demand for CBD housing.

Alternative 4 - Roadway and LRT. Alternative 4 would have the greatest impact on CBD housing demand. By 1990, an estimated 1,058 additional residents will seek downtown living opportunities as a result of the LRT development. An additional 705 new housing units over baseline forecasts would be needed to satisfy this demand.

Projections show that Alternative 4 is forecast to increase population in the CBD by 1,641 over the year 2000 baseline forecast, inducing a demand for 1,094 housing units by the year 2000.

Hiawatha Corridor. Hiawatha roadway/transit changes involved in each of the improvement levels will have differing impacts on residential land use along the corridor. Impacts at each level are described below:

Alternatives 1 and 2 - Roadway and HOV. Development of an HOV roadway in the corridor would increase population in the corridor substantially. A 6.2 percent increase, or 4,400 persons over the baseline forecast, is projected for the year 1990. This population growth would require 2,493 new housing units to be built in the corridor by 1990.

Projections of population growth during the 1991-2000 period show that an additional 4,900 persons would live in the corridor as a result of either Alternative 1 or 2. This is an increase of 6.8 percent above the baseline forecast. These new residents would cause a demand for 2,735 more housing units over the year 2000 baseline forecast.

Alternative 3 - Roadway and Bus Improvements. The introduction of bus improvements would increase 1990 corridor population by 900, 1.3 percent above the 1990 baseline forecast. A variety of housing unit types including townhouses, garden apartments/condominiums and medium density apartments or condominiums would be sought by the population attracted to the corridor. A demand for 318 housing units is projected for the year 1990 under Alternative 3.

By the year 2000, corridor population would be 1,000 over baseline forecasts. This represents a 1.4 percent increase over the year 2000 baseline forecast. Demand associated with this additional population is projected to create 360 housing units over the year 2000 baseline forecast. All of these units are expected to be contained in high-rise apartments and condominium developments.

Alternative 4 - Roadway and LRT. The highest level of transportation improvement in the corridor, construction of an LRT line, will have the greatest impact on attracting new residents. Population is projected to increase by 8,400 persons over the baseline forecast for 1990. The result would be a range of housing types from low- to high-density, with 4,795 new housing units by 1990.

Housing demand would continue to increase in the corridor between the years 1991 and 2000. Population is projected to be 12,000 persons over the year 2000 baseline forecasts, for an increase of 16.7 percent. The year 2000 population is projected to be 83,991. This would create a demand of 6,828 housing units above the baseline forecast in condominium and apartment developments representing all levels of density.

Alternative 5 - No Build. Residential development in the corridor will not be affected under Alternative 5.

Terminus Service Area. Introduction of LRT is forecasted to increase population in the terminus service area by 6,941 over 1990 baseline forecasts and 14,440 over 2000 baseline forecasts. Households are projected to increase by 2,621 over 1990 baseline forecasts and by 7,891 over year 2000 baseline forecasts.

5.1.6.6 Fiscal Impacts of Induced Development

The new development generated by the proposed transportation improvements would yield increased revenues to local taxing jurisdictions. The increased revenues would be in the form of property taxes and utility franchise fees for electricity and natural gas.

Property Tax Revenue - Incremental property tax revenues would accrue to taxing jurisdictions as a result of taxes paid by owners of induced development, and by owners of existing development which increases in value due to the implementation of transportation improvements in the corridor. The portion of property taxes derived by metropolitan agencies (about 4 percent) are viewed as intraregional transfers, and have, therefore, been excluded from this analysis.

New commercial and industrial property in the metropolitan area is subject to the provisions of the Area-Wide Tax Base Sharing Act, popularly known as the Fiscal Disparity Act. This act specifies that 40 percent of the increased commercial and industrial valuation in the metropolitan area be contributed to a pool for distribution back to the participating municipalities according to a formula. The distribution formula cannot be

TABLE 5-8

FISCAL IMPACTS OF INDUCED DEVELOPMENT
TOTAL PROJECT AREA
(In Thousands of 1981 Dollars)

Years	CBD Alternative 1 and 2 Roadway & HOV	CBD Alternative 3 Roadway	CBD Alternative 4 Roadway & LRT	CBD Alternative 5 No-Build	CORRIDOR Alternative 1 and 2 Roadway & HOV	CORRIDOR Alternative 3 Roadway	CORRIDOR Alternative 4 Roadway & LRT	CORRIDOR Alternative 5 No-Build	TERMINUS SERVICE AREA 4 Roadway & LRT
Residential - Annual Average									
1986-1990 Property Taxes	$ 226.6	$ -0-	$ 918.0	$ -0-	$2,161.7	$ 259.8	$ 4,556.6	$ -0-	$1,778.8
Franchise Fees	2.4	-0-	6.7	-0-	25.3	3.6	38.3	-0-	-0-
TOTAL	$ 229.0	$ -0-	$ 924.7	$ -0-	$2,187.0	$ 263.4	$ 4,594.9	$ -0-	$1,778.8
1991-2000 Property Taxes	$ 516.5	$ -0-	$1,878.6	$ -0-	$3,838.8	$ 466.1	$ 9,235.3	$ -0-	$6,347.4
Franchise Fees	5.6	-0-	17.2	-0-	45.2	6.5	84.8	-0-	-0-
TOTAL	$ 522.1	$ -0-	$1,895.8	$ -0-	$3,884.0	$ 472.6	$ 9,320.1	$ -0-	$6,347.4
Office - Annual Average									
1986-1990 Property Taxes	$ 708.0	$ -0-	$2,832.0	$ -0-	$ -0-	$ -0-	$ -0-	$ -0-	$ 472.0
Franchise Fees	9.2	-0-	36.8	-0-	-0-	-0-	-0-	-0-	-0-
TOTAL	$ 717.2	$ -0-	$2,868.8	$ -0-	$ -0-	$ -0-	$ -0-	$ -0-	$ 472.0
1991-2000 Property Taxes	$1,862.0	$ -0-	$5,790.0	$ -0-	$ -0-	$ -0-	$ -0-	$ -0-	$1,350.0
Franchise Fees	24.2	-0-	75.3	-0-	-0-	-0-	-0-	-0-	-0-
TOTAL	$1,886.2	$ -0-	$5,865.3	$ -0-	$ -0-	$ -0-	$ -0-	$ -0-	$1,350.0
Retail - Annual Average									
1986-1990 Property Taxes	$ 41.4	$ -0-	$ 163.8	$ -0-	$ 10.8	$ -0-	$ 23.0	$ -0-	$ 306.8
Franchise Fees	.5	-0-	2.1	-0-	.2	-0-	.4	-0-	-0-
TOTAL	$ 41.9	$ -0-	$ 165.9	$ -0-	$ 11.0	$ -0-	$ 23.4	$ -0-	$ 306.8
1991-2000 Property Taxes	$ 141.0	$ -0-	$ 417.0	$ -0-	$ 22.1	$ -0-	$ 51.8	$ -0-	$1,117.4
Franchise Fees	1.8	-0-	5.2	-0-	.4	-0-	.9	-0-	-0-
TOTAL	$ 142.8	$ -0-	$ 422.2	$ -0-	$ 22.5	$ -0-	$ 52.7	$ -0-	$1,117.4
Office/Ind. - Annual Average									
1986-1990 Property Taxes	$ -0-	$ -0-	$ -0-	$ -0-	$ 601.2	$ 240.9	$ 1,349.7	$ -0-	$ -0-
Franchise Fees	-0-	-0-	-0-	-0-	15.0	5.8	27.8	-0-	-0-
TOTAL	$ -0-	$ -0-	$ -0-	$ -0-	$ 616.2	$ 246.7	$ 1,377.5	$ -0-	$ -0-
1991-2000 Property Taxes	$ -0-	$ -0-	$ -0-	$ -0-	$1,353.7	$ 557.7	$ 2,494.3	$ -0-	$ -0-
Franchise Fees	-0-	-0-	-0-	-0-	34.3	13.7	51.5	-0-	-0-
TOTAL	$ -0-	$ -0-	$ -0-	$ -0-	$1,388.0	$ 571.4	$ 2,545.8	$ -0-	$ -0-
Total - Annual Average									
1986-1990 Property Taxes	$ 976.0	$ -0-	$3,913.8	$ -0-	$2,773.7	$ 500.7	$ 5,929.3	$ -0-	$2,557.6
Franchise Fees	12.1	-0-	45.6	-0-	40.5	9.4	66.5	-0-	-0-
TOTAL	$ 988.1	$ -0-	$3,959.4	$ -0-	$2,814.2	$ 510.1	$ 5,995.8	$ -0-	$2,557.6
1991-2000 Property Taxes	$2,519.5	$ -0-	$8,085.6	$ -0-	$5,214.6	$1,023.8	$11,781.4	$ -0-	$8,814.8
Franchise Fees	31.6	-0-	97.7	-0-	79.9	20.2	137.2	-0-	-0-
TOTAL	$2,551.1	$ -0-	$8,183.3	$ -0-	$5,294.5	$1,044.0	$11,918.6	$ -0-	$8,814.8

SOURCE: James B. McComb and Associates

accurately determined for future periods due to the complex interrelationship of the formula components. However, Minneapolis has historically been a net gainer under the Fiscal Disparities Act. Due to the complexities of the formula and the fact that Minneapolis receives greater benefits than it contributes, the impact of Fiscal Disparity Act was not considered in the property tax calculations.

Projections of real estate property taxes are based on market values derived from average construction costs for 1980 for the amount and types of space forecast in the corridor, the CBD, and the terminus service area. Property taxes on the new development are based on a 1981 Mill Rate of approximately 103 mills. Table 5-8 shows expected incremental property tax revenue, by development type, for each alternative.

Tax Impacts of Increased Property Values - Large scale transportation facility developments, such as the LRT line proposed under Alternative 4, have been shown to increase property values in a wide area surrounding the facility. 3/ Other alternatives under consideration would not induce sufficient development intensity to impact surrounding property values.

Properties in the impact area shown in Figure 5-1 are expected to exhibit increases in property value over the baseline at the rate of 2 percent annually between 1982 and 1990 (tax payable years) and 1 percent annually between 1991 and 2000. Average annual taxes yielded from the increased property values are estimated to be $3,306,000 during 1986-1990, and $6,216,000 during 1991-2000, as shown in Table 5-9. Increased residential property taxes make up about 84 percent of these totals.

TABLE 5-9

TAXES YIELDED BY INCREASED PROPERTY VALUES
(In Thousands of 1981 Dollars)

Development Type	Annual Averages 1986-1990	1991-2000
Residential	$ 2,775.0	$ 5,219.0
Industrial	269.0	504.0
Commercial	258.0	485.0
Vacant Land	4.0	8.0
TOTAL	$ 3,306.0	$ 6,216.0

Franchise Fee Revenue - Minneapolis levies a three percent franchise fee on the sale of electricity and natural gas. Consumption of these energy sources would be increased by new developments stimulated by the alternatives.

Electrical energy required for LRT operation would create additional franchise fee revenues for the City of Minneapolis under Alternative 4. The length of the LRT line will affect the amount of energy needed to operate the LRT system. Projected franchise fees realized by the city for each of the LRT south terminus locations are shown in Table 5-10. These franchise fee impacts are in addition to those identified for the induced development shown in Table 5-8.

3/ Reference No. 7.

FIGURE 5-1

PROPERTY TAX IMPACT AREA

HIAWATHA AVENUE
Location and Design Study

NORTH

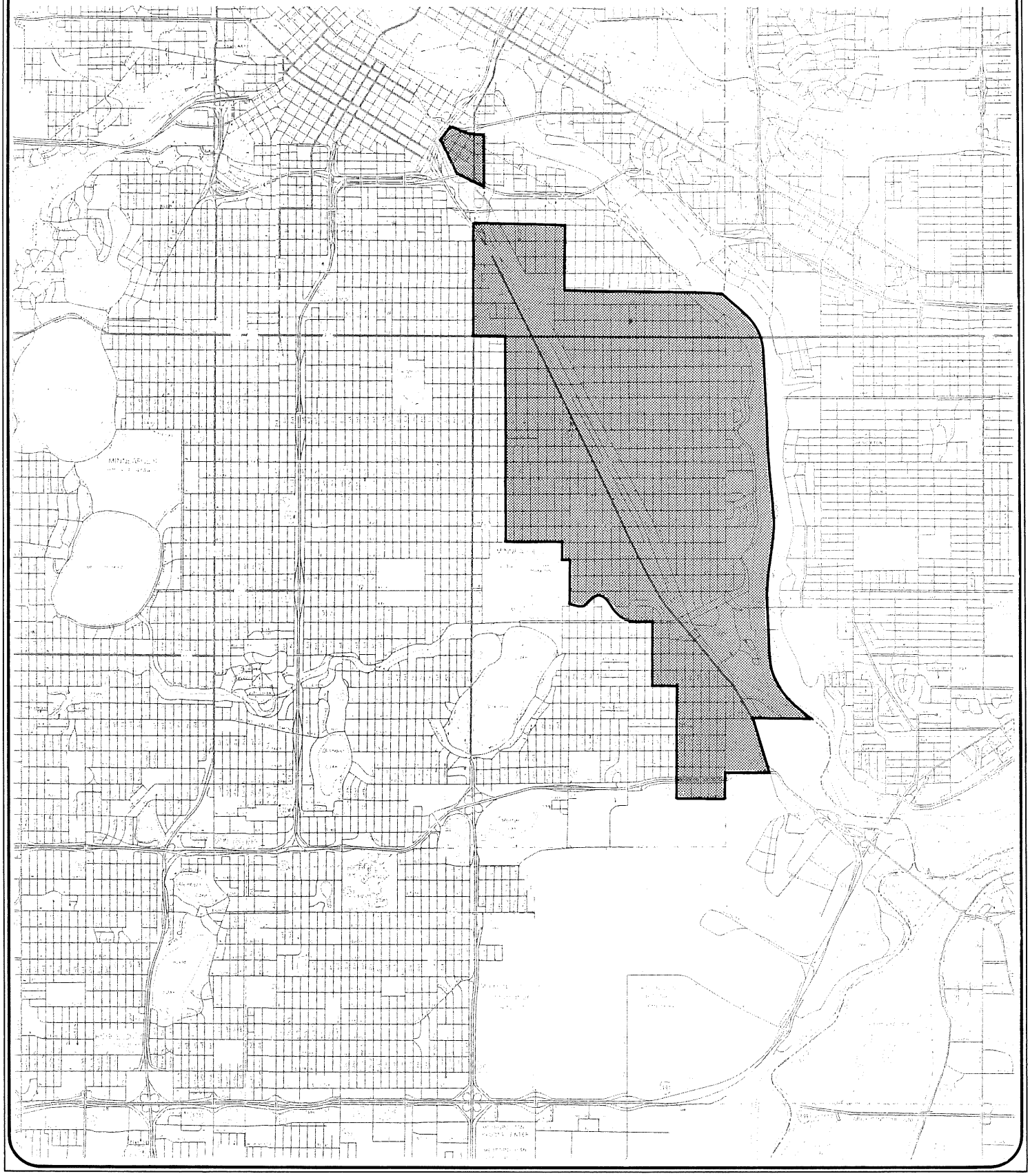


TABLE 5-10

LRT SYSTEM OPERATION FRANCHISE FEE IMPACTS
(In Thousands of 1981 Dollars)

LRT Line Terminus	Annual Franchise Fee
GSA Building	$3.3
Airport	$3.8
Bloomington	$5.6

Summary of Property Tax and Franchise Fee Impacts. Incremental Property tax and franchise fee impacts are summarized by alternative in Table 5-11. Alternative 4 yields the greatest average annual taxes and fees, totaling $15,824,400 during the 1986-1990 period and $35,138,300 during the 1991-2000 period. Alternatives 1 and 2 stimulate development of lesser intensity, resulting in average annual tax and fee impacts of $3,802,300 during 1986-1990, and $7,845,600 during 1991-2000. Very low development intensity is projected under Alternative 3 improvements. Average annual fees and taxes collected are estimated to be $510,100 between 1986-1990, and $1,044,000 during the 1991-2000 period.

Tax and Fee Impacts on Minneapolis. The portion of property tax (71 percent of the total taxes levied) and the franchise fee revenue flowing to the City of Minneapolis and the Minneapolis Public Schools is shown in Table 5-12. Franchise fees are fully collected by the city, and thus remain the same as reported for the total summary of impacts shown earlier.

Alternative 1 is projected to increase average annual city taxes and fees collected by $9,453,300 between 1986-1990. This number will increase to an annual average $18,759,100 during the 1991-2000 period. Tax and fee impacts resulting from Alternatives 1 and 2 are expected to yield an annual average of $2,714,900 during the 1986-1990 period, and $5,602,700 during the 1991-2000 period. Alternative 3 is projected to yield a small amount of property taxes and fees to the city: Between 1986 and 1990, an annual average of $364,900 would be collected by the city in increased taxes and fees. The time period 1991-2000 would yield an average of $747,100 annually in taxes and fees to the city.

5.1.7 Effects on Specific Social Groups

Alternatives 1 through 4 would have significant positive impacts compared to Alternative 5 (no-build) on many social groups such as the elderly, handicapped, nondrivers and transit dependent persons. Minority populations are not contained in the CBD or terminus service area in significant numbers. A community of Native Americans is located in the area from Franklin Avenue to about 25th Street on the West Side of TH 55 (at the north end of the corridor). The proposed action will not result in displacement of any part of this community, nor will there be any significant adverse impacts on this group.

TABLE 5-11

SUMMARY OF FISCAL IMPACTS
TOTAL PROJECT AREA
(In Thousands of 1981 Dollars)

Source of Impact	Alternative 1 and 2 Roadway & HOV	3 Roadway	4 Roadway & LRT	5 No-Build
1986-1990: Annual Averages				
Induced Development				
Property Taxes	$ 3,749.7	$ 500.7	$12,400.7	$ -0-
Franchise Fees	52.6	9.4	112.1	-0-
Subtotal	$ 3,802.3	$ 510.1	$12,512.8	$ -0-
Increased Property Values 1/	-0-	-0-	3,306.0	-0-
LRT Operation 2/	-0-	-0-	5.6	-0-
TOTAL	$ 3,802.3	$ 510.1	$15,824.4	$ -0-
1991-2000: Annual Averages				
Induced Development				
Property Taxes	$ 7,734.1	$1,023.8	$28,681.8	$ -0-
Franchise Fees	111.5	20.2	234.9	-0-
Subtotal	$ 7,845.6	$1,044.0	$28,916.7	$ -0-
Increased Property Values 1/	-0-	-0-	6,216.0	-0-
LRT Operations 2/	-0-	-0-	5.6	-0-
TOTAL	$ 7,845.6	$1,044.0	$35,138.3	$ -0-

1/ Property values will increase 2 percent per year above market increase, 1982-1990, and 1 percent per year above market increase, 1991-2000 due to transportation improvement. This increase in revenue was calculated on a 1981 property tax revenue base of $26,107,000.

2/ Based on stadium site terminus location.

TABLE 5-12

SUMMARY OF FISCAL IMPACTS
CITY OF MINNEAPOLIS: 1986-1990 and 1991-2000
(In Thousands of 1981 Dollars)

Source of Impact	Alternative 1 and 2 Roadway & HOV	3 Roadway	4 Roadway & LRT	5 No-Build
1986-1990: Annual Averages				
Induced Development				
Property Taxes	$ 2,662.3	$ 355.5	$ 6,988.6	$ -0-
Franchise Fees	52.6	9.4	112.1	-0-
Subtotal	$ 2,714.9	$ 364.9	$ 7,100.7	$ -0-
Increased Property Values 1/	-0-	-0-	2,347.0	-0-
LRT Operation 2/	-0-	-0-	5.6	-0-
TOTAL	$ 2,714.9	$ 364.9	$ 9,453.3	$ -0-
1991-2000: Annual Averages				
Induced Development				
Property Taxes	$ 5,491.2	$ 726.9	$14,105.6	$ -0-
Franchise Fees	111.5	20.2	234.9	-0-
Subtotal	$ 5,602.7	$ 747.1	$14,340.5	$ -0-
Increased Property Values 1/	-0-	-0-	4,413.0	-0-
LRT Operations 2/	-0-	-0-	5.6	-0-
TOTAL	$ 5,602.7	$ 747.1	$18,759.1	$ -0-

1/ Property values will increase 2 percent per year above market increase, 1983-1990, and 1 percent per year above market increase, 1991-2000, due to transportation improvement. This increase in revenue was calculated on a 1981 property tax revenue base of $18,536,000.

2/ Based on stadium site terminus location.

NOTE: Includes revenue received by both the City of Minneapolis and Minneapolis Public School District.

5.1.7.1 Alternatives 1 and 2 - Roadway and HOV

Alternatives 1 and 2 would provide buses and carpooling vehicles with priority access and service along Hiawatha Avenue. Persons without automobiles and handicapped persons could benefit from this development alternative by participating in car pools. The travel time advantage offered by exclusive HOV lanes would induce drivers to seek auto-less persons as riders, to qualify as a car pool.

5.1.7.2 Alternative 3 - Roadway and Bus Improvements

Bus related improvements to TH 55 would provide transit-dependent persons with some increases in transit services and comfort. This improvement level would give the transit dependent population only marginally increased transit convenience. Bus riders would be better served by bus waiting shelters and curbside stopping areas exclusively for buses.

5.1.7.3 Alternative 4 - Roadway and LRT

Availability of LRT would improve transportation services for households without cars. Elderly persons and nondrivers living within the CBD and walkshed corridor would find improved frequency and reliability of transit service. Handicap access features of LRT stations would allow ease of vehicle boarding for handicapped persons. Connecting bus routes would provide transfer capability to LRT riders living outside the corridor. LRT fares are projected to equal the MTC bus fares thus attracting similar levels of ridership among transit dependent persons including the elderly. Residential and retail/services development at station areas would provide transit dependent persons with convenient living and shopping opportunities.

5.1.7.4 Alternative 5 - No-Build

Alternative 5 would not cause significant impacts on specific social groups in the Hiawatha Avenue Corridor.

5.1.8 Relocation Impacts

The number of structures to be relocated under the build alternatives is small due to the extensive acquisition and clearance of structures which occurred due to earlier plans to upgrade TH 55 (Figure 5-2). The original plans for upgrading TH 55 called for the construction of a limited access freeway between the Crosstown Highway and Interstate 94. The right-of-way requirements for that facility exceed the requirements of any build alternative currently under consideration.

MnDOT has conducted an on-going program of property acquisition in the TH 55 corridor since the early 1970's. The acquisition program, which is still in operation, is based upon design studies of the originally proposed limited access highway. MnDOT does not maintain an accessible accurate accounting of the exact number of housing units and business establishments displaced to date. However, the financial resources committed to property acquisition and relocation efforts total some $14,639,394. MnDOT has estimated that this expenditure is equivalent to $34,153,382 in 1981 dollars.

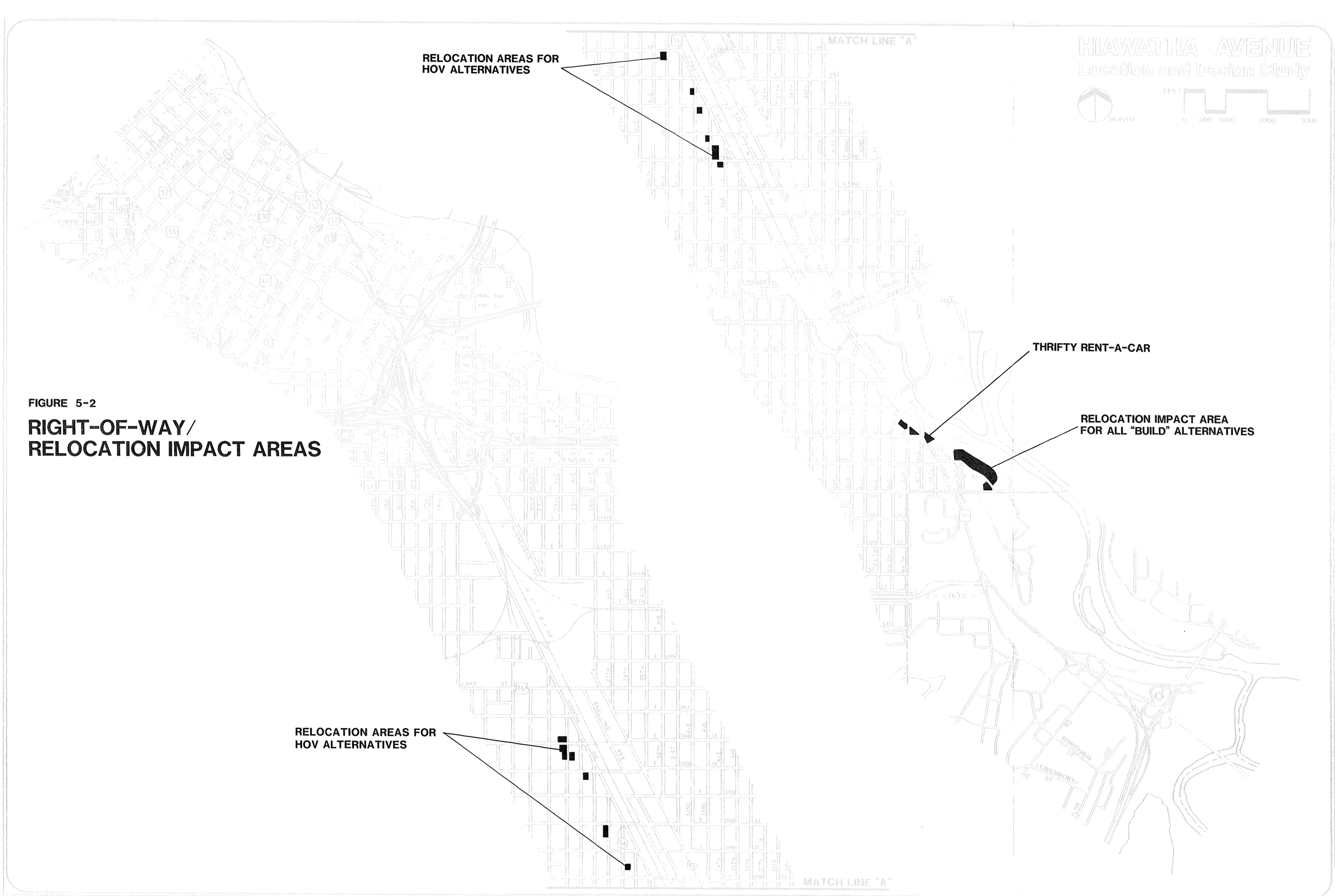


FIGURE 5-2

RIGHT-OF-WAY/ RELOCATION IMPACT AREAS

MnDOT does not have a dedicated acquisition/relocation plan for the TH 55 project. However, all acquisitions and relocations are undertaken in compliance with the 1970 Uniform Relocation Act (Public Law 91-646).

5.1.8.1 Business

Relocation impacts on businesses within the Hiawatha Avenue Corridor are associated with Alternative 4 only. LRT related improvements along Hiawatha Avenue would affect nearby businesses at two levels of influence. The first level consists of building demolition and relocation to allow development of station areas, tracks, and related facilities for LRT. The second level consists of secondary impacts associated with the demolition and relocation of businesses due to the influence of LRT station development. This category would include businesses in underutilized buildings and locations, buildings of substandard physical condition, and those businesses having poor street access as a result of street redesigning and physical improvements to commercial areas.

Minneapolis CBD. Projected LRT alignments and station area locations are expected to influence the desirability of commercial locations downtown. Private market forces would respond to these changes in location desirability, minimizing the need for public involvement.

Hiawatha Corridor. Direct impacts from LRT station area development would be minimal within the corridor; the alternative could require the relocation of one buiness, the office of Thrifty Rent-A-Car. Ample amounts of vacant land surround the proposed station areas in nearly all cases. Where land area is restricted near station locations, proper station design would avoid the taking of existing structures and privately owned land.

Secondary land use impacts in the corridor would be much greater. Station areas could influence land use changes in a radius of up to 1,200 feet, a five-minute walking distance.

The Lake Street station area could realize dramatic changes in its retail base. The Hi-Lake shopping center lies approximately 300 feet from the proposed LRT station location directly underneath the Hiawatha Avenue-Lake Street intersection. Other nearby commercial developments are expected to remain, especially the newer Minnehaha Mall enclosed shopping center. The stability of businesses at 27th Avenue and Lake Street is more doubtful, however.

Recent studies of this commercial area recommend upgrading and infill commercial development by the city. Availability of LRT connections to this area, and residential development induced by the station location, could provide a stimulus for privately initiated upgrading of retail facilities.

Terminus Service Area. The majority of new commercial and office construction resulting from LRT development in the terminus service area would occur on the former Metropolitan Stadium site. Sufficient land is presently available for developing a station area and for accomodating large increases in commercial space near the stadium site. Minimal relocation of businesses would result from the LRT's development influence.

Commercial and office employment increases in other portions of the terminus service area would cause infill and expansion of present retail and office facilities. This is not expected to incur business displacement.

5.1.8.2 Residential

Land use scenarios developed for each alternative (Section 5.1.16) involve various levels of property acquisition and relocation. However, as they are not directly related to the proposed alternatives, potential relocation impacts of these scenarios is not considered to be within the scope of this study. A discussion of residential relocation impacts directly associated with the build alternatives follows.

Alternative 1. Due to its unique design requirements, this alternative would require the greatest number of property acquisitions and relocations. The at-grade HOV/local street intersections must be provided with adequate separation from the main TH 55/local street intersection for traffic safety reasons. To achieve the necessary separation, the HOV must veer to the west several hundred feet. This design constraint necessitates substantial penetration of the roadway into the residential area.

This alternative would require the acquisition/relocation of 41 homes. Of the 41 homes, 14 have been previously acquired by MnDOT (Figure 5-2).

Alternative 2. The grade-separated configuration of the transit element of this alternative permits a lower level of displacement than does the at-grade option. A total of 17 homes and one business must be acquired and the tenants relocated. Of the 17 residences, 4 have previously been acquired by MnDOT (Figure 5-2).

Alternative 3. Representing the most modest build alternative, this option would require a minimal number of additional acquisitions. Based upon current preliminary designs, this alternative will require the removal of eleven homes and no nonresidential structures. Of the eleven homes, four have already been purchased by MnDOT. The general location of the impacted properties is presented on Figure 5-2.

Alternative 4. The LRT has proven to be flexible with regards to right-of-way requirements and design constraints. Consequently, the relocation impacts are similar to those projected under Alternative 3. A total of eleven homes would be taken, four of which were previously acquired by MnDOT. No acquisitions of non-residential properties appear to be necessary (Figure 5-2).

5.1.9 Air Quality Impacts

The air quality impacts of the four build alternatives and the no-build alternative summarized below have been documented in an air quality report prepared for this project.[4/] The report, which has been reviewed by the Minnesota Pollution Control Agency (MPCA) and the Environmental Protection Agency (EPA), includes a pollutant burden analysis of carbon monoxide (CO),

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4/ Reference No. 15.

hydrocarbons (HC) and nitrogen oxides (NO_x), and microscale analyses of CO and lead. The impact of the project on suspended particulates is discussed along with construction impacts. Each alternative is evaluated with regard to the Minnesota State Implementation Plan (SIP), Federal Ambient Air Quality Standards, and State air quality rules and regulations.

This project is in an area where the State Implementation PLan (SIP) is required to contain transportation control measures. The transportation planning process was reviewed by the Federal Highway Administration (FHWA) on November 12, 1982, and the plan was determined to conform to the SIP which was (conditionally) approved by the U.S. Environmental Protection Agency on June 16, 1980. The Transportation Improvement Program (TIP) was determined to conform to the SIP on January 18, 1982. This project was included in the plan and the TIP, both conforming to the SIP. Therefore, pursuant to 23 CFR 770, the project conforms to the SIP.

5.1.9.1. Carbon Monoxide Analysis

The CO analysis resulted in estimates of both one-hour and eight-hour CO concentrations at 46 receptor sites (Figure 5-3) in the years 1990, 2000 and 2010. The concentration estimates consist of both background CO concentrations determined through a one-month monitoring program and local CO concentrations determined through modeling of each of the build alternatives and the no-build alternative. The results of the CO monitoring program are presented in Section 4.2.1.

Background CO concentrations were calculated based on the CO monitoring data. The calculation consisted of identification of the maximum CO concentrations occurring during peak traffic periods and corrections for both wind speed and seasonal mixing height. The background CO concentrations determined for 1979 were factored to the analysis years based on Metropolitan Council estimates of growth in vehicle miles of travel and reductions in CO emissions due to emission controls projected by the MOBILE 2 emissions model. The resultant background concentrations are shown in Table 5-13. Background concentrations observed at the Native American Center were assumed to apply to all areas north of Lake Street. Between Lake Street and Minnehaha Parkway, background concentrations observed at the Northwestern Bell site were used. South of Minnehaha Parkway and along CSAH 62, background concentrations from the Veterans Administration Hospital site were used.

TABLE 5-13

BACKGROUND CARBON MONOXIDE CONCENTRATIONS (PPM)

Year	SITE		
	Northwestern Bell	Native American Center	Veterans Administration
ONE-HOUR			
1979	4.9	4.7	3.9
1990	2.4	2.3	1.9
2000	2.0	1.9	1.6
2010	2.1	2.1	1.7
EIGHT-HOUR			
1979	3.7	3.5	2.9
1990	1.8	1.7	1.4
2000	1.5	1.5	1.2
2010	1.6	1.5	1.3

Local CO concentrations were predicted using the Modified ISMAP model. 5/ ISMAP is a traffic flow, emissions, dispersion model for predicting CO concentrations from mobile sources. The model uses inputs of traffic, roadway, and intersection characteristics to compute queue lengths, delay times and zones of acceleration and deceleration. Using these traffic flow characteristics, the model applies MOBILE 2 emission rates to each roadway segment. These emissions are dispersed using a Gaussian line source model to determine CO concentrations at specified receptor points.

Traffic projections for the year 2000 were factored to the peak eight hours of the day based on existing traffic count data. Traffic projections for the years 1990 and 2010 were also factored from the year 2000 traffic projections. An analysis of origin and destination zones indicated that 26.5 percent of the vehicles would be operating in a cold start mode under the build alternatives. Under the no-build alternative, 29.0 percent of the vehicles were determined to be operating in a cold start mode. Hot starting vehicles were assumed to comprise 20 percent of the vehicles. The vehicle type mix was derived from a study of existing vehicle counts on Hiawatha Avenue and was modified to account for EPA estimates of future diesel vehicle use.

5/ Carbon Monoxide Hot Spot Guidelines, Volume VI: User's Manual for the Modified ISMAP Model, EPA-450/3-78-040, August, 1978.

FIGURE 5-3

CARBON MONOXIDE RECEPTOR SITES

R1 RECEPTOR SITES

HIAWATHA AVENUE
Location and Design Study

NORTH

FEET
0 500 1000 2000 3000

MATCH LINE "A"

R30 R29 R28 R27 R26 R25 R24 R23 R22 R20 R21 R19 R18 R17 R15 R16 R12 R14 R13 R11 R10 R9 R8 R7 R6 R5 R4 R3 R2 R45 R46 R44 R1

R43 R42 R41 R40 R39 R38 R37 R36 R35 R34 R33 R32 R31

MATCH LINE "A"

Meteorological parameters were based on a review of the meteorological data collected during the CO monitoring program and meteorology occurring during historic peaks in CO concentrations at other monitors. The meteorological parameters included a worst case wind speed of 1.0 meters per second and Pasquill Stability Class D during the peak traffic hour (4:00-5:00 PM). Winds from the north-northeast (345°) and south-southeast (145°) making approximately a 10° angle with the general alignment of Hiawatha Avenue were evaluated. An ambient temperature of 20° F was assumed.

CO concentrations were predicted at the 46 receptor sites shown in Figure 5-3. The majority of these sites are located in residential areas along the west side of the corridor although commercial, institutional, and park-land uses are also represented. For the Minnehaha Park subalternatives, receptors have been designated "a" for the covered roadway with grade separation at Minnehaha Parkway, "b" for the covered roadway at grade with Minnehaha Parkway, and "c" for the tunnel subalternative.

The receptors with an eight-hour average concentration greater than 3.5 PPM in 1990, 2000, and 2010 are shown on Table 5-14. In the years 1990 and 2000 receptors with an eight-hour concentration greater than 3.5 PPM are located near the tunnel under subalternative "c" and near the intersection of Hiawatha Avenue and 24th Street. By the year 2010, concentrations greater than 3.5 PPM also occur near the covered roadway of both subalternatives "a" and "b" and near the Hiawatha Avenue intersection with Lake Street.

The maximum eight-hour concentration identified occurred at receptor R38 under the no-build alternative in the year 2010. The eight-hour concentration at this point is 9.1 PPM, which is 0.1 PPM over the state and federal standard of 9.0 PPM. The corresponding one-hour concentration is 15.5 PPM, which is the maximum one-hour concentration identified. This compares to the State one-hour standard of 35.0 PPM. This receptor site is located near the intersection of Hiawatha Avenue and Lake Street. Traffic demand will exceed the capacity of this intersection under the no-build alternative resulting in long vehicle delays and queue lengths not only in the peak traffic hours but also in other hours with a high traffic demand. The result is an extended period of elevated CO concentrations sufficient to exceed the eight-hour standard. Capacity improvements at this intersection are incorporated in the build alternatives and the maximum eight-hour concentration is 4.8 PPM under Alternative 3.

In the vicinity of the covered roadway/tunnel section of the project, the maximum eight-hour CO concentration of 5.2 PPM occurs at receptor R15C under Alternative 3 in the year 2010. All emissions occurring within the tunnel/covered roadway were assumed to be blown out of one portal. These emissions were then dispersed as if they were a line source extending the width of the tunnel/covered roadway. This methodology accounts for the higher concentrations predicted in this area and also represents a worst case situation. Generally, the movement of vehicles within a tunnel causes a piston effect forcing air flow in the direction of traffic flow. Because the northbound lanes will be physically separated from the southbound, the piston effect would cause emissions from only one direction of travel to be emitted from each tunnel portal. However, emissions emerging with the

TABLE 5-14

CARBON MONOXIDE CONCENTRATIONS (PPM)

RECEPTOR*	WIND DIRECTION	ONE-HOUR CONCENTRATIONS Alternative 1	2	3	4	5	EIGHT-HOUR CONCENTRATIONS Alternative 1	2	3	4	5
YEAR 1990											
15C	345°	5.4	5.2	7.0	6.7	2.7	3.0	3.1	4.5	4.3	1.8
18C	145°	6.3	6.1	8.6	8.2	3.2	3.6	3.5	4.5	4.3	2.2
19C	145°	5.9	5.8	7.7	7.3	3.9	3.5	3.3	4.2	4.1	2.5
42	345°	12.2	12.1	9.9	9.8	4.2	6.1	6.1	5.2	5.1	2.6
YEAR 2000											
15C	345°	5.3	5.1	7.1	6.7	2.4	2.9	3.0	4.5	4.2	1.6
18C	145°	6.1	5.9	8.6	8.1	2.8	3.4	3.3	4.4	4.2	1.9
19C	145°	5.7	5.6	7.6	7.2	3.6	3.3	3.1	4.1	3.9	2.2
42	345°	13.0	13.1	4.2	7.9	4.1	6.4	6.5	2.6	4.2	2.5
YEAR 2010											
15C	345°	6.1	5.9	8.2	7.7	2.7	3.4	3.4	5.2	4.9	1.8
16C	345°	5.9	5.7	7.5	7.1	2.1	3.1	3.0	3.8	3.7	1.5
18A	145°	5.1	4.9	6.7	6.4	3.1	2.9	2.9	3.7	3.5	2.1
18C	145°	7.0	6.8	10.0	9.4	3.1	3.9	3.7	5.1	4.8	2.1
19C	145°	6.6	6.4	8.8	8.3	4.1	3.7	3.5	4.7	4.5	2.5
22A	145°	4.6	5.2	7.2	6.3	5.1	2.8	3.1	3.9	3.5	2.9
22B	145°	4.6	5.1	7.1	6.2	5.1	2.8	3.0	3.8	3.5	2.9
22C	145°	4.9	5.5	7.5	6.6	5.1	2.9	3.2	4.0	3.6	2.9
37	345°	4.6	4.6	6.0	4.0	10.4	2.8	2.8	3.4	2.5	5.4
38	345°	4.7	4.7	8.5	4.8	15.5	2.9	3.0	4.8	2.9	9.1
42	345°	5.4	14.0	6.3	5.8	5.2	3.0	6.8	3.4	3.3	2.9

* Receptors with an eight-hour concentration greater than 3.5 PPM.

traffic flow from one side of the tunnel could be recirculated back into the other side resulting in all emissions emerging from one portal. To minimize recirculation, the center wall of the tunnel/covered roadway will extend beyond the end of the structure which will allow emerging emissions to be more fully dispersed.

Receptor R42 is located in the southwest corner of the intersection of Hiawatha Avenue and 24th Street. CO concentrations at this receptor are influenced not only by the intersection of Hiawatha and 24th but also by the intersection of Cedar Avenue and 24th. The combined CO contribution from these two high volume intersections result in the highest eight-hour concentration identified in the corridor under the build alternatives. The maximum eight-hour concentration of 6.8 PPM modeled under Alternative 2 in the year 2010 is 2.2 PPM below the standard. The other alternatives are below this level.

5.1.9.2 Lead

Lead emissions from transportation sources are expected to decrease significantly due to the phasing out of leaded gasoline. By 1990, lead emissions from mobile sources will be negligible. Lead concentrations were predicted at three sites in the corridor for the year 1990. These sites were located near the TH 55 intersections with Franklin Avenue, Lake Street, and CSAH 62. The maximum predicted concentration is 0.35 ug/m^3 near the Lake Street intersection under the build alternatives. Under the no-build alternative the concentration at this point is 0.32 ug/m^3. These concentrations are well below the federal standard of 1.50 ug/m^3 and no violations are predicted.

5.1.9.3 Covered Roadway and Tunnel

Each of the build alternatives has three associated subalternatives relating to a covered roadway or tunnel through Minnehaha Park. The "a" subalternative is a covered roadway approximately 650 feet long extending from just north of Minnehaha Parkway to north of Minnehaha Creek. The "b" subalternative is a covered roadway approximately 470 feet long beginning just south of Minnehaha Parkway and ending north of the creek. This subalternative includes a signalized intersection at Minnehaha Parkway. Subalternative "c" is a tunnel approximately 1,100 feet long extending from north of Minnehaha Parkway to south of the creek. This subalternative would pass under Minnehaha Creek.

Pollutants emitted within a tunnel are dependent on the number and residence time of vehicles in the tunnel and the emission rates of the vehicles. At an average speed of 30 mph, a vehicle would be in the covered roadway of Subalternative a for about 14 seconds. Under Subalternative b, this time would be about 11 seconds and under Subalternative c, this time would be about 25 seconds. These times would also be the usual exposure period for people passing through the tunnel. In emergency situations, possibly involving an accident within the tunnel or near one of the portals, vehicles could be stopped and idling within the tunnel for as long as it takes to clear the obstruction. The exposure period of drivers and passengers would also be increased. The signalized intersection at Minnehaha Parkway under Subalternative b could also cause queues extending into the tunnel.

Partially offsetting emissions within the tunnel is the flow of air through the tunnel. Air movement through the tunnel can result from ambient winds, the piston effect caused by vehicle movement, or mechanically induced ventilation. Air movement is also affected by features such as the orientation of the tunnel portals, the dimensions of the tunnel, and other site specific design features.

Studies of existing tunnels and theoretical models of tunnel air flow have found that tunnels up to 500 feet in length can rely on natural ventilation to maintain acceptable pollutant concentrations. However, depending on specific design details and traffic flow characteristics, natural ventilation may be acceptable in tunnels up to 1,000 feet long. Based on this information, it is likely that the tunnel of Subalternative c will require mechanical ventilation, but the need for mechanical ventilation for the covered roadway subalternatives is not evident. Once a preferred alternative is selected, the design of the tunnel/covered roadway should include an air quality management plan in which specific design features are evaluated with respect to air quality. Control measures such as vehicle or air quality monitoring systems may be required to assure safe tunnel operations.

5.1.10 Noise Impacts

The noise impacts of each of the alternatives under consideration have been addressed in a preliminary noise report prepared for this project. 6/ The noise impacts of the project were determined as follows:

- Identify existing activities and land uses in the study area which could be adversely impacted by noise.
- Determine input parameters for the noise prediction methods used.
- Predict future noise levels (L_{50} and L_{10}) at the identified noise sensitive receptor sites for each alternative.
- Determine noise impacts through comparisons with existing noise levels, Federal Design Noise Levels, and State Noise Standards.

Once the noise impacts were determined, consideration was given to noise abatement measures which would minimize the noise impact. The noise abatement measures were evaluated to determine their effectiveness and to identify remaining noise problems for which no prudent solution is available. This section summarizes the preliminary noise report.

A total of 44 representative noise receptor sites were identified in the study area (Figure 5-4). The land use at each site and the distance from the site to the center line of the nearest traffic lane are shown in Table 5-15. The location of each site remains constant, but the location of the roadway with respect to the site varies by alternative.

6/ Reference No. 16.

FIGURE 5-4

NOISE SENSITIVE RECEPTOR SITES

1 RECEPTOR SITES

HIAWATHA AVENUE
Location and Design Study

NORTH

FEET
0 500 1000 2000 3000

MATCH LINE "A"

MATCH LINE "A"

TABLE 5-15

BACKGROUND INFORMATION BY SITE

Site	General Land Use 2/	FHWA Activity Category 3/	State NAC Category 3/	Distance from Receptor to Hiawatha 1/					
				Existing	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5
1	Office-1	C	2	N/A	401	401	401	401	N/A
2	Res.-6	B	1	N/A	322	322	541	541	N/A
3	Res.-5	B	1	N/A	92	92	161	161	N/A
4	Res.-6	B	1	N/A	142	142	216	216	N/A
5	Res.-8	B	1	N/A	107	107	171	171	N/A
6	Motel-1, Res.-4, Com.-2 , Apt.-1	B	1	30	302	302	361	361	30
7	Res.-3, Com.-2	B	1	35	157	157	211	211	35
8	Res.-3, Com.-1	B	1	30	47	47	106	106	30
9	Apt.-1, Res.-2	B	1	40	62	62	126	126	40
10	Res.-4	B	1	55	72	72	131	131	55
11	Res.-4	B	1	70	102	102	156	156	70
12	Res.-6	B	1	65	92	92	146	146	65
13	Park	B	2	155	21	21	26	26	155
14	Motel-1	B	1	35	81	81	86	86	35
15	Res.-6	B	1	525	407	407	446	446	525
16	Res.-12	B	1	375	242	242	296	296	375
17	Res.-4	B	1	315	157	157	246	246	315
18	Res.-17	B	1	230	92	77	181	181	230
19	Res.-14	B	1	280	152	127	231	231	280
20	Church-1, School-1	B	1	660	522	497	601	601	660
21	Res.-11	B	1	385	177	222	331	331	385
22	Church-1	B	1	545	232	382	481	481	545
23	Res.-7	B	1	335	27	167	276	276	335
24	Res.-10	B	1	250	102	87	196	196	250
25	Res.-16	B	1	280	147	127	231	231	280
26	Res.-14	B	1	280	142	122	231	231	280
27	Res.-15	B	1	310	22	147	256	256	310
28	Com.-1, Res.-12	B	1	300	152	137	246	246	300
29	Res.-12	B	1	315	167	152	266	266	315
30	Res.-15	B	1	365	72	207	316	316	365
31	Res.-15	B	1	340	197	177	291	291	340
32	Res.-8	B	1	235	77	77	191	191	235
33	Res.-14	B	1	335	37	177	286	286	335
34	Apt.-2, Res.-9	B	1	420	127	262	381	381	420
35	Res.-9, Com.-1	B	1	690	547	547	641	641	690
36	Res.-3, Ind., Com.	B	1	225	157	157	171	171	225
37	Res.-10, Ind.	B	1	180	172	172	216	216	180
38	Multi-Family-8	B	1	145	157	157	181	181	145
39	Apt.-3	B	1	160	117	117	136	136	160
40	Res.-6	B	1	72	N/A	N/A	N/A	N/A	72
41	Hospital	B	1	342	N/A	N/A	N/A	N/A	342
42	Motel-1, Res.-5, Com.-1	B	1	22	N/A	N/A	N/A	N/A	22
43	Apt.-1, Res.-6, Com.-3	B	1	37	N/A	N/A	N/A	N/A	37
44	Hospital	B	1	65	418	418	418	418	65

N/A - Not applicable because receptor is not adjacent to proposed alignment.

1/ Distances were measured in feet from the receptor to the center of the near lane. (Either Hiawatha Avenue or the HOV lanes were used depending on the alternative and the location of the receptor.) The distances from all receptors located on the west side of Hiawatha Avenue and north of the Minnehaha Avenue intersection are to the center of the near lane of Hiawatha Avenue. The LRT line is approximately 50 feet closer to the receptor than the distances shown. For site 44, the distances were measured from the property line to the center of the near lane.

2/ The number of residences and apartment/multi-family residences represents a tabulation of structures only and does not reflect the number of dwelling units.

3/ Where two or more categories are applicable, the most stringent category was used.

Most of these sites shown on Figures 5-4 are located in the residential area on the west side of TH 55. Few sites were selected on the east side because the industrial land uses immediately adjacent to TH 55 are not considered noise sensitive. In addition to the residential land uses, a school, two churches, and the Veterans Administration Hospital have been represented.

Noise predictions were made at each of the 44 sites for the existing situation and each of the five alternatives using the FHWA Level 2 highway traffic noise prediction model, STAMINA 1.0. Both daytime (7:00 AM-10:00 PM) and nighttime (10:00 PM-7:00 AM) noise level predictions were made using the L_{10} and L_{50} descriptors. These descriptors refer to the noise level exceeded 10 percent and 50 percent of the time, respectively. Design hourly traffic volumes (8 percent of average daily traffic) were used for the daytime noise level predictions. The peak nighttime hour was determined to be 6:00 AM to 7:00 AM; traffic in this hour is expected to be 4 percent of average daily traffic. Table 5-16 shows the vehicle mix determined and used for this analysis.

TABLE 5-16

NOISE ANALYSIS VEHICLE MIX

	Daytime		Nighttime	
Vehicle Type	TH 55	CSAH 62	TH 55	CSAH 62
Automobiles	95.5%	97.0%	97.4%	95.0%
Heavy Trucks	1.6%	1.0%	0.9%	2.0%
Medium Trucks	2.5%	2.0%	1.4%	3.0%
Buses	0.4%	0.0%	0.3%	0.0%

Because there exists no accepted methodology for predicting traffic noise from interrupted flow (stop-and-go traffic), an uninterrupted flow was assumed and the following operating speeds were used:

- At-grade arterial - 40 mph
- At-grade HOV lanes - 40 mph
- Grade-separated HOV lanes - 50 mph
- Unimproved Arterial - 35 mph
- CSAH 62 Section - 55 mph

The geometric alignment of the roadway and the distance between the receiver and the roadway varies by alternative. In all cases, however, variation in terrain was considered and the ground between the roadway and the receiver was assumed to be acoustically soft. Shielding from buildings was not used in the analysis.

Probable noise levels of the proposed Hiawatha LRT system were predicted using TSC (Transportation Systems Center) methods. Input parameters consisted of system-wide specifications and assumed operating conditions. The following parameters should be considered conceptual and not as design details; however, they are representative of the construction and operating characteristics of the proposed LRT line.

- Rail Type: Welded smooth rail.
- Road Bed: Hard stone ballast on stabilized base for at-grade corridor portions; neoprene pads with fasteners on concrete slab in tunnel sections; stabilized base on street surfaces.
- Wheels: True steel (resilient rims may be used).
- Frequency: 7 AM to 9 AM, 2-5 minutes
  9 AM to 4 PM, 15 minutes
  4 PM to 6 PM, 2-5 minutes
  6 PM to 9 PM, 15 minutes
- Operating Speed: 12 to 40 MPH; average speed throughout the trip of 25 MPH including stops.

The predicted daytime and nighttime noise levels appear in Tables 5-17 and 5-18. The noise impacts of each alternative are determined through comparisons with Federal Design Noise Levels, State Noise Standards, and existing noise levels. Federal Design Noise Levels are exceed at sites 13 and 14. Site 13 exceeds the Design Noise Levels under all of the build alternatives. Site 14 also exceeds the Design Noise Levels under all the build alternatives which include the covered roadway with an at-grade intersection with Minnehaha Parkway subalternative. Under Alternative 5 (no-build) the Design Noise Levels are exceeded at eleven sites.

The number of sites that exceed the State Daytime Noise Standards range from a low of 12 for Alternative 5 to a high of 18 for Alternative 1. In at least half of the cases, if the predicted noise level at a site exceeds the State Daytime Standards for one alternative, it exceeds the standards for all of the alternatives. The State Nighttime Noise Standards are exceeded at 35 sites for both Alternatives 1 and 2, at 33 sites for both Alternatives 3 and 4 and at 22 sites for Alternative 5.

Comparison of predicted future noise levels with predicted existing noise levels indicates the change in noise levels which will be experienced at each of the receptor sites. Generally, noise impacts can be expected when the future noise levels are substantially higher (approximately 10 dBA or more) than the existing noise levels. For comparative purposes, a change of 3 dBA is typically consdiered the smallest noticeable change over an extended period of time. A 10 dBA change in noise, however, is perceived by most people to represent a doubling or halving of the "loudness" of a sound. The following sites, which are listed by alternative, have noise levels which are considered substantially higher than the existing noise levels, as predicted.

TABLE 5-17

PREDICTED DAYTIME NOISE LEVELS - dBA

Site	Existing		Future											
			Alt. 1		Alt. 2		Alt. 3		Alt. 4		Alt. 4 1/		Alt. 5	
	L_{50}	L_{10}	L_{50}	L_{10}	L_{50}	L_{10}	L_{50}	L_{10}	L_{50}	L_{10}	L_{50}	L_{10}	L_{50}	L_{10}
1	2/	2/	55.9	60.1	55.7	59.9	56.0	60.2	55.5	59.8	55.5	59.8	N/A	N/A
2	2/	2/	54.6	58.1	54.8	58.6	54.3	57.9	53.4	57.2	53.4	57.2	N/A	N/A
3	2/	2/	61.3	66.5	61.5	67.2	61.7	67.3	60.5	66.5	60.5	66.5	N/A	N/A
4	2/	2/	59.9	64.6	60.2	65.0	59.8	64.6	58.6	63.9	58.6	63.9	N/A	N/A
5	2/	2/	60.6	65.9	60.9	66.4	60.4	65.9	59.1	65.0	59.1	65.0	N/A	N/A
6	63.1	72.2	56.3	60.5	56.6	60.8	56.4	60.7	60.1	65.2	55.2	59.8	64.8	73.4
7	62.8	71.7	59.1	64.2	59.5	64.7	58.9	64.2	61.6	66.7	57.7	63.3	64.5	73.0
8	63.2	72.3	62.3	68.9	62.4	69.7	61.4	68.0	63.2	68.3	60.0	67.0	64.9	73.5
9	63.7	73.0	61.6	67.8	61.8	68.5	60.8	67.2	62.6	67.7	59.4	66.2	65.4	74.3
10	62.1	70.8	60.9	66.8	61.2	67.4	60.3	66.5	61.8	66.9	58.9	65.5	63.8	72.1
11(T)	N/A	N/A	59.5	65.1	59.9	65.6	59.1	64.9	60.2	65.3	57.7	63.9	N/A	N/A
(S)	N/A	N/A	59.6	65.1	60.0	65.6	59.3	65.0	60.3	65.4	57.8	64.0	N/A	N/A
(I)	61.2	69.5	59.8	65.2	60.4	65.7	59.4	65.1	61.1	66.2	59.0	64.8	62.9	70.8
12(T)	N/A	N/A	60.1	66.2	60.6	66.8	59.6	65.9	61.1	66.2	58.0	64.8	N/A	N/A
(S)	N/A	N/A	60.5	66.5	60.9	67.1	60.0	66.1	61.3	66.4	58.5	65.1	N/A	N/A
(I)	61.2	69.5	61.0	66.7	61.4	67.1	60.2	66.3	62.2	67.3	59.8	66.0	62.9	70.8
13(T)	N/A	N/A	62.8	72.0	62.7	71.8	63.8	72.7	67.5	72.6	62.2	71.5	N/A	N/A
(S)	N/A	N/A	63.3	72.4	63.2	72.3	64.3	73.2	68.0	73.1	62.7	72.0	N/A	N/A
(I)	56.1	62.8	65.0	74.5	64.1	73.7	65.3	74.6	70.3	75.4	64.9	74.3	57.9	64.1
14(T)	N/A	N/A	60.1	67.7	60.1	67.7	60.9	68.4	63.0	68.1	59.3	67.2	N/A	N/A
(S)	N/A	N/A	60.2	67.8	60.2	67.7	61.0	68.4	63.0	68.1	59.4	67.3	N/A	N/A
(I)	60.0	69.1	62.3	70.6	62.1	70.4	63.2	71.2	66.7	71.8	62.8	71.0	62.3	70.9
15(T)	N/A	N/A	51.1	55.9	51.4	56.1	53.1	56.2	52.1	57.2	49.8	55.2	N/A	N/A
(S)	N/A	N/A	51.9	56.3	52.1	56.5	52.1	56.6	52.6	57.7	50.7	55.6	N/A	N/A
(I)	48.7	53.7	52.2	56.7	52.5	56.9	52.3	56.9	53.7	58.8	52.3	56.9	51.0	55.4
16(T)	N/A	N/A	55.6	60.4	56.0	60.7	55.6	60.5	56.1	61.2	54.2	59.5	N/A	N/A
(S)	N/A	N/A	55.7	60.4	56.1	60.7	55.7	60.6	56.1	61.2	54.3	59.6	N/A	N/A
(I)	50.0	55.6	55.2	59.9	55.6	60.2	55.2	60.1	56.7	61.8	55.3	60.0	52.2	57.1
17(T)	N/A	N/A	57.6	62.5	57.9	62.9	57.5	62.5	58.0	63.1	56.0	61.5	N/A	N/A
(S)	N/A	N/A	57.7	62.6	58.0	63.0	57.5	62.5	58.0	63.1	56.0	61.5	N/A	N/A
(I)	51.1	57.2	55.6	61.3	56.1	61.7	55.2	61.2	56.8	61.9	54.6	60.0	53.5	58.8
18	52.9	59.2	60.0	65.1	60.5	66.3	59.3	64.6	59.8	64.9	57.9	63.6	55.6	61.2
19	52.8	58.7	59.0	63.8	59.6	64.7	58.6	63.6	58.8	63.9	57.2	62.6	54.4	59.8
20	48.3	52.9	53.3	56.8	53.6	57.0	53.3	56.8	52.7	57.8	52.0	55.9	49.6	53.8
21	52.7	58.5	57.3	61.6	57.4	61.7	58.4	63.3	58.4	63.5	56.9	62.3	53.9	59.3
22	49.3	54.1	54.8	58.5	54.7	58.3	54.4	58.2	54.0	59.1	53.0	57.2	50.2	54.6
23	52.1	57.6	58.6	65.2	58.1	62.7	57.5	62.2	57.5	62.6	56.0	61.2	52.9	58.1
24	53.5	59.5	59.6	64.8	60.3	66.0	59.2	64.6	59.6	64.7	57.6	63.5	54.0	59.8
25	52.6	58.3	58.3	63.1	59.0	64.0	58.0	63.1	58.3	63.4	56.5	62.0	52.7	58.3
26	52.9	58.8	58.7	63.6	59.3	64.6	58.3	63.5	58.7	63.8	56.8	62.4	52.8	58.6
27	53.0	58.6	59.4	68.4	58.3	63.1	57.8	62.6	58.0	63.1	56.3	61.6	52.6	58.4
28	53.6	59.0	58.9	63.3	58.9	63.6	58.1	62.9	58.3	63.4	56.7	61.9	53.1	58.7
29	53.4	58.8	57.8	62.5	58.8	63.5	58.1	62.8	58.1	63.2	56.6	61.8	53.0	58.5
30	52.8	57.9	57.2	61.6	58.0	62.2	57.5	61.8	57.3	62.4	56.1	60.9	52.5	57.8
31	53.4	58.7	58.6	62.9	59.3	63.7	58.3	62.8	58.3	63.4	57.1	62.0	53.4	58.7
32	54.9	60.6	61.1	66.1	61.6	66.9	60.2	65.5	60.7	65.8	59.0	64.6	54.9	60.6
33	53.4	58.4	59.5	65.5	58.9	63.2	57.1	61.4	58.1	63.2	56.9	61.7	53.3	58.4
34	52.5	57.0	57.7	61.9	57.1	60.9	56.4	60.4	56.2	61.3	55.3	59.5	52.3	56.9
35	50.0	54.0	54.2	57.3	53.8	57.0	53.9	57.1	53.1	58.2	52.7	56.3	49.9	53.9
36	57.3	62.7	62.1	66.9	61.3	66.3	60.0	65.4	61.4	66.5	60.0	65.4	57.0	62.6
37	57.0	62.7	60.7	65.6	60.4	65.3	59.9	64.6	60.8	65.9	59.9	64.6	56.8	62.6
38	58.1	64.2	61.5	66.7	61.2	66.5	60.9	65.9	61.9	67.0	60.9	65.9	57.9	64.1
39	58.3	64.6	63.3	69.1	63.0	68.9	63.3	69.4	65.0	70.1	63.3	69.4	58.3	64.6
40	62.0	69.9	N/A	N/A	N/A	N/A	N/A	N/A	53.1	58.2	N/A	N/A	63.0	70.7
41	53.6	58.8	N/A	N/A	N/A	N/A	N/A	N/A	45.5	50.6	N/A	N/A	54.8	59.6
42	64.0	73.4	N/A	N/A	N/A	N/A	N/A	N/A	55.6	60.7	N/A	N/A	65.7	74.6
43	63.8	73.2	N/A	N/A	N/A	N/A	N/A	N/A	57.2	62.3	N/A	N/A	65.6	74.6
44	68.0	70.0	57.0	60.2	57.0	60.2	57.0	60.2	57.0	60.2	57.0	60.2	66.4	68.0

N/A - Not applicable because receptor is not adjacent to proposed alignment.

T - Tunnel

B - Covered Roadway, Grade-Separated at Minnehaha Parkway.

I - Covered Roadway, At-Grade at Minnehaha Parkway.

1/ - Predicted noise levels only apply to highway facility and not to the LRT component of this alternative.

2/ - Existing noise levels were not predicted for these Sites because the sites are not adjacent to a major roadway. Daytime monitored noise levels in the area, however, are L_{50} 50 and L_{10} 55.

TABLE 5-18

PREDICTED NIGHTTIME NOISE LEVELS - dBA

Site	Existing		Future									
			Alt. 1		Alt. 2		Alt. 3		Alt. 4		Alt. 5	
	L_{50}	L_{10}	L_{50}	L_{10}	L_{50}	L_{10}	L_{50}	L_{10}	L_{50}	L_{10}	L_{50}	L_{10}
1	1/	1/	51.2	56.4	51.0	56.3	51.3	56.4	50.7	56.1	N/A	N/A
2	1/	1/	50.1	54.7	50.3	55.3	49.6	54.2	48.7	53.6	N/A	N/A
3	1/	1/	56.5	62.9	56.6	63.7	56.7	63.4	55.4	62.5	N/A	N/A
4	1/	1/	55.2	61.0	55.5	61.6	54.9	60.8	53.6	60.1	N/A	N/A
5	1/	1/	55.8	62.3	56.1	62.9	55.4	62.0	54.0	61.1	N/A	N/A
6	57.6	67.6	51.7	56.9	52.1	57.4	51.6	57.0	50.3	56.1	59.2	68.9
7	57.2	67.2	54.4	60.6	54.7	61.1	53.9	60.3	52.6	59.4	58.9	68.5
8	57.6	67.7	57.4	65.1	57.4	65.9	56.2	63.9	54.7	62.8	59.3	69.0
9	58.2	68.4	56.7	64.0	56.9	64.8	55.7	63.1	54.2	62.1	59.9	69.8
10	56.6	66.3	56.0	63.0	56.3	63.7	55.2	62.4	53.7	61.4	58.3	67.6
11(T)	N/A	N/A	54.6	61.3	55.1	61.9	54.1	61.0	52.5	59.9	N/A	N/A
(S)	N/A	N/A	54.7	61.3	55.2	62.0	54.2	61.1	52.6	60.0	N/A	N/A
(I)	55.6	65.1	55.1	61.5	55.8	62.2	54.3	61.1	53.9	60.9	57.3	66.4
12(T)	N/A	N/A	55.1	62.3	55.7	63.1	54.5	61.9	52.8	60.7	N/A	N/A
(S)	N/A	N/A	55.5	62.6	56.1	63.4	54.9	62.2	53.2	61.0	N/A	N/A
(I)	55.6	65.5	56.2	62.9	56.7	63.5	55.1	62.2	54.7	62.0	57.3	66.4
13(T)	N/A	N/A	57.0	67.2	57.4	67.5	58.5	68.4	56.8	67.1	N/A	N/A
(S)	N/A	N/A	57.4	67.6	57.9	67.9	59.0	68.8	57.3	65.5	N/A	N/A
(I)	50.8	58.6	59.7	70.0	58.7	69.2	59.9	70.1	59.5	69.8	52.6	59.9
14(T)	N/A	N/A	54.9	63.5	55.0	63.5	55.7	64.2	54.0	62.9	N/A	N/A
(S)	N/A	N/A	55.0	63.6	55.1	63.6	55.7	64.2	54.1	63.0	N/A	N/A
(I)	54.5	64.7	56.9	66.3	57.0	66.1	57.8	66.9	57.5	66.7	56.8	66.4
15(T)	N/A	N/A	46.3	52.2	46.7	52.5	46.4	52.4	44.8	51.3	N/A	N/A
(S)	N/A	N/A	47.1	52.6	47.6	53.0	47.2	52.9	45.7	51.8	N/A	N/A
(I)	43.6	49.9	47.5	53.0	48.0	53.3	47.4	53.1	47.4	53.1	46.0	51.5
16(T)	N/A	N/A	50.9	56.7	51.3	57.1	50.7	56.7	49.1	55.6	N/A	N/A
(S)	N/A	N/A	51.0	56.7	51.5	57.2	50.8	56.8	49.3	55.7	N/A	N/A
(I)	44.8	51.7	50.5	56.2	51.1	56.6	50.3	56.2	50.3	56.2	47.1	53.1
17(T)	N/A	N/A	53.0	58.9	53.2	59.4	52.5	58.7	50.9	57.6	N/A	N/A
(S)	N/A	N/A	53.0	58.9	53.3	59.4	52.6	58.7	51.0	57.6	N/A	N/A
(I)	45.8	53.2	50.8	57.5	51.5	58.1	50.0	57.1	49.5	56.2	48.4	54.8
18	47.6	55.1	55.2	61.4	55.8	62.8	54.4	60.7	52.5	59.5	50.5	57.2
19	47.6	54.7	54.3	60.2	54.9	61.2	53.7	59.7	52.1	58.7	49.2	55.7
20	43.3	49.1	48.9	53.2	49.2	53.5	48.7	53.2	47.2	52.2	44.7	49.9
21	47.5	54.5	52.7	58.1	52.8	58.3	53.4	59.5	51.8	58.4	48.7	55.3
22	44.3	50.3	50.3	55.0	50.2	54.8	49.7	54.6	48.2	53.4	45.2	50.8
23	46.9	53.7	53.8	61.6	53.5	59.2	52.6	58.5	51.0	57.2	47.7	54.2
24	48.2	55.4	54.9	61.1	55.6	62.3	54.2	60.7	52.5	59.4	48.7	55.8
25	47.3	54.3	53.6	59.5	54.4	60.5	53.1	59.3	51.4	58.0	47.5	54.3
26	47.7	54.7	54.0	60.0	54.7	61.0	53.4	59.7	51.7	58.4	47.6	54.5
27	47.8	54.6	54.7	64.6	53.7	59.6	52.9	58.9	51.3	57.7	47.4	54.3
28	48.4	55.1	54.1	59.6	54.3	60.2	53.2	59.1	51.7	58.1	47.9	54.7
29	48.3	54.8	52.8	58.6	54.2	60.0	53.2	59.0	51.6	58.0	47.8	54.5
30	47.6	54.0	52.4	57.9	53.4	58.7	52.7	58.1	51.2	57.1	47.4	53.8
31	48.2	54.7	54.0	59.3	54.7	60.2	53.5	59.1	52.1	58.1	48.2	54.7
32	49.6	56.6	56.4	62.5	56.9	63.4	55.2	61.6	53.9	60.6	49.6	56.6
33	48.3	54.5	54.7	61.9	54.3	59.7	52.3	57.7	52.0	57.8	48.2	54.5
34	47.5	53.1	53.0	58.5	52.7	57.4	51.7	56.7	50.4	55.7	47.3	53.1
35	45.2	50.2	49.8	53.7	49.5	53.5	49.3	53.5	48.0	52.6	45.0	50.1
36	52.1	58.7	57.3	63.1	56.6	62.6	56.4	62.5	55.0	61.5	51.8	58.6
37	51.7	58.7	55.7	61.7	55.4	61.5	55.4	61.1	55.0	60.8	51.5	58.6
38	52.8	60.1	56.5	62.9	56.2	62.6	56.3	62.3	56.0	62.1	52.6	60.0
39	53.0	60.4	58.2	65.1	57.8	64.9	58.5	65.6	58.2	65.4	53.0	60.4
40	56.5	65.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	57.6	66.3
41	48.5	54.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	49.7	55.7
42	58.4	68.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	60.1	70.1
43	58.3	68.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	60.0	69.9
44	65.0	67.7	54.0	58.9	54.0	58.9	54.0	58.9	54.0	58.9	63.4	65.8

N/A - Not applicable because receptor is not adjacent to proposed alignment.

T - Tunnel

S - Covered Roadway, Grade Separated at Minnehaha Parkway.

I - Covered Roadway, At-Grade at Minnehaha Parkway.

1/ - Existing noise levels were not predicted for these sites because the sites are not adjacent to a major roadway. Nighttime monitored noise levels in the area, however, are L_{50} 49 and L_{10} 53.

- Alternative 1 - Sites 3, 4, 5, 13S, 13I, 27
- Alternative 2 - Sites 3, 4, 5, 13S, 13I
- Alternative 3 - Sites 3, 4, 5, 13T, 13S, 13I
- Alternative 4 - Sites 3, 5, 13T, 13S, 13I
- Alternative 4 - (Highway only) - Sites 3, 5, 13I
- Alternative 5 - None

Mitigation of noise impacts can be accomplished through:

- Noise source controls
- Noise receiver controls
- Noise path controls

Noise source controls consist of operational restrictions or enforcement programs to reduce the amount of noise generated by vehicles. An operational restriction, banning trucks on Hiawatha Avenue, was considered in the scoping process. This restriction was rejected because negative impacts such as increased noise on alternate truck routes and increased travel times to industries on Hiawatha Avenue outweighed the potential benefits in the corridor. Posted speed limits on Hiawatha Avenue will be enforced. Reduced speeds were not considered since motorists tend not to obey unrealistic speed limits.

Noise receiver control pertains to insulating a receiver from a particular noise source. This type of control has no effect on exterior noise levels and is generally reserved for special cases where other methods are not feasible.

The construction of barriers or berms to block the noise path can mitigate the majority of noise impacts. In the majority of cases, a decrease of 10 dBA or less is needed to minimize the expected impacts. For comparative purposes, the following relates attenuation to complexity when barriers are used.

Attenuation	Complexity
5 dBA	Simple
10 dBA	Attainable
15 dBA	Very Difficult
20 dBA	Nearly Impossible

SOURCE: NCHRP 174 (1976)

Table 5-19 shows the number of residences which are expected to experience noise in excess of Federal Design Noise Levels or State Noise Standards both with and without barrier mitigation. Barriers can effectively mitigate noise to meet both Federal Design Noise Levels and State Daytime Noise Standards. Those residences which remain over the State Nighttime Noise Standards even with mitigation are located in the vicinity of signalized intersections where breaks in the barrier would be necessary.

TABLE 5-19

IMPACTED RESIDENCES BASED ON FHWA DESIGN NOISE LEVELS AND STATE NOISE STANDARDS NO ABATEMENT/WITH ABATEMENT

	Impacted Residences Within L_{10} 70 dBA Traffic Noise Contour 1/					Impacted Residences Within L_{10} 65 dBA Noise Contour 2/					Impacted Residences Within L_{10} 55 dBA Noise Contour 3/				
Road Segment	Alt.1	Alt.2	Alt.3	Alt.4 4/	Alt.5	Alt.1	Alt.2	Alt.3	Alt.4	Alt.5	Alt.1	Alt.2	Alt.3	Alt.4	Alt.5
Hiawatha Avenue															
CSAH 62 to Bureau of Mines Road	0/0	0/0	0/0	0/0	N/A	0/0	0/0	0/0	0/0	N/A	0/0	0/0	0/0	0/0	N/A
Bureau of Mines Road to Minnehaha Avenue	0/0	0/0	7/0	7/0	N/A	4/0	4/0	12/0	10/0	N/A	19/0	19/0	32/7	29/7	N/A
Minnehaha Avenue to E. 50th Street	0/0	0/0	0/0	0/0	0/0	10/0	10/0	11/0	13/0	9/9	36/5	40/5	54/5	37/4	30/30
E. 50th Street to Creek Crossing	0/0	0/0	0/0	0/0	0/0	0/0	1/0	5/0	5/0	4/4	6/0	8/0	15/0	10/0	15/15
Creek Crossing to E. 46th Street	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	1/0	2/0	10/0	1/0	0/0
E. 46th Street to E. 42nd Street	0/0	0/0	0/0	0/0	0/0	2/0	1/0	0/0	1/0	0/0	28/5	31/2	40/1	22/1	9/9
E. 42nd Street to E. 38th Street	0/0	0/0	0/0	0/0	0/0	8/0	0/0	0/0	2/0	0/0	49/1	51/3	67/2	44/1	4/4
E. 38th Street to E. 35th Street	0/0	0/0	0/0	0/0	0/0	2/0	0/0	0/0	0/0	0/0	13/2	15/2	39/3	20/3	3/3
E. 35th Street to E. 32nd Street	0/0	0/0	0/0	0/0	0/0	4/1	1/0	3/0	6/0	0/0	29/4	19/3	62/2	46/2	4/4
E. 32nd Street to Lake Street	0/0	0/0	0/0	0/0	0/0	1/0	0/0	0/0	0/0	0/0	5/0	1/1	5/1	2/1	1/1
Lake Street to E. 28th Street	0/0	0/0	0/0	0/0	0/0	2/0	0/0	2/0	1/0	0/0	9/0	11/0	18/0	13/0	3/3
E. 28th Street to E. 24th Street	0/0	0/0	0/0	0/0	0/0	8/0	8/0	6/0	7/0	0/0	37/2	37/2	42/4	38/2	21/21
E. 24th Street to Franklin Avenue	0/0	0/0	0/0	0/0	0/0	1/0	1/0	1/0	1/0	0/0	3/0	3/0	6/0	7/0	2/2
Minnehaha Avenue															
CSAH 62 to E. 54th Street	N/A	N/A	N/A	N/A	0/0	N/A	N/A	N/A	0/0	4/4	N/A	N/A	N/A	N/A	5/5
E. 54th Street to Hiawatha Avenue	N/A	N/A	N/A	N/A	0/0	N/A	N/A	N/A	0/0	22/22	N/A	N/A	N/A	N/A	46/46
CSAH 62															
Minnehaha Avenue to 46th Street	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0

NOTE: The number of residences represents a tabulation of structures only and does not reflect the number of dwelling units.

N/A - Not Applicable

1/ - Represents FHWA Design Noise Levels (Activity Category B).

2/ - Represents State Daytime Noise Standards (NAC-1). The L_{50} 60 contour falls between the L_{10} 65 contour and the roadway.

3/ - Represents State Nightime Noise Standards (NAC-1). The L_{50} 50 contour falls between the L_{10} 55 contour and the roadway.

4/ - Only applies to the highway facility and not to the LRT components of this alternative.

Noise wall segments at the following locations would be necessary to meet Federal Design Noise Levels.

- Bureau of Mines to Minnehaha Avenue on the west side of Hiawatha to protect seven residences.
- Minnehaha Avenue to E. 50th Street on the east side of Hiawatha to protect Minnehaha Park.
- E. 50th Street to Minnehaha Creek crossing on the east side of Hiawatha to protect Minnehaha Park.

It is MnDOT policy to meet State noise standards on all trunk highway projects. The following noise wall segments are necessary to meet State noise standards.

- Minnehaha Park to East 31st Street on the west side of Hiawatha with breaks only at signalized intersections.
- 28th Street to 29th Street on the west side of Hiawatha.
- 24th Street to 26th Street on the west side of Hiawatha.
- Franklin Avenue to 24th Street on the west side of Hiawatha.

The total barrier length would be approximately four miles.

Actual construction of noise walls and earthen berms to provide noise attenuation will be further evaluated during design of the preferred alternative. Decisions to construct noise barriers will be based on resident input and cost-effectiveness evaluations. Where noise abatement is not feasible, a variance will be requested from the Minnesota Pollution Control Agency. The final location and design of barriers to be constructed will be described in a Final Noise Report prepared prior to Plans, Specifications, and Estimates. The Final Noise Report will also contain requests for exceptions to the Federal Design Noise Levels, if needed.

The noise barriers proposed for each of the build alternatives may be perceived as having either a positive or a negative visual impact. Some residents living near noise walls along other highways in the Twin Cities report that the barriers improved privacy and were an improvement over a view of the highway. Other residents felt that the limited or restricted view caused by the barriers was a disadvantage. The majority of residents felt that barriers did effectively reduce traffic noise.7/

7/ Results of Twin Cities Noise Wall Survey, Minnesota Department of Transportation, January, 1980.

LRT Noise Impact Beyond Limits of Proposed Roadway Project

There are five subalternatives to Alternative 4 that extend beyond the limits of proposed TH 55 construction. Two of these subalternatives penetrate the Minneapolis CBD, while the remaining three represent candidate sites for a southern terminus, which would be located south of CSAH 62. Predicted LRT-related noise levels for these areas are presented in Table 5-20. In the table, four track categories were considered:

- Straight track at grade
- Straight track arterial
- Curved track at grade
- Curved track arterial

TABLE 5-20

PREDICTED LRT NOISE LEVELS - dBA

Category	40 MPH Leq	30 MPH Leq	20 MPH Leq
Straight Track - At-Grade	57.4	55.0	51.4
Straight Track - Aerial	57.3	54.8	51.2
Curved Track - At-Grade 1/	2/	2/	80.5
Curved Track - Aerial 1/	2/	2/	80.0

1/ Curved Track is defined as track having a radius of less than 100 meters.

2/ On a curve with a radius of less than 100 meters, the LRT would have a maximum speed of 20 mph.

The Leq noise level was predicted in each category for LRT vehicles traveling at 40, 30 and 20 miles per hour at 50 feet from the centerline of the near track. These Leq levels were predicted for peak hour operations assuming five-minute headways. Noise associated with the LRT system would have only a minimal effect on L_{10} or L_{50} noise levels since even in the peak hour of operations, LRT noises would be audible less than 10 percent of the hour.

In addition, the results of the analysis were compared to the American Public Transit Association's (APTA) "79 Guidelines for Design of Rapid Transit Facilities." It was found that all design hour L_{MAX} noise levels are consistent with the design goals presented in the APTA guidelines.

5.1.11 Energy

The Minnesota Department of Transportation (MnDOT) performed an analysis of transportation energy impacts of the five study alternatives. 8/ Direct and indirect transportation energy consumption associated with the roadway and transit elements of each alternative were evaluated.

Direct energy is defined as the fuel used (gasoline, electricity, etc.) by the vehicles using the system. Indirect energy includes the energy required to construct and maintain the system, manufacture and maintain the vehicles using that system, and any increases or decline in energy usage resulting from project-induced land use changes and/or growth.

The study determined that:

- Alternatives 2 and 4 can be expected to provide a significant energy savings.

- Alternative 4, which includes the light rail transit system, can be expected to provide a 16 percent energy savings. This can be attributed directly to the LRT system. The modal trade-off from highway vehicle to light rail vehicle creates a situation where less vehicles would be using the corridor thereby decreasing the amount of direct energy consumed. The modal tradeoff also substantially affects indirect energy consumption because of the extremely long life of the light rail vehicle together with relatively low maintenance.

- The 14 percent energy savings predicted for Alternative 2 can be attributed mainly to the use of grade-separated HOV lanes and the resulting higher vehicle occupancy rate, which decreases the number of vehicles using the corridor.

- Alternative 5 (no-build) will forego the energy expenditure of new construction. However, this energy savings must be balanced against the fact that this alternative will cause traffic congestion and impaired traffic circulations in the area and higher fuel consumption.

Table 5-21 gives a comparison of daily energy consumption of the build and no-build alternatives averaged over the years 1981-2000. Construction and vehicle indirect energy values have been prorated over the expected "useful lives" of the roadway/guideway and vehicles respectively to allow a meaningful comparison.

8/ Reference No. 22.

TABLE 5-21

DAILY ENERGY CONSUMPTION (BTU/DAY)

		Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Direct	Vehicle fuels	1.12×10^9	1.03×10^9	1.31×10^9	1.09×10^9	1.43×10^9
Indirect	Vehicles	2.82×10^8	2.72×10^8	2.68×10^8	2.06×10^8	2.72×10^8
	Maintenance and Manufacturing					
	Roadway/Guideway					
	Construction	1.67×10^8	1.84×10^8	1.20×10^8	1.45×10^8	-----
	Maintenance	4.84×10^6	4.93×10^6	3.21×10^6	9.76×10^6	2.01×10^6
	Resurfacing	-----	-----	-----	-----	3.44×10^7
Total Energy Used	(BTU/DAY)	1.57×10^9	1.49×10^9	1.70×10^9	1.45×10^9	1.74×10^9
Total Energy Used	(BBL/DAY) 1/	272	257	292	250	298
	% Savings from No-Build	9%	14%	2%	16%	

1/ Based on 42 gallons/barrel.

SOURCE: Minnesota Department of Transportation

5.1.12 Wild and Scenic Rivers

None of the proposed alternatives affects any river segments identified in the Nationwide Inventory of Rivers as having potential for inclusion in the National Wild and Scenic Rivers System.

5.1.13 Floodplain Impacts

Construction of any of the build alternatives would result in improved conditions in the floodplain of Minnehaha Creek. These effects are detailed in the water quality segment of this DEIS, Section 5.1.20. No portion of the study area lies within the floodplain of any other water body.

5.1.14 Coastal Zone Impacts

The TH 55 study area is not located in or near any designated coastal zone.

5.1.15 Wetland Impacts

There are no wetlands or marshes in the project area. Therefore, Executive Order 11990 relative to the protection of wetlands does not apply to this project.

5.1.16 Land Use Impacts

Land use impacts are expected under all alternatives in the area adjacent to Hiawatha Avenue between Franklin Avenue and CSAH 62. Although induced development is expected under Alternative 4 in the Minneapolis CBD and in the terminus service area, the impact expected is small changes in intensity rather than in land use.

Current land use plans for the Hiawatha corridor are described in Section 4.2. Along Hiawatha Avenue, between Franklin Avenue and CSAH 62, the overriding factor affecting current development activity is uncertainty over plans to improve TH 55. Virtually no development has occurred along Hiawatha Avenue since MnDOT began acquisition of right-of-way for a proposed freeway. The subsequent decision to reevaluate plans for reconstruction of Hiawatha Avenue and the long delay in making a decision have increased the level of uncertainty and have contributed to the lack of development activity in the corridor.

An analysis of the potential land use impacts was performed for each alternative. Technical Report No. 19, Urban Development Framework, provides details of the analysis; a summary is provided below. 9/

5.1.16.1 Methodology

In order to provide a consistency check of development forecasts, land use impacts were estimated using two different methods. In the first method, a "market share" analysis was performed for the corridor. The methodology involved an estimate of what fraction of projected regional growth could be

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9/ Reference No. 19.

captured in the corridor. Metropolitan Council forecasts were utilized. The analysis is based upon studies of similar improvements and associated land use impacts throughout North America. The analysis assumes that substantial public sector participation is used to stimulate developments consistent with the transit alternatives. Substantial public sector participation involves strong governmental policies to improve and coordinate development at transportation improvement areas. These policies include, but are not limited to: (1) supplementary purchase or condemnation of land; (2) tax increment financing; (3) equity participation; (4) institution of corridor development corporations; (5) special assessment districts. These policies require both financial and political commitments from the local jurisdictions to provide significant incentive to potential private sector investors.

The second method was based upon a "capacity analysis" of the corridor. Variables considered included an analysis of vacant and underutilized land (containing vacant structures, structures of poor quality and/or low-grade uses), surrounding land use patterns, current land use plans, knowledge of planning theory and economics, development intensity and, perhaps most important, a high level of feedback from the community. The development forecast is the lower of the two estimates, in that the area would attract its full share of the region's development market, up to the physical capacity of the corridor to accomodate that development.

5.1.16.2 Growth Estimates and Land Use Implications

Each alternative would result in substantially different land use impacts. Primary impacts relate to the land utilized for highway or transit right-of-way. In addition, land uses are affected by alterations in access, altered views of or from the parcel, and alterations in the local man-made and natural environments. The latter two categories include such categories as air quality and noise impacts, detailed in other sections of this chapter.

Secondary impact analysis considers potential long-term alterations to the prevailing land use pattern. Typically, secondary impacts related to a transportation improvement result from improved or degraded access, substantial increase or decrease in land value attributed to the improvement and/or induced alterations to the natural and man-made environment. Alternative 4 would have substantially different land use impacts than Alternatives 1, 2, 3, and 5.

The following paragraphs describe growth estimates and their land use implications for each alternative. Growth estimates are summarized in Table 5-22.

TABLE 5-22

YEAR 2000 ESTIMATES OF INDUCED CORRIDOR GROWTH
MARKET SHARE AND CAPACITY ANALYSIS METHODS

Alternative	Population		Employment	
	Market Share	Capacity Analysis	Market Share	Capacity Analysis
1. Roadway & HOV at grade	4,900	5,300	2,671	5,400
2. Roadway & HOV grade separated	4,900	5,300	2,671	5,400
3. Roadway	1,000	2,400	1,171	3,000
4. Roadway & LRT	12,000	12,000	6,671	7,000
5. No-Build	0	2,100	0	1,200

Alternatives 1 and 2. The combination of a four-lane roadway and HOV roadway represents a moderate level transportation improvement. From a land use standpoint, it makes relatively little difference if the HOV roadway is at grade or grade separated. These alternatives offer all of the benefits of the at-grade arterial roadway as well as a reduction in travel time for mass transit vehicles and carpools.

Land use impacts are expected to be somewhat greater than those projected for the arterial roadway alone. In addition to the improvement in mass transit service, these alternatives represent a significant public sector cost. Increased public sector costs are likely to result in enhanced public sector support of redevelopment and rehabilitation efforts, if only to maximize return on the investment.

Consequently, the land use scenario developed for these alternatives predicts that development will take place at a greater intensity than for the two previously presented alternatives. This land use scenario is presented in Figure 5-5.

Land use impacts of these alternatives differ from impacts projected for the previously presented alternatives in that development would occur at generally greater densities, and development would capitalize on locations where intrinsic opportunities would exist for redevelopment. Development locations include:

- Lake Street and Hiawatha area. Represents a large, assembled, vacant parcel at an existing high activity location.

- 54th Street residential neighborhood. Would experience an impact due to the right-of-way needed under the alternative. Remaining land area would have significant redevelopment potential.

The market share analysis projected that this alternative could capture 2,671 new jobs and 4,900 persons. The capacity analysis indicated the potential to accomodate 5,400 jobs and 5,300 persons.

Alternative 3. The construction of a four-lane, at-grade roadway and bus-related transit improvements represents a distinct improvement over the existing situation. The land use scenario for Alternative 3 is presented in Figure 5-6. Primary areas of improvement include:

- Elimination of at-grade rail crossings on TH 55.
- Reduction in the number of intersections.
- Improved signalization and capacity at remaining intersections.
- Reduction in the number of curb cuts through consolidation and use of side street access.
- Increased convenience for patrons of public transportation.
- Provision for commuter bicycle trips and pedestrian traffic along TH 55.
- Corridor appearance would be enhanced by landscaping.

This moderate level of transportation improvement is not expected to result in significant land use impacts. It is expected that these improvements will not be adequate to induce large-scale reuse of land on the east side of the corridor. Linkage to the CBD and employment centers will not be significantly improved for mass transit riders, nor will identifiable activity nodes be created under this alternative.

Land use impacts expected under this alternative would be a slightly intensified version of those projected for the no-build option. The intensification is expected because:

- The city's plan to reuse the railyards for industry would be enhanced by improved access. An internal street system would be constructed that would enhance access while removing non-residential traffic from adjacent neighborhoods.
- Infill development along the west side of Hiawatha Avenue from Lake Street to 46th Street is likely to be more intense than under Alternative 5 due to enhanced access. This will be slightly offset by the increased land requirements of this alternative, which involves widening of TH 55.

- Minnehaha Park would be enhanced by removal of unnecessary roads and use of a tunnel or covered bridge for the roadway, expanding the useable area and aesthetics. The enhanced park and improved access could contribute to the redevelopment of the area lying east of Hiawatha, between 46th Street and the park. The reuse would be likely to consist of medium density residential development, with some service oriented commercial uses possible.

- The residential area located east of Minnehaha Avenue between 52nd Street and 54th Street will be substantially disrupted by the roadway. Much of this area has already been acquired by MnDOT for highway construction. It is assumed that infill development on unused parcels would be low to medium density residential.

The market share analysis projected that 1,171 new jobs and a population growth of 1,000 persons could be captured under this scenario. The capacity analysis indicated a potential to accomodate greater levels of development (2,400 persons and 3,000 jobs).

Alternative 4. The combination of light rail transit and roadway upgrading represents the greatest level of transportation improvement under study for the Hiawatha Avenue Corridor. The land use scenario for this alternative is presented in Figure 5-7. Land use development potentials would be maximized under this option. The basic reasons for this are:

- It is expected that this alternative would generate the maximum level of public support for corridor redevelopment.

- LRT would offer rapid, low cost, all-weather transportation to the CBD, shopping, employment, entertainment locations, and the airport.

- The LRT option offers the advantage of identifiable station areas. The LRT station areas will generate large amounts of pedestrian traffic while offering solid evidence of public investment in the corridor. Experience in other cities has shown that station areas can be used to stimulate much more intensive development than is possible with other transportation improvements under study for the corridor.

- This alternative includes all the advantages of an improved TH 55 roadway as related under previously described alternatives.

Proposed redevelopment options for the east side of Hiawatha Avenue between Lake Street and Minnehaha Park are based in part on the assumption that, in the long run, the rail line and industrial development will be downgraded or relocated to more suitable locations. Presently, the mix of light and heavy industries throughout this sector of the corridor is often incompatible with existing surrounding neighborhoods. These uses often contribute to air and noise pollution problems, traffic disruptions, lowering of property values and adverse visual impacts. In several cases, it would be necessary to remove these uses to support redevelopment efforts associated with LRT station areas.

Industrial uses, however, would not be totally removed from this sector of the corridor. Industrial and office uses may be maintained and expanded as long as the problems noted above are resolved through proper planning and coordination. These efforts should include the relocation or phasing out of operations in direct conflict with adjoining land uses or redevelopment plans, development of landscape buffers, removal of dwellings which intrude into designated industrial areas, and the rerouting of industrial traffic to protect adjoining neighborhoods.

Proposed redevelopment opportunities under Alternative 4 include:

- Railyards. It is assumed that the City of Minneapolis would seek to acquire this site. However, the proximity of two LRT stations will induce more intensive development. This will likely be in the form of office buildings located near the stations.

- Twenty-sixth Street to Lake Street, West of Hiawatha. This area is a mix of poorly maintained housing, scattered industrial facilities, and the Hi-Lake Shopping Center. Moderate density housing would be a suitable reuse of this area because:

  - Hi-Lake Shopping Center is old and functionally obsolete. It would be appropriate to concentrate retail commercial use in the vicinity of Minnehaha Mall and the intersection of Lake Street and 27th Avenue.

  - The existing industrial uses are not particularly large, are incompatible with adjacent development, and would be more appropriately located in the railyard industrial park.

  - Existing residential structures are not well maintained.

  - The cemetery located at Lake and Cedar has great potential as an aesthetic amenity. It is the only large green space in the vicinity.

  - Direct access to the Lake Street LRT station could easily be provided.

- Lake Street Commercial Area. The Lake Street retail area has great potential for growth. It provides goods and services for south Minneapolis and a portion of St. Paul via the Lake Street bridge. It would be advantageous to centralize commercial uses around the Minnehaha Mall and the 27th Avenue and Lake Street intersection. This concentration of business will offer greater convenience for the shopper, avoid a commercial strip road along Lake Street, permit high level mass transit service, and provide a concentrated market for goods and services. Minnehaha Mall could be expanded to accommodate part of this growth. The shopping area at Lake Street and 27th Avenue is slated for rehabilitation by the City of Minneapolis. At the time of writing, location of a large supermarket on the southwest corner of the Lake Street/Minnehaha Avenue intersection is contemplated. A central parking ramp should be constructed to serve these commercial facilities.

It is felt that office uses would be most suitable at the southeast corner of the intersection of Lake Street and Hiawatha Avenue. Additional retail space is not required and residential uses are not suited to this high visibility, high intensity, noisy site. This office complex would be provided with grade-separated access to the Lake Street LRT station.

As a final component of the Lake Street commercial area, an intermodel transfer point should be established. Lake Street is a major bus route between south Minneapolis and western St. Paul (Marshall Avenue). A weather protected transfer facility should be located here to transfer passengers to the LRT.

- Residential Uses. Portions of the corridor located south of Lake Street are well suited to residential development. The vacant land located west of Hiawatha Avenue should be used for moderate density housing. These units should be oriented towards central court-yards to minimize exposure to roadway noise. Recreational and visual amenities should be provided on-site. These uses would be in conformance with adjoining neighborhoods and would have access to LRT stops.

Between 52nd and 54th Streets, the roadway would be located in an existing residential pocket. As a result, the residential area would be disrupted by highway construction. MnDOT has already acquired, and in some cases cleared, land in this area. Consequently, redeveloping the remaining area for medium density housing is a valid option. Pedestrian access to Minnehaha Park would be provided.

An existing commercial node is located along Minnehaha Avenue between 52nd and 54th Streets. The area contains a number of run-down or vacant buildings. It is felt that this area would benefit from a concentration of businesses in a smaller area, along with improved parking. This commercial node would then be able to serve the surrounding neighborhood and proposed new residential development, as well as meet the needs of employees of the Veterans Hospital and Bureau of Mines. At the time of writing the Veterans Administration is proposing to rebuild the hospital and possibly establish leasable office space in one building on the site.

The market analysis indicated that Alternative 4 could capture 6,671 new jobs and result in a population growth of 12,000 persons. The capacity analysis indicated a potential to accomodate 7,000 jobs and 12,000 persons, consistent with the scale of existing development.

Alternative 5. The no-build alternative would not provide any form of transportation or image improvement. Under this scenario (Figure 5-8), there is little incentive for the coordinated public sector support of redevelopment or rehabilitation efforts related to other proposed alternatives. Existing public sector programs would be continued and the normal market development process in the area would continue undisturbed.

HIAWATHA AVENUE
Location and Design Study

NORTH

FEET
0 500 1000 2000 3000

MATCH LINE "A"

MATCH LINE "A"

FIGURE 5-5

LAND USE SCENARIO ALTERNATIVES 1&2

- 0-15 DU/A
- 16-35 DU/A
- 36-65 DU/A
- INDUSTRIAL
- COMMERCIAL
- PARK
- PUBLIC/SEMI-PUBLIC
- MIXED USE

HIAWATHA AVENUE
Location and Design Study

NORTH

FEET
0 500 1000 2000 3000

MATCH LINE "A"

MATCH LINE "A"

FIGURE 5-6

LAND USE SCENARIO ALTERNATIVE 3

- 0-15 DU/A
- 16-35 DU/A
- 36-65 DU/A
- INDUSTRIAL
- COMMERCIAL
- PARK
- PUBLIC/SEMI-PUBLIC
- MIXED USE

HIAWATHA AVENUE
Location and Design Study

NORTH

FEET
0 500 1000 2000 3000

MATCH LINE "A"

MATCH LINE "A"

FIGURE 5-7

LAND USE SCENARIO ALTERNATIVE 4

- 0-15 DU/A
- 16-35 DU/A
- 36-65 DU/A
- INDUSTRIAL
- COMMERCIAL
- PARK
- PUBLIC/SEMI-PUBLIC
- MIXED USE

HIAWATHA AVENUE
Location and Design Study

NORTH

FEET
0 500 1000 2000 3000

MATCH LINE "A"

MATCH LINE "A"

FIGURE 5-8

LAND USE SCENARIO ALTERNATIVE 5

- 0-15 DU/A
- 16-35 DU/A
- 36-65 DU/A
- INDUSTRIAL
- COMMERCIAL
- PARK
- PUBLIC/SEMI-PUBLIC
- MIXED USE

There is no primary land use impact associated with this no build alternative. The secondary impact of this alternative would be the release of approximately 90 acres of land for development. This land was acquired and cleared by MnDOT for use as right-of-way for the TH 55 freeway project. It is reasonable to assume that if the no-build alternative is employed, MnDOT, having no further use for the land, would dispose of the property.

The probable use of this vacant land would be relatively low intensity, infill development, similar to existing surrounding uses. The no-build alternative does nothing to correct existing traffic, noise, or visual land use problems in the corridor. It is expected that few developers would be willing to make the major funding commitments required for large-scale redevelopment.

The market share analysis projects no growth in employment or population due to this alternative. It is expected that any growth or loss would be attributable to regional trends. The capacity analysis estimated that the vacant land could accomodate 740 new dwelling units, 2,080 new residents, and 1,200 new jobs. Infill development would occur over a long period due to regional growth trends and the existence of more desirable sites elsewhere.

5.1.16.3 Development Forecasts

Based on the incremental market share estimate and the corridor development capacity analysis described above, development forecasts were made for each build alternative (Table 5-23). The forecasts represent the level of development expected under each alternative above that expected under the no-build alternative.

Table 5-23

Incremental Development Forecasts
(Year 2000)

Alternative	Population	Employment
1	4,900	2,671
2	4,900	2,671
3	1,000	1,171
4	12,000	6,671
5	Base	Base

5.1.17 Joint Development Evaluation

Known secondary development impacts associated with light rail systems and factors relevant to the regional growth a outlook for the Twin Cities metropolitan area were analyzed to assess joint development impacts associated with Alternative 4.

Joint development opportunities would occur under Alternative 4, in relation to the light rail transit component of this alternative. The analysis indicated the possibility of a full spectrum of commercial and residential development in five areas of the Hiawatha Avenue Corridor:

- Terminus service area
- I-494/Airport corridor
- MnDOT parcels adjacent to the mid-corridor area
- Railroad yards approximately one-half mile from the CBD fringe
- Southeastern CBD fringe

The prospective scale, land use mix, timing and level of required public sector support - including the interrelationship of these developments - is described in the following paragraphs.

5.1.17.1 Terminus Service Area

The terminus service area is already an established urban center in close proximity to a concentration of high quality retail development and the airport, and is a relatively short commute to a major portion of the prime residential areas of the Twin Cities. The location of the terminus station near the former Metropolitan Stadium site would reinforce the short term (i.e., pre-1990) potential for a major hotel/office development at this location.

The scale of this development effort would involve an estimated 400,000 to 500,000 square feet of office and retail space and a 300- to 500- room hotel facility. In addition to the commercial development activity, it is estimated that 1,500 to 2,000 high-rise residential units would be developed in close proximity to this terminus station. It is expected that these developments would require only public sector coordination and design review.

5.1.17.2 I-494/Airport Corridor

Implementation of the Hiawatha light rail system would generally reinforce office and hotel development in the I-494 airport corridor. The lack of available land within the airport complex would limit the development of the airport station. The transit-related development activity that would occur in this area would not require public support.

5.1.17.3 Mid-Corridor Station Area

The mid-corridor station area has short term mid-rise residential development potential. Initial development projects would take place on parcels currently owned by MnDOT. For these developments to occur, a traditional project packaging, developer-bid process would be required. With respect to existing privately owned properties located in proximity to mid-corridor stations, a land assembly program would be required to implement mid-rise residential and/or commercial joint development opportunities.

5.1.17.4 Railroad Yards

The rail yards, located approximately one-half mile from the Minneapolis CBD fringe, represent a long-term "urban village" development opportunity. Considerable public sector investment in land acquisition and infrastructure improvements would be necessary to implement this joint development opportunity. This site could accommodate a complete high-technology industrial park, as well as several hundred residential units.

5.1.17.5 Minneapolis CBD Fringe

The southeastern portion of the Minneapolis CBD could become a gateway to the downtown. The light rail system would create the short term development opportunity to develop 200 to 300 market rate residential units. By the year 2000, as many as 700 to 800 additional units could be developed in this area. This development would occur with minimum public sector support.

In addition to residential development activity, the light rail system would accelerate office and medium-scale hotel development in the portions of this area nearest to the CBD. In the pre-1990 period, the LRT system would influence the development of an additional 500,000 to 750,000 square feet of commercial development in this area. By the year 2000, incremental commercial development could total between 1,500,000 and 2,000,000 square feet. This development would require site assembly and possible land write-down considerations on behalf of the City of Minneapolis, or UDAG level of assistance provided recently on major Minneapolis CBD commercial development projects.

5.1.17.6 Joint Development Constraints

Similar to other high capital cost forms of fixed guideway transit systems, the joint development activity of light rail systems built in the United States has been hindered by a lack of:

- Coordinated local community public policy support.
- A narrow legal interpretation of eligibility for federal funding support allowed under the traditional definition of a "transportation purpose."
- Unavailability of a dedicated source of funds for local public sector capital investments to initiate or enhance joint development.

5.1.18 Parklands and Recreation

A detailed discussion of park and recreation lands affected by the project appears in the 4(f) Statement included as Section 6 of this document. Table 6-1 lists the acreage affected and replacement lands available under all study alternatives for Minnehaha Park and its environs.

Of the ten City of Minneapolis parks in the project area (Figure 4-11), five will be unaffected by the project. These five are Normanna Triangle, Adams Triangle, Rollins Triangle, Elliott Park and Cedar Avenue Field. East Phillips Park and the Native American Center Park will be subjected to slight increases in noise levels associated with increased traffic volumes. The Minnehaha Park area, which includes Minnehaha Park, Wenonah Triangle, Longfellow Gardens and Minnehaha Parkway, would be most impacted by the project.

5.1.18.1 Impacts

Impacts would include the conversion of 6.11 to 6.20 acres of parkland to highway uses depending upon the alternative selected. Four tennis courts in Minnehaha Park would require relocation. Noise levels would increase slightly because of increased traffic volumes.

Additional impacts on parklands would occur temporarily during the construction phase for Subalternatives a, b and c. Parkland taken would range from 0.30 acre for Alternative 3b to 2.33 acres for Alternative 1c, 2c and 4c.

Alternative 5 would result in continued increases in noise levels in the park area and visual blight associated with the use of Hiawatha Avenue by trucks and as a major commuter route. The alternative would pose a safety threat to pedestrians and bicylists using Minnehaha Parkway and the connections it provides to Minnehaha Park, West River Parkway and to Fort Snelling State Park and the Minnesota Valley Wildlife Refuge. It would in general affect the visual appearance and use of parkland lying between Minnehaha Avenue and Hiawatha Avenue.

None of the alternatives under study would directly or indirectly adversely affect either Fort Snelling State Park or the Minnesota Valley National Wildlife Refuge.

5.1.18.2 Mitigation

The impacts upon Minnehaha Park and associated units would be mitigated in a variety of ways. Presently, Northern States Power Company holds a 75-foot wide easement for an existing 115 kV power line through the park between Hiawatha and Minnehaha Avenue. This line would be relocated in a manner which will increase the useful area of the park and will replace the steel girder towers with single pole pylons. The portion of the 100-foot wide railroad right-of-way not required for highway purposes would be turned over to the Minneapolis Park and Recreation Board for park purposes. Total acres available for such use would be 5.99. Additional road right-of-way available for park use for all alternatives ranges from 0.87 acre for Alternatives 1c, 2c and 4c to 2.63 acres for Alternatives 3a and 3c. The construction of any of the build alternatives would provide continuity between Minnehaha Parkway, Longfellow Gardens and Minnehaha Park. This continuity will increase the recreational usefulness of the overall complex and would reduce the safety hazard to pedestrians and bicyclists associated with crossing Hiawatha Avenue. Under the build alternatives, usable parkland would increase from 1.46 acres under Alternatives 1a and 2a, to 3.39 acres under Alternative 3c.

Landscaping would be used to blend the selected build subalternative with the rest of the park and garden area. A noise wall would be used to reduce noise; berms and landscaping will decrease the abruptness of the noise wall and increase the overall aesthetic quality of the park for its users. Provisions for a bicycle trail and a pedestrian walkway under the build alternatives would improve nonmotor access to the park.

Alternative 4 would provide improved transit service between downtown and Minnehaha Park. In addition, this transit link would provide indirect access to Fort Snelling State Park and the Minnesota Valley National Wildlife Refuge and Recreation Area and reduce the need for automobile transportation to these recreational features. Feeder service by both the state park and the refuge/recreation area could connect the LRT stations with central use facilities.

Throughout the construction phase, measures would be taken to minimize erosion and siltation into Minnehaha Creek by using hay bale ditch blocks and siltation barriers.

5.1.19 Historic and Archeological Preservation

5.1.19.1 Historic Sites

Impacts of the project on historic sites (Figure 4-11) and related mitigative measures are described in detail in the 4(f) Statement and the Preliminary Section 106 Case Report prepared as Section 6 and 7 of this document. Impacts associated with Alternatives 1 through 4, the build alternatives, are summarized below. Alternative 5 will have no impact on any of the sites described.

R.F. Jones House. Construction of Alternatives 1 through 4 would require the relocation of the R.F. Jones house. The R.F. Jones House was built on Longfellow Gardens and has developed a historic association with that site. The house would be relocated within Longfellow Gardens in order to allow the historic relationship to continue.

Minnehaha Depot. Construction of Alternatives 1 through 4 would require the placement of noise walls on the west side of Minnehaha Depot to satisfy state noise standards and conditions set forth by the Minneapolis Park and Recreation Board associated with construction of the project through Minnehaha Park. The noise wall would have a minimum height of 10 feet and would be placed 15 feet or less from the Depot. The presence of the noise wall would impair the view from the Depot and also eliminate the opportunity for motorists on TH 55 to see the Depot.

The effects of the presence of a noise wall on Minnehaha Depot would be mitigated through the use of a noise wall which is aesthetically pleasing. The use of landscape material such as shrubs and climbing vines could also be used to improve the view from the station. A less desirable mitigating alternative from the standpoint of the State Historic Preservation Office (SHPO) would be relocation of the building east of Minnehaha Avenue.

Sites Near LRT Stations. Design of the LRT stations will be coordinated with the Minnesota Historical Society in areas where historical buildings are close to stations. Stations will be designed so they do not obscure the facades of historically significant buildings and, where possible, designed to complement the historical character of an area.

The LRT alternative will have no adverse effects on any of the historic buildings or districts located in downtown Minneapolis, as indicated in correspondence with the SHPO.

Whiskey's Grave, a site of local historic significance, is located near the proposed LRT line at the GSA Building. It will not, however, be displaced.

5.1.19.2 Archeological Artifacts

The extension of CSAH 62 may disrupt archeological artifacts possibly present in the large open field near Fort Snelling. Construction of CSAH 62 and the associated ramps will disturb 13.5 acres of the field. The nature of the disturbance will include filling and grading for the roadway and the ramps. Prior to the onset of construction, the site will be surveyed for archeological artifacts by the Minnesota Historical Society. Furthermore, if any artifacts are unearthed during construction, construction will cease and the Minnesota Historical Society will be notified in order to interpret the significance of the find. The remainder of the field will not be developed because it is in an aircraft approach zone and the Metropolitan Airports Commission will not permit the construction of any buildings in this area.

5.1.20 Water Quality Impacts

Each build alternative may result in varying degrees of disturbance of baseline water resources conditions in the Hiawatha Corridor Study Area.10/ These impacts are divided into short-term construction impacts and long-term operational impacts. Construction related impacts are treated in Section 5.1.23. Alternative 5, the no-build alternative, results in no significant impact, either positive or negative, on water quality.

Operation of facilities proposed under the build alternatives can cause long-term, recurring impacts on surface and groundwater. Highway deicing, traffic-generated pollution and water surface elevation changes caused by structures in the Minnehaha Creek floodplain all impact upon the water resources of the study area.

Estimates of the annual loadings of chloride from deicing salts and traffic-related pollutants are used to compare long-term surface water quality impacts. These estimates indicate that the operation of any of the year 2000 build alternatives will represent a substantial local (along the corridor) increase of pollutants over the no-build alternative. Alternative 1 has the highest estimated chloride concentration and a 51 percent increase in annual pollutant loadings over the no-build alternative.

10/ Reference No. 17.

Alternative 4 has the lowest projected increase in annual pollutant loading (26 percent), and shares with Alternative 3 the lowest projected increase in chloride concentration. The increases in chlorides in the Mississippi River due to use of deicing chemicals on the roadways, as estimated, would have an insignificant impact on the river's water quality.

The increase in traffic related pollutant loadings under the build alternatives in the region is estimated to be insignificant and the increase in chlorides in the Mississippi related to deicing chemicals is similarly estimated to have an insignificant impact on the river's water quality. If one of the build alternatives is constructed, the design would include a spill control plan for TH 55 in the Minnehaha Creek area.

Traffic analyses performed on a regional scale indicate that construction of any of the build alternatives would cause a rerouting of traffic to TH 55 from other roadways, but that there is no increase expected in regional traffic volumes for the various year 2000 build alternatives, compared with the no-build alternative. Consequently, the increase in traffic-related pollutant loadings from Alternatives 1 through 4 in the entire metropolitan area is estimated to be insignificant.

Possible flooding problems associated with construction in the floodplain of Minnehaha Creek have been investigated in accordance with Executive Order 11988. Hydraulic analyses using the preliminary engineering drawings show that both of the proposed bridges and the tunnel would not cause any increase in water surface elevations. The drawings for the proposed bridges show improvement by increasing the net flow areas and widths of openings. These improvements in stream crossings would help to improve long-term surface water quantity problems along Minnehaha Creek by reducing flood elevations. The proposed bridge option for each alternative represents a lesser flooding improvement than the tunnel.

Tunneling under Minnehaha Creek could cause a restriction of the natural flow of groundwater from west to east and result in flooding of nearby basements because of higher groundwater levels. If detailed groundwater studies indicate that this will occur, the problem may be mitigated through installation of a granular leveling course under the tunnel which would permit the groundwater movement to take place. Construction of the tunnel option could also require long-term dewatering.

5.1.21 Threatened or Endangered Species

The Hiawatha Avenue Corridor is adjacent to an area considered having potential for reintroduction of the American peregrine falcon. No effects on the bluffs or river corridor, which are the preferred nesting habitats of this species, will occur under any of the alternatives. Furthermore, the corridor is situated within an urbanized area and the nature of use and appearance of the existing highway will not be substantially altered as a result of the project. Completion of the project will not have any impact on the continued potential of the Mississippi River gorge as potential habitat for the reintroduction of the American peregrine falcon. There have been no reported sightings of the species in the project area.

The southern end of the Hiawatha Avenue Corridor lies near the Mississippi River. Below the Ford Dam, the Mississippi River is considered potential habitat for the Higgin's Eye pearly mussel, an endangered species. A survey of the Mississippi River by Sam Fuller for the U.S. Army Corps of Engineers completed in the late 1970's revealed the presence of a low number of mussels between the Ford Dam and the confluence of the Mississippi with the Minnesota River. None of the collected specimens were identified as Higgin's Eye pearly mussel. Under all of the study transportation alternatives, existing stormwater drainage systems will be used for handling highway runoff. This project will have no impact on existing mussel habitat or on existing mussel populations in the Mississippi River.

5.1.22 Prime and Unique Agricultural Lands

The TH 55 study area does not contain any prime or unique agricultural acreage.

5.1.23 Construction Impacts

5.1.23.1 Traffic Operations

Construction of any of the build alternatives would result in temporary impacts on traffic operations. Traffic operational impacts would occur at the intersection of Lake Street and TH 55 during construction of either the HOV roadway (Alternatives 1 and 2), or the LRT station (Alternative 4). Impacts will also occur during construction of the tunnel or covered roadway through Minnehaha Park under any of the build alternatives.

Between Franklin Avenue and Minnehaha Parkway, construction will proceed in two general stages. The first stage will be construction of the southbound lanes of the four-lane arterial. During this time, both northbound and southbound traffic can continue to use the existing roadway. Although some delays may be caused by equipment movements and construction at major intersections, traffic operations should be very similar to existing conditions. The southbound roadway is planned to be 52 feet wide including the median and shoulder. This width would be adequate to carry four lanes of traffic since existing TH 55 is generally just 40 feet wide. Once the southbound lanes have been completed, traffic could be shifted to them. This would allow construction of the northbound lanes on the site of the existing road.

Under Alternative 1, 2, or 4, the existing intersection of Hiawatha Avenue and Lake Street would be excavated during construction. The extent of the excavation would prohibit normal traffic operations at the present location. However, right-of-way exists both east and west of TH 55 and a temporary intersection would be constructed to control traffic during construction.

Construction of any of the build alternatives through Minnehaha Park is likely to require detouring traffic to Minnehaha Avenue. There is a possibility of constructing either of the covered roadway options in a staged procedure not requiring detours, but this determination cannot be made until final design of the preferred alternative. For Subalternative a,

with grade separation at Minnehaha Parkway, the detour route on Minnehaha Avenue would extend from 46th Street to 42nd Avenue. For Subalternative b, at-grade with Minnehaha Parkway, the detour-route would extend from Godfrey Road to 42nd Avenue. Subalternative c, which involves a tunnel under Minnehaha Creek, would require a detour onto Minnehaha Avenue from 46th Street to the existing junction of Minnehaha Avenue and TH 55.

Each of these detours would result in vehicle delays, especially at the intersections used to cross between Minnehaha Avenue and TH 55. These impacts cannot be avoided for the tunnel subalternative. Staging of construction of the covered roadway options to avoid detours will be evaluated during final design.

South of Minnehaha Creek, the new roadway would be constructed on new right-of-way. Traffic operations on the existing street system will be unaffected by construction activities in this area. The CSAH 62 portion of the project is also mainly on new right-of-way. The construction of the interchange of CSAH 62 with TH 55 would be staged to minimize delays and inconvenience to motorists.

The construction of transit features can be accomplished with minor disruptions to traffic operations.

5.1.23.2 Air Quality

Construction impacts on air quality include the generation of particulate matter and increased automotive emissions due to traffic delays and detours. Particulate matter is generated by construction activities which disturb the vegetative ground cover allowing soil material to become airborne. Control of particulate matter from construction activities is regulated by Minnesota Air Quality Rule APC-6. This rule requires construction contractors to use reasonable measures, including road cleaning, haul road watering, and revegetation, to minimize the amount of particulates which become airborne. The Twin Cities area Total Suspended Particulate Control Plan specifies a strategy of stricter enforcement of APC-6 and notification of contractors of this rule.

Increased automotive emissions due to detours and delays can be minimized by maintaining at least the existing level of service. As noted in the previous discussion on traffic operations, the only places where the existing level of service may not be maintained are in the vicinity of Minnehaha Park and near the intersection of TH 55 and Lake Street. This intersection is particularly critical since a potential CO violation was identified for the no-build situation (year 2000). A temporary intersection, necessary for construction of Alternative 1, 2 or 4, must still provide at least the existing level of service. This may require measures such as prohibiting left turns from Hiawatha Avenue during the peak traffic hours of the construction period. It is likely that due to the delays caused by construction, drivers will elect to use alternate routes. This will result in a lower traffic demand and associated emissions during construction, but every effort should still be made to minimize traffic delays. This might include, in addition to signage, signal timing adjustments to account for projected traffic flows.

5.1.23.3 Noise

Noise levels associated with construction relate to the phase and schedule of the work plus the noise characteristics of the equipment being used. During a typical work cycle, construction equipment may be idling, preparing to perform a task or operating at full load. It may also be congregated at a specific point or spread out over a larger area. Because of these factors, the construction site sound levels tend to rise and fall to a listener.

The noisiest equipment likely to be employed in the construction of this project is earth moving equipment (back hoes, tractors, dozers, scrapers, graders, heavy duty diesel trucks, etc.). Maximum noise levels measured in dBA at 50 feet for this equipment are listed in Table 5-24.

TABLE 5-24

TYPICAL EQUIPMENT SOUND LEVELS

Equipment Type	No. Mfrs. in Sample	Total No. of Models in Sample	Peak Noise Level (dBA) Range	Average
Crane	7	17	70-94	79
Backhoes	5	6	74-92	83
Front Loaders	5	30	75-96	85
Dozers	8	41	65-95	85
Graders	3	15	72-92	84
Scrapers	2	27	76-98	87

SOURCE: Reagan, Jerry A. and Charles A. Grant, Highway Construction Noise: Measurement, Prediction and Mitigation, Special Report HEV-21, U.S. Department of Transportation, FHWA, Office of Environmental Policy, Washington, D.C., 1977.

The equivalent sound level (Leq) which can be expected when the noisiest equipment is used, assuming no pile driving and/or blasting will be required, is approximately 86 dBA at 50 feet from the center of construction activity. This level was predicted using a construction site noise equation (US FHWA, 1977). Both average equipment noise levels, as shown in Table 5-23, and equipment usage factors (US EPS, 1971) were used as input. For purposes of this analysis, it was assumed there would be a normal distribution of noise levels. Based on this assumption, the following L_{50} and L_{10} levels were calculated: L_{50} 85 and L_{10} 90. Again, these levels are predicted at 50 feet from the center of construction activity.

While the Federal Highway Administration has no specific criteria for noise from construction sites, the State Noise Standards do apply. In order to identify noise impacts, the distance at which the State Daytime Standards would be met was computed. It was determined that those residents within

2,400 feet from the center of the project will be exposed to construction noise which exceeds the State Daytime Standards. This distance is considered to be upper bound conservative because no shielding from either terrain or buildings was taken into account. The ground, however, was assumed to be acoustically soft.

The impact of construction related noise can be minimized by ensuring that all equipment is properly muffled and the hours of construction activity are restricted. Currently, the Minneapolis Noise Ordinance limits construction activity to weekdays between the hours of 7:00 AM to 6:00 PM, with a few special exceptions. In addition, Minnesota Standard Specifications for Highway Construction, Section 7, Subsection 17.C2, states, in part, that the contractor shall comply with all applicable laws, ordinances, regulations, orders and decrees in the performance of construction.

Other potential mitigative measures include: turning off idling equipment; scheduling equipment operations to keep average levels low and relatively uniform over time; and designating haul roads for construction equipment access and depositing excavation spoils in locations where the noise impact will be minimal. Wherever possible, noise barriers should be constructed before other elements. Temporary noise barriers may also be used.

5.1.23.4 Water Quality

Construction of roadways, tunnels, and bridges has varying short-term impacts on water quantity and quality, the severity of these impacts being directly related to the extent and duration of construction as well as the control utilized during construction operations. Construction operations would present problems of possible water pollution due to excavation, transportation of materials, generation and disposal of solid and sanitary wastes, accidental spills, use of construction chemicals, and dewatering of construction areas. Construction impacts can be minimized by proper on-site collection and off-site disposal of wastes, provision for removal of sediment from dewatering effluent, and proper precautions in using construction chemicals and oil-based materials.

Construction-related impacts on water quality and quantity would be more severe for the tunnel option than the bridge option. For the tunnel option, more excavation would be required, Minnehaha Creek would have to be diverted, and dewatering operations would be required. The tunnel under Minnehaha Creek would be built almost directly on top of the Glenwood Shale stratum, which is a natural separation between lesser quality water in the glacial drift and higher quality water in the St. Peter Sandstone stratum. If this shale layer is broken through during construction, it should be grout-sealed to maintain the separation.

Alternatives 1, 2, and 4 would have the greatest impact on groundwater quality during construction of the tunnel at Minnehaha Park and the excavated grade separation at Lake Street. Bridge construction at Minnehaha Creek for these alternatives would have less impact on groundwater quality. Alternative 3 would have the least impact because this alternative does not include the excavated grade separation and its associated impacts at Lake

Street, and because the proposed structures at Minnehaha Creek will be narrower due to the fact that they will not carry an LRT line or HOV roadway. This means that Alternative 3 would have less excavation and dewatering and, therefore, a lower risk of exposing underlying water-bearing formations to excessive sediment and possible construction pollution.

Construction of a tunnel at Minnehaha Creek would have a severe adverse impact on surface water quality and quantity for all build alternatives. Surface water quality and quantity will be affected by diversion of flow from Minnehaha Creek around the construction site, the disposal of dewatering effluent, and the large amounts of sediment which will be produced by excavation. Construction of the bridge option will have minimal impacts on surface water quality and quantity because there will be no diversion of Minnehaha Creek, construction in the stream channel will be limited to the building of a narrow central pier, and dewatering and excavation will be very limited.

5.1.23.5 Historic and Natural Features

Two historic features could be impacted by construction activities. The Minnehaha Depot could be damaged by road construction activities if particular caution is not exercised. Due to the proximity of the depot to the construction area, it is recommended that a temporary barrier be placed between the depot and the limits of construction.

Under Alternative 4, the LRT alignment is planned to pass close to a site of local historic interest know as Whiskey's Grave. If this alternative is selected, the construction contractor will be informed of this site and instructed to avoid damage to it.

Natural features which could be impacted by construction include Minnehaha Creek, a stand of bur oaks south of 54th Street, and prairie remnants in the vicinity of 46th Avenue and the CSAH 62 extension. Impacts on Minnehaha Creek have been noted in the previous discussion on water quality. Although it will be necessary to remove some of the bur oaks for construction, those outside the right-of-way should be avoided. The construction contractor should be aware of the potential permanent damage to these trees which can be caused by trunk and bark injury. The prairie remnants in the vicinity of CSAH 62 should also be avoided. Parking of construction vehicles or location of haul roads in this area will not be permitted.

5.1.24 Considerations Relating to Pedestrians and Bicyclists

All build alternatives would result in improved conditions for pedestrians and bicyclists in the Hiawatha Avenue Corridor. Alternative 5 would not improve Hiawatha Avenue as a potential bicycle commuter route or pedestrianway. High traffic volumes would continue to intimidate cyclists and unsafe conditions would persist.

TH 55 functions as a route for bicycle trips to and from several major activity centers. The highest levels of bicycle activity in the City of Minneapolis occur in connection with two of those activity centers served by TH 55: the University of Minnesota, and the downtown. Bicycle travel to and from these centers reached an estimated total of 10,000 to 12,000 trips per day in 1980; projections indicate that this amount could double by the year 1995, to between 20,000 and 24,000 trips per day.11/

Intense pedestrian activity occurs at two locations: the Lake Street commercial area, and the vicinity of Minnehaha Park and Minnehaha Parkway. Pedestrian activity is generally recognized as having an average travel distance of one-fourth mile.

Each of the build alternatives provides for the inclusion of separated bicycle and pedestrian paths as part of a linear open space buffer along the western edge of the roadway. The inclusion of the bicycle path is consistent with the long range plans and policies of the Metropolitan Council and the City of Minneapolis. The path will provide safe bicycle access to major activity centers served by TH 55.

Bicyclist and pedestrian safety at Minnehaha Park and Minnehaha Parkway would be improved under all build alternatives, due to the "land bridge" which would result from the construction of either an earth-covered roadway or a tunnel. Considerations for pedestrian safety at Lake Street would include pedestrian-activated signals, improved lighting and a median. Also, the LRT station proposed under Alternative 4 would be below grade and provide for a diagonal, below-grade pedestrian crossing.

5.1.25 Stream Modification and Wildlife Impacts

Construction of a bridge over Minnehaha Creek under Subalternatives a and b would result in the generation of some turbidity during the construction phase. Standard erosion control techniques such as hay bale ditch blocks would minimize the sediment loads entering the creek. The quality of water in Minnehaha Creek is generally poor in terms of clarity. This is the result of use of the creek for stormwater drainage. Any turbidity resulting from construction would not appreciably change the existing quality. The fact that the water is generally low in quality is evidenced by the species of fish present (e.g., carp, bullheads), since such species are virtually always found in turbid, warm waters. Construction of a tunnel, Subalternative c, would have no long term effect on the fish in the creek.

Wildlife impacts would be the same for all build alternatives. Habitat loss will consist of 5.5 acres of bromegrass and some trees, primarily elm - which are dying from Dutch Elm disease - and cottonwoods. Some bur oaks are present along the TH 55 portion of the project just south of 54th Street. Only a minimum number of bur oaks will be removed.

11/ Commuter Bicycling in the 1980's: A Citizen Proposal, City of Minneapolis Planning Department, 1981.

Construction of an HOV roadway under Alternatives 1 and 2 would result in the additional loss of 2.2 acres of brome and bluegrass, and the removal of several bur oaks. Construction of a park-and-ride lot west of the Bureau of Mines building would result in the removal of an open stand of elm and cottonwood. Construction of TH 55 would convert this mixed woodland/ grassland area to surfaced highway with grass median and shoulders. The effects on wildlife in this segment would be limited primarily to the conversion of part of an urban woodlot to a surfaced highway. Some marginal gray squirrel habitat will be lost; however, habitat conditions for gray squirrels are excellent in Minnehaha Park, and this habitat would remain unaltered. Wildlife mobility along Minnehaha Creek would not change and might improve with a new highway bridge crossing the creek. Wildlife species in the area are already accustomed to the traffic and would not be adversely affected.

Completion of the extension of CSAH 62 would convert 13.3 acres of brome and bluegrass, including some scattered native prairie grasses, to highway right-of-way, thus reducing the amount of habitat available for use by meadow voles, the predominant rodent species. The adaptability of this species is high and it would utilize the grass habitat along the roadside as replacement habitat.

Obliteration of the existing portion of CSAH 62 would result in the re-establishment of 6.2 acres of grassland. An approved Minnesota Department of Transportation native grass roadside seed mixture would be used to complement the existing prairie remnant presently protected by fencing in the median area. This seed mixture would be used on for seeding both the newly constructed part of CSAH 62 and the portions of existing CSAH 62 which are to be obliterated.

During construction, vehicles will not be parked nor will any materials be stored within the fenced area in the median of CSAH 62 nor outside of the limits designated for the construction of CSAH 62.

5.1.26 Visual Impacts and Mitigation

5.1.26.1 Impacts

Following is a discussion of the visual impacts to the Hiawatha Avenue Corridor which are graphically depicted in Figure 5-9.

Alternatives 1 and 2. In general, the visual impacts of these alternatives are similar to those projected for Alternative 3. However, two variations from that scenario are envisioned.

Alternatives 1 and 2 are projected to result in greater levels of infill development than the Alternative 3. In light of the generally poor visual image presented by existing development along the corridor, this can only be viewed as a beneficial impact.

Benefits of these alternatives would be offset by the construction of the HOV roadway and the need for additional right-of-way. At several intersections it is possible to have up to ten traffic lanes, including turn lanes.

The HOV alternatives would result in the conversion of vacant parcels filled with scrub vegetation to an expanse of pavement. This conversion could be expected to have a negative impact on the corridor's visual image.

Alternative 3. This alternative offers significant improvements for the visual image of the corridor. Primary benefits would result from landscaping improvements incorporated into the roadway design. Landscaping treatment would include the use of berms, plantings and a pedestrian/bicycle trail. The improvements are proposed primarily along the west edge of the project which is the side having the greatest exposure to residential areas.

Secondary benefits would accrue from the modest yet significant levels of redevelopment that are projected to occur if this alternative is chosen. Development potential could be strong enough to result in the resolution of some land use conflicts and the construction of moderate-scale, attractive residential and commercial development.

Minnehaha Park would be substantially improved by either the covered roadway or tunnel option. Either option would result in a concealed roadway and the removal of several existing access roads. These modifications would not improve the visual image for travelers along TH 55, but would result in significant improvement for park users.

Under each of the build alternatives, noise walls are proposed as a mitigative measure to achieve applicable noise standards. The perceived impacts associated with noise walls is a somewhat subjective issue, as discussed in Section 5.1.10. In any case, determination of construction of noise walls will be influenced by the opinion of corridor residents affected.

Alternative 4. The roadway portion of this option is expected to result in visual impacts similar to those projected for the Alternative 3. Consequently, this analysis is limited to impacts of the LRT.

An LRT line can be designed to fit in a relatively narrow right-of-way. A corridor 30 feet wide is sufficient except at stops. The stops can be attractively designed to incorporate plazas, landscaping and similar features.

A major concern with LRT systems is the visual impact of required overhead electrical lines and support poles. However, modern designs utilize single pole supports with a narrow diameter to reduce potential impacts. There are numerous examples of LRT's being effectively and relatively unobtrusively located in visually sensitive areas due to inherent design flexibility.

Alternative 5. The existing poor visual quality of the Hiawatha Avenue Corridor would remain unchanged by the no-build alternative. The only modification is the potential for a slight improvement due to the expected construction of infill housing on the vacated and cleared former right-of-way. The conversion of vacant, scrub-filled lots to housing would be an improvement; however, it would not have a significant impact on the problem.

Projections contained in the Urban Development Framework report indicate that Alternative 4 offers the highest potential for inducing large scale redevelopment. Individual construction projects would be large enough to incorporate sophisticated and attractive design features. A great potential for relocation of several industrial uses south of Lake Street exists under the LRT option.

Within the CBD itself, the LRT would operate within existing street rights-of-way. A comprehensive program of streetscape improvements and appropriate design of station areas would be used to mitigate potential visual impacts.

5.1.26.2 Mitigation

The primary technique employed to mitigate visual impacts of all build alternatives will be the construction of a landscape buffer between the roadway and sensitive visual receptors. North of Minnehaha Park the buffer will be located on the west side of the roadway. The buffer will consist of landscaping, berms, and a pedestrian/bicycle trail, and will incorporate noise walls as necessary. Figure 5-9 shows the mitigative features of the buffer.

Another important mitigative technique is the use of tunneled or covered roadway sections. Each build alternative includes two covered roadway sections, at the Milwaukee Road Railroad main line crossing and at Minnehaha Creek. Of these, the Minnehaha segment is being developed with a primary goal of protecting the surrounding park area. Both of the options proposed - a full tunnel and a covered roadway (bridge) - provide for visual continuity through the park and incorporate trails over the roadway to permit access.

5.2 ADVERSE IMPACTS WHICH CANNOT BE AVOIDED

The proposed action would result in certain adverse impact which cannot be avoided even after incorporation of mitigation measures. These impacts are described below:

5.2.1 Financial Commitment

Implementation of the proposed action would require the expenditure of from $56.1 to $177.8 million (1981 dollars) which would then not be available for any other use. This commitment of funds is unavoidable. (If the no-build alternative is selected, the expenditure of $15.8 million would still be required.)

5.2.2 Property Acquisition and Relocation

The proposed action will require acquisition of railroad right-of-way and private property south of Godfrey Road. The relocation of from 11 to 41 households and one business would be required. These households are generally located within the area designated for acquisition by the Minnesota Department of Transportation in connection with a previous construction plan for TH 55.

FIGURE 5-9

VISUALLY AFFECTED AREAS

OPEN VIEW
ELEVATED VIEW
OBSCURED VIEW
VEGETATIVE BLOCK

HIAWATHA AVENUE
Location and Design Study

NORTH

FEET
0 500 1000 2000 3000

MATCH LINE "A"

Views of the Proposed LRT Alignments (6th Street Mall and 5th/6th Street Loop)

Views from IDS Bldg.

Views from Cedar-Riverside Apartments

Long Range Views of Corridor from I-94 Overpass Looking South

Long Range Views of the Corridor from Elevated Segment of I-35W/I-94/TH55 Interchange

Views of Corridor from Homes (Front and Rear) Across Cleared Right-of-Way

Views of Corridor from Little Earth Community Housing Projects

Views from the West Obstructed by Industrial Area and Hi-Lake Shopping Center

Views Obstructed from the East by R.R. Yard/Industrial Area

Views Obstructed from the East by Minnehaha Mall Rear Building Frontage on Hiawatha

Long Range Street Level Views of Corridor Along Lake Street

Views of Corridor Obscured by Industrial Area Including Grain Elevators

Views of Corridor from Homes (Front and Rear) Across Cleared Right-of-Way

Views of Corridor from 38th St. Major East/West Traffic Artery

Views from the East Obscured by Industrial Area Including Grain Elevators

Views from 46th St. Major East/West Artery and Link to St.Paul Via the Ford Bridge

Views of Corridor from Minnehaha Creek Recreational Trail

Views of Corridor from Minnehaha Parkway

Views of Corridor from Minnehaha Park. Heavy Vegetative Cover Area Bisected by Numerous Roads and R.R Right-of-Way

Corridor Views from Homes Elevated 10-25 Feet Above Road Grade. View Near Creek Partially Obscured by Vegetative Cover

Views of Roadway from Homes

Views of LRT Alignment from Housing and Commercial Uses

Views of Roadway from Veterans Hospital Partially Obscured by Trees

Heavy Vegetation Blocks Views from St. Paul

Views of LRT Alignment Obscured by Veterans Hospital

Views of Roadway from Bureau of Mines

Views of LRT Alignment from Veterans Hospital

Views of Corridor

Views of Roadway and LRT Alignment from G.S.A. Bldg.

MATCH LINE "A"

HIAWATHA AVENUE
Location and Design Study

NORTH

FEET 0 500 1000 2000 3000

FIGURE 5-10

LANDSCAPING VISUAL BUFFER

MATCH LINE "A"

Develop Landscape Buffer with TH 55 Improvement Program Including Plantings, Berming and Linear Trail System. Incorporate Noise Walls as Necessary. Develop Attractive Infill Development Independent of TH 55 Program.

Existing Mix of Industrial/ Commercial Structures Creates a Visual Screen. If and When Redevelopment Occurs Site Plans Should be Reviewed to Insure that Adequate Setbacks, Visual and Aesthetic Buffering are Provided. Noise Buffering Must also be Provided.

Utilize Covered Roadway or Tunnel Option to Reduce Visual Impact in Park Area. Use the Chosen Option Plus internal Road Removal or Relocation to Improve the Aesthetics and Utility of the Recreational Space Over the Status Quo.

Develop an Appropriate Landscape Buffer to Protect the Park.

Install Plantings, Berming and Noise Walls as Appropriate to Provide Visual and Noise Buffering for Residential Neighborhood.

Coordinate the Maintenance of Existing Tree Cover with Recreation/Open Space Programs.

Proposed 6th St. Transit Mall for LRT Option. If Developed Incorporate Appropriate Streetscape Improvements and Attractive Station Areas.

Develop a Landscape Buffer with TH 55 Improvement Program Including Plantings, Berming and Linear Trail System. Incorporate Noise Walls as Necessary. Develop Attractive Infill Development Independent of TH 55 Program.

Existing Mix of Industrial/ Commercial Uses Do Not Constitute Sensitive Visual Receptors. The Uses Provide a Visual Buffer for Areas to the East. If and When Redevelopment Occurs, Site Plans should be Reviewed to Insure that Visual Buffering for Building Occupants and Users of TH 55 and HOV or LRT, is Incorporated. Noise Buffering Must also be Incorporated.

Tunnel Under Milwaukee Road R.R Main Line to be Incorporated into All Build Alternatives.

Existing Mix of Industrial/Commercial Structures Creates a Visual Screen. If and When Redevelopment of these Uses Occur Site Plans Should be Reviewed to Insure that Adequate Setbacks, Visual and Aesthetic Buffering are Provided. Noise Buffering Must also be Provided.

Develop Landscape Buffer with TH 55 Improvement Program Including Plantings, Berming and Linear Trail System. Incorporate Noise Walls as Necessary. Develop Attractive Infill Development Independent of TH 55 Program

MATCH LINE "A"

5.2.3 Noise

The higher traffic volumes associated with the proposed action will result in increased noise levels. Mitigation is not possible in all cases where expected noise levels exceed state standards. Most locations where mitigation is not possible are located in the vicinity of at-grade intersections, where breaks in the noise barriers are required. Many more homes would experience noise levels over standards under the no-build alternative than under any of the build alternatives (with mitigation).

5.2.4 Parkland

Implementation of the proposed action would result in conversion of about six acres of Minnehaha Park to transportation use. Replacement land within the park is greater than the land taken.

5.2.5 Historic and Archeological Preservation

Implementation of the proposed action would require the relocation of the R.F. Jones House to another site within Longfellow Gardens. The Minnehaha Depot would also be affected. The depot may be relocated just to the east of its present location. If it is not relocated, required noise barriers would be placed within 15 feet of the depot.

5.2.6 Water Quality

The proposed roadway would collect surface runoff which contains several types of pollutants including salts, metals and particulates. There would be minor adverse impacts on water quality in the Mississippi River, which receives all runoff from this area.

5.2.7 Construction

The construction of the proposed action will result in unavoidable adverse impacts including construction noise, dust, possible traffic detours and delays, and temporary water quality deterioration.

5.3 SHORT TERM USES OF THE ENVIRONMENT VERSUS THE MAINTENANCE OF LONG-TERM PRODUCTIVITY

In general the commitment of resources which are considered irreversible and irretrievable directly relate to the trade-offs inherent in the short-term use of the environment versus the maintenance of long-term productivity. Resource areas discussed under Section 5.4, Irreversible and Irretrievable Commitments of Resources, are discussed in terms of their effect upon long-term productivity.

5.3.1 Land and Land Resources

The land committed to highway use will be unavailable for long-term future productivity. This loss of future productivity is to be replaced by the more immediate benefits offered by the proposed project including improved transportation service and efficiency and increased development potential.

5.3.2 Energy and Material Resources

The materials consumed in the construction of the facility will be unavailable for other uses. These uses include the construction of other non-highway facilities. The energy consumed in the construction, maintenance, and operation of the facility is less than the energy consumed by the no-build alternative.

5.3.3 Financial Resources

Significant financial commitments to the project include acquisition, relocation, and construction costs. These dollars will not be available for other uses. These costs are to be recovered through more efficient travel, reduced user costs and an increase in the overall tax base due to the improved accessibility and more intense development of lands served by the facility.

5.4 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS

Commitments of resources which are considered either wholly or in part as irreversible and irretrievable fall into five major categories described in this section.

5.4.1 Land Consumption

The project build alternatives involve the commitment of approximately 90 acres of land to transportation use. While this land might be retrieved in the long term, within the scope of the foreseeable planning period this represents an irreversible and irretrievable commitment.

5.4.2 Social/Cultural Resources

The displacement and relocation of residences, businesses, and other man-made public and private resources are considered to be irreversible and irretrievable commitments.

5.4.3 Energy Resources

Several energy resources will be committed to the project including coal, petroleum, natural gas, electrical, and manpower expenditures for both construction and maintenance of the facility.

5.4.4 Materials

The project build alternatives will result in the commitment of such materials as steel, cement, sand, aggregate, petroleum products, and water which are largely irreversible and irretrievable except for those items which have some salvage value and can be recycled.

5.4.5 Financial Resources

Funds expected in the design, construction, and maintenance of the facility will be totally committed and unavailable for other uses.

6.0 DRAFT 4(f) EVALUATION

6.0 DRAFT 4(f) EVALUATION

The Department of Transportation Act of 1966, Section 4(f) states that it is in the national interest to preserve the natural beauty of the countryside, public park and recreation lands, wildlife and waterfowl refuges, and historic sites. Section 4(f) requires that the Secretary of Transportation approve a project requiring the use of such publicly owned lands of national, state or local significance, or privately owned lands of national historic significance only where it can be shown:

1. That no feasible and prudent alternative to the use of such land exists.

2. That such a project includes all possible planning to minimize harm to this Section 4(f) land, resulting from such use.

6.1 PURPOSE OF EVALUATION

The purpose of the 4(f) evaluation is to present information and supporting documentation needed by the Secretary of Transportation in order to reach a decision regarding the use of those properties protected by Section 4(f). The 4(f) properties under consideration will be affected by the alternatives under consideration for the reconstruction of TH 55, also known as Hiawatha Avenue, between Franklin Avenue and 59th Street South in Minneapolis, Minnesota, and associated transit improvements. The project also includes the proposed reconstruction of CSAH 62 between TH 55 and 46th Avenue South.

Documentation of purpose and need for the project is given in Section 2 of the DEIS, of which this 4(f) evaluation is a part. The five major roadway/transit alternatives and associated subalternatives studied for the project are described in Section 3 and fully listed in Table 3-1.

The purpose of the 4(f) statement is to identify all existing 4(f) properties and analyze the potential impacts resulting from the construction of any of the project alternatives.

6.2 PARK AND RECREATION LANDS

The park and recreation lands inventory conducted for this project has identified four 4(f) properties in the primary impact area.

1. Minnehaha Park, located south of Godfrey Road and east of Hiawatha Avenue, and adjacent to the Mississippi River.

2. Longfellow Gardens, located south of Minnehaha Parkway and west of Hiawatha Avenue.

3. Minnehaha Parkway, located west of Hiawatha Avenue.

4. Wenonah Triangle, located at East 42nd Avenue and Hiawatha Avenue.

This 4(f) statement details the effects associated with each transportation alternative on each of the identified units. The four units are treated together in this document for several reasons.

1. The units generally lie adjacent to each other and are functionally linked.

2. The units are all under the ownership of a single entity, the Minneapolis Park and Recreation Board (MPRB).

3. Wenonah Triangle, Longfellow Gardens and Minnehaha Parkway all serve Minnehaha Park in a complementary fashion. In addition, Minnehaha Parkway provides a trail linkage to Minnehaha Park, which is a major element in the Minneapolis park system.

6.2.1 Descriptions of Properties

6.2.1.1 Minnehaha Park

Minnehaha Park consists of 171.2 acres of natural habitat and maintained parkland. Included within the park is Minnehaha Falls and the associated gorge, and some Mississippi River bottomland.

Minnehaha Park serves as the link between the West River Parkway trails system and the trail system being developed within Fort Snelling State Park, which will also provide linkages to the trail networks in the Minnesota Valley National Wildlife Refuge and Recreation Area and to the Minnesota Valley Trail.

The steep slopes of the Minnehaha Creek gorge provide a variety of natural habitats for many species of wildlife. Common tree species include elm, oak, and basswood. Some remnant, low-lying bogs are present adjacent to the creek in the vicinity of the Minnesota Soldiers Home, located at Minnehaha Avenue and East 51st Street.

Numerous species of wildlife utilizing the area include a variety of songbirds, such as cardinals, robins, orioles, warblers, catbirds, thrushes and various species of waterfowl, gulls and terns. Also present are gray squirrels, woodchuck, whitetail deer, cottontail rabbits and jackrabbits. Reptile and amphibian species include three species of garter snakes, as well as turtles, toads and frogs. This diversity of wildlife is a consequence of Minnehaha Park's close proximity to the Minneapolis-St. Paul International Airport and its associated vast acreage of grassland, and to Fort Snelling State Park, which provides a continuous travel corridor along the Mississippi River to the primarily undeveloped Minnesota River Valley.

Minnehaha Falls is a feature not only of recreational interest but of geologic interest as well. It is a representation of the advance of St. Anthony Falls up the Mississippi River gorge, as the sandstone layer beneath the limestone eroded more rapidly and caused the recession of the falls upriver.

6.2.1.2 Longfellow Gardens

Longfellow Gardens is 4.6 acres in size and includes a pond which was created by a small dam on Minnehaha Creek. Situated on the property are a few scattered trees and a statue of Henry Wadsworth Longfellow. The grass within Longfellow Gardens is kept mowed. Situated at the northeast corner of Longfellow Gardens is the R.F. Jones House, a feature which will be discussed in greater detail in Section 6.3 of this document.

At one time, Longfellow Gardens was the site of a small zoo and botanical garden. It is no longer used for this purpose.

6.2.1.3 Minnehaha Parkway

Minnehaha Parkway is 9.5 miles long and connects Lake Harriet with Minnehaha Park. There are a total of 235.2 acres in the parkway. In this area of the corridor, the parkway consists of two one-way streets separated by a boulevard. Minnehaha Creek runs along the northern edge of the parkway property at this location. Many tall, stately elms provide shade along the parkway, and the boulevard grass is kept mowed.

6.2.1.4 Wenonah Triangle

Wenonah Triangle is a grassy, 0.1 acre parcel located west of Minnehaha Park at Hiawatha and East 42nd Avenue. It is separated from Minnehaha Park proper by TH 55.

6.2.2 Activities and Use

6.2.2.1 Minnehaha Park

Minnehaha Park is considered by the Metropolitan Council as serving a regional function. The park draws users from Minneapolis, St. Paul and other communities within the seven-county metropolitan area, as well as from other parts of the state and from outside the state. Probably the single most improved park in the Minneapolis Park System, Minnehaha Park is also considered one of three anchor parks along the Mississippi River.

The major attraction of the park is Minnehaha Falls and its associated gorge. On weekends, 18 percent of the park visitors spend 30 minutes or more traveling to the park; this is the greatest amount of time spent en-route associated with any of the major Minneapolis parks. Also, many of the visitors - 14 percent on weekends, 24 percent on weekdays - have never been to the park before. During 1977, total use for Minnehaha Park was 476,000 user visits. (One user visit is one person visiting the park during one day without consideration of the length of the visitor's stay.) Most visits occurred between Memorial Day and Labor Day. Use throughout 1977 was distributed as follows:

- Memorial Day to Labor Day 257,000
- Fall 84,000
- Winter 68,000
- Spring 67,000

Major park activities include picnicking, parkway driving, sightseeing, organized group games, walking/hiking, bicycling and sitting. Other activities include jogging, casual games, relaxing, nature walking/wildlife observation and sunbathing. In addition, ski touring and skating occur during the winter months. Length of stay in the park depends on the activity.

Facilities and attractions present within the park area include picnic areas, drinking fountains, sculpture, benches, refectory (including rest rooms, picnic shelter and park police offices), bandstand, floral displays, hiking trails, nature trails, interpretive plaques, geological formations, parking areas, day camp, fire ring, outdoor grills, children's outdoor play equipment, ballfield, football/soccer field, service building, four tennis courts, Minnehaha Creek, Minnehaha Falls and Minnehaha Depot. The park is frequently used for nature study purposes by various school groups. Completion of the trail between Minnehaha Park and Fort Snelling State Park will provide continuous trail access from the Minneapolis Campus of the University of Minnesota, through Fort Snelling State Park, the Minnesota Valley National Wildlife Refuge and Recreation Area and the Minnesota Valley Trail, to LeSeuer, Minnesota. This trail will be available for use by bicyclists and hikers.

6.2.2.2 Longfellow Gardens

Longfellow Gardens are part of the Minnehaha Park/Minnehaha Parkway network and also have regional significance. A variety of age groups use the open area for active informal play such as frisbee throwing, casual strolling, fishing and other similar activities. Recreational use data are similar to those given above for Minnehaha Park. The main feature of Longfellow Gardens is the open space it provides for sunbathing, general relaxation and informal active games. The historic R.F. Jones House, located on this property, is presently closed to the public.

6.2.2.3 Minnehaha Parkway

Minnehaha Parkway is part of a regional trail network within the City of Minneapolis known as the Grand Round. The parkway is 9.5 miles long and connects Lake Harriet with Minnehaha Park. Within the parkway route, there are opportunities for boating, picnicking, hiking and walking, ski touring, bicycling and pleasure driving. Playgrounds are also present at various locations. With the exception of playgrounds, all of the previously listed opportunities could take place within that portion of the parkway located in the project area. The portion of the parkway within the Hiawatha Avenue Corridor consists of open space and serves the same recreational functions as the Longfellow Gardens area.

6.2.2.4 Wenonah Triangle

The Wenonah Triangle serves primarily as local open space. One bench is situated on East 42nd Avenue for use by MTC bus patrons. The small size of this park precludes any use beyond sitting on the grass and relaxing.

6.2.3 Relationship to Similarly Used Lands

The Minnehaha Park recreation complex, which includes Longfellow Gardens, Wenonah Triangle and that portion of Minnehaha Parkway which lies within the study area, provides a recreational focal point for users of West River Parkway, Godfrey Road and Minnehaha Parkway. Pleasure drivers as well as bicyclists and hikers using the parkway system benefit from the variety of recreational opportunities that are offered by Minnehaha Park. In addition, Fort Snelling State Park, approximately three miles to the southeast, is a 3,265-acre park consisting primarily of Mississippi River bluff land and Minnesota River Valley bluff land and bottomland. This large, undeveloped natural area provides opportunities for a variety of recreational experiences including hiking, bicycling, horseback riding and snowmobiling. An interpretive center, swimming beach, picnic area and boat launch have been developed. Fort Snelling State Park also lies adjacent to and provides trail connections with the Minnesota Valley National Wildlife Refuge and Recreation area. The Refuge/Recreation area complex is the result of the combined efforts of federal, state and local units of government to provide a network of cooperatively managed recreational units. This network extends to Jordan, Minnesota. Beyond that point, the Minnesota Department of Natural Resources manages and operates a series of trail waysides and a state trail which extends to LeSeuer, Minnesota. Also, lying across the Mississippi River to the east of Minnehaha Park, is Hidden Falls Regional Park.

6.2.4 Access

Primary access to the Minnehaha Park recreation complex is provided by Minnehaha Avenue from the south, by Hiawatha Avenue and Minnehaha Avenue from the north, Minnehaha Parkway from the west, and Godfrey Road from the east.

The primary entrance to Minnehaha Park is between 42nd Avenue and Godfrey Road. A second entrance to the park exists on the east side of the park off Godfrey Road. Pedestrian and bicycle access is also provided with the connection of Godfrey Road to West River Parkway. West River Parkway parallels the Mississippi River on its west bank and presently extends from the Minneapolis Campus of the University of Minnesota to Minnehaha Park.

6.2.5 Location and Amount of Lands Affected

Table 6-1 presents a tabulation of the total parkland acreage required for each of the study alternatives. Figure 6-1 shows how each individual unit is affected by each of the alternatives and subalternatives. In addition to existing highway right-of-way, some additional parkland is required for construction of Subalternatives a, b and c, and also for construction of Alternatives 1 through 4 paralleling Hiawatha Avenue. Access to Minnehaha Park will continue to be provided with either an at-grade intersection with Minnehaha Parkway or a bridge passing over Hiawatha Avenue. Access to the park from Minnehaha Avenue will remain.

TABLE 6-1

AFFECTED ACREAGE AND REPLACEMENT LANDS
FOR MINNEHAHA PARK AND ENVIRONS

Alternative	ACRES									
	1. Parkland Required for New ROW *	2. Road ROW Available for Parkland	3. Railroad ROW Available for Parkland	Covered Roadway/ Tunnel			7. Total Parkland Taken (1+5)	8. Parkland Gained/ (Lost) (2+3-7)	9. Total Usable Parkland Inc. Tunnel/ Covered Roadway (2+3+6)	10. Net Usable Parkland Gained (9-7)
				4. High-Way ROW	5. Park-land	6. Total (4+5)				
1. Arterial & HOV At Grade										
a. Covered Roadway Grade Separated	6.20	1.19	5.99	0.48	1.17	1.65	7.37	(0.19)	8.83	1.46
b. Covered Roadway At Grade	6.20	1.07	5.99	0.78	0.99	1.77	7.19	(0.13)	8.83	1.64
c. Tunnel	6.11	0.87	5.99	1.33	2.17	3.50	8.28	(1.42)	10.36	2.08
2. Arterial & HOV Grade Separated	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1	Same as Alternative 1			Same as Alternative 1		Same as Alternative 1	Same as Alternative 1
3. Arterial										
a. Covered Roadway Grade Separated	6.11	2.63	5.99	0.55	0.48	1.03	6.59	2.03	9.65	3.06
b. Covered Roadway At Grade	6.11	2.45	5.99	0.55	0.48	1.03	6.59	1.85	9.47	2.88
c. Tunnel	6.11	2.63	5.99	0.88	1.41	2.29	7.52	1.10	10.91	3.39
4. Arterial & LRT										
a. Covered Roadway Grade Separated	6.11	1.19	5.99	0.48	1.17	1.65	7.28	(0.10)	8.83	1.55
b. Covered Roadway At Grade	6.11	1.07	5.99	0.78	0.99	1.77	7.10	(0.04)	8.83	1.73
c. Tunnel	6.11	0.87	5.99	1.33	2.17	3.50	8.28	(1.42)	10.36	2.08
5. No-Build	No construction under this alternative									

*Does not include land required for tunnel/covered roadway.

FIGURE 6-1A

MINNEHAHA PARK - POTENTIAL IMPACTS

ALTERNATIVE 1&2

HIAWATHA AVENUE
Location and Design Study

NORTH

FEET
0 100 200 400 600

- RECREATION AND OPEN SPACE BOUNDARY
- PROPOSED BICYCLE/PEDESTRIAN TRAIL
- PARKLAND TAKEN FOR R.O.W.
- R.O.W. AVAILABLE FOR PARKLAND REPLACEMENT
- RAILROAD R.O.W. AVAILABLE FOR PARKLAND

MATCHLINE "D"

58th ST.
57th ST.
56th ST.
55th ST.
54th ST.
53rd ST.
52nd ST.

HENNEPIN CO. RD. 62
CROSSTOWN HIGHWAY

T.H. 55

U.S. VETERANS HOSPITAL

BUREAU OF MINES

43rd AVE.
42nd AVE.
44th AVE
45th AVE.
46th AVE.
47th AVE.
48th AVE.

MINNEHAHA AVE.

HIAWATHA LA.

RIVERVIEW RD.

PARK DRIVE

MINNEHAHA PARK

MATCHLINE "E"

PROPOSED PEDESTRIAN/BICYCLE TRAIL

FIGURE 6-1B

MINNEHAHA PARK-POTENTIAL IMPACTS

ALTERNATIVE 1A

RECREATION AND OPEN SPACE BOUNDARY
PROPOSED BICYCLE/PEDESTRIAN TRAIL
PARKLAND TAKEN FOR R.O.W.
R.O.W. AVAILABLE FOR PARKLAND REPLACEMENT
RAILROAD R.O.W. AVAILABLE FOR PARKLAND
COVERED ROADWAY/TUNNEL - EXISTING R.O.W.
COVERED ROADWAY/TUNNEL - PARKLAND TAKEN

HIAWATHA AVENUE
Location and Design Study

NORTH
FEET
0 100 200 400 600

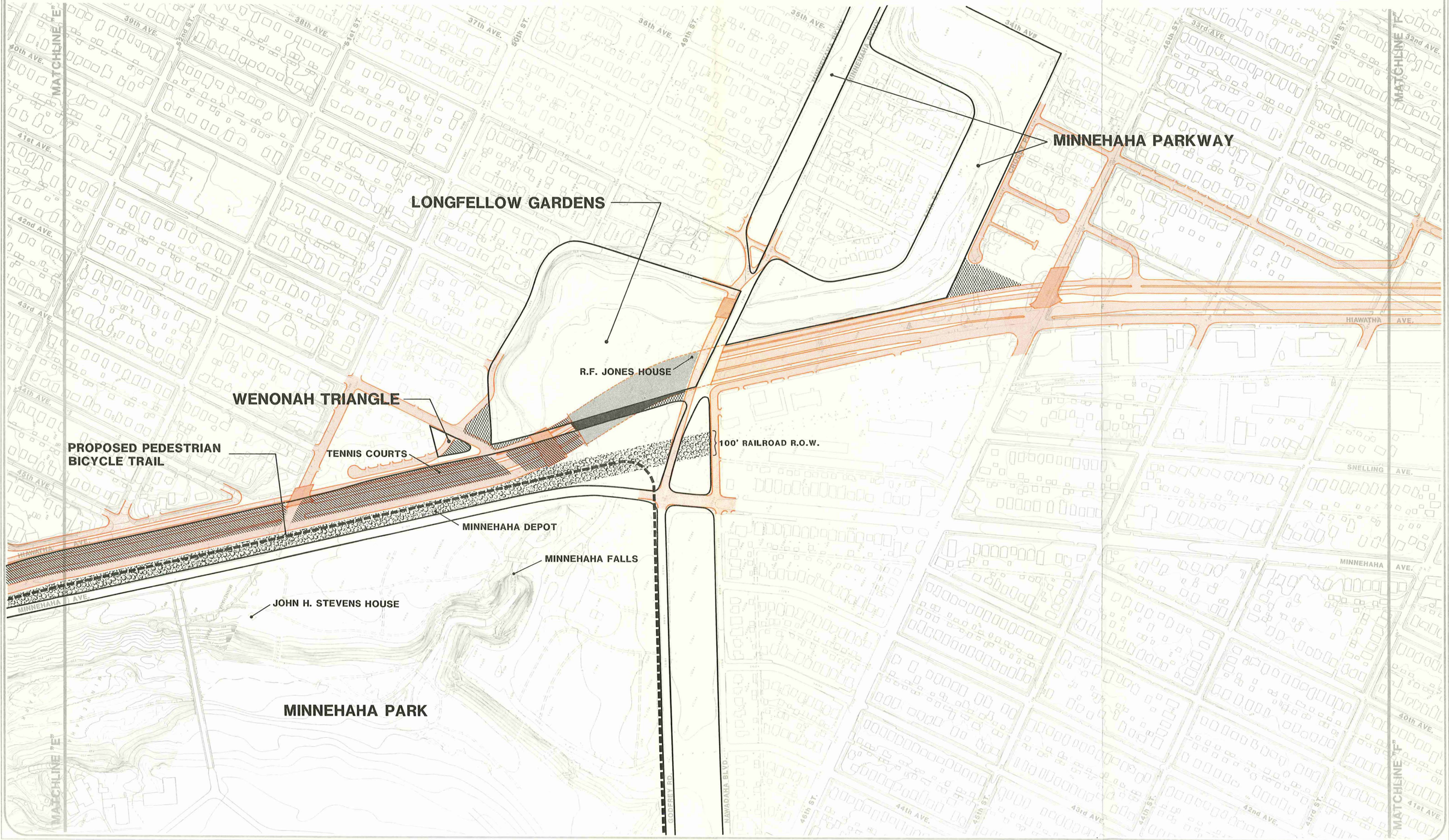


FIGURE 6-1C

MINNEHAHA PARK- POTENTIAL IMPACTS

ALTERNATIVE 1B

RECREATION AND OPEN SPACE BOUNDARY
PROPOSED BICYCLE/PEDESTRIAN TRAIL
PARKLAND TAKEN FOR R.O.W.
R.O.W. AVAILABLE FOR PARKLAND REPLACEMENT
RAILROAD R.O.W. AVAILABLE FOR PARKLAND
COVERED ROADWAY/TUNNEL - EXISTING R.O.W.
COVERED ROADWAY/TUNNEL - PARKLAND TAKEN

HIAWATHA AVENUE
Location and Design Study

NORTH
FEET
0 100 200 400 600

MATCHLINE "E"
MATCHLINE "F"
LONGFELLOW GARDENS
MINNEHAHA PARKWAY
R.F. JONES HOUSE
WENONAH TRIANGLE
PROPOSED PEDESTRIAN BICYCLE TRAIL
TENNIS COURTS
100' RAILROAD R.O.W.
MINNEHAHA DEPOT
MINNEHAHA FALLS
JOHN H. STEVENS HOUSE
MINNEHAHA PARK
HIAWATHA AVE.
MINNEHAHA AVE.
SNELLING AVE.
GOODRICH RD.
HIAWATHA BLVD.
39th AVE.
40th AVE.
41st AVE.
42nd AVE.
43rd AVE.
44th AVE.
45th AVE.
46th AVE.
46th ST.
45th ST.
44th ST.
43rd ST.
42nd ST.
51st ST.
50th ST.
49th ST.
37th AVE.
36th AVE.
35th AVE.
34th AVE.
33rd AVE.
32nd AVE.

FIGURE 6-1D

MINNEHAHA PARK– POTENTIAL IMPACTS

ALTERNATIVE 1C

RECREATION AND OPEN SPACE BOUNDARY
PROPOSED BICYCLE/PEDESTRIAN TRAIL
PARKLAND TAKEN FOR R.O.W.
R.O.W. AVAILABLE FOR PARKLAND REPLACEMENT
RAILROAD R.O.W. AVAILABLE FOR PARKLAND
COVERED ROADWAY/TUNNEL – EXISTING R.O.W.
COVERED ROADWAY/TUNNEL – PARKLAND TAKEN

HIAWATHA AVENUE
Location and Design Study

NORTH
FEET 0 100 200 400 600

LONGFELLOW GARDENS
MINNEHAHA PARKWAY
R.F. JONES HOUSE
WENONAH TRIANGLE
PROPOSED PEDESTRIAN BICYCLE TRAIL
TENNIS COURTS
100' RAILROAD R.O.W.
MINNEHAHA DEPOT
MINNEHAHA FALLS
JOHN H. STEVENS HOUSE
MINNEHAHA PARK
MATCHLINE "E"
MATCHLINE "F"
HIAWATHA AVE.
MINNEHAHA AVE.
SNELLING AVE.
NAWADAHA BLVD.
GODFREY RD.
CROSBY LK.
MINNEHAHA CREEK
39th AVE.
38th AVE.
37th AVE.
36th AVE.
35th AVE.
34th AVE.
33rd AVE.
32nd AVE.
41st AVE.
42nd AVE.
43rd AVE.
44th AVE.
45th AVE.
40th AVE.
41st AVE.
50th AVE.
51st ST.
50th ST.
49th ST.
46th ST.
45th ST.
44th ST.
43rd ST.

FIGURE 6-1E

MINNEHAHA PARK-POTENTIAL IMPACTS
ALTERNATIVE 2A

RECREATION AND OPEN SPACE BOUNDARY
PROPOSED BICYCLE/PEDESTRIAN TRAIL
PARKLAND TAKEN FOR R.O.W.
R.O.W. AVAILABLE FOR PARKLAND REPLACEMENT
RAILROAD R.O.W. AVAILABLE FOR PARKLAND
COVERED ROADWAY/TUNNEL - EXISTING R.O.W.
COVERED ROADWAY/TUNNEL - PARKLAND TAKEN

HIAWATHA AVENUE
Location and Design Study

NORTH
FEET 0 100 200 400 600

MATCHLINE "E"
MATCHLINE "F"
LONGFELLOW GARDENS
MINNEHAHA PARKWAY
R.F. JONES HOUSE
WENONAH TRIANGLE
PROPOSED PEDESTRIAN BICYCLE TRAIL
TENNIS COURTS
100' RAILROAD R.O.W.
MINNEHAHA DEPOT
MINNEHAHA FALLS
JOHN H. STEVENS HOUSE
MINNEHAHA PARK
HIAWATHA AVE.
MINNEHAHA AVE.
SNELLING AVE.
GODFREY RD.
NAVADAHA BLVD.
CROSBY RD.
37th AVE.
36th AVE.
35th AVE.
34th AVE.
33rd AVE.
32nd AVE.
40th AVE.
41st AVE.
42nd AVE.
43rd AVE.
44th AVE.
45th AVE.
50th ST.
49th ST.
48th ST.
47th ST.
46th ST.
45th ST.
44th ST.
43rd ST.
42nd ST.
41st ST.
40th ST.
39th AVE.
38th AVE.

FIGURE 6-1F

MINNEHAHA PARK- POTENTIAL IMPACTS

ALTERNATIVE 2B

- RECREATION AND OPEN SPACE BOUNDARY
- PROPOSED BICYCLE/PEDESTRIAN TRAIL
- PARKLAND TAKEN FOR R.O.W.
- R.O.W. AVAILABLE FOR PARKLAND REPLACEMENT
- RAILROAD R.O.W. AVAILABLE FOR PARKLAND
- COVERED ROADWAY/TUNNEL - EXISTING R.O.W.
- COVERED ROADWAY/TUNNEL - PARKLAND TAKEN

HIAWATHA AVENUE
Location and Design Study

NORTH

FEET 0 100 200 400 600

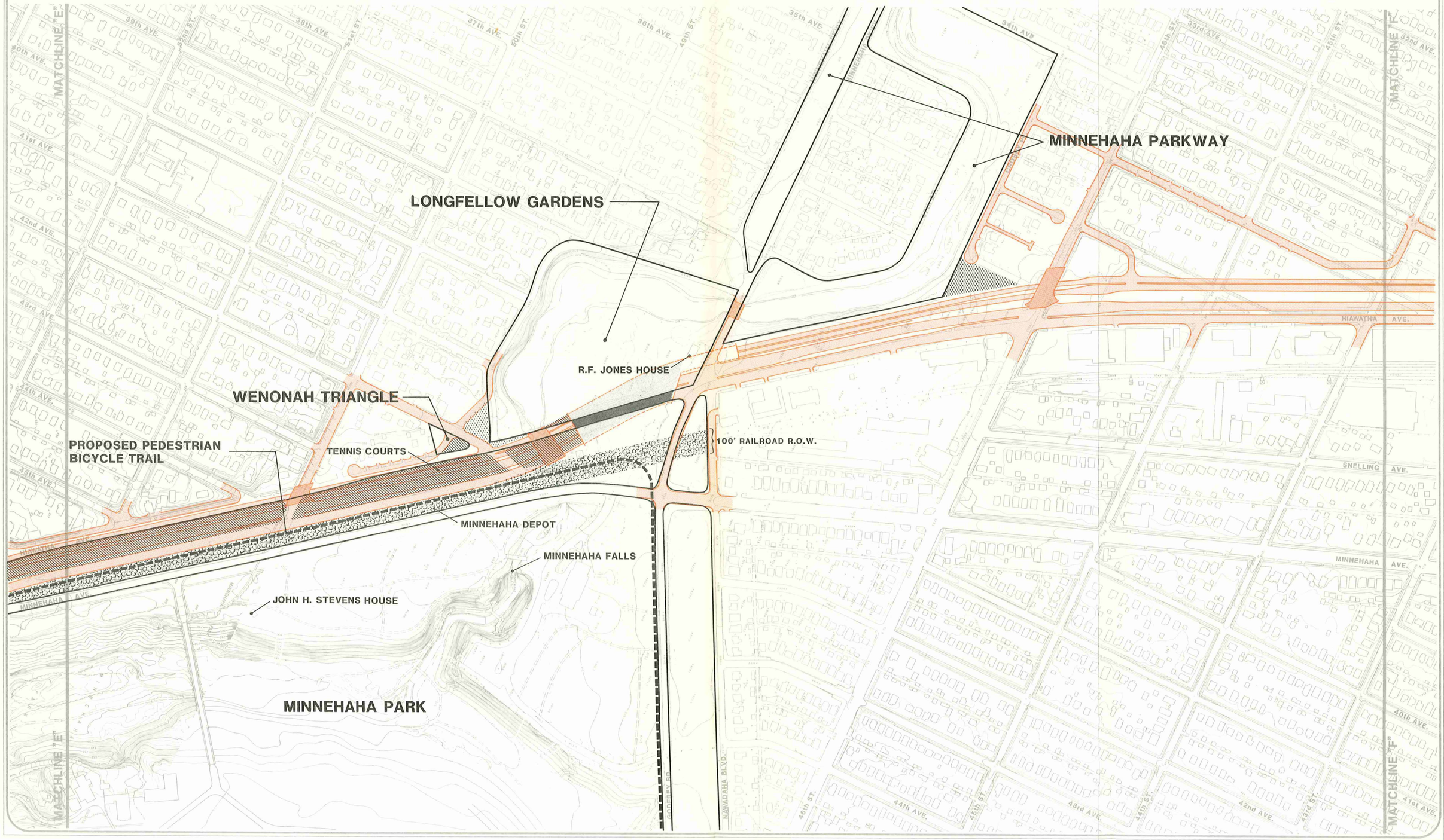


FIGURE 6-1G

MINNEHAHA PARK- POTENTIAL IMPACTS
ALTERNATIVE 2C

RECREATION AND OPEN SPACE BOUNDARY
PROPOSED BICYCLE/PEDESTRIAN TRAIL
PARKLAND TAKEN FOR R.O.W.
R.O.W. AVAILABLE FOR PARKLAND REPLACEMENT
RAILROAD R.O.W. AVAILABLE FOR PARKLAND
COVERED ROADWAY/TUNNEL - EXISTING R.O.W.
COVERED ROADWAY/TUNNEL - PARKLAND TAKEN

HIAWATHA AVENUE
Location and Design Study

NORTH
FEET 0 100 200 400 600

LONGFELLOW GARDENS
MINNEHAHA PARKWAY
R.F. JONES HOUSE
WENONAH TRIANGLE
PROPOSED PEDESTRIAN BICYCLE TRAIL
TENNIS COURTS
100' RAILROAD R.O.W.
MINNEHAHA DEPOT
MINNEHAHA FALLS
JOHN H. STEVENS HOUSE
MINNEHAHA PARK

MATCHLINE "E"
MATCHLINE "F"

FIGURE 6-1H

MINNEHAHA PARK– POTENTIAL IMPACTS
ALTERNATIVE 3A

RECREATION AND OPEN SPACE BOUNDARY
PROPOSED BICYCLE/PEDESTRIAN TRAIL
PARKLAND TAKEN FOR R.O.W.
R.O.W. AVAILABLE FOR PARKLAND REPLACEMENT
RAILROAD R.O.W. AVAILABLE FOR PARKLAND
COVERED ROADWAY/TUNNEL - EXISTING R.O.W.
COVERED ROADWAY/TUNNEL - PARKLAND TAKEN

HIAWATHA AVENUE
Location and Design Study

NORTH
FEET 0 100 200 400 600

MATCHLINE "E"
MATCHLINE "F"
MINNEHAHA PARKWAY
LONGFELLOW GARDENS
WENONAH TRIANGLE
R.F. JONES HOUSE
PROPOSED PEDESTRIAN / BICYCLE TRAIL
TENNIS COURTS
100' RAILROAD R.O.W.
MINNEHAHA DEPOT
MINNEHAHA FALLS
JOHN H. STEVENS HOUSE
MINNEHAHA PARK
HIAWATHA AVE.
MINNEHAHA AVE.
SNELLING AVE.
GODFREY RD.
NAWADAHA BLVD.

FIGURE 6-11

MINNEHAHA PARK- POTENTIAL IMPACTS
ALTERNATIVE 3B

- RECREATION AND OPEN SPACE BOUNDARY
- PROPOSED BICYCLE/PEDESTRIAN TRAIL
- PARKLAND TAKEN FOR R.O.W.
- R.O.W. AVAILABLE FOR PARKLAND REPLACEMENT
- RAILROAD R.O.W. AVAILABLE FOR PARKLAND
- COVERED ROADWAY/TUNNEL - EXISTING R.O.W.
- COVERED ROADWAY/TUNNEL - PARKLAND TAKEN

HIAWATHA AVENUE
Location and Design Study

NORTH

FEET
0 100 200 400 600

MINNEHAHA PARKWAY
LONGFELLOW GARDENS
WENONAH TRIANGLE
R.F. JONES HOUSE
PROPOSED PEDESTRIAN / BICYCLE TRAIL
TENNIS COURTS
100' RAILROAD R.O.W.
MINNEHAHA DEPOT
MINNEHAHA FALLS
JOHN H. STEVENS HOUSE
MINNEHAHA PARK

MATCHLINE "E"
MATCHLINE "F"

FIGURE 6-1J

MINNEHAHA PARK- POTENTIAL IMPACTS
ALTERNATIVE 3C

- RECREATION AND OPEN SPACE BOUNDARY
- PROPOSED BICYCLE/PEDESTRIAN TRAIL
- PARKLAND TAKEN FOR R.O.W.
- R.O.W. AVAILABLE FOR PARKLAND REPLACEMENT
- RAILROAD R.O.W. AVAILABLE FOR PARKLAND
- COVERED ROADWAY/TUNNEL - EXISTING R.O.W.
- COVERED ROADWAY/TUNNEL - PARKLAND TAKEN

HIAWATHA AVENUE
Location and Design Study

NORTH

FEET 0 100 200 400 600

MINNEHAHA PARKWAY
LONGFELLOW GARDENS
WENONAH TRIANGLE
R.F. JONES HOUSE
PROPOSED PEDESTRIAN / BICYCLE TRAIL
TENNIS COURTS
100' RAILROAD R.O.W.
MINNEHAHA DEPOT
MINNEHAHA FALLS
JOHN H. STEVENS HOUSE
MINNEHAHA PARK
MATCHLINE "E"
MATCHLINE "F"
HIAWATHA AVE.
MINNEHAHA AVE.
SNELLING AVE.
GODFREY RD.
NAWADAHA BLVD.

FIGURE 6-1K

MINNEHAHA PARK- POTENTIAL IMPACTS
ALTERNATIVE 4A

RECREATION AND OPEN SPACE BOUNDARY
PROPOSED BICYCLE/PEDESTRIAN TRAIL
PARKLAND TAKEN FOR R.O.W.
R.O.W. AVAILABLE FOR PARKLAND REPLACEMENT
RAILROAD R.O.W. AVAILABLE FOR PARKLAND
COVERED ROADWAY/TUNNEL - EXISTING R.O.W.
COVERED ROADWAY/TUNNEL - PARKLAND TAKEN

HIAWATHA AVENUE
Location and Design Study

NORTH
FEET
0 100 200 400 600

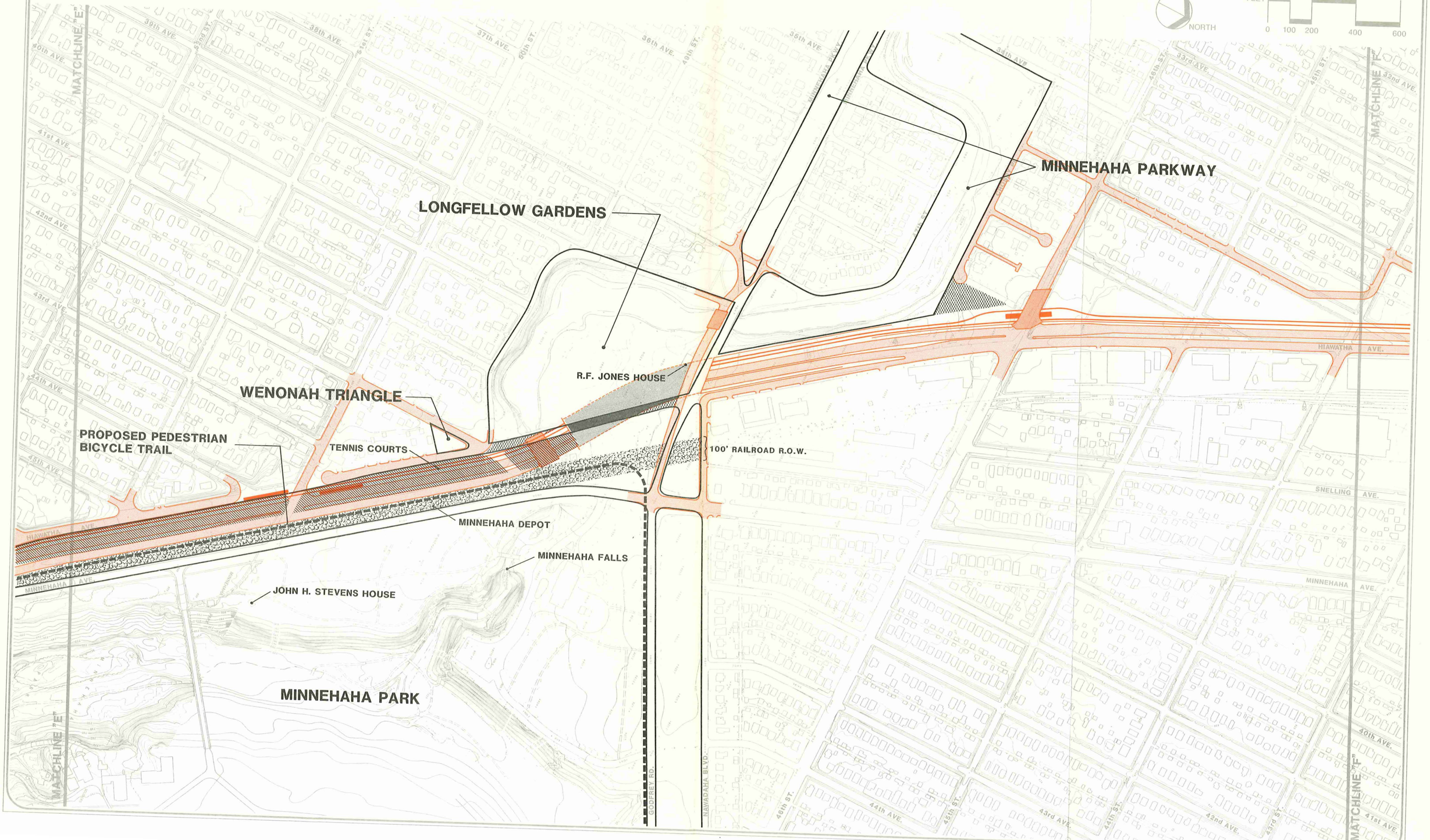


FIGURE 6-1L

MINNEHAHA PARK-POTENTIAL IMPACTS
ALTERNATIVE 4B

RECREATION AND OPEN SPACE BOUNDARY
PROPOSED BICYCLE/PEDESTRIAN TRAIL
PARKLAND TAKEN FOR R.O.W.
R.O.W. AVAILABLE FOR PARKLAND REPLACEMENT
RAILROAD R.O.W. AVAILABLE FOR PARKLAND
COVERED ROADWAY/TUNNEL - EXISTING R.O.W.
COVERED ROADWAY/TUNNEL - PARKLAND TAKEN

HIAWATHA AVENUE
Location and Design Study

NORTH
FEET 0 100 200 400 600

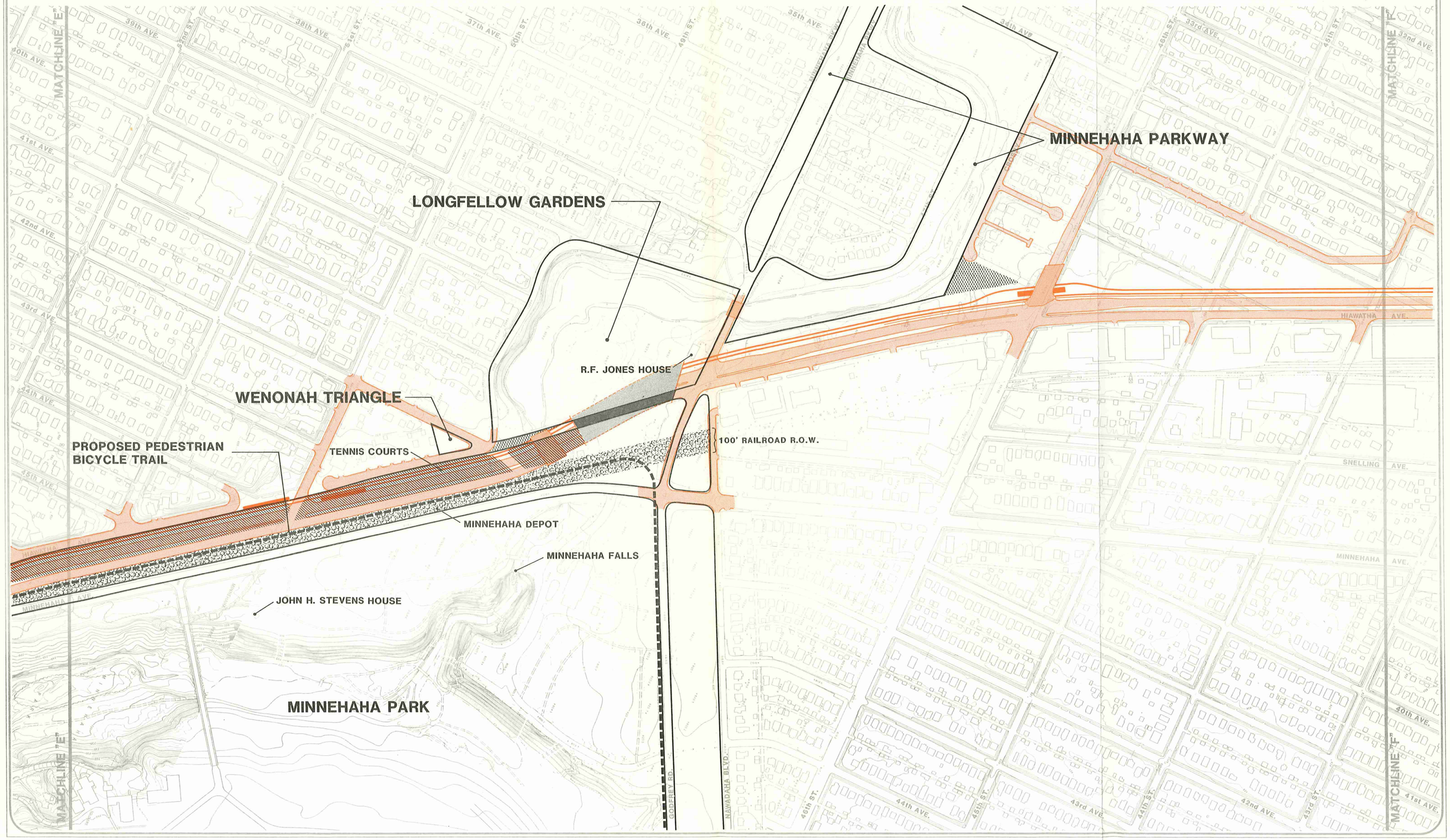


FIGURE 6-1M

MINNEHAHA PARK- POTENTIAL IMPACTS
ALTERNATIVE 4C

RECREATION AND OPEN SPACE BOUNDARY
PROPOSED BICYCLE/PEDESTRIAN TRAIL
PARKLAND TAKEN FOR R.O.W.
R.O.W. AVAILABLE FOR PARKLAND REPLACEMENT
RAILROAD R.O.W. AVAILABLE FOR PARKLAND
COVERED ROADWAY/TUNNEL - EXISTING R.O.W.
COVERED ROADWAY/TUNNEL - PARKLAND TAKEN

HIAWATHA AVENUE
Location and Design Study

NORTH
FEET 0 100 200 400 600

LONGFELLOW GARDENS
MINNEHAHA PARKWAY
R.F. JONES HOUSE
WENONAH TRIANGLE
PROPOSED PEDESTRIAN BICYCLE TRAIL
TENNIS COURTS
100' RAILROAD R.O.W.
MINNEHAHA DEPOT
MINNEHAHA FALLS
JOHN H. STEVENS HOUSE
MINNEHAHA PARK
GODFREY RD.
HIAWATHA BLVD.
MATCHLINE "E"
MATCHLINE "F"
HIAWATHA AVE.
MINNEHAHA AVE.
SNELLING AVE.
35th AVE.
36th AVE.
37th AVE.
38th AVE.
40th AVE.
41st AVE.
42nd AVE.
43rd AVE.
44th AVE.
45th AVE.
46th AVE.
46th ST.
45th ST.
44th ST.
43rd ST.
42nd ST.
41st ST.
50th ST.
49th ST.
48th ST.
47th ST.
33rd AVE.
32nd AVE.
40th AVE.
41st AVE.

6.2.6 Section 6(f) Requirements

A Section 6(f) involvement exists when the affected park property has used Land and Water Conservation (LAWCON) Funds in its development. Stipulations within Section 6(f) require the replacement in kind of the property taken. LAWCON funds were used to develop and rehabilitate recreational facilities on 45.1 acres of land within Minnehaha Park. Even though the property developed through the use of LAWCON funds will not be impacted by this project, LAWCON requirements stipulate that whenever a park in which LAWCON funds were utilized is impacted by a project, those properties must be replaced in kind. Since Alternatives 1 through 4 each involve some taking of parkland, land will be made available to replace that loss. Once a final alternative is selected, the amount and type of replacement planned will be negotiated as mitigation for the loss. Also, according to the Metropolitan Council's Regional Open Space Policy 18, a 6(f) type conversion is required in all cases where regional recreational open space areas are concerned, regardless of the funding source. Since the Metropolitan Council has identified Minnehaha Park as part of the Regional Open Space Plan, this requirement also necessitates Section 6(f) considerations.

6.2.7 Physical Effects on Properties

The taking of property in the Minnehaha Park recreation complex will have the following effects on the park in its surroundings. These effects will apply under Alternatives 1 through 4.

1. The loss of four tennis courts near Minnehaha Depot.

2. A minor increase in the siltation and turbidity of the water in Minnehaha Creek during the construction of the road and bridge crossing of the creek.

3. Temporary disruption of pedestrian and motorist access during the construction period.

4. Some minor disturbance to park visitors viewing Minnehaha Falls when construction activities take place.

Alternative 5, the no-build alternative, would have the following impacts upon the park.

1. Continued noise levels associated with the use of TH 55 as a major thoroughfare for trucks and commuter traffic.

2. Safety hazards for pedestrians and bicyclists using Minnehaha Parkway to visit Minnehaha Park.

6.2.8 Ownership of Properties

Minnehaha Park, Minnehaha Parkway, Longfellow Gardens and Wenonah Triangle are under the ownership or administration of the Minneapolis Park and Recreation Board (MPRB). The MPRB is a semi-autonomous body of elected

officials responsible for the acquisition, maintenance and operation of parks and associated recreational facilities in the City of Minneapolis. The trail system which is proposed to connect West River Parkway/Godfrey Road with Minnehaha Park and Fort Snelling State Park would utilize the abandoned railroad right-of-way and would be under the jurisdiction of the MPRB.

Part of the park property is leased from the Minnesota Soldiers Home. The lease is for that portion of the Soldiers Home property contiguous to Minnehaha Creek and Park near the juncture with the Mississippi River.

6.2.9 Alternatives to the Use of Parkland Property

Because Minnehaha Parkway and Longfellow Gardens lie perpendicular to Hiawatha Avenue, there is no alternative which would not in some manner require acquisition of parkland, except Alternative 5, the no-build alternative.

Early in the project analysis, an alignment alternative was considered which avoided the separation of Longfellow Gardens from the main body of Minnehaha Park. Under this alternative, TH 55 would divert from its existing alignment at about 46th Street, pass to the west of Longfellow Gardens, and the rejoin the existing TH 55 alignment at about 50th Street. Implementation of this alternative would require acquisition of a minimum of 30 to 50 additional residences and would require several short radius curves in the alignment. Due to these alignment and acquisition impacts, and because it appeared highly likely that a satisfactory direct alignment solution could be developed, this alternative was not given further consideration.

6.2.10 Measures to Minimize Harm

If one of Alternatives 1 through 4 is constructed, measures to minimize impacts to the existing parklands would be adopted. The following have been identified as possible measures to mitigate impacts.

1. Parkland taken will be replaced through the acquisition of the abandoned railroad right-of-way and turning the unused portion over to the MPRB; also, obliterated sections of existing street and highway right-of-way will be rehabilitated and turned over to the MPRB.

2. The covered roadway/tunnel through Minnehaha Park will be a minimum of 470 feet long.

3. The design of the covered roadway/tunnel and restoration of all parklands and facilities impacted will be approved by the MPRB at regular intervals throughout the planning, design and construction phases.

4. A bicycle and pedestrian path will parallel the entire length of the proposed improvements along TH 55. In the vicinity of Minnehaha Park, measures will be taken to integrate the bicycle and pedestrian path with the recreational uses of the park.

5. Bridge structures built or modified as part of TH 55 improvements will be in accordance with the flow requirements of Minnehaha Creek to avoid future flood situations.

6. The rise in land grade and elevation over the covered roadway/tunnel shall be kept to a minimum, but shall be sufficient to provide for normal plant life and growth. Grade slopes preferably should not exceed ten percent with a three- to four-foot soil depth coverage over the covered roadway.

7. Minnehaha Park will be continuously buffered along TH 55 by a combination of noise walls, mounding and plantings. The design will be such that an abrupt wall effect will be avoided. Variations in landscape design, mounding and vegetation will be used.

8. Direct park access to transit service will be provided.

9. An effort will be made to mitigate damage to existing park facilities resulting from construction of TH 55.

10. Actions will be taken to reduce to a minimum the negative effects of roadway construction, such as disruption of park services, noise, dust, runoff and loss of access.

11. Trees and shrubs, including snags, beyond the construction limits will be preserved.

12. Construction related damage to trees and shrubs will be immediately repaired.

13. Selected plantings will be used to benefit songbirds and other wildlife.

14. Salt-tolerant vegetation will be used for seeding and replanting programs.

15. There will be a restricted use of the deicing salt.

16. A spill contingency plan will be prepared.

17. During construction, exposure of bare soil will be minimized; bare soil will be mulched and sediment traps and berms will be utilized to minimize erosion.

6.3 HISTORIC SITE: R.F. JONES HOUSE

Historic sites have been inventoried and an analysis of impacts has been made under the provisions of Section 106 of the National Historic Preservation Act of 1966 and Executive Order 11593. One property has been identified as being eligible for Section 106 review and also subject to Section 4(f) involvement. This property is the R.F. Jones House, located on Minnehaha Parkway near Hiawatha Avenue.

Figure 6-1 shows the location of the Jones House in relation to the project alternatives. An illustration of the Jones House is included in Figure 7-1. The mitigation measures suggested are for discussion purposes only. Specific measures will be recommended when the final alternative has been selected.

6.3.1 Site Description

This replica of the Longfellow House in Cambridge, Massachusetts was built by R.F. "Fish" Jones on property beside Minnehaha Park which he had purchased from the heirs of Franklin Steele. The house was built sometime after he bought the property for his Longfellow Gardens and Zoo in 1906. It was the second replica of the Longfellow House in Minneapolis, the first being built in 1888. This ten-room, two-story Georgian house has a full attic and basement. The foundation is limestone and concrete. The overall dimensions are 62 by 28 feet. Green asphalt shingles cover the roof and green shutters are mounted at the windows. The clapboard walls are painted yellow and the trim white. The structure is in good condition although it has been vacant since the library was removed in 1967. The MPRB is preserving the house but has yet to decide on an appropriate use for it.

Longfellow Gardens and the R. F. Jones House adjacent to the northwest corner of Minnehaha Park were acquired by the MPRB in 1936. Jones had agreed to donate the property to the Park Board in 1924 on the condition that he and his heirs be left in possession for ten years. After his death in 1930, his heir contested the donation. After litigation, the Park Board incorporated the area into its system. It was preserved as a branch library until 1967.

6.3.2 Activities and Use

Presently, the R.F. Jones house is not open for public use.

6.3.3 Relationship to Similarly Used Land

The Jones house is part of the Minnehaha Historic District, which includes Minnehaha Depot, Minnehaha Park, Minnehaha Falls and the John H. Stevens House. Other units in the district are discussed in Section 7.

6.3.4 Access

Access to the building is from a drive connected to Minnehaha Parkway near Hiawatha Avenue.

6.3.5 Location and Amount of Taking

The Jones House would be affected by Alternatives 1, 2 and 4, as shown on Figure 6-1. The construction of Subalternatives 1a, 1b, 1c, 2a, 2b, 2c, 4a, and 4c would require the relocation of the Jones House.

6.3.6 Ownership

The R.F. Jones House is under the ownership of the Minneapolis Park and Recreation Board (MPRB).

6.3.7 Potential Adverse Effects

The removal and relocation of the Jones House would constitute an adverse effect in that the original relationship between the Jones House and Longfellow Gardens would be altered. The relocation of a building within a historic district is an adverse effect.

6.3.8 Alternatives to the Use of 4(f) Property

Selection of Alternatives 3 or 5 would avoid impacts on this property.

6.3.9 Measures to Minimize Harm

To mitigate potential impacts due to construction of any of the build alternatives, the Longfellow House would be relocated within Longfellow Gardens, to maintain the historic relationship of the house to the property. Photographic documentation of the house in its original location would be made.

7.0 SECTION 106 PROPERTIES: PRELIMINARY REPORT

7.0 SECTION 106 PROPERTIES: PRELIMINARY REPORT

Section 106 of the National Historic Preservation Act of 1966, as amended, and Executive Order 11593, "Protection and Enhancement of the Cultural Environment," require that all historic districts, sites, buildings, structures or objects and archeological sites which are listed or eligible for inclusion in the National Register of Historic Places be examined and that an assessment of impacts be made for all federally assisted projects. Stipulations within the act specify that the Advisory Council on Historic Preservation (ACHP) be given a reasonable opportunity to comment on projects that affect such properties. The involved federal agencies and the ACHP cooperate in this effort utilizing the procedures specified within the Code of Federal Regulations, entitled "Protection of Historic and Cultural Properties" (36 CFR, Part 800). This section of the Code includes the information necessary for compliance with the Section 106 process and procedures utilized by ACHP regarding the potential impacts of project alternatives on historic and archeological properties.

This section of the Hiawatha Avenue Location and Design Study DEIS/AA contains a "determination of effect" as required by the ACHP. Data inputs for this section were received from the Minnesota Historical Society, the Hennepin County Historical Society and the Minneapolis Heritage Preservation Commission. All sites potentially eligible for Section 106 review as described above are discussed, except those properties which are eligible for review and for protection under both Section 106 and Section 4(f) of the Department of Transportation Act of 1966. Analysis of these properties is detailed in the 4(f) statement prepared for this DEIS/AA. (See Section 6.)

7.1 BACKGROUND

7.1.1 Historic Sites Inventory

Twenty-two historic buildings and sites, as well as the boundaries of six historic districts, are located within the project area, as shown in Figure 4-11. These properties and districts and their significance are summarized in Table 7-1.

The City of Minneapolis in nearing completion of a survey in which additional buildings and sites potentially eligible for inclusion in the National Register were investigated. While these additional properties cannot be listed on Table 7-1 until the survey has been formally completed and adopted, their locations are indicated on Figure 4-11.

The following descriptions of historic properties affected and potential adverse effects have been completed subsequent to consultation with the State Historic Preservation Officer and the Minneapolis Heritage Preservation Commission.

TABLE 7-1

HISTORIC PROPERTIES AND DISTRICTS

Historic Property/District	National Register of Historic Places		State Historic Sites Registry	Heritage Preservation Buildings/ Districts	Features of Local Interest
	Listed	Eligible			
St. Anthony Falls Historic District	●		●	●	
North Loop Warehouse Preservation District				●	
F.C. Hayer Company (National Biscuit Building, now Appliance Parts Co.) 256 Third Avenue North	●			●	
Butler Brothers Building 100 North Sixth Street	●			●	
Other Downtown Buildings					
Masonic Temple/Merchandise Building 528 Hennepin Avenue South	●				
Lumber Exchange 425 Hennepin Avenue South				●	
Foshay Tower 821 Marquette Avenue South	●				
Rand Tower/Dain Tower 527 - 529 Marquette Avenue South		●		●	
Farmers and Mechanics Building 111 - 119 South Fourth Street				●	
Minneapolis City Hall/ Hennepin County Courthouse 3rd and 4th Avenue, 4th and 5th Streets	●			●	
The Flour Exchange 310 Fourth Avenue South	●				
Milwaukee Road RR Depot & Train Shed 201 Third Avenue South	●			●	
The Grain Exchange 400 Fourth Street South	●			●	

TABLE 7-1 Continued

Historic Property/District	National Register of Historic Places		State Historic Sites Registry	Heritage Preservation Buildings/ Districts	Features of Local Interest
	Listed	Eligible			
Other Downtown Buildings (Continued)					
Pittsburgh Plate Glass Company 616 Third Street South	•			•	
Advance Thresher/Emerson-Newton Plow Co. Buildings 700 - 704 Third Street South	•			•	
Dania Hall 427 - 429 Cedar Avenue South	•			•	
Farmers and Mechanics Bank 90 South Sixth Street		•			
Minneapolis Armory 500 - 530 South Sixth Street		•			
Gluek Building 16 North Sixth Street		•			
Milwaukee Avenue Historic District	•		•	•	
Minnehaha Historic District	•				•
R.F. Jones House					
Minnehaha Falls			•		
Minnehaha Depot			•		
John H. Stevens House					•
Minnesota Old Soldiers Home Historic District		•			
Fort Snelling Historic District (National Landmark)	•		•		
Site of Local Interest					
Whiskey's Grave					•

The mitigation measures suggested are tentative and for discussion purposes only. Final mitigation measures will be developed specifically for the recommended alternative in the Final EIS.

7.2 AFFECTED SITES, ADVERSE EFFECTS AND MEASURES TO MINIMIZE HARM

This DEIS section describes historic and archeological sites affected by the project, the nature of potential impacts, and measures to minimize harm. Downtown sites are discussed first, followed by those sites located at the southern end of the project area. Four downtown buildings, although not currently listed on the National Register of Historic Places, are eligible for listing and have sufficient potential for eventually being listed. These are also included in the evaluation process as permitted by recent rules adopted by the Advisory Council on Historic Preservation. All historic sites are identified on Figure 4-11. Figure 7-1 provides photographic illustration of selected historic sites. Downtown sites particularly affected under Alternative 4 are shown in Figure 7-2.

7.2.1 North Loop Warehouse Preservation District

The Warehouse District has been designated by the Minneapolis Heritage Preservation Commission as an area having unique historical significance. The Preservation District is also listed on the State Historic Sites Registry. Buildings within this district were constructed primarily during the late 1800's and represent several distinctive architectural styles. As the district title connotes, buildings within the area were used primarily for warehousing purposes and developed during a period when railroads played an important role in the transportation of material, products and people. Included within the district are buildings which at one time served as hotels and entertainment centers. The district covers an area of about ten square blocks. Of this area, approximately one-half square block - on which Butler Square is located - is within the project area.

7.2.1.1 Butler Brothers Building (Butler Square)
100 North 6th Street
Map Ref. No. 2

Description. The Butler Brothers building, situated in the southwest corner of the North Loop Warehouse Preservation District, is listed in the National Register of Historic Places.

The structure, presently called the Butler Square building, was built as a warehouse in 1906. The building has a rectangular floor plan. The exterior walls consist of heavy masonry, and are faced with deep wine-red brick. Heavy timber or mill construction was used throughout the interior and the exterior. Great care for the preservation of the historic integrity of Butler Square was shown in the renovation of the building undertaken in 1973, and in the subsequent renovation of the west wing completed in 1981. Presently, Butler Square houses numerous retail shops, restaurant facilities and offices.

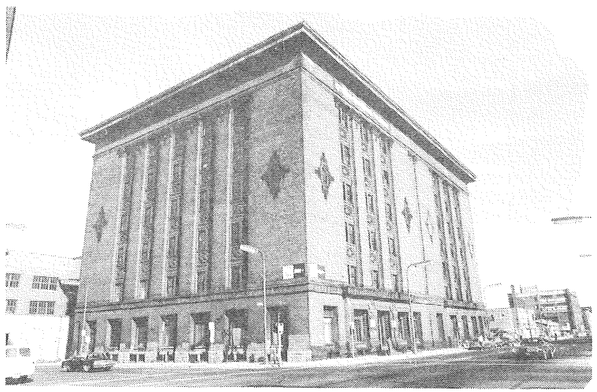
FIGURE 7-1

HISTORIC BUILDINGS

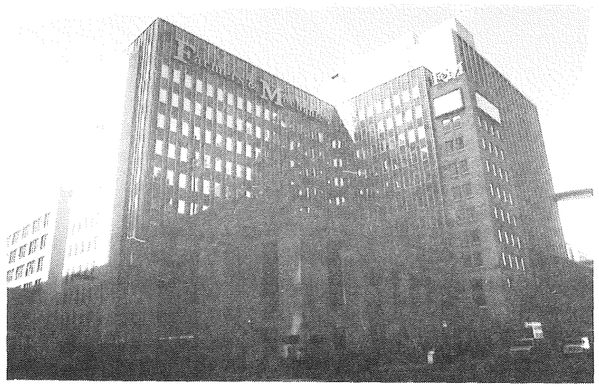
NOTE: PARENTHETIC CODE NUMBERS CORRESPOND WITH FIGURE 4-11



BUTLER BROTHERS BUILDING (2)



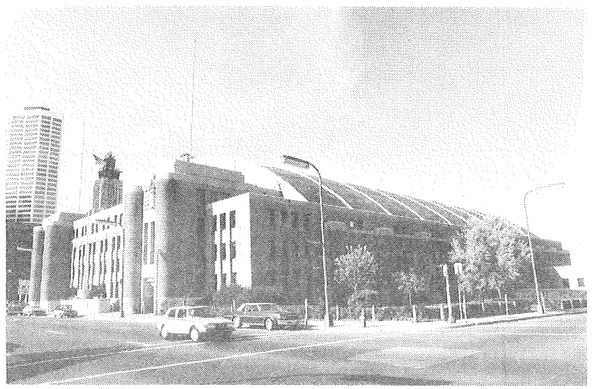
ADVANCE THRESHER/EMERSON-NEWTON PLOW CO. BUILDING (13)



FARMERS AND MECHANICS BANK (15)



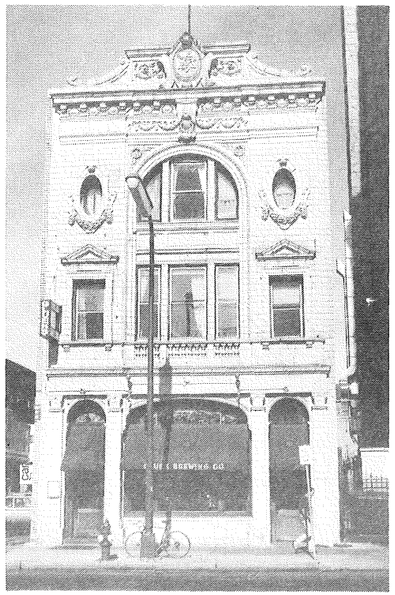
DAIN TOWER (6)



MINNEAPOLIS ARMORY (16)



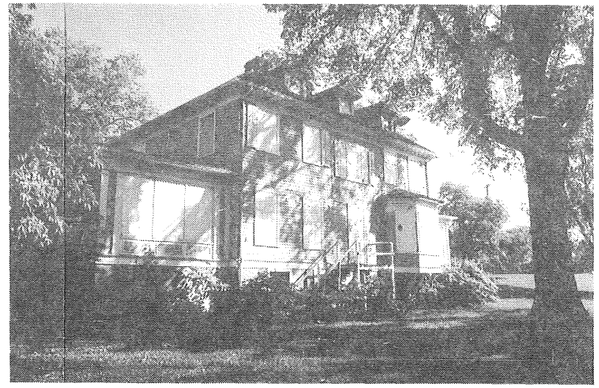
MASONIC TEMPLE/MERCHANDISE BUILDING (3)



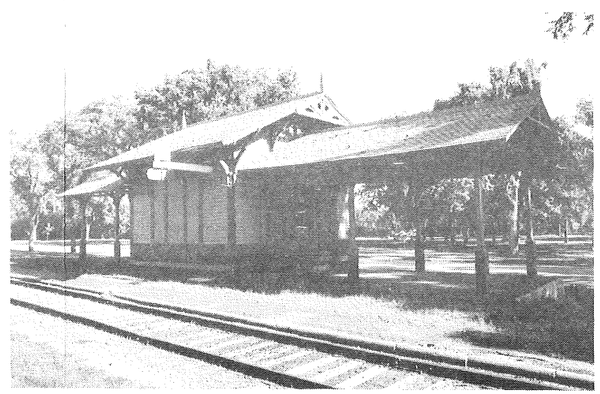
GLUEK BUILDING (17)



PITTSBURGH PLATE GLASS CO. (12)



R.F. JONES HOUSE (18)



MINNEHAHA DEPOT (20)

FIGURE 7-2A

HISTORIC DISTRICTS AND PROPERTIES-CBD
ALTERNATIVE 4D

HISTORIC DISTRICT

0 HISTORIC PROPERTIES

NOTE: CODE NUMBERS CORRESPOND WITH FIGURE 4-11

HIAWATHA AVENUE
Location and Design Study

NORTH

FEET 0 100 200 400 600

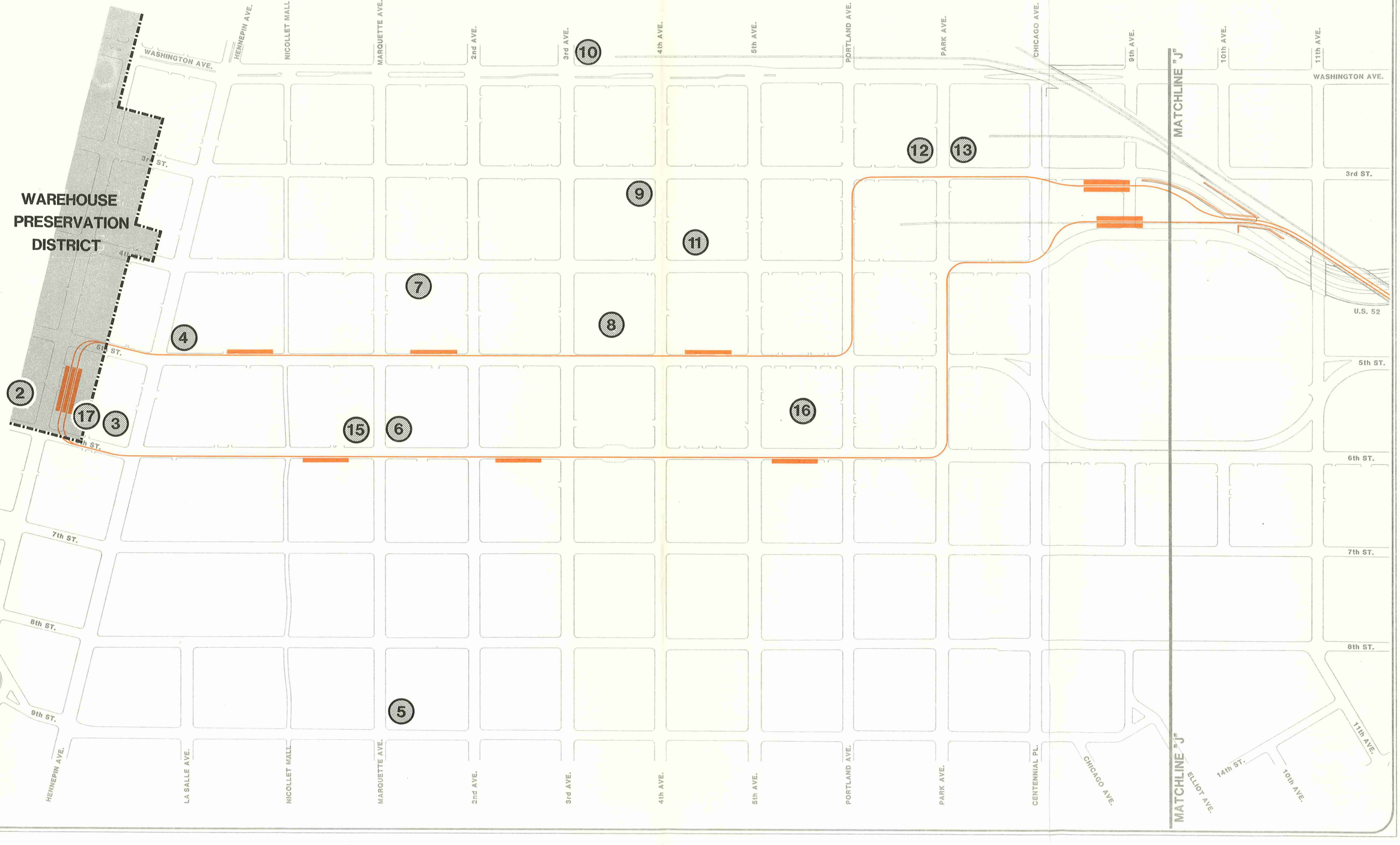


FIGURE 7-2B

HISTORIC DISTRICTS AND PROPERTIES-CBD
ALTERNATIVE 4E

HISTORIC DISTRICT

0 HISTORIC PROPERTIES

NOTE: CODE NUMBERS CORRESPOND WITH FIGURE 4-11

HIAWATHA AVENUE
Location and Design Study

NORTH

FEET 0 100 200 400 600



Potential Adverse Effects. Potential adverse effects on the building are associated with Alternative 4d. Both LRT CBD distribution alternatives call for a transit stop and layover point in the vicinity of Butler Square. Under Alternative 4d, which would entail a one-way LRT loop on Fifth and Sixth Streets, a transit stop and layover point would be located on now vacant property across First Avenue North from Butler Square. The alteration of a building's surrounding environment and the introduction of visual elements that are out of character with the property constitutes an adverse effect.

Alternatives That Would Avoid Adverse Effects. Adoption of Alternatives 1, 2, 3, 4e or 5 would result in no impacts to this site.

Measures to Minimize Harm. Mitigation measures taken to protect the historic integrity of the Butler Square building would include the following:

- The design of the LRT station located near Butler Square would be coordinated with the Minnesota Historical Society, State Historic Preservation Office, and the Minneapolis Heritage Preservation Commission.

- The station would be designed to complement the existing historic character of the area and to avoid obscuring the historic facade of the Butler Square building or any other building having architectural significance in the area.

7.2.2 Other Downtown Buildings

Since this section deals primarily with effects associated with the LRT component of Alternative 4 on historical buildings in the downtown area, several points concerning the LRT component should be noted:

- The alignment of the LRT component of Alternative 4 detailed in this study is not necessarily final. It is subject to further study and possible relocation based on future assessments of downtown transportation needs. The location of LRT stops as shown on Figure 7-2 is for conceptual purposes only. Stops may be relocated as needs identified in future studies dictate.

- In most cases, LRT stops would not have shelters associated with them and could utilize existing buildings as shelters or have shelters incorporated as part of newly constructed buildings.

- The overhead wires necessary for LRT would be unobtrusive, being less visible than those of the streetcar system that once served the entire downtown area.

7.2.2.1 Masonic Temple/Merchandise Building
528 Hennepin Avenue South
Map Ref. No. 3

Description. The Masonic Temple/Merchandise Building, completed in 1889, is an eight-story building of Ohio White sandstone. The building's architectural style is Richardsonian Romanesque. The exterior stonework is in essentially good condition, but many of the intricate carvings are hidden by layers of coal dust and pollution-generated grime. The ground floor windows have been filled in with glass block. The building dimensions are 88 by 153 feet. The structure was built to house a general store, offices and apartment lodges. Office walls were movable to accommodate the space requirements of individual occupants. The interior of the building remains relatively unchanged except that office ceilings have been lowered.

The Masonic Temple is significant architecturally and as an example of the ingenuity and resourcefulness of the Masonic Order. The skilled craftsmanship of the nineteenth century stonemason can scarcely be duplicated today. Architecturally, this building is the last remaining Richardsonian Romanesque style which has retained nearly total exterior design integrity and a significant degree of original interior arrangement. The Masonic Temple is listed on the National Register.

Potential Adverse Effects. Under Alternative 4e, an LRT station could be located near the southwest side of the building. The alteration of a building's surroundings and the introduction of visual elements that are out of character with the property constitute an adverse effect.

Alternatives That Would Avoid Adverse Effects. Adoption of Alternatives 1, 2, 3, 4d or 5 would avoid adverse effects.

Measures to Minimize Harm. Mitigation measures taken to protect the historic integrity of the Masonic Temple would include the following:

- If possible, any shelter to be constructed for LRT passengers would be incorporated into an existing building.
- If a separate shelter is needed, the design of the LRT station would be coordinated with the Minnesota Historical Society, State Historic Preservation Office and the Minneapolis Heritage Preservation Commission.
- Station design would complement the existing historic character of the area and would avoid obscuring the historic facade of the building or any other building having historical significance in the area.

7.2.2.2 Rand Tower/Dain Tower
527-529 Marquette Avenue South
Map Ref. No. 15

Description. Rand Tower is a set-back skyscraper with its top cut back in sculptural masses, its corners splayed, and its vertical piers rising

through mid-section. The building, constructed in 1928-29, rises 311 feet above street level. The Art Deco style building has an exterior of cut Indiana Bedford limestone on four sides with a base of Quincy granite. The interior lobby has terrazzo floors decorated with brass ornaments in the shapes of stars and crescents. Some alterations have been made to the elevator interiors and the ground floor store windows. The architectural style of the building, designed by the Holabird and Root, is considered significant. The building is considered eligible for listing on the National Register and has been designated for heritage preservation by the Minneapolis Heritage Preservation Commission.

Potential Adverse Effects. None of the alternatives under study would result in any adverse effects to the building.

7.2.2.3 Pittsburgh Plate Glass Company Building
616 Third Street South
Map Ref. No. 12

Description. The Pittsburgh Plate Glass Company building, built in 1910 and designed by Kees and Colburn, is listed on the National Register of Historic Places. The building was designed to serve the dual functional purpose of sales and production. The exterior of the building is simple and dignified and lacks any attached ornamentation. The seven-story building is based on a yellow-dressed limestone ground-story, which is divided into nine bays. The six upper stories are faced in a purple, hard-fired brick. The building continues to function according to the intent of the original design. The building is well-preserved and in an unaltered state.

The Pittsburgh Plate Glass Company building is significant among Minneapolis commercial/industrial buildings because of the unique design, which was accomplished through simplicity and the execution of integral ornament. The architects, Kees and Colburn, incorporated the philosophies and designs of Louis Sullivan into the design of this building. This building is on the Minneapolis Heritage Preservation Commission's list of buildings for heritage preservation.

Potential Adverse Effects. None of the transportation alternatives would result in any adverse effects on this building.

7.2.2.4 Advance Thresher/Emerson-Newton Plow Co. Buildings
700-704 Third Street South
Map Ref. No. 13

Description. The Advance Thresher Building and Emerson-Newton Plow Co. building are actually two separate structures built in 1900 and 1904, respectively. The buildings were designed by the Minneapolis architectural firm of Kees and Colburn and are excellent examples of the Sullivanesque influence on the design of large-scale commercial/industrial buildings at the turn of the century. A particularly notable feature of these two buildings is that even though they are of identical height, the Advance Thresher Building is divided into five stories, whereas the Emerson-Newton Plow Co. is divided into six stories. Through the use of

skillful architectural design, the architects were able to successfully divert attention from the fact that the buildings differ in the number of stories. The original functional purpose of these two buildings was for the manufacture and assembly of farm machinery. Both structures are underutilized today and no longer serve their original functions. The architectural integrity of the buildings has been preserved and their exteriors are unaltered. Both buildings are listed on the National Register of Historic Places.

Potential Adverse Effects. None of the transportation alternatives would result in any adverse effects on these buildings.

7.2.2.5 Farmers and Mechanics Bank
90 South Sixth Street
Map Ref. No. 15

Description. A detailed description of the Farmers and Mechanics Bank and its significance were not available at the time this report was written. However, the Minneapolis Heritage Preservation Commission has identified this building as eligible for inclusion in its listing of buildings to be preserved for historic purposes. Research is presently underway by MHPC regarding this building, and a preliminary report should be available by the end of 1982.

Potential Adverse Effects. No potential adverse effects on this building would result from any of the transportation alternatives. The LRT stations along Sixth Street associated with Alternative 4 would be designated as stops only and would not require the construction of any shelters.

7.2.2.6 Minneapolis Armory
500 - 530 Sixth Street
Map Ref. No. 16

Description. A detailed description of the Minneapolis Armory and its significance were not available at the time this report was being prepared. However, the MHPC has identified this building as eligible for inclusion in its listing of buildings to be preserved for historic purposes. Research is presently underway by MHPC regarding this building, and a preliminary report should be available by the end of 1982.

Potential Adverse Effects. There are no potential adverse effects on this building resulting from the use of Sixth Street as an LRT Corridor. The LRT station along Sixth Street associated with Alternative 4 would be designated as a stop only, and would not require the construction of shelter.

7.2.2.7 Gluek Building
16 North Sixth Street
Map Ref. No. 17

Description. A detailed description of the Gluek Building and its significance were not available at the time this report was prepared. However,

the MHPC has identified this building as being eligible for inclusion in its listing of buildings to be preserved because of their historic value. Research is presently underway by MHPC regarding this building, and a preliminary report should be available by the end of 1982.

Potential Adverse Effects. Under Alternative 4e, an LRT station could be located in front of the building. If a shelter were constructed for this station, a potential adverse effect could result. The alteration of a building's surroundings and the introduction of visual elements that are out of character with the property constitute an adverse effect.

Alternatives That Would Avoid Adverse Effects. Adoption of Alternatives 1, 2, 3, 4d or 5 would avoid adverse effects.

Measures to Minimize Harm. Mitigation measures to protect the historic integrity of the Gluek Building would include the following:

- If possible, any shelter to be constructed for LRT passengers would be incorporated into an existing buildings.
- If a separate shelter is needed, the design of the LRT station would be coordinated with the Minnesota Historical Society, State Historic Preservation Office and the Minneapolis Heritage Preservation Commission.
- Station design would complement the existing historic character of the area and would avoid obscuring the historic facade of the building or any other building having historic significance in the area.

7.2.3 Minnehaha Historic District

Description. The Minnehaha Historic District includes the R.F. Jones House, Minnehaha Falls, Minnehaha Depot or Princess Station, and the John H. Stevens House. Impacts upon the R.F. Jones House are covered in Section 6.3. This section discusses the impacts of the proposed project on the Stevens House, Minnehaha Falls and Minnehaha Depot. The major historic aspects of the district are related to Minnehaha Falls and Minnehaha Depot.

Primary access to the Minnehaha District is provided by Hiawatha Avenue from the south, Hiawatha Avenue and Minnehaha Avenue from the north, Minnehaha Parkway from the west, and Godfrey Road from the east. The primary entrance to the park is between 42nd Avenue and Godfrey Road. A second entrance to Minnehaha Park exists on the east end of the park off Godfrey Road. Pedestrian and bicycle access is provided by Godfrey Road, West River Parkway, and Minnehaha Parkway. An interconnecting trail from Fort Snelling State Park and Historic Fort Snelling to Minnehaha Park will be constructed in the near future.

Potential Adverse Effects. In addition to the specific impacts associated with the R.F. Jones House, Minnehaha Falls, Minnehaha Depot and the John H. Stevens House, the overall general effect of Alternatives 1 through 4 on the historic district will be the conversion of land presently in a

nonhighway use category to highway use. This conversion will range from a minimum of 6.41 acres for Alternative 3b to a maximum of 8.44 acres for Alternatives 1c, 2c or 4c. The land to be converted to highway use presently is part of Minnehaha Park and consists of green open space. Construction of the covered roadway or tunnel would affect a minimum of 1.03 acres for Alternative 3b and a maximum of 3.70 acres for Alternatives 1c, 2c, or 4c. The loss of this acreage would be temporary, however; after completion of the tunnel or covered roadway, the structure would be covered with three to four feet of backfill material and topsoil and would be revegetated into green open space with grass and shrub species.

To meet Federal Design Noise Levels for a roadway through a park, noise walls would be required parallel to Hiawatha Avenue through the historic district. The alteration of a property and the introduction of visual elements out of character with the surrounding property constitute an adverse effect.

Alternatives That Would Avoid Adverse Effects. Impacts to the Minnehaha Historic District would be avoided under Alternative 5, the no-build alternative.

Measures to Minimize Harm. Mitigation measures for the area lying within the Minnehaha Historic District include the following:

- A thorough survey for any remaining potential surface and subsurface archeological artifacts.

- Immediate cessation of any construction activities, should any archeological artifacts be uncovered during the construction process. Representatives from the Minnesota Historical Society would be allowed to examine these artifacts and recorded their significance in a manner which would not jeopardize the construction schedule. Upon completion of this recording procedure, construction would be allowed to resume.

- The noise walls would be kept as close to the edge of the Historic District as possible to minimize the intrusive effect.

7.2.3.1 Minnehaha Falls

Description. Minnehaha Falls and its associated gorge are the central attraction of Minnehaha Park. Minnehaha Falls was inside the first military reservation purchased by treaty from the Sioux by Lt. Zebulon Pike in 1805. Because of the proximity of the falls to Fort Snelling, it was a preferred site for the sawmill necessary to build a fort; but due to lower water conditions in 1820 to 1821, the sawmill was built instead at the Falls of St. Anthony.

Minnehaha Falls was a favorite picnic spot of the garrison at Fort Snelling and its visitors. The falls were visited by Louis Cass in 1820, Steven Long in 1823 and George Catlin in 1836. The falls were also a popular tourist attraction in the "fashionable tour" by steamboat up the Mississippi River in the 1840's and 1850's. Descriptions of the falls were

included in many of the travelogues of the period. A favorite subject of artists and pioneer photographers, the falls have been written about and photographed many times. However, the story of Minnehaha Falls was told to the world by a person who had never visited them, Henry Wadsworth Longfellow, in his well-known literary work, the "Song of Hiawatha". This literary heritage of the falls is expressed today in the statue of Minnehaha and Hiawatha, by Jacob Fjelde, which stands in the stream above the falls.

Ard Godfrey, a pioneer settler in Minneapolis, built a gristmill in the glen below the falls in 1853. Its usefulness was shortlived, because the size and power of St. Anthony Falls and its power potential far overshadowed that of Minnehaha Falls. Godfrey abandoned his gristmill in 1862, but the remains of a stone and earthen dam for the mill pond are still visible beside the creek.

Potential Adverse Effects. Construction of Subalternative c (tunnel under Minnehaha Creek) could affect the geological integrity of the limestone and sandstone formations as well as the quantity of water which presently flows over the falls.

Indirect effects would include minor erosion and siltation associated with the construction of all build alternatives. None of the construction alternatives would have an adverse impact on the historic value of Minnehaha Falls.

Alternatives That Would Avoid Adverse Effects. Alternative 5 would avoid any impacts to Minnehaha Falls.

Measures to Minimize Harm. Any construction activity associated with Alternatives 1 through 4 would utilize approved soil conservation techniques. These include the use of hay bale ditch blocks to prevent erosion and to reduce sedimentation entering Minnehaha Creek, which increases water turbidity and the siltation load in the water.

Landscaping associated with Subalternatives a, b or c would screen the traffic associated with Hiawatha Avenue from users of Minnehaha Park.

7.2.3.2 Minnehaha Depot (Princess Station)

Description. This depot was built in the 1870's by the Minnesota Central Railway, an ancestor of the existing Milwaukee Road. It was situated to provide passenger facilities to the nearby zoo and park. Its small size does not do justice to the volume of traffic it handled in the early twentieth century. The building itself is 22 feet by 20 feet and its platform measures 75 feet from end to end. The platform is constructed of "Flint Company" redbricks on a cinder base. The building housing the ticket office and waiting room is composed of dimensional lumber of various sizes in a jigsaw gingerbread pattern. The siding of the station is painted orange with boxcar-red trim. The asphalt roof has been re-covered with cedar shingles. The interior is complete and well preserved. The familiar iron stove, waiting room benches, ticket window, tools and posters evoke the memory of every way station in the days of steam.

This building, a vestige of the railroad boom period, is the only structure of its kind remaining in the city. Generations of Sunday picnickers, as well as military personnel spanning a period of three wars, have been served by this station. Open every Sunday afternoon during the summer months, the station serves 1,500 visitors annually. It is administered by the Minnesota Historical Society and operated by the Minnesota Transportation Museum.

Potential Adverse Affects. Minnehaha Depot would be affected by Alternatives 1 through 4. Indirect impacts would result from construction activities to within 25 feet of the station. Construction activity this close to the station always bears the risk of inflicting some damage upon the building. Noise walls, which are necessary to reduce noise levels to acceptable federal standards in Minnehaha Park, and which are also requested by the Minneapolis Park and Recreation Board, would be required. Placement of these walls could affect the view from the station and could as well eliminate the opportunity for passing motorists to see the station from Hiawatha Avenue.

The isolation of a property from its surrounding environment and the introduction of visual elements that are out of character with the property or alter its setting constitute an adverse effect.

Alternatives That Would Avoid Adverse Effects. Alternative 5 would result in no impacts upon Minnehaha Depot.

Measures to Minimize Harm. To reduce the possibility of damage to Minnehaha Depot, temporary fencing and/or shields would be erected during construction to prevent construction equipment from accidentally disturbing the building or the platform. The noise wall would be landscaped using climbing vines and shrubs to reduce the visual bleakness of the nearby noise wall. Once a final alternative is selected, it may be possible to construct the noise wall in a way which would minimize intrusive effects. In any case, the design of the noise wall would be such that the colors would be subdued and the selected materials would not contrast harshly with the depot.

A less desirable mitigation of the intrusive effects of a noise wall would be the relocation of the depot approximately 150 feet eastward across Minnehaha Avenue to avoid the visual impacts associated with the proximity of the noise wall; the Minnesota Historical Society prefers that the depot remain in its present location.

7.2.3.3 John H. Stevens House

Description. This clapboard and frame house is the first one built in the original town site of Minneapolis. It was built for Colonel John Stevens in 1849 just above and on the west bank of St. Anthony Falls. On three different occasions, it was moved, as development in the Minneapolis area steadily advanced. The last move occurred in 1896, when the house was moved to its present location near the intersection of Minnehaha Avenue and 50th Street. Under the roof of this house, the town, county and school districts were organized, and the name Minneapolis was either suggested or adopted.

The T-shaped house has overall dimensions of 28 feet by 33 feet. The main section is two stories high and the kitchen wing in the rear is one story. The plank architrave pediment and pilasters indicate its carpenters' Grecian style. The window and door frames are starkly simple. The building rests on a limestone foundation and is covered by wooden shingles.

Presently the house is being preserved by the Minneapolis Park and Recreation Board. The entire structure is in sound condition and is suitable for various uses, including use as an interpretive center. Future possible uses for the house are presently under consideration by the Minneapolis Junior League.

Potential Adverse Effects. None of the alternatives will have any direct adverse effects upon the Stevens House. Construction of the noise wall as required by federal standards will eliminate the adverse visual effects associated with traffic use of TH 55. Presence of the noise wall will also reduce the levels of noise presently reaching the site.

7.2.3.4 County State Aid Highway (CSAH) 62 Area Open Field

Description. The TH 55 study area includes the proposed extension of CSAH 62, also known as the Crosstown Highway, between TH 55 and 46th Avenue South. A large open field, potentially an archeological site because of its proximity to Fort Snelling, lies partially within the area of the proposed extension.

Potential Adverse Effects. Construction of the CSAH 62 extension would disrupt 13.5 acres of the open field. The nature of the disruption would be the filling and grading for the roadway and the ramps.

Alternatives That Would Avoide Adverse Effects. Selection of Alternative 5 would result in no impacts upon the field.

Measures to Minimize Harm. Prior to construction of the CSAH 62 extension, the site will be surveyed for archeological artifacts by the Minnesota Historical Society. Furthermore, if any artifacts are unearthed during construction, construction will cease, pending interpretation of significance of the find by the Minnesota Historical Society.

8.0 LIST OF PREPARERS

8.0 LIST OF PREPARERS

The following people were primarily responsible for preparing and reviewing the Draft Environmental Impact Statement.

Name Education Professional Discipline	Experience	Project Responsibilities
Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, Inc.		
Richard P. Wolsfeld B.S.C.E., M.C.P. P.E. - Minnesota A.I.C.P. Transportation Planning	16 years, transportation planning traffic engineering and EIS preparation.	Overall project manager. In charge of agency coordination, public information, and project progress.
David M. Warner B.S.C.E. P.E. - Minnesota Traffic Engineering	14 years, transportation planning and traffic engineering	Assistant project manager. In charge of transportation related elements including travel demand analysis, air quality, noise, and energy impacts.
Craig Amundsen B.A. Arch., M. Arch., A.I.C.P., A.I.A. Environmental Planning	12 years, environmental planning and urban design.	In charge of planning and environmental elements including land use, natural resources, social economic and aesthetic impacts.
Lee W. Kellar B.S., M.A. Transportation Planning	8 years, transportation and transit planning.	Noise impacts.
Richard H. Nau B.S. Computer Modeling	4 years, computer modeling and air quality analysis.	Air quality and aesthetic impacts.
Paul Krauss B.A., M.R.P., A.I.C.P. Environmental Planning	5 years, land use and environmental planning.	Land use, governmental policies, and social impacts.
Franklin J. Svoboda B.S. Biology	16 years, wildlife biologist and wildlife management.	Wetlands, vegetation and wildlife impacts.
Ralph D. Clare P.E. - Minnesota Roadway Design	23 years, transportation planning and roadway design.	Roadway design.

Name Education Professional Discipline	Experience	Project Responsibilities
Tony Heppelmann B.S., B.S.C.E. Traffic Engineer	2 years, transportation planning and traffic engineering.	Traffic engineering analysis.
Parsons, Brinckerhoff, Quade and Douglas, Inc.		
Edward W. Castellani B.A., M.U.P. Transportation Planning	20 years in architecture planning, transportation and transit.	Project administration, transit planning, architecture, EIS alternatives analysis, public involvement.
Thomas C. Longman B.A., M.C.P. Transportation Planning	4 years in transit and transportation planning.	Alternatives analysis, transit planning.
Lawrence G. Lovejoy B.S.C.E. Civil Engineering	5 years in transit and transportation engineering.	Route alignment, transit engineering and cost estimating.
Roger Faulkner B.S.C.E. Civil Engineering	2 years in transit and transportation engineering.	Route alignment and transit engineering.
Robert Y. Tain M.S.C.E. P.E.-Wisconsin, California Transportation Planning	23 years transportation traffic and transit planning and engineering and economic analysis.	Traffic impact, vehicle scheduling, and operating cost.
Julie H. Hoover B.A., M.U.P A.I.C.P. Urban and Transportation Planning	15 years; transportation planning, alternatives analysis, and EIS preparation.	Federal Alternatives Analysis guidelines and evaluation methodology.
Mary Ellen Ross M.U.P. Urban Planning	12 years, community resources, socio-economic, transportation and historic resources analysis, EIS preparation.	Alternatives analysis for LRT preparation of LRT study.
James C. Becker B.S. Environmental Engineering	6 years, air quality and noise analysis, EIS preparation.	Noise impacts.

Name Education Professional Discipline	Experience	Project Responsibilities
Andrew D. Rudko B.S., PhD. Environmental Science	15 years, environmental planning, computer modeling, EIS preparation.	Energy Impacts.
Erez Sela B.S., M.S., M.S.C.E. Water Resources Engineering	10 years, Water Resources Engineering.	Responsible for the surface and ground water quality, hydrologic and hydraulic analyses for impacts on water resources.
Robert J. Harmon & Associates, Inc.		
Robert J. Harmon Managing Principal B.A., M.P.A., C.R.A. Economist	15 years, urban economist and transit implementation programming.	Joint development, regional/subregional growth, user-benefit analysis forecasts.
George Grant Principal B.S., M.S. Economist	24 years, applied socioeconomic and industrial psychology analysis.	Socioeconomic impacts and regional growth forecasts.
Joseph F. Harmon Senior Associate B.A., M.B.A. Economist	10 years, urban development and economic import analysis.	CBD development and private sector packaging.
James B. McComb and Associates		
James B. McComb B.A. Economics and Municipal Finance	20 years, economic analysis, municipal finance and urban development.	Project manager in economic analysis, public information and project progress.
Richard B. Sollie B.A., M.A. Economics	20 years, economic consulting, real-estate development and market research.	Economic data analysis and report preparation.
Peter B. Bruce B.A. Economic Analysis	5 years, economic development consulting, demographic analysis and comercial revitalization.	Economic data collection and analysis, report preparation and task force liason.

Name Education Professional Discipline	Experience	Project Responsibilities
Rebecca D. Yanisch M.B.A., B.S., B.A. Economics & Finance	3 years, real estate development and finance.	Economic data analysis and report preparation.
City of Minneapolis		
Max B. Goldberg B.S.E.E., M.S. - Management Urban Planning	10 years, City - environmental, transportation zoning and comprehensive planning. 20 years production engineer, systems engineer, computer marketing, product management director, data services development manager.	Project Management and urban planning.
Perry D. Smith B.S.C.E. P.E. - Minnesota	26 years experience in all phases of public works operations for the last four years, Minneapolis City Engineer - Director of Public Works.	Project engineer.
Marvin A. Hoshaw B.S.C.E. P.E. - Minnesota Engineering planning and design	16 years transportation planning, highway planning, bridge planning.	Review of roadway and bridge planning and design.
David R. Koski B.C.E. Traffic Engineering	25 years professional traffic and transportation engineering and planning.	Review of design, traffic control systems, and transit systems.
Perry Thorvig B.A. Comprehensive Planner	14 years comprehensive planning, land use planning, zoning, capital improvements.	Review.

Name Education Professional Discipline	Experience	Project Responsibilities
Minnesota Department of Transportation (Mn/DOT)		
Robert J. Morast B.C.E., M.S.C.E. P.E. - Minnesota Transportation Planning	18 years, including 11 years in traffic, transportation planning and project development.	Mn DOT project manager intra- and inter-agency review coordination.
Carl J. Hoffstedt B.C.E., M.S.C.E. P.E - Minnesota Transportation Planning	16 years in transportation planning and project development.	Traffic forecast development coordination.
William A. Stewart B.A. Political Science M.A. Political Science Transportation Forecasting	25 years.	Traffic analysis Forecasted traffic volumes.
Morris H. Freier B.A. Economics Transportation Forecasting	16 years.	Traffic forecast development.
Mark S. Levenson B.A. History Transportation Forecasting	8 years.	Traffic forecasting.
Craig A. Robinson B.C.E. P.E. - Minnesota Transportation Planning/ Engineering	11 years, including 7 years as Air Quality Engineer and 2 years as Energy Engineer.	Review noise documents for compliance with Federal and State noise regulations.
Gregory Felt B.C.E. P.E. - Minnesota Energy Analysis	13 years, including 3 years energy analysis.	Energy analysis.
Richard Peterson B.S. Political Science Urban Studies, Energy	8 years, including 2 years energy analysis.	Preparation of energy analysis.
James Hansen Acoustics	12 years, including 10 years in acoustics.	Noise abatement study.
Norm Mellum B.C.E. P.E. - Minnesota Air Quality	18 years, including 7 years regional air quality analysis.	Review of air quality analysis.

Name Education Professional Discipline	Experience	Project Responsibilities
Jim Halvorson B.S.C.E., B.S. Meterology P.E. - Minnesota Air Quality, Energy	16 years, including 8 years as Air Quality Engineer and 2 years as Energy Coordinator.	Review of air quality and energy documents for compliance with Federal and State regulations, coordination with external agencies in these fields.
Clement P. Kachelmyer B.C.E. P.E. - Minnesota, ASCE, MHS, Minn. Arch. Society, Preliminary Design Engineer	32 years Mn/DOT, 14 years historical coordination.	Historic coordination and review.
Federal Highway Administration (FHWA)		
Ronald A. Shriver B.S.C.E Planning and Research Engineer	21 years.	Assure the accuracy and completeness of the urban transportation planning coverage in the DEIS.
Wallace O. Oien B.S.F.M. Division R/W Officer	18 years.	Assure the DEIS contains required analysis of civil rights, EEO, and relocation considerations.
James E. St. John B.S.C.E., M.S.I.S. District Engineer	13 years.	Assure that the EIS and technical reports comply with applicable Federal environmental regulations.
Stephen J. Bahler B.S.C.E. Area Engineer	13 years.	Assure that the EIS and technical reports accurately and completely describe the S.E.E. impacts of the proposed project.
James W. McCutcheon B.S.C.E., M.S.C.E. Division Bridge Engineer	28 years.	Floodplains, structures.

9.0 AGENCIES AND ORGANIZATIONS RECEIVING COPIES OF THE DEIS/AA

9.0 AGENCIES, ORGANIZATIONS AND PERSONS RECIEVING COPIES OF THE DEIS/AA FOR REVIEW AND COMMENT

U.S. Department of Agriculture
U.S. Department of the Army
  Corps of Engineers St. Paul District
  HQ 88th U.S. Army Reserve Command
U.S. Department of Housing and Urban Development
U.S. Department of Health, Education and Welfare
U.S. Department of Interior
  Fish and Wildlife Service
  Heritage Conservation and Recreation Service
  National Park Service
  Bureau of Mines
  Bureau of Land Management
U.S. Department of Transportation
  Second Coast Guard District
  Federal Railroad Administration
  Federal Aviation Administration
  Urban Mass Transportation Administration
U.S. Department of Commerce
U.S. Navy Reserve
Advisory County of Historic Preservation
Defense Civil Preparedness Agency
Environmental Protection Agency
Federal Energy Administration
Federal Power Commission
Veteran's Administration Medical Center (Minneapolis)
General Services Administration (Minneapolis)
Minnesota Department of Energy, Planning and Development
Minnesota Department of Agriculture
Minnesota Department of Economic Development
Minnesota Environmental Quality Board
Minnesota Historical Society
Minnesota Department of Natural Resources
Minnesota Pollution Control Agency
Minnesota State Planning Agency
Minnesota Department of Commerce
Minnesota Department of Health
  Division of Environmental Health
Minnesota Department of Veterans Affairs
Minnesota Air National Guard
Minnesota Legislative Reference Library
Environmental Conservation Library
Metropolitan Council (A-95 Clearinghouse)
Metropolitan Transit Commission
Metropolitan Airports Commission
Metropolitan Sports Facilities Commission
Hennepin County
Ramsey County
Dakota County

Hennepin County Park Reserve District
City of St. Paul
City of Bloomington
City of Richfield
City of Mendota
City of Mendota Heights
City of Eagan
Minneapolis Park and Recreation Board
Minneapolis Community Development Agency
Minneapolis Heritage Preservation Commission
University of Minnesota
Downtown Council of Minneapolis
Greater Minneapolis Chamber of Commerce
Citizens League
Elliot Park Businessmens Association
Greater Lake Street Council
West Bank Process
West Bank Businessmen
Building Owners and Managers Association of Minneapolis
Minnesota Transport Services Association
Minnegasco
Northern States Power Company
Northwestern Bell Telephone Company
Chicago, Milwaukee, St. Paul and Pacific Railroad Company
City Hall Library, Minneapolis
East Lake Community Library, Minneapolis
Franklin Community Library, Minneapolis
Nokomis Community Library, Minneapolis
Roosevelt Community Library, Minneapolis

10.0 COORDINATION AND COMMENTS

10.0 COORDINATION AND COMMENTS

The Hiawatha Avenue Location and Design Study, and the preparation of the associated environmental impact statement, began in March, 1978 when the City of Minneapolis accepted designation as lead agency for the study. The City immediately took steps to insure that the study process would not only comply with Federal and State regulations regarding agency and public involvement, but that agencies and the public would be actively encouraged to participate in the process and to keep informed. Discussed below are means used to encourage public and agency involvement.

10.1 HIAWATHA AVENUE TASK FORCE

The principal vehicle for public involvement in the process was the Hiawatha Avenue Task Force (HATF). The HATF was formed by resolution of the Minneapolis City Council and the Mayor for the purposes of (1) assisting in the selection of the study consultant, (2) working with the consultant and project managers to study issues, alternatives and impacts and to finally make a recommendation to the City Council and Mayor regarding the best transportation solution in the Hiawatha Avenue Corridor, and (3) insuring the dissemination of information to interested persons in the community. The HATF is made up of 18 delegates and 10 alternates representing corridor neighborhoods, labor and business. The HATF has held approximately 40 meetings to discuss issues, to consider goals and objectives, and to review technical analyses prepared by the consultant addressing specific issues and alternatives. All meetings were open to the public.

At one of its first meetings, the HATF directed the study team to institute a public information program which included the following elements:

- Study newsletter.
- Meeting notices sent to general circulation and community newspapers, radio stations, community leaders and anyone who requested it.
- Maintenance of study notebooks in four area libraries and in City Hall.
- Public information meetings at critical points in the study.

The HATF has reviewed all analyses contained in the DEIS, has reached a consensus, and has prepared recommendations to the Minneapolis City Council and Mayor. The Council and Mayor will consider the recommendations, along with the DEIS, as they consider their own recommendation to the Minnesota Department of Transportation regarding the proposed action in the Hiawatha Avenue Corridor.

10.2 HIAWATHA AVENUE TECHNICAL COMMITTEE

The Hiawatha Avenue Technical Committee (HATC) is composed of 15 representatives from city, state, and federal agencies. The HATC's responsibility was to review the study's progress and to inform the HATF of any inconsistencies with their respective agency's polices. The HATC met ten times during the study to discuss the decisions of the HATF and to make recommendations regarding the evaluation of alternatives. A listing of HATC members and their representative agencies follows.

Steve Alderson
Metropolitan Council

Stephen Bahler
Federal Highway Administration
Region 5

Emil Brandt
Transportation Advisory Board

Philip Braum
Metropolitan Transit Commission

Karen Cole
Minnesota Energy Agency

Jack Crimmins
Minneapolis Community
Development Agency

Greg Downing
Minnesota Pollution Control
Agency

Nigel Finney
Metropolitan Airports Commission

Albert Wittman
Minneapolis Park and Recreation Board

Max Goldberg
City of Minneapolis
Planning Department

Arlyn Grussing
City of Bloomington

Greg Kittelsen
Office of Planning and Design
University of Minnesota

Robert Kroening
Planning and Design Division
Minneapolis Department of
Public Works

Robert Morast
Minnesota Department of
Transportation

Fred Ridel
U.S. Department of Transportation
Urban Mass Transit Administration

Dave Schmidt
Hennepin County Department of
Transportation

10.3 EARLY COORDINATION

On November 21, 1979, a letter was prepared and sent to 36 federal, state, regional and local agencies, utility companies and service organizations which may have an interest in the Hiawatha Avenue Corridor. The purposes of the letter were to insure that those groups were aware of the study, to establish lines of communication for use during the analysis, and to provide an early opportunity to these groups to identify issues of concern.

The responses to this letter were included in the Project Development Report (PDR).[1/]

10.4 PROJECT DEVELOPMENT REPORT

In July, 1980, the study team circulated the Project Development Report prepared in accordance with the State of Minnesota Action Plan Guidelines. This document described the impact area, the probable range of alternatives, the types of impacts expected, and the process to be used in executing the TH 55 analysis. The PDR was distributed to approximately public, quasi-public and private agencies for review and comment.

10.5 NOTICE OF INTENT

A notice of intent to prepare an environmental impact statement was published in the Federal Register on May 12, 1980.

10.6 SCOPING PROCESS

The scoping process was completed in June, 1980 with a formal Scoping Meeting and Scoping Report.[2/] A public information meeting was also held by the Transportation and Property Services Committee of the Minneapolis City Council and the HATF to discuss the scoping process. Notice of the Scoping Meeting and the Draft Scoping Report were sent to 52 public and private agencies who either expressed an interest or were considered to have an interest in the TH 55 studies. The Scoping Report contains the report distribution list, the minutes of the information meeting, the minutes of the scoping meeting, and letters received in response to the draft Scoping Report.

10.7 COOPERATING AGENCIES

On June 15, 1981, the City of Minneapolis and the Federal Highway Administration submitted requests to accept designation as cooperating agencies to 11 agencies. The responses are included in this section.

10.8 SECTION 4(f) AND SECTION 6(f) COORDINATION

Correspondence relative to Section 4(f) and Section 6(f) involvement is included in this section.

[1/] Reference No. 1.

[2/] Reference No. 9.

10.9 SECTION 106 COORDINATION

The study team has been in contact with State Historic Preservation Offices, the Minnesota Historical Society, the Minneapolis Heritage Preservation Commission and the Hennepin County Historical Society in the identification of (1) historical and architecturally significant buildings and sites in the study corridor, and (2) impacts on these features associated with the study alternatives.

Included in this section is correspondence received from the Minnesota Historical Society. The archeological surveys mentioned in these letters will be conducted by the Minnesota Department of Transportation's Trunk Highway and County and Municipal Archeologists during the 1982 field season.

10.10 REVIEW OF TECHNICAL REPORTS

Technical reports prepared as a part of the EIS were distributed for review to agencies with an interest in the subject of analysis. Correspondence related to those reviews is included in this section.

10.11 COORDINATION WITH OTHER INTERESTED PARTIES

In addition to HATF and HATC meetings, every effort was made to keep parties interested in the study informed as to the progress and direction of the analysis. More than 140 meetings were held with citizens' groups, corridor property owners, business groups, elected officials, and public agency staff not directly involved in the study.

Correspondence is included which describes the determination of the extent and value of native prairie and oak savanna near the proposed interchange of TH 55 and CSAH 62.

United States Department of the Interior

FISH AND WILDLIFE SERVICE

St. Paul Field Office, Ecological Services
538 Federal Building and U.S. Court House
316 North Robert Street
St. Paul, Minnesota 55101

IN REPLY REFER TO:

July 7, 1981

M. U. [illegible]

JUL 09 1981

Mr. Max Goldberg, Project Director
Hiawatha Avenue Corridor Study
City Planning Department
Room 210, City Hall
Minneapolis, Minnesota 55415

Dear Mr. Goldberg:

This responds to your request for the U.S. Fish and Wildlife Service to act as a "cooperating agency" during planning of proposed roadway and transit improvements for Hiawatha Avenue (TH 55) in Minneapolis, Minnesota. We will be glad to serve as a cooperating agency on this highway improvement project. In this capacity, we will perform our traditional function in regard to the National Environmental Policy Act and Fish and Wildlife Coordination Act requirements.

As a part of our cooperating agency activities, we will review a draft of the Draft Environmental Impact Statement and Alternatives Analysis prior to finalization and distribution. Please keep us informed as plans are developed for this project.

These comments have been prepared under the authority of and in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et. seq.) and are consistent with the intent of the National Environmental Policy Act of 1969 and Executive Orders 11988 and 11990 of May 1977.

Sincerely,

Richard F. Berry

Richard F. Berry
Field Office Supervisor

DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
1135 U. S. POST OFFICE & CUSTOM HOUSE
ST. PAUL, MINNESOTA 55101

REPLY TO
ATTENTION OF:

NCSCO-RF

M. B. GOLDBERG
JUL 07 1981

Mr. Max Goldberg
City Planning Department
Room 210, City Hall
Minneapolis, Minnesota 55415

Re: Hiawatha Avenue (TH 55),
Location and Design Study in
Minneapolis, Minnesota

Dear Mr. Goldberg:

The Army Corps of Engineers accepts designation as a "cooperating agency." We look forward to receiving a copy of the draft of the Draft Environmental Impact Statement and Alternative Analysis.

Sincerely,

HAROLD E. TAGGATZ
Chief, Regulatory Functions Branch
Construction-Operations Division

U.S. Department
of Transportation
**Urban Mass
Transportation
Administration**

Region V

300 South Wacker Drive
Suite 1740
Chicago, Illinois 60606

M. B. GOLDBERG

JUL 07 1981

JUL 1 1981

Mr. Max Goldberg
Project Director
Hiawatha Avenue Corridor Study
City Planning Department
City Hall
Minneapolis, Minnesota 55415

Re: Hiawatha Avenue Corridor Study

Dear Mr. ~~Goldberg~~ Max:

We accept the invitation in your June 15, 1981 letter to become a "cooperating agency" in the Hiawatha Avenue Corridor Study. However, it should be understood that our participation does not imply approval of any of the mass transit alternatives being evaluated in the study.

We would like to be included with those agencies that will review a preliminary copy of Draft EIS prior to finalization and distribution.

Sincerely,

Joel P. Ettinger
Regional Administrator

cc: S. Bahler, FHWA
R. Morast, MnDOT

Minnesota Pollution Control Agency

M. E. GOLDBERG
JUL 2 1 1981

Mr. Max Goldberg, Project Director
Hiawatha Avenue Corridor Study
City Planning Department
Room 210, City Hall
Minneapolis, Minnesota 55415

Dear Mr. Goldberg:

In response to your June 15, 1981 letter, the Agency is familiar with your efforts to prepare the Environmental Impact Statement on the Hiawatha Avenue Corridor roadway and transit improvements. As you know, my staff has participated in scoping meetings and lent technical assistance to the extent possible in some of the studies.

We agree to be a "cooperating agency," however, other program commitments preclude us from becoming involved to a degree any greater than we have in the past. That has largely been reviewing project development reports and draft technical reports. We appreciate being involved in the project at an early stage and would like to review a draft of the Draft Environmental Impact Statement (EIS) and Alternatives Analysis prior to finalization and distribution.

Phone: (612) 296-7301
1935 West County Road B2, Roseville, Minnesota 55113

Agency participation in the EIS process will be handled through Deborah R. Pile, Environmental Review Coordinator, Office of Planning and Review. As questions arise on this project, please feel free to contact Ms. Pile.

Sincerely,

for Jay M. Hoffman

Louis J. Brienhurst
Executive Director

cc: Steve Bahler, FHWA
Robert Morest, Mn/DOT

Park and Recreation Board • 310 South Fourth Avenue • Minneapolis, Minnesota 55415

File No. 13

July 9, 1981

M. B. GOLDBERG
JUL 17 1981

Mr. Max Goldberg
Project Director
Hiawatha Avenue Corridor Study
Minneapolis Planning Department
Room 310-1/2 City Hall
Minneapolis, Minnesota 55415

Dear Mr. Goldberg:

Thank you for your letter of June 15th.

We have reviewed the information sections from 40 CFR, Part 1501.6 on "Cooperating agencies".

In our judgment it is not an appropriate role for the Minneapolis Park and Recreation Board to be a "cooperating agency" in the process of preparing an Environmental Impact Statement and Alternative Analysis (EIS/AA) for the proposed roadway and transit improvements in the Hiawatha Avenue corridor.

The Park and Recreation Board, however, will respond to plans and other elements of the Environmental Impact Statement process in the most expeditious manner possible.

Very truly yours,

Albert D. Wittman
Assistant Superintendent for Planning
612/348-2222

ADW:ker

PRESIDENT: Naomi Loper VICE PRESIDENT: Nancy L. Anderson SUPERINTENDENT: David L. Fisher
SECRETARY: Del Green COMMISSIONERS: Tom Baker Walter Bratt Dale W. "Skip" Gilbert
Patricia Hillmeyer William Holbrook Sherman Malkerson Alden C. Smith

DEPARTMENT OF TRANSPORTATION
320 Washington Av. South
Hopkins, Minnesota 55343

935-3381

M. B. GOLDBERG
JUL 16 1981

July 13, 1981

Mr. Max Goldberg
City Planning Department
Room 210 City Hall
Minneapolis, MN 55415

HIAWATHA AVENUE (T.H. 55) LOCATION & DESIGN STUDY
HENNEPIN COUNTY PROJECT 8115

Dear Mr. Goldberg:

This is in response to your request for the Hennepin County Department of Transportation to become a Cooperating Agency in the Hiawatha Avenue Corridor Study.

Inasmuch as the study has been expanded to include the unimproved section of CSAH 62 between 46th Avenue and T.H. 55, we will accept the designation as Cooperating Agency.

We look forward to working with you on this project.

Sincerely,

A. J. Lee, P.E.
Associate County Administrator
and County Engineer

AJL/DWS:lar

cc: Perry Smith, Minneapolis City Engineer
Oliver Byrum, Minneapolis Planning Director
Steve Bahler, Federal Highway Administration
Robert Morast, Minnesota Department of Transportation
Richard Wolsfeld, Bather, Ringrose, Wolsfeld, Jarvis, Gardner, Inc.

P.S. Please send us a copy of the Draft EIS/AA to review prior to finalization and circulation.

HENNEPIN COUNTY
an equal opportunity employer

Metropolitan Council
300 Metro Square Building
Seventh Street and Robert Street
Saint Paul, Minnesota 55101
Telephone (612) 291-6453
Office of the Chairman

June 19, 1981

M. E. GOLDBERG
JUN 24 1981

Max Goldberg
Project Director
Hiawatha Avenue Corridor Study
210 City Hall
Minneapolis, Minnesota 55415

Dear Mr. Goldberg:

As you are aware, the Metropolitan Council has had a continuing interest in the Hiawatha Avenue (TH 55) location and design study since its inception. Members of our transportation staff have regularly attended your Technical Advisory Committee Meetings, to comment on Council policy, and to make input as requested by Minneapolis, Mn/DOT, and citizens. In addition, we feel the environmental impact statement and alternatives analysis will address issues of metropolitan interest.

Although this rather informal arrangement has been acceptable in our eyes during the past work carried out by your agency and your consultant, we would be pleased to accept designation as a cooperating agency.

Along with designation as cooperating agency which is requested in this letter, please see that the members of the Transportation Division of the Metropolitan Council have an opportunity to review the draft report of the draft EIS/AA prior to finalization and distribution.

We look forward to working with Minneapolis, Mn/DOT, your consultant, and the other agencies later this fall.

Very truly yours,

Charles Weaver, Chairman
Metropolitan Council

/jlm
cc: Perry Smith, City Engineer
Oliver Byrum, Planning Director
Steve Bahler, FHWA
Robert Morast, Mn/DOT
Richard Wolsfeld, BRW

Metropolitan Transit Commission
801 American Center Building St. Paul, Minnesota 55101 612/221-0939

June 23, 1981

M. B. GOLDBERG
JUN 24 1981

Max Goldberg
City Planning Department
Room 210, City Hall
Minneapolis, MN 55415

Dear Mr. Goldberg:

The Metropolitan Transit Commission is pleased to accept the designation as a cooperating agency in the preparation of the Environmental Impact Statement and Alternatives Analysis for the Hiawatha Avenue corridor. In addition, we accept the offer of an opportunity to review the draft of the Draft EIS/AA.

The MTC's interest and involvement in the study so far have been prompted by the potential improvements for transit which could be included in the final transportation solution for the corridor. Since the selection of the nature of that transit improvement is one of the most significant issues to be resolved by the Environmental Impact Statement and Alternatives Analysis, it is appropriate that the MTC's role be formalized by the designation as a cooperating agency.

We look forward to working with the City of Minneapolis, the Minnesota Department of Transportation, and the Federal Highway Administration in the completion of this important study.

Sincerely,

Camille D. Andre
Chief Administrator

CDA/PHB/sm

Minneapolis • Saint Paul
METROPOLITAN AIRPORTS COMMISSION
P. O. BOX 1700 • TWIN CITY AIRPORT • MINNESOTA 55111

OFFICE OF EXECUTIVE DIRECTOR • PHONE (612) 726-5770

June 24, 1981

M. B. GOLDBERG
JUN 26 1981

Mr. Max Goldberg
Project Director
Hiawatha Avenue Corridor Study
Minneapolis Planning Department
Room 210 City Hall
Minneapolis, MN 55415

Dear Mr. Goldberg:

In response to your letter of June 15, 1981, this will notify you that the Metropolitan Airports Commission accepts designation as a "cooperating agency" as described in 40 CFR-Part 1501.6 and in Title 23, Chapter 1, Sub-chapter H, Section 771.11, regarding the Hiawatha Avenue (TH 55) location and design study.

We would appreciate receiving a copy of the draft EIS/AA prior to finalization and distribution.

Sincerely yours,

Nigel O. Finis

for Raymond G. Glumack
Executive Director

/jr

the city of
Bloomington
minnesota

2215 WEST OLD SHAKOPEE ROAD–55431–(612)881-5811

M. L. Commerce
JUN 23 1981

June 18, 1981

Max Goldberg
Project Director
Hiawatha Avenue Corridor Study
Minneapolis City Planning Department
Room 210, City Hall
Minneapolis, Minnesota 55415

Re: Hiawatha Avenue (TH55) Environmental Impact Statement and Alternatives Analysis

Dear Mr. Goldberg:

The City of Bloomington accepts designation as a "cooperating agency" for the Hiawatha Avenue (TH55) Environmental Impact Statement and Alternatives Analysis as described in 40 CFR-Part 1501.6 and in Title 23, Chapter 1, Subchapter H, Section 771.11. We would appreciate an opportunity to review and comment on a draft of the DEIS/AA.

DEPARTMENT OF COMMUNITY DEVELOPMENT
Division of City Planning

Arlyn Grussing
Director of Planning

LL:ch

cc: Robert Purcell

AN AFFIRMATIVE ACTION/EQUAL OPPORTUNITY EMPLOYER

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
MINNEAPOLIS–ST. PAUL AREA OFFICE
6400 FRANCE AVENUE SOUTH
MINNEAPOLIS, MINNESOTA 55435

REGION V

December 10, 1979

IN REPLY REFER TO:
5.6CM

Ms. Janet Byers, Planner
BRW
2829 University Avenue SE
Minneapolis, Minnesota 55414

Dear Ms. Byers:

Enclosed are legal descriptions of Open Space Land acquired with funds from this Department. Exhibits 1, 2, and 3 are generally located at the southeast section of the map corridor submitted to us. Exhibit 4 is a part of the Cedar-Riverside Area. Information on additional land secured with Federal funds can be best obtained from the City of Minneapolis.

Sincerely,

Thomas T. Feeney
Area Manager

Enclosures

OFFICE OF CITY COORDINATOR
301M CITY HALL
MINNEAPOLIS, MINNESOTA 55415
(612) 348-2032

DAVID C. NIKLAUS
CITY COORDINATOR

ECONOMIC DEVELOPMENT
ROBERT D. DRONEN 348-2664
RESOURCE AND PROGRAM COORDINATION
ROBERT C. MOFFITT 348-2426
PROGRAM MONITORING AND EVALUATION
RICHARD F. HUNTER 348-2095
ADMINISTRATIVE SERVICES
G. STEVENS BERNARD 348-2096

RECEIVED
JAN 25 1980
B.R.W.

minneapolis
city of lakes

January 24, 1980

Janet Byers
BRW
2829 University Avenue S.E.
Minneapolis, Minnesota 55414

Dear Ms. Byers:

In response to your letter of December 31 requesting a list of properties in the Hiawatha Corridor, I forwarded your request to three agencies which would have information regarding this subject. It is my understanding that some of them have replied directly to you. However, I am enclosing the response from our CD Block Grant Management Office, the Minneapolis Park Board, and the Housing and Redevelopment Authority. Much of this information is duplicate; however, I believe it answers your question. If not, please give me a call.

Sincerely yours,

Robert C. Moffitt
Assistant City Coordinator

RCM:lf
Enclosures

EQUAL OPPORTUNITY EMPLOYER

OFFICE OF LOCAL AND URBAN AFFAIRS
MINNESOTA STATE PLANNING AGENCY • CAPITOL SQUARE BUILDING • ST. PAUL, MINNESOTA 55101 • PHONE (612) 296-3091

February 14, 1980

Janet Byers
Bather-Ringrose-Wolsfeld
2829 University Ave. SE
Minneapolis, MN 55414

Dear Ms. Byers:

RE: Recreation grants on the Hiawatha Avenue Design Corridor

In response to your January 7, 1980 letter, there are three park projects in the Hiawatha Avenue Corridor which were funded in part with federal and state grants.

The first is a federal LAWCON and state grant project in Minnehaha Park (27-00094). Locating a highway through any portion of the project would create a 6f conflict. To satisfy the 6f conflict, would require that any park land use for highway purposes, be replaced with other land of equal size, value, and usefulness. Attached is map A outlining the project boundaries in red.

The second project is located in the Cedar-Riverside Area in the Northeastern portion of the Corridor. This project was funded with an Open Space grant of the U.S. Department of Housing and Urban Development and a supplemental State grant. Before any land in those projects could be used for highway purposes, it would be necessary to meet any of HUD requirements for such a change. Attached are maps B and C outlining the project coundaries in red.

The final project is Corcoran Park which is partially located in the western edge of the Corridor. This was funded with a state grant. In order to change any part of the site for highway use, it would be necessary to obtain the approval of the Legislative Commission on Minnesota Resources (LCMR). If the LCMR did approve such a change, then it would be necessary to return that portion of the state grant which used to acquire the land eventually utilized for highway purposes. Attached is map D outlining the project boundaries in red.

AN EQUAL OPPORTUNITY EMPLOYER

Similarily, any changes for highway use in the Minnehaha or Cedar-Riverside park projects would first require the approval of LCMR for the state grants in those projects.

If you want additional information or assistance please give me a call at 296-9006.

Sincerely,

William Atkins
Office of Local and Urban Affairs

WA/cs

Enclosures

cc Charles R. Spears, Superintendent
Minneapolis Park and Recreation Board

OFFICE OF LOCAL AND URBAN AFFAIRS
MINNESOTA STATE PLANNING AGENCY • CAPITOL SQUARE BUILDING • ST. PAUL, MINNESOTA 55101 • PHONE (612) 296-3091

August 4, 1980

RECEIVED
AUG 06 1980

Franklin J. Svoboda
Wildlife Planner
Bather-Ringrose-Wolsfeld-
Jarvis-Gardner, Inc.
2829 University Avenue SE
Minneapolis, Minnesota 55414

RE: Trunk Highway #55 Project Alternatives

Dear Mr. Svoboda,

This is in response to your July 23, 1980 letter requesting comments on alternative improvements for Hiawatha Avenue (T.H. #55).

If the proposed alternatives do not require the acquisition of additional right-of-way from Minnehaha Park, the proposed alternatives would be satisfactory and would not create a 6f conflict with the Federal Land and Water Conservation Fund Act.

Sincerely,

William A. Atkins
Office of Local and Urban Affairs

AN EQUAL OPPORTUNITY EMPLOYER

REGION V
300 South Wacker Drive
Chicago, Illinois 60606

RECEIVED
AUG 11 1980
B.R.W.

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
AREA OFFICE
6400 FRANCE AVENUE SOUTH
MINNEAPOLIS, MINNESOTA 55435

IN REPLY REFER TO:
5.6SS:WM

August 8, 1980

Franklin J. Svoboda
BRW
2829 University Ave. S.E.
Minneapolis, Minnesota 55414

Dear Mr. Svoboda:

Subject: HUD Managed Properties With the General Route Location Alternatives for T.H. 55

In response to your letter dated July 23, 1980, my environmental staff has reviewed the above named project proposal. Staff has determined that two HUD managed properties are located within the project area:

1. Little Earth of United Tribes, Inc., 212 Units. Sec. 236 of the National Housing Act with 100% of the units qualified under Sec. 8, a rental subsidy program.

2. Cedar-Riverside, a project developed by the New Communities Administration. The HUD held mortgage is now $450,000 and in arrears.

Thank you for the opportunity to participate in this review process. If you have any questions concerning this matter, please contact William Middleton of my staff at 725-4724.

Sincerely,

Thomas T. Feeney
Area Manager

Park and Recreation Board • 310 South Fourth Avenue • Minneapolis, Minnesota 55415

JAN 11 1980
B.A.V.E.

January 9, 1980

Mr. Craig Amundsen
Bather-Ringrose-Wolsfeld-Jarvis-Gardner, Inc.
2829 University Avenue SE
Minneapolis, Minnesota 55414

Dear Mr. Amundsen:

In response to your request for information on park land within the Hiawatha Avenue Project Area, there are 12 park areas located there. Attached is a list of those parks, their location and acreage. Parks marked with asterisks indicate federal funds were expended for acquisition or development.

In addition, under separate cover, I am sending you a plat map of Minnehaha Park which should give you the necessary legal description. Should you have further questions, our planning division (348-2222) will be glad to be of assistance.

Sincerely yours,

Charles R. Spears

Charles R. Spears
Superintendent

CRS:bb
Attach.

PRESIDENT: Naomi Loper VICE PRESIDENT: Nancy L. Anderson SUPERINTENDENT: Charles R. Spears
SECRETARY: Del Green COMMISSIONERS: Tom Baker Walter Bratt Dale W. "Skip" Gilbert
Patricia Hillmeyer William Holbrook Sherman Malkerson Alden C. Smith

PARKS WITHIN HIAWATHA CORRIDOR
(NORTH TO SOUTH)

* 1. Elliot Park - 6.92 acres
8th St. and 9th Av. S.

2. Murphy Square - 3.33 acres
22nd Av. S. and 7-1/2 St.

* 3. East Phillips - 6.56 acres
Cedar Av. and 22nd St.

4. Cedar Av. Field - 1.71 acres
Cedar Av. and 25th St.

5. Corcoran Park - 3.10 acres
East 34th St. and 19th Av.

6. Mississippi River Parkway

* 7. Currie Park - 3.20 acres
15th Av. and 5th St.

8. Adams Triangle - .32 acres
41st St. and Minnehaha Av.

* 9. Minnehaha Parkway

*10. Minnehaha Park - 171.20 acres
Minnehaha Av. and 48th St.

11. Longfellow Gardens - 4.61 acres
Minnehaha Pkwy. and Hiawatha

12. ~~Morris Park - 3.88~~ acres
39th Av. S. and 56th St.

* Denotes use of federal funds for development and/or acquisition.

MINNEAPOLIS
PARK & RECREATION BOARD

M. B. GOLDBERG
AUG 21 1981

August 20, 1981

Mr. Max Goldberg
Project Director
Hiawatha Avenue Corridor Study
Minneapolis Planning Department
Room 310-1/2 City Hall
Minneapolis, Minnesota 55415

Dear Mr. Goldberg:

The following are corrections and comments to the Preliminary Parklands Report for the Hiawatha Avenue Location and Design Study. Our comments are directed to the Section III Data Sheets.

1. Minnehaha Park:

   a. Additional Facilities/Attractions:

      Nature trails, day camp, interpretive plaque, geologic formations, fire ring, parkway drive, Steven's House (oldest house in Minneapolis), four (4) tennis courts, football/soccer field, ballfield, floral displays, drinking fountains, refectory (including rest rooms, picnic shelter and police offices), and sculpture.

   b. Comments:

      Minnehaha Park is Minneapolis' best known park and one of its most heavily utilized. This usage will continue to increase in our estimation. Even at this point in time, areas of the park show signs of deterioration because of overuse. To alleviate this, the Park and Recreation Board believes it is imperative that Longfellow Lagoon and Minnehaha Parkway, now

President:
Naomi Loper

Vice President:
Nancy L. Anderson

Commissioners:
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Alden C. Smith

Secretary:
Del Green

Superintendent:
I . L. Fisher

310 South Fourth Avenue
Minneapolis, MN 55415
Phone 1-612-348-2142

separated by railroad tracks and roadways, be united with Minnehaha Park in one contiguous piece of parkland. This will allow the present intense usage to be distributed to these other areas. A well-designed, united park area will greatly reduce the overuse problems which we are now experiencing and which will be increased even more in the future.

2. Wenonah Triangle:

No change.

3. Longfellow Gardens:

a. Additional Facilities:

Sculpture and the Lagoon (for boating and skating).

b. Comments:

See those for Minnehaha Park.

4. Minnehaha Parkway:

a. Facilities:

Roadway, bike path, pedestrian path, benches, tables, and other site furniture, floral displays, ballfields (28th Avenue) and tennis courts (28th Avenue).

b. Comments:

See those for Minnehaha Park.

5. Adams Triangle:

Usage: The Minneapolis Park and Recreation Board classifies this park area as a triangle and not a community park.

6. Rollins Triangle:

See comments for Adams Triangle.

7. Cedar Avenue Field:

a. Additional Facilities:

Ballfield, walk with walk lights, and a drinking fountain.

b. Usage:

The Minneapolis Park and Recreation Board classifies

this park as a neighborhood playlot which is intended to supplement the neighborhood park where heavy population density occurs. It is particularly developed for the use of children of preschool age.

c. Comments:

Cedar Avenue Field, in its location adjacent to the Little Earth housing complex, serves one of the largest single concentrations of children under six years of age (654 Little Earth residents -- the majority are children). It is also the city's largest number of Indian residents, the majority of whom are below the city median income range and whose unemployment rates are three times higher than other city residents. The emphasis in Cedar Field is for preschool play with older children and adults using East Phillips playground.

8. Normanna Triangle:

See coments for Adams Triangle.

9. East Phillips:

a. Additional Facilities:

The former Police and Community Activity building (8,000 S.F.), walks with walk lights, graphic games area, sitting areas, flower beds, and basketball/volleyball lighting. In addition, contracts have been recently awarded to construct two tennis courts, additional walks, and athletic field lighting.

b. Usage:

The Minneapolis Park and Recreation Board classifies this park as a neighborhood playground. As such, it is particularly developed for children through the sixth grade and is intended to supplement the neighborhood park where population density precludes easy access to a park.

c. Comments:

East Phillips playground was purchased in 1975 to convert an intended housing area to open space due to the density of the surrounding neighborhood. Phillips has experienced an important increase in residents (see attached) from 18,900 in the 1970 census to 22,232 in 1978 (a 14.2% increase) while the city was decreasing in overall population by 15%. Indian residents increased from 6.8% in 1970 to 18% in 1978.

10. Native American Center Park:

This facility is not on Park and Recreation Board land but has an operating board which should be consulted. The outdoor powwow area is the only facility of its kind in the metropolitan area.

I hope this information is helpful to you. If you have any questions, please call me.

Very truly yours,

Albert D. Wittman
Assistant Superintendent for Planning
612/348-2222

ADW:ker
Attachment

MINNESOTA HISTORICAL SOCIETY
FOUNDED IN 1849
690 Cedar Street, St. Paul, Minnesota 55101 • (612) 296-6126

26 August 1981

Mr. Max Goldberg
Project Manager
City Planning Department
Room 210/City Hall
Minneapolis, MN 55416

M. B. GOLDBERG
AUG 27 1981

Dear Mr. Goldberg:

RE: Alignment and alternatives for improving Hiawatha Avenue - TH 55 from I-94 to County Road 62.

MHS Referral File Number: N 21

Thank you for the opportunity to review and comment on the above project. It has been reviewed pursuant to responsibilities given the State Historic Preservation Officer by the National Historic Preservation Act of 1966 and the Procedures of the National Advisory Council on Historic Preservation (36CFR800).

This review reveals that the above-referenced proposed project passes either in close proximity to or within several designated National Register Districts. These include the Milwaukee Avenue Historic District, the Minnehaha Park Historic District, and the Minnesota Veterans Home, a district that has been determined eligible for inclusion on the National Register of Historic Places.

Due to the location of the Milwaukee Avenue Historic District, several blocks east of all of the proposed alignments, it is our opinion that there will be no effect on this site by your proposal. The Minnesota Veterans Home Historic District is also located a distance from the proposed alignments and is buffered by the position of the Minnehaha Historic District located between Hiawatha Avenue and the complex. Consequently, there will be no effect by your proposal on this district. From our review of the potential impact of the Hiawatha Avenue proposal on the Minnehaha Park Historic District, it appears that all of the alternatives traverse a portion of the designated district. Consequently, it is our opinion that there is a potential adverse effect on the district. From the proposal, it appears that the Minnehaha Station (Princess Depot) and the Longfellow (R. J. Jones) House, both significant elements of the district, will be the most seriously affected.

It is our opinion that there is a potential for archaeological sites particularly in the area where TH 55 will connect with County Road 62. This area will be reviewed by the Trunk Highway and County and Municipal Highway archaeologists to determine the nature and extent of the archaeological investigation that will be necessary.

We look forward to working with you in the preparation of the Preliminary Case Report to avoid or mitigate the adverse effects of your proposal. For your reference I have enclosed a copy of 36 CFR 800 (Protection of Historic and Cultural Properties), which describes the subsequent steps that are needed after a determination of adverse effect.

If you have further questions or comments, please do not hesitate to contact Ms. Susan Hedin, Environmental Assessment Officer, State Historic Preservation Office, 240 Summit Avenue, St. Paul, MN 55102, 296-0103.

Thank you for your participation in this important effort to preserve Minnesota's cultural resources.

Sincerely,

Dennis A. Gimmestad

for Russell W. Fridley
State Historic Preservation Officer

RWF/sl

cc: Frank Svoboda
B.R.W.
2829 University Avenue S.E.
Minneapolis, MN 55414

UNIVERSITY OF MINNESOTA
TWIN CITIES

Department of Botany
220 Biological Sciences Center
1445 Gortner Avenue
St. Paul, Minnesota 55108
(612) 373-2211

1 Nov. 1981

Mr. Frank Svoboda
Bennet, Ringrose, Wolsfeld,
Jarvis, Gardner, inc.
2829 University Ave. SE
Minneapolis, 55414

Dear Mr. Svoboda:

Regarding the vegetation we examined last Thursday, Oct. 29:

I agree with the others that the large field west of Hiawatha that we first looked at is mostly beyond redemption. It does bear a few good colonies of native grasses, but they have apparnetly been sprayed with a selective herbicide, as most forbs were missing.

Across the field, on the far side where Highway 62 bends to the north, there are some areas bearing native vegetation in mixed condition on the slopes on the south side of the right of way. Parts are quite good, parts are badly disturbed by motor bikes and no doubt other causes. Weeds are very apparent, some not very pernicious so far as maintaining prairie is concerned, others like white sweet clover is a constant nuisance in prairie. Sumac has established itself on part of the slope, south of the tall wooden fence. A program of burning and weed elimination could restore the area to rather good condition; the plants are there; but a lot of work would be required.

The savanna area south of 54th Ave S, between Hiawatha and the east terminus of 54th Ave. S., is degraded beyond the point that it might be worth trying to save. It is true that we did find a small good area west of the right of way directly west of the Bureau of Mines Building. However, that is apparently far enough from the right of way so that it will not be disturbed by construction, according to what you said. The area is fast being invaded by woody plants; to maintain its original condition and retain the prairie plants would require a burning program.

Sincerely,

Thomas Morley

Hennepin County Park Reserve District

3800 County Road 24 • Maple Plain, Minnesota 55359 • Telephone 612-473-4693

PARK RESERVES
BAKER
CARVER
CROW-HASSAN
ELM CREEK
HYLAND LAKE
LAKE REBECCA
MURPHY-HANREHAN*

REGIONAL PARKS
CLEARY LAKE*
COON RAPIDS DAM
EAGLE LAKE
FISH LAKE
JAMES W. WILKIE*
MEDICINE LAKE
SPRING LAKE*

SPECIAL USE AREAS
BAKER PARK GOLF COURSE
CLEARY LAKE GOLF COURSE*
HYLAND HILLS SKI AREA
NOERENBERG MEMORIAL

TRAIL CORRIDORS
NORTH HENNEPIN TRAIL

OTHER PARKS
WAWATASSO ISLAND
WILD GOOSE CHASE ISLAND

*SCOTT-HENNEPIN
PARK AUTHORITY

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CLIFTON E. FRENCH
SUPERINTENDENT &
SECRETARY TO THE BOARD

10 November 1981

Mr. Frank J. Svoboda, CWB
Bennett, Ringrose, Wolsfeld, Inc.
2829 University Avenue S.E.
MInneapolis, MN 55414

Dear Frank,

My impressions of the prairie and savanna remnants located on the Highway 62 realignment and the Trunk Highway 55 - Hiawatha Avenue extension are as follows:

Both areas contain prairie species which indicate that they were covered by a prairie community at one time. However, the prairie remnants located on both locations are degraded to the point where it is questionable whether anything can or should be done to save them. The block between Highway 62 and the airport contains only two small areas of value, the southeast corner and the east facing hill on the southwest side of the field. Both are degraded but still contain numerous interesting species. Both could be enhanced with proper management. The portion of this field proposed for the Highway 62 right-of-way and exit ramp contains virtually no prairie species. Prairie plants along Hiawatha Avenue are limited to one small area that is succeeding rapidly to forest. It contains a very limited number of species.

Neither area contains adequate prairie species at present to be of significance on a state or Metro wide basis. In my opinion they are of questionable significance even on the county level simply because they have been abused for so long.

The one area I did note with some interest is the bur oak stand along Hiawatha Avenue. It is not a prairie savanna, since it lacks an appropriate understory, but the trees are important by themselves. Care should be taken to protect and preserve as many of them as possible. It is inadequàte to mitigate for lost bur oaks by planting green ash and silver maple.

I hope you find these comments to be satisfactory.

Sincerely,

Laurence N. Gillette

Laurence N. Gillette

LNG:jve 10-31

STATE OF MINNESOTA - DEPARTMENT OF TRANSPORTATION
TECHNICAL SERVICES DIVISION
CONTACT REPORT - OFFICE OF ENVIRONMENTAL SERVICES

Date	:	December 2, 1981
State Project No.	:	2724-87
Location	:	TH55/CSAH62 Interchange
Reason for Contact	:	Investigate value of prairie remnant on project site
Persons Contacted	:	Ron Peterson, Mn/DOT OES Frank Svoboda, BRW, Inc. Thomas Morley, Univ. of Minnesota Larry Gillette, Hennepin County Park Reserve
Date of Contact	:	October 29, 1981
Status of Work	:	EIS

Remarks:

This meeting was held to investigate the value of native vegetation on areas to be impacted by the construction of the TH55/CSAH62 interchange in Hennepin County. The area in the SW quadrant of the present interchange contains 2 remnants of prairie vegetation; immediately south of the point where the proposed straightened segment of CSAH62 would diverge from the western end of the existing S curve, lies a stand of vegetation containing various native forbs and scattered clumps of Sporobolus sp. This stand is badly invaded by shrubs, non-native perennial grasses and annual forbs, however, it is still valuable because such a variety of native forbs are very uncommon in the Metropolitan area. Only a portion of this stand lies within existing right-of-way; however, none of it is directly threatened by the proposed alignment. This area should be cordoned off during construction to preclude disturbance by machinery and should not be used for storage of construction materials or for vehicles. This stand could be rehabilitated as a mitigation measure for impacts to other remnants. Any brush control to occur in this area should be restricted to manual removal or spot spraying so as not to adversely impact forbs.

A monotypic stand of big and little bluestem (Andropogon sp.) presently exists adjacent to TH55 where the proposed eastbound off ramp for CSAH62 would intersect it. While this type of stand more visibly retains prairie character than stands dominated by forbs, it is not as uncommon and is easily re-established. Mitigation through introduction of forbs into this stand is not recommended due to the incompatibility of forbs and the herbicides normally used to suppress brush invasion on land adjacent to the international airport. The position of the off ramp could be shifted slightly southward to miss this stand and a native seed mixture could be used within the right-of-way to expand this stand.

A valuable prairie remnant exists within the median of CSAH62 west of the interchange. This stand will be unaffected by construction and should be protected upon abandonment of the existing segment of CSAH62.

Woodland areas along the proposed TH55 north of the interchange with CSAH62 retain minimal native character. Very small and scattered stands of indian grass (Sorghastrum nutans) and prairie cordgrass (Stipa spartea) exist within these stands, however, their sizes are very small and they are invaded by buckthorn and honeysuckle. Oaks remaining from when this area was savannah are mature and scattered.

Rehabilitation of prairie stands would be best accomplished through controlled burning. Such treatments could act both to mitigate any impacts to existing stands and also to control brush invasion of concern to MAC. Burns should be conducted in early spring and, to minimize disturbance to ground and air traffic, should be done during the early morning hours. A wind to the east or northeast would blow smoke toward the Mississippi River and would not interfere with air traffic and would temporarily interrupt traffic on TH55 and CSAH62.

Ronald Peterson
Wildlife Biologist
Environmental Development Unit

cc: L.E.Foote/L.G.Eilts
Frank Pafko/Project File
Attendees

MINNESOTA HISTORICAL SOCIETY
FOUNDED IN 1849
690 Cedar Street, St. Paul, Minnesota 55101 • (612) 296-6126

16 December 1981

Mr. Max Goldberg
Project Manager
City Planning Department
Room 210/City Hall
Minneapolis, MN 55416

M. B. GOLDBERG
DEC 21 1981

Dear Mr. Goldberg:

RE: Light Rail Transit alignments
Hiawatha Avenue - TH 55 in Minneapolis
Hennepin County

MHS Referral File Number: N 21

Thank you for submitting the additional information on the Light Rail Transit alignments. Our primary concern continues to be the potential impact on the Minnehaha Historic District, a district that is listed on the National Register of Historic Places, and in particular the impact on the Longfellow House (J. L. Jones House) and the Minnehaha Station (Princess Depot). From the information that has been presented to us it is our opinion that there will be a potential adverse effect by the proposal on both of these elements of the district.

Due to the nature of the proposed light rail, in large part located within existing roadways at street level, it is our opinion that there will be no effect on the remaining structures that are either on or eligible for inclusion on the National Register listed within the study area. However, we would be happy to review any proposed stations or improvements along the line that may be located in the vicinity of National Register structures in the central business district, and which may have a visual impact on those structures. We would anticipate that this review will be done once design plans have been completed. This review may also take into account those structures in the central business district which are currently being documented for nomination to the National Register by the Minneapolis Heritage Preservation Commission. A contact person for this information is Camille Kudzia (338-6123).

We would also like to reiterate our opinion regarding the potential for archaeological resources in the area where TH 55 will connect with CR 62. We remain under the assumption that this will be reviewed by the Trunk Highway and Municipal Highway archaeologists.

I hope that this information will be of assistance. Also, we would be glad to meet with your staff or consulting firm to discuss all of the alternatives that may affect the Minnehaha Historic District, as well as mitigative measures that should be included in the Preliminary Case Report to the Advisory Council.

If you have further questions or comments, please do not hesitate to contact Dennis Gimmestad, Acting Assistant State Historic Preservation Officer, State Historic Preservation Office, 240 Summit Avenue, St. Paul, MN 55102, 296-9070.

Again, thank you for your close attention to cultural resources early in your planning.

Sincerely,

Dennis A Gimmestad

for Russell W. Fridley
State Historic Preservation Officer

RWF/sl

cc: Frank Svoboda
B.R.W.
2829 University Avenue South
Minneapolis, MN 55414

Minnesota Pollution Control Agency

M. B. GOLDBERG
SEP 15 1981

September 11, 1981

Max Goldberg, Project Director
Hiawatha Avenue Corridor Study
City Planning Department
Room 210, City Hall
Minneapolis, Minnesota 55415

Dear Mr. Goldberg:

The Minnesota Pollution Control Agency (MPCA) staff has reviewed the technical reports on water resources and offers the following comments.

1. Water quality standards. The State water quality standards used in the analysis and cited in Table 1 of Appendix A are outdated. Rules WPC 14, 15, 24 and 25 have been rescinded and replaced by rules 6 MCAR 4.8014, 4.8015, 4.8024 and 4.8025. It does not appear that this affects the results and conclusions of the analysis; however, the current standards should be used. (Copies of the rules are available from the State Documents Section.)

2. Spills. The report does not address the impacts of spills occurring along the roadway, except during the construction phase. The environmental review process should address the impacts of spills, how these impacts vary between alternatives, and appropriate alternative mitigative measures. Mitigative measures should include both design and management methods, and should be developed for each alternative. A spill control plan should be prepared for the chosen alternative.

3. Recommendations on choice of alternatives from a water resource perspective. On page 48, the report states that the differences in water resource impacts among alternatives are not large enough to substantiate a recommendation of one alternative over another. The Agency staff is hesitant to agree with such a statement, in view of the fact that spills and spill mitigation have not been addressed. It may be that the alternatives vary

Phone: 296-7306
1935 West County Road B2, Roseville, Minnesota 55113

in the extent of spill impacts; some alternatives may be less likely to involve spills or may allow more effective spill controls. Until a spill analysis is prepared, we believe it is premature to rule out water resource concerns as a factor in the choice among alternatives.

4. Construction erosion control plans. An erosion control plan for work near the crossing of Minnehaha Creek should be prepared for each alternative.

Questions concerning our comments should be addressed to Gregg Downing at 297-2728.

MPCA staff members are reviewing the air quality and noise reports. Comments on these reports will follow.

Sincerely,

Janet Cain for

Deborah R. Pile
Environmental Review Coordinator
Office of Planning & Review

M. B. GOLDBERG
OCT 15 1981

Minnesota Pollution Control Agency

October 13, 1981

Max Goldberg, Project Director
Hiawatha Avenue Corridor Study
Room 210, City Hall
Minneapolis, Minnesota 55415

Dear Mr. Goldberg:

We have reviewed the air and noise reports for the Hiawatha Avenue Corridor Study and offer the following comments:

Air Quality

1. The analysis is comprehensive and appears to address a sufficient number of sensitive receptors. It also adequately discusses the impacts of the tunnel alternatives. Background CO concentrations were appropriately determined through actual monitoring.

2. We concur with the CO monitoring and alarm recommendations pertaining to CO build-up in the tunnel.

3. The fact that the Hiawatha project was included in the highway network used to model regional emissions for the Transportation Control portion of the State Implementation Plan (SIP), further establishes the project's consistency with the SIP.

Noise

The noise assessment is also comprehensive in assessing the impacts; however, the MPCA staff finds it inadequate for the following reasons:

1. Clarification is needed as to whether daytime or nighttime violations are indicated in Table 13 under "Residences Impacted Where No Abatement is Planned."

Phone: 296-7216
1935 West County Road 52, Roseville, Minnesota 55113

2. Significant adverse noise impacts are predicted for all alternatives; however, only 0.8 miles of noise barriers are planned, exposing upwards of 180 structures for alternative 1, and 333 structures for alternative 3 to noise levels exceeding state standards. There is no explanation of why so little protection is planned when such adverse noise impacts are predicted.

3. The EIS should discuss far more noise protection than just 0.8 miles of noise barriers. It is not appropriate to wait for the "Final" Noise Study Report just prior to Plans, Specifications and Estimates before planning and committing to adequate noise abatement. Furthermore, in each area where adequate noise protection is not possible, an explanation clearly discussing the reasons should be presented. The state and the Minnesota Department of Transportation, as well as the Minnesota Pollution Control Agency, have a clear obligation to construct facilities which comply with the noise standards of NPC-1 and NPC-2.

If you have any questions, please contact either Gregg Downing at 297-3768, or Julie Sparks at 296-7358. Thank you for the opportunity to review the draft reports.

Sincerely,

Deborah R. Pile

Deborah R. Pile
Environmental Review Coordinator
Office of Planning & Review

cc: Gregg Downing
Julie Sparks
Dave Kelso

DEPARTMENT OF TRANSPORTATION
320 Washington Av. South
Hopkins, Minnesota 55343

935-3381

July 17, 1981

M. B. GOLDBERG
JUL 21 1981

Mr. Max B. Goldberg, Project Director
Hiawatha Avenue Corridor Study
City Planning Department
Room 210 City Hall
Minneapolis, MN 55415

DRAFT PRELIMINARY AIR QUALITY AND NOISE REPORTS
FOR HIAWATHA AVENUE CORRIDOR STUDY
HENNEPIN COUNTY PROJECT 8115

Dear Mr. Goldberg:

We have reviewed the Air Quality and Noise Reports for the Hiawatha Avenue Study and have no comments.

Sincerely,

D W Schmidt

David W. Schmidt, P.E.
Senior Professional Engineer
Design

DWS:lar

HENNEPIN COUNTY
an equal opportunity employer

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION V
230 SOUTH DEARBORN ST
CHICAGO, ILLINOIS 60604

JUN 01 1982

REPLY TO ATTENTION OF:

M. B. GOLDBERG
MAY 27 1982

21 MAY 1982

Mr. Max Goldberg
Project Director
Hiawatha Avenue Corridor Study
Minneapolis City of Lakes
301M City Hall
Minneapolis, Minnesota 55415

Dear Mr. Goldberg:

Thank you for sending us copies of the Air Quality and Noise Reports for the Hiawatha Corridor Study in Minneapolis, Minnesota. The two reports were included with your letter of March 25, 1982, and requested our review and comments.

We have completed our review of both the air quality and noise reports and find that both documents have thoroughly evaluated and assessed the impacts. Each report provides sufficient information on the methodology used to evaluate the air quality or noise levels and the assumptions used in making evaluations of future impacts. The number and location of receptor sites evaluated in both reports meets established criteria for air quality and noise level modeling. The air quality report was well done and presents a thorough analysis of all the alternatives. The microscale air quality analysis indicates that any of the build alternatives would have a positive impact upon air quality when compared to the no-build alternative.

The noise report indicates, regardless of the alternative selected, that noise levels will increase along the entire route of the project. The report also indicates noise barriers may be required along .8 of a mile of the project. Table 13, on pages 78 and 79 of the noise report lists the sites, between 187 and 323 residences, for which variances may be requested. This represents a large number of persons that could be adversely impacted. However, the magnitude of the impact may not be significant since, noise levels for the build alternatives will exceed those for the no-build alternative by only, approximately, five decibels. Still, we encourage consideration of noise mitigation measures to reduce impacts to the extent practicle. Since present design plans make the use of barriers impractical, we request that consideration be given to closing some streets to allow construction of noise barriers and the attenuation of more noise energy. It is also stated in the report on page 84, under "Request for Exceptions and Variances", that only one site will require an exception or variance. The information provided in Table 13 and the statement on page 84 are conflicting and need clarification. We note that the appendix to the noise report contains noise contour lines for each alternative.

We suggest that residences for which exceptions or variances will be required be noted on these noise contour maps, for each alternative. This would provide the persons reviewing the environmental impact statement a visual aide for assessing the noise impacts. If Table 13 is correct and between 187 and 323 residences will be adversely impacted by increased noise levels, additional mitigative measures should be investigated.

We appreciate the opportunity to review these documents. If you or your staff has any questions regarding our comment, please contact Mr. Bill Franz, at 312/886-6687.

Sincerely yours,

William D. Franz

for Barbara Taylor Backley, Chief
Environmental Review Branch
Planning and Management Division

STATE OF MINNESOTA
DEPARTMENT OF VETERANS AFFAIRS
VETERANS SERVICE BUILDING
SAINT PAUL, MINN. 55155

OFFICE OF THE
COMMISSIONER
(612) 296-2783

February 10, 1982

REPLY TO: (612) 296-2783

David M. Warner, P.E.
Bennett - Ringrose - Wolsfeld - Jarvis - Gardner, Inc.
2829 University Avenue S.E.
Minneapolis, Minnesota 55414

Dear Mr. Warner:

The department has reviewed the material sent to Mrs. Jean Donaldson regarding the suggested closure of the bridge access to the Minneapolis Veterans Home. We are very concerned that the closure would impact severely on the Home.

The closure of the bridge would impact directly on accessibility to the V.A. Medical Center, (adding 1-3 miles to the transportation of an ill resident), would limit access to emergency vehicles, and would leave the Veterans Home with only one access, which is a sub-standard road through park property.

The Department of Veterans Affairs would be opposed to the proposal, as outlined, because of its impact on the safety of the Veterans Home residents. We are, of course, willing to discuss alternatives should they be proposed, and if they do not affect the life-safety of the residents.

Sincerely,

Charles T. Pinkham
Commissioner

cc: R.J. Lavell
Jean Donaldson
Bill Smith

cc: Max Goldberg - City Mpls
Bob Morast - Mn DOT
Craig Amundsen - 3RN

10-45

EQUAL OPPORTUNITY EMPLOYER

MINNESOTA HISTORICAL SOCIETY
FOUNDED IN 1849
690 Cedar Street, St. Paul, Minnesota 55101 • (612) 296-612

4 June 1982

Mr. Max Goldberg
City Planning Department
Room 210 City Hall
Minneapolis, Minnesota 55415

Dear Mr. Goldberg:

RE: Hiawatha Avenue Location and Design Study

MHS Referral File Number: N21

Thank you for the opportunity to review the 4(f) Section and Section 106 Section of the Draft EIS for the above referenced project. They have been reviewed pursuant to responsibilities given the State Historic Preservation Officer by the National Historic Preservation Act of 1966 and the Procedures of the National Advisory Council on Historic Preservation (36CFR800).

We would like to point out a few errors in Table 7-1. The Minnehaha Historic District is listed on the National Register. The St. Anthony Falls Historic District, the Milwaukee Avenue Historic District, and the Ft. Snelling Historic District are listed in the State Historic Sites Registry; the North Loop Warehouse Preservation District is not listed on the State Historic Sites Registry.

We would also like to point out that because the sites listed in the report as affected sites are all currently listed on the National Register as individual sites or as part of historic districts, we do not believe that a formal Determination of Eligibility will be necessary for these sites. There are, however, several potentially eligible sites in the downtown area on the route of the rail corridor that are not currently listed on the Register. These buildings are the Farmers and Mechanics Bank at 90 South Sixth Street, the Minneapolis Armory at 500-530 South Sixth Street, the Rand Tower at 527 Marquette Avenue, and the Gluek Building at 16 North Sixth Street. We believe that these buildings should be submitted for a formal Determination of Eligibility (regulations enclosed) and that the discussion of the effects of the project on the Butler Building (Section 7.2.1) should be expanded to include the effects on the Masonic Temple at 528 Hennepin Avenue South (National Register), the PPG Building at 616 Third Street South (National Register), the Advance Thresher/Emerson-Newton Plow Company at 700-704 Third Street South (National Register) and the buildings determined eligible from those listed above.

Further, if this section of the Draft Environmental Impact Statement is to serve as the Preliminary Care Report, we would ask that additional information be added to cover the required elements of such a report (appropriate section of 36 CFR 800.13 enclosed). This information should include a discussion of the various alternates and the application of the criteria of effect on the historic properties for each of the alternates. If there are no alternates (other than no-build) which result in no effects on historic properties, the reasons why no such alternates are considered should also be discussed.

It has also come to our attention that the extension of CSAH 62 may have a potential effect on the access to the historic public area of the Ft. Snelling Historic District. We would appreciate additional clarification on such potential effects.

We look forward to continuing to work with you as this project develops. If you have questions, please do not hesitate to contact Dennis Gimmestad, Acting Assistant State Historic Preservation Officer, Fort Snelling History Center, St. Paul, Minnesota 55111.

Sincerely,

Russell W. Fridley
State Historic Preservation Officer

RWF/fr
Encl.

cc: Frank Svoboda
BRW
2829 University Avenue South
Minneapolis, MN 55414

Clem Kachelmyer
Preliminary Design Engineer
Room 604 Transportation Building
St. Paul, MN 55155

11.0 APPENDICES

11.0 APPENDICES

11.1 REFERENCES

This DEIS is based on detailed analyses documented in the following technical reports prepared for the Hiawatha Avenue Location and Design Study.1/

Reference No.	Technical Report
1.	Project Development Report. Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, July, 1980
2.	Truck Needs Study for Hiawatha Corridor. Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, May, 1980
3.	Travel Forecast for Hiawatha Corridor and Evaluation of Roadway Alternatives. Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, May, 1980.
4.	Evaluation of One-Way Street Alternative for Hiawatha Corridor. Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, May, 1980.
5.	Applicability of Automated Guideway Transit for Hiawatha Corridor. Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, May, 1980.
6.	Evaluation of Bus and Ride-Sharing Alternatives for Hiawatha Avenue. Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, May, 1980.
7.	Overview of Light-Rail Transit and Applicability to Hiawatha Corridor. Parsons Brinckerhoff Quade & Douglas, January, 1980.
8.	Light-Rail Transit Alternatives, Identification and Evaluation. Parsons Brinckerhoff Quade & Douglas, April, 1980.
9.	Scoping Report for the Hiawatha Corridor. Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, July, 1980.
10.	Documentation of Minneapolis CBD Base Case Employment Forecasts. Robert J. Harmon & Associates and James B. McComb and Associates, December, 1980.
11.	Geometric Definition of Roadways for the Hiawatha Corridor. Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, November, 1982.

1/ Technical reports prepared for the Hiawatha Avenue Location and Design Study are available for review at City Hall Library, 350 South Fifth Street, Minneapolis, Minnesota.

12. CBD Light Rail Alternative Alignment Evaluation. Parsons Brinckerhoff Quade & Douglas and Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, December, 1980.

13. Cedar-Riverside Area Alternative Alignment Analysis. Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, and Parsons Brinckerhoff Quade & Douglas, March 1981.

14. Traffic Volume Forecasts. Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, July, 1981.

15. Air Quality Analysis. Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, November, 1981.

16. Noise Analysis. Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, June, 1981.

17. Water Resources Analysis. Parsons Brinckerhoff Quade & Douglas, January, 1982.

18. Capital Cost Estimates. Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, April, 1982.

19. Urban Development Framework. Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, January, 1982.

20. Parklands Report. Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, August, 1981.

21. Transit Patronage Forecasts. Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, November, 1981.

22. Energy Report, Minnesota Department of Transportation, March, 1982.

23. Transit Operations. Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, July, 1982.

24. Project Development Report Supplement. Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, April, 1982.

25. Hiawatha Corridor Population and Employment Projections, 1990 and 2000. James B. McComb and Associates, January, 1980.

Other Documents prepared in the course of the Hiawatha Avenue Location and Design Study are listed below.

Reference No.	Document
26.	Technical Memorandum: Overview of Noise Impacts Study for Hiawatha. Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, March, 1980.

27. Technical Memorandum: Overview of Air Quality Impacts Study for the Hiawatha Corridor. Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, June, 1980.

28. Community Participation and Communication Processes for the Hiawatha Avenue Location and Design Study. Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, November, 1980.

29. Evaluation of Trolley Buses as a Means of Providing Transit Service in the Hiawatha Corridor. Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, December, 1980.

30. Alternatives Analysis/Environmental Impact Study Evaluation Methodology. Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, January, 1981.

31. Light Rail Transit Feasibility in the Hiawatha Avenue Corridor as Input to the Metropolitan Council's LRT Feasibility Study. Bennett-Ringrose-Wolsfeld-Jarvis-Gardner, March, 1981.

32. Recommendations of Hiawatha Avenue Task Force to the Minneapolis City Council. Hiawatha Avenue Task Force, March, 1982.

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