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Minnesota Department of Transportation

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*2 copies*ENVIRONMENTAL
STATEMENT

draft

FOR

INTERSTATE HIGHWAY 35 (I-35)

AND

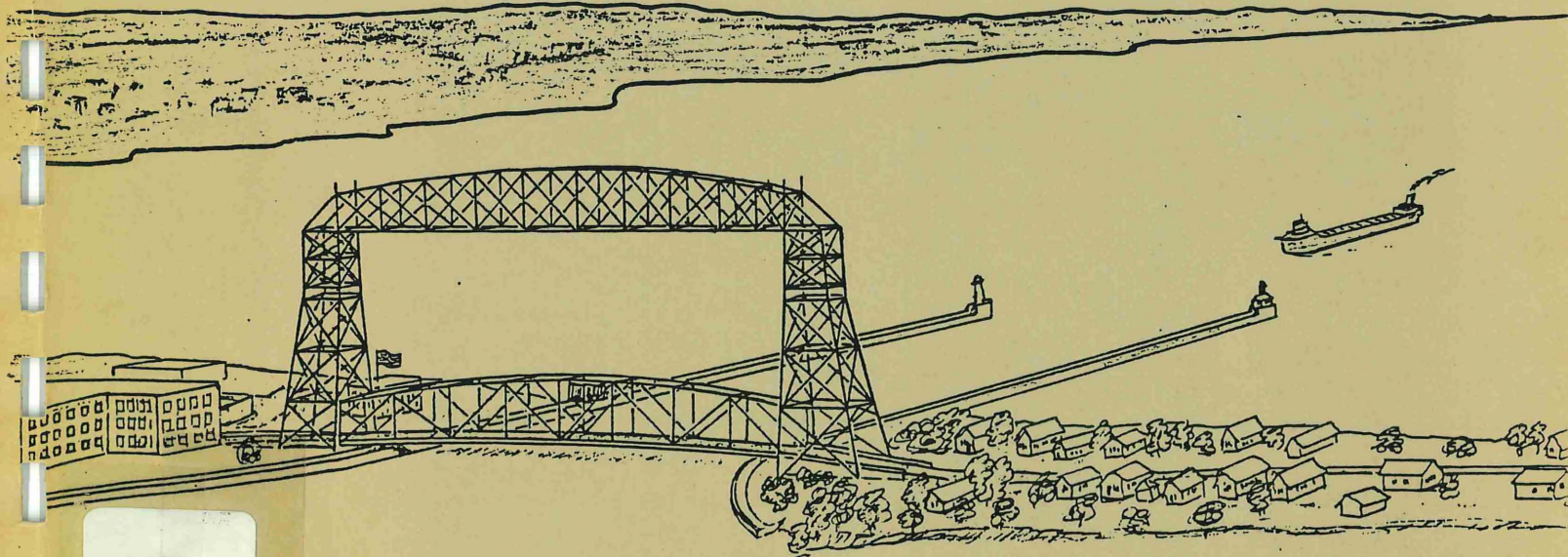
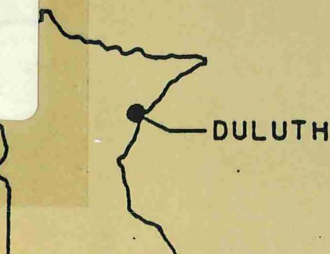
U.S. TRUNK HIGHWAY 61 (T.H. 61)

IN

ST. LOUIS COUNTY, CITY OF DULUTH, MINNESOTA

FROM

10 T.H. AVE. E. TO 26 TH. AVE. E.

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25
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I57

PREPARED BY:

Minnesota Department of Transportation
Minnesota Project 1035-6()

State Project 6982-124

Interstate Highway 35

and

U.S. Trunk Highway 61

10th Avenue East to 26th Avenue East

in Duluth

St. Louis County

State Project 6982-124

ADMINISTRATIVE ACTION

DRAFT

ENVIRONMENTAL IMPACT STATEMENT

State of Minnesota

Department of Transportation

Submitted pursuant to Minnesota Statutes 116D.01 et seq.

10/5/82
Date

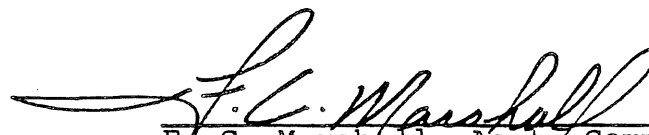
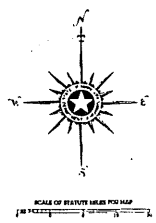
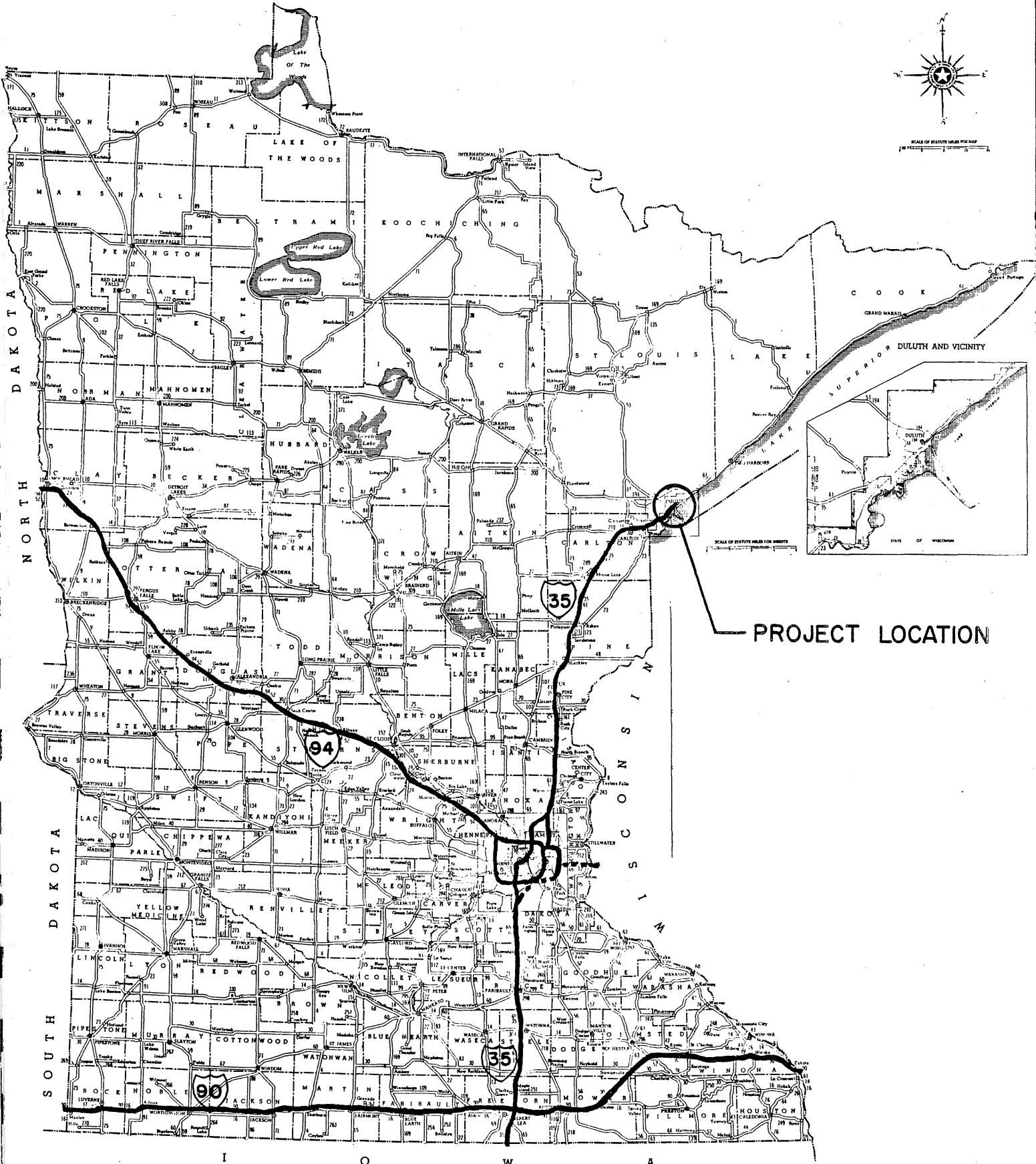

F. C. Marshall, Asst. Commissioner
Minnesota Department of Transportation

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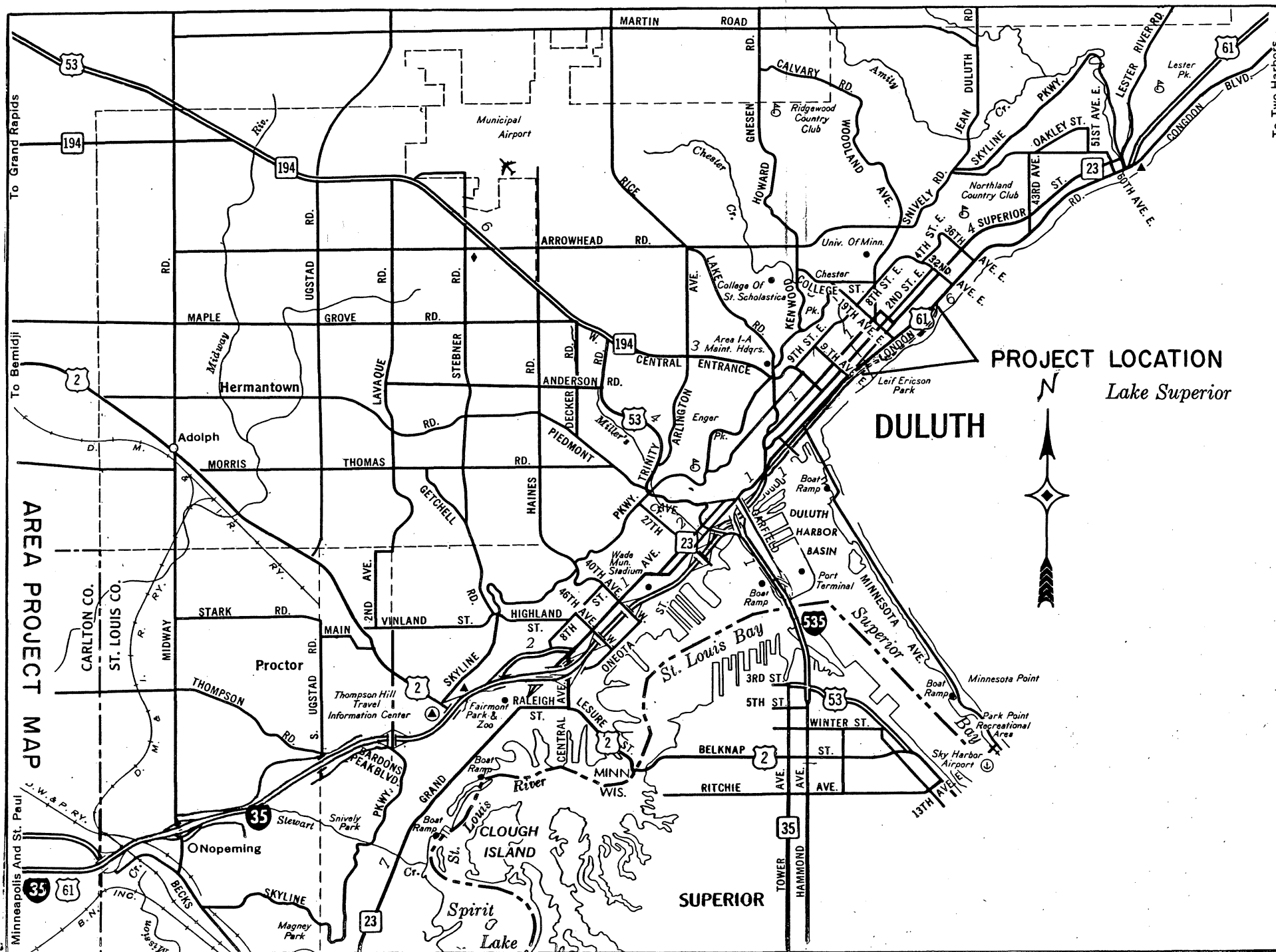
STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
WORK MAP



PROJECT LOCATION

STATE INDEX MAP

Work Map Prepared By Department of Transportation, State of Minnesota, Planning and Programming Division, Second Edition, 1977



SECTION 1

SUMMARY

I. S U M M A R Y

DESCRIPTION OF ACTION

The proposed project is the extension of I-35 between 10th Avenue East and 26th Avenue East in the City of Duluth, St. Louis County, State of Minnesota. This Environmental Impact Statement will assess the project's effects on both the socio-economic and natural environment of the project area.

In April of 1980, the Mayor of Duluth appointed a Citizen Advisory Committee to review the 10th Avenue East to 68th Avenue East freeway extension issue. Their recommendation was to dedesignate the 26th to 68th Avenue East portion and to construct the 10th to 26th Avenue East portion. This recommendation was supported by a City wide referendum in November, 1980.

Easterly from 10th Avenue East, the freeway will continue in a depressed section generally following the alignment of London Road. It then enters a tunnel and curves south beneath the Rose Garden area of Leif Erikson Park. It emerges from the tunnel southerly of the Curling Club parking lot near 13th Avenue East and curves easterly parallel to the south side of South Street. It continues in generally a straight line depressed 5 feet to 10 feet below the existing ground line. Near 24th Avenue East the alignment begins curving north and rising in elevation to join London Road near 27th Avenue East. A half-diamond interchange serving northbound off and southbound on traffic is planned for 21st Avenue East. (See map pages 17 and 18).

MAJOR ALTERNATIVES

The major alternatives considered were a 4-lane divided freeway (recommended alternative), a mass transit alternative, an upgraded London Road alternative and the do-nothing alternative. All alternatives except for the freeway alternative have many disadvantages and have been dismissed as viable for the following reasons:

Mass Transit:

The extension of I-35 between 10th and 26th Avenues East is compatible with local transit plans and objectives. Mass transit itself will not result in significant decreases in traffic volumes and for this reason, mass transit cannot be considered a viable alternative.

Upgraded London Road:

A raised median/channelization concept on London Road is not considered viable because of significant indirection of travel to get to and from London Road businesses. A fifth lane concept on London Road requires the elimination of on street parking and does not achieve the objective of reducing traffic volumes and related impacts on parallel streets in the corridor.

Do-Nothing:

The "do-nothing" alternative does not reduce traffic and associated safety, noise and visual impacts on heavily traveled neighborhood streets. The "do-nothing" alternative provides no extra margin for peak travel demands. Traffic congestion on streets in the corridor will continue and peak demand periods will only compound the problem.

The "do-nothing" alternative was dismissed based on the above deficiencies.

ENVIRONMENTAL IMPACTS

Land Use:

The freeway will result in the removal of the Curling Club, a former recreational facility. This facility has been replaced by Pioneer Hall in the Arena-Auditorium complex south of the Central Business District (CBD). Pioneer Hall provides for the same type of recreational activities as the Curling Club did. Also, it can be used for conventions and other similar activities.

Natural Features:

The proposed freeway will result in the temporary loss of the Rose Garden and other areas of Leif Erikson Park. However, upon completion of the freeway, these areas will be restored as parklands. As mitigation for disruption and loss of parkland, Mn/DOT will purchase 1.2 acres of private land and add it to the existing park.

Social:

The freeway through this area results in the disruption of a neighborhood and taking of 14 residential buildings. This results in the relocation of 38 people.

Economic:

The proposed freeway section from 10th Avenue East to 26th Avenue East will result in the taking of approximately 14 businesses. Six of the 7 business owners who responded to a questionnaire indicated they would relocate elsewhere in Duluth and one would liquidate. Three of the 6 business owners that are relocating, indicated they would increase employment from their current levels.

The acquisition of R/W for the construction of the freeway will result in the reduction of the local real estate tax base for Duluth which would result in a loss of tax revenue. This real estate tax loss is mitigated by the expected change in the existing land use because of the freeway, to a higher density use which will result in an increase in market value and tax revenue.

Air Quality:

The proposed freeway will result in a slight increase in carbon monoxide (CO) concentrations in the corridor and on 21st Avenue East

under normal roadway operating conditions. During periods of vehicle congestion in the Leif Erikson tunnel, CO concentrations in the relocated Rose Garden portion of the park would increase significantly but would not exceed State or Federal air quality standards. The air quality impact within the tunnel was analyzed using natural tunnel ventilation parameters. Results indicate that only during periods of extensive vehicle congestion within the tunnel would CO concentrations exceed appropriate A/Q standards. The analysis does not address emergency preparedness procedures or mechanical ventilation requirements that could reduce this impact. Emergency procedures and ventilation studies will be undertaken during the design of the project and will be discussed in the Mn/DOT application for the MPCA Indirect Source Permit.

Noise:

Construction of the freeway will result in a significant noise reduction in the area of Leif Erikson Park, the Rose Garden and to residential land use on London Road between 10th and 14th Avenues East. Even with this reduction, projected noise levels will exceed Federal noise standards.

Noise levels to the residential area adjacent to the freeway corridor between 15th and 26th Avenues East will increase substantially but with the proposed mitigation it will not exceed the Federal Design Noise Levels or State of Minnesota daytime noise standards.

Water Quality:

The I-35 extension from 10th to 26th Avenues East is in the Lake Superior drainage basin. Three watersheds are crossed by this project: Grey Creek, Chester Creek, and Oregon Creek.

Impacts to the receiving waters are caused by pollutants in highway runoff during construction or operations after completion. Construction impacts are usually short-term and can be minimized by temporary erosion control methods. Operational impacts continue to occur as long as the freeway remains in operation. Freeway runoff will be routed to a retention pond to reduce pollutants prior to its discharge into Lake Superior.

Energy:

The energy analysis indicated that extending the freeway from 10th to 26th Avenues East will neither increase nor decrease energy consumption over the no-build alternative.

Historical/Cultural & Recreational Lands:

The proposed freeway construction between 10th and 26th Avenues East will have the following effects to historic and recreational lands:

- the relocation of Endion Passenger Station
- the temporary loss of certain areas of Leif Erikson Park during the construction of the freeway.

This document will be distributed for comment to the following agencies and individuals:

DEPARTMENT OF ENERGY, PLANNING & DEVELOPMENT

Planning Division
Room 101, Capitol Square Bldg.
550 Cedar Street
St. Paul, MN 55101

MN POLLUTION CONTROL AGENCY

1935 W. County Road B2
Roseville, MN 55113

ENVIRONMENTAL QUALITY BOARD STAFF

Room 101, Capitol Square Bldg.
550 Cedar Street
St. Paul, MN 55101

DEPARTMENT OF AGRICULTURE

90 W. Plato Blvd.
St. Paul, MN 55107

DEPARTMENT OF HEALTH

717 Delaware Street S.E.
Minneapolis, MN 55440

DEPARTMENT OF NATURAL RESOURCES

3rd Floor, Centennial Office Bldg.
658 Cedar Street
St. Paul, MN 55155

DEPARTMENT OF ENERGY, PLANNING & DEVELOPMENT

Energy Division
980 American Center Bldg.
150 East Kellogg Blvd.
St. Paul, MN 55101

GOVERNOR'S OFFICE

Special Assistant to the Governor
Room 130, State Capitol
St. Paul, MN 55155

REGIONAL DEVELOPMENT COMMISSION

Region 3 (Arrowhead)
Executive Director
200 Arrowhead Place
211 West Second Street
Duluth, MN 55802

LOCAL UNITS OF GOVERNMENT

Chairperson
St. Louis County Board
207 County Court House
Duluth, MN 55802

CITY OF DULUTH

Office of the Mayor
Mayor John Fedo
City Hall
Duluth, MN 55802

Dept. of Planning & Development
Director
City Hall
Duluth, MN 55802

Duluth City Council
President
City Hall
Duluth, MN 55802

CITY OF TWO HARBORS

Office of the Mayor
Mayor Lyle Northey
610 Second Avenue
Two Harbors, MN 55616

Additional information in regard to the proposed project and the Environmental Impact Statement can be obtained from:

District Engineer, Mn/DOT
1123 Mesaba Avenue
Duluth, MN 55811
Telephone: (218) 723-4803

Permits:

Permits will be required from the Minnesota Pollution Control Agency (Air Quality), Minnesota Department of Natural Resources (Chester Creek) and the U.S. Corps of Engineers (Lake Superior).

SECTION II

INTRODUCTION

II. I N T R O D U C T I O N

This section will describe the background for the type of transportation facility proposed for 10th Avenue East to 26th Avenue East in eastern Duluth.

STATUS AND HISTORY OF INTERSTATE 35 IN DULUTH

Interstate 35 (I-35) begins in Laredo, Texas and enters Minnesota at the Iowa State Line approximately ten miles south of Albert Lea. It proceeds north through the Minneapolis-St. Paul Metropolitan Area to the City of Duluth. In Duluth, I-35 is presently constructed to Mesaba Avenue (10th Avenue West).

The following is a chronological listing of the major events leading up to the selection of the recommended alternative for the E.I.S.

July 7, 1958 - The State of Minnesota requested the extension of I-35 from Mesaba Avenue to 68th Avenue East.

August 5, 1958 - The Bureau of Public Roads (BPR)(1) denied the State's request for the extension to 68th Avenue East. However, in September they did approve extension to 10th Avenue East.

September 5, 1963 - The BPR approved the alignment and design of I-35 from Garfield Avenue to 2nd Avenue West. The alignment and design from 2nd Avenue West to 10th Avenue East was approved on the condition that a direct ramp connection between I-35 and London Road be made. This would provide for the extension of the roadway east from 10th Ave. East as T.H. 61. On October 22, 1963 a ramp connection to London Road was included in the layout. December 2, 1963 - The BPR approved the revised layout showing a direct ramp connection between I-35 and London Road.

June 17, 1968 - The BPR approved the revised layout for future development of plans. The approved alignment curved south at Mesaba Avenue to approximately 7th Avenue West, then ran parallel along Commerce Street to Lake Avenue. The freeway passed over Lake Avenue, curved north and passed behind the Fitger Brewery buildings between 5th and 6th Avenues East, and the buildings on the lower side of Superior Street to 8th Avenue East. The freeway then continued along the south side of London Road through Leif Erikson Park along the north side of the D.M.&I.R. railroad.

In 1970, the Citizens for the Integration of Highways and Environment (CIHE) was formed. CIHE advocated halting construction of the freeway at Mesaba Avenue until a complete analysis could be performed

(1) Predecessor agency of Federal Highway Administration (FHWA)

to indicate the need and the proper location and kind of facility or facilities to solve east-west traffic problems and protect the environment.

In 1973 a study on the location and design of the freeway was completed and a Federal Draft Environmental Impact Statement (DEIS) was prepared.

October 9, 1973 a public hearing on the DEIS was held.

May, 1974 - The Duluth City Council requested extension to 68th.

June, 1974 - Extension approved by FHWA.

During 1975 a Citizen Advisory Committee was appointed by the Mayor of Duluth to study the design of the freeway to 10th Avenue East.

September 15, 1976 a public hearing was held for review and comments on the recommendations made by the Citizen Advisory Committee.

June, 1977 - The State Draft EIS was made available (Mesaba to 10th).

October, 1977 - Federal Final Environmental Impact Statement to 26th Avenue East approved by FHWA.

December, 1977 - The Minnesota Environmental Quality Board decided not to review the State Final EIS from Mesaba to 10th Avenue East. The document was found adequate.

April, 1980 - Mayor of Duluth appoints Citizen's Committee for review and recommendations on 10th Avenue East to 68th Avenue East.

September, 1980 - Mayor's Committee recommends dedesignation of the portion from 26th Avenue East to 68th Avenue East and that the segment from 10th to 26th be constructed as indicated in the Federal F.E.I.S.

November, 1980 - A referendum is held to determine the location that the citizens would like to terminate I-35.

End I-35 at 10th Avenue East	16,400
End I-35 at 26th Avenue East	21,100

City Council approves construction to 26th Avenue East.

February, 1981 - Mayor's Committee submits Final Report dealing with substitution projects for 26th to 68th money.

December, 1981 - Completion of Environmental Study for Railroad Relocation.

EXISTING FACILITY

The City of Duluth is served by five highways:

- I-35 co-designated T.H. 61 south of Duluth
- T.H. 61 a four-lane expressway northeast of Duluth
- T.H. 23 a two-lane highway also to the south of Duluth
- T.H. 2 a two-lane highway west and east of Duluth
- T.H. 53 a four-lane divided highway northwest and south of Duluth.

Two state highways generally parallel the proposed improvement - T.H. 61 and T.H. 23. Presently T.H. 61 is designated on I-35 entering Duluth from the south through western Duluth, on 2nd and 3rd Streets (a one-way pair) in the CBD and on London Road in eastern Duluth. T.H. 23 is designated on Grand Avenue in western Duluth, on 2nd and 3rd Streets in the CBD, and on Superior Street in eastern Duluth to its junction with T.H. 61 at Lester River.

These facilities are 2 to 4-lane east-west city streets with cross-streets (at grade intersections) generally every block, no access control, signalized at major intersections, on street parking, and transit stops at specified locations. Basic right-of-way widths range from 66 feet to 88 feet. (Roadway Characteristics and Street Functional Classification, page 9)

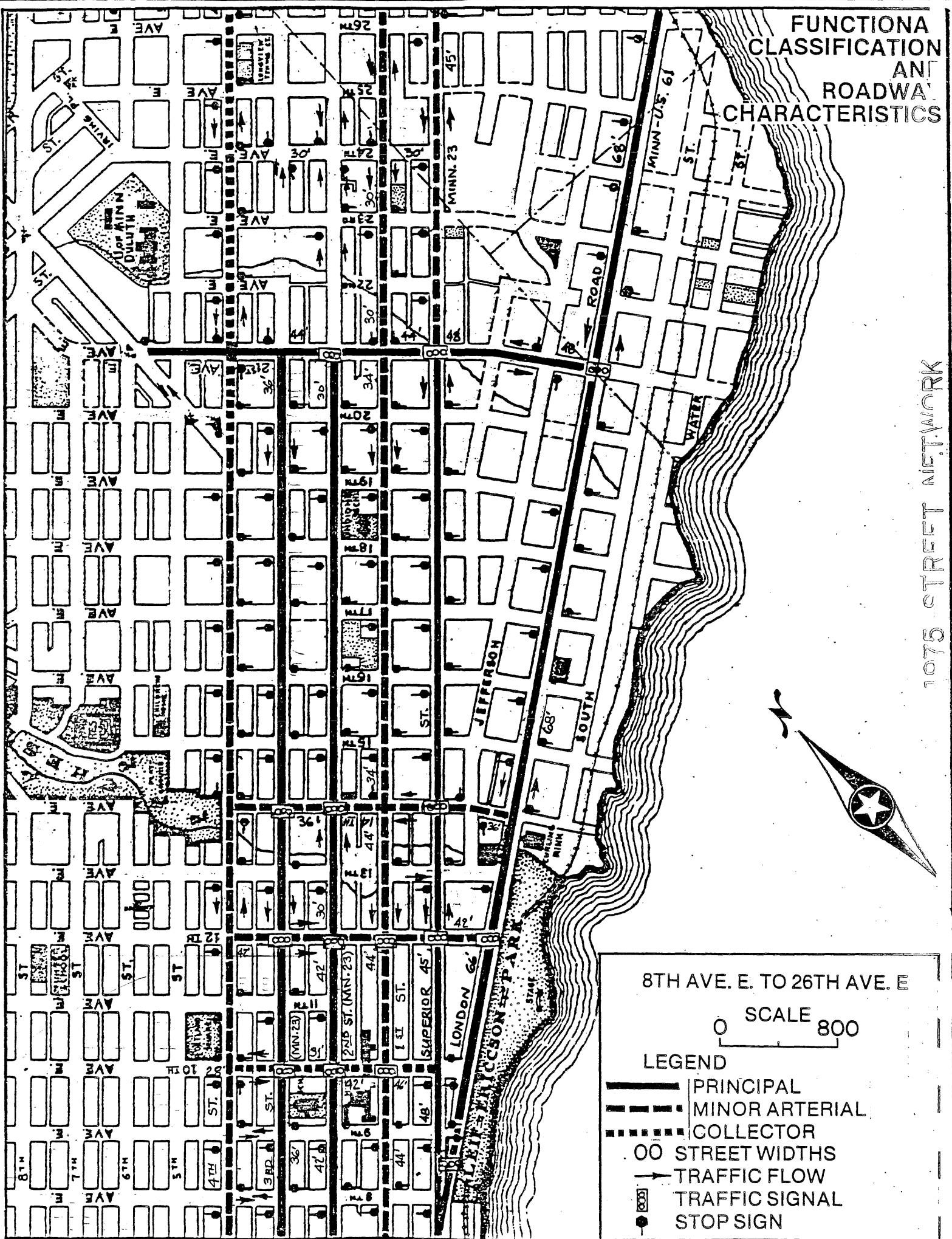
TRANSPORTATION STUDIES

In the last ten years there have been five studies concerning transportation problems within the City of Duluth and the eastern corridor of Duluth.

TOPICS Report

The first of these studies was the TOPICS Program (Traffic Operation Program to Improve Capacity and Safety) completed in 1971. This study made many recommendations for improvement of existing facilities. In the eastern corridor of Duluth, however, it recognized that these improvements were only an interim solution until the freeway is built.

FUNCTIONAL CLASSIFICATION AND ROADWAY CHARACTERISTICS



8TH AVE. E. TO 26TH AVE. E

0 SCALE 800

LEGEND

- PRINCIPAL
- MINOR ARTERIAL
- COLLECTOR
- STREET WIDTHS
- TRAFFIC FLOW
- TRAFFIC SIGNAL
- STOP SIGN

1075 STREET NETWORK

Eckbo Corridor Study Report

The Eckbo Corridor Study Report was a study on the transportation needs in eastern Duluth and was completed in 1973. The report emphasized that a major new transportation facility was needed. This report evaluated various types of solutions to the transportation problems. Several locations for a major highway and various types of highways were included in the study. It concluded that the transportation facility should be a freeway to 26th Avenue East and a parkway to 68th Avenue East in the D.M.&I.R. corridor.

Urban Transportation Plans

The Metropolitan Interstate Committee (MIC) is the designated metropolitan planning organization for the Duluth-Superior area and is responsible for areawide transportation planning. The MIC has completed and updated the Duluth-Superior Transportation Plan in recent years. Two of the elements that make up the Duluth-Superior Transportation Plan and their relationship to this project are briefly discussed below:

Long Range Element (Year 2000):

The Long Range Element, initially adopted in 1977, addresses transportation policies and the highway system plan. Resolution of transportation problems in Duluth's eastern corridor is designated as an urgent priority. The Plan recommends that additional information and project level studies are necessary to determine the need for I-35 east of 10th Avenue East.

1980-85 Transportation System Management (TSM) Element:

The TSM plan, initially adopted in 1979, is a short range, comprehensive transportation plan which emphasizes improving the efficiency of existing transportation resources at a low capital cost. The TSM plan also addresses transportation problems in Duluth's eastern corridor and recommends various improvements to improve safety and traffic flow on congested streets and avenues in the corridor. The plan recommends a citizen committee study of I-35 to 68th Avenue East and/or the substitution of other transit or highway projects.

I-35 Citizen Advisory Committee Study

An I-35 Citizen Advisory Committee was appointed by the Mayor of Duluth in 1980 and given the charge to "study and recommend as to what should be the final disposition of I-35 from 10th Avenue East to 68th Avenue East." The committee recommended that I-35 be constructed to 26th Avenue East and that the 26th to 68th Avenues East segment be withdrawn from the Interstate system in favor of other needed transit and highway substitution projects.

The primary reasons for recommending construction of I-35 to 26th Avenue East are that it will substantially reduce traffic congestion and access problems on London Road, will improve safety and reduce traffic on neighborhood streets in the corridor and will provide the opportunity for putting the lakeshore between Leif Erikson Park and 26th Avenue East into public use and enjoyment. The recommendation was supported by Duluth voters in a November, 1980 referendum and by the Duluth City Council in December, 1980. I-35 from 26th to 68th Avenues East was officially withdrawn from the Interstate system on March 16, 1981.

GOALS AND OBJECTIVES

One of the tasks of the Eckbo Corridor study process was to establish goals and objectives. The following traffic movement objectives were established jointly by citizen groups, local agencies and the consultant to evaluate alternate transportation improvement proposals along with social, economic and environmental objectives.

Road Traffic Movement Objectives

1. Improve access to commercial facilities in the downtown area.
2. Reduce congestion throughout the city.
3. Minimize the impact of seasonal peak traffic demands.
4. Enhance feasibility of public and non-automotive transportation.
5. Reduce accidents and related costs.
6. Reduce commercial vehicle and passenger car operating cost and cost of time.

The above related transportation studies and local transportation objectives support the need for a freeway to 26th Avenue East. Table I shows existing street conditions, capacities, and forecasted traffic volumes at 14th Avenue East and Table II at 21st Avenue East.

TABLE I
EXISTING AND YEAR 2000 DAILY TRAFFIC VOLUMES
AT
14TH AVENUE EAST

<u>Location</u>	<u>Street Width</u>	<u>Div. of Flow</u>	<u>Capacity* W/Parking</u>	<u>Existing Traffic Volumes</u>	<u>2000 Traffic Build to 10th Ave. E.</u>	<u>2000 Traffic Build to 26th Ave. E.</u>
London Rd.	66' **	2-way	25,700	13,600	26,400	1,500
Superior Street	46'	2-way	15,700	8,500	5,600	4,000
1st Street	44'	1-way	14,000	5,800	6,100	2,900
2nd Street	42'	1-way	13,000	5,400	7,700	3,800
3rd Street	36'	1-way	12,000	5,800	7,200	3,300
4th Street	40'	2-way	14,500	7,700	4,500	2,100
			<u>94,900</u>	<u>46,800</u>	<u>57,500</u>	<u>17,600</u>

TABLE II
EXISTING AND YEAR 2000 DAILY TRAFFIC VOLUMES
AT
21ST AVENUE EAST

<u>Location</u>	<u>Street Width</u>	<u>Div. of Flow</u>	<u>Capacity* W/Parking</u>	<u>Existing Traffic Volumes</u>	<u>2000 Traffic Build to 10th Ave. E.</u>	<u>2000 Traffic Build to 26th Ave. E.</u>
London Rd.	68'	2-way	23,700	14,800	26,600	4,800
Superior Street	45'	2-way	15,600	8,100	5,200	3,600
1st Street	34'	1-way	11,000	2,800	8,700	2,600
2nd Street	30'	1-way	9,000	4,400	5,600	2,700
3rd Street	35'	1-way	11,500	3,400	4,000	1,400
4th Street	40'	2-way	14,500	1,800	2,000	3,100
			<u>85,300</u>	<u>35,300</u>	<u>52,100</u>	<u>18,200</u>

* Capacity at level of service "C". Level of service is a measure of various levels of driving conditions ranging from free flow to total congestion. Level of service "C" or better is the desired objective for streets in the eastern corridor.

** Includes 6' wide traffic divider island.

As shown in the Traffic Tables, existing east/west streets beyond 10th Avenue East have enough capacity to handle present and future travel demand. This assumes that traffic will distribute on streets within the corridor relative to street capacity constraints (traffic congestion). In other words, once traffic on London Road approaches capacity (approximately 25,000 vehicles a day), people will divert to other parallel east/west streets.

Construction of I-35 to 26th Avenue East would remove more than 30,000 vehicles a day from neighborhood streets, from over 50,000 to less than 20,000. This substantial reduction of traffic from neighborhood streets is an important community objective and would result in safer and more pleasant neighborhoods (fewer vehicle and pedestrian accidents, reduced noise pollution, more efficient bus service, etc.).

During the years of 1978-80 the traffic accident rate for all accidents on Superior Street between 8th Avenue East and 21st Avenue East was 6.7 accidents per million vehicle miles (acc/mvm). During the same years on London Road between 8th Avenue East and 26th Avenue East the rate was 9.1 acc/mvm. These figures compare to the statewide average rate of 5.7 acc/mvm for urban streets. The statewide average rate for interstate highways is 1.4 acc/mvm. As can be seen a reduction in the amount of accidents between 8th Avenue East and 26th Avenue East can be expected due to the reduction in the amount of traffic using the neighborhood streets and use of a safer facility.

Based on community objectives and present forecasted travel demand there is a need for construction of I-35 to 26th Avenue East.

MODAL INTERRELATIONSHIPS

The proposed freeway will result in significantly reduced traffic on streets and existing bus routes in the corridor. This will reduce transit travel time on these transit routes and the freeway will improve travel time on express routes to eastern neighborhoods. This reduced traffic will also allow for a safer bicycle route on London Road.

The Endion rail yard, which is no longer utilized for railroad operations, will be removed. One D.M.&I.R. track will remain in the corridor along the lakeside of the proposed freeway. Highway and street crossings of the railroad at 21st and 26th Avenues East will be grade separated. A pedestrian pathway is planned along the lakeshore throughout the project area with grade separated access across the freeway and railroad track at Leif Erikson Park, 18th Avenue East, 21st Avenue East, and 24th Avenue East.

BENEFITS TO STATE, REGION AND COMMUNITY

If the freeway is not constructed the general effect on the Duluth area would be negative due primarily to an increase in traffic congestion.

This increase in congestion would result in additional noise pollution and reduced accessibility to various parts of the city.

To do-nothing would hinder the implementation of some proposed transit system improvements in Duluth (transit/pedestrian mall and express bus service).

The benefits generated by construction of this new facility fall into several categories:

1. Air and noise pollution increases will be minimized. On the adjacent City streets, air and noise pollution will be reduced.
2. The facility will provide the motorist with a better sense of orientation, it will open up pleasant lake views not now available and will improve appearance of the corridor.
3. The facility will create opportunities for joint use of highway right-of-way for expansion of park and recreation land in Duluth.
4. The facility will restore the proper functions of city streets throughout the corridor area by relieving them of non-local traffic.
5. Freeway use yields lower accident rates and user operating costs than arterial streets and highways.
6. Ease of access will encourage better utilization of the recreational potential of Duluth and the North Shore Drive.
7. The new facility would have a positive short and long term effect on business and employment.
8. The feasibility of public transportation is enhanced. Buses operating on less congested streets, express buses, reduced travel time and stabilized schedules make riding the bus more attractive.

SECTION III

DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVE SELECTED

III. DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVE SELECTED

This section will discuss the recommended alternative, a 4-lane freeway. This alternative was selected because it best meets the goals and objectives of various citizens groups and local agencies and satisfies the need for an east-west transportation facility in the eastern portion of Duluth.

RECOMMENDED CORRIDOR

With the approval of the State E.I.S. for the Mesaba to 10th Avenue East project the corridor for the entire interstate between Mesaba and 26th Avenue East was selected.

RECOMMENDED ALTERNATIVE WITHIN THE CORRIDOR

The recommended alternative within the corridor is a 4-lane freeway from Mesaba Avenue to 26th Avenue East. There are two sections within the recommended alternative:

- Mesaba to 10th Avenue East
- 10th Avenue East to 26th Avenue East.

Mesaba Avenue to 10th Avenue East

The extension of I-35 from its present terminus at Mesaba Avenue was at a stalemate for a number of years. Business and civic interests favored extending the freeway because alleviation of the traffic congestion on local streets would open the door for economic development in the CBD. Environmental groups, on the other hand, feared that extending the freeway would permanently damage the unique environmental setting of Duluth.

In late 1975, the Mayor of Duluth appointed a Citizen Advisory Committee to determine the design of I-35 to 10th Avenue East. This committee was made up of citizens representing both sides of the freeway issue, business and community leaders, environmental protection advocates and professional planners. After seven months of deliberations, the committee agreed on a location and design for the freeway to 10th Avenue East which was largely acceptable to both pro and anti-freeway factions. Their proposal was presented at a public hearing on September 15, 1976.

The Federal Final Environmental Impact Statement was approved in October 1977.

The State of Minnesota Draft Environmental Impact Statement was submitted in June, 1977, a public informational meeting was held in August, 1977 and the State Final Environmental Impact Statement was

approved in February, 1978.

The land required for construction is being acquired, buildings demolished and construction will begin in mid 1982.

10th Avenue East to 26th Avenue East

In April of 1980 Mayor Fedo appointed a Citizen Advisory Committee to review the 10th to 68th Avenue East freeway extension. They made their recommendation in September, 1980 to dedesignate the 26th to 68th Avenue East portion and to construct the Interstate from 10th to 26th Avenue East using the design in the approved Federal Final Environmental Impact Statement. This recommendation was supported by a City wide referendum vote in November, 1980.

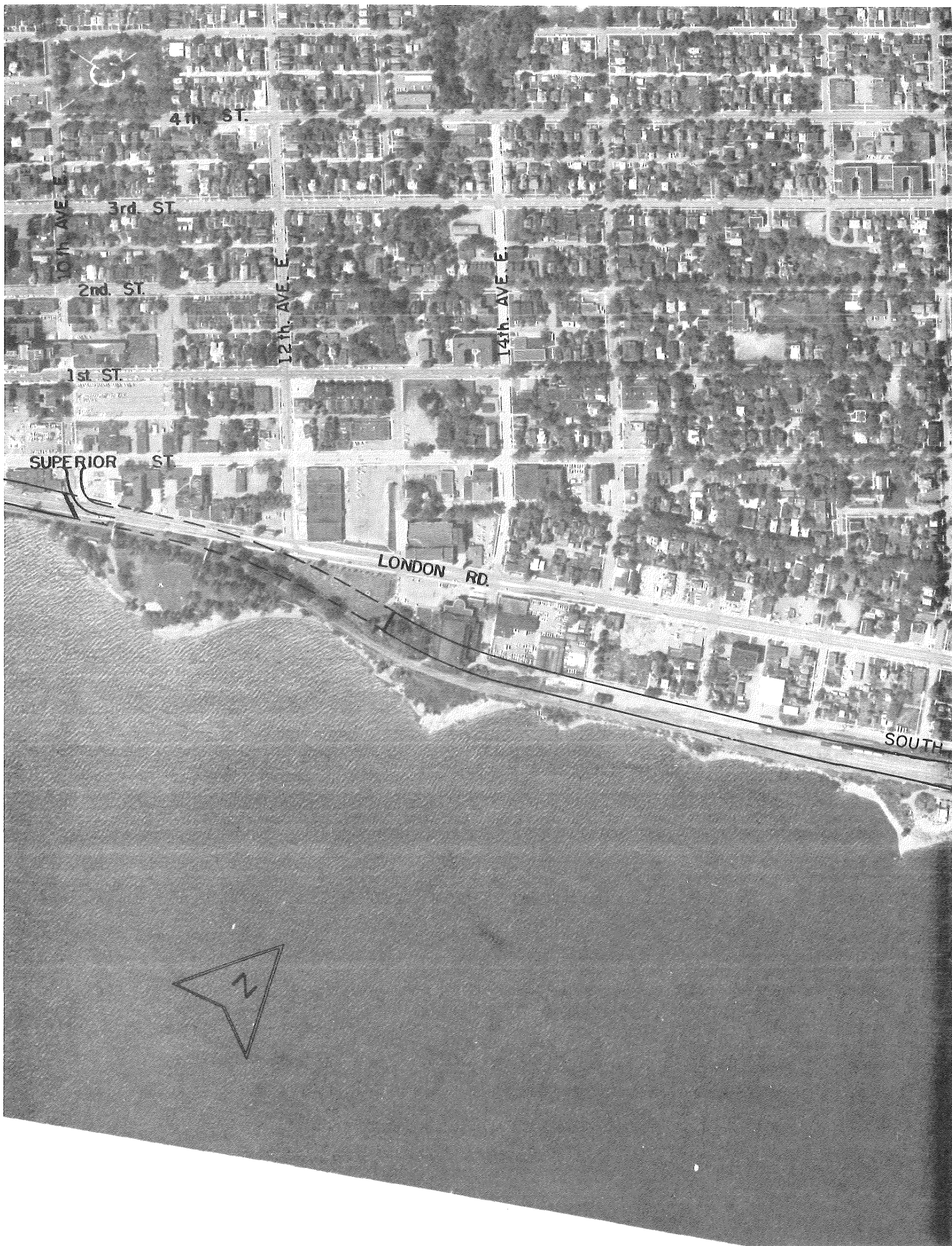
The location and design features recommended for this section will also intergrate the freeway into its surrounding environment. The following description of the freeway has been divided into two segments to aid in following its location and design.

10th Avenue East to 15th Avenue East

Easterly from 10th Avenue East, the freeway will continue in a depressed section generally following the alignment of London Road. It then enters a tunnel (cut and cover design) and curves south beneath the Rose Garden area of Leif Erikson Park. It emerges from the tunnel southerly of the Curling Club parking lot near 13th Avenue East and curves easterly parallel to the south side of South Street. It continues in generally a straight line depressed 5 to 10 feet below the existing ground line. Near 24th Avenue East the alignment begins curving north and rising in elevation to join London Road near 27th Avenue East. A half-diamond interchange serving northbound off and southbound on traffic is planned for 21st Avenue East. (See map pages 17 and 18)

Special attention will be given to the tunnel design and associated landscaping to assure its compatibility with the park.

London Road will be reconstructed over the tunnel and connect with Superior Street at 10th Avenue East. It may be reduced to a two-lane roadway between 10th Avenue East and 12th Avenue East as its primary purpose in this area will be to function as a service road providing access to the property on its upper or north side.





RECOMMENDED ALTERNATIVE
10th AVE. E. to 26th AVE. E.

15th Avenue East to 26th Avenue East

The freeway grade line is depressed 5' to 10' below the existing ground line from the tunnel section in Leif Erikson Park to 24th Avenue East where the grade rises to the London Road elevation. The northbound grade is three feet lower than the southbound grade to provide a view of Lake Superior and to decrease the noise to adjacent property.

The alignment is parallel to and just south of South Street. At approximately 24th Avenue East it begins curving north following the DM&IR tracks then curves east into existing London Road at approximately 27th Avenue East. A connection between the freeway and London Road will be provided at approximately 25th Avenue East to serve the area between 21st and 26th Avenues East. A conventional half-diamond interchange is being planned at 21st Avenue East to serve the northbound off and the southbound on traffic. The residents and commercial properties located south of the railroad in the area between 21st Avenue East and 24th Avenue East will be served by this interchange.

The freeway will co-exist with the railroad. A single track will be reconstructed immediately south of the freeway between 13th Avenue East and 25th Avenue East. The track grade will be lowered to match the freeway grade and the remaining material daylighted to eliminate reflected noise and to provide views of Lake Superior.

The costs of the 10th Avenue East to 26th Avenue East section are:

- Right-of-Way	\$ 11,850,00
- Construction	33,150,000
Total	\$45,000,000

RESTRICTIONS FOR HAZARDOUS MATERIALS

Federal regulations prohibit transportation of hazardous materials through certain highway tunnels. Many products not ordinarily thought of as dangerous are considered hazardous materials.

Federal Motor Carrier Safety Regulations place the responsibility of identifying and proper handling with the carrier. Types of materials restricted are:

- Explosives - Class A, B, & C
- Flammable Liquids
- Flammable Solids
- Oxidizing Materials
- Corrosive Liquids
- Compressed Gasses
- Poisons - Class A, B, C, & D

These are general classes, for specific types of materials consult the Code of Federal Regulations, Title 49, Section 172.5.

Some hazardous materials can be transported through tunnels safely in smaller quantities if certain precautions are taken. The safeguards necessary to transport smaller quantities of hazardous materials through tunnels are described in federal regulations.

Prior to the opening of the tunnel under Leif Erikson Park, the Commissioner of Mn/DOT will issue an order closing the tunnel to the transport of hazardous materials by vehicles whose gross weight exceeds 9,000 pounds.

This ban will effect approximately 3% of the heavy commercial traffic that will use I-35 in Duluth (total heavy commercial = 2% of total traffic).

At the time the tunnel is opened, a designated truck route will be established for vehicles banned from the tunnel.

RIGHT-OF-WAY

The freeway will be constructed on newly acquired right-of-way virtually throughout its entire length. This right-of-way will have fully controlled access (access provided only at interchanges). It will have a minimum width of approximately 130-feet and will be wider in areas such as interchange locations. In the 13th Avenue East to 20th Avenue East area, all the land locked property located between the freeway and Lake Superior will be acquired. The DM&IR will be provided either an easement or right-of-way along the single remaining relocated track. Section VI, Economic Impacts, discusses in detail the property that is necessary to be acquired.

SECTION IV

SOCIAL , ECONOMIC & ENVIRONMENTAL CONTEXT OF THE AREA

IV. SOCIAL, ECONOMIC AND ENVIRONMENTAL CONTEXT OF THE AREA

The examination of a study area must take into consideration the components of the total environment which affect the people living there. This section will present a broad viewpoint of the natural, social, and economic factors.

NATURAL ENVIRONMENT

The natural environment encompasses the land features of geology, soils, topography, hydrology, vegetation, fish, wildlife, meteorology, climatology, and aesthetics.

Geology

A series of complex rock formations converge at the western tip of Lake Superior. One of the predominant rocks is the Duluth Gabbro, a famous mass of igneous rock that lies under much of Duluth and the North Shore area. Other types of rock are present but the Gabbro makes up three quarters to nine tenths of the mass.

Soils

Within the I-35 corridor study area, there are three major natural soil types. These soil types vary in thickness (1 to 50 feet), desirability for highway construction, and erosion potential. Part of the study area is located in an area of manmade fill. The erosion potential of a particular soil type is dependent upon the existing vegetation cover and the slope of the exposed surface.

The recommended alignment passes through an area in which the majority of the soil is deep clayey soil. Part of the corridor passes over an area of manmade fill. The land surface slope varies from 0% (flat) to 6% (mild slope). The soil types within the alignment will have small erosion potential due to the nearly flat surface.

SOIL TYPE

- (1) deep clayey soil
- (2) shallow loamy & clayey soils
over bedrock
- (3) deep loamy soil
- (4) manmade fill

CONSTRUCTION DESIRABILITY

- (1) somewhat undesirable because of settlement
- (2) desirable because of lack of settlement

- (3) somewhat undesirable because of voids and settlement
- (4) undesirable because of voids and settlement

EROSION POTENTIAL

- (1) moderate
- (2) high
- (3) high
- (4) low

Topography

A conspicuous feature of Duluth's topography is the high bluff that overlooks the St. Louis River and Lake Superior. This bluff is formed by the massive, resistant rock of the Duluth Gabbro complex. The bluff varies in height from 400 to 600 feet above Lake Superior and extends 1/2 to 1-1/2 miles from the shore. The area between the lake and the toe of the bluff where the project will be located is relatively flat. The upland area north and west of the bluff is characterized by gently rolling to flat land. The steep hillside of the bluff has deep gorges cut in the rock by creeks flowing towards the lake.

Hydrology

The most imposing water feature of the area is Lake Superior. Duluth is located along the shoreline at the western tip of the lake. Surface drainage within the study area and the upland area beyond the bluff is accomplished primarily by three creeks, as shown on page 72. Located from west to east they are: (1) Grey (2) Chester Creek (3) Oregon Creek. The total area drained by these creeks is 8.78 square miles. Several of the streams have their headwater in the upland area from which they generally meander through the gently rolling landscape. As they leave the upland and flow through the bluff, they enter deep channels in rock which are maintained to the lake. Runoff is generally rapid as the creek channels have profiles with 10 percent or more slopes and land surface profiles up to 30 percent. There is virtually no floodplain or flat area near the mouth of the creeks.

The largest area drained by any one creek is the 7.3 square miles by Chester Creek. Most of the creeks have year around flow although the quantity varies greatly due to the fast runoff characteristics. Portions of the creeks in the study area are in conduits as they pass through heavy urbanized areas. The underlying rocks in this area tend to yield small quantities of groundwater. Water quality is variable, but tends to be mineralized. Most groundwater movement is lateral to established watercourses and then to Lake Superior.

Vegetation

The plant materials within the generally urbanized study area are basically remnants of native vegetation. Many plants in the study area are volunteer species typical of disturbed and abandoned land. No major stands of trees exist, except along the stream courses and lakeshore. Open undeveloped areas have mixed grasses and weeds with a scattering of aspen, birch trees and shrubs. Vegetation along the creeks is usually heavy and consists of a mixture of conifers (pine, fir, spruce), and hardwoods such as maple, and basswood. Volunteer vegetation such as aspen is also present in the overall mixture. The bands of heavy vegetation are usually narrow and are limited to the creek beds and adjacent valleys.

Fish and Wildlife

The natural vegetation corridors within the city are most commonly associated with the creeks. Most wildlife is by necessity associated with these creeks, and because of urban development, populations are small. The most common small mammals are squirrels, chipmunks, and rabbits with an occasional porcupine and striped skunk.

Game birds that frequent the area are the ruffed grouse and various species of ducks. Resident populations are extremely small. Other birds such as blackbirds, warblers, sparrows, miscellaneous songbirds, along with hawks and owls are rather common. The aquatic organisms in the creeks are as varied as the creeks themselves. The population of invertebrate fauna is relatively sparse and when found are characteristic of high gradient creeks. Those species found such as mayflies, caddisflies, leeches and snails all have an adaption for maintaining position in moving water. Burrowing types are limited to impoundments and silt deposits. Minnows are the primary fish in the streams and are also limited to impoundments. All populations vary greatly because of the intermittent flow of the streams.

Chester Creek is the only creek in the study area which is designated a trout stream by the Minnesota Department of Natural Resources. The upper region of the creek is the only area capable of supporting a population as the lower area is in conduit with natural barriers to fish movement within the first block from Lake Superior.

Meteorology and Climatology

The major influence of the climate is the passage of a succession of high and low pressure systems that continually move across the United States from west to east. The proximity to Lake Superior with its cold water materially influences local climate, particularly in spring and summer. The average minimum temperature ranges from +2 degrees F. in February to +56 degrees F. in July and August. The average maximum temperature ranges from +17 degrees F. in January to +79 degrees F. in July. The prevailing winds are easterly May through August and west to

northwest for the remainder of the year. The average wind speed is 11.5 miles per hour.

The average snowfall ranges from 55 inches in downtown Duluth to near 75 inches at the airport, 6 miles away from the lake. The heaviest rainfall occurs in the summer months. Average precipitation is about 30 inches per year. Heavy fog occurs occasionally when moist air from over the lake rises abruptly upon meeting the rocky bluff. In downtown Duluth, this condition usually does not last longer than one day.

Visual Features

The visitor approaching from the southwest on Interstate 35 and T.H. 61 first sees the Duluth area as they clear the bluff at the top of Thompson Hill. The expanse of water of St. Louis Bay, the natural harbor, and Lake Superior stretching to the horizon is truly spectacular at day or night. The City of Superior, Wisconsin, and the industrialized area of Duluth lie below the bluffs along the lakeshore.

From Thompson Hill the highway descends to the narrow plain between Lake Superior and the bluff. Duluth is located on this moderately sloping incline, stretching out to be about 26 miles long and 2 to 3 miles wide. Traveling easterly, the highway gradually approaches Lake Superior, passing through residential, industrial, and finally the business district. Continuing easterly from the business district and the western tip of Lake Superior, the traveler passes Leif Erikson Park, and progresses through the eastern commercial/residential area of Duluth, catching glimpses of the lake along the way. To the left the residences expand upward and beyond the bluff. The eastern terminus of residential Duluth joins with and begins the famous North Shore Drive as it parallels the shoreline of Lake Superior.

Approaching Duluth from the southeast through Superior, Wisconsin is also a view to behold. The crossing of the John Blatnik Bridge with its 120 feet of clearance for passage of the ocean and lake ships presents an unsurpassed scene of the bustling seaport below you. Ships from around the world exchange their cargos here. Grains from America's heartland, coal from the west, and industrial goods from the east are transshipped here. Lying before you is the elongation of the city. The corridor selected for this project is roughly parallel to the linear development.

Approaching Duluth from the east, (along the North Shore of Lake Superior), the visitor has traveled either the T.H. 61 expressway or the scenic route (Old T.H. 61). Both routes afford a panoramic view of Lake Superior. Near the outskirts of the eastern residential area the skyline of downtown Duluth appears on the horizon. At approximately 68th Avenue East (Lester River) both routes come together and continue through eastern Duluth along London Road. From Lester River to 26th Avenue East T.H. 61 is routed through a residential area. The proposed terminus of I-35 junctions with London Road at 26th Avenue East.

TRANSPORTATION FACILITIES

Several modes of transportation are available such as water, air, rail, public bus, and private vehicle.

Highways

Duluth is at the northern terminus of I-35, an interstate highway which has its southern terminus at the U.S./Mexico border at Laredo, Texas. Highway I-535 junctions with I-35 in western Duluth and extends southeasterly to Superior, Wisconsin.

Access to Canada north of Duluth is via T.H. 61, a primary north-south highway through Minnesota. The major east-west highway is T.H. 2, a coast to coast highway passing through western Duluth. T.H. 53 links Duluth with the Iron Range and continues north providing another access to Canada at International Falls, Minnesota. T.H. 23 originates in the southwestern corner of Minnesota, traverses diagonally across the state and terminates in eastern Duluth.

Within Duluth, I-35 enters the western neighborhoods of the city at about 62nd Avenue West and continues easterly to Mesaba Avenue near the center of Duluth where it temporarily terminates. T.H. 61 co-exists with I-35 through western Duluth, continuing from Mesaba Avenue along 2nd and 3rd Streets and London Road to eastern Duluth where it heads northeasterly to Canada. I-535 junctions with I-35 at 22nd Avenue East forming an east-west connection between Duluth, MN and Superior, WI. T.H. 53 co-exists with I-535 from Superior to Duluth, then winds its way up the hill to the northerly outskirts of Duluth and on to International Falls, Minnesota. T.H. 23 enters Duluth at the far western city limits (Fond du Lac), follows Commonwealth and Grand Avenues through western Duluth, by-passes the CBD on 2nd and 3rd Streets (one-way pair), and terminates in eastern Duluth at 60th Avenue East, where it junctions with T.H. 61.

City Streets

In Duluth the streets generally parallel the lakeshore while the avenues are perpendicular to the streets and shoreline. Superior Street is the zero point with the other streets numbered in ascending numerical order both to the north and south. In the downtown and shoreline area some of the streets are named in lieu of numerical assignment.

Lake Avenue is the zero point with other avenues numbered in ascending numerical order both to east and west. Occasionally some of the avenues are named in lieu of numerical assignment.

Major arterial city streets between the lakeshore and the top of the bluff run in a general northeast-southwest direction. These arterials are: Commonwealth and Grand Avenues in western Duluth; Superior, 2nd and

3rd Streets through the CBD; and Superior Street, London Road in eastern Duluth. Routes above the bluff are portions of Skyline Drive, 9th Street, Kenwood and Woodland Avenues, Arrowhead and Jean Duluth Roads, Glenwood Street. Primary routes going up the hill and connecting the street and highway network paralleling the lakeshore are 40th, 27th, 24th Avenues West; Piedmont, Mesaba, and Lake Avenues; 6th, 10th, 21st, 36th, 43rd and 60th Avenues East.

Airports

Duluth International Airport is served by Republic Airlines which has direct flights to major cities in the central United States and Canada. The runway facilities are also used by the Minnesota Air National Guard. Private charter flights are also available.

Railroads

Duluth is a regional center for several railroads which transship freight, iron ore, grain and coal through here. Railroads serving the area are the Duluth, Missabe & Iron Range (DM&IR), Burlington Northern (BN), Chicago Northwestern (C&NWT), Minneapolis, St. Paul and Sault Ste. Marie (Soo), and the Duluth, Winnipeg and Pacific (DW&P). Passenger service is provided via a connection to the nationwide Amtrack system.

Water

Based on total tonnage handled the Duluth-Superior port is one of the largest ports in the world. In 1981 a total of 36,406,820 metric tons (2,204 lbs.) were moved through the harbor.

Buses

Public bus transportation within the City of Duluth is provided through the Duluth Transit Authority (DTA). Operating a fleet of 101 buses the DTA served over 5.6 million passengers in 1981. Interstate bus service is provided by two companies: Greyhound and Northern Transportation. Charter bus service for special interest occasions is available from six local companies.

Taxis

Taxi service is provided by 6 local companies. The City of Duluth regulates the size of the taxi fleet through a licensing system. The maximum number of licenses issued is currently 32.

RECREATION

The recreation aspects of the Duluth area include both indoor and outdoor facilities through parks, playgrounds, forest preserves, museums and the Arena-Complex.

Parks

Duluth is handsomely endowed with many parks and open space land scattered throughout the city. Many of the parks are associated with the natural watercourses extending from the bluff to the lake. Leif Erikson Park is adjacent to the I-35 development and is located on the Lake Superior shoreline between 8th and 13th Avenues East. The parks have varied uses from the passive (large parks and forest preserves), to the active (athletic fields and playgrounds). The total area reserved in the City of Duluth is 6,200 acres.

Arena-Complex

The Duluth Arena-Auditorium and Pioneer Hall is a large multipurpose facility located on the bayfront near the center of Duluth. The three building complex is capable of handling large crowds for several activities simultaneously. Pioneer Hall is used for hockey, curling, skating, and conventions. The Arena is used for conventions, rodeos, major sports activities, and home shows. The Auditorium is used for plays, musical concerts, lectures, and film shows.

Museums

Located in downtown Duuth is the Union Depot, a former railroad station of national historic significance. Housed within the building are the A.M. Chisholm Museum, St. Louis County Historical Society, and Lake Superior Transportation & Industry Museum. Near the Aerial Bridge and entry to the Duluth harbor is the Canal Park Visitor Center & Marine Museum.

CULTURAL ASPECTS

Fundamental to the social environment is the ancestral and intellectual background of the existing population. It would include an appreciation for the fine arts, humanities and folklore.

Fine Arts

Other attractions located in the Union Depot building are the Duluth Art Institute (Minnesota's oldest art institute), Duluth Playhouse (one of the oldest community theaters in the U.S.), the Duluth Ballet (one of two in Minnesota), and the Duluth-Superior Symphony (performing since 1932).

Library

Duluth has a newly completed library at 5th Avenue West and Superior Street.

Ethnic Culture

An annual event at Leif Erikson Park is the Duluth Folk Festival, an exhibition of ethnic clothing, food, dancing and crafts.

Public Institutions

No public institutions are located within the alignment. The nearest institutions are:

- Congdon Park Elementary School,
31st Avenue East and Superior Street
- London Road Campus of the Duluth
Area Vocational Technical Institute

Community Facilities - The only facility located within the proposed alignment is the Duluth Curling Club at 1330 London Road (no longer in use). Nearby facilities outside the proposed alignment are:

- Duluth Fire Department - Main Hall,
602 W. 2nd Street
- Duluth Civic Center, three building
complex at 5th Avenue W. & 1st Street,
consisting of Federal Bldg., St. Louis
Co. Court House, and City Hall
- YMCA, 3rd Ave. W. & 1st Street
- YWCA, 2nd Ave. W. & 2nd Street
- Public Library - Main Branch,
5th Ave. W. & Superior
- Government Services Center

ECONOMIC SETTING

The economic setting is characterized by land use, tax base, income and labor force. Other areas of study include Duluth area occupations, and typical salaries within the I-35 corridor.

Land Use

From 10th Avenue East to 26th Avenue East the corridor passes through a mixed land use area. This area includes Leif Erikson Park and Rose Garden. Commercial use includes rail operations, warehousing, general contracting and others. A number of residential properties are located here as well. (See Section VI.B for detailed discussion of residential implications of the proposed project). The majority of houses in the project area are older two story frame homes. One historic property is located in this section.

Tax Base

The bar charts on page 30 illustrate the relationship of the real estate market value to the taxes that are generated. Both charts include items of machinery and personal property as well as land and buildings.

Income

1980 Census information relative to income levels within the census tracts encompassing the 10th to 26th Aveunes East corridor is not available at time of writing. 1970 census data presented on page 32 indicates that income levels within the affected census tracts were similar to the income levels for the entire City of Duluth. The only income categories within the I-35 corridor that differed from the City of Duluth as a whole, were the \$10,000 to \$24,999 and the less than \$5,000 categories.

Labor Force

The labor force in Duluth is characterized by a diversity of occupations. The chart on page 32 illustrates this diversity. Its importance as county seat, and the location of the University, and many other state and federal offices is revealed in the fact that over 20% of the labor force is employed by government. Its role as an important retail center for much of northern Minnesota is also apparent.

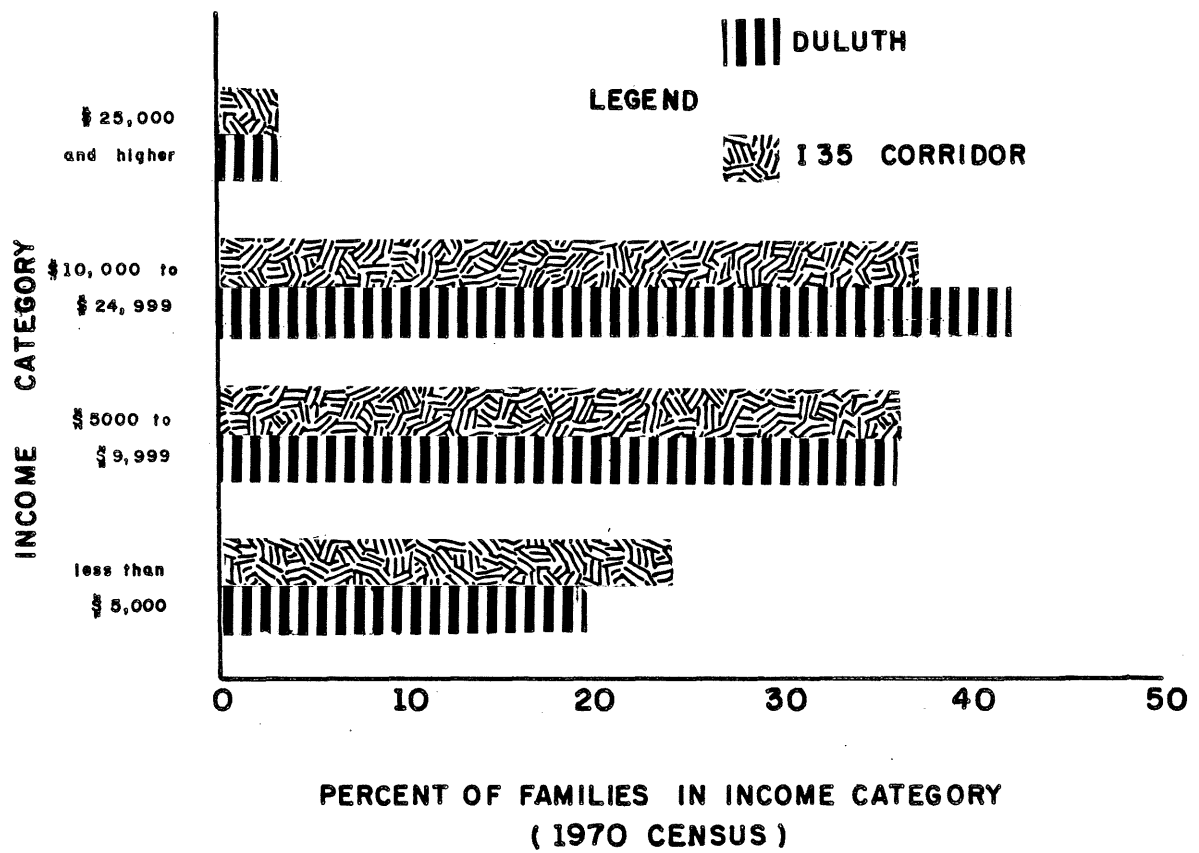
CITY OF DULUTH
TOTAL MARKET VALUE = 1,226,900,604 (1982)

RESIDENTIAL HOMESTEAD		797,628,728 (65%)
RESIDENTIAL N-HOMESTEAD		138,834,486 (11%)
COMMERCIAL		188,792,102 (15%)
INDUSTRIAL		35,137,900 (03%)
PUBLIC UTILITIES		39,640,600 (04%)
PERSONAL PROPERTY		26,866,788 (02%)

REAL ESTATE TAX GENERATED = 45,181,541 (1982)

RESIDENTIAL HOMESTEAD		21,136,906 (47%)
RESIDENTIAL N-HOMESTEAD		6,384,613 (14%)
COMMERCIAL		11,671,719 (26%)
INDUSTRIAL		2,202,779 (05%)
PUBLIC UTILITIES		2,125,480 (05%)
PERSONAL PROPERTY		1,660,044 (03%)

SOURCE: 1982 Duluth City Assessor Office.



NOTE : 1980 Census information not available at this time. 7-23-82

LABOR FORCE :

OCCUPATIONS (CITY OF DULUTH) - MAY 1982
SOURCE: MINNESOTA DEPT. OF EMPLOYMENT SVCS.

TRANSPORTATION, COMMERCE.
& PUBLIC UTILITIES
3730

WHOLESALE TRADE
2000

CONSTRUCTION
1090

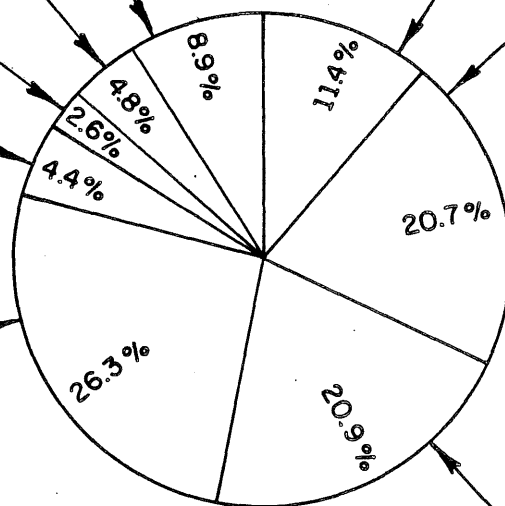
FINANCE, INSURANCE
& REAL ESTATE
1850

SERVICES & MISC.
11000

MANUFACTURING
4770

GOVERNMENT (CITY, COUNTY,
STATE & FED. - INCLUDING
PUBLIC EDUCATION
INSTITUTIONS)
8670

RETAIL TRADE
8750



TOTAL NONAGRICULTURAL EMPLOYMENT = 41,860

TOTAL UNEMPLOYMENT (APPROX.) MAY 1982 = 9.7%

SECTION V

LAND USE PLANNING

V. LAND USE PLANNING

Land use planning is a discussion of existing land uses, zoning districts, proposed land use and development, and the compatibility of future land uses as a result of the proposed freeway construction. It will also include a discussion of the study and analysis performed to identify and plan for potential multiple use projects within and adjacent to the I-35 corridor. This plan was developed to mitigate the adverse effects of freeway construction from 10th Avenue East to 26th Avenue East. Commitments of funding for the potential projects in this part have not been made.

EXISTING LAND USE AND ZONING DISTRICTS

The area along the freeway corridor is divided into zoning districts as shown on the Existing Zoning Map, page 34. Within each zoning district various land uses are permitted. The zoning generally establishes land uses which are compatible with each other. The land use classification of a particular plat or area within a zoning district is determined by the facility, building, or industry using that area of land.

The freeway corridor passes through two designated zoning districts. The zoning district designation and permitted land uses within the district are:

M-1 - Manufacturing District

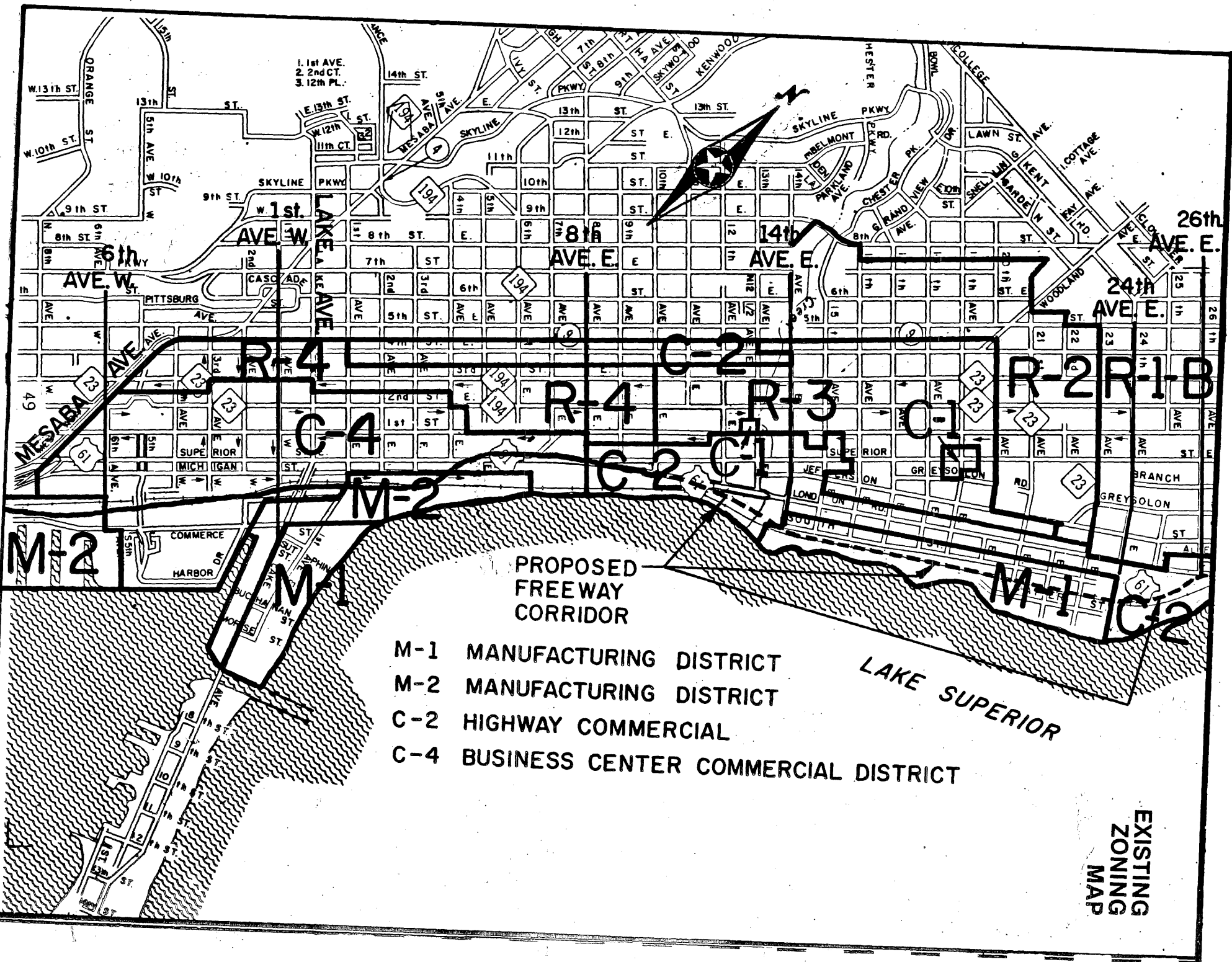
Permitted uses are buildings and premises for petroleum products distribution; manufacturing, compounding, and processing of various products.

C-2 - Highway Commercial

Permitted uses are sales rooms, bowling alleys, drive-ins, and restaurants.

PROPOSED LAND USE

The City of Duluth Planning and Development Office has not officially formulated a land use plan for the area along the proposed freeway corridor. Landscaping and re-establishment of the Leif Erikson Park amenities and vegetation disturbed by tunnel construction will be accomplished after completion of freeway construction. A pedestrian pathway will be constructed on freeway right-of-way easterly from Mesaba Avenue to 26th Avenue East. Landscaping of the right-of-way with earth mounding and plantings will be provided.



- M-1 MANUFACTURING DISTRICT
M-2 MANUFACTURING DISTRICT
C-2 HIGHWAY COMMERCIAL
C-4 BUSINESS CENTER COMMERCIAL DISTRICT

EXISTING
ZONING
MAP

COMPATIBILITY OF LAND USES

The proposed freeway crosses zoning district boundaries and land use groups. Construction of the freeway between 10th and 26th Avenue East will not alter the trend in the existing land use changes in this area. The trend of development has been to phase out residential dwellings with industrial-commercial properties.

CORRIDOR ANALYSIS/MULTIPLE USE STUDY

This part of Land Use Planning will summarize the study and analysis performed to identify and plan for potential multiple use projects within and adjacent to the I-35 corridor. These potential projects were developed to mitigate adverse land use impacts resulting from freeway construction. Objectives of the study were to:

- locate new and productive land uses
- provide better physical and visual access to available resources
- outline potential multiple use areas
- preserve cultural and historic features
- improve or establish vegetation for wildlife habitat
- study compatibility of existing and future land uses.

The Mn/DOT - Office of Environmental Services conducted a Corridor Analysis and Multiple Use Consideration Study for the eastern portion of the freeway corridor. This study concentrated on the area from 10th Avenue East to 26th Avenue East. Commitments of funding for the potential projects in the study area have not been made to date.

Identification

The 1-1/2 mile long study area is located between 10th Avenue East (western boundary), and 26th Avenue East (eastern boundary). The southern boundary is Lake Superior while the northern boundary is London Road.

Existing

The study area contains railroad right-of-way, undeveloped land, and residential, commercial, light industrial properties. The Endion Depot (listed on the National Register) is located near 15th Avenue East. Leif Erikson Park is located between 8th and 13th Avenues East with the valley of Chester Creek at its eastern edge.

Much of the study area is sparsely vegetated. Only three parts of the area have significant vegetative cover. Two of the areas, Leif Erikson Park and Chester Creek valley, occur in the western end of the project. The third area is a 6 acre strip along the shoreline near 25th and 26th Avenues East at the east end of the project.

The study area has low value for most wildlife because of the limited amount and scattered distribution of vegetation. In the three sites where vegetation exists songbirds and small mammals do occur. Populations will be small and consist of the more common species such as squirrels, chipmunks, rabbits, and several kinds of songbirds.

Impacts

Small patches of vegetation will be eliminated along the railroad right-of-way. These consist of weedy vacant lots, and trees and shrubs around buildings which will not be a significant loss.

Alignment of the freeway will require the relocation of Endion Depot. The Leif Erikson Park will lose 0.2 acres of land to freeway construction. Freeway construction will also reinforce the limited access to the Lake Superior shoreline.

Mitigation

Re-establishment of vegetation and wildlife habitat can be accomplished by plantings in some areas and in others allowing the natural regeneration to take place. Planting of a mixture of species and size of trees, shrubs and ground cover, would provide a habitat with both food and cover. Aesthetic plantings throughout the corridor would improve the visual character of the freeway and blend it into the natural setting of the study area.

A 1.2 acre site has been proposed to be purchased by the Mn/DOT as replacement land for Lief Erikson Park. The multiple use proposal is to develop this site by construction of pathways and vegetative plantings. It will be necessary to construct a pedestrian bridge to connect this site to the pathway system in the existing park.

SECTION VI

PROBABLE IMPACT OF THE PROPOSED ACTION ON THE ENVIRONMENT

VI. PROBABLE IMPACT OF THE PROPOSED ACTION ON THE ENVIRONMENT

Impacts from the proposed construction could be far reaching in their effects. Individual impacts to segments of the environment will range from negligible to severe. Examination of the segments will determine the degree of these impacts and discuss efforts to minimize adverse effects. The study will also reveal actual and potential positive effects from the proposed construction. Segments of the environment to be discussed are:

- (a) Natural and Ecological Resources
- (b) Relocation Impacts
- (c) Social and Economic Impacts
- (d) Air Quality
- (e) Noise Impacts
- (f) Water Quality Impacts
- (g) Wetlands and Coastal Zones Impacts
- (h) Stream Modification or Impoundments Impacts
- (i) Flood Hazard Evaluation
- (j) Construction Impacts
- (k) Historic & Cultural Impacts.
- (l) Energy Impacts
- (m) View & Aesthetics

VI(A). NATURAL AND ECOLOGICAL RESOURCES

Potential effects from the proposed construction are the addition or deletion of vegetation along the corridor, significant landform changes, and possible changes to wildlife population and habitat.

Vegetation

The primary impact to vegetation from this proposal will be the elimination of all trees within the construction limits. The total number of trees and ornamental plantings in the study area is relatively small, and in many cases the trees and plantings are poor in quality.

Small patches of vegetation will also be eliminated from areas near 14th, 21st, 23rd, and 26th Avenue East (approximately 30 trees). The vegetation lost in these areas includes weedy vacant lots, scattered clumps of brush, trees, shrubs and part of a small nursery.

Considerations must be given to the effects of deicing salts on the vegetation along and adjacent to the highway corridor. Professor Edward Sucoff of the University of Minnesota, College of Forestry, has completed a study titled "Effect of Deicing Salts on Woody Vegetation Along Minnesota Roads" (Investigation Number 636).

The study has identified three factors which determine probable damage to woody vegetation:

- tolerance to salt
- average daily traffic (ADT) on the roadways
- distance from the travel lanes to the woody vegetation.

Most woody vegetation in the study area is in the tolerant (cottonwood) and moderately tolerant (elm, birch) categories. The average daily traffic (year 2000) is estimated to be in the 20,000 to 40,000 range and the remaining woody vegetation will be 65 feet or more from the travel lanes. Zero to sixty five feet is the area of greatest impact.

With these conditions, based on the above mentioned report, damage to remaining trees should be medium to low.

Wildlife

Because of the urban character of the study area, the presence of wildlife is rather limited. Vegetated sections to be eliminated currently provide habitat for small wildlife such as rabbits, squirrels, porcupines and skunks.

Due to the low quality and small amount of wildlife habitat within the project limits, impacts to wildlife habitat will not be significant.

The Mn/DOT Wildlife Biologist has reviewed this project and determined that there is no involvement with threatened or endangered species at the State or Federal level.

Alterations To The Land

Alterations to land through the Leif Erikson Park area are discussed in the View and Aesthetic (Section VI.M) of this document (see page 82).

From 14th Avenue East to 26th Avenue East the freeway is a depressed facility, with the railroad coexisting. The impacts associated with this design are the same as the ground level facility except for the visual and noise level impacts (see Noise Analysis, page 65). The visual impact to neighboring property, due to this land shape change, would be positive because the freeway would be below the normal line of sight.

Prime And Unique Farmlands

The U.S. Department of Agriculture - Soil Conservation Service has been consulted on involvement with Prime and Unique Farmlands. They have indicated that there are no Prime or Unique Farmlands that will be affected by this project.

Measures to Mitigate Harm

In the construction of a new freeway, certain measures must be taken to lessen the adverse impacts to the natural and ecological resources. In most instances these impacts can be lessened by comprehensive planning and design (Multiple Use Studies - Mn/DOT, 1123 Mesaba Avenue, Duluth, Minnesota 55811).

Through the entire project landscaping and planting will be done. This will involve the planting of trees, shrubs, and grasses which are tolerant to deicing chemicals used on highways.

Corridor site development which will be done to make the area aesthetically pleasing and available to the public will include:

- coordinated structure and other design elements
- retaining wall treatments
- coordinated lighting
- development of additional land forms (mounding)
- hiking trail system.

The removal of the limited amount of existing vegetation in the study area represents an insignificant loss of wildlife habitat. Trees and shrubs planted along the highway after construction will replace much of the removed vegetation and may provide better wildlife habitat than currently exists.

Trees and shrubs will be planted that provide good food and cover for small game and song birds. The Mn/DOT Wildlife Biologist and Forester have examined the study area and determined that this area is best suited for song birds. Where safety and construction standards permit, song bird habitat will be developed by:

- Allowing natural regeneration of birch and aspen with thick undergrowth.
- Planting fruit-bearing trees for food (mountain ash, cherry, crab apple, honeysuckle, buckthorn, barberry, Russian Olive, hawthorn, etc.).
- Planting dense growth for cover (buffalo berry, American bittersweet, forsythia, rock cottoneaster, inkberry, birds foot trefoil, white cedar, spruce, juniper, etc.).
- Planting a mixture of species and sizes of trees, shrubs and ground cover to provide a complete habitat with food and cover in one planting.
- Planting thick patches or clumps (1/4 - 1/2 acre) of woody vegetation interspersed with grass, weeds or paths (rather than large mass planting or dispersing single trees or small groups of trees over large areas). (Exhibit page 85)

With this type of development, the overall impact of the proposal upon wildlife will be beneficial.

VI(B). RELOCATION IMPACTS

A preliminary relocation plan for this project has been prepared and is available at the Minnesota Department of Transportation, 1123 Mesaba Avenue, Duluth, Minnesota 55811. The requirements for this plan are stated in the Federal-Aid Highway Program Manual, Volume 7, Chapter 5, Section 1, Paragraph 11. The plan is necessary to estimate the availability of decent, safe and sanitary housing for the displaced persons affected by this acquisition.

Consultation

The Mn/DOT relocation advisor consulted the following resources for information pertaining to the relocation plan for this project:

Housing and Redevelopment Authority of Duluth
 City of Duluth Offices
 1) Planning and Development
 2) Industrial Development
 The Duluth Chamber of Commerce
 Multiple Listing Service
 Field Drive

Analysis of Relocation Needs

From 10th Avenue East to 26th Avenue East the Mn/DOT - District 1, Relocation Unit identified 14 residential buildings which will be removed. The total number of displacees in this area is 38 people.

I-35 Building Survey - Duluth
Residential Sites Affected by Relocation
10th Avenue East to 26th Avenue East

Building Address	No. Bldgs.	Res. Units	Adults	Children
2023 East South Street*	1	1	2	0
409 So. 21st Ave. E.*	0	1	2	0
411 So. 21st Ave. E.*	1	1	2	0
423 So. 21st Ave. E.	1	1	2	0
431 So. 21st Ave. E.*	1	1	2	0
426-1/2 So. 21st Ave. E. *	1	1	1	0
428-1/2 So. 21st Ave. E.	0	1	1	0
430 So. 21st Ave. E.*	1	1	2	2
430-1/2 So. 21st Ave. E.*	0	1	2	2
432 So. 21st Ave. E.	1	1	2	2
2109 E. Water Street*	1	1	1	0
2129 East Water Street	1	1	2	0
2131 East Water Street	1	1	2	0
2205 East Water Street*	1	1	2	0
2207 East Water Street	1	1	2	1
631 So. 23rd Ave. E.*	1	1	2	1
2542 London Road	1	1	1	0
Totals	14	17	30	8

*Rental Units - 10 Tenant units

No personal contacts were made with the home owner-occupants or tenants of the affected properties. Discussions with the Duluth Housing and Redevelopment Authority indicate that income levels in this area are medium to low. An inventory of occupant ages and length of time in these dwellings is unavailable at this time. There are two (2) minority families living in the affected area.

A field investigation and Sociological-Economic Impact Survey, conducted by the Mn/DOT Relocation Advisor and the Duluth Chamber of Commerce, indicates that there are fourteen (14) businesses in fourteen (14) buildings that will require relocation because of this project. The results of this survey indicate that the majority of the businesses interviewed will relocate within the Duluth Metropolitan Area. For a detailed analysis of the economic impacts of these relocations, see the Economic Impacts Section later in this report.

Summary of Relocation Assistance

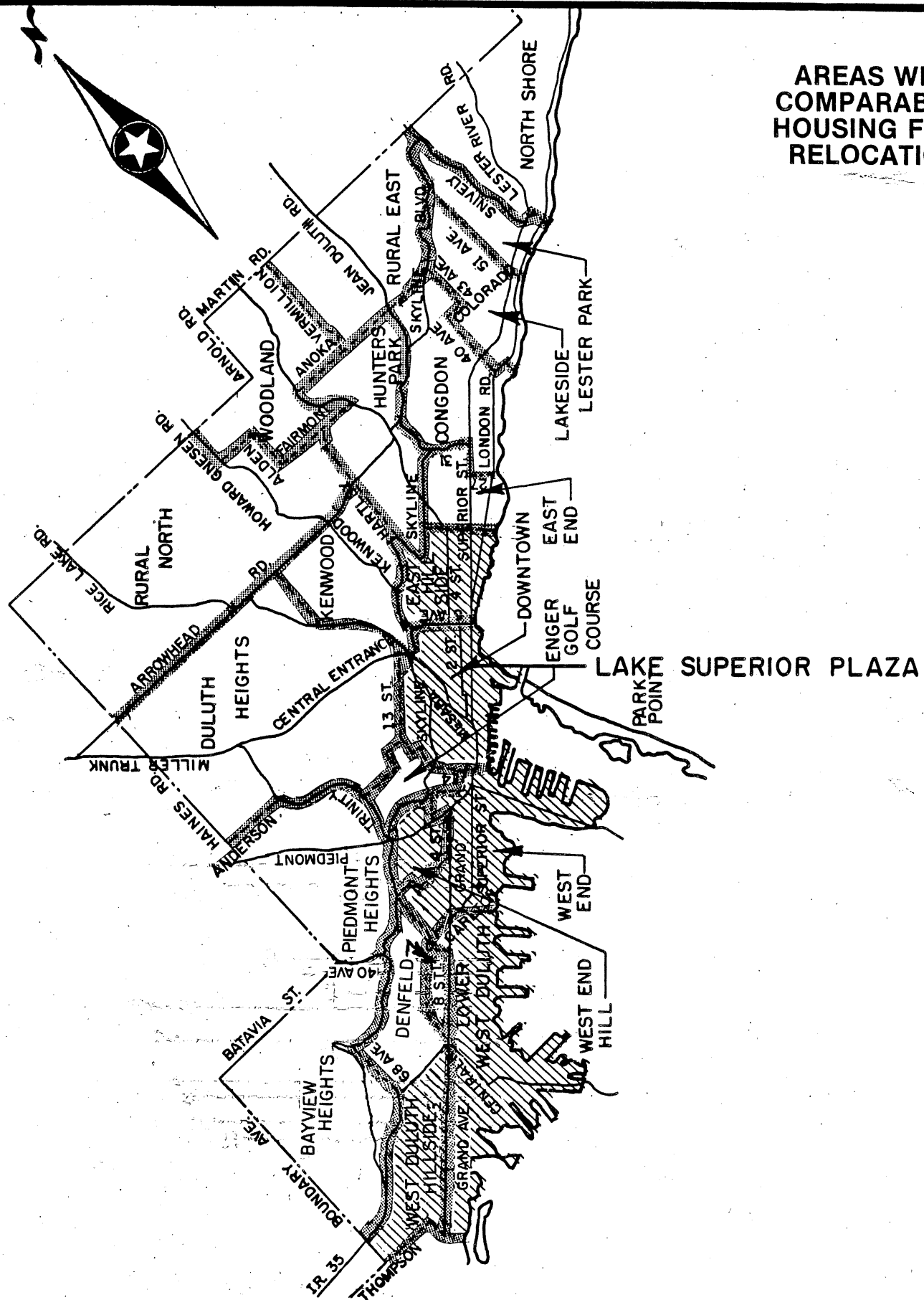
Following is a summary of owner and tenant entitlements under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646:

1. Owner - Occupant of at least 180 days (residential) a. Replacement housing payment or rent supplement b. Moving expenses c. Closing costs (replacement dwelling) d. Interest differential e. Appraisal fees
2. Owner - Occupant of less than 180 days but more than 90 days (residential) a. Rent supplement or down payment b. Moving expenses c. Appraisal fees d. Closing costs (replacement dwelling)
3. Owner - Occupant of less than 90 days (residential) a. Moving expenses b. Appraisal fees
4. Tenants of at least 90 days (residential) a. Rent supplement or down payment b. Moving expenses c. Closing costs
5. Tenants of less than 90 days a. Moving expenses
6. Business a. Moving expenses - including actual direct loss of tangible personal property or payment in lieu of moving expenses b. Payment for time spent in searching for replacement business or site c. Appraisal fees (to owner of real property)
7. Non-Profit Organization a. Moving expenses - including actual direct loss of tangible personal property b. Payment for time spent in searching for a replacement site c. Appraisal fees.

Replacement Housing

Homes for Sale

The Mn/DOT Relocation Advisor surveyed available houses and rental units in the City of Duluth. This survey indicates that sufficient housing is available for all who will be displaced by this project. The survey indicates six areas in Duluth that have houses and rental units comparable to those in the project area. These areas are shown on the map on the following page.



Review of the current Multiple Listing Service Catalog issued by the Duluth Area Board of Realtors indicates that the following number of homes are available for sale:

Current Housing (Sales Units) Availability*
(Local News Ads and MLS Listings)

Area	1 BR	2 BR	3 BR	4 BR	5 BR
East Hillside	1	14	25	5	1
Downtown	0	5	11	0	0
West End	1	4	4	1	0
West End Hillside	1	10	12	1	0
Lower West Duluth	0	2	2	2	0
West Duluth Hillside	3	7	13	1	1

* The listed prices for these units ranged from \$9,900.00 to \$75,900.00

Rental Property

Review of newspaper advertisements indicates 185 properties available for rent in the City of Duluth. Rents range from \$150.00 to \$440.00 per month.

The City of Duluth has 32 units of rental housing available for senior citizens.

Since 18 families will be displaced by the project, replacement housing should pose no problem to those who would wish to rent.

Replacement Business Sites

The Mn/DOT Relocation Advisor surveyed available buildings and warehouses to which displaced businesses could relocate. This survey revealed that sufficient buildings are available to accomodate businesses relocation needs.

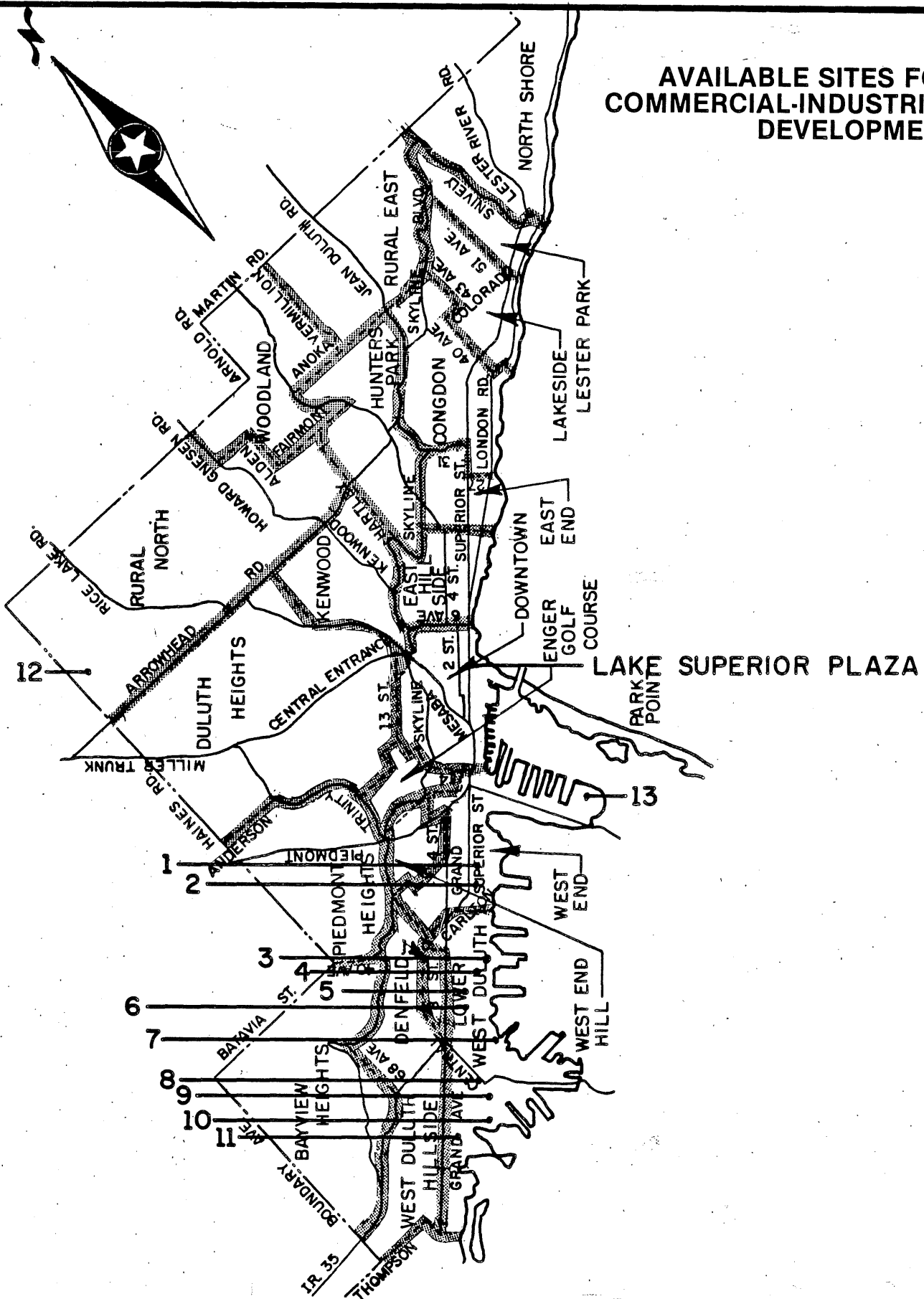
For those businesses which plan to build new facilities, numerous vacant commercial lots and two large industrial parks with approximately 120 acres are available. These sites are indicated on the map on page 46.

The following is a partial listing of sites available in the City of Duluth for commercial or industrial development. This listing is from a Development Prospectus prepared by the City of Duluth - Department of Planning and Development in 1975, (checked by Mn/DOT right-of-way in 1982) for the Seaway Port Authority of Duluth.

Inquiries regarding the current availability of sites should be directed to the Office Industrial Development - Seaway Port Authority of Duluth.

Site Name	Location	Size	Map Ref.
Michigan 26	26th Ave. W. & Michigan St.	1.5 Acres	1
Superior 26	26th Ave. W. & Superior St.	1.0 Acres	1
Huron 31	31st Ave. W. & Michigan St.	1.7 Acres	2
Michigan 32	32nd Ave. W. & Michigan St.	5.0 Acres	2
Oneota 39	39th Ave. W. & Oneota St.	4.8 Acres	3
Michigan 39	39th Ave. W. & Oneota St.	1.2 Acres	3
Superior 40	40th Ave. W. & Superior St.	2.7 Acres	4
Superior 41	41st Ave. W. & Superior St.	2.6 Acres	4
First 44	44th Ave. W. & First St.	5.5 Acres	5
Superior 44	44th Ave. W. & Superior St.	5.8 Acres	5
Superior 47	47th Ave. W. & Superior St.	4.8 Acres	6
Nicollet 51	51st Ave. W. & Nicollet St.	4.5 Acres	7
Nicollet 52	52nd Ave. W. & Nicollet St.	6.0 Acres	7
Raleigh 55	55th Ave. W. & Raleigh St.	1.2 Acres	8
Redruth 56	56th Ave. W. & Redruth St.	2.5 Acres	9
Sherburne 57	57th Ave. W. & Sherburne St.	1.0 Acres	9
Waseca 61	61st Ave. W. & Waseca St.	7.5 Acres	10
Sherburne 66	66th Ave. W. & Sherburne St.	2.8 Acres	11
Grand 67	67th Ave. W. & Grand Avenue	3.0 Acres	11
Air Park	Haines Road & Airport Road	360 Acres	12
Port Terminal	Port Terminal Road	N/A	13

AVAILABLE SITES FOR COMMERCIAL-INDUSTRIAL DEVELOPMENT



VI(C). SOCIO-ECONOMIC IMPACTS

The socio-economic environment consists of human, cultural and economic factors. These include employment, education, housing, public services, population and economic base.

SOCIAL IMPACTS

Potential social impact areas include community cohesion, ethnic groups impact, mobility impact, and neighborhood facilities.

Neighborhood Context

Between 10th and 20th Avenue East the proposed I-35 construction limits do not contain any residential properties. The area is occupied by Leif Erikson Park and the Curling Club, (now vacant). The bulk of the corridor is within the right-of-way of the DM&IR railroad and existing city streets.

Residential and commercial properties on the upper side of the tracks are located on London Road, South Street, and along the avenues. The only street to the south of the tracks is Water Street. Interspersed through this area are the following land uses:

- a small number of residential properties
- lumber yard and housing supply dealer
- City of Duluth equipment storage sheds
- plumbing and sheet metal contractor
- equipment rental agency
- bulk fuel supply tank farms
- miscellaneous railroad operation buildings.

Between 20th and 24th Avenue East the railroad trackage consists of two mainline tracks and one spur track. These tracks divide the neighborhood and isolate the small group of homes south of the DM&IR right-of-way. Access to the area between the railroad and Lake Superior (Water Street) is now limited to 21st, 22nd, and 23rd Avenues East. The streets and avenues in the area have a light bituminous coating which has deteriorated to a near gravel surface condition. Sidewalks, curb and gutter have not been installed. The homes are generally small with lower market values. The primary route to the neighborhood used by the medical services, police, and fire protection is 21st Avenue East.

The Water Street area is isolated in several ways:

- elementary school children are a minimum of 12 blocks from their assigned school
- the nearest church is five blocks away
- the corner grocery is seven blocks distant
- no community recreational facilities are located within normal walking distance.

Between 24th and 26th Avenues East the proposed corridor runs through open space. Near the proposed junction with London Road some commercial land uses occur.

Community Cohesion

Between 20th Avenue East and 26th Avenue East the construction of I-35 poses two distinct impacts to the residents of the area. One impact is relocation due to the necessity of providing access to the freeway at 21st Avenue East. The other impact is to the people remaining.

For those people in the 21st Avenue East area, relocation will mean moving to a new neighborhood. The children may have to attend a different school. The move could result in adjustments to a different church, shopping center, or recreational activities. If the move is to a different part of the city it may require re-establishment of medical, dental or community facility services. It means a break from things that are familiar routine now such as:

- church attendance
- recreational sites
- voter registration and polling place
- community club activities
- school and related activities
- shopping patterns
- youth or senior citizen activities
- access to public transportation
- neighborhood friendships
- change in distance and route to work.

The 21st Avenue East relocation will involve approximately 26 adults and 10 children.

The other distinct impact from the proposed construction will be to the residents who remain in the 21st Avenue East area. The area above the DM&IR tracks (South Street and London Road), will experience the least impact due to the psychological and partial physical barrier imposed by the in-place trackage. The primary impact to these people will be in the loss of neighbors and friends. Access to the lakeshore will be limited. Changes to community activities, schools or other services will not be affected.

To the people living southerly of the DM&IR tracks (Water Street), the proposed construction will include somewhat different impacts. The freeway following the same route as the DM&IR tracks will not only reinforce the previous neighborhood isolation but will be an actual physical barrier. Even though access to this area was limited to three avenues before the proposed construction, access will now be restricted to 21st Avenue East only.

This change can have both positive and negative effects. It will force the residents to change their travel habits and will concentrate traffic

on Water Street and the access leg of the interchange. The former at-grade crossings of multiple railroad tracks will be eliminated. The interchange bridge at 21st Avenue East provide safer access to this area.

Probably the most negative impact will be the loss of residents from the upper side of Water Street. The total population of the area below the tracks (between the DM&IR and Lake Superior), is about 31 adults and 12 children. The remainder, 20 adults and 9 children, will have lost neighborhood friends and acquaintances while the children will lose playmates and school chums. These people are living in 11 residential homes concentrated in two blocks on the lower side of Water Street.

The alignment of the freeway to connect London Road at 26th Avenue East will require relocation of one adult resident in that area.

Ethnic Groups

There are at least two minority families living in the immediate vicinity of the project.

Transportation/Mobility

From 10th Avenue East to 20th Avenue East all forms of travel have restricted access to the lakeshore because of the existing railroad trackage. Vehicular and pedestrain/bicycle access is limited to the streets which cross tracks. Construction of the freeway will further limit vehicular access to specific points. A pedestrian pathway paralleling the freeway will provide nearly unlimited access to the lakeshore.

The proposed freeway construction will not cause significant changes to existing bus routes. The addition of an express run serving Lakeside/Lester Park along the route of the freeway is anticipated.

Between 20th Avenue East and 26th Avenue East the traffic pattern will change at the 21st Avenue East interchange and at the connection to London Road at 26th Avenue East. The proposed interchange will not generate any additional traffic in the residential area between the freeway and the lake (Water Street). Present traffic counts are low and will remain so, being generated by the residents and commercial interests now located in the area. The closest existing public bus route for the Water Street residents runs along London Road on weekdays only. Walking distance to the bus line from the remaining homes in the Water Street area will remain the same.

Elementary school children residing in the Water Street area are now bussed to Congdon Park School. There will be no change in this procedure in the future.

Neighborhood Facilities

The construction as proposed between 10th and 14th Avenue East will require the disruption of the northeast segment of Leif Erikson Park. All recreational uses of this segment will be lost during the period of construction and until vegetation can be re-established. Freeway construction will also require demolition of the Curling Club building.

Indirect Impacts

Indirect or secondary impacts resulting from a major transportation project may be considerable. They extend beyond project boundaries, frequently take a considerable time to become manifest, and are difficult to describe with a high degree of precision. Nevertheless, their potential importance necessitates discussion.

Traffic - The freeway will attract traffic which now uses existing city streets. Substantial traffic decreases will be realized on east-west streets between London Road and 3rd Street. This will result in quieter, safer neighborhoods and reduced congestion in commercial areas.

Freeways also increase traffic volumes on city streets adjacent to access points. Traffic volumes on 21st Avenue East will increase as a result of the interchange at this location. This increased traffic will result in moderate congestion between London Road and 3rd Street during peak traffic periods.

Noise - Noise will increase in this residential areas as a result of the project. See page 65 for a detailed discussion of noise impacts.

ECONOMIC IMPACTS

The extension of Interstate 35 will have mixed effects on the economy of Duluth. Probable economic effects of I-35 will be discussed under three areas:

- Employment and Business Activity
- Effects on Property Taxes
- Resources.

Employment and Business Activity

Impacts resulting from the extension of I-35 in Duluth, Minnesota are as follows:

- Approximately 14 businesses will be displaced by the freeway extension. The businesses affected are categorized into 4 types:

Construction	4 businesses
Wholesale	4 businesses
Retail	3 businesses
Service	3 businesses

Employment

All 14 business owners were contacted and asked to complete an impact questionnaire. Fifty percent returned their questionnaire, which contained the following data regarding employment. The businesses employ:

- 21 full time workers
- 13 part time workers
- 95 seasonal workers

129 total

In terms of full time employment, I-35 will potentially affect less than 1% of the total work force of 44,670.

Further analysis indicated that these businesses would relocate in Duluth. Of the seven which returned the questionnaire, six indicated they would relocate in Duluth. One indicated that liquidation was likely. None indicated they would locate new operations outside Duluth. Three indicated they would increase employment from their current levels.

The indication that most businesses will relocate in Duluth, and that some will expand following relocation leads to the conclusion that significant adverse impact will not occur as a result of the project.

Business Activity

Business activity will receive mixed impacts from the project. The major effects will occur as a result of altered traffic flow.

Currently, virtually all traffic traveling in an east-west direction must journey on Duluth city streets to traverse Duluth. Currently the main thoroughfare, Superior Street, is heavily congested. Level of Service is E, indicating that volume is substantially in excess of capacity. This congestion is likely an impediment to commercial activity in the Duluth Central Business District.

Removing through traffic from downtown streets will reduce this congestion: Year 2000 projected level of service under the build alternative is C, indicating that capacity is able to handle the

volume. This will make the downtown shopping district more accessible and attractive.

It will also make West Duluth more accessible to potential shoppers on the East side of Duluth and will likely exert some increase in commercial activity in that area.

Traffic volumes will also be substantially decreased in the London Road commercial district. Once entering the freeway at 26th Avenue East, the westbound motorist will be unable to exit prior to Lake Avenue. For the eastbound motorist, no exit is planned between Lake Avenue and 21st Avenue East.

As a result of anticipated changes in traffic volume, commercial operations particularly sensitive to traffic flow may experience some adverse impact.

We here define the London Road Commercial District as those businesses along and immediately adjacent to London Road between 10th and 26th Avenues East. Within this district are more than 60 businesses. Among these, many are of a type which have traditionally been defined as "traffic sensitive," i.e. motels, restaurants, service stations, etc. The relationship between business activity and traffic is a very complex issue, for which precisely definitive answers are unlikely to be found. Mathematical or statistical functions precisely describing a general traffic-sales relationship do not exist. As a result, the ensuing discussion will address the major issues in a more qualitative manner.

One source of relevant information is the body of analogous research regarding community bypasses. As the practice of building highway bypass loops around cities and towns grew, the concern was frequently expressed that such actions would cause the economic strangulation of the bypassed town or city. Many state highway departments across the country and others studied the effects of bypasses on existing communities. Several such studies were conducted in Minnesota. One overall result of these studies is that the direst predictions do not come to pass. Experience with bypasses over the past two decades does not support the fears of community social and economic decline. Tabulation of bypass study findings has so far failed to reveal any direct or consistent relationships between business activity and traffic changes in bypassed areas. For the community as a whole, a bypass seems to exert little effect.

However, even though the overall effect to the entire community may be negligible, individual businesses may be impacted. Those businesses catering to the needs of transient motorists, or serving a non-local clientele, may be seriously impacted. Businesses serving the needs of local residents are likely to be little harmed, and some may increase business due to reduced congestion. A detailed analysis of 24 bypass studies for the FHWA indicated that retail establishments catering mostly to motorists were adversely impacted the most. Service stations and restaurants were often able to adjust

by offering increased services or specialities. Motels or hotels could not.

To the extent that these bypass findings are applicable to the London road commercial district, the prediction is that those establishments catering to the through motorist, i.e. service stations, will most likely be negatively impacted.

Additional light is shed on this topic by professional research in the areas of retailing and marketing.

The effective location of stores is an extremely important issue for virtually all retailers. As a result, store location as a variable in retail marketing has received considerable attention in the professional literature. Review of this literature reveals that the relationship between traffic flow and business operations is quite complex. A large number of factors are important in the success or failure of a business operation. Two such variables are most relevant to the issue at hand: the accessibility of the store and the level and type of consumer traffic.

Accessibility

Differences in accessibility under the build or no build alternates will be unchanged. Access to the London Road Commercial District will be virtually unchanged from the existing condition. Consumers traveling to the London Road Area, will be able to reach the area by existing routes.

Consumer Traffic

The importance accorded sheer traffic volume varies with other variables. The more recent view is that absolute traffic volume is less important than previously thought:

Until rather recently, it was felt that the success of a store was in direct proportion to the total volume of pedestrian and auto traffic that passed the store. Lately this opinion has shifted and new concepts have been introduced. To a large extent this has been due to the mobility of shoppers. A heavy auto traffic location is not an absolute guarantee of success. Most people can and do drive right past one store on their way to another. Butcher & McAnelly (1973:224)

Davidson, Doody and Sweeney (1975) reinforce the idea that the nature of the store is very important:

The opinion was once held that the total volume of traffic passing a site was the most significant factor determining its value for merchandising purposes. Experience has demonstrated, however, that qualitative characteristics of the traffic and its convertability into sales volume are far more important

considerations for most kinds of stores (1975:504).

Rosenbloom notes that "some types of traffic may be largely irrelevant to the retailer" (1981). For some types of business, traffic is important:

The importance that should be attached to the traffic levels associated with particular sites varies widely for different kinds of retailers. For example, a drug retailer that sells a wide variety of convenience goods--items that are purchased by almost everyone--should attach a great deal of importance to the level of traffic at the store site. A specialty retailer, on the other hand-- such as a camera shop that sells high-quality photographic equipment--should not give as much weight to traffic levels because, in all likelihood, only a small fraction of the number of people passing by the store are prospects for the store's merchandise (1981:340).

Integrating the transportation and marketing literature, certain inferences may be drawn.

- a. Most frequently, the most dire predictions of business decline following a bypass do not come to pass. Research indicates that the economic impact aggregated at the community level is negligible. However, certain business operations within the community may be adversely impacted.
- b. Traffic flow does have some relationship with business volume although the nature and magnitude of the effect is variable, as it interacts with a large number of other variables. A major factor is the nature of the goods offered for sale. The professional literature in this area indicates that sheer traffic volume is of particular importance to the seller of convenience goods. Illustrative examples typically include such businesses as gasoline stations, fast food restaurants, drug stores, newsstands, convenience food stores, and bakeries.

In the case of the London Road Commerical District, the projected impact would be that businesses catering to the needs of passing motorists and/or those selling convenience goods are those most likely to be adversely impacted by the proposed project. Those selling shopping or specialty goods or catering to local residents are not likely to experience significant adverse impacts as a result of this project.

Construction Related Impacts

The construction of I-35 will benefit Duluth by increasing employment and injecting dollars through construction expenditures.

The Federal Highway Administration has calculated that nearly 25% of the cost of urban interstate highways is expended for labor. The

estimated cost for this portion of I-35 is \$45,000,000 (based on 1982 costs). This implies a direct expenditure of \$10,500,000 for labor, this income becoming available for spending in Duluth and surrounding area.

Based on an estimated expenditure of \$14.7 million for labor, fuel, construction equipment operations and construction materials, the affect to the Duluth-Superior Growth Center (Duluth, Superior, Cloquet and Two Harbors) would be as follows:

- 1) The multiplier (2) for this area is 1.21 which includes the petroleum-refining, salary expenditure and construction costs. This multiplier is based on a model developed by Dr. Richard W. Lichty, Associate Professor of Economics, University of Minnesota, Duluth, Minn. This multiplier on the Duluth-Superior Growth Center would generate \$17,806,000 due to highway expenditures of \$14.7 million.
- 2) In terms of employment it is estimated that approximately 1,800 jobs would be dependent on this expenditure of \$14.7 million (both direct and indirect). This is also based on Dr. Lichty's model.

Effects on Property Taxes

The negative impacts resulting from the acquisition of land and buildings on local tax revenues are as follows:

- Approximately \$323,000 of assessor's market value will be removed from the local real estate tax base. This is computed as a loss of tax revenue of approximately \$20,000.
- There may be minor reductions in market value of properties adjacent to the freeway due to controlled access or severance damages. Precise estimates of this effect cannot be made until the detail design stage of the project. Any such effects are anticipated to be very minor in nature.

- (2) Multiplier - A factor which shows that any dollar added to the economy, in wages or other expenditures, will be spent and respent several times over.

VI(D). AIR QUALITY

This project is consistent with the State Implementation Plan (SIP) to attain and maintain the ambient air quality standards. Violations of the carbon monoxide (CO) standards are not anticipated. Construction activities will conform to local, state and federal regulations. An Indirect Source Permit (ISP) will be obtained prior to construction of the facility.

This project is located within the Duluth urbanized area and was included in the transportation improvement program (TIP) for this urbanized area. No air quality sanctions or other actions have been initiated by USEPA or FHWA against this urbanized area or this specific project which would preclude proceeding with the project. Further, it has been determined by the Federal agencies involved that the routine documentation requirements of 23 CFR 770 do not apply to this area as the conformity requirements have been fulfilled through acceptance of the TIP based on a review process which provides for joint DOT, EPA and State review and comment on conformity of transportation plans and programs. Therefore, this project conforms to the SIP.

The tunnel analysis indicates potential CO impacts during extensive vehicle congestion within the tunnel. Emergency procedures and/or ventilation studies will be addressed in the ISP application to resolve this tunnel concern.

Previous Analysis

The air quality of I-35 from Mesaba Avenue to 26th Avenue East in Duluth was analyzed and the project's Air Quality Report was submitted (April 1976) to the Minnesota Pollution Control Agency, the U.S. Environmental Protection Agency, the Wisconsin Department of Natural Resources and the City of Duluth Planning Department. The Federal Final Environmental Impact Statement (FEIS) was circulated on June 6, 1977. The State of Minnesota Final Environmental Impact Statement which addressed air quality impacts from Mesaba Avenue to 10th Avenue East was circulated on December 2, 1977. Copies of these reports are available at the District 1 Headquarters of Mn/DOT.

Air Quality Analysis

The air quality studies for the previous reports were evaluated at selected receptors using the U.S. EPA 1975 Guidelines for Air Quality Maintenance Planning and Analysis, Volume 9 and U.S. EPA-AP-42 Second Addition Supplement 5. This DEIS includes results of previous analyses and evaluates additional receptor sites using the EPA HIWAY 2 dispersion model and the EPA Mobile II emissions. The additional evaluations were made only at selected receptor sites and continued to yield predictions well below the standards.

Worst case meteorological assumptions of 1 meter per second wind speed, a

wind angle of 10 degrees for free flowing traffic or of variable directions for intersection analysis, an 8 hour persistence factor of 0.6, and a Pasquill Gifford stability class D as contained in Volume 9, were used in performing these analyses.

Receptor site locations were selected in areas of highest traffic demand, traffic congestion, or general public usage. U.S. EPA Guidelines, Volume 9, suggested 1975 background values of 5 ppm and 2 ppm for one and eight hour periods respectively were used at all sites.

Total CO concentrations consist of computed values emanating from the roadways which directly affect the receptor site, plus concentrations from other roadways and various other sources (background). These values are listed in parts-per-million or ppm, as shown in the following chart. State of Minnesota Carbon Monoxide Standards are 30 ppm for the 1 hour standard and 9 ppm for the 8 hour standard.

Total Carbon Monoxide Concentrations (PPM)
1975 EPA Vol. 9 Methodology

			1985	1985	1990	1990	2000	2000
			No Build	Build	No Build	Build	No Build	Build
<u>I.</u>								
South St. between	1 Hour		1.5	3.5	1.0*	2.4	1.0	2.5
15th Ave. E. &	8 Hour		0.6	1.3	0.4*	0.9	0.4	0.9
16th Ave. E.								
<u>II.</u>								
Lief Erickson Park	1 Hour		6.0	---	5.0	---	5.3	---
Rose Garden								
(interior)	8 Hour		2.4	---	2.0	---	2.0	---
Rose Garden								
Intersection of								
12th Ave. E. &	1 Hour		9.7	---	6.5	1.2**	7.2	---
London Road	8 Hour		4.3	---	2.9	1.1**	3.1	---
<u>III.</u>								
Sidewalk 21st Ave.	1 Hour		5.1	7.9	3.4	5.5	3.7	6.3
E. and 2nd St.	8 Hour		2.0	3.5	1.4	2.4	1.5	2.6
<u>IV.</u>								
Intersection of	1 Hour		---	---	---	8.0***	---	---
21st Ave. E. and	8 Hour		---	---	---	3.6***	---	---
London Road								

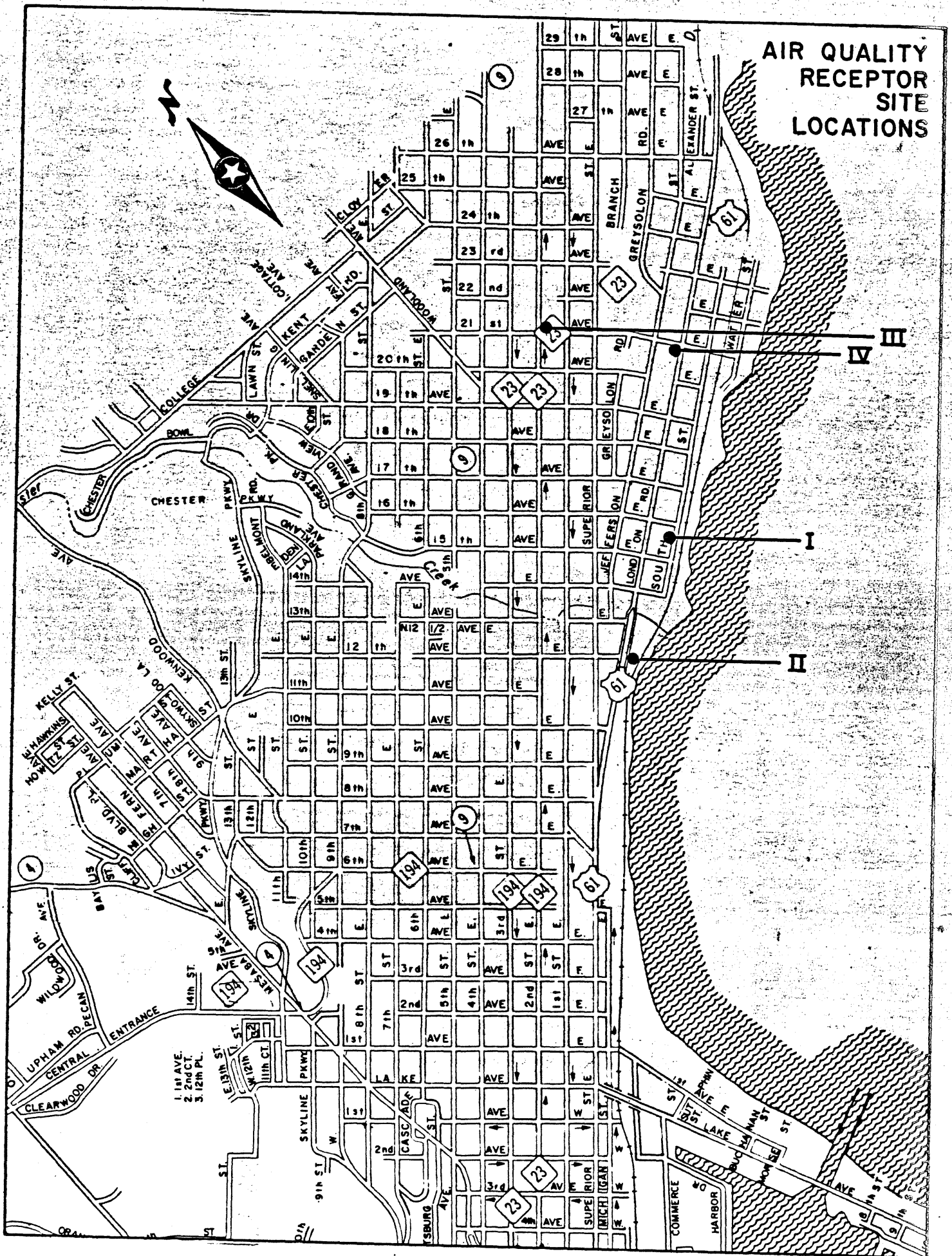
State of Minnesota Carbon Monoxide Standards are 30 ppm for the 1 Hour standard and 9 ppm for the 8 Hour standard.

* EPA Hiway 2 - Mobile II yielded 2.6 ppm (1-hour) and 1.5 ppm (8-hour)

** The peak CO concentrations near the east tunnel portal is 6.0 ppm (1-hour) and 4.1 ppm (8-hour) using the latest EPA and FHWA methodologies. The congested traffic at 5 mph might cause CO to reach 20.1 ppm if such conditions are allowed for 1 hour.

*** EPA Hiway 2 - Mobile II

AIR QUALITY
RECEPTOR
SITE
LOCATIONS



Leif Erikson Park Tunnel

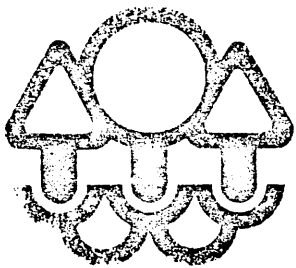
The tunnel was analyzed using the TUNVEN A/Q tunnel model and mobile 2 emission factors. The concentrations listed below are the results of the peak hour traffic and worst case meteorology conditions for the year 1990 and with natural tunnel ventilation:

	40 MPH	EPA and OSHA CO Tunnel Standards
1 hour	10.9	125
4 hour	9.6	75
8 hour	9.3	50

The expected maximum speed limit in the tunnel is 40 MPH. If greater speed limits are authorized CO levels in the tunnel will be slightly less than shown on the above chart.

A CO hourly concentration of 152 ppm was predicted with peak hour traffic volumes moving at 5 MPH. At 10 MPH the predicted CO concentration is 52 ppm.

Because the CO concentration during extensive vehicle congestion will exceed the OSHA standards some form of alert system or artificial ventilation will be studied. This analysis does not address emergency preparedness procedures for fire, traffic accidents, etc. Emergency procedures and ventilation studies will be addressed in the Mn/DOT application for the MPCA Indirect Source Permit for this project. It is anticipated that acceptable alternatives to a continuous or standby ventilation system will be incorporated in the tunnel design or operation because of the limited park space available and the high cost of the ventilation systems.



RECEIVED

JUN 15 1976

COMMISSIONERS OFFICE

Minnesota Pollution Control Agency

June 11th, 1976.

Mr. Frank D. Marzitelli, Commissioner,
Minnesota Department of Highways,
State Highway Building,
St. Paul, Minnesota. 55155.

RE: 330
Minnesota Project I-35-6
State Project 6982-03 (I-35)
From Nesaba Avenue East
Duluth, St. Louis County, Minnesota

Dear Mr. Marzitelli:

The Division of Air Quality has reviewed the Air Quality Report on the above referred to project and finds that the project is not inconsistent with the State Implementation Plan's Transportation Control Section since that section only concerns the Minneapolis Central Business District.

A finding of consistency or inconsistency requires, I believe, a portion of the State Implementation Plan against which the proposed highway can be measured. Since there is no portion of the SIP relevant to Duluth's carbon monoxide problem, to say that the project is not inconsistent is, at best, an acknowledgment that there is no visible conflict between the project and the non-existent portion of the State Implementation Plan.

We have several reservations concerning this project; specifically, the Air Quality Report's tunnel analysis, currently high CO background levels in the vicinity of the project, and Congress' present considerations on relaxing auto emission standards.

Since the proposed tunnel under Leif Erickson Park is not planned to have a mechanical ventilation system, emergency preparedness actions should be investigated due to the possible occurrence of accidents and traffic congestion in the tunnel.

Frank D. Marzitelli.

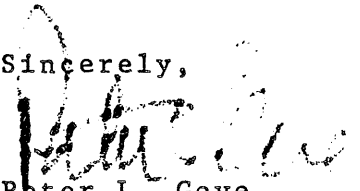
-2-

June 11th, 1976.

The air quality analysis contained in the report predicts that National Ambient Air Quality Standards for Carbon Monoxide will be met at date of opening (even though current background concentrations are in violation). However, if Congress does grant auto-makers further extensions the possibility remains that the proposed development could jeopardize Carbon Monoxide standards at the date of opening.

Hopefully, these concerns will be addressed in the near future as we are anticipating continued cooperation from your department on this matter.

Sincerely,



Peter L. Gove
Executive Director

PLG/rmg

COPIES:

F.D. Marzitelli
E. Dean Carlson
F.C. Marxhall
L.A. Korth
Paul G. Velz
J.T. Pawlak
C.P. Kachelmyer
E.H. Jonassen-J. Thorson
R.M. Canner
A.J. Berka
J.P. Halvorson
P.H. File
File



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Anthony S. Earl
Secretary

BOX 450
MADISON, WISCONSIN 53701

May 19, 1976

IN REPLY REFER TO: 4520

Mr. Frank D. Marzitelli, Commissioner
State of Minnesota
Department of Highways
St. Paul, Minnesota 55155

RECEIVED

MAY 21 1976

COMMUNICATIONS SECTION

Dear Mr. Marzitelli:

Re: 330 - Minn. Proj. I-35-6 ()
State Proj. 6982-03-(I-35)
Air Quality Report From
Mesaba Avenue to 26th Avenue East
Duluth, St. Louis County, Minnesota

The Air Management Section for the State of Wisconsin has reviewed the "Air Quality Report" on the above project and finds the analysis method used is adequate and satisfactory.

Further, we note that the air quality projection computations for future years up to 2000 A.D. indicates an improvement in the quality of the air and hence we feel this project is consistent with Wisconsin's State Air Quality Implementation Plan.

Sincerely,
Bureau of Air & Solid Waste Management

Subroto Mitro, Engineer
Air Management Section

SM:bf

COPIES:

F.D. Marzitelli
F.C. Marshall
L.A. Korth
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P.H. File ✓ File



UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION V
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604



SEP 1 1976

Mr. Paul G. Velz
Road Design Engineer
Department of Highways
State of Minnesota
St. Paul, Minnesota 55155

Dear Mr. Velz:

We have completed our review of the Air Quality Report for I-35 in Duluth, Minnesota as requested in your letter of May 6, 1976.

The Air Quality Report adequately addresses the comments which EPA has previously made on this project. We do not anticipate adverse air quality impacts to be realized due to the completion of this proposed transportation facility. Our conclusion is based on the results of the analysis which generally utilized U.S. EPA recommended procedures (Guidelines for Air Quality Maintenance Planning and Analysis, Volume 9; Evaluating Indirect Sources), in addition to the fact that the facility would not be completed until 1985. Thank you for the opportunity to review this Air Quality Report.

Sincerely yours,

Gary A. Williams
Chief,
Environmental Review Section

COPIES:

F.D. Marzitelli
F.C. Marshall
L.A. Korth
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J.T. Pawlak
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File

VI(E). NOISE IMPACTS

Noise impacts were evaluated according to Federal Aid Highway Program Manual 7-7-3 using the National Cooperative Highway Research Program (NCHRP) Report 117 and NCHRP 144 methods for computing noise impacts. The FHWA Highway Traffic Noise Prediction Model (Stamina) was used to "spot check" barrier heights and noise impacts primarily at residential locations. Results using both models are similar.

Noise impacts are expressed as L10-dBA, the sound level that is exceeded 10% of the time for the period under consideration, and measured in decibels (dB) that involves the human audibility of certain frequency levels (A), commonly referred to as dBA.

Predicted noise levels from this analysis are compared to the FHWA Design Noise Levels which apply to land uses adjacent to Interstate Highways. The State of Minnesota noise standards have also been listed for comparison purposes. The FHWA design noise levels are based on the following:

Land Use Category	Design Noise Level - L10	Description of Land Use Category
A	60 dBA (exterior)	Tracts of land in which serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose. Such areas could include amphitheaters, particular parks or portions of parks, or open spaces which are dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet.
B	70 dBA (exterior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, picnic areas, recreation areas, playgrounds, active sports areas and parks.
C	75 dBA (exterior)	Developed lands, properties or activities not included in categories A and B above.
D	n/a	Undeveloped lands.
E	55 dBA (interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.

State Standards are based on the following:

LAND USE	DAY (0700-2200)		NIGHT (2200-0700)	
	L50	L10	L50	L10
Residential	60	65	50	55
Commerical	65	70	65	70
Industrial	75	80	75	80

Existing (ambient) noise levels were monitored in the corridor for the initial (FEIS) noise analysis (1972-1973) and again in late summer of 1981. Monitoring for both phases was conducted during either the daily peak hour traffic periods or during periods of higher truck traffic. Monitored noise levels for the two phases are similar throughout the corridor except in the interior of the Rose Garden portion of Leif Erikson Park where ambient noise levels dropped from 68 dBA to 59 dBA. The reduction is primarily due to the restriction of westbound truck traffic past the Rose Garden.

Results of the noise analysis are listed according to adjacent land use and the proposed highway design.

10th Avenue East to 14th Avenue East

Existing land use along the northerly side of London Road consists of six commercial buildings; the Plaza Shopping Center, the National Guard Armory, one church and four apartment buildings. Land use southerly of London Road to Lake Superior are Leif Erikson Park, the Rose Garden portion of the Park, the abandoned Curling Club building and one fish market.

The noise analysis considers the existing, no build and build alternatives as listed below. Traffic volumes are in Average Daily Traffic. Noise levels, where appropriate, are in dBA.

LOCATION	EXISTING	NO-BUILD	BUILD
Traffic Volumes on London Road	12,250	28,250	3,300
Sidewalks on London Rd.	78	80	72
Closest Residential Building on Northerly Side of London Road	68	78	66
Leif Erikson Park	58	69	58
Rose Garden - Interior	68 (1972) 59 (1981)	75	85 (1)
Curling Club	68 (1972) 68 (1981)	70	N/A (2)
Fish Market	68	70	N/A (2)

(1) The project unabated noise level (85dBA) immediately behind the tunnel's east portal headwall. Section VI.M page 82 details proposed changes of the Rose Garden and proposed noise wall and other noise abatement measures that will reduce noise levels to meet the FDNL.

(2) These buildings will be demolished with this alternative.

14th Avenue East to 26th Avenue East

Land use northerly of the proposed freeway is zoned by the City of Duluth as commercial and light industrial, but the area contains a substantial number of single family units. Land use southerly of the proposed route to Lake Superior is primarily undeveloped.

Ambient noise levels monitored during "quiet times" in 1972 and during the 1981 monitoring period are similar and range from 48 dBA to 56 dBA throughout the area. During the 1972 monitoring period noise levels generated by switching operations produced noise levels up to 79 dBA at residential buildings adjacent to the switching yard. The DM&IR ceased switching operations during the late 1970's, although the switching yard remains intact.

By depressing the freeway through this area, noise levels can be reduced to meet the Federal Design Noise Level for residential land use.

Current Mn/DOT policy is to incorporate noise abatement measures into freeway design where technically and economically feasible. The depressed nature of the highway allows noise walls to become integrated into the design of retaining and safety walls (in lieu of conventional fencing) and kept at a low profile. This eliminates the need for high free-standing walls which have become controversial in other parts of the State.

VI(F). WATER QUALITY

Background

The Duluth storm water drainage area is divided into two contrasting types of surface terrain. The upland part is gently rolling to flat land with meandering streams and small swamp areas which retard stream flow. The stream sections near Lake Superior have extremely steep slopes which rise from the lakeshore 600 to 700 feet above the lake level to form a bluff parallel to and between 1/2 mile to 1-1/2 miles westerly from the shore. The upland portion above the bluff is not highly urbanized and much of it is open grassland, brushland or timber. The steep hillside below the bluff and in the study area is almost totally urbanized. Creek channel profiles with slopes of 10% or more and land surface profiles of up to 30% are common below the bluff. The stream channels are well defined and occupy deep stream carved gorges in the bedrock below the bluff, some of which run all the way to the lake. In the study area, the steep slope and urban development below the bluff contribute to very rapid storm water run off.

The rapid run off resulting from spring snow melt or from heavy or prolonged rainfall produces profound effects on the biota of streams. The greatly increased volume and discharge rate of water tend to scour the creek channel and its banks, resulting in increased erosion

accompanied by increased turbidity and nutrient load. The fluctuating water level has had adverse effects on vertebrate populations, especially fish, stream invertebrates, algal communities, and rooted plants. Animal populations in the creek valleys are limited in both size and variety as a result of the urban development (3).

Three watersheds will be traversed in the 10th to 26th Avenues East freeway extension. These watersheds are Grey, Chester and Oregon. (Exhibit page 71) Freeway runoff will be routed through a storm sewer system into a retention sedimentation pond before discharge into Lake Superior. Therefore, no freeway runoff will be directly discharged into any stream channel or Lake Superior.

The water quality of these creeks is influenced by storm water runoff of the city street systems, public usage, residual garbage disposal areas and the city's antiquated sanitary sewer system. Visual inspection and water quality sampling during the past 3 years indicates the presence of high coliform counts and of raw sewage in all of the creeks.

Grey Creek

Grey Creek originates near the top of the bluff and traverses the hillside through a series of open channel sections, culverts and storm sewers before discharging into Lake Superior at 9th Avenue East. The drainage basin covers an area of about 0.6 square miles, 60% of which is residentially and commercially developed.

Chester Creek

The three branches of Chester Creek junction near the top of the bluff with the creek descending the hillside in an open channel through Chester Park to the southerly limit of the park at 4th Street. Chester Park occupies the creek valley and extends approximately 5,000 feet upstream from 4th Street. The park although classified as undeveloped by the City of Duluth, has year round recreational use. The DNR has designated Chester Creek upstream of 4th St. as a trout stream. The creek is stocked annually with trout to supplement natural reproduction and is heavily fished by youngsters providing important fishing recreation.

- (3) Duluth Stormwater Flood Control Project. Revised Draft Environmental Statement, March, 1976, available at Mn/DOT, 1123 Mesaba Avenue, Duluth, Minnesota 55811.

TISCHER CREEK
7.3 sq mi

OREGON CREEK
.85 sq mi

CHESTER CREEK
7.3 sq mi

GREY CREEK
.63 sq mi

BREWERY CREEK
1.66 sq mi

DULUTH

CLARKHOUSE CREEK
1.00 sq mi

BUCKINGHAM CREEK
1.10 sq mi

26 Ave

PROPOSED I-35

10 Ave

DULUTH
WATERSHEDS N



The creek continues in an open channel passing under city streets via stone arches. At Superior Street the creek enters a tunnel which flows under the Armory and London Road emerging in a deep gorge in Leif Erikson Park about 200' from the lake.

Oregon Creek

This creek originates below the bluff descending the hillside in open channel and through a series of culverts before discharging into the lake near 18th Avenue East. The 0.85 square mile drainage basin has dense residential development.

Modifications to Inplace Systems

Several of the storm sewer systems currently draining the hillside between 10th and 26th Avenues East will be lowered to pass under the freeway before discharging into Lake Superior.

Chester Creek will be impacted by extensive excavation and construction (see Section VI (H), Stream Modification and Impoundments page 76). Special procedures will be investigated and implemented to control these related impacts.

The Corps of Engineers has proposed improvements to several of Duluth's storm water systems(4) including the creeks affected by the freeway extension. The freeway storm water run off design will be coordinated with affected improvements proposed in the Corps of Engineers plan.

Impacts

Water quality impacts result from freeway operation and construction activities.

Operations Impacts

Freeway runoff has been identified as a significant contributor of pollutants. Pollutants are generated during the normal operation of a freeway from the accumulation of materials upon freeway surfaces and their subsequent removal during runoff events. The major pollutants found in freeway runoff are:

(4) ibid

1. Chloride from the application of winter de-icing chemicals.
2. Sediments generated by winter sanding activities, accumulation of dust and litter, and wear of the roadway itself.
3. Pollutants associated with motor vehicle emissions and the wearing of tires and mechanical parts.
 - a. Heavy metals such as lead, iron, and copper.
 - b. Petroleum product residues such as oil and grease.
4. Other pollutants
 - a. Pesticides and herbicides
 - b. Plant fertilizers such as nitrogen and phosphorus.

Other pollutants can be generated by both the construction and operational phases of a freeway. Pesticides, herbicides and fertilizers may be applied during the latter stages of construction to help establish vegetative growth (for permanent erosion control) or during the actual operation of the freeway to control noxious weeds or help establish additional vegetative plantings.

Quality of Freeway Runoff

The impact that freeway runoff will have on receiving waters, such as Lake Superior, is reflected by the average concentrations of pollutants found in freeway runoff. Table 1 (page 74) shows the concentrations of suspended solids, BOD, COD, orthophosphorus, nitrate, chloride, lead, iron, copper and zinc in freeway runoff. It is anticipated that the average pollutant concentrations in runoff from I-35 will be most similar to the runoff from I-94 in St. Paul, due to design similarities.

Minimization of Harm - Ponding Areas

Freeway runoff will be collected using an urban drainage system (curb and gutter). Stormsewers will route the runoff to a ponding area prior to discharge into Lake Superior. This ponding area will be located south of I-35, approximately 18th Avenue East (near sewage lift station).

All freeway stormwater runoff from 18th Avenue East to 26th Avenue East will be routed to this pond before discharge into Lake Superior. This pond will allow suspended sediment and associated pollutants to settle out prior to discharge. A study by Whipple (1980) showed that a retention pond removed 65% of Total Suspended Solids, 50% of the Biochemical Oxygen Demand, 47% of Total Phosphorus and 62% of Lead in urban runoff. The I-35 pond will be designed to contain floatable materials and will act as a containment area in the event of a spill of hazardous or toxic materials.

Table 1**AVERAGE POLLUTANT CONCENTRATIONS IN FREEWAY RUNOFF (mg/ l)**

Runoff Source *	Total Suspended Solids	BOD	COD	Ortho- Phosphorus (PO ₄)	Nitrate (NO ₃ - N)	Chlor- ide (Cl)	Lead (Pb)	Copper (Cu)	Zinc (Zn)	Iron (Fe)
Freeway I-94 ¹ ST PAUL MN	79	16.0	54	.425 ³	.43	11	.410	.027	.140	4.4
Freeway I-794 ² MILWAUKEE, WI	138	-	105	.31	-	63	1.50	.10	.35	7.5
Freeway(Hwy 45) ² MILWAUKEE, WI	396	-	120	.48	-	229	.78	.08	.39	13.3

* Winter samples not represented

1 Howard, J.E. 1981. Characteristics of Urban Highway Runoff (Interstate 94, Saint Paul, Minnesota) FHWA/Mn-81/6.

2 Envirex, 1981. Characteristics of Runoff from Operating Highways. FHWA/ RD-81/045.

3 This measurement is for Total Phosphorus, instead of Ortho-phosphorus.

Minimizing Harm From De-icing Salt

De-icing salt applied by Mn/DOT, District 1, is typically 98% sodium chloride (NaCl) and 2% calcium chloride (CaCl). Approximately 9 tons per lane mile of de-icing salt would be applied to I-35 each winter.

A sedimentation/retention pond is useful for removing suspended sediment particles; however, it has no effect on removing dissolved particles, such as chloride. From an ecological standpoint, no chloride should be added to Lake Superior. Safety reasons, however, do not permit the non-application of de-icing salt. I-35 will receive minimum amounts of de-icing salts to maintain safe driving conditions. Given the large volume of Lake Superior, versus, the relatively small amount of de-icing salt applied to I-35, only a small, localized increase in chloride concentrations should be detectable near the pond outlet.

Construction

Impacts to water quality during freeway construction are usually short-term and occur from three primary sources:

1. Waste-water from concrete mixing operations.
2. Accidental spills of petroleum products or other materials.
3. Erosion of exposed earth during rainfall events.

In order to minimize impacts from the first two sources, Mn/DOT enforces pollution control measures described in Standard Specifications for Highway Construction (Mn/DOT 1978). In addition, during construction all petroleum products and other water degrading materials will be stored in areas where any spills of such materials can be contained and not allowed to reach Lake Superior.

Erosion is the most serious source in terms of both quantity of pollutant and detrimental impact to water quality. Sediment generated by erosion, if allowed to enter Lake Superior unchecked, could result in a serious localized degradation of water quality through an increase in turbidity and total suspended solids (TSS). A large increase in turbidity and TSS could have an adverse impact upon plants, invertebrates and fish by decreasing light penetration and reducing growth of plants; depositing silt which could smother benthic invertebrates and causing fish to leave the area to seek less turbid waters.

To avoid these impacts Mn/DOT routinely requires contractors to install adequate erosion controls. Permanent and temporary controls will be used to minimize erosion and insure that water quality will not be significantly degraded. Permanent control measures include items such as, replacement of topsoil, seed, sod and rock riprap. Seed, sod and topsoil are used to re-establish vegetation after construction. Vegetative cover is the best permanent means of controlling and reducing erosion in large exposed areas. Permanent erosion control measures are included in the construction plans by the designer and it is the project

engineer's responsibility to see they are implemented. Temporary controls of erosion include items such as, bale ditch checks, earth diversions, bale diversions, and temporary sediment basins. Mn/DOT Specification 1803.5 defines erosion control procedures and responsibility.

VI(G). WETLANDS

The term wetlands as used in this report refers to lowlands covered with shallow and sometimes temporary or intermittent waters. There is no involvement with wetlands (marshes, swamps) in the project study area.

VI(H). STREAM MODIFICATION OR IMPOUNDMENT

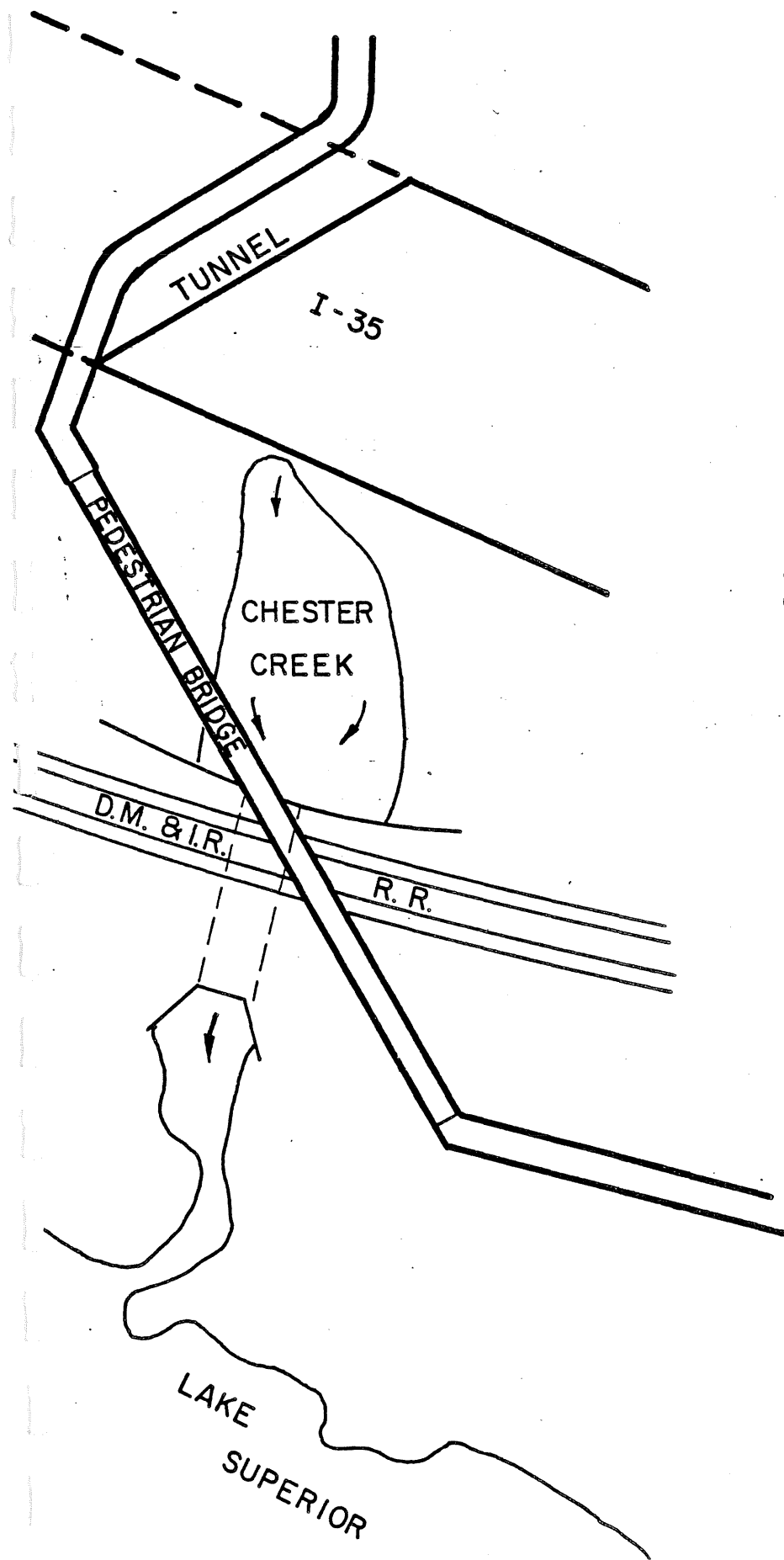
There are two creeks crossing the freeway corridor between 10th and 26th Avenues East. (Exhibit page 71). Oregon Creek is completely enclosed in conduit, (concrete pipes, metal pipes, brick facia storm conduit), within the project limits. Construction of the freeway will not change this conduit system, although the pipes may be improved within the freeway corridor.

Some modifications near the outlet of Chester Creek will be necessary for construction of the freeway. Chester Creek is in a conduit to about 1/2 block south of London Road. From there Chester Creek is in its natural creek bed, passing under the DM&IR Railroad arched bridge, and then into Lake Superior.

Chester Creek will pass beneath the freeway tunnel (see sketch page 77).

Coordination with the Minnesota Department of Natural Resources, U.S. Corps of Engineers, and other governmental agencies is an "on-going" process and will continue throughout the development of this project.

The type of foundation to be used on the Leif Erikson tunnel has not been determined but, regardless of the type picked, drainage will be provided so that the structure does not act as a dam to groundwater.



CHESTER CREEK

Chester Creek now flows along an underground culvert to the south edge of London Road near 13th Ave. E. From here the creek follows its natural open course to Lake Superior.

Construction of I-35 across Chester Creek will result in several changes in the area:

1. The creek culvert will be extended to the Lake side of new I-35. From here the creek will proceed on its regular course to Lake Superior.
2. A pedestrian walkway will bridge from the London Rd. level and provide access down to the added park area.

VI(I). FLOOD HAZARD EVALUTION

A Federal Insurance Administration Floodway and Flood Boundary map shows that the extension of I-35 in Duluth from 10th to 26th Avenues East will transversely cross the 100-year floodplain of Chester Creek.

The interstate will be in a tunnel as it crosses Chester Creek. Currently, Chester Creek is in a conduit to 1/2 block south of London Road. Preliminary plans show extension of the conduit underneath the tunnel.

This floodplain encroachment is not significant according to the provisions of FHPM 6-7-3-2 for the following reasons:

1. There is no significant potential for interruption or termination of a transportation facility which is needed for emergency vehicles or provides a community's only evacuation route.
 - a. Other transportation routes are available for emergency vehicles to use, such as London Road or the one-way pairs.
2. No significant adverse impact on natural and beneficial floodplain values will result.
 - a. Appropriate turf establishment and erosion control will be taken.
 - b. Rock riprap will be placed adjacent to the culvert outlet if considered necessary.
 - c. No threatened or endangered species are found in Chester Creek.
3. No significant risk, such as increased flooding of property or hazard of life will result.
 - a. The conduit extension will be designed so that no significant change in hydraulic conditions occur.
4. The culvert extension at Chester Creek is not expected to support potential incompatible floodplain development for the following reason:
 - a. The City of Duluth zoning ordinances regulate floodplain development.

Based on the above assessment, the culvert extension at Chester Creek should not have any significant impact on a transportation facility needed for emergency vehicles; will not have any significant impact on natural and beneficial floodplain values; should not increase the risk of flooding and will not support incompatible floodplain development.

VI(J). CONSTRUCTION IMPACTS

The construction of a highway project of this size often results in a short term decrease in the environmental quality of the project area. The following discussion will identify the probable construction impacts and discuss construction methods that can be used to mitigate harm.

Changing Traffic Patterns and Access

During the construction of this project, it will be necessary to close or periodically interrupt traffic flow on several streets. This will be done both to facilitate completing the project and to insure the safety of the traveling public.

London Road will be closed between 8th and 12th Avenues East during construction of the depressed section and tunnel. The properties on the upper side of London Road between 10th and 12th Avenues East will have vehicular access to Superior Street and 12th Avenue East. Maintaining access to the parking lots of the Metropolitan Life Insurance Co. and First Lutheran Church will not be possible during the construction phase of the tunnel.

If the freeway from Mesaba to 10th Avenue East is opened to traffic before the completion of the 10th Avenue East to 26th Avenue East section a temporary connection could be made between 8th Avenue East and 10th Avenue East that would ramp up to Superior Street. This detour will result in a traffic increase on Superior Street between 10th Avenue East and 14th Avenue East. This additional traffic should not cause any capacity problems on Superior Street because the detour should, in effect, be self-regulating. For example, if a motorist has used the detour and found it to be congested, he would probably use either the Mesaba Avenue, 5th Avenue West, or Lake Avenue interchanges to reach alternative routes on his next trip.

The remainder of the I-35 construction will have a minor impact on traffic patterns and access because the freeway is south of London Road from Leif Erikson Park to 26th Avenue East. Access to the remaining property south of the freeway can be maintained by leaving either 22nd or 23rd Avenue East open during construction of the interchange at 21st Avenue East. Constructing the connections to London Road may necessitate the detouring of London Road traffic to Superior Street.

Dust

The dust generated by the construction of I-35 is a sporadic short-term impact not anticipated to be a significant problem. Care will be taken to minimize the amount of dust becoming airborne during construction activities. Construction activities will be subject to local, State and Federal regulations. Dust control measures such as water and calcium chloride will be provided for in the contract. All temporary road connections and detours will have paved surfaces.

Utility Involvement

Construction of this project will require removal or relocation of public utilities such as storm and sanitary sewers, gas and water mains, and telephone and electric lines. Studies will be made jointly with the various utility owners to determine which utilities are involved and require relocation. This work will be accomplished in accordance with all State and City codes and environmental regulations. Relocation will be designed in the construction plans or performed separately by the utility company (by agreement), to provide a minimal interruption of service during construction.

Waste Disposal Areas

Basically there will be two types of materials that must be disposed of: natural materials (various types of soil and rock), and rubble from demolished buildings.

The excess natural materials are a valuable resource in that they can be used for fill material at a different location. It appears that excavated rock from both the 10th Avenue East to 26th Avenue East section and the Mesaba Avenue to 10th Avenue East section could be used to enhance the shoreline of Lake Superior between 14th Avenue East and 21st Avenue East. This section of shoreline has been used as a dumping site for broken concrete slabs, other hard rubble and has become a very unsightly area. Approximately 60,000 to 100,000 cubic yards of rock would cover the rubble, providing a native material that would blend into the surrounding rock outcrops and also provide added shoreline protection. Care will be taken to preserve the small areas of natural beach within this area.

The rubble from demolished buildings will be disposed of at a location that will not harm the environment such as a sanitary land fill.

When specific waste disposal sites are found, consideration will be given to alternative routes over which the material will be hauled. The route selected will be one on which the increased truck traffic will not cause severe problems. Special provisions such as water tight boxes on trucks hauling wet material will be used to avoid spillage along the haul road.

Construction Noise

The changes in traffic patterns will increase traffic generated noise along the designated detour routes. This noise impact will vary due to several factors which include construction procedures, adjacent land use, duration and/or amount of traffic restriction.

The other major source of noise in the project corridor will be generated by construction activities. While all construction operations produce noise, pile driving, rock drilling, and blasting are expected to

cause the most significant impact.

Preliminary investigations indicate that pile driving may be required for the Leif Erikson tunnel, and the bridge at 21st Avenue East. If pile driving is required at these locations, the noise impact to adjacent residential land uses will be minimized by the anticipated short pile lengths and reduced pile driving times. Shorter pile lengths provide the opportunity to effectively shield adjacent property from pile driving noise by the use of temporary noise barriers or other acceptable means. Pile driving operations will be restricted to daytime hours in the residential areas.

Rock drilling and blasting may be required in the cut section between 10th and 24th Avenue East. Due to the noise generated by these operations, the contractor will be required to erect noise barriers which will be effective in reducing the impact to adjacent property. The contractor will be required to comply with the Duluth blasting permit requirements issued through the Duluth Fire Department.

Present Mn/DOT specifications require that any piece of equipment used on a project be adequately maintained including mufflers and other noise abatement devices. Construction machinery suppliers have indicated that the noise generated by the majority of the construction equipment has been reduced to 85 dBA or lower at a distance of 50 feet from the equipment.

The Contractor will be required to use this type of equipment in noise sensitive areas.

VI(K). HISTORIC

Passenger Depot: Endion

The DM&IR Railroad's former passenger depot, Endion Depot, is a designated historic property. It must be moved from its present location because it falls within the proposed freeway construction area. The station is currently owned and operated by a private business. The new location, method of movement and payment for the move have not been finalized. Because the depot is now in private ownership, the Federal Highway Administration's (FHWA) rules for moving the historic structure are different than previously discussed in the Federal EIS. A procedure for the move is presently being developed by the Department and the FHWA.

VI(L). ENERGY IMPACTS

This energy section evaluates the effects of the proposed project alternatives in terms of their energy consumption impacts.

Two types of energy consumption are dealt with. Direct consumption is the energy consumed in the actual propulsion effort of a vehicle. It refers to the impacts of operating the highway after it is constructed. Indirect energy impacts include the energy required to construct and maintain the highway, for substantial changes in consumption likely to result from project induced land use changes or modal shifts, and to manufacture, and maintenance energy due to changes in vehicular useage.

An energy analysis was done in order to compare the build and the no-build alternatives. It was done using a computer model developed by the California Department of Transportation and modified by the Minnesota Department of Transportation which uses procedures and computation factors previously accepted by the Federal Highway Administration. The width of the corridor studied (I-35 to 4th Street) was determined by the number of streets whose traffic patterns were affected by construction of I-35. Traffic volumes were obtained from the Duluth-Superior Metropolitan Area Transportation and Planning Study.

The following table shows the results of the energy analysis averaged in terms of equivalent barrels of crude oil per day (Bbl/Day) over a 20 year period. There are no significant project induced land use changes anticipated, so peripheral effects were considered nil for both the build and no-build alternatives.

EQUIVALENT DAILY CONSUMPTION

Energy Consumption by Source	Alternatives	
	Build	No-Build
DIRECT		
Vehicle Fuels	154	174
INDIRECT		
Vehicle Manufacture and Maintenance	28	22
Roadway Construction	14	0
Maintenance	0	0
TOTAL ENERGY EXPENDED	196 Bbl/Day	196 Bbl/Day

The final results show there is no difference in energy consumption between the build and no-build alternatives. This makes neither alternative more or less energy intensive than the other.

VI(M). VIEW AND AESTHETICS

This section will discuss the views and aesthetic considerations associated with the project.

Leif Erikson Park Proposed Development

Rose Garden

About 0.2 acre of the park near the Rose Garden will be lost to the freeway. The park will be affected by I-35 in that normal use will be disrupted during construction. Construction of the tunnel section will require removal of statues, the rose garden, and vegetation along Chester Creek channel. Once construction is completed, the park lands will be restored.

The following concept plan was developed in consultation with the City and the Duluth Rose Society, operators of the Rose Garden. The concept shows the Rose Garden moved to a new location compared to earlier reports. Under this concept, the gardens would be within the area presently occupied by the Curling Club.

This change occurred because of several factors, including:

1. The Curling Club is currently vacant and subject to vandalism. The present owners want Mn/DOT to acquire the building sooner than other properties along the route to remove their liability.
2. The Rose Society felt that were the gardens to be closed or relocated during tunnel construction, the Society would cease to function. They need the visibility of the present location and continuous operation of the gardens to maintain membership.
3. None of the present rose varieties are rare ones which cannot be replaced. The roses cannot be stored well or easily transplanted so the garden will need to be replanted with new plants.
4. The Society has been concerned about security and vandalism because they cannot close the gardens off from access during evening hours. They also have trouble with conflicting uses of the space, such as Frizbees sailing through the garden.
5. The present arrangement doesn't provide any large open spaces for informal group recreation.
6. The need for the off-street parking by the Curling Club will be eliminated because parallel parking will be available on each side of London Road once the freeway is completed.

The plan involves purchasing the Curling Club in advance of other interstate R/W. Once the site has been cleared, Mn/DOT will relocate the garden, using the same three bed design. Flowering crabs will surround the garden. On the freeway edges of the garden, noisewalls

will be extended from the retaining walls to reduce noise levels within the garden. On the London Road and entrance sides of the garden, an iron picket fence will be installed with a lockable gate to secure the garden during non-operation hours.

Within the garden, space will be provided for the cycling of roses between beds. The entire area will be grass, with the exception of the main entrance and the stone paving around the horse fountain. A paved overlook area will also be provided for views back toward the lake and downtown Duluth. The overlook will allow views over the top of the noisewall.

The Leif Erikson statue will be moved to a prominent area as a focal point at the entrance to the garden.

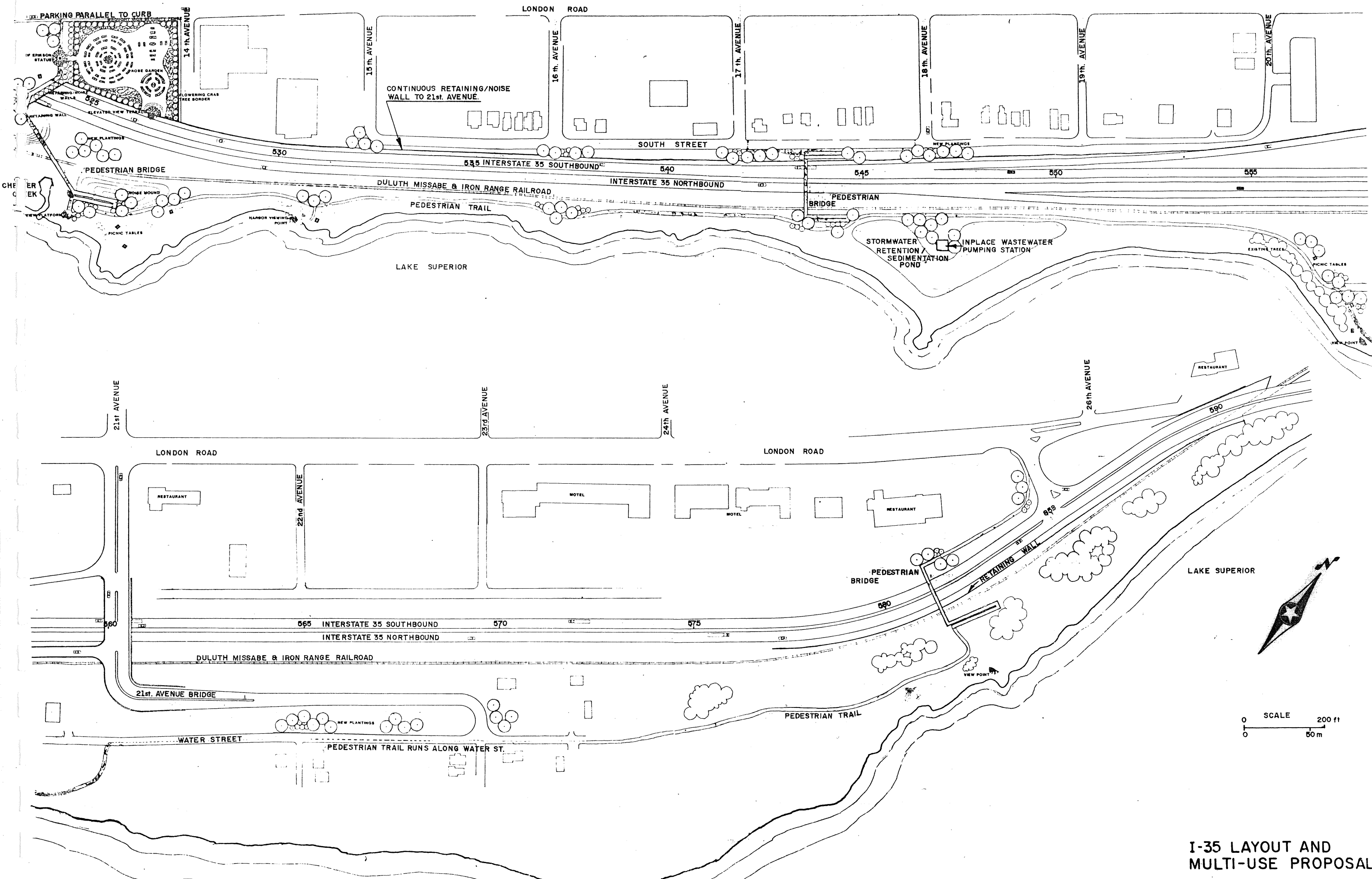
After completion of the tunnel the present Rose Garden will be restored to an open grass surface. This will permit area for informal recreation and also will allow a broad view to the lake. Pedestrian trail systems will continue from downtown, through the park and on along the shore.

The design details for retaining walls, bridges, fences and other elements will be identified in a detail design guide to be prepared by the Site Development Unit of the Office of Environmental Services.

Additional Park Land

As mitigation for disruption and loss of park land, Mn/DOT will purchase 1.2 acres of private land and add it to the existing park. This property will add 500 lineal feet of shoreline to the park. Access to the shore will be by a bridge from the top of the tunnel portal over the railroad track and then down to the shoreline.

This additional park land will be grass covered and trees and perhaps low noise mounds will be developed.



I-35 LAYOUT AND
MULTI-USE PROPOSAL

Shoreline

The present shoreline along this stretch is generally in poor condition. Much of it has been spoiled by random dumping of debris, such as concrete slabs, bituminous chunks and wood. The banks are heavily eroded at many points. In several eroded sections between 15th and 18th Avenue East, the height of the bank above the lake level will be reduced. This is the result of the freeway being lowered below the level of the existing tracks. This will significantly reduce erosion into Lake Superior at these difficult points.

To further reduce erosion, stabilize the bank and clean up the debris-covered beach, the shoreline will be randomly riprapped with large native rock pieces from roadway construction. At some points, the debris, old concrete slabs, bituminous chunks, etc. will be covered with excess soil from the roadway excavation and then riprapped. Areas of natural beach will be carefully retained and protected. Where possible, native vegetation will be planted, both for visual purposes and bank stabilization.

Trail System

The City of Duluth and previous Mn/DOT documents have designated trail systems as a part of the corridor. Pedestrian traffic is expected to use the system.

As currently planned, Mn/DOT will construct a pedestrian trail along the lake. The lakeshore trail will extend from the bridge structure in Leif Erikson Park along the shore to about 20th Avenue East. The trail construction might require small retaining walls at several points, because of the steep slopes toward the lake. A fence will separate the railroad tracks from the trail.

Between 17th and 18th Avenue East a bridge will connect the lakeshore trail with South Street beyond the freeway. This bridge will link the neighborhood and London Road district with the lake.

All bridge structures will be handicap accessible. Another link over the freeway will be available on the bridge carrying 21st Avenue East over the corridor. This will also be a direct link to London Road.

Between about 20th Avenue East and 24th Avenue East, the trail may be carried as part of Water Street which runs parallel to the corridor and the lakeshore. At about 25th Avenue East another bridge will carry the trail across the corridor and up the bluff to its termination at 26th Avenue East and London Road.

The trail system described will provide a public link along one mile of lakeshore. Most of this shore is presently privately owned and relatively inaccessible. The trail represents a significant increase in recreational opportunities for the Duluth citizens.

Ponding Area

One method of controlling storm drainage off the freeway is to collect the flow and store it temporarily in a sedimentation pond. The pond will be constructed on the point of land at 18th Avenue East and will be approximately one acre in size.

This point of land is covered with scrub vegetation and strewn with debris. Once constructed, trees and shrubs would be planted to replace those lost during construction. Water retention in the pond would be limited to storm periods to eliminate a potential safety hazard.

The lakeshore side of the pond would be riprapped to protect against storm erosion from the lake. Large chunks of native rock will be used.

Coordination of Surface Treatments

All retaining walls, bridge facias and noisewalls will be designed using a consistent pattern of treatments. The same treatments used further down the freeway toward downtown will be duplicated along this section.

Where noisewalls are required at retaining walls, they will be continuous structures. The retaining walls will be extended vertically to the height required for noise protection.

Detail design elements along the entire corridor from 10th Avenue East to 26th Avenue East should be coordinated. To insure a consistent visual image, the Site Development Unit, Office of Environmental Services, will prepare a detail design guide covering this section. The guide will include design details for elements such as retaining walls, lights, fencing, surface treatments, etc.

SECTION VII

ALTERNATIVES AND SUMMARY OF ASSOCIATED IMPACTS

VII. ALTERNATIVES AND SUMMARY OF ASSOCIATED IMPACTS

This section is a summary of alternatives considered and reasons for dismissal.

This section discusses no-build alternative, mass transit, London Road upgrading alternatives, alignment alternatives within the corridor and various facility types.

RECOMMENDED ALTERNATIVE

The recommended alignment and design of the proposed freeway within the corridor is discussed in detail in Section III, Description of the Proposed Action and Alternative Selected (pages 15 to 20).

DO-NOTHING ALTERNATIVE

The "do-nothing" alternative means no additional major construction or upgrading of existing streets in the corridor between 10th and 26th Avenues East. I-35 would end at 10th Avenue East and London Road with freeway traffic flowing directly to and from London Road. The "do-nothing" alternative results in increased traffic on London Road between 10th and 21st Avenues East (13,600 present ADT to 26,400 ADT in the year 2000). This results in the following impacts along London Road:

- Increased difficulty finding gaps in traffic flow for access to and from adjacent property. This increased traffic congestion probably would have an adverse effect on London Road businesses and the use and enjoyment of Leif Erikson Park.
- Increased vehicular accidents.
- Increased noise, above standards between 10th and 14th Avenues East adjacent to Leif Erikson Park.
- Increased air pollution, but below standards.

The "do-nothing" alternative does not reduce traffic and associated safety, noise and visual impacts on heavily traveled neighborhood streets. The "do-nothing" alternative provides no extra margin for peak travel demands. Traffic congestion on streets in the corridor will continue and peak demand periods will only compound the problem.

The "do-nothing" alternative was dismissed based on the above deficiencies.

MASS TRANSIT ALTERNATIVE

The Duluth Transit Authority (DTA) Board, the Duluth and Superior City Councils, American Transit Enterprises (ATE) Management Company and the Metropolitan Interstate Committee (MIC) are five separate bodies with five separate, but interacting roles in addressing mass transit in the Duluth-Superior Area. The DTA is the policy-making authority, the City Councils are the funding authorities, the ATE Management Company is responsible for operational expertise and the MIC is the designated Metropolitan Planning Organization (MPO) which provides information to assist them in their policy, operational, and funding decisions.

The 1980-1985 Duluth-Superior Transit Development Program (TDP) is a six year operational and capital plan for the improvement of public transportation in the Duluth-Superior area. As such, it reflects the concerns of area citizens, transportation related staff and policy makers in a composite guide for implementation. Major recommendations of the TDP are as follows:

- Staggered work hours program
- Coordinated system for the mobility handicapped
- Carpooling, vanpooling and other paratransit programs
- Pass options to transit users
- Flexible and convenient stopovers and transfers
- Transit route improvements
- Examine feasibility of a high speed express shuttle system

Present transit planning in the Duluth-Superior area centers around the conventional bus as the primary transit vehicle. Some local officials, however, have been conducting preliminary studies on a high speed express shuttle system during the past few years. This system would have buses circulating in neighborhoods and feeding stations along a high speed express corridor. The express vehicle being studied is an aerobus which runs on overhead cables. The MIC has recently requested that the Federal Urban Mass Transit Administration (UMTA) look into the availability of funds to conduct an Alternatives Analysis to determine the feasibility of different transit systems and to prepare construction bid plans for an aerobus demonstration track and vehicle.

The proposed construction of I-35 from 10th Avenue East to 26th Avenue East is compatible with local transit plans and objectives regardless of the type of transit system and vehicles utilized in the future. Two related transportation objectives adopted by the MIC are:

- The Mass Transportation Ridership should increase to the point of carrying 40% of all CBD work trips by 1985 compared to 15% in 1970 and 25% in 1980; and 8% of all intra-community trips compared to 4% in 1970 and 5% in 1980.
- The home based Work Trip Auto Occupancy Rate should increase to 1.6 by 1985 compared to 1.2 in 1970 and 1.25 in 1980.

Achievement of these objectives will require substantial improvements

and investment in mass transit service as well as a significant number of people making a decision to change their mode of travel and share rides to work. A substantial increase in the number of buses and drivers and a large staggered work hour program or a new system such as aerobus would be required to provide needed capacity. One of the more important questions to be answered is whether government can afford the operating costs associated with increased levels of transit service. An Alternative Analysis would address this important issue while evaluating alternative transit systems and determining the most efficient type of transit system for the Duluth-Superior area.

Achievement of the mass transit objectives (transit ridership 8% of person trips and work trip vehicle occupancy rate of 1.6) would result in approximately a 10% reduction in projected (year 2000) daily vehicle trips in the corridor compared with 1971 transit ridership and vehicle occupancy rates. Below is a summary of trips in the corridor at approximately 14th Avenue East between Lake Superior and 4th Street assuming the different mode split rates:

YEAR	PERSON TRIPS	TRANSIT	AUTO PASS.	AUTO DRIVER
1971	76,000	2,900	27,700	45,400
1980	81,100	3,500	30,300	47,300
2000	99,500	3,900	36,200	59,400
(1971 rates)				
2000 (2000 rates)	99,500	7,900	38,700	52,900

This reduction of approximately 10% in projected (year 2000) daily traffic volumes in the corridor is not significant in terms of reducing traffic related impacts in the corridor.

LONDON ROAD UPGRADING ALTERNATIVES

Two alternatives were considered to improve the safety and capacity of London Road, a raised median/channelization concept and a fifth lane concept for left turn movements. The raised median/channelization alternative is not feasible because of the numerous driveways per block providing access to commercial properties. The raised median would require significant indirection of travel to get to and from London Road businesses and undesirable U-turns at intersections.

The fifth lane alternative makes more effective use of London Road to move cars, but on-street parking would have to be eliminated. Four through traffic lanes would be supplemented with a fifth, shared center lane for use by congestion-causing left turn traffic. A 3' paved (minimum) bikeway could also be provided on London Road adjacent to the curb in each direction. This alternative will not reduce traffic volumes and associated impacts on neighborhood streets and would have the same adverse impacts on Leif Erikson Park as the "do-nothing"

alternative. The fifth lane alternative, however, would reduce traffic congestion and accidents on London Road to some degree.

ALIGNMENT ALTERNATIVES WITHIN THE CORRIDOR

The alignment alternatives are analyzed in relation to the recommended alternative by varying the horizontal alignment. The alternatives discussed in this section are "more southerly alignments" and "more northerly alignments". The "more southerly alignments" refer to all those alternatives lying southerly of the recommended alternative alignment. Likewise, "more northerly alignments" refer to those alternatives lying to north of the alignment of the recommended alternative.

More Southerly Alignment

10th Avenue East - 14th Avenue East (Leif Erikson Park)

This alignment would result in removal or relocation of the railroad. The depressed highway on the southerly alignment would virtually destroy Leif Erikson Park because of the land required for construction. Alignments that would avoid the park would place the freeway over the lake on an elevated structure or require a huge lake fill section. The negative visual impact, the cost and the public sentiment against any type of lake fill make these proposals unfeasible.

14th Avenue East - 26th Avenue East

This alignment would require lake fill, and would have a negative impact on the proposed multiple use in this area. This alternative would require removal of buildings on the south side of the in-place railroad. Because of the above adverse impacts, this alternative is dismissed.

More Northerly Alignment

10th Avenue East - 14th Avenue East

Alignments that would not involve London Road or park land and also provide access to London Road in the vicinity of 14th Avenue East were studied. These alignments require acquisition of all the residential and commercial property on the north side of London Road between 10th Avenue East and 14th Avenue East and some commercial property on the south side of London Road east of 14th Avenue East. Included in this property is St. Lukes Hospital intern residence, First Lutheran Church, Plaza Shopping Center, the old National Guard Armory and Plaza Dodge. The social and economic effects and the relocation of people involved with these alignments are not prudent; therefore, these alignments were dismissed.

Alternatives which could utilize London Road from 9th to 14th Avenue East and curve to the south at a point east of the Rose Garden were evaluated. These alignments are not prudent because they:

- restrict access to the properties on the north side of London Road
- eliminate access from Superior Street to London Road in this area
- adversely affect air, noise, and visual qualities of the park and adjacent properties
- eliminate the one way traffic operation of 12th and 14th Avenues East
- disrupt continuity of London Road by eliminating London Road west of 14th Avenue East
- isolate the park from the community
- require acquisition of additional residential and commercial property south of London Road.

Based on these disadvantages, these alternatives to miss Leif Erikson Park were dismissed.

14th Avenue East - 26th Avenue East

These alignments would result in the removal of a considerable number of business and residential buildings between 14th Avenue East and 26th Avenue East.

Because of the above disadvantages, this alternative was dismissed from further considerations.

ARTERIAL/PARKWAY ALTERNATIVE

An arterial or parkway facility alternative was evaluated on the proposed freeway alignment and an alignment on London Road adjacent to Leif Erikson Park before swinging down to the DM&IR Railroad corridor to by-pass the London Road commercial strip.

Freeway Alignment

A 6-lane arterial between 10th and 21st Avenues East and a 4-lane arterial between 21st and 26th Avenues East would be required to handle the projected mainline traffic volumes. An at-grade intersection at 21st Avenue East, however, could not adequately handle the heavy turning movements. An arterial highway between 10th and 15th Avenues East would result in the total destruction of the upper portion of Leif Erikson Park. For these reasons, this alternative was dismissed from further consideration.

London Road/Railroad Alignment

An arterial or parkway facility on London Road between 10th and 14th Avenues East would have the same adverse impacts on Leif Erikson Park as the "do-nothing" and the fifth lane alternatives. An arterial highway by-passing the London Road commercial strip would only attract trips from London Road and would not reduce traffic and associated impacts on neighborhood streets in the corridor. Construction of a major, new arterial highway (with its large right-of-way requirements and high cost) for the sole purpose of diverting traffic around the London Road commercial strip is not a prudent alternative. For these reasons, this alternative was dismissed from further consideration.

SECTION VIII

**PROBABLE ADVERSE ENVIRONMENTAL
EFFECTS WHICH CANNOT BE AVOIDED**

VIII. PROBABLE ADVERSE ENVIRONMENTAL
EFFECTS WHICH CANNOT BE AVOIDED

Should the proposal be implemented, probable adverse effects which cannot be avoided or reduced to an acceptable level are:

- Noise levels are predicted to exceed State daytime and nighttime standards, for residential properties, between 10th and 14th Avenues East. State nighttime standards will be exceeded in the area from 14th to 26th Avenues East.
- Taxable property in the form of houses and commercial buildings displaced will be taken off the tax rolls. The tax revenue is calculated from the assessors market value of \$323,000, which would have generated a tax revenue of \$20,000.
- The development of the facility being proposed will displace 14 businesses in 14 buildings. The owners of 7 of the 14 businesses responded to a questionnaire of which 1 indicated that he would liquidate instead of relocating. The one business employs approximately 7 employees.
- Access from the freeway to the London Road commercial district will be provided only at 21st Avenue East. The removal of through traffic from London Road may result in some slight loss of business to some highway related businesses (gas stations, restaurants, etc.).

SECTION IX

**RELATIONSHIP BETWEEN LOCAL SHORT
TERM USES OF THE HUMAN
ENVIRONMENT AND THE MAINTENANCE
AND ENHANCEMENT OF LONG TERM
PRODUCTIVITY**

IX. RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE HUMAN ENVIRONMENT & THE MAINTENANCE & ENHANCEMENT OF LONG-TERM PRODUCTIVITY

This evaluation outlines the immediate environmental benefits derived from the proposed construction as opposed to the future environmental losses caused by the proposed action. The obvious gains obtained from the proposed action are examined only to the extent that they may foreclose future options of development.

SHORT TERM GAINS

Implementation of the proposed construction will create a demand on the local job market. Positive benefits will be experienced by the real estate and housing industry, commercial and retail sales, along with increased City of Duluth sales taxes. Increased sales taxes will also be derived from the purchase of construction materials.

SHORT TERM LOSSES

The construction will necessitate local and through city traffic to be detoured around the project. Disruption of travel habits will lead to more circuitous patterns and traffic congestion.

Some of the land that will be used for the freeway, ramps, and interchanges was formerly occupied by commercial and residential real estate. Real estate taxes paid for these properties will be lost. In some instances the displacement of commercial buildings will result in the loss of jobs by people working there. See Section VI (Economic Impacts), page 50.

Construction of the freeway will remove existing vegetation in some areas. Inherent in all construction is the temporary erosion problem along with increased air and noise pollution. The location of the proposed freeway is such that public service utilities will have to be relocated. Also requiring relocation will be ornamental and aesthetic shrubs and vegetation in the area of Leif Erikson Park.

LONG TERM GAINS

Long range benefits attributable in part to the completion of the freeway will begin to accrue immediately. Fuel economy from elimination of stop and go driving along with higher average speeds allowed on freeways increase the efficiency of today's internal combustion engines.

Safety records of existing freeways show that the accident rate is lowered dramatically from that experienced in the congested downtown areas. Decreased travel time will benefit local drivers and commercial haulers.

The continuous flow traffic pattern typical of freeways reduces noise and air pollution. Vehicles moving out of the residential neighborhoods to use the freeway will also reduce noise and air pollution in those areas along with accident reduction.

As shown in the economic study in this report (Section VI, page 50) the majority of the commercial companies that relocate will remain in this area. Some of these companies are planning to build new buildings and some are expecting to expand their businesses. The expansions will create new job openings, and the new buildings will add to the tax base, both of which will help the economy of the area.

Throughout the construction area of the freeway, stormwater run off controls will be installed to reduce potential damage from heavy rainfalls. Even though the roadway is new, periodic and seasonal upkeep is necessary, one such activity being snow plowing.

Initially Leif Erikson Park will be partially disrupted and permanently lose 0.2 acres of land. Acquisition of additional land in the vicinity of the park will be added to the existing park for a net gain in park lands of about 2.1 acres.

LONG TERM LOSSES

The physical occupancy of the land by a highway facility most generally removes the possibility of the land contributing to the real estate taxing base. Multiple use development on the land could provide tax revenues through another medium such as personal property taxes.

The freeway will become a permanent barrier to access to the lakeshore except at selected locations.

Construction activity will use up petroleum based fuels and oils in the heavy equipment needed to build the project.

SECTION X

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

X. I R R E V E R S I B L E & I R R E T R I E V A B L E
C O M M I T M E N T O F R E S O U R C E S

The loss of resources considered to be irreversible are those that are permanently removed from the environment. The loss of resources considered to be irretrievable are those that cannot be replaced within the human life span, approximately 100 years.

The total commitment of resources for the proposed project is estimated to cost 45 million dollars.

Real estate consisting of business buildings and property, residential homesites, apartment buildings, and open space land will be acquired to facilitate construction. Even though the properties acquired for construction may be replaced with equal or better structures in other locations, the tax revenues received from the original structures is lost. The estimated lost tax revenue is \$20,000.

SECTION XI

STATE GOVERNMENT AND MULTI-STATE RESPONSIBILITIES

XI. STATE GOVERNMENT AND MULTI-STATE RESPONSIBILITIES

This section will discuss the impact on State Government of any State or Federal controls associated with the proposed action.

Federal regulations require a Section 4(f) Statement whenever any publicly owned park, recreation area, wildlife and water fowl refuge or historic property is directly or indirectly affected by a proposed action. Because there is a historic building and a park in the corridor, a Section 4(f) Statement and Historic and Cultural Preservation Report was required for the proposed extension of the freeway. This Section 4(f) regulation resulted in a longer Environmental process.

In order to receive Federal funding for this project, the Mn/DOT Design Standards must conform to the AASHTO (American Association of State Highway Transportation Officials) standards. This requirement of the FHWA (Federal Highway Administration) when adopted resulted in a more stringent design standard.

Permits will be required from the Minnesota Pollution Control Agency (Air Quality), Minnesota Department of Natural Resources (Chester Creek) and U.S. Corps of Engineers (Lake Superior).

SECTION XII

COORDINATION

XII. C O O R D I N A T I O N

Throughout the Duluth transportation and highway studies, coordination with Federal, State and local interests has and continues to play an important role in development of a transportation plan. Close coordination has been maintained with the City of Duluth, particularly the engineering and planning offices.

The first public hearing for this project was held on April 7, 1959. Since then, four more public hearings have been held:

- December 28, 1961
- November 2, 1965
- October 9, 1973
- September 15, 1976

Through the years these meetings have attracted a large number of people. The 1973 hearing was attended by approximately 1,100 people.

Public hearings have not been the only means of communication and coordination between the Minnesota Highway Department/Mn/DOT and the public and private sectors in Duluth. There have been a large number of open forums and meetings. The list of governmental agencies, private businesses and organizations which have been involved in the planning process is quite extensive:

U.S. Environmental Protection Agency
Federal Highway Administration
Dept. of the Army-Corps of Engineers
Minn. Pollution Control Agency
City of Duluth
St. Louis County
Duluth Plan Committee
Mayor's Citizens Advisory Committees
Model Cities Administration
Arena-Auditorium Board
Arrowhead Regional Development Commission
Metropolitan Interstate Committee
Duluth Park Board
Western Lake Superior Sanitary District
Holiday Inn's, Inc.
Northern Pacific Railroad
Fitger Brewing Company
Chicago Northwestern Railroad
Duluth, Missabe and Iron Range Railroad
AFL-CIO Central Labor Body

Duluth Chamber of Commerce
Citizens for Integration of Highway and Environment
Stop the Freeway
Duluth Preservation Society
Downtown Development Corporation
League of Women Voters
St. Louis County Historical Society
Minn. Historical Society
Duluth Building Owners and Managers Association
Duluth Engineers Club
Duluth Property Owners Association
Womens Institute
Rose Garden Society
Northern Environmental Council
Duluth Architects Committee on Urban Design
Junior League of Duluth
Duluth Scottish Rite Bodies
Congdon Park P.T.A.
Lions Club
Rotary Club
Optimists Club
Izaak Walton League of Minnesota

This list, as large as it is, is representative of the large number of groups and individuals which have participated in the development of this project. In 1977 the Federal FEIS was distributed to State, Federal and local agencies.

The Mn/DOT and FHWA have actively sought public participation at all stages of this project. Minority groups in the Duluth area have elected not to become involved in this process.

Along with this extensive community involvement there have been several private engineering and architectural firms employed for study and design. In 1971, Eckbo, Dean, Austin and Williams were contracted to do the Duluth Corridor Study. This firm had been recommended to the M.H.D./Mn/DOT by the Mayor of Duluth and a citizens committee (Citizens for Integration of Highway and Environment). In September of 1976 the M.H.D./Mn/DOT at the request of the Mayor's Citizens Advisory Committee, employed Architectural Resources of Duluth, Thomas-Vecchi of Duluth, and Bather, Ringrose and Wolsfeld of Edina, Minnesota, for multiple use, traffic and geometrics design studies for this project.

APPENDIX

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