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MINNESOTA DEPARTMENT OF TRANSPORTATION

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DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR

S.P. 7321-26, 7321-27, 7321-28 & 0509-12 (T.H. 15)
From Just So. of Division Street in St. Cloud
To T.H. 10 Connection in Sauk Rapids





Minnesota Department of Transportation
Transportation Building, St. Paul, MN 55155

Phone 296-3420

December 6, 1984

To Whom It May Concern:

The Minnesota Department of Transportation (Mn/DOT) recently circulated for review and comment a Draft Environmental Impact Statement (EIS) for Trunk Highway (TH) 15 in St. Cloud, Minnesota. Since that time a few minor errors have been found in the document.

Attached please find an errata sheet for the Draft EIS which corrects the errors. This errata sheet is being circulated to all persons who received a copy of the Draft EIS. We apologize for any inconvenience our errors may have caused.

Sincerely,

F. C. Marshall
Assistant commissioner
Technical Services Division
Minnesota Department of Transportation

Attachment

TH 15 Draft Environmental Impact Statement
Errata Sheet

1. Page ii, Paragraph 8 has been rewritten to read as follows:

The DEIS also includes a detailed discussion of the noise impacts associated with these proposed improvements. Existing and projected Year 2007 noise levels within the project area are presented. Existing noise levels do not significantly exceed state noise standards. The projected Year 2007 worst hour nighttime noise levels will exceed state standards at two receptors. One is in Area F and the other in Area G at the Mississippi River. A variance from the nighttime state noise standards will be requested for the receptor in Areas F and G for 2 dBA and 5 dBA respectively. Existing and projected noise levels do not exceed the Federal Noise Abatement Criteria. However, there are areas which will experience a significant (10 dBA) increase over existing noise levels.

2. Page ii, Paragraph 9. The last sentence has been revised to read as follows:

This discussion concludes that, for this project, noise abatement is not cost effective based on the fact that state nighttime standards are exceeded at only two receptors and the cost of noise walls for each receptor ranges from \$25,000 to \$35,000.

3. Page 21, Item 17.a. Transportation System Comments.

This paragraph has been rewritten to indicate changes in time schedules. Starting with the third sentence the paragraph now reads:

The Area Planning Organization passed a resolution on July 26, 1984 certifying that their transportation planning process fulfills all applicable Federal requirements; Mn/DOT concurred on August 10, 1984. The FHWA accepted the TIP on November 19, 1984 and made the finding that the projects were developed in accordance with the provisions of 23 CFR Part 450, Subparts A and B.

The last sentence has been deleted.

4. Page 22, Paragraph 4. This paragraph, beginning "The traffic signals...", has been deleted. The new paragraph now reads:

At the intersection of TH 15 and 3rd Avenue, the eastbound traffic on 3rd Avenue will have a leading (advanced) green signal in order to assist the left turning vehicles in clearing the intersection. At the intersection of TH 15 and Division Street (TH 23) the traffic signals will be coordinated with upstream signals and thus allow platooning of traffic from all directions through the intersection.

STATE OF MINNESOTA

DEPARTMENT OF TRANSPORTATION

Draft Environmental Impact Statement

For

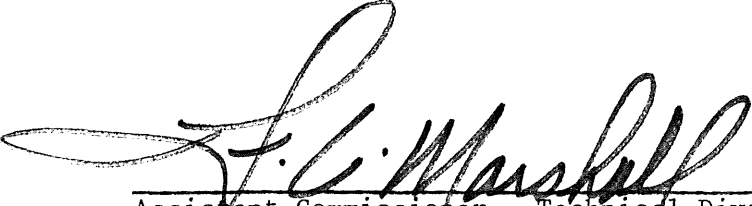
S.P. 7321-26, 7321-27, 7321-28 & 0509-12
Trunk Highway 15
From Just So. of Division Street in St. Cloud
To TH 10 Connection in Sauk Rapids
Stearns and Benton Counties

Submitted pursuant to MEQB Rule 6 MCAR S.3.039 (0)

This DEIS presents the proposed improvements, as well as the associated impacts, to Trunk Highway 15 between St. Cloud and Sauk Rapids. Included in this DEIS is a discussion of one location alternate, within the existing right of way corridor, and two design alternatives, build or no build. Based on the Scoping Meeting held in March of 1984, the following issues are also addressed in this report: noise impacts; energy impacts, air and water quality impacts; floodplain and wetland impacts.

RGU - Mn/DOT Technical Services
Contact Person - Frank Pafko
Transportation Building
St. Paul, MN 55155
(612) 296-1642

Proposer - Mn/DOT District 3
Contact Person - James Povich
P.O. Box 978
Brainerd, MN 56401
(218) 828-2462


Assistant Commissioner - Technical Division

Date

Nov. 15, 1984

SUMMARY

This project proposes the construction of a four-lane expressway from just south of the junction of Trunk Highway 23 in St. Cloud to the Trunk Highway 10 connection in Sauk Rapids. This Draft Environmental Impact Statement will assess the social, economic and environmental effects of the proposed improvements to the surrounding area.

This project has been under study and review since the late 1950's. Preliminary design work occurred in the 1960's with the right of way acquisition completed by the late 1960's. During the 1970's the southern portion (from I-94 to Trunk Highway 23) and northern portion (from Benton Drive to US Trunk Highway 10) of the project were built in conjunction with the adjacent construction of I-94 and USTH 10. This left the remaining section of the project to be built from TH 23 to the TH 10 connection. By the late 1970's the TH 15 project was temporarily discontinued due to funding and programming difficulties.

In March of 1984 Mn/DOT resumed the development of this project with the issuance of an Environmental Assessment Worksheet and the holding of a Scoping Meeting. An Environmental Impact Statement preparation notice was then published in May of 1984.

During the scoping process the only location alternate discussed was within the existing right of way corridor. Because no comments were received concerning the inclusion of other location alternatives, only the existing right of way corridor is discussed within this DEIS.

Since the early 1960's, Mn/DOT has developed several different design alternates ranging from an elevated freeway concept to an at-grade expressway. The most recent study shows that an at-grade expressway will provide acceptable levels of service for the expected life of the improvement. For this reason, Mn/DOT entered the scoping process with only two design alternatives being considered: 1) no build; and 2) an at-grade expressway. Again, no comments were received during the scoping process concerning the discussion of other design alternatives. Therefore, these two design alternates are the only alternates discussed in this DEIS.

This DEIS documents that there will be little or no effects to the surrounding environment in the following areas: 1) ethnic or disadvantaged groups; 2) regional and community growth; 3) economic development; 4) bicycle transportation; 5) inventory of wild and scenic rivers; 6) Section 4(f); 7) threatened or endangered species; 8) present and future land use; 9) farmlands; 10) property severance; 11) relocation; 12) access change; 13) wildlife; 14) wetlands; 15) floodplains; 16) water quality; and 17) air quality.

Positive impacts are identified in the areas of: 1) accessibility; 2) emergency services; 3) economic impacts; and 4) energy.

The DEIS also includes a detailed discussion of the noise impacts associated with these proposed improvements. Existing and projected Year 2007 noise levels within the project area are presented. Noise levels, existing and proposed, do not exceed State or Federal Design Noise Standards. However, there are areas which will experience a significant (10dBA) increase over existing noise levels.

The feasibility of noise abatement for the affected areas was considered. Possible mitigative measures including: 1) earth berms; 2) vegetative screens; 3) traffic management measures; 4) sound insulation; 5) roadway surface type; 6) alignment changes; 7) acquisition of impacted properties; and 8) noise barriers are discussed. This discussion concludes that, for this project, noise abatement is not cost effective based on the fact that standards are not exceeded and the cost of noise walls ranges from \$200,000 to \$300,000.

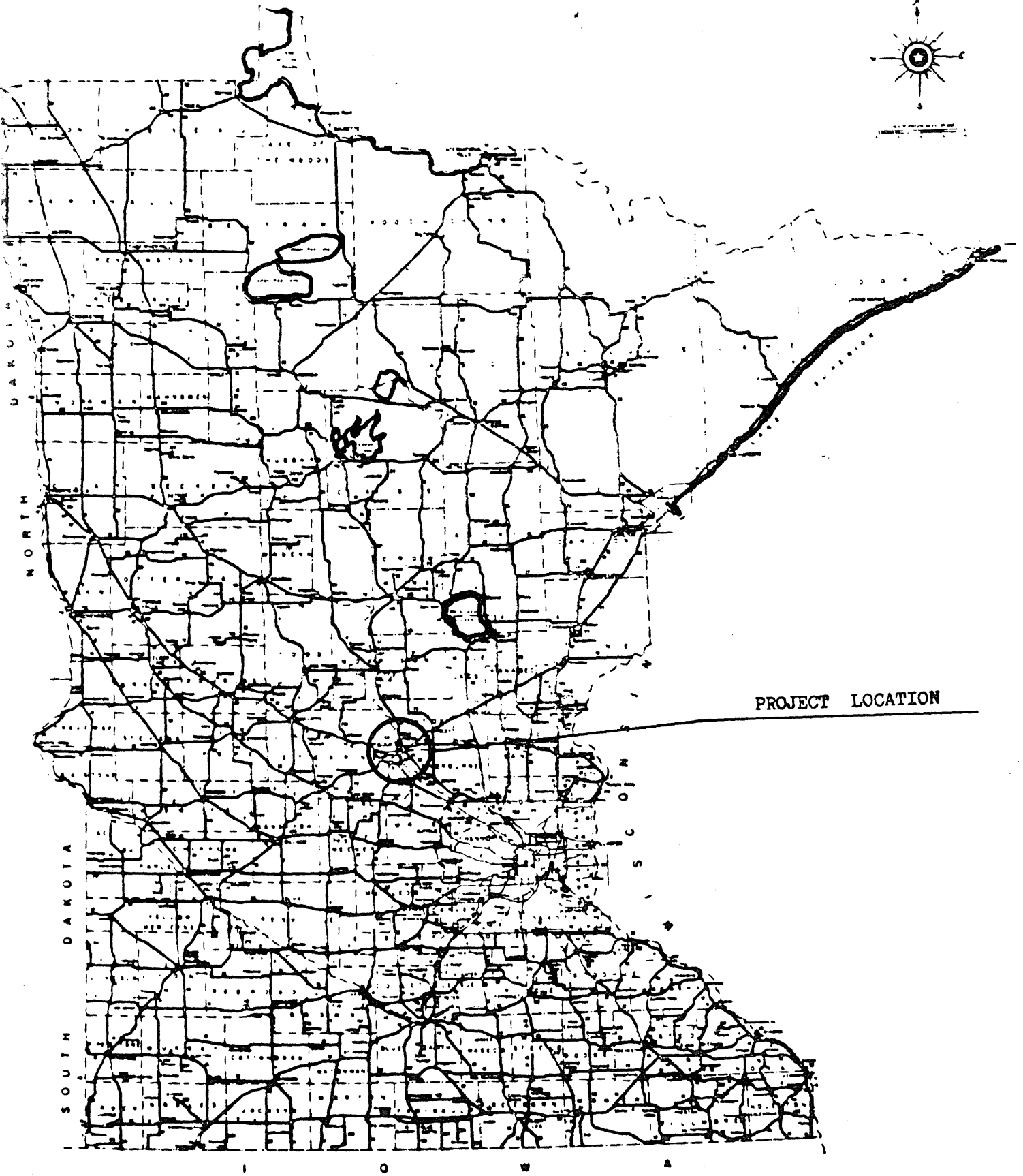
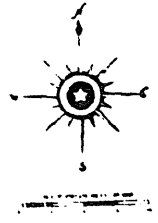
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LIST OF PREPARERS

<u>Name</u>	<u>Education</u>	<u>Years Of Experience</u>	<u>EIS Responsibility</u>
Mn/DOT District 3:			
James Povich	BCE	14 Years	Project Manager, EIS editing
James Weingartz	BCE	12 Years	EIS Editing
Tom Highum	Civil Technology	8 Years	EIS Preparation
Mn/DOT Central Office:			
Frank Pafko	BS Fisheries	8 Years	EIS Editing
Joe Thomas	BS Soil & Water Management	5 Years	Floodplains
Gerry Larson	MA	5 Years	Social & Economic
Jim Halvorson	BS Civil Eng.	12 Years	Air Quality
	BS Meterology		Energy Analysis
Jim O'Connor	BCE	10 Years	Noise Analysis
Others:			
William Hanson	BCE	14 Years	Traffic Projections
Executive Director			Public Involvement
St. Cloud APO			EIS Preparation

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
WORK MAP



PROJECT LOCATION

FIGURE 1

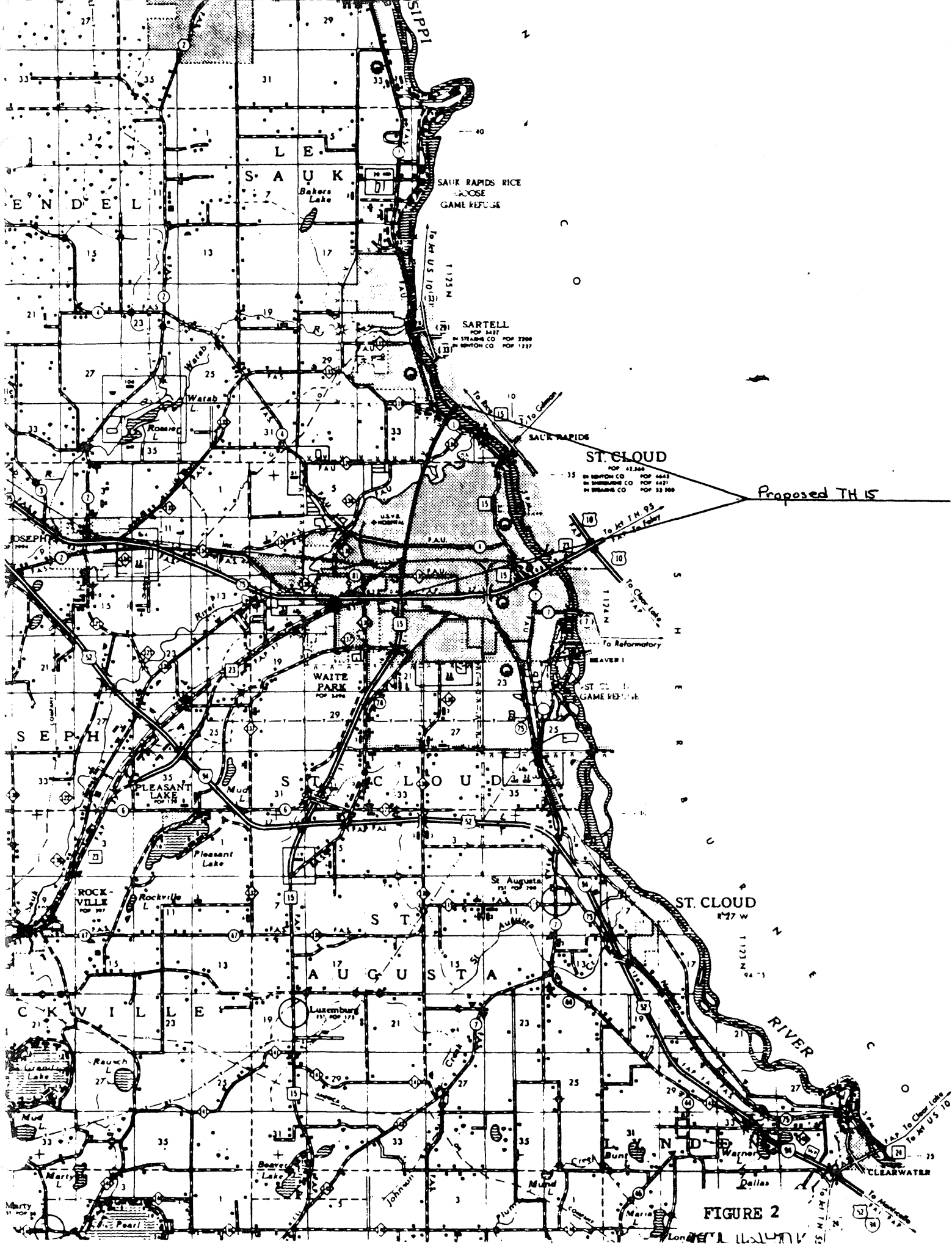


FIGURE 2

I. PROJECT DESCRIPTION

A. Project Location

The proposed project is located in Central Minnesota (Figure 1) within the St. Cloud metropolitan area. The St. Cloud metropolitan area is situated within the counties of Benton, Sherburne and Stearns. It is comprised of the cities of St. Cloud, St. Joseph, Sartell, Sauk Rapids and Waite Park. Figures 2 and 3 show the locations of these cities within the metropolitan area.

Figure 4 illustrates the location of the proposed TH 15 corridor in relation to the St. Cloud metropolitan area.

B. Proposed Improvements

This project proposes the construction of approximately 3.0 miles of four-lane roadway. The following major design features will be included:

1. A four-lane urban/rural expressway will be constructed from TH 23 to 12th Street, a distance of approximately one mile and a four-lane rural expressway design will be constructed from 12th Street to Benton Drive, a distance of approximately two miles. Figure 5 shows the proposed typical sections.
2. This proposed facility crosses three city streets and two county roads. All will be constructed as at-grade intersections.
3. New signal systems are proposed at 3rd Street, 8th Street and 12th Street. The in-place temporary system at Division Street will be replaced with a new permanent system.
4. The construction of a pedestrian overpass at 10th Street.
5. A railroad overpass and two major river crossings will be constructed.
6. The construction of 8 storm water holding ponds.

Minor design modifications may also be considered based on comments received from local officials and residents during the public involvement process.

C. Existing Facilities

This proposal consists of the final link in the connection of TH 15 from the I-94 interchange northerly to the major fork connection of TH 10 at Sauk Rapids. Since the proposed improvement is an integral part of an overall transportation network for the entire St. Cloud area, a brief description of the existing roadway follows.

FIGURE 3
ST. CLOUD METROPOLITAN AREA

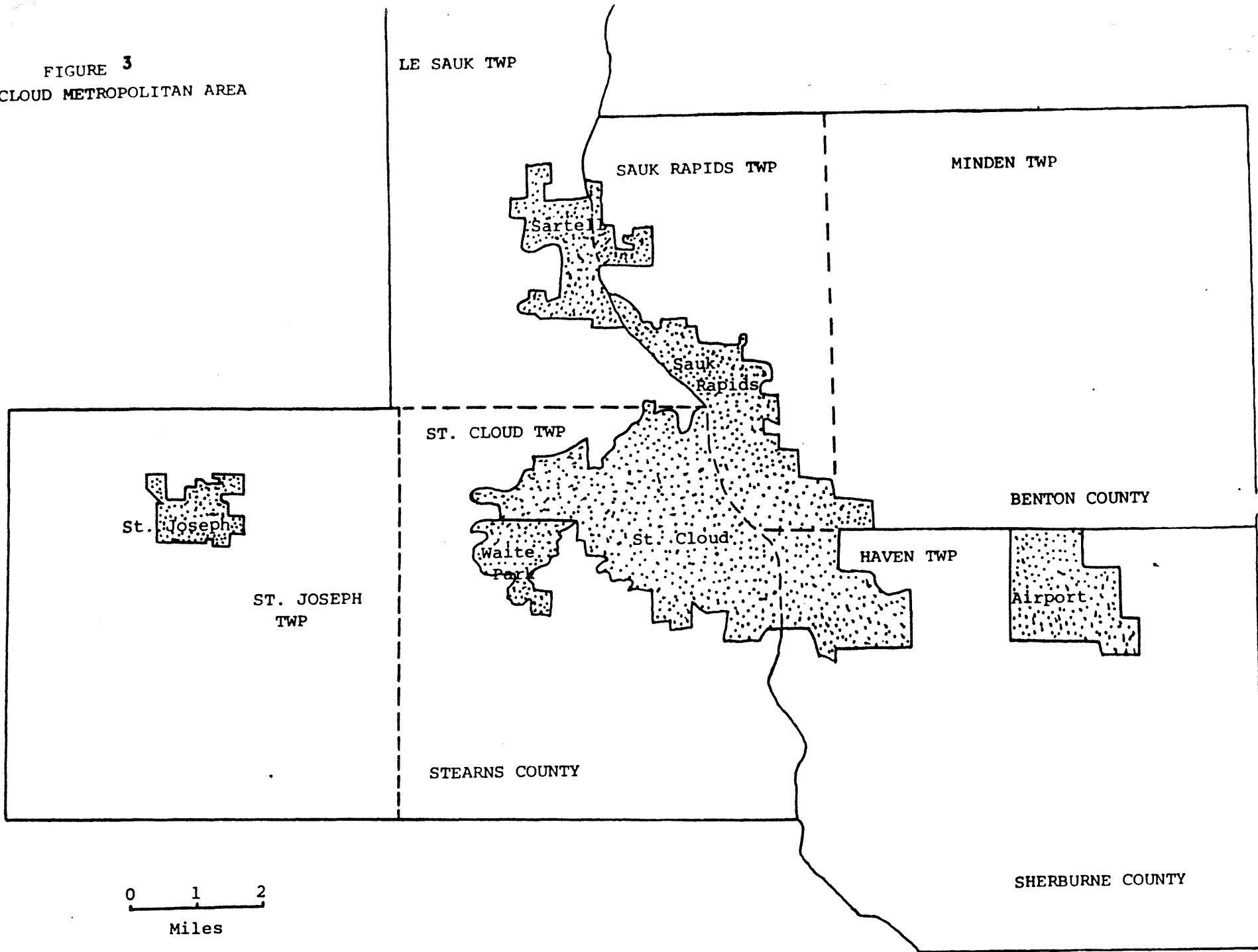
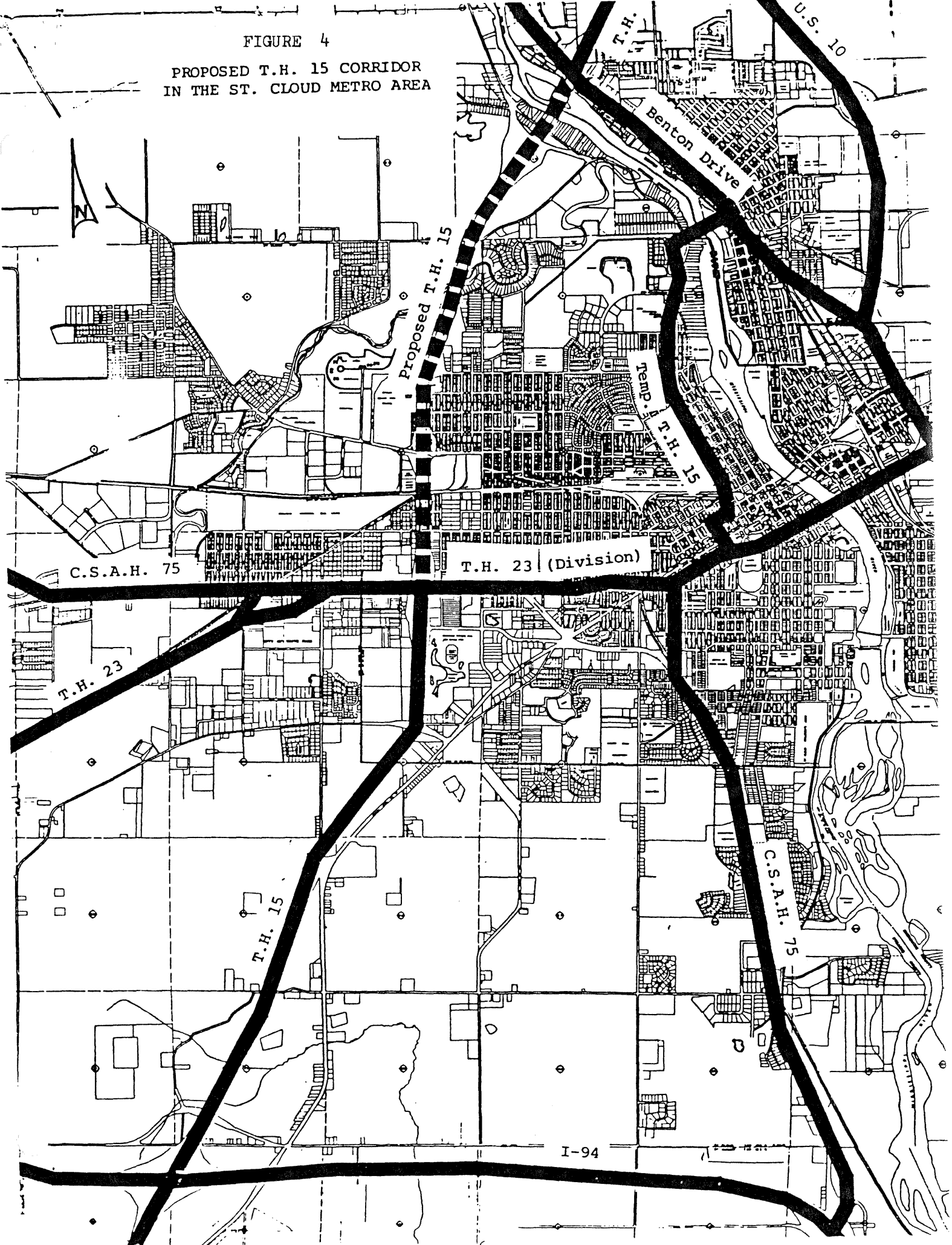
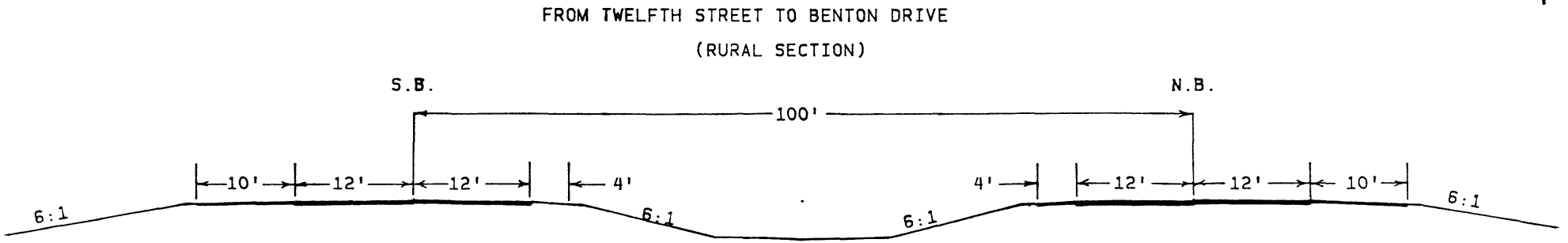
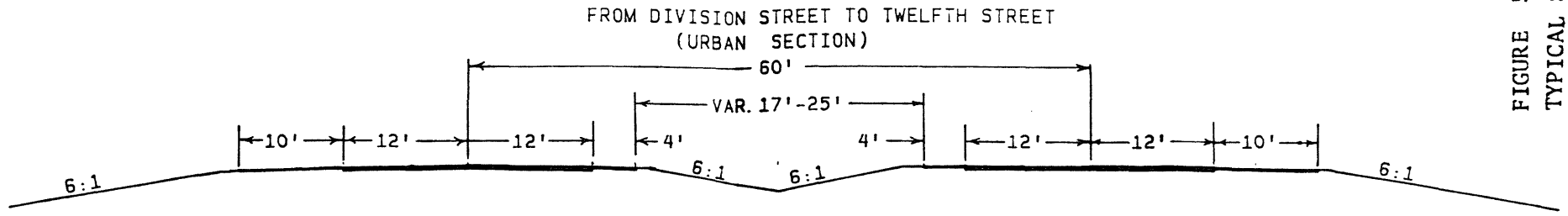


FIGURE 4

PROPOSED T.H. 15 CORRIDOR
IN THE ST. CLOUD METRO AREA



I-94



1. Trunk Highway 15

Present TH 15, south of I-94, is a two-lane roadway with a 24-foot roadway and 8-foot gravel shoulders. It has a 100-foot right of way corridor with no control of access, numerous driveways and public roads intersect at grade.

The portion of TH 15 from I-94 to TH 23 is a four-lane rural freeway/expressway design with 24-foot roadways and 10-foot outside and 3-foot inside paved shoulders. It has a 290-foot right of way corridor with controlled access. This portion of TH 15 intersects 2nd Street South and TH 23 at signalized intersections.

2. Temporary Trunk Highway 15

From its west to east junctions (2.0 miles) with TH 23, TTH 15 is currently numbered with TH 23 (Division Street). From its east junction, TTH 15 extends north on city streets into Sauk Rapids. It then follows north along Benton Drive (old TH 10) and connects to the portion of TH 15 completed in 1972 to U.S. 10. Some of the highest accident rates in the St. Cloud metropolitan area occur along TTH 15.

3. Trunk Highway 23

Present TH 23 is a four-lane divided facility which is the main east-west artery through St. Cloud. The eastbound and westbound roadways are separated by a four-foot raised median. Recent improvements have included signal installations and the addition of channelized left turn lanes. This roadway is presently carrying 25,000 to 30,000 vehicles per day.

D. Project History

The TH 15 project has been under study and review since the late 1950's. Preliminary design work occurred in the 1960's and the final corridor location and roadway design were approved in the early 1970's.

TH 15 was reaching the final design stage in the late 1960's when the National Environmental Policy Act (NEPA) was passed by Congress. The Act outlined required Environmental Impact Studies which had to be completed as part of the project development path. The northern portion of TH 15 between temporary TH 15 (Benton Drive) and U.S. 10 in Sauk Rapids was exempted from NEPA since the project was already near the end of the project development path. During the 1970's Mn/DOT and the Federal Highway Administration (FHWA) had considerable discussion whether TH 15 needed an Environmental Impact Statement (EIS) or if a Negative Declaration would suffice. Mn/DOT found little environmental impact and favored the Negative Declaration route, whereas FHWA felt an EIS was desirable since the relocation of proposed I-94 increased the project scope. The southern portion of TH 15 from I-94 to CSAH 135 was subsequently included as part of the I-94 EIS in 1972. A Negative Declaration for the segment from CSAH 135 to Division Street (TH 23) was approved in 1976.

During the 1970's, the southern and northern portions of the project were built in conjunction with the adjacent construction of I-94 and U.S. 10 respectively. This left the remaining section of the project to be built from TH 23 (Division Street) in St. Cloud to temporary TH 15 (Benton Drive) in Sauk Rapids.

E. Project Justification

The needs for the proposed project can be categorized into two major factors: 1) socio-economic conditions; and 2) existing/future traffic characteristics. The results of these two factors can then be used to evaluate the project benefits versus the do-nothing option.

1. Socio-Economic Factors

Based on previous State Demographic studies and the 1980 Census, the St. Cloud area is the fastest growing metropolitan area in the state. Population projections for the area predict the growth to continue with a 42 percent increase by year 2000 from 1975.

Employment growth has been faster than anticipated. 1980 forecasted employment figures were reached by 1975. This was determined to be primarily facilitated by: 1) an increase in commuters to the area (approximately 25 percent of employees commute); and 2) an increase in the number of family members working.

Employment is projected to increase 58 percent by year 2000 from 28,725 employees in 1980 to 45,330 in 2000.

2. Existing/Future Traffic Characteristics

Metropolitan wide traffic counts taken over the past five years indicate an increasing amount of travel within the metropolitan area. Figure 6 shows the existing traffic volumes on the major roadway segments within the project area. Division (TH 23) is plainly visible as the major east/west route.

It should be noted that very few continuous arterials follow an east/west orientation. Temporary TH 15 (9th Avenue North) shows high usage between Sauk Rapids and St. Cloud. Other north/south arterials such as 25th Avenue and 33rd Avenue are also experiencing high traffic volumes. Numerous geographical barriers exist in the metropolitan area which constrain roadway placement such as railroad crossings and switching yards, the Mississippi River and the Sauk River. Considerable congestion occurs where the roadway system meets these barriers. Traffic congestion and high accident rates are closely correlated. Figure 7 illustrates high accident intersections in the metropolitan area. Mn/DOT has recently completed improvements to TH 23 from 19-1/2 Avenue to 32nd Avenue and along TH 23 near the Crossroads Shopping Center.

Location of Identified Deficiencies

FIGURE 7

LEGEND

- Deficiency Due To High Accident Rate
- Deficiency Due To Traffic Congestion
- ▲ Deficiency Due To Both
- Other Locations Studied

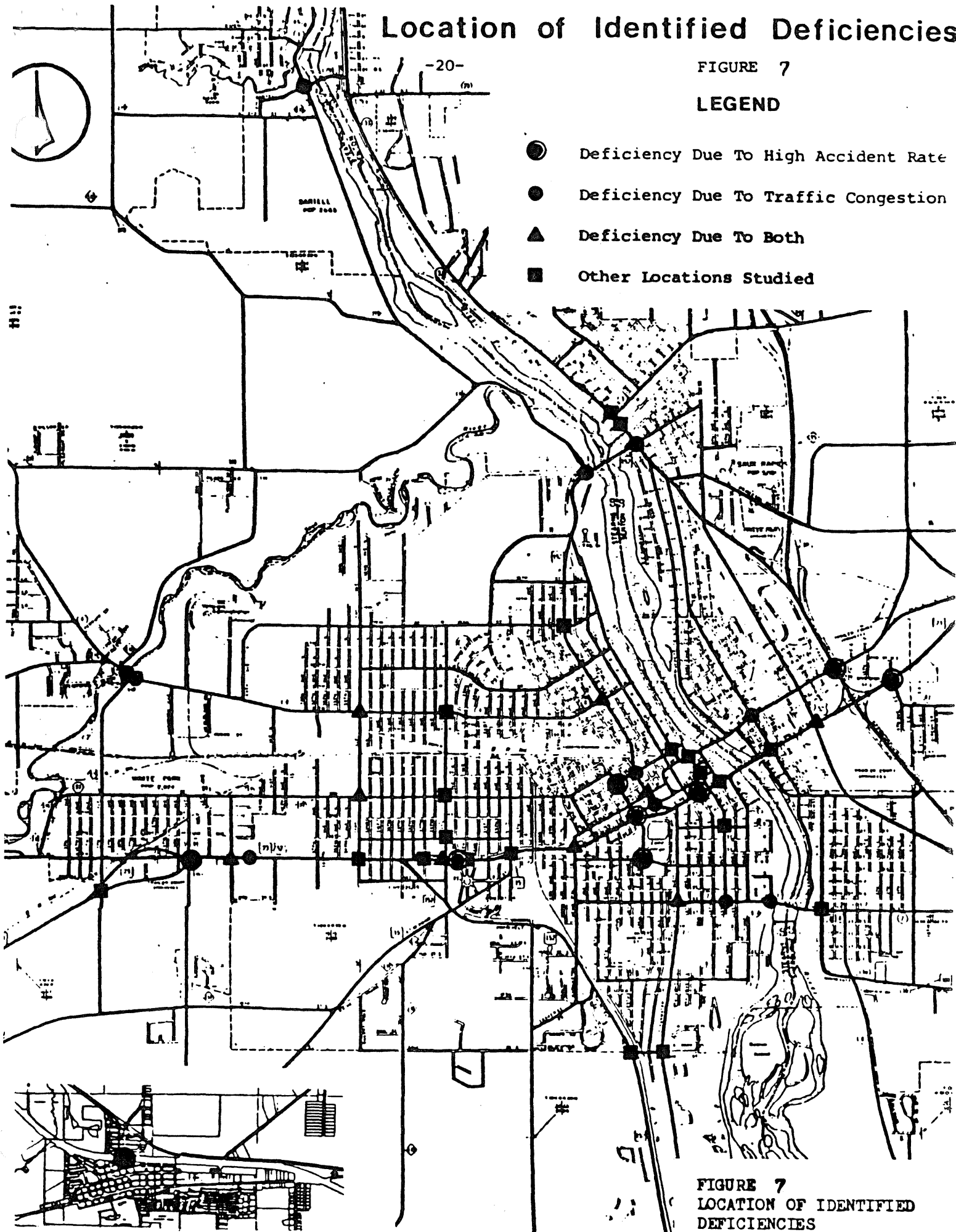


FIGURE 7
LOCATION OF IDENTIFIED
DEFICIENCIES

These improvements will alleviate many of the congestion problems along Division Street in the short term; however, system capacity deficiencies elsewhere will continue to degrade the significance of these improvements over time.

Forecasted traffic volumes with the proposed project completed, are shown on Figure 8.

F. Project Objectives

The primary objectives of this project are to:

- Reduce traffic congestion
- Improve safety
- Improve accessibility
- Reduce environmental impacts
- Improve transportation system continuity

G. Proposed Development Path

This project is being reviewed through the State Environmental Review Process of the Minnesota Environmental Quality Board (MEQB). The project has been determined to meet, or exceed, MEQB Rule Threshold Category 6 MCAR S 3.039 (0). This rule of the MEQB considers this project to be in a mandatory Environmental Impact Statement category.

The following time schedule is proposed for the project development to project completion:

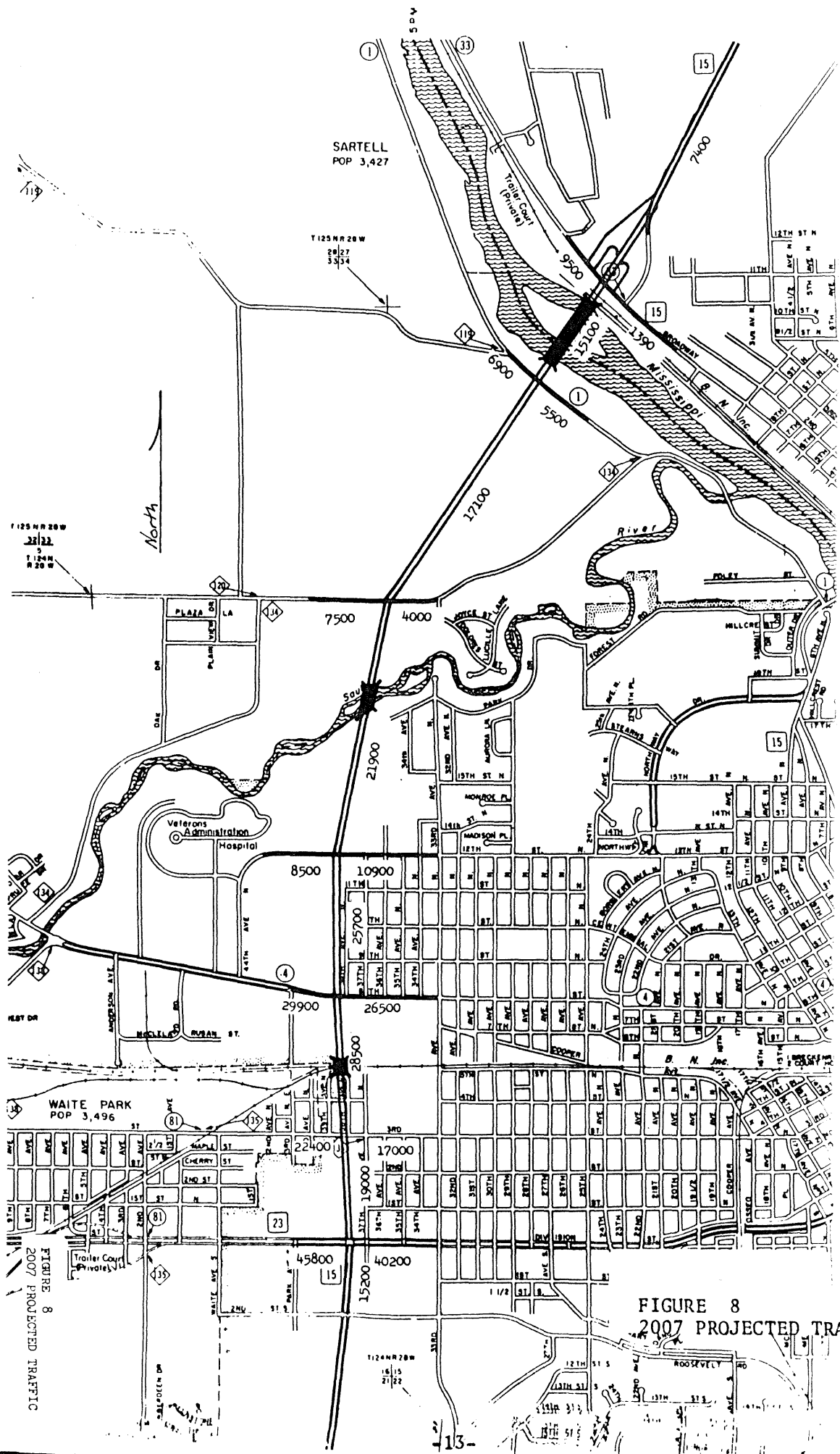
1. Draft EIS Available ----- November 1984
2. Public Information Meeting ----- December 1984
3. Final EIS Available ----- January 1984
4. Adequacy Decision ----- January 1985

In recognition of the priority of this project, Mn/DOT has selected it to be included in the FAST Program (Facilitate Acceleration Through Special Techniques). It is one of only 3 projects in the state designated for this program. This project was selected based on the following four criteria contained in the FAST program:

1. Projects with a high degree of public support.
2. Projects that provide significant improvements to safety, traffic operation and/or economic development.
3. Projects whose completion provides immediate public use benefits, and
4. Projects with potential for significant time savings through FAST.

H. Proposed Construction Schedule

While it is necessary to consider a project of this local and regional significance in its entirety, the sheer magnitude of its cost, \$17,000,000 for an at-grade facility, can inhibit its programming. Accordingly, staged construction is a concept which can remedy cost impacts and perhaps even expedite the construction of key segments if they are considered separately.



SARTELL
POP 3,427

T125NR20W
33122
5
T124NR78W

WAITE PARK
POP 3,496

FIGURE 8
2007 PROJECTED TRAFFIC

FIGURE 8
2007 PROJECTED TRAFFIC

Based on existing traffic flow characteristics and the location of large commercial/industrial traffic generators, the project should be staged starting from the south, Division Street, going to the north, Benton Drive. The determination of logical segments is predicated on the potential for roadway system relief, service to major generators, system continuity and most importantly realistic programming costs. Figure 9 and Table I show the division of the proposed project into four recommended stages.

TABLE I

<u>Description</u>	<u>Estimated Cost</u>	<u>Proposed Letting</u>
Stage 1 from Division St. to 3rd St.	\$ 800,000	03/25/85
Stage 2 from 3rd St. to 12th St.	\$ 2,600,000	03/28/86
Stage 3 from 12th St. to CSAH 1	\$ 3,600,000	Unscheduled
Stage 4 from CSAH 1 to Benton Drive	\$10,000,000	Unscheduled

II. PERMITS AND APPROVALS

Information for the following permits and/or approvals will be gathered and permits will be requested prior to construction:

1. U.S. Army Corps of Engineers ---- Section 404
2. Mn/PCA ----- 401 Certification
Indirect Source Permit
3. Mn/DNR ----- Public Waters Permit
4. City of St. Cloud ----- Plan, layout and cost
sharing approval
5. City of Sauk Rapids ----- Plan and layout approval
6. City of Waite Park ----- Cost sharing approval

This area has undergone preliminary historical review with no known sites of historical, archaeological or architectural significance found. Final clearance has been requested from the Minnesota Historical Society.

III. ALTERNATIVES

A. Location Alternatives

The proposed location corridor, as shown on Figure 4, was first identified in 1959. The right of way acquisition for this corridor began in 1964 and was completed by 1969.

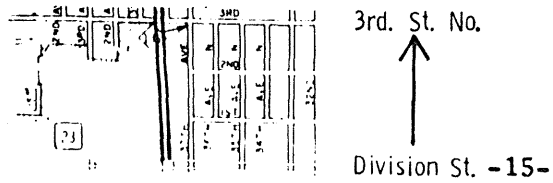
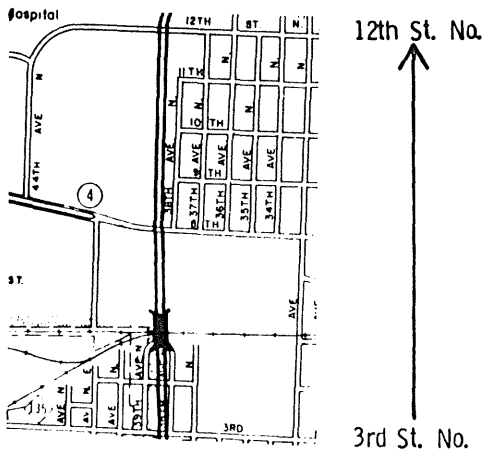
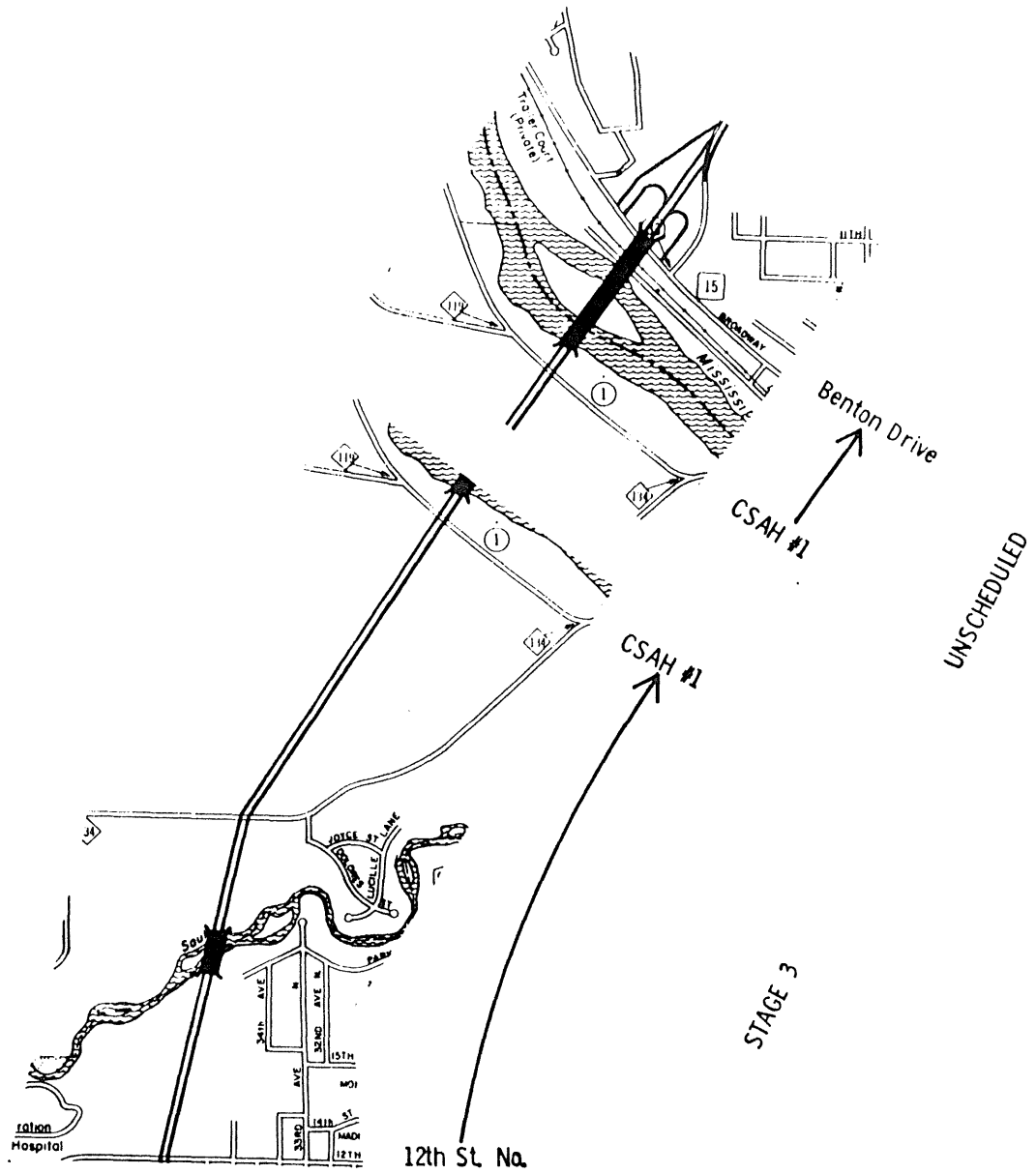


FIGURE 9
PROJECT STAGING

In 1972 the St. Cloud Metropolitan Area Transportation and Planning Study (SCMATAPS) was completed. This study was updated in 1980 and identified the existing land uses and projected future (2000) land use needs. The 1980 update showed that traffic volumes and employment figures had been growing more rapidly than originally forecasted.

Since the 1972 SCMATAPS and the 1980 update were approved, land development adjacent to this corridor has occurred as planned. Public utilities and local roadway improvements have also occurred on the assumption that TH 15 would be constructed in the identified corridor.

Based on this information, Mn/DOT entered the scoping process with no location alternates, other than the existing corridor. Because no comments have been received, during this process, concerning the discussion of other location alternatives, and because this location is the only reasonable location for TH 15, no location alternates will be considered for this project.

B. Design Alternatives

Since the early 1960's Mn/DOT has developed and studied several different design alternates ranging from an elevated freeway concept to an at-grade expressway. The most recent study shows that an at-grade expressway will provide acceptable levels of service for the expected life of the improvement. For this reason, Mn/DOT entered the scoping process with only two design alternatives being considered: 1) no build; and 2) an at-grade expressway facility.

Because no comments were received during the scoping process concerning the discussion of other design alternatives, and the two design alternatives are the only reasonable alternatives available, no other alternates will be presented.

1. No Build - A "no build" alternative does not provide the safest, most efficient route for the motoring public. The impacts of this alternative are continued congestion and safety problems within the project area. The "no build" alternative, by not providing surface transportation improvements to this area, can also be expected to have an adverse developmental impact on the area.
2. An At-Grade Expressway Facility - These improvements, as documented in this report, satisfy the primary objectives of this project by providing a safe and efficient facility through St. Cloud, reduce traffic congestion, improve accessibility, and improve system continuity.

IV. SOCIAL, ECONOMIC, EMPLOYMENT AND ENVIRONMENTAL EFFECTS

Based on the Scoping Meeting held on March 28, 1984, and the Environmental Assessment Worksheet (EAW) which was made available on March 12, 1984, the following items are considered to have little or no impact upon the surrounding environment.

1. Ethnic or Disadvantaged Groups - This project will have no effect on any ethnic or disadvantaged groups.
2. Regional and Community Growth - Since the early 1960's transportation planning studies have recognized the need for the proposed corridor through the St. Cloud metropolitan area. Consequently, the corridor has become the basis for subsequent urban development and planned growth. Present land use adjacent to the corridor primarily consists of urban development such as commercial, industrial and some residential. Undeveloped land in the area is planned and zoned for urban development, compatible with the proposed project.
3. Economic Development - To a large extent, economic development along the TH 15 corridor has been delayed because the project was never completed. In that it is in a metropolitan area of 160,000 people and one of the fastest growing in the state, it is expected that completion of the expressway would generate some new development.

The "do nothing" alternate, by not providing surface transportation improvements to the area, can be expected to impede development in the area.

4. Bicycle Transportation - This project proposes the construction of a new four-lane urban/rural controlled access expressway. These improvements will result in a "poor-unsatisfactory" rating for bicycle travel. However, this project will relieve the congestion problems currently being experienced on several city streets in the area and will therefore indirectly help to improve the safety aspects for bicyclists throughout this area. The construction of the bicycle/pedestrian overpass will also enable the continued use of Tenth Street as a city-designated bicycle route. The construction of the signal systems along TH 15 will also provide for safe east-west crossing for pedestrians and bicyclists.
5. Inventory of Wild and Scenic Rivers - This proposal will have no effect on any streams or rivers on or eligible for inclusion on the National Inventory of Wild and Scenic Rivers.

The Mississippi River in this area has been established as a state canoe route under the 1967 Canoe and Boating Routes Statute MS 88.32.

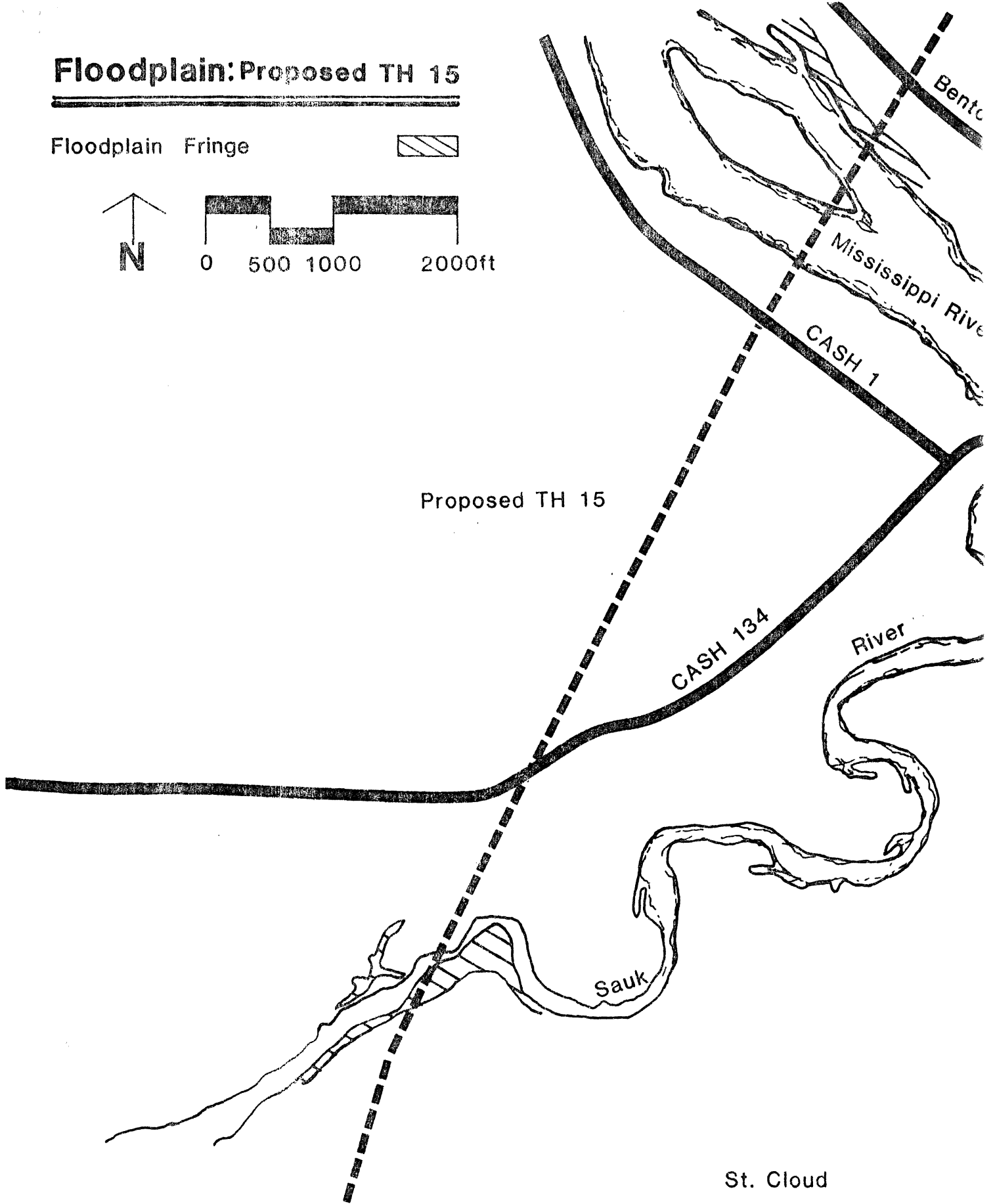
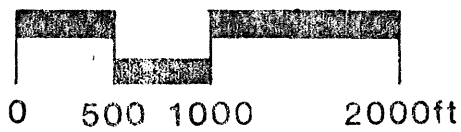
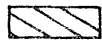
6. Section 4(f) - The project areas have been reviewed with respect to the requirements of Section 4(f) of the Department of Transportation Act. It has been determined that no public park, recreation areas or wildlife or waterfowl refuges will be affected by the proposed improvement.

7. Threatened or Endangered Species - This project lies within the migratory range of the American and Arctic Peregrine Falcons, as given in the U.S. Fish and Wildlife Red Book. The Mn/DOT Wildlife Biologist has determined that the proposed project would not adversely affect these species or their habitat because neither species no longer nests in the state and no potential nesting reintroduction sites would be affected by the project.
8. Present and Future Land Use - As was stated earlier in this report, the right of way for this project was purchased in the late 1960's. Since this time the surrounding property has developed based on the future placement of TH 15 within this corridor. The Year 2000 Land Use and Transportation Plan for the St. Cloud Metropolitan Area, which was adopted in 1980, projects eventual land use in the project area as primarily non-residential. Therefore, the implementation of these improvements is consistent with the proposed land use in the area.
9. Farmlands - Because this project lies within an urban area, and does not require the acquisition of additional right of way the proposed improvements will have no effect upon farmlands.
10. Property Severance - The right of way for this project was acquired in the late 1960's. No additional right of way will be required for the development of this project.
11. Relocation - The required relocations, along with the right of way acquisition, was completed in the late 1960's. No additional relocation will be required for the proposed improvements.
12. Access Change - The proposed improvement is an at-grade facility and all city streets currently crossing the corridor will remain open. However, when the right of way was purchased, access control was also acquired for certain city streets and additional access will be allowed. But because this access control was acquired in the late 1960's the adjacent properties have developed accordingly and this therefore, will have no affect upon the adjacent properties.
13. Wildlife - Because this project lies within an urbanized area, the wildlife in the area primarily consists of songbirds and small rodents. The proposed improvements will result in the minor reduction of habitat in the project area.
14. Wetlands - This project will affect a type 1L wetlands that is located north of the Sauk River crossing. The limits of this wetland can be considered identical to the floodplain boundaries shown for the north side of the Sauk River crossing (floodplains map - Figure 12). The limits of impact to this wetland would extend approximately 40 feet from the paved shoulder on both sides of the crossing. The total wetland area is 5.64 acres, of which 3.24 will be impacted.

15. Floodplains - This project has been reviewed for floodplain encroachments in accordance with Executive Order 11988 and FHPM 6-7-3-2. Two floodplain areas will be crossed. These areas are the Mississippi River near Sauk Rapids and the Sauk River immediately north of the corporate limits of St. Cloud (see Figure 10). The encroachments into these identified floodplains are not expected to be significant. This determination is based on the following information.
- a. 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.
 - 1) The roadway elevations are above the 100-year elevations.
 - The roadway sag point elevation at the Mississippi River is 1024.8. The 100-year flood elevation is 999.2.
 - The roadway sag point elevation at the Sauk River is 1034.0. The 100-year flood elevation is 1026.0.
 - b. No significant adverse impact on natural and beneficial floodplain values will result.
 - 1) Appropriate turf establishment and erosion control measures will be taken.
 - 2) No threatened or endangered flora or fauna is known to inhabit these floodplain areas.
 - 3) Rock riprap will be placed on bridge abutment slopes where determined necessary.
 - 4) Oil products and other possible pollutants will be stored so that a spill would not enter the Mississippi or Sauk Rivers.
 - c. No significant risk, such as increased flooding of property or hazard of life will result.
 - 1) Bridges have been designed to minimize hydraulic changes in the floodplains.
 - Stage increases are 0.5 ft. or less.
 - d. The proposed bridge crossings of the Mississippi and Sauk Rivers should not support potential incompatible floodplain development for the following reasons:
 - 1) The Cities of St. Cloud and Sauk Rapids have zoning ordinances that regulate floodplain development.
 - 2) The Counties of Stearns and Benton have zoning ordinances that regulate floodplain development.

Floodplain: Proposed TH 15

Floodplain Fringe



16. Water Quality - Construction operations will be conducted in a manner to minimize the effects, such as sedimentation, discoloration, etc. Any degradation of water quality resulting from construction activities would be short term and should have no significant effect on fish or aquatic organisms. Riprap and turf establishment will be used to prevent erosion and scour after construction.

The contract will include provisions to minimize pollution of public waters from erosion, silting, or muddying during construction operations, by implementing temporary and permanent erosion control measures and administrative controls placed on the contractor. All toxic materials (such as oil, gasoline, cement and hydraulic fluid) will be stored where there is no danger of an accidental spill entering public waters.

This project will have a rural drainage design and a system of 8 storm water holding ponds will be constructed. The filtering effects of the vegetative ditches, and the storm water holding ponds are expected to minimize the amounts of fine silts entering the rivers.

It is anticipated that no polluted fill material will be encountered. Thus, contamination of surface and ground water supplies due to polluted fill material is not expected.

Based on this information the proposed improvements are not expected to have an adverse effect on the water quality in the area.

17. Air Quality - An air quality review and analysis was undertaken to address the following concerns:

- Is this project consistent with the State Implementation Plan (SIP) to attain and maintain the Ambient Air Quality Standards?
- Are violations of the Carbon Monoxide (CO) Standards anticipated?
- Will an Indirect Source Permit be required from the Minnesota Pollution Control Agency?

a. Transportation System Comments

This project is in an area where the State Implementation Plan (SIP) is required to contain transportation control measures. The SIP was approved by the Environmental Protection Agency on December 13, 1979. The Area Planning Organization passed a resolution on October 14, 1983 certifying that their transportation planning process fulfills all applicable Federal requirements; Mn/DOT concurred on December 16, 1983. The FHWA accepted the TIP on December 22, 1983 and made the finding that the projects were developed in accordance with the provisions of 23 CFR Part 450, Subparts A and B. On April 20, 1984, FHWA accepted the addition of the TH 15 project to the TIP.

This project will not be detrimental to air quality in the CBD or the approved strategies identified in the Transportation Control Plan; rather, it will have a positive impact. Detailed analysis of the forecasted traffic indicates that approximately 4000 vehicle trips will be diverted from the CBD upon completion of this project.

The multi-year traffic projections for this project reflect that:

- There will be a positive impact on the Central Business District (CBD) traffic. Through traffic will be attracted to the new TH 15 Corridor and away from routes near the CBD.
- The completion of the proposed improvements will have a positive impact upon the secondary area between the project location and the CBD. The traffic volumes will be lower with the construction of this project, even during the various stages of construction.

- b. Project Analysis: the p.m. peak traffic was analyzed with the following assumptions:

Traffic

30 mph on TH 15
35 mph on Division Street (TH 23)
21 mph on 3rd Street
15 mph for left and right turn lanes

15% cold start for eastbound traffic
5% cold start for westbound traffic
5% cold start for TH 15

The traffic signals are interconnected and allow platooning of traffic from all directions at all intersections with TH 15.

Traffic growth (unless otherwise projected on traffic maps) is estimated at:

4% per year from 1984 to 1985
3% per year from 1985 to 1987
2% per year beyond 1987

One-hour traffic is 9% of the ADT.
Eight-hour traffic is 48% of the ADT or the average hour in the eight-hour period is 6% of the ADT.

Models

The EPA Mobile III emission factors with the Minnesota average vehicle mix and the EPA 1978 Volume 9 traffic theory was used.

The EPA HIWAY 2 dispersion model was used with the following variables.

- Wind direction constant for the one-hour and eight-hour periods of time.
- Wind speed averaging 1 meter per second for the one-hour and eight-hour periods of time.
- Stability class "D" was used for the one-hour and eight-hour periods of time.

Background

The background concentration of carbon monoxide used in this analysis was 3.0 ppm for the eight-hour period and 5.0 ppm for the 1-hour period based upon the year 1983. Mn/DOT suggested that background monitoring was not justified for this project which is located some 2 miles from the CBD but rather a modeling or historic approach would suffice. MPCA responded with a proposal of the 3 and 5 ppm default values in lieu of monitoring.

Receptors

The Division Street and 3rd Street intersections were analyzed because of the high traffic volumes and the proximity of the receptors to the roadways. Other locations along TH 15 would demonstrate lower concentrations of carbon monoxide. Receptor locations along TH 15 near the school were also analyzed.

As an indicator of pollution concern, reasonable eight-hour receptors were selected: an office building in the southeast quadrant of the TH 15 and Division Street, a house in the northeast quadrant of the TH 15 and 3rd Street intersection and the high school athletic field and residential homes adjacent to TH 15 between 8th Street and 12th Street. Commercial buildings in the southeast and northwest quadrants of the TH 15 and 3rd Street intersection were also analyzed.

Possible one hour receptors could be a sidewalk or backyard location. A reasonable eight-hour location would be a home, school building, hospital, etc., where the public could be expected to remain for the critical eight-hour period of time.

c. Analyses Results

The carbon monoxide tables (II & III) include the default background concentrations as well as the carbon monoxide concentrations from the modeled roadways. These total carbon monoxide concentrations are below the carbon monoxide standards:

	<u>1-Hour</u>	<u>8-Hour</u>
Minnesota	30 ppm	9 ppm
Federal	35 ppm	9 ppm

TOTAL CARBON MONOXIDE CONCENTRATIONS
(Parts per Million)

NO BUILD ALTERNATIVE
1-hour - 8-hour

<u>Receptors</u>	<u>1986</u>		<u>1987</u>		<u>1992</u>		<u>1997</u>		<u>2007</u>	
	1-hr. (30ppm)	8-hr. (9ppm)	1-hr. (30ppm)	8-hr. (9ppm)	1-hr. (30ppm)	8-hr. (9ppm)	1-hr. (30ppm)	8-hr. (9ppm)	1-hr. (30ppm)	8-hr. (9ppm)
1. Division St. & T.H. 15										
a) Holiday Inn S. of T.H. 15	5.1 - 3.0		4.6 - 2.8		3.1 - 1.9		2.5 - 1.6		2.6 - 1.6	
b) Office Building S.E. Quadrant	11.0 - 6.6		10.1 - 6.1		6.8 - 4.1		6.0 - 3.6		6.4 - 3.9	
*c) Sidewalk at Intersection	12.8 - 7.6		11.8 - 7.1		8.4 - 5.0		7.3 - 4.4		8.0 - 4.8	
2. 3rd Street & T.H. 15										
a) House N.E. Quadrant	6.0 - 3.5		5.5 - 3.4		4.1 - 2.4		3.6 - 2.2		3.8 - 2.3	
b) Commercial Building S.E. Quadrant	5.6 - 3.3		5.2 - 3.1		3.7 - 2.2		3.3 - 2.0		3.5 - 2.1	
c) Commercial Building N.W. Quadrant	6.1 - 3.6		5.7 - 3.5		4.2 - 2.5		3.8 - 2.3		4.0 - 2.4	
*d) Sidewalk at Intersection	6.4 - 3.8		6.0 - 3.6		4.4 - 2.7		4.0 - 2.4		4.2 - 2.5	
3. Near High School										
a) Race Track	3.4 - 2.0		3.1 - 1.9		2.0 - 1.2		1.6 - 1.0		1.5 - 0.9	
*b) Residence - Backyard	3.4 - 2.0		3.1 - 1.9		2.0 - 1.2		1.6 - 1.0		1.5 - 0.9	
c) Residence - House	3.4 - 2.0		3.1 - 1.9		2.0 - 1.2		1.6 - 1.0		1.5 - 0.9	

* Not reasonable 8-hour Receptors

TOTAL CARBON MONOXIDE CONCENTRATIONS
(Parts per Million)

<u>Receptors</u>	BUILD ALTERNATIVE 1-hour - 8-hour									
	<u>1986</u>		<u>1987</u>		<u>1992</u>		<u>1997</u>		<u>2007</u>	
	1-hr. (30ppm)	8-hr. (9ppm)	1-hr. (30ppm)	8-hr. (9ppm)	1-hr. (30ppm)	8-hr. (9ppm)	1-hr. (30ppm)	8-hr. (9ppm)	1-hr. (30ppm)	8-hr. (9ppm)
1. Division St. & T.H. 15										
a) Holiday Inn S. of T.H. 15	5.9 - 3.2		4.7 - 2.9		3.3 - 2.0		2.8 - 1.7		2.8 - 1.7	
b) Office Building S.E. Quadrant	12.7 - 7.6		11.6 - 7.0		9.6 - 5.7		8.4 - 5.1		9.2 - 5.5	
*c) Sidewalk at Intersection	15.7 - 9.4		14.3 - 8.6		11.9 - 7.2		10.5 - 6.3		11.6 - 7.0	
2. 3rd Street & T.H. 15										
a) House N.E. Quadrant	6.4 - 3.8		13.0 - 7.8		11.0 - 6.6		9.7 - 5.8		10.7 - 6.4	
b) Commercial Building S.E. Quadrant	4.4 - 2.6		6.2 - 3.8		4.3 - 2.6		3.7 - 2.3		3.9 - 2.3	
c) Commercial Building N.W. Quadrant	6.4 - 3.8		13.0 - 7.9		10.0 - 6.0		8.8 - 5.3		9.7 - 5.8	
*d) Sidewalk at Intersection	6.8 - 4.0		13.7 - 8.3		11.7 - 7.0		10.3 - 6.2		11.4 - 6.9	
3. Near High School										
a) Race Track	4.0 - 2.4		5.3 - 2.1		2.7 - 1.7		2.3 - 1.4		2.3 - 1.4	
*b) Residence - Backyard	4.1 - 2.4		3.5 - 2.1		2.8 - 1.7		2.4 - 1.5		2.4 - 1.5	
c) Residence - House	3.9 - 2.3		3.4 - 2.1		2.6 - 1.6		2.2 - 1.4		2.2 - 1.3	

* Not reasonable 8-hour Receptors

d. Conclusion

The air quality review and analysis demonstrate that: This project is consistent with the State Implementation Plan to attain and maintain the National Ambient Air Quality Standards. Violations of the Carbon Monoxide Standards are not anticipated.

Construction and operation of this facility will comply with air quality related Federal, state and local regulations.

An application for an Indirect Source Permit will be made prior to construction of the proposed facility.

B. Areas With Moderate Effects

1. Noise

Because this project is the construction of a new roadway, in an area where there is no roadway now, a noise analysis was conducted to determine what noise impacts, if any, this project will have upon the adjacent properties.

Activities or land uses which could be affected by highway noise have been identified. Representative sensitive noise areas along the project were selected and are identified in Figure 11.

Field monitoring was performed at seven different sites along the project corridor. This monitoring was done during the month of April, 1984 and took place during the daytime and nighttime peak traffic hours. Figure 12 shows the location of the monitoring sites. Table IV shows the existing noise levels at these monitoring sites. These noise levels were considered to be typical of the entire area around the monitoring site.

Year 2007 noise levels, daytime and nighttime, were predicted for the proposed improvements using the FHWA noise program STAMINA 2.0/OPTIMA. This model uses vehicle number, type, speed and the physical characteristics of the roadway. Modeling was done without considering noise abatement measures.

The noise computations were based on the following traffic assumptions:

- Traffic growth is estimated at:
 - 4% per year from 1984 to 1985
 - 3% per year from 1985 to 1987
 - 2% per year beyond 1987
- Traffic traveling at 30 mph.
- Peak daytime traffic is 9% of ADT.
- Peak nighttime traffic is 3% of ADT.
- The percent of heavy commercial traffic and the medium truck-heavy truck mix, was based on several vehicle class counts taken within the St. Cloud area in 1984.

The predicted noise contours and noise levels are shown in Figures 13 thru 16.

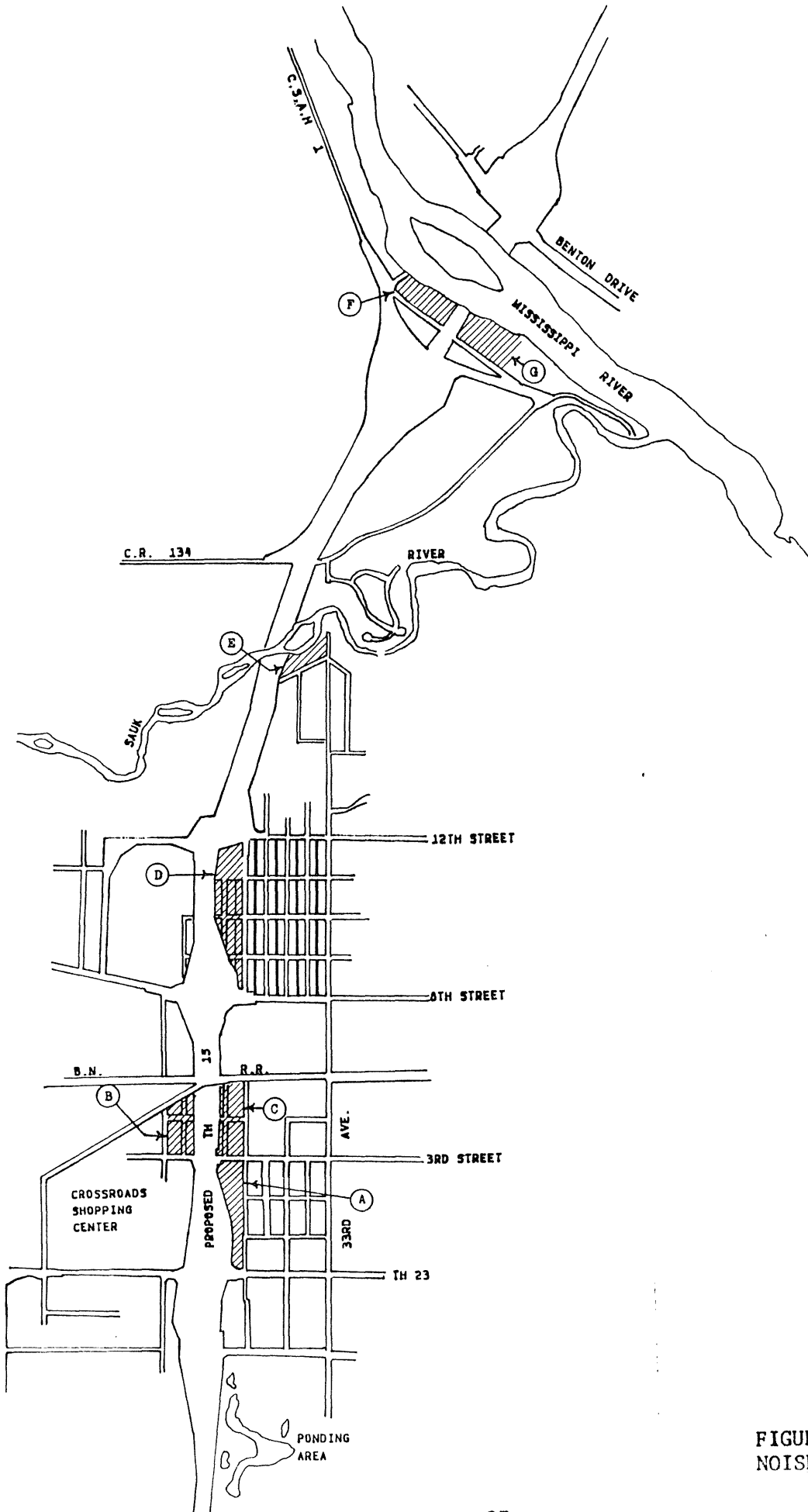


FIGURE 11
NOISE SENSITIVE AREAS

FIGURE 11
NOISE SENSITIVE AREAS

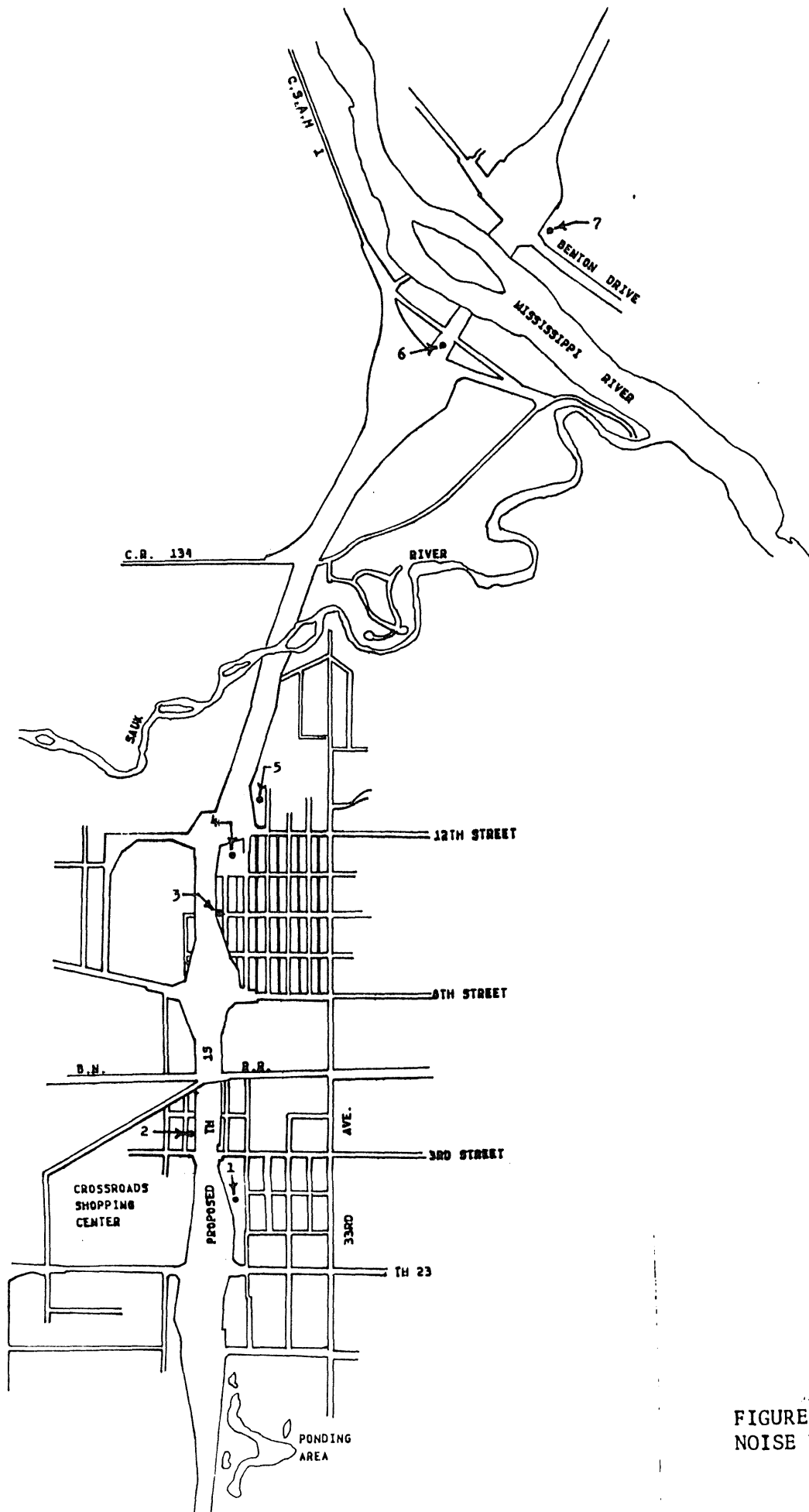
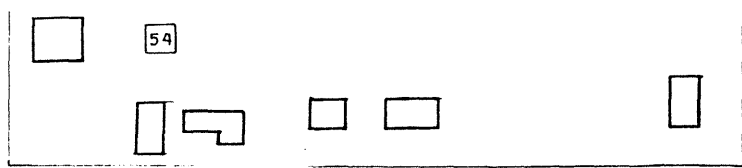


FIGURE 12
NOISE MONITORING SITES

EXISTING NOISE LEVELS							
Site	Location	Daytime		Nighttime			
		(4pm-5pm)		(10pm-11pm)		(6am-7am)	
		L ₁₀	L ₅₀	L ₁₀	L ₅₀	L ₁₀	L ₅₀
1	290' West of 37th Avenue North Between 1st and 2nd St. North	52	48	51	48	53	50
2	200' East of 2nd Avenue N.E. Between 3rd and 4th St. North	54	50	54	52	53	51
3	160' West of 38th Avenue North At Jct. of 10th St. North	46	43	42	39	46	42
4	400' West of 37th Avenue North and 250' So. of 12th St. North	46	44	44	38	48	44
5	175' West of 36th Avenue North Near Jct. of 14th Street North	45	37	48	43	44	41
6	125' East of C.S.A.H. 1 at Jct. of Future T.H. 15	*	*	55	46	53	46
7	100' S.E. of Jct. Benton Drive and Present T.H. 15	66	61	*	*	*	*

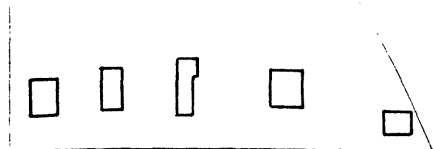
* Due to equipment problems reliable data was not available.

-30-

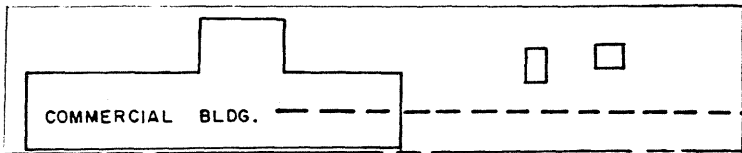


54

SECOND AVE. NO.



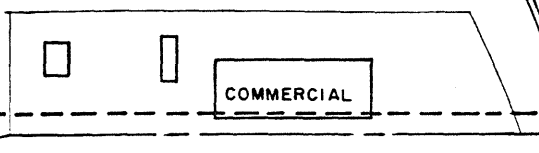
NORTH



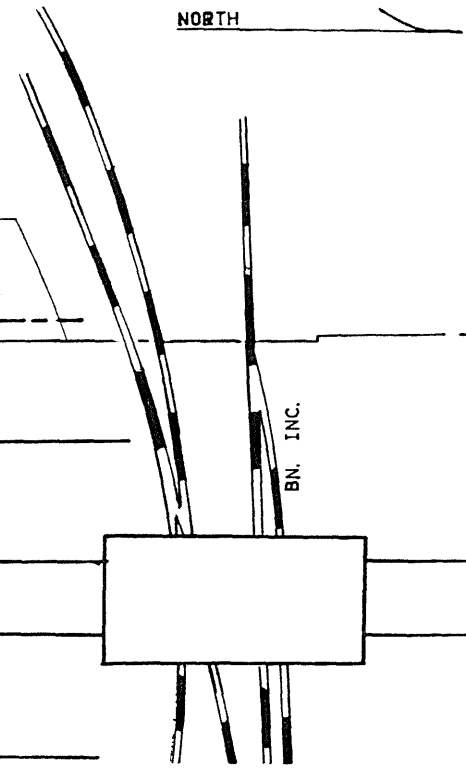
COMMERCIAL BLDG.

55

65



COMMERCIAL

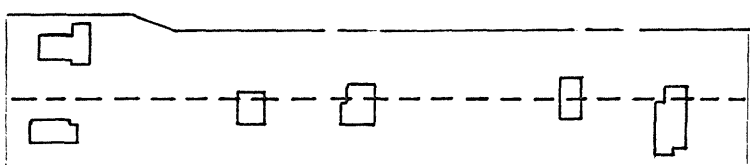


BN. INC.

65

SB TH 15

NB TH 15

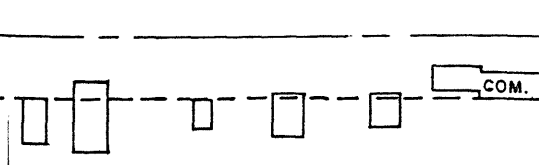


55

65

38TH AVENUE

FOURTH STREET



COM.

65

55

54

- LEGEND
- 65 PROJECTED YEAR 2007 DAYTIME CONTOUR
 - 55 PROJECTED YEAR 2007 NIGHTTIME CONTOUR
 - 54 APRIL 1984 FIELD NOISE READING

NOTE: ALL NOISE PROJECTIONS ARE WITHOUT ABATEMENT

FIGURE 13
THIRD STREET
PROJECTED NOISE CONTOURS

NORTH

HIGH SCHOOL ATHLETIC FIELD

EIGHTH STREET

TWELFTH STREET

SB TH 15

NB TH 15

65

46

55

46

38TH AVENUE NORTH

CITY PARK

-31-

9TH STREET

10TH STREET

11TH STREET

LEGEND

65

PROJECTED YEAR 2007 DAYTIME CONTOUR

55

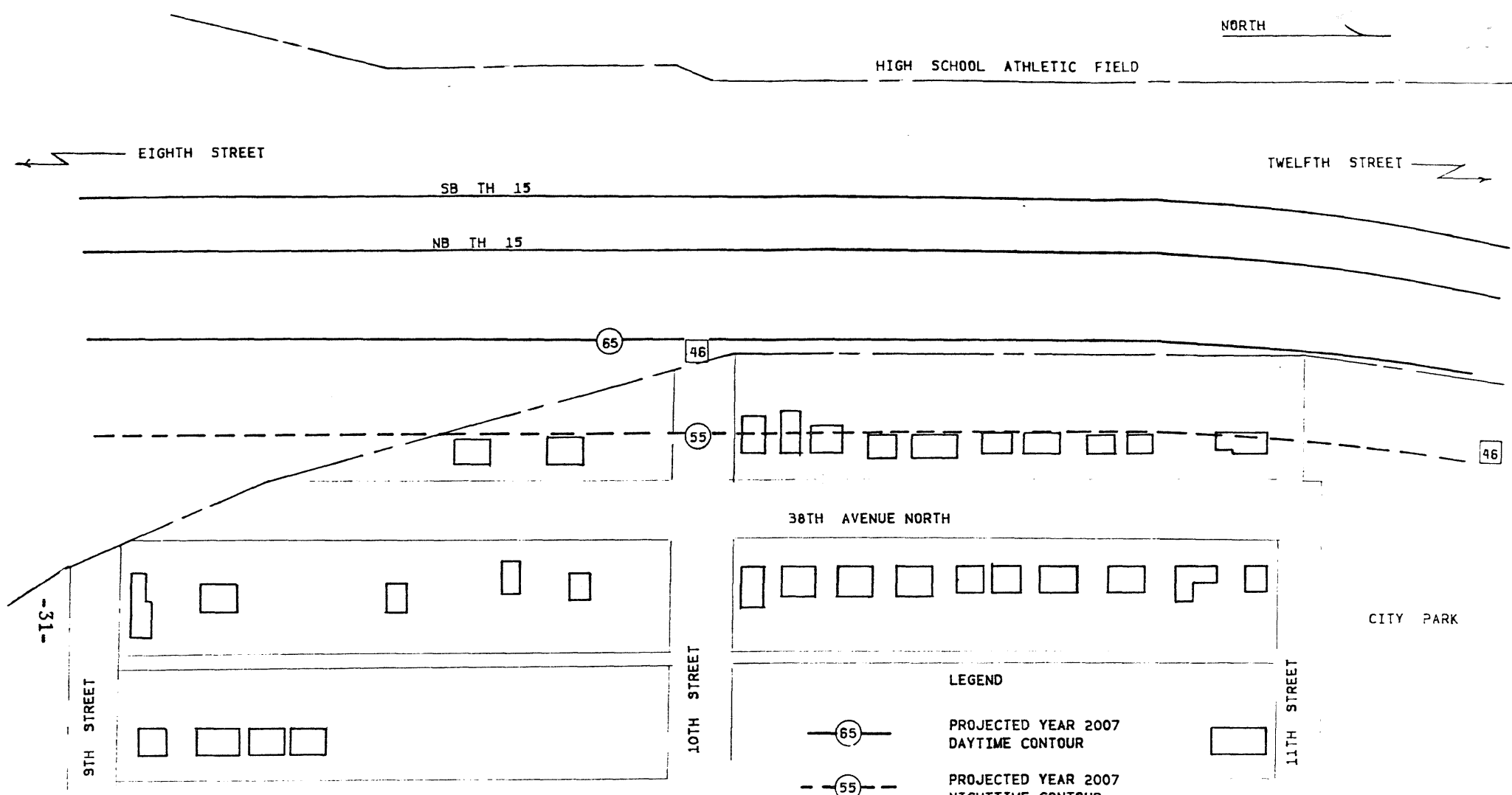
PROJECTED YEAR 2007 NIGHTTIME CONTOUR

46

APRIL 1984 FIELD NOISE READING

NOTE: ALL NOISE PROJECTIONS ARE WITHOUT ABATEMENT

FIGURE 14
PROJECTED NOISE CONTOURS



LEGEND



PROJECTED YEAR 2007
DAYTIME NOISE LEVEL



PROJECTED YEAR 2007
NIGHTTIME NOISE LEVEL

NOTE: ALL NOISE PROJECTIONS ARE
WITHOUT ABATEMENT

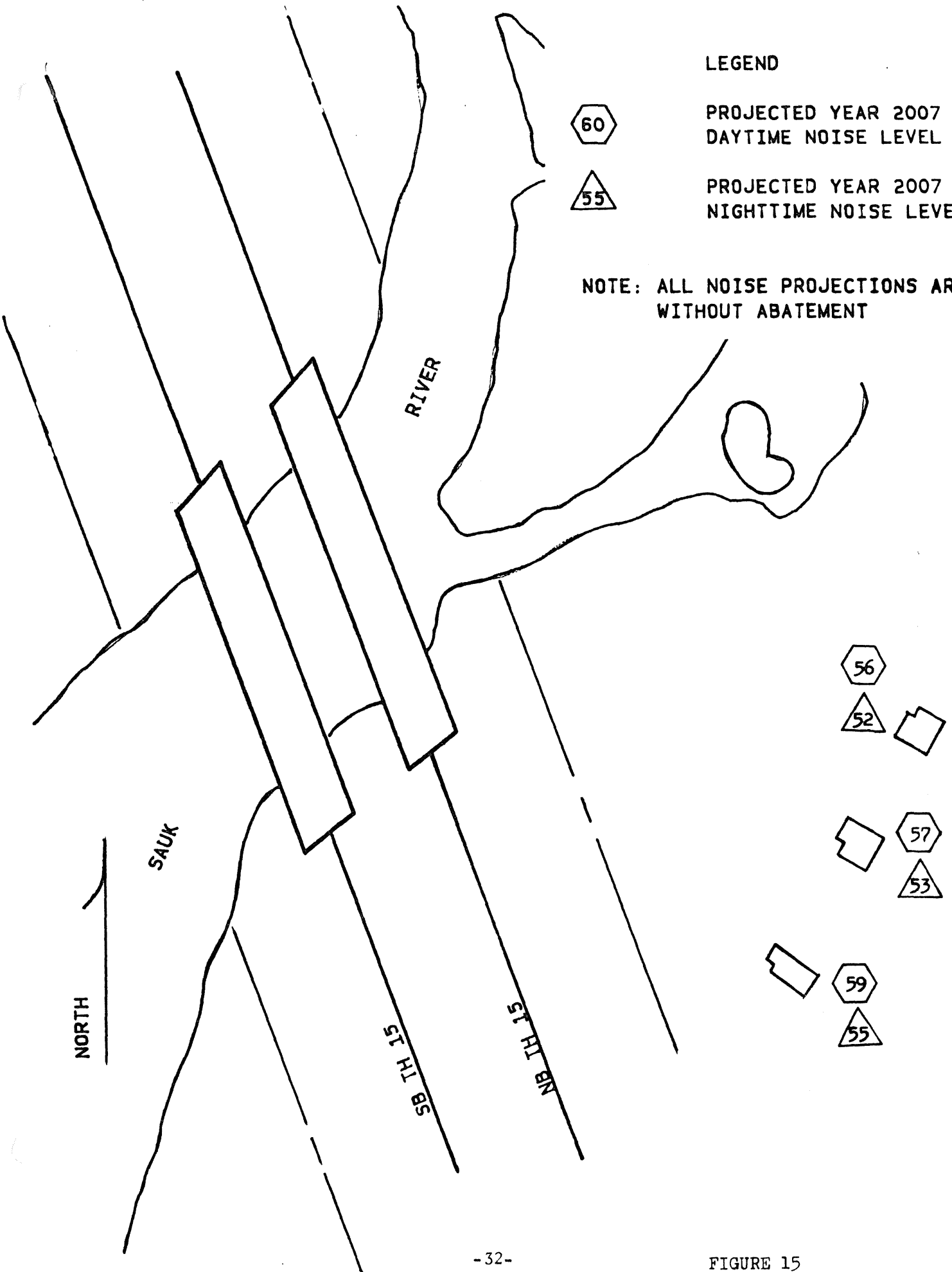
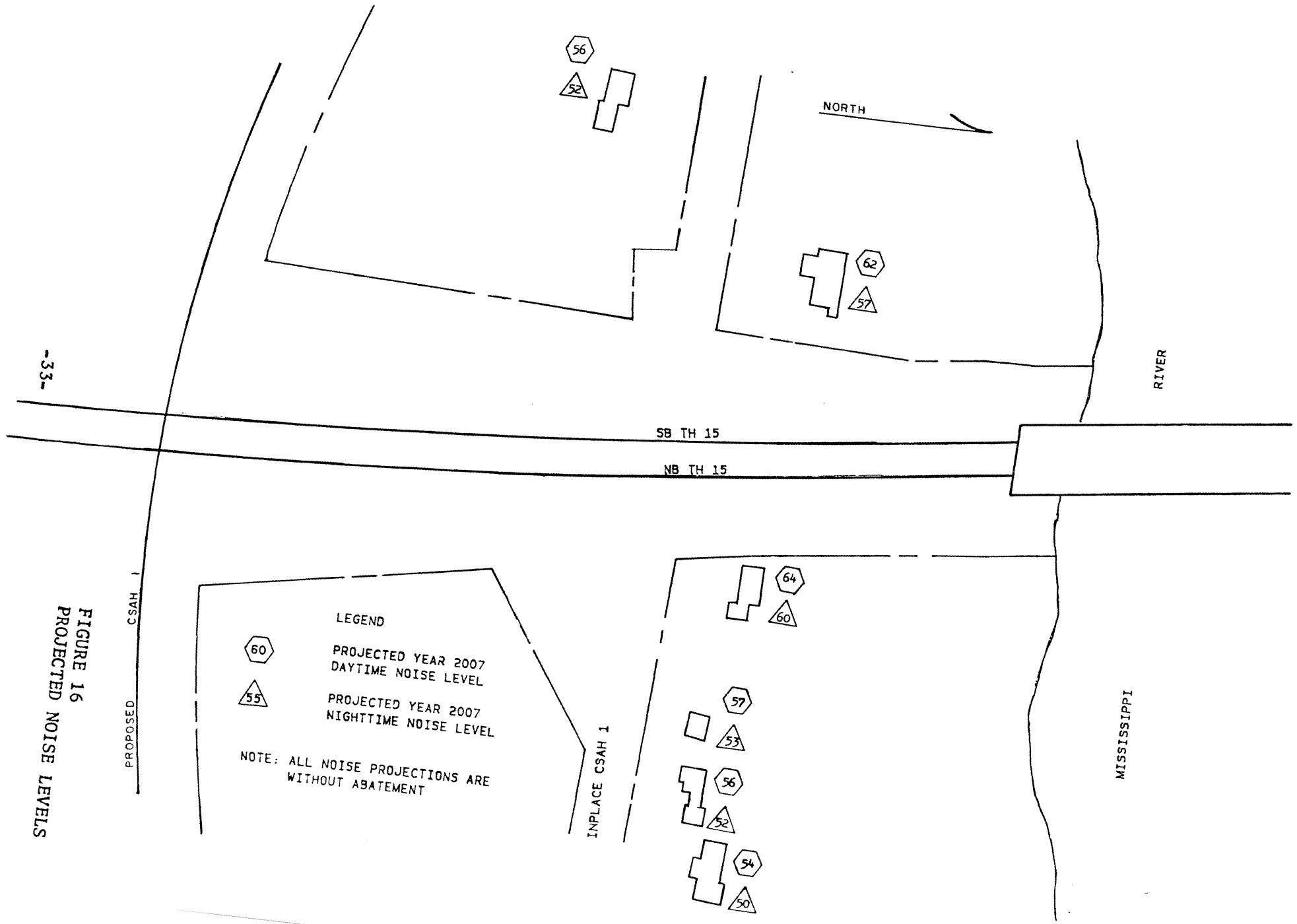


FIGURE 15
PROJECTED NOISE LEVELS

FIGURE 16
PROJECTED NOISE LEVELS



Federal Noise Abatement Criteria (FHWA) and the Minnesota Pollution Control Agency (MPCA) Noise Standards were examined to determine applicable Federal and State Standards. The appropriate Federal and State criteria are shown in Table V.

Probable noise impacts were determined by comparing the predicted noise levels with the measured existing noise levels and the applicable State and Federal noise standards. The number of individual residential receptors exceeding these standards is shown in Table V. It should also be noted that in addition to the noise abatement criteria shown in Table V, the FHWA also defines a noise impact as a significant increase in the predicted noise levels over the existing noise levels. This, in Minnesota, has been defined as an increase of 10 dBA over the existing noise levels. Table V also includes a summary of these impacts.

Based on this information, the only areas identified as having noise impacts are:

- Area D, between Eighth Street and Twelfth Street with twenty-seven receivers experiencing a 10 to 14 dBA increase over existing noise levels.
- Area E, at the Sauk River, with three receivers experiencing a 10 to 13 dBA increase over existing noise levels.
- Areas F and G, at the Mississippi River, with one home in each area with projected noise levels exceeding the State Nighttime noise standard of 55 dBA.

Therefore, these three locations were the only areas where noise abatement measures were considered. The following mitigative measures have been considered:

- a. Earth Berms - Earth berms or mounds are one of the most effective noise abatement methods currently in use.

Earth berms or mounds are suitable for this action when sufficient right of way is available near sensitive receptors. The existing right of way corridor, in the noise sensitive areas, is not currently wide enough to construct berms of sufficient height to effectively mitigate the noise impacts in these areas. Because this proposed improvement passes through an urbanized area the acquisition of additional right of way would not prove to be cost effective. Therefore, the use of earth berms on this project is not feasible

- b. Vegetative Screens - Substantial amounts of right of way would be required to provide a vegetative screen dense enough to provide the necessary noise attenuation required in these sensitive areas. For this reason vegetative screens are not practicable for this project.

NUMBER OF RECEIVERS EXCEEDING STANDARDS

DAYTIME STANDARDS		NIGHTTIME STANDARDS	NIGHTTIME INCREASE		DAYTIME INCREASE		AREA
MPCA 65 dBA	FHWA 70 dBA	MPCA 55 dBA	10 dBA	15 dBA	10 dBA	15 dBA	
0	0	0	0	0	0	0	DIVISION ST. TO THIRD STREET (AREA A)
0	0	0	0	0	0	0	THIRD STREET TO EIGHTH STREET (AREA B&C)
0	0	0	12	0	27	0	EIGHTH STREET TO TWELFTH STREET (AREA D)
0	0	0	0	0	3	0	AT SAUK RIVER (AREA E)
0	0	2	0	0	0	0	AT MISSISSIPPI RIVER (AREA F&G)
0	0	2	12	0	30	0	TOTAL

TABLE V
RECEIERS EXCEEDING STANDARDS

- c. Traffic Management Measures - The types of measures considered include the prohibition of certain vehicle types, time use restrictions, modified speed limits and traffic control devices. Special traffic management measures and restrictions would be an inconvenience to the traveling public and are incompatible with the adjacent development and transportation facilities. Because of this these measures will not be considered for this project.
- d. Sound Insulation - This method does not appear to be a practicable abatement measure for this project. Sound insulation of existing buildings is relatively expensive and does not reduce noise levels at outdoor areas. This practice is suitable for large public buildings with little outside use, such as hospitals and churches.
- e. Roadway Surface Type - Mn/DOT is currently involved in a variety of research projects to determine the long term noisiness of various surface types and to develop a procedure for classifying pavements on the basis of noisiness. Until such studies are completed, the present state of the art does not allow for incorporation of pavement noise into surface type determination procedures.
- f. Alignment Change - As was stated earlier in this report, the only location being considered for these proposed improvements is the existing right of way corridor. Therefore, a substantial change in alignment is not considered feasible for this project. Figure 13 also shows that there are noise sensitive areas on both sides of the existing right of way corridor. Because of this, any alignment changes within the corridor to reduce the noise levels to one area would increase noise levels at other areas. Therefore, this type of mitigation is not considered feasible.
- g. Acquisition of Noise Impacted Property - The creation of a buffer zone is the most positive means of meeting all noise standards. However, this technique is usually only practical in relatively undeveloped areas. The excessive cost of acquiring developed property, additional relocation, and maintenance of excessive amounts of right of way make the acquisition of noise affected property undesirable for this project.
- h. Noise Walls - Noise level reductions of from 5 to 10 dBA are considered typical with the use of noise walls, and because noise walls could be easily located within the existing right of way corridor, the feasibility of constructing noise walls was studied.

Because the three areas identified as having noise impacts are completely separate from each other, each area was studied individually to determine whether noise walls were feasible.

In order to be able to compare the results of these studies the following criteria were applied to each location:

- a significant decrease, 5 to 10 dBA in predicted noise levels were sought
- estimated costs were based on wood barriers being constructed at each location
- landscaping needs and costs were not applied to this study.

Finally, a study of this type must determine whether the overall noise abatement benefits outweigh the overall cost of the mitigative measures. This is a difficult assessment to make because there are no simple benefit/cost calculations which address all of these criteria.

One method which Mn/DOT uses to determine if noise walls are cost effective for residential applications is the following formula:

$$B/C = \frac{(\# \text{ 1st row houses})(\text{Noise reduction}) + (\# \text{ 2nd row houses})(\text{Noise red.} - 5)}{\text{Cost of Barrier (1000)}}$$

Another method is simply a comparison of the total cost of the barrier per decibel of noise reduction.

Both of these benefit/cost comparison methods were applied to the barrier data at each of the identified locations. The results revealed benefit/cost ratios of from 0.2 to 0.5 and costs ranging from \$2,600 to \$33,200 per decibel of noise reduction. Table VI summarizes the results of these comparisons at each location.

Based on the information presented in this analysis it is clear that because the noise impacts are not considered severe and because these impacts affect a relatively small number of residences at a relatively high cost, the benefits of the mitigation do not justify the construction of the required barriers.

Based on a survey conducted at each affected residence in July, 1984, the major concerns expressed related to safety (the need to fence the roadway), and sight (the need to visually screen the highway from view). Therefore, Mn/DOT is considering fencing the corridor and landscaping in areas where residences are located.

NOISE BARRIER SUMMARY

AREA	FROM 8TH STREET TO 12TH STREET (AREA D)			AT SAUK RIVER (AREA E)		
	10'	16'	22'	10'	12'	14'
BARRIER HEIGHT	10'	16'	22'	10'	12'	14'
COST ESTIMATE (1982 Figures)	\$101,000	\$166,000	\$265,000	\$18,000	\$20,500	\$26,300
NOISE REDUCTION (dBA) AT THE FIRST ROW OF HOMES	4	5	8	4	4	5
BENEFIT COST RATIO	0.5	0.4	0.5	0.2	0.2	0.2
COST / dBA REDUCTION	\$25,250	\$33,200	\$33,125	\$4,500	\$5,125	\$5260

AT MISSISSIPPI RIVER (Area F & G)

	WEST OF TH 15 (Area F)			EAST OF TH 15 (Area G)		
	10'	12'	14'	10'	12'	14'
BARRIER HEIGHT	10'	12'	14'	10'	12'	14'
COST ESTIMATE (1982 Figures)	\$25,000	\$28,500	\$35,000	\$25,000	\$28,500	\$35,000
NOISE REDUCTION (dBA) AT THE FIRST ROW OF HOMES	5	6	6	9	11	12
BENEFIT COST RATIO	0.2	0.2	0.2	0.4	0.4	0.3
COST / dBA REDUCTION	\$5,000	\$4,750	\$5,833	\$2,778	\$2,591	\$2917

C. Positive Impacts

1. Accessibility - The proposed improvements are expected to improve the access in the area as follows:
 - Generally improved accessibility to the urbanized area of St. Cloud from any northerly point.
 - Significantly improved access to St. Cloud Apollo High School for most areas of St. Cloud.
 - Significantly improved access to the St. Cloud Industrial Park from most areas of St. Cloud.
 - Significantly improved access to the Veterans Hospital from most areas in St. Cloud, and from any northerly or southerly point.
 - The project will provide a high speed link between the I-94 corridor and the TH 10 corridor, north of the Mississippi River. This ease of access may be used by merchants in the general area, including a considerable distance east and west of the project, to expand their market area. The Westgate Mall, Crossroads, K-Mart, Byerly's and others will all be easier to reach from any northerly direction.

2. Emergency Services - The provision of emergency services should be helped by project construction. Currently north-south travel in that part of St. Cloud is hampered by the requirement to use low speed discontinuous arterial or collector streets. Construction of the proposed facility will facilitate north-south movement of emergency vehicles in the general western area of St. Cloud.

A line of the Burlington Northern Railroad runs in an east-west direction through St. Cloud. Currently only one grade separated crossing exists in St. Cloud, in the eastern section. No grade separated crossing is found in the western region. The grade separated crossing of these tracks will insure that emergency vehicles will always have a way to cross these tracks in the western part of St. Cloud.

3. Economic Impacts - The build alternate will allow for some efficiencies of transportation and may thereby exert positive impact upon employment opportunities. However, no commercial or industrial expansion plans are known which may be directly attributable to the project.

Some increase in employment in businesses adjacent to the proposed facility is likely to take place over time as the commercial potential of the area is realized.

The no build alternate will perpetuate the poor access which the area currently has and can be expected to exert a dampening effect on development in the area and associated employment.

The build alternate will exert a positive short-term effect on the employment of construction workers. Substantial quantities of construction materials and supplies would also be purchased. Such purchases also have employment opportunities built into them. Table X contains an estimate of short-term construction related impacts.

TABLE VII

Probable Construction Related Employment and
Economic Impacts of this Construction

Item	Present Distribution (Percent)	T.H. 15 First Three Construction Stages (Million \$)
Wages	19.8	1.19
Materials and Supplies	45.2	2.71
Aggregates	12.9	0.77
Portland Cement	5.2	0.31
Bitumens	7.7	0.46
Steel	8.0	0.48
Other	11.4	0.68
Equipment, Overhead & Profit	35.0	2.10
		6.00

Source: Derived from data found in Highway Statistics 1982. Federal Highway Administration 1983, p. 59.

4. Energy - This energy section assesses the impact on energy use of the proposed TH 15 construction project. For purposes of this study the "build" alternative was assumed with the Mississippi River crossing (Stages 1-4). The "no build" was assumed to be a true "no build" alternative.

This energy analysis was done in accordance with the "Mn/DOT Energy Guidelines for Highway Projects" and is based on the California Department of Transportation Laboratory's Report: "Energy and Transportation Systems," Caltrans Computer Model "Energy 3" and state of the art methodologies.

Due to the numerous assumptions required for a study of this type and the uncertainty of vehicle performance and modal shifts in the future, judgment must be exercised in interpreting the conclusions and results presented. The quantitative values presented can be viewed as a state of the art estimate of future energy use.

The energy analysis was performed for the study year 1997 (1 year period) using projected data. This year was analyzed because of its midpoint between the completion of scheduled lettings and a twenty year period thereon, which is the typical study period for an energy analysis. It was also assumed that Stage 4 would be completed by this time.

Two types of energy consumption are dealt with. Direct consumption is the energy consumed in the actual propulsion effort of the 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 roadway, manufacture and maintain the vehicles using that roadway, and any energy used in TSM-type operations that will maintain the integrity of the existing roadway surface.

Table VIII shows the results of the energy analysis in terms of equivalent barrels of crude oil per day (BOE) for the study year. Construction and vehicle indirect energies have been prorated over their expected "useful lives," so that there can be a meaningful comparison.

This comparison reveals a 12.5% difference in the amount of energy consumption between alternatives. The "build" alternative will require a one-time energy expenditure relating to the construction of the new roadway.

The sensitivity of the energy calculations assumes that for the results to be considered "significant," the net energy difference must be greater than 10%. Therefore, the results of this study reveal a significant difference in the total energy usage between the two alternatives.

Table VIII also shows a figure entitled payback period. This is the number of years that it will take the energy saved by building the Mississippi River bridge crossing (Stages 1-4) to equal the energy needed to construct and maintain it based on the figures for the study year 1997. It gives a realistic look at when true energy savings would be realized or when there is an irreversible commitment of resources. In conclusion, constructing the Mississippi River bridge will result in a true energy savings after an 8.3 year payback period.

TABLE VIII
DAILY CONSUMPTION

<u>Energy Source</u>	<u>Build</u>		<u>No-Build</u>	
	Btu x 10 ⁸ /Day	BOE	Btu x 10 ⁸ /Day	BOE
Construction	1.28	22	---	-
Maintenance	0.06	1	0.05	1
Resurfacing	0.49	8	0.39	7
Direct: Auto	23.10	399	27.91	481
LCT	0.68	12	0.77	13
HCT	4.24	73	5.16	89
Indirect: Auto	3.82	66	4.31	74
LCT	0.10	2	0.11	2
HCT	0.27	5	0.31	5
TOTAL	34.04	588	39.01	672
% Energy Saved Over No-Build		+12.5%		
Payback Period	8.3 Years			

V. MITIGATIVE MEASURES

As is expressed in this document, the proposed improvements are not expected to have any significant impacts upon the surrounding environment. However, mitigative measures are being planned to further minimize the effects the proposed improvements have in the areas of air and water quality.

It is being planned to interconnect and fully coordinate the traffic signals along Trunk Highway 15. The primary purpose of this is to minimize the air quality impacts of the proposed facility. The secondary benefits associated with this proposal are increased capacity and efficiency of the facility.

This project includes the construction of a system of 8 storm water holding pond located between Trunk Highway 23 and the Sauk River. These ponding areas are being constructed primarily because it is the most workable and cost effective method of drainage for the proposed roadway. However, these ponds also protect the water quality of the Sauk River from any possible effects associated with a major roadway. These ponding areas will also be designed, to the extent possible within the constraints of the primary purpose of storm water detention, to optimize the beneficial impacts upon the wildlife habitat in the area.

The potential for the mitigation of noise impacts have been discussed previously on pages 34-37. It has been concluded that noise mitigation measures are not reasonable for this project.